Appendix 10.4-A

Human Health and Ecological Risk Assessment
Technical Data Report

Human Health and Ecological Risk Assessment - Technical Data Report

Ajax Mine Project



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ABBREVIATIONS ..... **V**

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Executive Summary

A Human Health and Ecological Risk Assessment (HHERA) was completed to quantify the potential change in risks to human and ecological health that could result from the Construction, Operation, and Decommissioning, Reclamation and Closure of the Project. The potential human and ecological health risks were assessed for existing conditions, referred to as the Baseline Case, the contributions from the project by itself (referred to as the Project-alone Case), and future conditions which included contributions from both the Baseline and the Project (referred to as Future Case). The risk assessment approach followed published regulatory guidance.

The Project is a copper gold mine located next to Jacko Lake, just south of Kamloops, British Columbia. Health risks were evaluated at a total of seven potential locations, which included seven sensitive human receptor areas both inside and outside of Kamloops as well as locations along the Plant Boundary. The areas within Kamloops include Aberdeen (closest human receptor area to the Project), Brocklehurst, North Shore, Sahali and West End/Downtown. Areas outside of Kamloops include Kamloops Indian Reserve No. 1 to the northeast as well as Knutsford, which is located southeast of Kamloops and contains ranch lands currently used for raising cattle. The Plant Boundary is the closest modelled receptor location to the Project and thus media in this area, including soil, vegetation, tissue and air, are expected to be the most highly affected by the Project.

Baseline sampling was conducted for various media including soil, vegetation, air, surface water, sediment, fish, small mammals and cattle. Baseline concentrations in terrestrial invertebrates, benthic invertebrates and wild meat (deer, wild hare and grouse) were modelled based on concentrations in sampled media and through the use of uptake factors. Future concentrations in media were estimated based on the results of predictive modelling.

For the human health evaluation, receptors included the Residential receptor, the Aboriginal receptor, the Farmer/Rancher receptor and the Recreational receptor. All life stages (infant, toddler, child, teen and adult) were considered for each receptor. The Residential receptor is located in Aberdeen, Brocklehurst, North Shore, Sahali or West End/Downtown and is the conservative receptor for exposure to contaminants of potential concern (COPCs) in soil, garden produce, wild meat, fish and airborne dust. Residential receptors in Aberdeen are also the conservative receptor for exposure to criteria air contaminants (CACs). Residential receptors are assumed to obtain their drinking water from the municipal system and the water quality is not expected to change as a result of the Project. The Aboriginal receptor and the Farmer/Rancher receptor have similar exposures to the Residential receptor, with the former also being exposed to COPCs in traditional plants and the latter assumed to consume 5 times more beef from local cattle and using surface water or groundwater as a source of drinking water. It is assumed that both surface water and groundwater quality could potentially change as a result of the Project. The Recreational receptor was assumed to spend time near the Plant Boundary (e.g., fishing in Jacko Lake) and could thus potentially be exposed to the highest

concentration of airborne chemicals, albeit for a reduced amount of time compared to Residential receptors.

The potential pathways considered in the human health risk assessment were inhalation of CACs and COPCs, ingestion of COPCs in surface water, direct contact with COPCs in soil, and ingestion of COPCs in food (specifically wild meat, fish, cattle and vegetation including backyard produce). For this risk assessment CACs include SO_2, NO_2, CO, $PM_{2.5}$ and PM_{10} and COPCs include aluminum, antimony, arsenic, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, thallium and uranium.

Potential non-carcinogenic health risks were evaluated for all life stages; however the toddler was identified as the sensitive life-stage for non-carcinogenic effects. Potential carcinogenic risks were evaluated over the lifetime of the receptors. The results of the quantitative risk evaluation indicated health risks associated with the inhalation of criteria air contaminants and health risks associated with the ingestion of surface/groundwater were identified as those most likely to be affected by the Project.

The Future Case maximum 24-hour PM_{10} CR for the Recreational receptor exposed to air at the MPOI was 1.4, which exceeds the benchmark of 1.0. There was only one 24-hour period (i.e., day) where the CR was above 1.0. This accounts for only 0.27% of the exposure time. This exceedance also occurs in the winter, when Recreational receptors are less likely to be present for long periods of time. As a result Recreational receptors are not anticipated to be at risk of potential health effects related to inhalation of CACs from the Project.

Maximum 24-hour and/or annual concentrations of $PM_{2.5}$ in Aberdeen(including Upper Aberdeen), Brocklehurst, Sahali, North Shore and West End/Downtown exceeded the applicable benchmark; however the increase over Baseline Case ranged from only 0.1% (Sahali) to 4.6% (West End/Downtown). This small change between Baseline Case and Future Case indicates that Project related emissions are not expected to contribute substantially to overall $PM_{2.5}$ concentrations in Kamloops.

Maximum 24-hour and/or annual PM_{10} concentrations in Aberdeen, Brocklehurst, Sahali, North Shore and West End/Downtown exceeded the applicable benchmark. For Brocklehurst, Sahali, North Shore and West End/Downtown, the increase in maximum concentration over baseline for CRs that exceeded the benchmark ranged from 1.0% to 1.6%. These small changes between Baseline Case and Future Case indicate that future exposure is not expected to be substantially different than baseline exposure. The CR for the maximum 24-hour PM_{10} concentration in Upper Aberdeen increased by 123.2% between Baseline Case (CR=0.85) and Future Case (CR=1.90). Most of these exceedances occur. These exceedances occur during the winter months and overall occur less than 2% of the time. In the Future Case, in all six HHRA areas there is a total of 278 exceedances of the 24-hour PM_{10} guideline of the 59130 days (162 special receptors * 365 days) of modelled data. This accounts for less than 0.5% of the time. Of these exceedances 78% (218 days) are driven by Base Case exceedances. As a result a substantial increase in potential health effects due to exposure to PM_{10} is not expected.

IILCRs associated with drinking water ingestion of arsenic for the Farmer/Rancher exceeded the benchmark of 1.0E-05 for the Project-Alone Case. Predicted concentrations of arsenic in drinking water are below the applicable drinking water guideline thus potential health risks associated with the predicted increases in COPC concentrations in ingested media are negligible.

The Project is located next to Jacko Lake, a popular fishing location. While it is possible that Project activities could alter the metal concentrations in Jacko Lake, the predicted changes were not expected to result in sufficient uptake into fish to result in a concern for human health. Overall, the risk assessment results indicate that the Project is unlikely to contribute to the health risks for humans.

The Ecological Risk Assessment (ERA) evaluated the risk to 15 receptor species of mammals and birds, and communities of plants and invertebrates representing a range of feeding guilds and trophic levels. Consistent with the HHERA, COPCs included in the assessment were aluminum, antimony, arsenic, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, thallium and uranium.

Ecological risk was quantified for each receptor species based on the total exposure to COPCs from the environment relative to benchmark toxicological reference values. The change in potential risk to the American robin, bald eagle, black bears, Canada goose, domestic cattle, mallard duck, meadow vole, moose, mule deer, muskrat, red fox, ruffed grouse and snowshoe hare were below the risk threshold. The change in potential health risk to these ecological receptors is negligible.

The potential risk to the American mink from selenium exposure was above the risk threshold of 1.0, increasing from 2.1 (Baseline Case) to 3.7 (Future Case). The primary contributor to the incremental change was from the consumption of fish from Peterson Creek.

The ERA conservatively assumed that American mink depend solely on freshwater fish from Peterson Creek, but fish surveys indicated that this waterbody has a low fish population which may not sustain a population of American Mink. American mink may be required to fish in the surrounding water bodies that are more distant from the Project, which would reduce their predicted risk from exposure to selenium. However, it is uncertain whether this more realistic scenario would reduce the RQ value below the threshold.

The potential risk to the great blue heron from selenium exposure was marginally above the risk threshold of 1.0, increasing from 1.4 (Baseline Case) to 2.4 (Future Case). The primary contributor to the incremental change was from the consumption of fish in Peterson Creek. The ERA made conservative assumptions to overestimate the potential risk when appropriate. These include the assumption that the great blue heron spends its entire lifetime living and fishing from Peterson Creek and that almost its entire diet consists of fish. However, the home range of a great blue heron is approximately 1,660 to 282,700 ha and it is unlikely that the great blue heron would obtain 100% or the majority of its diet from Peterson Creek. The ERA also applied a "*sensitive species factor*" of 3 because the great blue heron is a blue-listed species. This effectively

increases the predicted baseline and future risk by a factor of 3. Since the predicted risk to the great blue heron is equal to the risk benchmark of 1.0, applying a realistic scenario that accounts for the actual home range and dietary assumptions for the great blue heron would lower the risk below the threshold.

Based on these results, the Project is unlikely to result in significant changes to ecological risk to wildlife species, with the exception of the American Mink at Peterson Creek. Although the risk from selenium is above the risk threshold, the conservative assumptions of the ERA likely overestimate the actual risk to American Mink. The change in risk is unlikely to adversely affect the mink population in the Peterson Creek area. Monitoring selenium concentrations in the tissue of fish collected from Peterson Creek would better represent potential changes in exposure for American mink living in the Peterson Creek area.

Abbreviations

ADD	average daily dose
AF	absorption factor
AAQO	ambient air quality objective
ATSDR	Agency for Toxic Substances and Disease Registry
B[a]P_{PEF}	Benzo[a]pyrene Potency Equivalence Factor
B[a]P_{TPE}	Benzo[a]pyrene Total Potency Equivalents
BC	British Columbia
BC MOE	British Columbia Ministry of the Environment
BW	body weight
CAC	criteria air contaminant
Cal EPA	California Environmental Protection Agency
CCME	Canadian Council of Ministers of the Environment
CDI	chronic daily intake
CO	carbon monoxide
COPC	chemical of potential concern
CR	concentration ratio
CSM	conceptual site model
dw	dry weight
$DQRA_{CHEM}$	detailed quantitative risk assessment for chemicals
EA	environmental assessment
EPC	exposure point concentration

ERA	ecological risk assessment
FSR	forest service road
GLC	ground-level concentration
HHERA	human health and ecological risk assessment
HHRA	human health risk assessment
HQ	hazard quotient
IF	intake factor
IILCR	incremental increase in lifetime cancer risk
IR	ingestion rate
IRIS	Integrated Risk Information System
IUR	inhalation unit risk
JECFA	Joint FAO/WHO Expert Committee on Food Additives
kg	kilogram
KI	key indicator
LADC	lifetime average daily concentration
LADD	lifetime average daily dose
LOAEL	lowest observed adverse effect level
LSA	local study area
m^3	cubic meter
mg	milligram
MPOI	maximum point of impingement
NO_2	nitrogen dioxide
NOAEL	no observed adverse effect level

$PM_{2.5}$	particulate matter with diameter of 2.5 micrometers or less
PM_{10}	particulate matter with diameter of 10 micrometers or less
PEL	probable effects level
PQRA	preliminary quantitative risk assessment
RfC	reference concentration
RfD	reference dose
RTP	relative toxic potential
RIVM	Rijksinstituut Voor Volksgezonheid En Milieu – The Netherlands National Institute for Public Health and the Environment
RQ	risk quotient
RSA	regional study area
SF	slope factor
SO_2	sulphur dioxide
TCEQ	Texas Commission on Environmental Quality
TDS	total diet study
TRV	toxicity reference value
TTP	total toxic potential
USEPA	United States Environmental Protection Agency
UCLM	upper confidence limit of the mean
µg	microgram
UP	uptake factor
UR	unit risk
WHO	World Health Organization

Glossary

Term	Definition
Average Daily Dose (ADD)	An estimate of the average amount of a given chemical that a receptor may be exposed to, on a mg of chemical per kg body weight per day basis. The average daily dose is considered an exposure dose.
Absorption Factor (AF)	The ratio between the amount of a given chemical absorbed by an organism to the amount of chemical in an exposure medium (unitless).
Bioaccumulation	A term used to describe the process by which chemicals are accumulated in an organism directly from exposure media, such as food, water, and soil.
Bioavailability	The amount of a substance that reaches the circulatory system after inhalation, ingestion, or dermal contact exposure
Carcinogen	A chemical directly involved in the promotion of cancer.
Chemical of Potential Concern (COPC)	Chemical that will be released by the Project that may be hazardous to ecological or human health.
Chronic Daily Intake (CDI)	The estimated long-term daily intake of a chemical used to assess non-carcinogenic effects (mg/kg body weight per day).
Concentration Ratio (CR)	The ratio of the concentration of a chemical in the exposure media to the concentration of the chemical considered to be protective of human or ecological health.
Criteria Air Contaminant (CAC)	Chemicals that are identified by government agencies as being the primary chemicals of concern associated with combustion sources. They include total particulate matter (PM), particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), sulphur dioxide (SO_2), nitrogen oxides (NO_x, expressed as NO_2), and carbon monoxide (CO).
Dose	A quantity of a substance that is actually deposited within the body.
Ecological Risk Assessment	A process for evaluating the nature and magnitude of risks from

Term	Definition
(ERA)	the exposure of plants and animals to contaminants in the environment.
Exposure	A situation or condition that provides an opportunity for an external substance to enter the body.
Exposure Dose	An estimate of the amount (mass) of chemical that a receptor may be exposed to per unit of body weight (kg) over a defined time interval (e.g., per day).
Exposure Point Concentration (EPC)	The concentration of a given chemical in a given medium, to which human and ecological receptors may be exposed. The EPC can be either measured or calculated.
Hazard Quotient	The ratio between the predicted estimated daily averaged exposure to a chemical in environmental media (*e.g.* country foods, soil and/or water) and the human health-based toxicity reference value as defined by regulatory agencies such as Health Canada. If the Hazard Quotient is calculated to be less than 1, then no adverse health effects are expected as a result of the exposure.
Human Health Risk Assessment	The process for evaluating the potential human health risks associated with predicted exposures to chemicals in the environment.
Incremental Increase in Lifetime Cancer Risk	The estimated incremental increased risk of cancer incidence associated with lifetime of exposure to a carcinogenic chemical.
Inhalation Unit Risk (IUR)	The upper-bound excess lifetime cancer risk estimated to result from continuous inhalation exposure to a carcinogenic chemical in air at a concentration of 1 milligram per cubic meter over an entire lifetime.
Intake Factor (IF)	The ingestion rate of each media type (e.g. food, water, soil, sediment) for each ecological receptor expressed in kg media per kg body weight per day.
Lowest Observed Adverse Effect Level (LOAEL)	The lowest exposure concentration or dose level at which some adverse effect was observed.
Maximum Point of	The location with the highest predicted ground-level chemical

Term	Definition
Impingement (MPOI)	concentration, determined using air dispersion modelling.
No Observed Adverse Effect Level (NOAEL)	The exposure concentration at which no individual effects for chemical exposure are observed.
Probable Effects Level (PEL)	The chemical concentration in sediment above which adverse biological effects are expected to occur frequently in exposed aquatic biota.
Project tenure area	The area contained within the Plant Boundary. Project tenure area includes the proposed mine site as well as associated infrastructure. Jacko Lake is included in the Project tenure area.
Relative Toxic Potential (RTP)	The individual toxic potential divided by the total toxic potential.
Risk Quotient (RQ)	For ecological receptors, the ratio between the exposure concentration or dose and the exposure limit or relevant toxicity reference value.
Slope Factor (SF)	The upper-bound increased cancer risk from lifetime exposure to a chemical, usually expressed in units of proportion (of a population) affected per mg/kg-day.
Total Toxic Potential (TTP)	The sum of the individual Toxic Potentials for a given receptor (e.g. humans).
Toxic Potential	The ratio of a given metal concentration measured in raw ore to a receptor-specific toxicity reference value (expressed as a percentage), used to determine COPCs.
Toxicity	The degree to which a chemical can harm organisms.
Toxicity Reference Value (TRV)	For non-carcinogenic chemicals the TRV is defined as the lifetime averaged daily exposure below which adverse effects are not expected to occur. For ingestion and dermal contact exposures, the TRVs are expressed in mg of chemical per kg body weight per day. For inhalation exposures the TRVs are expressed as mg of chemical per cubic meter. For carcinogenic chemicals the TRVs are expressed and slope factors (SF) for ingestion and dermal contact exposures and as inhalation unit risks (IURs) for inhalation exposures.

Term	Definition
Unit Risk (UR)	The upper-bound excess lifetime cancer risk estimated to result from continuous exposure to a chemical at a unit concentration of 1 mg/L in water, or 1 mg/m^3 in air.

December 2, 2015

1.0 INTRODUCTION

A human health and ecological risk assessment (HHERA) was conducted to evaluate potential health risks to humans and ecological receptors (i.e., terrestrial and aquatic wildlife, invertebrate and vegetation communities) associated with the proposed KGHM Ajax Mining Inc. open-pit copper-gold mine (the Project).

The methods and guidance prescribed by Health Canada (Health Canada 2010a, 2010b, 2011) were used to assess the human health risks, while those provided by the Canadian Council of Ministers of the Environment (CCME 1996), Environment Canada (Environment Canada 2012), the British Columbia Ministry of the Environment (BC MOE)(BC MOE 1996) and the British Columbia Ministry of Environment, Lands and Parks (BC MELP 1998) were used to assess ecological health risk. This approach was designed to protect the health of people and ecological receptors, which rely on the viability of the local environment and ecological resources within the study area of the Project.

Information presented in this technical data report (TDR) has been prepared as background information for the Wildlife, Water Quality, Country Foods, Domestic Water and Human Health valued component chapters of the Application for an Environmental Assessment Certificate and documents the technical details of the health risk modeling and assessment results.

1.1 PROJECT BACKGROUND

KGHM Ajax Mining Inc. is proposing to develop the Project southwest of the City of Kamloops, British Columbia (Figure 1.1-1), within 1.2 km from the community of Aberdeen in Kamloops. The Project lies in the traditional territory of the Tk'emlúps te Secwépemc and the Skeetchestn Indian Band (jointly known as the Stk'emlupsemc te Secwépemc Nation), the Lower Nicola Indian Band, and the Ashcroft Indian Band. The nearest reserve is the Kamloops Indian Reserve, northeast of Kamloops.

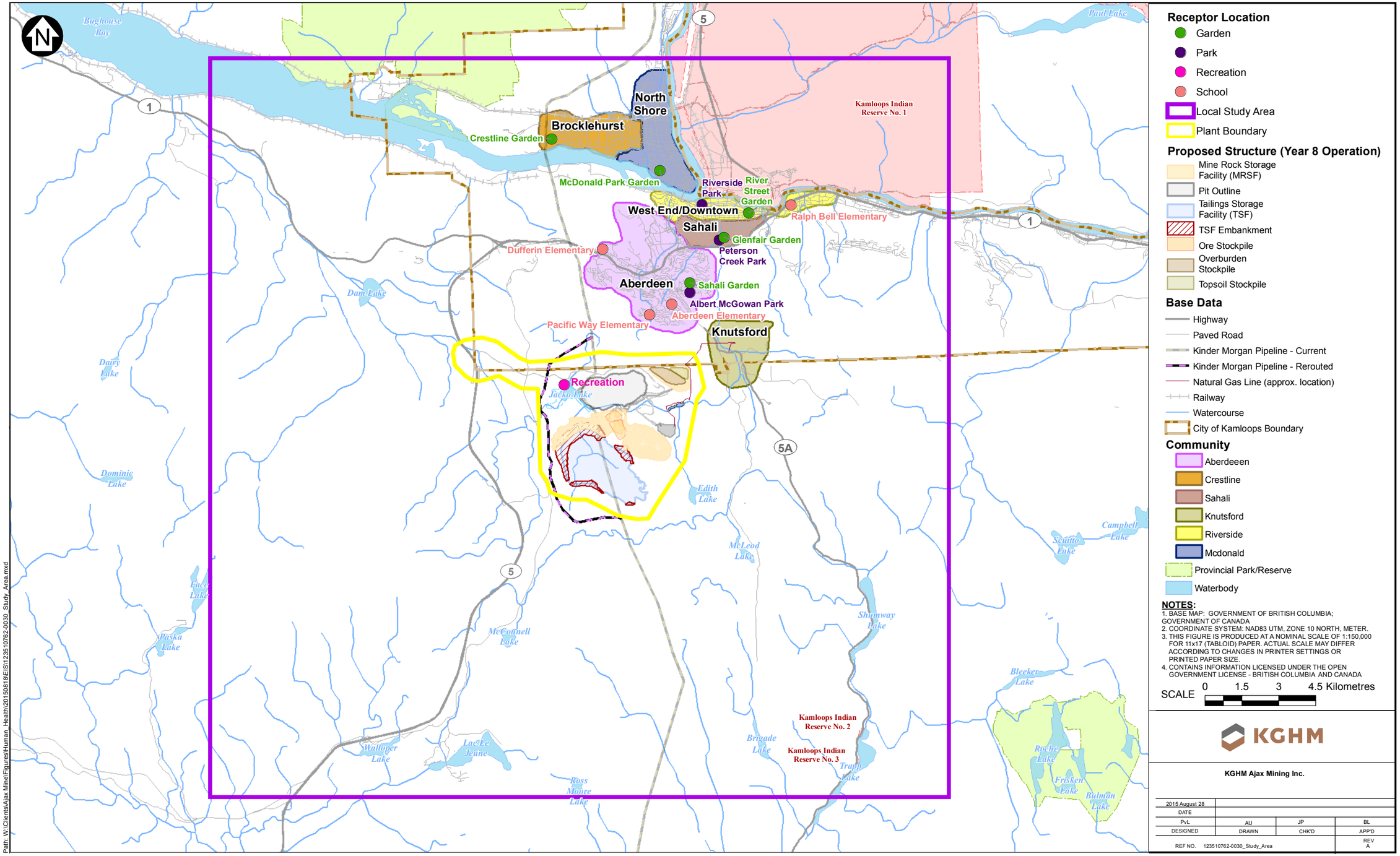
The construction phase of the Project will require two years, followed by 23 years of operation. During the operation phase, ore will be crushed and processed on site to produce gold and copper concentrates, which will be transported by truck for export. Following the operation phase, decommissioning and closure (i.e., decommissioning, abandonment, reclamation and maintenance) will require 2 years, with a post closure phase (i.e., ongoing reclamation and monitoring) lasting at least 5 years. The Project tenure area is located within the Plant Boundary and will contain the following primary components of mining operation:

- an open-pit mine east of Jacko Lake;
- ore stockpiles, primary crusher, conveyor and plant southeast of the open-pit mine;

- the East, South, West and In-Pit Mine Rock Storage Facility;
- a Tailings Storage Facility (TSF) and associated Embankments south of Jacko Lake;
- reclamation stockpiles adjacent to the open pit, mine rock storage facilities and TSF;
- water Management ponds; and,
- Peterson Creek Diversion.

Figure 1.1-1
Human Health and Ecological Risk Assessment Study Areas and Receptor Locations

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2.0 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT METHODS

The purpose of an HHERA is to evaluate the potential for adverse health outcomes from both short-term (acute) exposures and long-term (chronic) exposures resulting from environmental releases to air, land, and water. An HHERA consists of two main components: an HHRA and an ERA. An HHRA is an assessment of the potential toxicological risks of the Project on human receptors. An ERA is an assessment of the potential ecotoxicological risks of the Project on ecological receptors.

2.1 COMPONENTS OF THE RISK ASSESSMENT

There are three components of health risk in the HHERA framework that must interact in order for a health risk to exist. As illustrated in Figure 2.1-1, the three components include:

1. The presence of a receptor (i.e. human or ecological receptors);
2. The presence of a hazard (i.e. the chemical of potential concern);
3. The presence of an exposure pathway where receptors are exposed to the chemical of potential concern.

If any one of these three factors is not present, potential human health or ecological risks cannot be present. If, for example, a receptor and a chemical are present but there is no means of the receptor coming into contact with the chemical (i.e., an exposure pathway is not present), there would be no potential health risk



Figure 2.1-1 HHERA Risk Components

2.2 RISK ASSESSMENT FRAMEWORK

The standard risk assessment framework that is prescribed by various federal and provincial agencies has been applied in the HHERA. For the human health risk assessment, the guidance and supporting documents include:

- "Federal Contaminated Sites Risk Assessment in Canada, Part V: Guidance on Complex Human Health Detailed Quantitative Risk Assessment For Chemicals ($DQRA_{CHEM}$)" (Health Canada 2010a);
- "Federal Contaminated Sites Risk Assessment in Canada, Part I: Guidance on Human Health Risk Preliminary Quantitative Risk Assessment (PQRA), Version 2.0" (Health Canada 2012a);
- "Federal Contaminated Sites Risk Assessment in Canada, Part II: Health Canada Toxicological Reference Values (TRVs) and Chemical-Specific Factors Version 2.0" (Health Canada 2010b);

For the ecological risk assessment, the guidance and supporting documents include:

- "A Framework for Ecological Risk Assessment—Canadian Council of Ministers of the Environment" (CCME 1996); and
- Federal Contaminated Sites Action Plan (FCSAP) Ecological Risk Assessment Guidance. (Environment Canada, 2012).

The same risk assessment framework had been applied to both the human and ecological components of the HHERA (see Figure 2.2-1), which includes the following stages:

- **Site Characterization:** This component includes a review of existing biophysical, chemical, and land use information completed in support of this environmental assessment that is relevant to the HHERA. The screening for chemicals of potential concern (COPCs) is presented in this section followed by the modeled predictions of chemical concentrations in biotic and abiotic environments are presented in this section.

- **Problem Formulation**: The problem formulation stage is an information gathering and interpretation stage that focuses the study on the primary areas of concern for the Project. Problem formulation defines the nature and scope of the risk assessment, permits practical boundaries to be placed on the overall scope, and confirms that the HHERA is directed at the key areas and issues of concern related to the Project emissions. The data gathered provide information regarding the physical layout and characteristics of the study area, possible exposure pathways, potential human and ecological receptors, chemicals of potential concern (COPC) related to the Project emissions, and any other specific areas or issues of concern to be addressed. Together, these describe the three main components of health risk as illustrated in Figure 2.2-1: the hazard (i.e. COPCs), exposure pathways, and the biological receptors (i.e. human or ecological receptors).

- **Toxicity Assessment**: This stage involves the selection of toxicity reference values (TRVs) for each COPC. Toxicity is the potential for a chemical to produce any type of damage, permanent or temporary, to the structure or functioning of any part of the receptor's body. The toxicity of a chemical depends on the amount of chemical taken into the body (referred to as the "dose") and the duration of exposure (i.e., the length of time the receptor is exposed to the chemical). For each COPC, there is a specific dose and duration of exposure necessary to produce a toxic effect in a given receptor. TRVs are published by provincial, federal or international (e.g. World Health Organization or US Environmental Protection Agency) regulatory agencies.

- **Exposure Assessment**: The exposure assessment predicts the rate of exposure (i.e., the quantity and rate at which a chemical is received) of the selected receptors to the COPC via the various exposure scenarios and pathways identified in the problem formulation step. The rate of exposure to chemicals may be expressed as a dose, which is the amount of chemical taken in per body weight per unit time (e.g., microgram (µg) of chemical per kilogram (kg) body weight per day), or as a concentration in the exposure pathway. For example, when considering health risks to people from the inhalation of COPCs, the rate of exposure would be the chemical concentration in air.

- **Risk Characterization**: The risk characterization stage involves quantifying the potential risk to biological receptors from each exposure pathway. The risk characterization compares the results of the exposure assessment with the TRVs established in the toxicity assessment to quantify the level of health risk associated with the predicted exposures. Within an Environmental Assessment framework, the health risks associated with the Future Case are

compared to the existing health risks associated with Baseline Case to provide the context for how the Project may affect health.

- **Uncertainty Assessment**: Uncertainties may exist in numerous areas including the collection and analysis of samples, estimates of exposure, derivation of TRVs and the assumptions used when best professional judgment is applied. The uncertainty assessment identifies the uncertainties associated with the data used in the assessment and predicts how these uncertainties may influence the final risk estimates. Understanding how the uncertainties can influence the exposure and risk estimated for baseline and Project conditions provides an indication of the confidence that can be placed on the risk assessment conclusions.

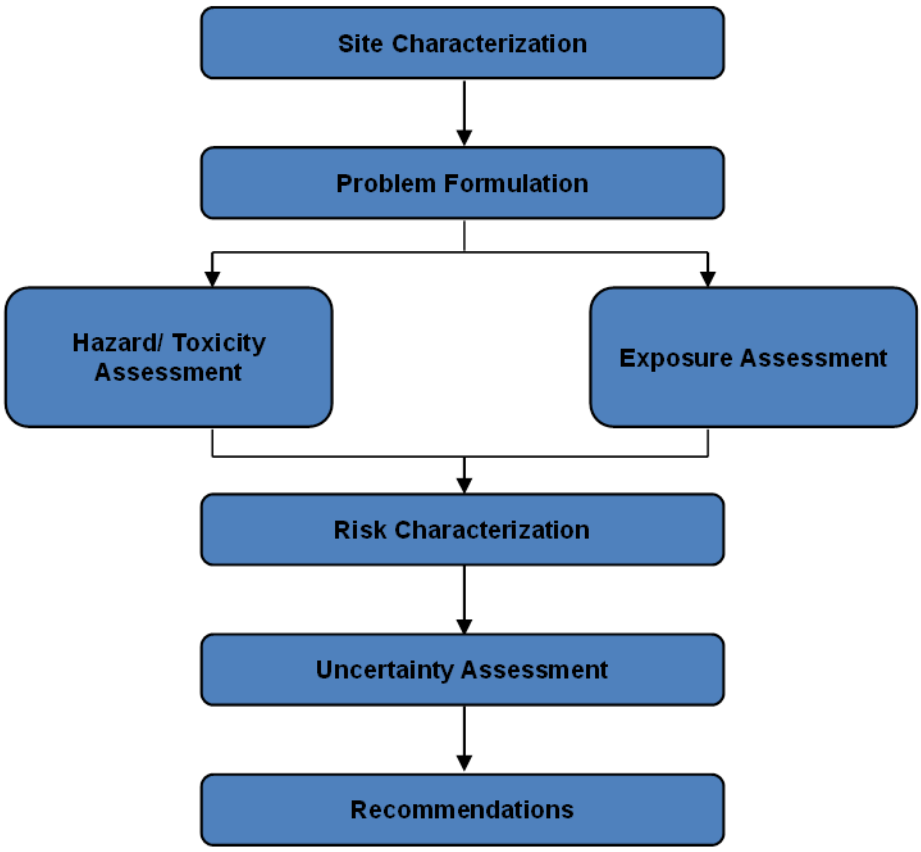


Figure 2.2-1 Human Health and Ecological Risk Assessment Framework

In risk assessment, the industry standard is to overstate, rather than understate, potential health risks. Regulatory guidance supports a conservative approach (one that over-estimates exposures and toxicological responses) be used when assessing potential health risks for both

human and ecological receptors. This conservative approach has been maintained in the assessment of potential human health and ecological risks for the Project. This provides an assessment of potential Baseline and Project exposures and risks that will be higher than what actually occurs and will over-estimate the potential contribution that the Project makes to potential changes in human health risk or risks for ecological receptors.

2.3 PROJECT INTERACTIONS WITH HUMAN AND ECOLOGICAL HEALTH

All project phases are considered in the HHERA, and consist of construction, operation, and decommissioning and closure (i.e., decommissioning, abandonment, reclamation and maintenance). During these phases, project activities will generate chemical emissions and dust that are released to the surrounding environment. The chemicals released into the environment from project activities include:

- Atmospheric emissions: the combustion of petroleum hydrocarbons during all phases of the Project will release sulphur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter ($PM_{2.5}$ and PM_{10}) - collectively referred to as criteria air contaminants (CACs) – to the atmosphere.

- Fugitive dust emissions including diesel particulate, mine rock and overburden, ore and mine tailings. The construction, operation (mining, ore processing and transportation of ore concentrate), decommissioning and closure phases of the Project will release fugitive dust to the atmosphere. Because the dust contains metals, dust deposition may increase trace metal concentrations in soil and water beyond the Plant Boundary. The change in trace metal concentrations has the potential to affect trace metal concentrations in soil, vegetation and water and the subsequent uptake of these metals in vegetation, invertebrate communities, aquatic and terrestrial wildlife and humans. Changes in trace metal concentrations in surface water resulting from dust deposition to surface water are assessed in the Water Quality VC. The predicted changes in trace metal concentrations in surface water are used in the HHERA.

- Effluent emissions: Liquid discharges, seepage and runoff containing process chemicals may be released into the groundwater or surface water during Project operation and continue through Decommissioning and Closure, thereby affecting surface water.

2.4 SCOPE OF THE HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT

The scope of the HHERA includes two components.

1. A human health risk assessment (HHRA) to assess the health risk to people resulting from direct and indirect exposure to COPC under baseline and future conditions. The exposures pathways assessed in the HHRA include the inhalation of CACs and dust containing trace metals, direct contact with soil, the consumption of drinking water from domestic wells, and the consumption of country foods (i.e. locally harvested wild game, fish, vegetation, garden produce, and domestically raised cattle). CAC exposures were assessed under baseline, Project-alone, and future conditions.

   The health of workers employed by the Project that live or enjoy recreational activities near the Project are assessed in the HHRA. While on the site, the health of mine workers is protected by occupational health and safety standards, codes and regulations established by various provincial and federal governments

2. An ecological risk assessment (ERA) to assess the health risk to ecological receptors resulting from direct and indirect exposure to COPC under baseline and future conditions. The exposure pathways assessed in the ERA for ecological receptors include the ingestion of food (i.e. prey or vegetation), surface water and incidental ingestion of soil and sediment (i.e. soil and sediment that accompanies food when consumed). For ecological receptor communities (i.e. communities of soil invertebrates, benthic invertebrates and terrestrial plants), the exposure pathway assessed is based on the direct contact with soil or sediment.

The HHRA and ERA assess the health risk for both the Baseline Case, Project-alone, and Future Case scenarios. The three scenarios are described as follows.

- The "Baseline Case" evaluates the health risk from exposure to the existing chemical concentrations in environmental media. Existing chemical concentration in air, soil, water, sediment, plants, benthic invertebrates and fish are based on laboratory analysis of samples while chemical concentrations for wild meat (e.g. moose), soil invertebrates and small mammals are estimated based upon measured concentrations of chemicals in other media.
- The "Project-alone Case" evaluates the health risk for exposures to chemical concentrations in environmental media at concentrations that reflect only the Project's contribution to the environmental loading of project-related chemicals. The Project-alone Case does not include the environmental loading associated with the Baseline Case.
- The "Future Case" evaluates the health risks from predicted chemical concentrations in environmental media, as determined through detailed modelling. These modelling results

are used to determine the future chemical concentrations in exposure media that human and ecological receptors are exposed to (i.e. air, water, soil, sediment, vegetation, wild meat, fish, soil invertebrates and benthic invertebrates).

The Future Case considers all project phases: construction, operation, decommissioning, and closure. As part of the conservatism applied in the risk assessment framework, the HHRA focused on the Project phase that would have the greatest influence on concentrations of Project-related chemicals in a given environmental medium. Specifically:

- Because CAC and particulate-bound metal concentrations in air will be highest during the Operation phase (Air Quality Technical Data Report (TDR)), the assessment of potential human health risks associated with inhalation exposures is based on the operation phase.
- Human ingestion and direct contact exposures are driven by metal concentrations in soil. Dust deposition to soil will continue over the life of the Project, meaning that metal concentrations in soil will reach their maximum level at decommissioning and closure – once Project operation activities cease. A similar situation exists for terrestrial ecological receptors. Therefore, the assessment of Project effects on soil-related exposures has been based on decommissioning and closure.
- Metal concentrations in surface water and groundwater could be affected during all Project phases. Potential Project effects for water-related exposures for human and ecological receptors have been based on the water quality modelling completed in the Water Quality Model Report, which evaluated potential changes in water quality during operation, and decommissioning and closure.

The HHERA maintains a conservative approach to evaluating potential risks for human and ecological receptors by summing the soil and water-related exposures to provide estimates of combined exposures and risks –even though these exposures may not occur at the same time.

3.0 SITE CHARACTERIZATION

Site characterization provides the context for how the Project could affect the environment in a manner that could influence human or ecological health risk. This includes the environmental setting, the study areas for the HHERA, the identification of the COPC associated with the Project, and the existing and predicted future quality of environmental media (i.e., the quality of air, soil, water, vegetation and country foods).

3.1 ENVIRONMENTAL SETTING

The Project is located in the semi-arid southern interior of British Columbia, near the City of Kamloops. The proposed infrastructure for the Project is located on a flat terrace at an average elevation of 1,100 m. The northern border of the Plant Boundary lies along a series of hills, beyond the hills to the north, the land slopes down to the community of Aberdeen in Kamloops approximately 1.2 km away.

The City of Kamloops encompasses an area approximately 300 km^2 with an approximate population of 86,000 (Statistics Canada 2011). The center of Kamloops is located at the confluence of the North and South Thompson River in the Thompson Valley. Hillsides in the Thompson Valley are grass-covered with considerable sagebrush, but little tree growth to the 900 m level within the Thompson Valley. Above 900 m elevation, the terrain is generally covered with an open coniferous forest. The valley floor is green due to the use of irrigation and rich alluvial soil. However, residential and industrial development has largely replaced native vegetation along the north and south slopes of the valley.

The Kamloops area is one of the driest areas in Southern Canada with the majority of rainfall occurring between June and September with outlying highland areas receiving more rainfall than the valley. Winter months are generally overcast and dominated by snowfall between November and February. The City of Kamloops and Project tenure area fall with the larger Montane Cordillera Ecoregion. The Montane Cordillera Ecoregion covers an area of approximately 470,000 km^2 and is characterized by rolling mountains, sagebrush and patches of interior Douglas fir, lodgepole pine and several species of shallow-rooted grasses. Forest fires are frequent in the area; thus, very few mature tree species exist in the region.

Winter months in Kamloops (November to February) are relatively cold for British Columbia, with a long-term mean average low temperature of -3.7 ◦ C. Temperatures in most winters, drop below -25 ◦ C. In contrast, temperatures rise rapidly in the early spring and summers are warm, with an average annual long-term mean temperature of approximately 29 ◦ C in July. Most summers experience maximum upper range temperatures of over 38 ◦ C for several days.

Prevailing winds blow in an easterly direction, though summer months have a predominately westerly component. Strong winds are not uncommon with maximum gusts of up to 130 km/h.

High wind speeds and maximum gusts are most frequently associated with cross-valley wind flows.

There is a wide range of land use in the area of the Project. The Project tenure area as well as the surrounding land to the east, south and west is known to be used for hiking, camping, snowmobiling, fishing, hunting, trapping, guiding, forestry, mining, agriculture, and traditional land uses. Jacko Lake is located within the Project tenure area and is a popular recreational fishing destination that is stocked with trout. West of the Project tenure area is the community of Knutsford (Figure 1.1-1); this area includes ranch lands for raising cattle as well as farms and residences. Land use in Knutsford is considered both residential and agricultural. Land use in Kamloops includes residential, commercial and industrial, though residential is considered to be the most conservative. Kamloops Indian Reserve No. 1 is located north of Kamloops and the Thompson River; land use in this area is considered both residential and traditional.

Information regarding traditional land use, which is provided in Section 12 (Background and Aboriginal Group Setting) of the Submission, was reviewed as part of the HHERA. Assumptions about Aboriginal exposure (e.g., deer are hunted by Aboriginals in the area) were based on information provided in this section where available. Where site specific information was not available (e.g., intake rate of traditional plants), assumptions were based on published literature and professional judgement.

3.2 LOCAL AND REGIONAL STUDY AREAS

The local study area (LSA) for the human health and ecological risk assessment is a 30 km x 30 km square centered on the Project (see Figure 3.2-1). This is the same as the LSA for the Air Quality assessment and represents the maximum area within which Project-related atmospheric effects (dust deposition and criteria air contaminant concentrations) can be predicted with a reasonable degree of accuracy. The LSA also incorporates the area within which Project-related changes in surface water and groundwater quality can be predicted. The LSA includes the City of Kamloops, the community of Knutsford and Kamloops Indian Reserve No. 1. The assessment of potential changes in human health risk and ecological risk associated with Project activities has been limited to the LSA to reflect the geographic limits of the predictive accuracy of the air and water quality modelling.

The confluence of the North and South Thompson Rivers and Kamloops Lake are the principle surface water bodies located within the LSA. No other major surface water bodies are located within the LSA. A number of small lakes are common on the higher elevations within the LSA, including Jacko Lake, Edith Lake and Goose Lake. These lakes are part of the Peterson Creek watershed, which represents the LSA for the Water Quality assessment. Humphrey Creek flows from Edith Lake to join Peterson Creek near the community of Knutsford. For much of its length, Humphrey Creek flows underground and does not provide aquatic habitat. Peterson Creek crosses the southern portion of the Project tenure area and flows in a north easterly direction

towards the South Thompson River. For most of its length, Peterson Creek provides aquatic habitat, but is channelized as it flows through Kamloops to join the South Thompson River. These lower reaches of Peterson Creek do not provide aquatic habitat.

The regional study area (RSA) for the HHERA is a rectangular area 70 km along the east-west axis and 55 km along the north-south axis, positioned to the north of the Project (see Figure 3.2-1). The RSA is based on the spatial boundaries defined in the air quality assessment, as this area incorporates the potential changes in environmental media from air emissions, and also considers the spatial boundaries of other project-related emissions (i.e., discharges to groundwater and surface water). The RSA is positioned to the north of the Project tenure area because the prevailing wind direction is from the southwest during the summer, and, therefore, air emissions and dust will have a tendency to disperse northward from the Project. Dust will be less of a factor at other times of the year, when soils are wet or snow-covered.

3.2.1 Human Receptor Areas

Members of the general public and Aboriginal groups have expressed concern about potential health effects of mine air emissions (e.g., diesel emissions and fugitive dust from mine operations) during poor air quality days. The community has also expressed concern that deposition of particulate-bound metals originating from Project activities could increase trace metal concentrations in backyard garden produce and country foods and that this would increase the human health risks associated with these exposures.

Baseline trace metal concentrations were measured in backyard garden produce collected from community gardens at several locations in the City of Kamloops, within the LSA. The locations of these community gardens served as the basis for establishing the human receptor areas considered in the HHERA. Community gardens from five receptor areas - Aberdeen (including Sahali), Sahali, West End/Downtown, North Shore and Brocklehurst - were used to define five of the communities considered in the HHERA. The selection of the boundaries between these five human receptor areas was arbitrary and was not intended to represent municipal divisions within the City of Kamloops. Rather, the boundaries were established to encompass residential areas in the City where particulate deposition would be similar to deposition at the individual community garden locations. This was done so that the community gardens would provide a reasonable approximation of changes in metal concentrations in soil for residential backyard gardens in the individual human receptor areas.

Two additional community-based receptor areas were included in the assessment; Knutsford and the Kamloops Indian Reserve No. 1. Knutsford was selected to represent a community that includes ranching and farming. Kamloops Indian Reserve No. 1was chosen to represent local Aboriginal communities.

An additional recreational human receptor area that incorporates Jacko Lake and the recreational lands immediately adjacent to the Project tenure area was included to evaluate potential health risks for people who engage in recreational activities in the vicinity of the

Project. The inhalation evaluation for the recreational human receptor is also protective of the Aboriginal receptor that may spend time near the Project tenure area. The human receptor areas considered in the assessment are shown in Figure 3.3-2.

The eight human study areas are summarized in Table 3.2-1 and include the Jacko Lake recreational area, five residential areas, an agricultural area, and Kamloops Indian Reserve No. 1. It is noted that the areas have been defined for the purpose of risk assessment and while effort was made to be consistent with the municipal layout of Kamloops the naming used for the areas may not be synonymous with known Kamloops neighbourhoods. For example, Sahali community garden has been included in the Aberdeen human health area, however, Aberdeen and Sahali are generally considered different neighbourhoods.

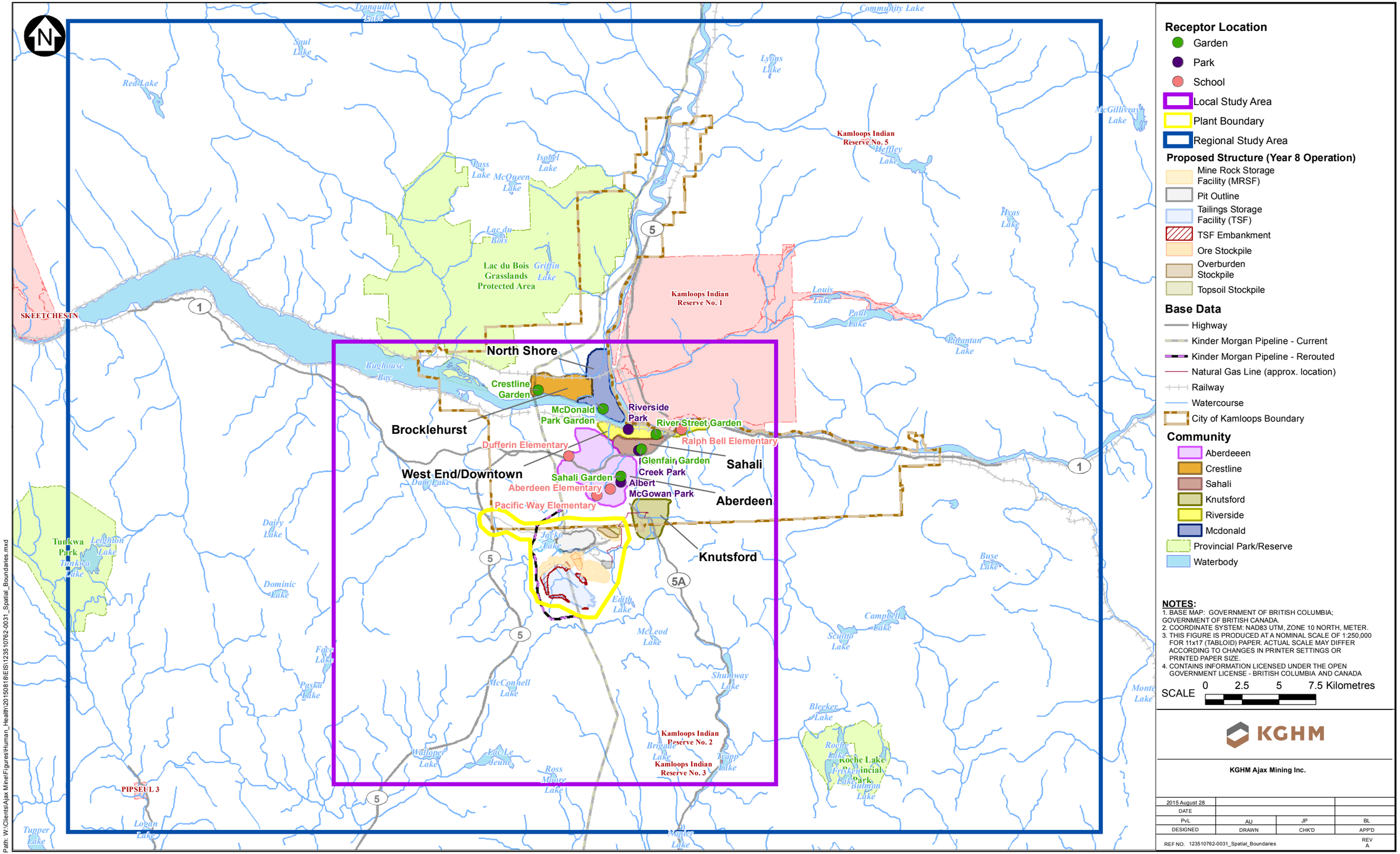
3.2.2 Human Special Receptor Locations

Infants, children, the elderly or people with pre-existing respiratory or related conditions may have particularly sensitive respiratory responses to the inhalation of CACs or fine particulate matter. Receptor locations of special interest to Aboriginal and non-aboriginal communities were identified in each of the human special receptor areas with the exception of Kamloops Indian Reserve No.1. Special receptor locations in West End/Downtown were used as surrogates for receptor locations in Kamloops Indian Reserve No.1. This is considered a conservative approach as West End/Downtown is located upwind and closer to the Project, and would thus have higher concentrations of Project-related CACs.

Special receptor locations include schools, daycares, long-term care facilities and hospitals. These special receptors reflect locations where there could be a higher likelihood that a sensitive individual would be present. These special receptor locations were used in the assessment of potential changes in human health risk associated with inhalation exposures under Baseline Case and Future Case conditions. The change in ingestion/direct contact exposure risks for special receptors was captured under the residential exposure scenarios evaluated to the individual human receptor areas.

Figure 3.2-1
Spatial Boundaries of the Local Study Area and the Regional Study Area

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NOTES:
1. BASE MAP: GOVERNMENT OF BRITISH COLUMBIA; GOVERNMENT OF BRITISH CANADA.
2. COORDINATE SYSTEM: NAD83 UTM, ZONE 10 NORTH, METER.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:250,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.
4. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE - BRITISH COLUMBIA AND CANADA

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KGHM

KGHM Ajax Mining Inc.

2015 August 28			
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Table 3.2-1 Human Receptor Areas

Human Receptor Area	Description
Jacko Lake Recreational area	The Jacko Lake Recreational area includes Jacko Lake and the ranch and open lands immediately adjacent to the Project tenure area. This area was chosen to represent people who may fish in Jacko Lake and who may engage in recreational or traditional activities on the open lands in the vicinity of the Project.
Aberdeen	Aberdeen is the closest residential area to the Project and includes schools, parks, and gardens. For the purpose of the HHRA, Aberdeen includes the Sahali Community Garden, Aberdeen Elementary School, Pacific Way Elementary School, Dufferin Elementary School and Albert McGowan Park.
Sahali	The Sahali assessment area is a residential area that includes Sahali Community Gardens, as well as Peterson Creek Park.
West End/Downtown	The West End/Downtown assessment area is a residential area that includes West End/Downtown Park, the River Street Community Gardens, and Ralph Bell Elementary School.
North Shore	The North Shore assessment area is a residential area that includes the North Shore Park Community Gardens.
Brocklehurst	The Brocklehurst assessment area is a residential area that includes the Brocklehurst Community Gardens.
Knutsford	Knutsford is a farming/ranching community east of the Project, and southeast of downtown Kamloops that includes residences and cattle ranches.
Kamloops Indian Reserve No. 1	The Kamloops Indian Reserve No. 1 is located northeast of Kamloops. While the Project lies within the traditional territories of the Secwepemc Nation (Tk'emlups tee Secwepemc and Skeetchestn Indian Bands), Ashcroft Indian Band, and Lower Nicola Band, the Kamloops Indian Reserve is the nearest designated reserve to the Project. The Kamloops Indian Reserve No. 1 is located northeast of the West End/Downtown assessment area. West End/Downtown is expected to receive greater Project effects than the Kamloops Indian Reserve No. 1 located further downwind to the northeast; thus data form West End/Downtown has been selected for estimating potential Project effects to Aboriginal receptors living on Kamloops Indian Reserve No. 1.

3.2.3 Ecological Receptor Areas

Jacko Lake and Peterson Creek were selected as the areas to assess the effect of the Project on ecological receptors. Jacko Lake and Peterson Creek best represent the range of ecological habitats that are likely to be affected by Project activities, are more likely to experience environmental changes than other waterbodies within the LSA and RSA. Therefore, focusing the assessment of potential ecological risks on these areas will adequately represent the range of ecological health effects that may result from Project activities. Although Humphrey Creek flows from Edith Lake to join Peterson Creek upstream of Knutsford, it runs underground for much of

the distance between Edith Lake and Peterson Creek and does not provide as much ecological habitat as Peterson Creek.

3.3 CHEMICALS OF POTENTIAL CONCERN

Chemicals of potential concern (COPCs) are identified as those Project-related chemicals that have the potential to elicit adverse human or ecological health effects. Identified COPCs may exist currently in the environment as natural background concentrations or they may have been introduced via anthropogenic activities. The following subsections identify the COPCs that were selected from each type of environmental media, and the rationale for their quantitative evaluation.

3.3.1 Selection of CACs and PAHs

Project activities will emit criteria air contaminants (CACs) including NO_2, SO_2, CO, $PM_{2.5}$, and PM_{10} from combustion sources. These CACs were carried forward as COPCs. Project activities will emit polycyclic aromatic hydrocarbons (PAHs) bound to particulate from combustion sources (i.e. diesel engines). The change in cancer risk associated with exposure to PAH from diesel particulate has been identified as a concern by Health Canada. Therefore PAH have been carried through to assess potential health risks associated with the inhalation PAH released by Project activities.

3.3.2 Selection of Metal COPCs

In addition to CACs and PAHs, Project activities will also result in the release of metals from fugitive dust during mining and transport operations, diesel emissions, and metals in treated surplus water or seepage.

A four-step screening process was used to identify metal COPCs for the HHERA. The screening process considered the following:

1. Metal concentrations present in the soil under baseline conditions, which may exceed applicable soil guidelines;
2. Metal concentrations in ore that are less than the regional background concentrations;
3. The toxic potential of metal constituents in mined ore;
4. The potential for measured and predicted Future Case concentrations of metals in surface water to exceed applicable guidelines for the protection of freshwater aquatic life, drinking water and agricultural uses.

Routine lab parameters such as alkalinity, hardness, hydroxide and electrical conductivity, as well as select inorganics such as bismuth, calcium, iron, lithium, magnesium, phosphorus,

potassium, rubidium, sodium, sulphur and titanium were not considered to pose a health risk for one or more of the following reasons:

1. These chemicals are ubiquitous and in some cases, play a role in the proper function of biological systems.
2. These parameters are generally regarded as non-toxic.
3. There is insufficient toxicological information on these compounds to assess potential toxicity. These parameters are not included in the screening tables and are not evaluated herein. Further reasoning for excluding these elements is provided in Appendix A.

3.3.2.1 Step 1 - Metal Screening Based on Soil Quality Criteria

The first step of the metal screening process compared baseline metal concentrations in surface soils with appropriate regulatory guidelines. In selecting soil quality guidelines, preference was given to guidelines established by the BC Ministry of the Environment (BC MOE). Baseline data are provided in Appendix B, while the statistical analysis of baseline data is provided in Appendix C. Where guidelines were not available from BC MOE, soil quality guidelines developed by the Canadian Council of Ministers of the Environment (CCME), were selected. For metals where guidelines were not available from either BC MOE or CCME, USEPA Regional Screening Levels (RSLs) were used. The sources used in the selection of soil quality guidelines include:

1. British Columbia *Environmental Management Act Contaminated Sites Regulation* Matrix Numerical Soil Standards, and Generic Numerical Soil Standards (BC MOE 1996 and updates);
2. Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (CCME 1999a and updates)
3. USEPA Regional Screening Levels (RSLs) (USEPA 2010)

The soil dataset used in the HHERA included soils collected from outside of Kamloops both inside and outside of the Project tenure area, as well as those collected from community gardens, parks and schools within the City of Kamloops. The combined soil data set was used to generate a 95th percent upper confidence limit on the mean (95% UCLM) for the individual metals.

The 95% UCLMs represent reasonably expected and spatially distributed COPC exposure concentrations for human and ecological receptors. When the 95% UCLM concentration for a metal was above the guideline, the metal was selected as a COPC for evaluation. Aluminum, chromium and manganese were the only metals where the baseline 95% UCLM concentration was above applicable regulatory guidelines. The soil screening guidelines and the 95% UCLM metal concentrations in soil are summarized in Appendix D.

3.3.2.2 Step 2 - Metal Screening Based on Regional Background Concentrations

The second step of the COPC screening process compared baseline 95% UCLM metal concentrations in ore to the background soil concentrations for Region 3/8 (Thompson Nicola Okanagan, BC) provided in Protocol 4 for Contaminated Sites (BC MOE, 2010)

Trace metal concentrations in ore dust were approximated using the 95% UCLM concentrations. Trace metal data provided for the approximately 50000 ore samples available at the time of sampling are considered representative ore from the Project. The results of the statistical analysis of this data are provided in Appendix C.

If baseline 95% UCLM concentrations exceeded the regional background concentrations then the metal was carried forward for further evaluation. If the baseline 95% UCLM concentration was below background then the metal was excluded from Step 3 (toxic potential screening) since deposition would not increase soil concentrations, but was still carried forward for Step 4 (water screening).

Barium, beryllium, silver and vanadium were the only metals where the baseline 95% UCLM concentrations in ore were below the regional background levels. As a result these metals were excluded from Step 3.

3.3.2.3 Step 3 - Metal Screening Based on Relative Toxic Potential in Ore

Step 3 of the COPC screening process compares the toxic potential of individual metals in ore samples to the combined toxic potential of the metals in the ore that were identified in Step 2 of the screening process.

The toxic potential of each metal was calculated by dividing the 95% UCLM concentration of the metal in raw ore samples by the receptor-specific (i.e. human, mammals, birds, plants or soil invertebrate) metal toxicity reference value (TRV). The total toxic potential is the sum of all metal toxic potentials for a given receptor (i.e. humans), and the relative toxic potential is the individual toxic potential divided by the total toxic potential. The relative toxic potential and total toxic potential for each receptor as well as the detailed results of Step 2 of the screening process are provided in Appendix D.

When the relative toxic potential of a metal contributed more than 1% of the total toxic potential in ore samples, the metal was selected as a COPC for the assessment (i.e. these metals would contribute more to health risks relative to other metals in the ore). This method captured 97% to 99% of the total toxic potential for each of the four potential receptor groups: human health, bird health, mammal health and plant and soil organism health.

Based on Step 3 of the screening method, the following metals were selected as COPCs: aluminum, antimony, arsenic, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, thallium and uranium.

3.3.2.4 Step 4 - Metal Screening Based on Water Quality Criteria

Step 4 of the COPC screening process compares the baseline metal concentrations in surface water and groundwater to provincial and federal human health-based and ecologically-based criteria. Specifically, the maximum annual weighted average of samples from Peterson Creek and Jacko Lake under baseline conditions, were compared to guidelines protective of aquatic life and agricultural land use. The water modelling locations included PC02 and PC02.3 (Peterson Creek), and JACL (Jacko Lake); these locations are discussed in more detail in Section 3.3.3.3. With the exception of aluminum, the total concentrations of COPCs in surface water were used for screening; for aluminum the dissolved concentrations were used for screening as that is the basis of the guideline.

Similarly, the 95% UCLM concentration of COPCs in groundwater samples from the site (including both monitoring wells and residential wells) were compared to guidelines for agricultural use. The average concentrations of COPCs in the residential wells were compared to guidelines for drinking water.

Guidelines were selected in the following order of priority:

1. British Columbia Approved Water Quality Guidelines (BC MOE 2014b).
2. British Columbia Working Water Quality Guidelines (BC MOE 2015b).
3. CCME Water Quality Guidelines (CCME 1999b and updates).
4. Health Canada Guidelines for Canadian Drinking Water Quality (Health Canada 2014).

If the measured baseline metal concentration in surface water or groundwater exceeded one of the above-noted guidelines, the metal was retained as a COPC for evaluation of both human and ecological health risk. The following water exceedances were identified:

- Concentrations of arsenic in surface water exceeded the guideline for the protection of freshwater aquatic life;
- Concentrations of manganese in groundwater exceeded the guideline for protection of drinking water; and
- Concentrations of chromium, manganese and molybdenum in groundwater exceeded the guideline for protection of agricultural receptors

3.3.2.5 Summary of COPC Screening

In summary, each of the identified CACs were selected as COPCs. The COPC selection process for metals included four steps:

- In Step 1, metals were selected as COPCs if the baseline concentrations in the soil were greater than soil quality guidelines.
- In Step 2 metals were excluded from Step 3 if the 95% UCLM concentration in ore was below the regional background concentrations.

- In Step 3, metals were selected as COPCs if the relative toxic potential of trace metal in the ore was more than 1% of the total toxic potential.
- In Step 4, metals were selected as COPCs if the baseline concentration in water exceeded any of the applicable water quality criteria or guidelines.

The results of this screening process are summarized below and in Table 3.3-1. Note that methylmercury and PAH diesel particulate have been included as a COPC due to their being identified as a chemical of interest. The primary concern for methylmercury is bioaccumulation in fish and exposure of human and ecological receptors to methylmercury in fish tissue. The concern for PAH from diesel particulate is the potential change in human health risk associated with inhalation exposure to the carcinogenic PAH associated with diesel particulate. Therefore, PAHs have been assessed inhalation exposures only.

• Aluminum • Antimony (Sb) • Arsenic (As) • Carbon Monoxide (CO) • Chromium (Cr) • Cobalt (Co)	• Copper (Cu) • Lead (Pb) • Manganese (Mn) • Mercury (Hg) • Methylmercury (MeHg) • Molybdenum (Mo)	• Nitrogen Dioxide (NO_2) • Nickel (Ni) • PAH • $PM_{2.5}$ • PM_{10}	• Selenium (Se) • Sulphur Dioxide (SO_2) • Thallium (Th) • Uranium (U)

These COPCs have been used for the human health exposures, and the metal COPCs have been assessed for ecological exposures.

Table 3.3-1 Summary of Screening Process for Non-CAC Contaminants of Potential Concern

Parameter	Step 1	Step 2- Ore Screening	Step 2-Toxic Potential by Receptor				Step 3-Screening Water			Final List of COCs
	Guideline Exceedance	Background Concentration Exceedance	HH	Birds	Small Mammals	Plants/Soil Inverts	Fresh Water Aquatic Life Screening	Drinking Water Screening	Agricultural Water Screening	
Aluminum	X		X		X					**Aluminum**
Antimony			X		X	X				**Antimony**
Arsenic			X	X	X	X				**Arsenic**
Barium		X								
Beryllium		X								
Boron										
Cadmium										
Chromium	X		X	X	X	X			X	**Chromium**
Cobalt				X		X				**Cobalt**
Copper			X	X	X	X				**Copper**
Lead			X	X						**Lead**
Manganese	X					X		X	X	**Manganese**
Mercury			X	X		X				**Mercury**
Methyl Mercury										**Methylmercury (IOI)**
Molybdenum						X			X	**Molybdenum**
Nickel			X	X	X	X				**Nickel**
Selenium				X	X	X				**Selenium**
Silver										
Strontium										
Tellurium										

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Parameter	Step 1	Step 2- Ore Screening	Step 2-Toxic Potential by Receptor				Step 3-Screening Water			Final List of COCs
	Guideline Exceedance	Background Concentration Exceedance	HH	Birds	Small Mammals	Plants/Soil Inverts	Fresh Water Aquatic Life Screening	Drinking Water Screening	Agricultural Water Screening	
Thallium			**X**	**X**		**X**				**Thallium**
Tin										
Tungsten										
Uranium			**X**			**X**				**Uranium**
Vanadium										
Zinc										

Notes:

IOI Inherently of interest.

3.3.3 Existing and Predicted Future Conditions

To evaluate potential health risks associated with COPCs from the Project, predictive air dispersion and deposition modelling (Air Quality TDR) and the predictive water quality modelling (Baseline Water Quality Report and Water Quality Model Report) were used in the HHERA. The air dispersion and deposition modelling predicted COPC concentrations in air, and metal deposition rates that were used to predict soil concentrations while water quality modelling predicted groundwater and surface water concentrations. Future COPC concentrations in vegetation, soil invertebrates, mammals and birds were estimated based upon future soil concentrations while future COPC concentrations for fish, benthic invertebrates, and sediment were estimated using predicted future COPC concentrations in surface water.

The equation used to calculate a COPC concentration in a biological tissue from a soil or water concentration (hereafter referred to as the "generalized equation") is as follows:

$$EPC_j = EPC_i \times UP_{ij}$$

where:

EPC_j = Exposure point concentration in target biotic tissue *j* (e.g. plants or fish, mg/kg wet weight);

EPC_i = Exposure point concentration in measured media *i* (e.g. soil and surface water, in mg/kg dry weight or in mg/L); and

UP_{ij} = Uptake Factor from environmental medium *i* to target biota tissue *j* (environmental medium and biotic tissue dependent).

Where measured baseline data were available for biological tissues (i.e. for vegetation, small mammals and fish), these values are considered more reliable than a model-estimated value. However, for future predictions, it is always necessary to rely upon model-estimated values. To reconcile measured and model-estimated values, the following approach was taken:

- The expected magnitude of change introduced by the Project was estimated by calculating both Baseline Case and Future Case predictions for metal concentrations in biological tissues. The ([Future Case] / [predicted Baseline Case]) ratio was calculated to provide an estimate of the expected magnitude of change to be introduced as a result of the Project going forward.
- The measured baseline tissue concentrations were then multiplied by this ratio to estimate the expected future concentration in tissues.

The same process was applied, using appropriate bioaccumulation models or uptake factors for each of the COPCs, and for each of the biological tissue types used as a potential food source by humans or ecological receptors, to predict Future Case tissue metal concentrations where measured baseline data were available. In the absence of measured baseline tissue data, both

Baseline Case and Future Case tissue metal concentrations were predicted from measured or expected metal concentrations in water, soil, or sediment, using published uptake factors or bioaccumulation models.

This proportioning approach for estimating future concentrations of COPCs was used for the following media:

- Vegetation (Forage, Browse and Traditional Plants- Predicted based on change in soil concentration;
- Fish Tissue (Whole body and Fillet)- Predicted based on change in water concentration; and,
- Sediment- Predicted based on change in water concentration.

It was not feasible to include the baseline and future concentrations in soil and backyard produce from all human receptor areas within the report. Instead select results have been included as examples, with the remaining concentrations being provided in Appendix E. The complete set of baseline data is provided in Appendix B.

Additional details regarding the COPC concentrations used in the HHERA are provided below.

3.3.3.1 Air

Baseline ambient air quality levels were obtained as part of local monitoring conducted in the project tenure area and from more distant monitoring stations operated by the District of Kamloops ($PM_{2.5}$, PM_{10}, and dustfall), the Alberta Peace Airshed Zone Association (NO_2), and the BC MOE (SO_2 and CO). A local baseline monitoring program for the Project was conducted to measure particulate matter and dustfall; this program included thirteen monitoring stations in the LSA. The data collected from these monitoring stations was used to estimate baseline concentrations in each human receptor area and the Plant Boundary. The baseline case incorporated the results of the ambient air monitoring programs, as well as model results for industrial and other activities in Kamloops and the surrounding area (Air Quality TDR).

Future Case concentrations are based on emissions during the operation phase. Air emissions released during construction, decommissioning and closure phases are expected to be less than those released during the operation phase, thus exposures under these other phases would be less than those predicted for the operation phase (see Air Quality TDR). Therefore, the Future Case concentrations are a conservative representation of potential exposures associated with all phases of the project.

Future Case concentrations (including Project-alone) were modelled for discrete sensitive receptor locations within each area, which included schools, daycares, and medical care facilities. Future Case concentrations were also modelled for discreet points on an air quality grid that covers the LSA. Future Case CAC concentrations represent the maximum predicted ground-level concentrations (GLCs) during the period of highest emissions at peak operation.

Further information on air modelling, including information on emission sources and rates, and the modelling grid are provided in the Air Quality TDR.

The maximum concentrations for CO and PM_{10} within each of the eight human receptor areas and the Plant Boundary were selected to evaluate potential inhalation health concerns for exposure to CACs in each location, for each case. The 99th and 98th percentile of the daily 1-hour maximum concentrations over one year for SO_2 and NO_2, and the 98th percentile daily $PM_{2.5}$ concentrations were used to evaluate potential inhalation health concerns for exposure to CACs, based on the BC MOE 2014 inhalation guidance documents. Maximum concentrations of CACs from the Aberdeen and Upper Aberdeen areas and from the MPOI are provided in Table 3.3-2 and Table 3.3-3; the concentrations for the remaining areas are provided in Appendix E. The 1-hour NO_2 concentrations predicted for the Future Case are based on application of the ozone limiting method conversion of NO_X to NO_2 correction for estimating concentrations of NO_2 based on conversion of NOx to NO_2, as described in the Air Quality TDR.

Table 3.3-2 CAC Concentration from receptor locations in the Aberdeen area

CAC	Averaging Period	CAC Exposure Point Concentration (EPC) (µg/m³) for Aberdeen					
		Baseline Case	Project Alone Case	Future Case	Baseline Case	Project Alone Case	Future Case
		Aberdeen			Upper Aberdeen		
SO_2	1-hour[a]	1.25E+01	1.22E+00	1.26E+01	1.03E+01	5.82E-01	1.04E+01
NO_2	1-hour[b]	6.57E+01	8.50E+01	1.00E+02	5.40E+01	8.50E+01	1.00E+02
	Annual	2.14E+01	5.53E+00	2.33E+01	1.93E+01	5.53E+00	2.33E+01
CO	8-hour	1.60E+03	3.19E+02	1.62E+03	1.48E+03	3.19E+02	1.48E+03
$PM_{2.5}$	24-hour[c]	2.89E+01	1.81E+01	2.92E+01	2.01E+01	7.76E+00	2.17E+01
	Annual	7.66E+00	6.14E-01	7.74E+00	6.63E+00	6.14E-01	6.84E+00
PM_{10}	24-hour	6.96E+01	7.18E+01	9.48E+01	4.25E+01	7.18E+01	9.48E+01
	Annual	6.45E+00	2.47E+00	6.74E+00	4.63E+00	2.47E+00	5.87E+00

Notes:
[a] Based on the 99th percentile of the daily 1-hr maximum over one year
[b] Based on the 98th percentile of the daily 1-hr maximum over one year
[c] Based on the 98th percentile of the worst year (2003)

Table 3.3-3 CAC Concentrations at MPOI Plant Boundary for all averaging periods

CAC	Averaging Period	CAC Exposure Point Concentration (EPC) (µg/m³) at MPOI		
		Baseline Case	Project Alone Case	Future Case
SO_2	1-hour[a]	3.73E+00	1.29E+00	3.90E+00

CAC	Averaging Period	CAC Exposure Point Concentration (EPC) (µg/m³) at MPOI		
		Baseline Case	Project Alone Case	Future Case
NO_2	1-hour[b]	3.17E+01	1.16E+02	1.46E+02
	Annual	2.40E+00	1.75E+00	4.12E+00
CO	8-hour	5.97E+02	8.36E+02	1.10E+03
$PM_{2.5}$	24-hour[c]	1.65E+00	6.15E+00	7.38E+00
	Annual	6.10E-01	4.21E-01	1.28E+00
PM_{10}	24-hour	3.39E+00	6.76E+01	7.03E+01
	Annual	5.65E-01	8.42E+00	8.99E+00

Notes:
[a] Based on the 99th percentile of the daily 1-hr maximum over one year
[b] Based on the 98th percentile of the daily 1-hr maximum over one year
[c] Based on the 98th percentile of the worst year (2003)

The predicted future concentration of metal COPCs in each area and around the Plant Boundary (the MPOI) were estimated by multiplying the annual concentrations of the $PM_{2.5}$ from air dispersion modeling for each location by the maximum 95% UCLM concentrations of each COPCs in the major dust contributors (mine rock, ore and tailings dust). This approach is discussed further in the Air Quality TDR. Although baseline $PM_{2.5}$ concentrations were measured, baseline metal concentrations in airborne dust are negligible (see Air Quality TDR). Therefore, using the predicted (future) $PM_{2.5}$ concentrations, assumes all future metal inhalation exposures are attributable to the Project.

The COPC concentrations in Aberdeen and at the MPOI are provided in Table 3.3-4 and Table 3.3-5. Aberdeen was chosen as an example as it is the closest major human receptor area to the Project. The recreational area near Jacko Lake is closer to the Project than Aberdeen; receptors in this area are assumed to be exposed to CAC concentrations predicted to occur at the MPOI. The predicted concentrations of COPCs at all receptor locations within the 6 HHRA areas, based on annual $PM_{2.5}$ are provided in Appendix E.

Table 3.3-4 24-hr Project-alone Metal Concentrations in Air for Aberdeen

COPC	Maximum predicted annual concentrations at Aberdeen[a] (mg/m³ unless otherwise indicated)
Aluminum	1.98E-07
Antimony	1.23E-10
Arsenic	2.94E-10
Barium	1.68E-09

COPC	Maximum predicted annual concentrations at Aberdeen[a] (mg/m³ unless otherwise indicated)
Chromium	2.09E-09
Cobalt	3.95E-10
Copper	1.58E-08
Lead	2.42E-10
Manganese	3.63E-09
Mercury	2.60E-11
Molybdenum	3.14E-10
Nickel	2.12E-09
Selenium	5.02E-11
Thallium	2.51E-11
Uranium	4.57E-11

Notes:
[a] 95% UCLM of 24-hour $PM_{2.5}$ and the 95% UCLM Concentration in Ore

Table 3.3-5 24-hr Metal Concentrations in Air for MPOI (95% UCLM of Locations around Plant Boundary)

COPC	Predicted annual metal concentrations at MPOI[a] (mg/m³ unless otherwise indicated)
Aluminum	6.47E-07
Antimony	4.03E-10
Arsenic	9.62E-10
Barium	5.49E-09
Chromium	6.84E-09
Cobalt	1.29E-09
Copper	5.16E-08
Lead	7.93E-10
Manganese	1.19E-08
Mercury	8.51E-11
Molybdenum	1.03E-09
Nickel	6.96E-09
Selenium	1.65E-10
Thallium	8.21E-11
Uranium	1.50E-10

Notes:
[a] 95% UCLM of 24-hour $PM_{2.5}$ and the 95% UCLM Concentration in Ore

Project-alone PAH concentrations were estimated using the concentrations of PAH in diesel particulate from heavy-duty trucks reported in the USEPA SPECIATE Database (USEPA, 2015). SPECIATE is the EPA's repository of volatile organic gas and particulate matter (PM) speciation profiles of air pollution sources. This database includes PAH profiles for a number of diesel combustion sources, operated under a variety of conditions. For the purposes of this assessment the PAH profile from SPECIATE Profile 8936 was used to estimate PAH concentrations associated with diesel particulate. SPECIATE Profile 8936(for particulate matter up to 2.5 µm in size) is for exhaust from a 2007 model year heavy-duty truck equipped with an exhaust gar recirculation system, crankcase emissions coallescer and a diesel particulate filter. The Profile can be found in version 4.4 of the SPECIATE Database (USEPA 2015). SPECIATE Profile 8936 provides an estimate of the concentration of individual PAH on a weight-by-weight (µg PAH/µg $PM_{2.5}$). The PAH listed in the profile are listed in . The estimated concentration of the individual PAH detected in SPECIATE profile 8936 were converted to benzo[a]pyrene)(B[a]P) potency equivalent concentrations to provide an estimate of the B[a]P total potency equivalents ($B[a]P_{TPE}$), necessary to assess the potential cancer risk associated with the inhalation of PAH from diesel particulate released by Project activities. The $B[a]P_{TPE}$ was calculated using the B[a]P potency equivalency factors ($B[a]P_{PEF}$) established by the CCME in the derivation of the Canadian Soil Quality Guidelines for PAH (CCME 2010).

Table 3.3-6 Calculation of B[a]P Equivalent Concentration for PAH in Diesel Particulate

PAH	Concentration in Diesel Particulate	B[a]P Potency Equivalency Factor[a]	B[a]P Potency Equivalent Concentration
	µg/µg		µg/µg
Chrysene/Triphenylene	1.67E-04	0.01	1.67E-06
Acenaphthene	2.99E-02	0	0
Acenaphthylene	2.96E-03	0	0
Anthracene	1.17E-03	0	0
Benz(a)anthracene	8.58E-05	0.1	8.58E-06
Benzo[a]pyrene B[a]P	8.33E-06	1	8.33E-06
Benzo(ghi)perylene	2.28E-05	0.01	2.28E-07
Fluoranthene	1.53E-03	0	0
Fluorene	1.75E-02	0	0
Phenanthrene	1.67E-02	0	0
Pyrene	1.33E-03	0	0
Benzo(b+j+k)fluoranthene	1.05E-05	0.1	1.05E-06
Effective B[a]P Total Potency Equivalents (µg/µg)			1.99E-05

1: CCME Potency Equivalency Factors for PAH – Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health - Polycyclic Aromatic Hydrocarbons - 2010

The focus of concern for PAH exposures is the potential change in cancer risk associated with inhalation exposures to PAH emissions from Project activities. The assessment of residual effects is properly based on the exposures attributable only to Project emissions. Therefore, the estimation of $B[a]P_{TPE}$ concentrations has been based on the Project-alone case. Predicted PAH concentrations for the Project-alone case for each of the communities were estimated by multiplying the $B[a]P_{TPE}$ concentration for the speciation profile in diesel emissions by the estimated annual average $PM_{2.5}$ concentration by the air dispersion modelling (Appendix 10.1-A) The predicted annual average $B[a]P_{TPE}$ concentrations in air in Aberdeen and at the MPOI location (the areas where Project-related diesel particulate emissions are expected to be highest) are provided in Table 3.3-7. Calculation of the $B[a]P_{TPE}$ concentrations for the other communities are provided in Appendix E.

Table 3.3-7 Annual Average B[a]P Total Potency Equivalents Concentration for PAH in Air, Aberdeen and MPOI.

Location	Diesel $B[a]P_{TPE}$ ($\mu g/m^3$)
MPOI	4.96E-07
Aberdeen	2.03E-05

3.3.3.2 Soil

A total of 43 surface soil samples were collected from the Project tenure area and areas outside the Plant Boundary between 2011 and 2014 (see Figure 3.3-1). Nineteen surface soil samples (0-10 cm depth) were collected from around the proposed Project infrastructure and from private agricultural land to the south, east, and northeast of the Project tenure area in August 2012. Eleven of these locations were 'key sites', where vegetation and small mammal samples were also collected. An additional 24 surface soil samples (0-20 cm depth) were collected in September 2011, October 2012, and August 2014 from the Project tenure area and west of the Project Boundary as part of the reclamation sampling program. Metals data from these two sample sets were combined; Baseline Case metal EPCs for the Plant Boundary are based on the 95% UCLM concentrations of the combined dataset. If a given COPC had less than 10 detectable concentrations, the maximum detected concentration or detection limit value was used as the EPC. These EPCs were used as Baseline Case concentrations for estimating COPC concentrations in wild game for the Base Case and for estimating the change in COPC concentrations between Base Case and Future Case for wild game, cattle and vegetation (including traditional vegetation).

Baseline surface soil samples were also collected from community gardens, schools, and parks within five residential areas (Aberdeen, Sahali, West End/Downtown, North Shore, and

Brocklehurst). Samples were collected from five community gardens operated by the City of Kamloops (Sahali, Sahali, River Street, North Shore Park, Brocklehurst), from four elementary schools (Dufferin, Aberdeen, Pacific Way, Ralph Bell), and from three City parks (West End/Downtown, Albert McGowan, Peterson Creek). A summary of baseline soil samples collected in the residential Human Health Study Areas are provided in Table 3.3-10. The means of the baseline soil results for garden soil, school soil and park soil from each area were adopted as the Baseline Case soil EPCs for that area. Baseline soil data was not available for Knutsford or Kamloops Indian Reserve No. 1. Baseline Case soil concentrations from Aberdeen were adopted as soil EPCs for Knutsford and Baseline Case soil concentrations for West End/Downtown were adopted as the Baseline Case concentrations for the Kamloops Indian Reserve No. 1. The approach of adopting the Baseline data from a nearby location when specific data are not available for a given location, is considered reasonable as the soil concentrations across the LSA were generally comparable.

Future Case EPCs for each Human Health Study Area were estimated based on the results of the air dispersion and deposition model (see the Air Quality TDR). The air quality model predicted deposition rates for four types of dust (ore, mine rock, tailings and diesel emissions) at both sensitive receptor locations in Aberdeen, Sahali, West End/Downtown, North Shore, Brocklehurst and Knutsford as well as for grid point throughout the LSA. The increase in metal concentration was calculated by identifying the air modelling grid point or the sensitive receptor location within each Human Health Study Area, where the maximum annual average dust deposition (sum of the four sources) was predicted to occur. This estimate was then used as a surrogate for metal accumulation in soil across each of the communities. The deposition results from the worst case year during the Operation phase were used to estimate Future Case concentrations. Dust generation is expected to be highest during the Operation phase, and this phase also accounts for the large majority of dust deposition. This overall approach represents a reasonable worst-case estimate of metal accumulation for each community.

Air modelling was not conducted for Kamloops Indian Reserve No. 1; the deposition results from West End/Downtown, located upwind of Kamloops Indian Reserve No. 1 have been used as a surrogate for evaluating inhalation exposures.

The approach for estimating Future Case concentrations in soil has been broken down into a five step process included below for clarity. The equation used to estimate the change in concentration is also provided:

$$\frac{mg_{metal}}{kg_{soil}} = \frac{\frac{mg_{dust}}{m^2 - year} \times years \times 1\,m^2 \times \frac{mg_{metal}}{mg_{dust}} \times \frac{10^6\,mg_{dust}}{kg_{dust}}}{\frac{10^3 kg_{soil}}{m^3\,soil} \times 0.1\,m^3 soil}$$

i. Estimate deposition rates per unit area (mg/m^2): The annual deposition rates (in mg/m^2) for diesel emissions, mine rock, ore and tailings dusts provided in the Air Quality TDR, were multiplied by the number of years for the Operation phase (23 years) to estimate the total amount of dust (from diesel, mine rock, ore and tailings) that the

Project would deposit on 1m x 1m square (mg_{dust}/m^2). For each of the Human Health Study Ares, the receptor point with the highest amount of modelled deposition (total deposition from four sources) was chosen;

ii. Convert mass of dust per area to mass of dust per volume: To calculate the mass of dust deposited onto the soil, it was assumed that 100 percent of the deposited dust was incorporated into the surface soil layer that had a maximum receiving depth of 10 cm (0.1 m). A soil bulk density of 1,000 kg/m^3 for mineral soil was used to convert the mass of dust deposited per unit area into the mass per unit volume needed to estimate metal accumulation in the soil. This yields an estimate of the mg_{dust}/kg_{soil}

iii. Estimate metal concentrations of metal deposited to soil (mg/kg): For each dust type (mine rock, ore and tailings dust and diesel particulate) the mass of deposited dust (mg) is multiplied by the concentration of the individual metals in the four dust types considered in the assessment. This yields an estimate of the mass of metal deposited to the soil over the 23 year Operation phase of the mine (mg_{metal}/kg_{soil}). As discussed above, the Operation phase is predicted to account for the large majority dust deposition.

iv. Estimate total metal deposition: The metal loading estimates calculated for the four dust types included in the assessment (ore, mine rock, tailings and diesel emissions) are summed to provide an estimate of the total metal loading to soil.

v. Estimate new metal concentrations in soil: The estimated total metal deposition following the Operation phase, which accounts for the majority of deposition, is added to the Baseline Case metal soil concentration to provide an estimate of the Future Case concentration.

Table 3.3-8 Baseline Soil Samples Collected From Residential Human Health Study Areas

Residential Area	Number of Soil Samples		
	Community Garden	School	Park
Aberdeen	1	3	1
Sahali	1	1	1
West End/Downtown	1	1	1
North Shore	1	-	-
Brocklehurst	1	-	-

The agricultural area of Knutsford was also assessed for potential project-related human health risks. As no baseline soil samples were collected from Knutsford, the EPCs for Aberdeen area soils (the closet community to Knutsford) were used as surrogates. The Kamloops Indian Reserve No. 1 is located northeast of the Project and the City of Kamloops. As no soil samples were collected from the reserve, the EPCs for West End/Downtown area soils were used as surrogates.

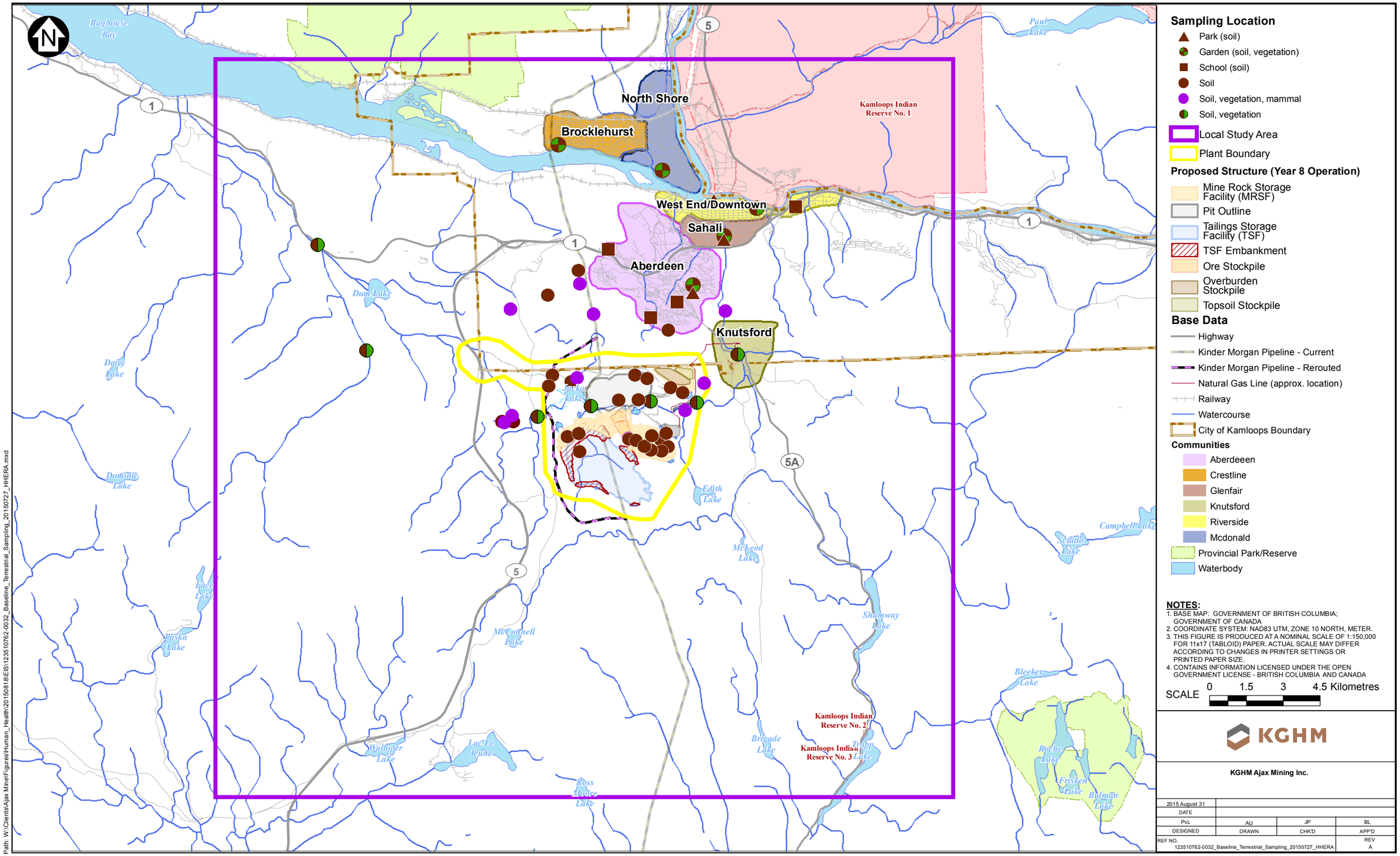
Soil EPCs for each of the COPCs (metals) for the Aberdeen assessment area are provided in Table 3.3-8. Exposure point concentrations for the remaining assessment areas are provided in Appendix E.

Table 3.3-8 Metal Concentration in Soil for the Aberdeen Area

COPC	Soil Exposure Point Concentration (EPC) (mg/kg dry weight)	
	Baseline Case	Future Case
Aluminum	1.54E+04	1.54E+04
Antimony	3.60E-01	3.65E-01
Arsenic	5.56E+00	5.57E+00
Chromium	4.89E+01	4.90E+01
Cobalt	1.20E+01	1.20E+01
Copper	4.40E+01	4.43E+01
Lead	5.40E+00	5.41E+00
Manganese	5.64E+02	5.64E+02
Mercury	4.08E-02	4.22E-02
Molybdenum	1.02E+00	1.02E+00
Nickel	4.37E+01	4.38E+01
Selenium	2.24E-01	2.26E-01
Thallium	1.03E-01	1.04E-01
Uranium	7.56E-01	7.58E-01

Figure 3.3-1
Human Health Baseline Terrestrial Sampling Locations

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NOTES:
1. BASE MAP: GOVERNMENT OF BRITISH COLUMBIA; GOVERNMENT OF CANADA
2. COORDINATE SYSTEM: NAD83 UTM, ZONE 10 NORTH, METER.
3. THIS FIGURE IS PRODUCED AT A NOMINAL SCALE OF 1:150,000 FOR 11x17 (TABLOID) PAPER. ACTUAL SCALE MAY DIFFER ACCORDING TO CHANGES IN PRINTER SETTINGS OR PRINTED PAPER SIZE.
4. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE - BRITISH COLUMBIA AND CANADA

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KGHM Ajax Mining Inc.

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3.3.3.3 Surface Water

Surface water samples were collected by Knight Piesold from 13 locations in the Peterson Creek watershed between 2007 and 2014 (Figure 3.3-2). The locations sampled include Peterson Creek (PC02, PC02.3, PC02.5, PC03, PC08, PC10, JC03 (grouped with samples from PC10)), Humphrey Creek (HUMPH02, HUMPH08, HUMP10), the South Catchment of Peterson Creek (S.CATCHMENT), Keynes Creek (KC03), Jacko Lake (JACL), Edith Lake (EDITH) and Goose Lake (GOOSE LAKE). Samples were not collected in 2009. Between 2011 and 2013, monthly sampling was conducted at the majority of locations, when water levels permitted, with quarterly sampling prior to 2011. Bimonthly sampling was conducted in 2014. The number of samples collected per location over the entire sampling period ranged from 4 to 62.

Samples were also collected from locations outside the Peterson Creek Watershed including Anderson Creek and Scuitto Lake; however, these locations were not included in the HHERA as they will not be affected by Project activities.

Water quality predictions for the Future Case were made for locations PC02, PC02.3, JACL, HUMPH02 and Peterson Creek downstream pond (PCDP) as well as multiple site water management ponds. The predictions for locations PC02, PC02.3 and JACL were used to estimate exposure concentrations for the Future Case as these locations are accessible to human and ecological receptors and represent either sensitive locations (i.e., Jacko Lake) or are expected to undergo the greatest changes in water quality (e.g., PC02). Location HUMPH02 was not used in the assessment as large section of Humphreys Creek is located underground where it is inaccessible to terrestrial and aquatic receptors. The PCDP and the site water management ponds are not expected to be accessible to terrestrial receptors (including humans) nor are they likely to contain fish as they are not directly connected to fish bearing waters (e.g. Peterson Creek). Birds are unlikely to spend a substantial portion of time near the PCDP or the site water management ponds due to the significant human activity in the area. If birds are found to spend a substantial portion of time near the PCDP, then countermeasures can be used as required to dissuade birds from occupying the area. Additional information related to the water quality modelling is provided in the Water Quality Model Report.

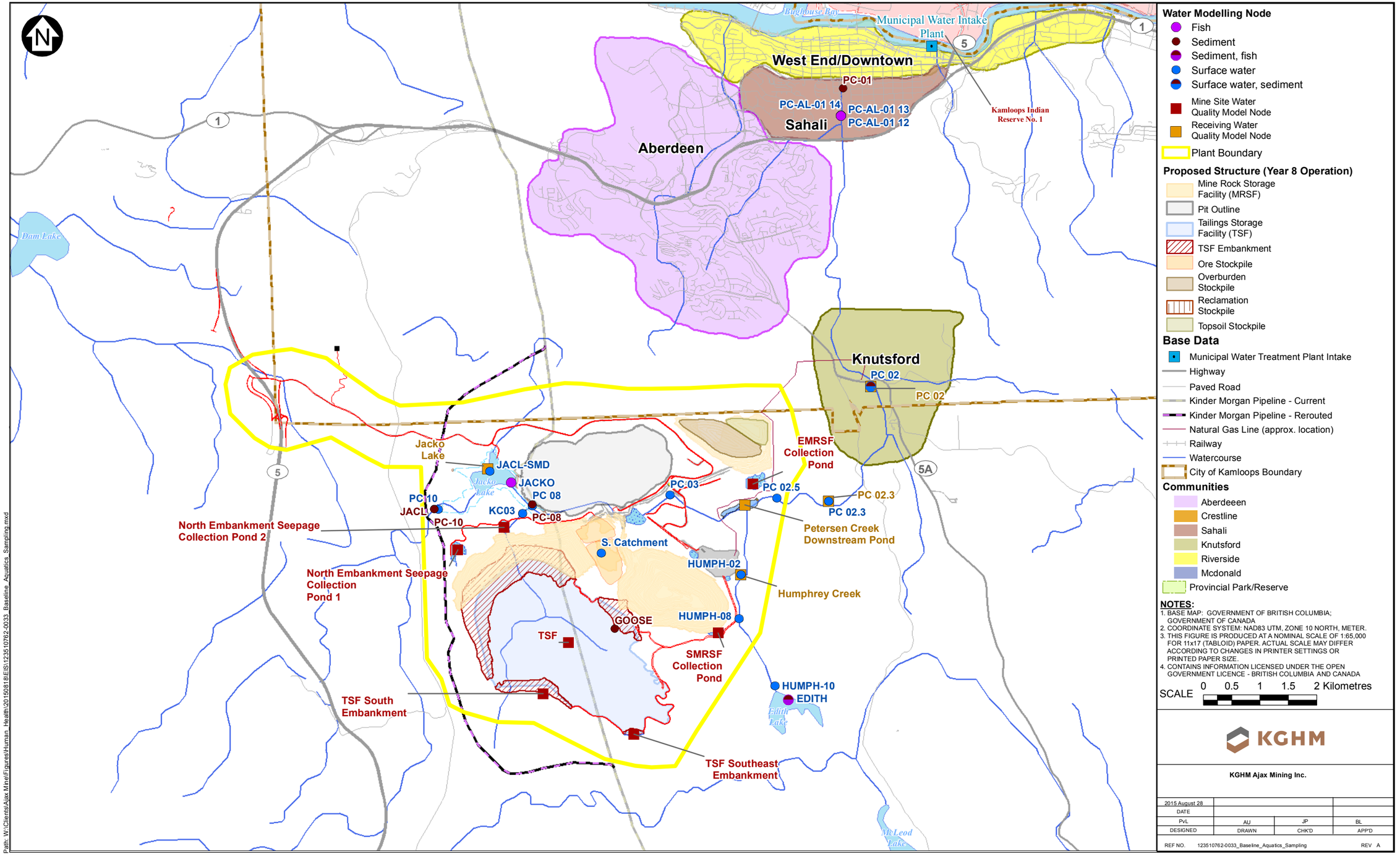
The annual weighted average of surface water samples from PC02, PC02.3 and JACL collected between 2012 and 2014 were used to estimate the EPC for the Baseline Case. Earlier samples were excluded as the data from 2012 to 2014 is considered more reflective of current conditions. The maximum predicted annual average surface water concentrations for PC02, PC02.3 and JACL were used to estimate the EPC for the Future Case. The Baseline Case and Future Case concentrations from PC02, PC02.3 and JACL are provided in Table 3.3-9. EPCs are based on total concentrations.

Table 3.3-9 COPC Concentrations in Surface Water

COPC	Surface Water Exposure Point Concentrations (EPC) (mg/L) (Total Concentration)					
	PC02 (Peterson Creek)		PC02.3 (Peterson Creek)		JACL (Jacko Lake)	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	2.31E-01	1.44E+00	6.49E-02	8.84E-01	7.60E-03	2.88E-02
Antimony	1.20E-04	4.63E-04	1.06E-04	5.48E-04	1.40E-04	1.18E-04
Arsenic	1.86E-03	2.92E-03	2.17E-03	3.19E-03	1.35E-03	1.59E-03
Chromium	8.61E-04	4.66E-03	3.41E-04	3.25E-03	1.70E-04	9.54E-04
Cobalt	3.87E-04	8.96E-04	1.56E-04	1.01E-03	1.04E-04	2.50E-04
Copper	3.98E-03	7.49E-03	3.29E-03	7.58E-03	1.37E-03	4.58E-03
Lead	1.09E-04	2.22E-04	5.36E-05	3.41E-04	1.30E-04	1.56E-04
Manganese	1.25E-01	3.44E-01	4.24E-02	1.08E+00	3.73E-02	9.16E-02
Mercury	1.00E-05	3.11E-05	1.00E-05	4.36E-05	1.00E-05	3.17E-05
Molybdenum	1.07E-02	2.06E-02	1.98E-02	2.25E-02	2.36E-03	4.50E-03
Nickel	4.57E-03	6.88E-03	2.55E-03	3.30E-03	7.66E-04	1.78E-03
Selenium	6.90E-04	1.24E-03	1.87E-04	9.46E-04	1.46E-04	3.22E-04
Thallium	1.00E-05	2.45E-05	1.00E-05	3.09E-05	1.00E-05	2.15E-05
Uranium	2.29E-03	3.96E-03	1.36E-03	2.51E-03	1.16E-03	1.43E-03

Figure 3.3-2
Location of Baseline Surface Water Sampling, Fish Sampling and Water Modelling Nodes

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3.3.3.4 Groundwater

Baseline groundwater samples were collected periodically from areas within or proximate to the Project tenure area (254 samples from 37 locations) between 2007 and 2014 and from residential wells (eight samples from six locations) in October 2014. Groundwater sampling locations are shown in Figure 3.3-3. With the exception of residential wells RES-3 and RES-5, the residential wells are located west of the Plant Boundary. Residential wells RES-3 and RES-5 are not expected to be used as potable sources in the future.

Baseline groundwater data from the 37 locations were used for COPC screening; however, only data from RES-2 was considered in the risk characterization as RES-2 is the active residential well location that is expected to be most affected by the Project. Details related to the water quality modelling are provided in the Water Quality Modeling Report. Concentrations from RES-2 from the single sampling event were adopted as EPC for the Baseline Case (Table 3.3-10). Groundwater concentrations from well RES-2 were comparable to concentrations from the other residential wells and are generally comparable to groundwater concentrations in the LSA. Predictive model results for RES-2 were used for the Future Case. Future Case concentrations are the sum of the Baseline Case concentrations from RES-2 and the maximum modelled monthly median water quality concentration increases predicted at RES-2 due to seepage from the PCDP as well as from the East Mine Rock Storage Facility (EMRSF) and the EMRSF pond. This approach is considered conservative as it includes seepages sources such as the EMRSF and the EMRFS pond which may or may not impact water quality at RES-2.

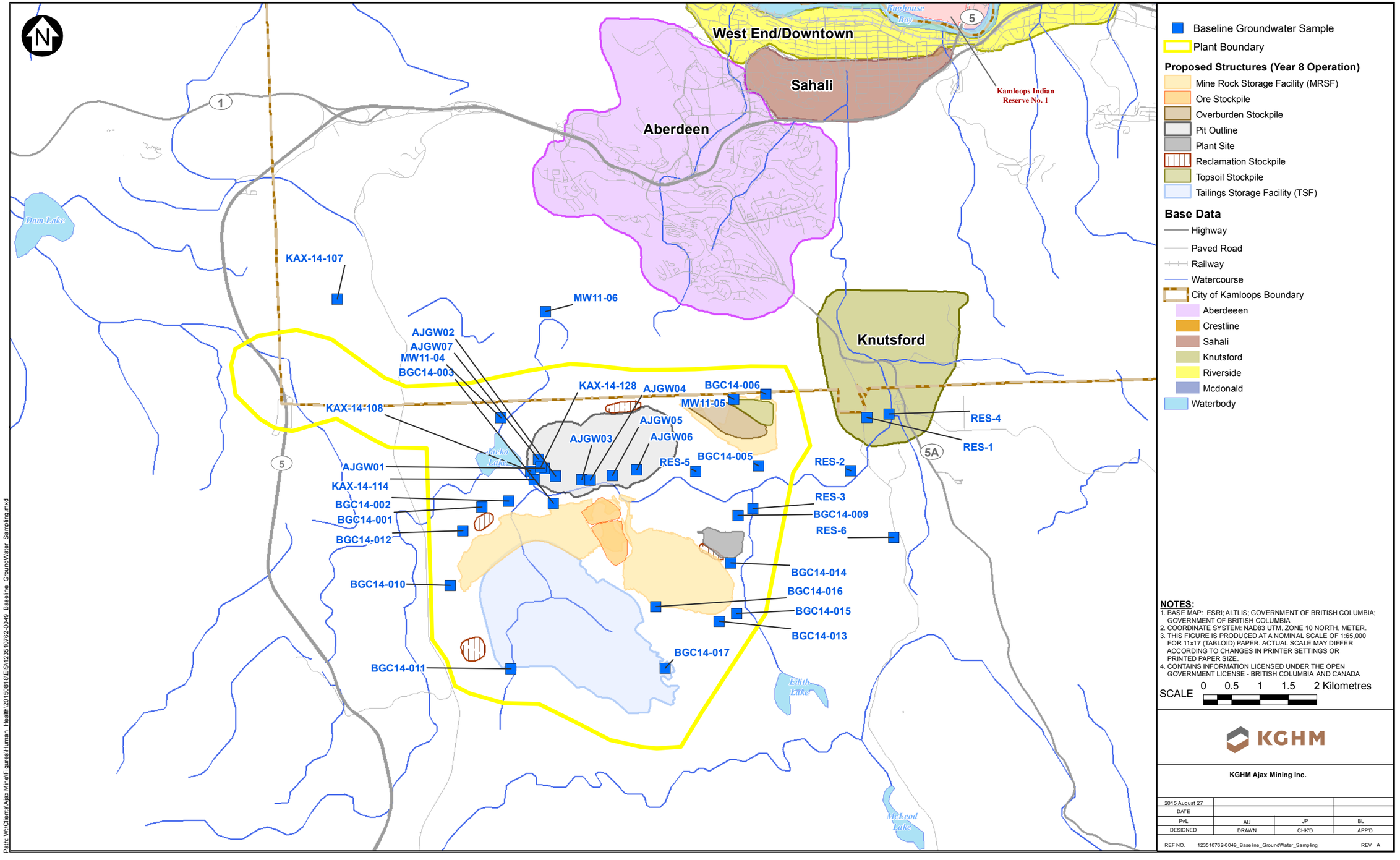
Baseline samples were analyzed for total metal concentrations, while the predictive model results are dissolved metal concentrations. The baseline results are considered suitable for comparison to future dissolved concentrations since the low turbidity of the samples supports the generally accepted assumption that the dissolved fraction accounts for the majority of metals in potable water.

Table 3.3-10 Metal Concentrations in Groundwater (Residential Wells)

COPC	Groundwater Exposure Point Concentrations (EPC) (mg/L)	
	RES-2	
	Baseline Case (Total)	Future Case (Dissolved)
Aluminum	3.00E-03	2.99E-03
Antimony	1.10E-04	7.62E-04
Arsenic	9.30E-04	1.82E-03
Chromium	1.10E-04	2.57E-04
Cobalt	1.20E-04	1.72E-04
Copper	9.13E-02	9.19E-02

COPC	Groundwater Exposure Point Concentrations (EPC) (mg/L)	
	RES-2	
	Baseline Case (Total)	Future Case (Dissolved)
Lead	5.19E-04	5.33E-04
Manganese	3.70E-02	5.14E-02
Mercury	1.00E-05	7.82E-06
Molybdenum	1.56E-02	2.30E-02
Nickel	1.91E-03	2.47E-03
Selenium	1.10E-04	9.46E-04
Thallium	1.00E-05	8.87E-06
Uranium	1.79E-03	2.07E-03

Figure 3.3-3
Location of Baseline Groundwater Sampling and Water Modelling Nodes



3.3.3.5 Drinking Water-Farmer/Rancher Knutsford and Cattle

Active surface water domestic consumption licenses exist for Peterson Creek, indicating habitants of the area can use water from the creek for consumption, as well as for agricultural purposes (e.g., watering cattle). As a result the Farmer/Rancher receptor in Knutsford was assumed to obtain drinking water from either RES-2 or from Peterson Creek (location PC02.3). Location PC0.23 was selected as this location was nearest to the existing domestic consumption licenses. The Baseline Case EPC is the lowest total concentration from the two locations, while the Future Case EPC is the highest of the predicted total concentrations at PC02.3 and the dissolved concentrations at RES-2. These values were also used to estimate COPC concentrations in cattle as well as to estimate the risk quotient for cattle. The approach of minimizing the Baseline Case EPC and maximizing the Future Case EPC maximizes that potential concentration change that may occur as a result of the Project.

The Baseline Case and Future Case water EPCs for a Farmer/Rancher in Knutsford using the water either for drinking or agricultural purposes (i.e., watering cattle)are provided in Table 3.3-11.

Table 3.3-11 Metal Concentrations in Drinking Water for the Farmer/Rancher in Knutsford and Cattle.

COPC	Drinking Water- Knutsford and Cattle	
	Baseline Case	Future Case
Aluminum	3.00E-03[a]	8.84E-01[b]
Antimony	1.06E-04[b]	7.62E-04[a]
Arsenic	9.30E-04[a]	3.19E-03[b]
Chromium	1.10E-04[a]	3.25E-03[b]
Cobalt	1.20E-04[a]	1.01E-03[b]
Copper	3.29E-03[b]	9.19E-02[a]
Lead	5.36E-05[b]	5.33E-04[a]
Manganese	3.70E-02[a]	1.08E+00[b]
Mercury	1.00E-05[a]	4.36E-05[b]
Molybdenum	1.56E-02[a]	2.30E-02[a]
Nickel	1.91E-03[a]	3.30E-03[b]
Selenium	1.10E-04[a]	9.46E-04[b]
Thallium	1.00E-05[a]	3.09E-05[b]
Uranium	1.36E-03[a]	2.51E-03[b]

[a] Concentration from RES-2.

[b] Concentration from Peterson Creek (PC02.3).

3.3.3.6 Municipal Drinking Water

Receptors in Aberdeen, Brocklehurst, Sahali, North Shore, West End/Downtown and on the Kamloops Indian Reserve No. 1 are assumed to obtain potable water from the municipal distribution system. The City of Kamloops uses the Thompson River as its source of domestic water. Raw water is taken from the Thompson River and processed at the City of Kamloops Water Treatment Plant. The City of Kamloops Water treatment Plant provided the analytical results for three post-treatment water samples collected between February 2014 and April 2015. The maximum concentrations from these three analyses were adopted as the concentrations for the Baseline Case (Table 3.3-12).

During the operation phase of the Project, ore dust containing traces of metals will deposit to the surrounding environment. However, based on deposition modelling, the spatial extent of dustfall from the Project only extends several hundred meters beyond the project footprint and does not reach the South Thompson River or the majority of Kamloops (see Domestic Water Quality Chapter). The magnitude of dustfall would also be too low to influence the water quality of a major river such as the Thompson River. Further, treatment of the raw water from both water treatment facilities would remove suspended solids and further reduce the potential for Project-related metal-bearing dust to alter the quality of the Kamloops municipal water supply. Based on this, the Project is not expected to result in a change in water quality for the raw or treated water, thus the measured baseline concentrations were adopted as future concentrations.

Table 3.3-12 Metal Concentrations in Municipal Water

COPC	Exposure Point Concentrations (EPC) (mg/L)	
	Baseline Case	Future Case
Aluminum	8.00E-03	8.00E-03
Antimony	2.00E-04	2.00E-04
Arsenic	5.00E-04	5.00E-04
Chromium	5.00E-04	5.00E-04
Cobalt	5.00E-05	5.00E-05
Copper	3.43E-01	3.43E-01
Lead	3.00E-04	3.00E-04
Manganese	1.30E-03	1.30E-03
Mercury	2.00E-05	2.00E-05
Molybdenum	7.00E-04	7.00E-04
Nickel	4.00E-04	4.00E-04
Selenium	5.00E-04	5.00E-04
Thallium	2.00E-05	2.00E-05
Uranium	7.00E-05	7.00E-05

3.3.3.7 Community Garden Produce

Produce samples were collected from five community gardens operated by the City of Kamloops (Figure 1.1-1). Community gardens varied in age from two months (North Shore Park Garden) to approximately 25 years (Brocklehurst Garden). Samples were categorized as root, leaf or fruit. Root samples consisted of beets, which were sampled from all gardens, and radishes which were sampled at one garden. Leaf samples generally consisted of lettuce and/or chard. Fruit samples consisted of tomatoes, which were collected at all gardens, and pears or apples, each collected at one of the gardens. Composite samples were submitted for cases where multiple samples of the same type of produce were collected from a particular garden. If different species of the same category of produce were collected from a garden, then a sample of each species was submitted and the results were averaged to estimate overall concentrations for that produce category. For example, both radish and beets were collected from one garden. The radish and beets samples were both analyzed and the results were averaged to estimate an overall concentration of metals in root tissue from that garden.

Concentrations of arsenic and chromium in the root sample from the Sahali garden (Aberdeen community) were more than 10x higher than the concentrations reported in root vegetables from the other community gardens. Concentrations of metals in plants were assumed to be related to concentrations in soil; the concentrations of arsenic and chromium in the soil from the Sahali garden were comparable to the levels from the other gardens, suggesting these elevated results may be outliers. Outlier tests completed using the US EPA ProUCL software confirmed that the concentrations of arsenic and chromium in root samples from Aberdeen were outliers from the remaining root sample set. As a result, the concentrations of arsenic and chromium in the root sample were excluded from the baseline dataset. Garden produce concentrations for the Future Case were estimated using the generalized equation relating metal concentrations in vegetation to soil concentrations and published uptake factors from soil to vegetation (Bechtel Jacobs Company 1998; Sheppard and Evenden 1988; USEPA 2007).

As garden produce samples were not collected from the Knutsford assessment area, baseline data from Aberdeen were used as surrogates. Similarly, data from the West End/Downtown assessment area were used for the Kamloops Indian Reserve. This is considered appropriate as these sets of areas are located proximate to one another and the concentrations in garden produce are generally comparable from one area to another. Baseline and Future Case concentrations in garden produce from Aberdeen are provided in Table 3.3-13. The baseline and future case concentrations in garden produce from gardens in Brocklehurst, North Shore, West End/Downtown and Sahali are provided in Appendix E.

Table 3.3-13 Metal Concentrations in Community Gardens (Aberdeen)

COPC	Garden Produce Exposure Point Concentration (EPC) (mg/kg wet weight)					
	Baseline Case			Future Case		
	Roots	Leaf	Fruit	Roots	Leaf	Fruit
Aluminum	2.57E+02	2.53E+01	3.20E+00	2.57E+02	2.53E+01	3.20E+00
Antimony	6.10E-03	2.00E-03	2.00E-03	6.19E-03	2.03E-03	2.03E-03
Arsenic	6.19E-02	1.09E-02	4.00E-03	6.20E-02	1.09E-02	4.01E-03
Chromium	2.92E-01	1.10E-01	1.55E-02	2.93E-01	1.10E-01	1.55E-02
Cobalt	1.84E-01	1.98E-02	4.05E-03	1.84E-01	1.98E-02	4.06E-03
Copper	1.82E+00	9.56E-01	5.13E-01	1.83E+00	9.59E-01	5.15E-01
Lead	1.06E-01	1.76E-02	4.00E-03	1.06E-01	1.76E-02	4.01E-03
Manganese	1.30E+01	3.89E+00	6.42E-01	1.30E+01	3.89E+00	6.42E-01
Mercury	1.00E-03	1.00E-03	1.00E-03	1.01E-03	1.01E-03	1.01E-03
Molybdenum	7.61E-02	9.40E-01	1.02E-01	7.66E-02	9.47E-01	1.02E-01
Nickel	7.39E-01	1.06E-01	1.90E-02	7.41E-01	1.06E-01	1.90E-02
Selenium	2.00E-02	2.00E-02	2.00E-02	2.02E-02	2.02E-02	2.02E-02
Thallium	2.27E-03	4.00E-04	4.00E-04	2.29E-03	4.03E-04	4.03E-04
Uranium	1.34E-02	1.92E-03	4.00E-04	1.34E-02	1.92E-03	4.01E-04

Notes:

[a] These baseline concentrations apply to all identified receptor locations including the Project tenure area (i.e. around the Plant Boundary).

3.3.3.8 Traditional Plants and other Vegetation (Near the Project tenure area)

In 2011, wildlife browse samples of cottonwood, alder, dogwood and willow leaves and new growth twigs (wildlife browse) were collected from five locations (n=11) within the mine site (Figure 3.3-1). In August, 2012, an additional wildlife browse sample was collected from a 'key site' location. Key site samples are discussed further below.

In August 2012, forage vegetation samples (N=12) were collected from 10 'key site' locations near the proposed mine infrastructure and from private agricultural land to the south, east, and northeast of the Project tenure area (Figure 3.3-1). At ten of the key sites, only forage was available, and at one key site, only browse was collected. Berries were not observed in the Project tenure area or at any of the surrounding key sites during vegetation sampling; however, it has been reported that Aboriginals in the area do consume local berries from the LSA (Section 12).

Baseline exposure point concentrations for COPCs in forage and browse samples from the mine site were based on the 95% UCLMs of COPC concentrations in each vegetation type (Table 3.3-14 and Table 3.3-15). Due to the lack of available samples, baseline concentrations in berries (Table 3.3-16) were estimated based upon the generalized equations relating metal concentrations in vegetation to soil concentrations, baseline soil concentrations and published uptake factors from soil to vegetation (Sheppard 2010; Hopkins 2014).

Concentrations of COPCs in forage and browse for the Future Case were estimated from the predicted concentrations of COPCs in soil for the Future Case using the generalized equation relating metal concentrations in vegetation to soil concentrations and published uptake factors from soil to vegetation (Bechtel Jacobs Company 1998; Sheppard and Evenden 1988; USEPA 2007).

Future concentrations in berries were estimated using the generalized equations relating metal concentrations in vegetation to soil concentrations, the predicted concentrations of COPCs in soil for the Future Case and published uptake factors from soil to vegetation (Sheppard 2010; Hopkins 2014).

Wet weight concentrations are provided in Table 3.3-14 to Table 3.3-16. Dry weight concentrations were used for estimating the uptake into cattle and wild meat; these concentrations are provided in Appendix E. Baseline dry weight data were available for forage, but not for browse or berries. Baseline concentrations in browse were estimated assuming a moisture content of 85% (USEPA 1993b), while baseline concentration in berries were estimated using a moisture content of 82% (Sheppard et al., 2010). The approach used to estimate future wet weight concentrations, along with the assumed moisture contents, was also used to estimate future dry weight concentrations.

Table 3.3-14 Metal Concentrations in Browse

COPC	Vegetation (Browse) Exposure Point Concentration (EPC) (mg/kg wet weight)	
	Baseline Case	Future Case
Aluminum	6.24E+01	6.24E+01
Antimony	6.28E-03	6.36E-03
Arsenic	1.85E-01	1.85E-01
Chromium	8.87E-01	8.89E-01
Cobalt	1.36E+00	1.36E+00
Copper	3.56E+00	3.56E+00
Lead	5.34E-02	5.35E-02
Manganese	4.87E+01	4.87E+01
Mercury	8.50E-03	8.67E-03
Molybdenum	5.90E-01	5.93E-01
Nickel	1.23E+00	1.24E+00
Selenium	1.29E-01	1.30E-01
Thallium	7.97E-04	8.04E-04
Uranium	3.70E-03	3.71E-03

Table 3.3-15 Metal Concentrations in Forage

COPC	Vegetation (Forage) Exposure Point Concentration (EPC) (mg/kg wet weight)	
	Baseline Case	Future Case
Aluminum	7.47E+01	7.47E+01
Antimony	4.40E-03	4.45E-03
Arsenic	3.26E-02	3.27E-02
Chromium	2.64E-01	2.65E-01
Cobalt	1.40E-01	1.40E-01
Copper	2.67E+00	2.67E+00
Lead	2.41E-02	2.41E-02
Manganese	3.25E+01	3.25E+01
Mercury	4.63E-03	4.72E-03
Molybdenum	5.14E+00	5.16E+00
Nickel	5.23E-01	5.24E-01
Selenium	1.22E-01	1.23E-01

COPC	Vegetation (Forage) Exposure Point Concentration (EPC) (mg/kg wet weight)	
	Baseline Case	Future Case
Thallium	1.00E-03	1.01E-03
Uranium	4.67E-03	4.68E-03

Table 3.3-16 Metal Concentrations in Berries

COPC	Vegetation (Forage) Exposure Point Concentration (EPC) (mg/kg wet weight)	
	Baseline Case	Future Case
Aluminum	1.32E+01	1.32E+01
Antimony	1.50E-03	1.52E-03
Arsenic	1.16E-02	1.16E-02
Chromium	1.81E-03	1.81E-03
Cobalt	1.13E-02	1.13E-02
Copper	2.30E+00	2.31E+00
Lead	1.03E-03	1.03E-03
Manganese	6.46E+01	6.46E+01
Mercury	2.91E-02	3.02E-02
Molybdenum	2.22E-02	2.23E-02
Nickel	3.95E-01	3.95E-01
Selenium	1.44E-01	1.45E-01
Thallium	2.01E-04	2.03E-04
Uranium	1.24E-04	1.24E-04

3.3.3.9 Small Mammals

Live traps were set at the 11 soil/vegetation sampling locations and were monitored over two nights. There were 10 stations baited with 10 Sherman traps each (total of 100 Sherman traps), and one station with 10 Longworth traps. Once positioned, the traps were covered with either clear plastic or cedar shingles before being placed under a cover of vegetation or woody debris. The plastic cover and/or cedar shingle provided shelter from wind and moisture. Traps were baited with peanut butter and oats, and supplied with bedding material for warmth.

Deer mice (*Peromyscus maniculatus*) were caught at 10 of the sampling locations, and a Meadow vole (*Microtus pennsylvanicus*) and northern pocket gopher (*Thomomys talpoides*) were each caught at one site. Sampling locations are provided in Figure 3.3-1. No species of

conservation concern listed under the Federal *Species at Risk Act (SARA)* or by the British Columbia Ministry of Environment were observed during the trapping surveys.

Mammals were sacrificed by cervical dislocation except for five deer mice that died in traps. The Northern pocket gopher was not included for collection under the trapping permit and was released at the same location it was caught.

Small mammals were pooled at each sampling location for a total of ten samples, and samples were submitted for metal analysis. The Baseline Case exposure point concentrations for COPCs were determined based on the 95% UCLM across all samples (Table 3.3-17). Future concentrations in small mammals were estimated using the predicted concentrations of COPCs in soil for the Project Boundary and the generalized equation relating elemental concentrations in biota to soil concentrations and using published uptake factors (JWS 2009; Sample et al. 1998b; USEPA 2007). Future Case concentrations in small mammals are provided in Table 3.3-17.

Table 3.3-17 COPC Concentration in Small Mammals

COPC	Small Mammal Exposure Point Concentrations (EPC) (mg/kg wet weight) for Plant Boundary	
	Baseline Case	Future Case
Aluminum	2.66E+02	2.66E+02
Antimony	5.30E-03	5.36E-03
Arsenic	2.33E-02	2.33E-02
Chromium	2.67E-01	2.68E-01
Cobalt	6.86E-02	6.87E-02
Copper	3.60E+00	3.61E+00
Lead	1.10E-01	1.10E-01
Manganese	6.43E+00	6.43E+00
Mercury	5.80E-03	6.02E-03
Molybdenum	5.07E-01	5.10E-01
Nickel	3.65E-01	3.66E-01
Selenium	4.05E-01	4.08E-01
Thallium	6.70E-04	6.76E-04
Uranium	2.12E-03	2.13E-03

3.3.3.10 Cattle and Wild Meat (Deer, Snowshoe Hare, Grouse)

Baseline tissue samples were collected from local cattle (N=4). Tissue samples of wild meat (i.e. deer, snowshoe hare and grouse) were not collected during sampling. The minimum concentrations from the four cattle samples were adopted as the EPC. Using the minimum provides the largest possible predicted change between baseline and future conditions. Future concentrations of COPCs in cattle and baseline and future concentrations in wild meat were estimated using generalized equations from the USEPA (2005a). Animals were assumed to consume browse, forage and or berries based on the proportions provided in Table 3.3-18**Error! Reference source not found.**. Animals were also expected to incidentally consume COPC-affected soil as well as COPC-affected water. Cattle were assumed to consume surface water from Peterson Creek (location PC02.3) and troughs supplied with groundwater (location RES-2); the maximum concentration from either was used as the EPC in water. Animals that could be consumed as wild meat were assumed to consume surface water from Jacko Lake (location Jacko) and surface water from Peterson Creek (location PC02); the maximum concentration from either was used as the EPC in water. PC02.3 was used for cattle as this location was nearest to the locations of existing water licenses; Ranchers/Farms could use this water for drinking and for watering cattle. PC02 was used for wildlife as this location is accessible and is expected to undergo the largest change in water quality.

The generalized equation used to calculate COPC concentrations in meat tissue (cattle or wild meat) that will be consumed by humans is:

$$C_{meat} = \left(\left(F_V \times Q_{V(meat)} \times P_V\right) + \left(B_S \times Q_{S(meat)} \times C_s\right) + \left(F_W \times Q_{W(meat)} \times C_W\right)\right) \times B_{a(meat)} \times MF$$

where:

C_{meat} = Concentration of COPC in meat tissue (mg/kg wet weight);

F_V = Fraction of vegetation from site (conservatively set at 100%; unitless);

$Q_{V(meat)}$ = Quantity of vegetation ingested by animal (kg dry weight/day);

P_V = Concentration of COPC in vegetation (mg/kg dry weight);

B_S = Fraction of soil from site (conservatively set at 100%; unitless);

$Q_{S(meat)}$ = Quantity of soil ingested by animal (kg dry weight/day);

C_S = Concentration of COPC in soil (mg/kg dry weight);

F_W = Fraction of water from site (conservatively set at 100%; unitless);

$Q_{W(meat)}$ = Quantity of water ingested by animal (L/day);

C_W = Concentration of COPC in surface water (mg/L);

$B_{a(meat)}$ = COPC-specific bio-transfer factor for animal (day/kg wet weight); and

MF = Metabolic factor (set at 1.0; unitless).

Cattle and wild animals are conservatively assumed to spend an entire lifetime near the Project and not range into other areas that would be subject to different regimes of deposition. As such, the fractions of vegetation, soil and water that cattle and wild animals consume from the vicinity of the project have been set at 100%. It is also conservatively assumed that all COPC are 100% bioavailable and not metabolized (i.e. metabolic factor of 1). The intake rates of vegetation, soil and water for cattle, deer, wild hare and grouse were estimated using the animals' body weights and the equations provided in USEPA (2005a). The resulting intake rates are provided in Table 3.3-19.

Table 3.3-18 Proportion of Total Vegetation Consumption from Food Sources

Animal	Forage	Browse	Berries
Cattle	100%	0%	0%
Deer	65%	35%	0%
Snowshoe Hare	30%	60%	10%
Grouse	65%	0%	35%

Table 3.3-19 Cattle and Wild Animal Intake Rates of Vegetation, Soil and Water

Animal	Intake Rate		
	Vegetation (kg DW plant/day)	Soil (kg DW/day)	Total Water Intake (L/day)
Cattle	3.83E+00	4.00E-01	3.90E+01
Deer	9.75E-01	5.00E-02	6.00E+00
Snowshoe Hare	3.90E-02	3.60E-03	1.30E-01
Grouse	9.75E-03	1.10E-04	4.00E-02

Primary literature uptake factors and intake rates for predicting animal tissue concentrations are available for beef cattle. In accordance with USEPA (2005a) guidance, to predict the uptake of COPC into deer, snowshoe hare and grouse, the beef uptake factor is adjusted based on the relative lipid content of these animals. The fat content of the deer and snow shoe hare were assumed to be 10%, and the fat content for the grouse was assumed to be 14% (based on fat content of a chicken), in contrast to 19% for the beef cattle as per Shultz *et al.* (1994); Stephenson (2003); and Knott *et al.* (2005)).

Concentrations of COPCs in wild meat under baseline conditions were estimated using the equations and uptake factors described above as well as the 95% UCLM concentrations (i.e. baseline concentrations) of mine site soil and vegetation (forage only), the yearly average concentration in surface water (for all animals) and the concentration in ground water in Res 2 (for cattle only). The concentrations under future conditions were estimated using the same equations and uptake factors and the predicted future concentrations in these media. Future

concentrations in cattle were estimated by using the equations and uptake factors described above as well as the baseline and future concentrations in soil, vegetation and water to proportion baseline cattle concentrations to future cattle concentrations. Future concentrations in soil and vegetation were based on the concentration predicted for the project tenure area and future concentrations in water were based on the maximum concentrations predicted for either PC02.3 or Jacko Lake.

This approach accounts for the predicted change due to the project while also using the site-specific measured data for baseline.

Table 3.3-20 COPC Concentrations in Cattle

COPC	Cattle Exposure Point Concentrations (EPC) (mg/kg wet weight) for Plant Boundary	
	Baseline Case (measured)	Future Case (predicted)
Aluminum	7.40E-01	7.43E-01
Antimony	2.00E-03	2.24E-03
Arsenic	4.00E-03	4.14E-03
Chromium	1.94E-01	1.95E-01
Cobalt	4.00E-03	4.02E-03
Copper	4.16E-01	4.39E-01
Lead	4.00E-03	4.04E-03
Manganese	7.10E-02	7.58E-02
Mercury	1.20E-03	1.24E-03
Molybdenum	1.19E-02	1.20E-02
Nickel	8.40E-02	8.43E-02
Selenium	1.08E-01	1.10E-01
Thallium	4.00E-04	4.11E-04
Uranium	4.00E-04	4.58E-04

Table 3.3-21 COPC Concentrations in Deer

COPC	Deer Exposure Point Concentrations (EPC) (mg/kg wet weight) for Plant Boundary	
	Baseline Case (predicted)	Future Case (predicted)
Aluminum	8.02E-01	9.29E-01
Antimony	1.36E-05	1.99E-05
Arsenic	3.44E-04	4.24E-04

COPC	Deer Exposure Point Concentrations (EPC) (mg/kg wet weight) for Plant Boundary	
	Baseline Case (predicted)	Future Case (predicted)
Chromium	1.05E-02	1.21E-02
Cobalt	8.93E-03	2.04E-02
Copper	2.61E-02	6.41E-02
Lead	4.44E-05	5.66E-05
Manganese	9.23E-03	2.43E-02
Mercury	6.65E-06	3.46E-05
Molybdenum	3.94E-04	3.57E-02
Nickel	9.92E-03	1.62E-02
Selenium	3.13E-05	6.28E-04
Thallium	9.90E-05	1.43E-04
Uranium	4.44E-06	6.81E-06

Table 3.3-22 COPC Concentrations in Snowshoe Hare

COPC	Snowshoe Hare Exposure Point Concentrations (EPC) (mg/kg wet weight) for Plant Boundary	
	Baseline Case (predicted)	Future Case (predicted)
Aluminum	1.33E-02	5.35E-02
Antimony	7.35E-07	2.97E-06
Arsenic	6.63E-06	2.67E-05
Chromium	1.77E-04	7.12E-04
Cobalt	1.59E-04	6.37E-04
Copper	4.39E-04	1.76E-03
Lead	8.93E-07	3.58E-06
Manganese	1.52E-04	6.15E-04
Mercury	2.79E-06	1.12E-05
Molybdenum	7.36E-06	3.36E-05
Nickel	1.68E-04	6.72E-04
Selenium	1.63E-06	6.61E-06
Thallium	2.22E-05	8.87E-05
Uranium	1.60E-07	6.66E-07

Table 3.3-23 COPC Concentrations in Grouse

COPC	Grouse Exposure Point Concentrations (EPC) (mg/kg wet weight) for Plant Boundary	
	Baseline Case (predicted)	Future Case (predicted)
Aluminum	4.00E-03	2.35E-03
Antimony	1.13E-07	2.57E-06
Arsenic	2.07E-06	6.14E-06
Chromium	5.16E-05	4.44E-05
Cobalt	1.85E-04	7.62E-05
Copper	6.05E-04	1.02E-04
Lead	2.95E-07	8.83E-07
Manganese	2.34E-04	3.06E-05
Mercury	4.02E-07	1.31E-05
Molybdenum	4.94E-04	1.90E-05
Nickel	1.16E-04	4.43E-05
Selenium	8.42E-06	5.85E-06
Thallium	8.65E-07	1.01E-04
Uranium	3.92E-08	5.33E-07

3.3.3.11 Soil Invertebrates

Soil invertebrates represent an important food source for many small mammals and birds. Because target soil invertebrates (earthworms and slugs) were not observed during baseline field sampling, no samples were collected for metal analysis. Concentrations of COPCs in soil invertebrates for both baseline and future cases were estimated using the baseline and predicted future concentrations of COPCs in soil along with generalized equations that relate metal concentrations in biota to soil concentrations and published uptake factors (Sample et al. 1998a; USEPA 2007). Predicted baseline and future concentrations in soil invertebrate are provided in Table 3.3-24.

Table 3.3-24 COPC Concentrations in Soil Invertebrates

COPC	Soil Invertebrates Exposure Point Concentrations (EPC) (mg/kg wet weight) for Plant Boundary	
	Baseline Case	Future Case
Aluminum	1.29E+02	1.29E+02

COPC	Soil Invertebrates Exposure Point Concentrations (EPC) (mg/kg wet weight) for Plant Boundary	
	Baseline Case	Future Case
Antimony	7.42E-02	7.42E-02
Arsenic	1.34E-01	1.34E-01
Chromium	3.28E+00	3.28E+00
Cobalt	3.06E-01	3.06E-01
Copper	2.81E+00	2.81E+00
Lead	4.86E-01	4.86E-01
Manganese	6.79E+00	6.79E+00
Mercury	1.18E-02	1.18E-02
Molybdenum	1.71E-01	1.71E-01
Nickel	9.77E+00	9.77E+00
Selenium	6.45E-02	6.45E-02
Thallium	6.46E-04	6.46E-04
Uranium	2.79E-03	2.79E-03

3.3.3.12 Fish Tissue

Fish (rainbow and brook trout) were collected from surface water within the Peterson Creek Watershed (e.g., Peterson Creek, Jacko Lake, Edith Lake) during two sampling events in 2014. Jacko Lake is stocked with rainbow trout while Edith Lake is stocked with rainbow trout and brook trout. The fish in Peterson Creek are thought to have also originated from stock lakes in the area (including Jacko Lake). The first sampling event occurred between July 22 and July 24: trout were collected from Jacko Lake (N=2) and Peterson Creek (N=8). The sampled fish had a fork length that varied from 95 mm to 211 mm, while their weight ranged from 10.3 g to 131 g. The fillets from these fish were submitted for analysis of metals. The second sampling event occurred between September 17 and September 18: trout were collected from Peterson Creek (N=3), Jacko Lake (N=9) and Edith Lake (N=8).Sampling locations are shown on Figure 3.3-2. The whole body of each fish was submitted for analysis of trace metals.

For ecological receptors Baseline Case metal concentrations in fish are based on the 95% UCLM concentrations from the whole body analysis (from second sampling event). For humans, metal concentrations for the Baseline Case are based on the 95% UCLM concentrations from the fillet analysis (from first sampling event) while metal concentrations for the Future Case were estimated based upon the modelled future concentrations of COPCs in Jacko Lake as well as a generalized equation for estimating fish tissue concentrations from surface water concentrations. Uptake factors for surface water to fish were obtained from CSA (1987); Davis et al. (1993); Lijzen et al. (2001); McGeer et al. (2003); Nussey et al. 1999; USEPA 2003. It is noted

that mercury in fish tissue is assumed to be in the form of methylmercury. This assumption was adopted for both the human health risk assessment and the ecological risk assessment.

3.3.3.12.1 Arsenic in Fish Tissue

It is generally well recognized that while both organic and inorganic forms of arsenic can be found in food, inorganic arsenic is not usually found at high levels (Health Canada 2008). On the basis of data on the organic and inorganic arsenic contents of various foodstuffs, Health Canada (2006) estimated that approximately 25% of the intake of arsenic from food is inorganic and 75% is organic. Higher levels of arsenic are generally found in fish and shellfish, but primarily in the organic form, which is not of concern to human health (Health Canada 2008). With respect to marine foods, studies suggest inorganic arsenic falls from about 1% at very low concentrations of total arsenic to about 0.5% at total arsenic concentrations greater than 20 mg/kg (NRC 1999).

The assumption that 10% of the total arsenic in fish occurs as inorganic arsenic is consistent with risk assessment practice and guidance from various regulatory agencies. In their assessment, the NRC (1999) based their arsenic intake estimates on the assumption that 10% of the arsenic in fish is inorganic, and noted that, based on the literature, the estimate of 10% was high and considered an upper bound. The USEPA (2003) also used an upper estimate of 10% of the total arsenic in fish occurs as inorganic arsenic in their risk assessment; however, the USEPA (2003) also noted that an alternative assumption that 1% of the total arsenic was inorganic for anadromous fish species (*e.g.*, salmon) and therefore included both assumptions in their risk estimates to express the uncertainty (*i.e.*, presented health risks based on 1% and 10%). More recently, the Oregon Department of Environmental Quality (2011) completed a review of the literature and also concluded that an assumption that 10% of the total arsenic in fish occurs as inorganic arsenic is appropriate for the protection of human health.

Based on the above, site-specific data are not required to support the common assumption that only 10% of total arsenic in fish is inorganic. The assumption of 10% inorganic arsenic in fish has only been applied to the concentration in fish fillet, as this is the part of the fish that humans are mostly likely to consume.

COPC Concentrations in fish tissue are provided in Table 3.3-25 and Table 3.3-26.

Table 3.3-25 COPC Concentrations in Fish Tissue (Fillets)

COPC	Fish Exposure Point Concentrations (EPC) (mg/kg wet weight)	
	Baseline Case	Future Case
Aluminum	1.00E+00	5.28E+00
Antimony	2.00E-03	2.00E-03
Arsenic	1.44E-02[a]	1.73E-02[a]
Chromium	4.00E-02	1.92E-01

COPC	Fish Exposure Point Concentrations (EPC) (mg/kg wet weight)	
	Baseline Case	Future Case
Cobalt	5.86E-02	1.24E-01
Copper	5.30E-01	9.30E-01
Lead	3.15E-01	4.47E-01
Manganese	2.32E-01	3.05E-01
Mercury (assumed to be 100% Methylmercury)	5.69E-02	6.01E-02
Molybdenum	5.72E-02	1.06E-01
Nickel	1.53E+00	2.48E+00
Selenium	9.37E-01	1.66E+00
Thallium	3.05E-03	3.05E-03
Uranium	5.60E-04	6.96E-04

Notes:
[a] Concentration of inorganic arsenic based on the assumption that 10% of arsenic in fish is inorganic.

Table 3.3-26 COPC Concentrations in Fish Tissue (Whole body)

COPC	Fish Exposure Point Concentrations (EPC) (mg/kg wet weight)	
	Baseline Case	Future Case
Aluminum	1.32E+01	6.98E+01
Antimony	2.00E-03	2.00E-03
Arsenic	5.68E-02	6.81E-02
Chromium	3.56E-02	1.71E-01
Cobalt	4.86E-02	1.03E-01
Copper	1.72E+00	3.01E+00
Lead	1.78E-01	2.53E-01
Manganese	1.54E+00	2.02E+00
Mercury (assumed to be 100% Methylmercury)	9.18E-02	9.70E-02
Molybdenum	1.57E-02	2.91E-02
Nickel	1.03E-01	1.67E-01
Selenium	1.13E+00	1.99E+00
Thallium	3.98E-03	3.98E-03
Uranium	7.92E-03	9.85E-03

3.3.3.13 Sediment

Five replicate sediment samples were collected from each of seven locations: one location in Edith Lake (EDITH) one location in Goose Lake (GOOSE), four locations in Peterson Creek (PC-08, PC-01, PC-02 and PC-10), and one location in Jacko Lake (JACL) in 2014. The location of the sediment samples are provided in Figure 3.3-2. Further details of sample collection are provided in the Sediment/Aquatics TDR.

The Baseline Case and Future Case sediment concentrations from Jacko Lake and Peterson Jacko Lake and Peterson Creek (Location PCO2) are provided in Table 3.3-27. This assessment focuses on these locations as they best represent the range of aquatic habitats likely to be affected by Project activities. Sediment at these locations is more likely to experience environmental changes than sediment associated with other waterbodies within the LSA and RSA due to their proximity to the Project and directional flow of surface and groundwater. The use of these two locations to assess ecological risk due to COPCs in surface water is discussed further in Section 5.1.1 . The concentrations of COPCs in sediment for the Baseline Case were estimated by determining the average concentration at each sampling location.

Concentrations of COPCs in sediment for the Future Case were estimated based upon the modelled metal concentrations in water under Future Case and the generalized equation for estimating sediment concentrations from surface water concentrations. Where available, uptake factors for water-to-sediment were based on concentration ratios from Sheppard et al. (2010) which were adjusted to consider site-specific sediment characteristics (e.g., organic carbon and grain size) and provide the quantity of the available and mineralized metal content in the sediment. It is noted that increases in sediment concentrations are based on predicted increases of dissolved metals in surface water and not increases in the total suspended solids, as the Project is not expected to increase the level of total suspended solids over what is present under baseline conditions.

Table 3.3-27 COPC Concentrations in Sediment

COPC	Sediment Exposure Point Concentrations (EPC) (mg/kg dry weight) for Plant Boundary			
	Jacko Lake		Peterson Creek (PC02)	
	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	6.48E+03	6.63E+03	1.31E+04	1.32E+04
Antimony	3.78E-01	3.78E-01	3.30E-01	3.44E-01
Arsenic	4.36E+00	4.54E+00	4.43E+00	4.47E+00
Chromium	3.47E+01	3.51E+01	1.20E+02	1.20E+02
Cobalt	6.79E+00	9.18E+00	1.33E+01	1.35E+01
Copper	6.95E+01	7.50E+01	5.66E+01	5.69E+01

COPC	Sediment Exposure Point Concentrations (EPC) (mg/kg dry weight) for Plant Boundary			
	Jacko Lake		Peterson Creek (PC02)	
	Baseline Case	Future Case	Baseline Case	Future Case
Lead	3.41E+00	3.91E+00	4.89E+00	4.93E+00
Manganese	7.49E+02	7.74E+02	9.47E+02	9.65E+02
Mercury	5.57E-02	5.58E-02	6.30E-02	6.31E-02
Molybdenum	1.71E+01	1.84E+01	1.29E+00	1.73E+00
Nickel	3.48E+01	4.03E+01	7.36E+01	7.40E+01
Selenium	1.45E+00	1.46E+00	7.26E-01	7.27E-01
Thallium	5.00E-02	5.00E-02	6.26E-02	6.26E-02
Uranium	3.87E+00	5.27E+00	5.49E-01	1.09E+00

3.3.3.14 Benthic Invertebrates

Benthic invertebrates were not sampled; as a result metal concentrations under Baseline Case and Future Case were estimated based upon the metal concentration in sediment under each case as well as a generalized equation for estimating benthic invertebrate tissue concentrations from sediment concentrations. Uptake factors for sediment to benthic invertebrates were obtained from Garn et al. (2001); Hamilton et al. (2002); Haus et al. (2007); ORNL (1998); and Welsh and Maughan (1994). Baseline and Future Case concentrations of COPCs in benthic invertebrates are provided in Table 3.3-28.

Table 3.3-28 COPC Concentrations in Benthic Invertebrates

COPC	Benthic Invertebrates Exposure Point Concentration (EPC) (mg/kg wet weight)			
	Jacko Lake		Peterson Creek (PC02)	
	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	4.47E+02	6.04E+02	4.47E+02	6.04E+02
Antimony	2.55E-03	2.48E-03	2.55E-03	2.72E-03
Arsenic	1.56E+00	1.58E+00	1.56E+00	1.60E+00
Chromium	7.92E+00	9.29E+00	7.92E+00	9.29E+00
Cobalt	2.41E-02	3.24E-02	2.41E-02	3.24E-02
Copper	4.82E+01	4.65E+01	4.82E+01	5.13E+01
Lead	4.73E-01	5.62E-01	4.73E-01	5.62E-01
Manganese	1.29E+02	1.46E+02	1.29E+02	1.46E+02
Mercury	7.30E-03	7.75E-03	7.30E-03	7.75E-03
Molybdenum	4.79E+00	9.02E-01	4.79E+00	9.62E+00

COPC	Benthic Invertebrates Exposure Point Concentration (EPC) (mg/kg wet weight)			
	Jacko Lake		Peterson Creek (PC02)	
	Baseline Case	Future Case	Baseline Case	Future Case
Nickel	5.82E+00	7.23E+00	5.82E+00	7.23E+00
Selenium	6.82E-01	1.25E+00	6.82E-01	9.13E-01
Thallium	6.42E-03	7.14E-03	6.42E-03	7.14E-03
Uranium	3.72E-02	1.82E-02	3.72E-02	8.86E-02

3.3.4 Summary of Approaches used to Estimate Exposure Point Concentrations

The approaches used to estimate exposure point concentrations under Baseline Case and Future Case are summarized in Table 3.3-29.

Table 3.3-29 Summary of the Approaches used to Estimate Exposure Point Concentrations

Media		Baseline Case	Future Case
Air	CACs	Measured concentrations were used to as baseline concentrations for each area and the Plant Boundary. SO_2 and NO_2 1-hour concentrations are based on the respective annual 99th and 98th percentile of the daily 1-hour maximum, over one year. NO_2 annual concentrations are based on the average of 1-hour concentrations over a year. CO is based on the 8-hour maximum. $PM_{2.5}$ 24-hour concentration is based on the 98th percentile of average daily ambient air concentrations over a year; $PM_{2.5}$ annual concentration is based on the quarterly average over one year. PM_{10} is based on the maximum concentration.	SO_2 and NO_2 1-hour concentrations are based on the respective annual 99th and 98th percentile of the daily 1-hour maximum, over one year. NO_2 annual concentrations are based on the average of 1-hour concentrations over a year. CO is based on the 8-hour maximum. $PM_{2.5}$ 24-hour concentration is based on the 98th percentile of average daily ambient air concentrations over a year; $PM_{2.5}$ annual concentration is based on quarterly average over one year. PM_{10} concentration is based on the maximum concentration.
	Metals	Metals speciation data for background or baseline dust were not available and cannot be reliably modelled.	Multiplied predicted 95% UCLM $PM_{2.5}$ concentrations by maximum 95% UCLM metal concentrations in ore, tailings or mine rock.
Soil	Human receptor areas	Average concentration of soil from schools, parks and gardens (subject to availability)	Based on deposition modelling from location within each area with maximum predicted deposition
	Plant Boundary	95% UCLM of mine site soils	Based on deposition modelling from location on Plant Boundary with maximum predicted deposition

Media	Baseline Case	Future Case
Surface Water	Annual Weighted Average Concentration from 2012-2014	Maximum Annual Average of the predicted Median Concentrations
Groundwater (potable wells)	Concentration in domestic well RES-2	Predicted Concentration in domestic well RES-2 from water quality modelling (Groundwater Quality Model Memo)
Public Water	Used maximum concentration for each COPC from three analyses of treated water from the City of Kamloops Water Treatment Plant	The water quality in the municipal system is not expected to change due to the Project. Used the same concentration as Baseline Case.
Backyard Produce	Average concentrations in root, leaf and fruit in each community garden	Predicted using uptake equations, Baseline Case backyard produce concentrations, and Future Case soil concentrations
Vegetation (Mine Site)	95% UCLM concentrations for both browse and forage	Predicted using uptake equations, and Baseline Case vegetation concentrations and Future Case concentrations for soil
Cattle	Minimum of four samples collected from local cattle	Used uptake from soil, vegetation and water as well as the future concentrations for these media to proportion baseline cattle concentrations to future cattle concentrations.
Wild Meat (Deer, Snowshoe Hare, Grouse)	Predicted using uptake equations, and Baseline Case vegetation (browse, forage or berries) and soil concentrations, and the maximum concentration in Jacko Lake or PC02 for water	Predicted using uptake equations and Future Case concentrations in soil, vegetation and surface water
Soil Invertebrates	Predicted using uptake from soil equations Baseline Case mine site soil concentrations	Predicted using uptake equations and Future Case soil concentrations
Small Mammals	95% UCLM of tissue samples	Predicted using uptake from soil equations and Future Case soil concentrations at mine site
Fish	95% UCLM concentration of sampling locations for both fillets and whole body	Predicted using uptake from water equations, Baseline Case fish concentrations, and Future Case water concentrations
Sediment	Average concentrations of samples	Predicted using Kd uptake factor, Baseline Case sediment concentrations, and Future Case surface water concentrations.
Benthic Invertebrates	Predicted using uptake equations and Baseline Case sediment concentrations.	Predicted using uptake equations and Future Case sediment concentrations

4.0 HUMAN HEALTH RISK ASSESSMENT

Human health risk assessment (HHRA) is a well-established scientific process used to estimate the nature and magnitude of potential health risks associated with exposures to project-related COPCs. The HHRA evaluates health risks associated with both existing conditions (Baseline Case) and with potential future conditions (Future Case) in order to evaluate the potential adverse health effects to human receptors resulting from project-related emissions of COPCs.

4.1 PROBLEM FORMULATION

Problem formulation is the first major component of a HHRA and is intended to define key issues that should be further evaluated in a risk assessment. Problem formulation includes the identification of relevant receptors of concern and their characteristics, COPC and exposure pathway screening that potentially connect the receptors to relevant contaminated environmental media. As the relevant COPCs have been identified in Section 3.2.3, the key tasks of the problem formulation include the following:

- Receptor selection and characterization with a focus on identifying particularly sensitive human receptors and/or those that have the greatest probability of exposure to project-related COPCs; and
- Exposure pathway screening and Conceptual Site Model (CSM) development. Development of a human health CSM involves screening of potential exposure pathways in order to identify linkages that connect receptors to potentially deleterious chemicals in environmental media.

4.1.1 Receptor Selection and Characterization

A human receptor is a hypothetical person, inclusive of all life stages (i.e. infant, toddler, child, adolescent and adult) who is potentially exposed to a COPC while in the RSA. General physical and behavioural characteristics specific to the receptor (e.g., body weight, inhalation rate, food consumption rate and drinking water intake rate) are used to estimate the level of contaminant exposure (i.e. dose) received by each receptor. The HHRA is based on receptor groups with the greatest potential for exposure to COPCs, and those who have the greatest sensitivity, or potential for developing adverse health effects from these exposures.

Project workers at the mine are protected by occupational health and safety regulations and are not specifically considered in the HHRA. Air quality monitoring at the mine during operation will help determine if further mitigation measures or personal protective equipment are required to protect the health of workers.

Based on current and anticipated future land use in the Project area there are four major types of human receptors:

- Residential Receptors – People who reside in the RSA. Residential receptors may have backyard gardens, and hunt and fish in the LSA.
- Farmer/Rancher Receptors – People who reside in the RSA, have backyard gardens, and raise cattle. The Farmer/Rancher receptors are expected to consume more local cattle than a typical Residential receptor in in Kamloops and may also hunt and fish. Farmer/Rancher receptors can use groundwater or surface water as a source of drinking water.
- Aboriginal Receptors – Aboriginal people who reside at the Kamloops Indian Reserve No.1. Aboriginals may have backyard gardens, but also hunt, fish, and collect traditional vegetation from the LSA. Other Aboriginals in the region may also use the land in the RSA for traditional purposes, but their exposure would be less than those who reside at the Kamloops Indian Reservation. Aboriginals who live in other areas such as Aberdeen are expected to have similar inhalation, and soil contact related exposures as Residents in those areas.
- Recreational Receptor - People that may be present near the Plant Boundary and who may hunt or fish in the area (e.g., someone fishing in Jacko Lake) or use the area for other recreational activities (e.g. mountain biking). This receptor is evaluated for inhalation exposures only, as other exposures are assumed to be the same as or less than those of the Residential receptor.

The Receptors in each Human Health Study area are identified in Table 4.1-1.

Table 4.1-1 Receptors in the Human Health Study Areas

Human Health Study Area	Receptors			
	Residential	Farmer/Rancher	Aboriginal	Recreational
Aberdeen	✓			
Sahali	✓			
Brocklehurst	✓			
North Shore	✓			
West End/Downtown	✓			
Knutsford		✓		
Kamloops Indian Reserve No. 1			✓	
Project tenure area			✓[a]	✓[a]

Notes:
[a] Aboriginal and Recreational receptors could visit Jacko Lake, which is located within the Project tenure area.

Receptor characteristics have been selected based on receptor category (Residential, Farmer/Rancher, Aboriginal or Recreational) and life stage. General receptor characteristics that are applicable to all four receptor categories were selected based on recommendations in Health Canada (2012a) and are provided in Table 4.1-2. Receptor parameters that vary among the Residential, Farmer/Rancher, and Aboriginal receptors are provided in

Table 4.1-3 to Table 4.1-5. Some noteworthy assumptions used in the selection of these parameters are listed below.

- During the infant life stage, humans are only expected to consume milk/formula and are not expected to consume solid foods such as local cattle and backyard produce.
- Ingestion rates of cattle are not provided in the Canadian risk assessment guidance documents. Instead the ingestion rate of cattle was estimated from the total intake rate of meat for the general Canadian population provided in Richardson (1997). Ingestion of local cattle was assumed to account for 10% of the total meat intake rate for Residential and Aboriginal receptors and 50% of the total meat intake rate for Farmer/Rancher Receptors as Farmer/Ranchers are expected to consume more local cattle than Residents or Aboriginals
- Fish ingestion rates for Aboriginals and the general population were adopted from Health Canada (2012). While Jacko Lake is a popular fishing spot it is unlikely that Aboriginals, Farmer/Rancher Receptors or Residents obtain a substantial portion of their fish intake from Jacko Lake or Peterson Creek given the small size of the fish observed during the baseline sampling program(<250 g) and the prohibition of nets. Ice fishing is also prohibited. If people were to obtain a substantial portion of their fish intake from the general Kamloops area, it is more likely they would obtain it from the Thompson River, where the principal target species is salmon and devices such as nets and fishing wheels are permitted. As a result, Aboriginals, Farmers/Ranchers s, and Residents are assumed to obtain 10% of their total fish intake from Jacko Lake.
- Wild meat ingestion rates for the Aboriginal receptor were adopted from Health Canada (2012), and Aboriginals are assumed to obtain 100% of their wild meat intake from the LSA. Health Canada does not provide wild meat intake rates for the general population. Instead it was assumed that the intake rate of wild meat for the Residential and the Farmer/Rancher receptor was 10% of the daily intake rate of meat for the general Canadian population, as provided in Richardson (1997).
- The intakes of three types of wild meat are assessed in this risk assessment: deer, snow shoe hare and grouse. These species were identified to be potentially present in the LSA and testimonials from local hunters indicate that these species are hunted in the area. It was assumed that intake rates of deer, snowshoe hare and grouse account for 80%, 10% and 10% of the total intake of wild meat, respectively.
- The intake rates for traditional plants for the Aboriginal are based on information provided in Chan et al. (2011). Based on Chan et al. (2011), the site is located in Ecozone 3, which corresponds to the Montane Cordillera/Plateau. The Ecozones are based on Chan et al. (2011). The mean grams of each traditional plant consumed per day by an Aboriginal in Ecozone 3 (Chan et al., 2011) was combined with information from Richardson (1997) about the relative amounts of leafy vegetables consumed by each age group, to estimate overall intake of traditional plants for each age group. The information in Chan et al (2011) was also used to determine that intake of traditional plants (including medicinal plants) is comprised of 80% berries and 20% leafy plants (forage).
- Intake rates of backyard produce including root vegetables and other vegetables were adopted from Health Canada (2012a). Residential, Farmer/Rancher and Aboriginal

receptors are assumed to obtain 10% of their intakes of root vegetables and other vegetables from backyard gardens.

- The intake rate of fruits was adopted from Richardson (1997). As with vegetables, Residential, Farmer/Rancher and Aboriginal receptors are assumed to obtain 10% of their intake of fruits from backyard gardens.
- Due to the lack of baseline data for Knutsford, soil data and backyard produce data from Aberdeen was used to estimate exposure for the Farmer/Rancher receptor. Future case concentrations related to deposition are based on the Baseline Case concentrations in Aberdeen (for soils, garden produce, etc.), and predicted deposition results for Knutsford.
- Soil data and backyard produce data from West End/Downtown is used to estimate exposure for the Aboriginal receptor. Future case concentrations related to deposition are based on the Baseline Case concentrations in West End/Downtown (for soils, garden produce, etc.), and predicted deposition results for West End/Downtown. West End/Downtown is located upwind of Kamloops Indian Reserve No. 1 and is thus expected to undergo greater changes in media concentrations due to Project activities.

Table 4.1-2 Human Receptor Characteristics

Assumed Receptor Characteristic	Infant	Toddler	Child	Teen	Adult
Age group duration (yrs)	0.5	4.5	7	8	60
Body weight (kg)	8.2	16.5	32.9	59.7	70.7
Incidental soil ingestion rate (g/d)	0.02	0.08	0.02	0.02	0.02
Water ingestion rate (L/d)	0.3	0.6	0.8	1	1.5
Skin Surface Area					
Hands (cm^2)	320	430	590	800	890
Upper & Lower Arms (cm^2)	550	890	1480	2230	2500
Upper & Lower Legs (cm^2)	910	1690	3070	4970	5720
Totals(cm^2)	1780	3010	5140	8000	9110
Soil Loading to Skin					
Hands (g/cm^2)	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04
Other Surfaces (g/cm^2)	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05
Averaged Loading (g/cm^2)	2.6E-05	2.3E-05	2.0E-05	1.9E-05	1.9E-05

Table 4.1-3 Residential Receptor Characteristics

Units (g/day)	Infant	Toddler	Child	Teen	Adult
Local Cattle					
Meat Ingestion Rate	0[a]	86	123	170	182
Percentage of Total Meat Intake Rate Accounted for by Cattle= 10%					
Ingestion Rate for Cattle	0[a]	8.6	12.3	17	18.2
Local Wild Meat					
Percentage of Total Meat Intake Accounted for by Wild Meat= 10%					
Ingestion Rate of Wild Meat	0[a]	8.6	12.3	17	18.2
Percentage Breakdown for Wild Meat- 80% Deer, 10% Snowshoe Hare, 10% Grouse					
Ingestion Rate of Deer	0[a]	6.88	9.84	13.6	14.56
Ingestion Rate of Snowshoe Hare	0[a]	0.86	1.23	1.7	1.82
Ingestion Rate of Grouse	0[a]	0.86	1.23	1.7	1.82
Local Fish					
Total Fish Intake Rate	0[a]	56	90	104	111
Percentage of Total Fish Intake from the LSA= 10%					
Intake Rate of Fish from LSA	0[a]	5.6	9	10.4	11.1
Local Root Vegetables					
Intake Rate of Root Vegetables	0[a]	105	161	227	188
Percentage of Root Vegetables from Backyard Gardens= 10%					
Intake Rate of Root Vegetables from Backyard Gardens	0[a]	10.5	16.1	22.7	18.8
Local Other Vegetables					
Intake Rate of Other Vegetables	0[a]	67	98	120	137
Percentage of Other Vegetables from Backyard Gardens= 10%					
Intake Rate of Other Vegetables from Backyard Gardens	0[a]	6.7	9.8	12	13.7
Local Fruits					
Intake Rate of Fruits	0[a]	234	268	258	247
Percentage of Fruits from Backyard Gardens= 10%					
Intake Rate of Fruits from Backyard Gardens	0[a]	23.4	26.8	25.8	24.7

Notes:

[a] Humans are only expected to consume milk during the infant life stage

Table 4.1-4 Farmer/Rancher Receptor Characteristics

Units (g/day)	Infant	Toddler	Child	Teen	Adult
Local Cattle					
Meat Ingestion Rate	0[a]	86	123	170	182
Percentage of Total Meat Intake Rate Accounted for by Cattle= 50%					
Ingestion Rate for Cattle	0[a]	43	61.5	85	91
Local Wild Meat					
Percentage of Total Meat Intake Accounted for by Wild Meat= 10%					
Ingestion Rate of Wild Meat	0[a]	8.6	12.3	17	18.2
Percentage Breakdown for Wild Meat- 80% Deer, 10% Snowshoe Hare, 10% Grouse					
Ingestion Rate of Deer	0[a]	6.88	9.84	13.6	14.56
Ingestion Rate of Snowshoe Hare	0[a]	0.86	1.23	1.7	1.82
Ingestion Rate of Grouse	0[a]	0.86	1.23	1.7	1.82
Local Fish					
Total Fish Intake Rate	0[a]	56	90	104	111
Percentage of Total Fish Intake from the LSA= 10%					
Intake Rate of Fish from LSA	0[a]	5.6	9.0	10.4	11.1
Local Root Vegetables					
Intake Rate of Root Vegetables	0[a]	105	161	227	188
Percentage of Root Vegetables from Backyard Gardens= 10%					
Intake Rate of Root Vegetables from Backyard Gardens	0[a]	10.5	16.1	22.7	18.8
Local Other Vegetables					
Intake Rate of Other Vegetables	0[a]	67	98	120	137
Percentage of Other Vegetables from Backyard Gardens= 10%					
Intake Rate of Other Vegetables from Backyard Gardens	0[a]	6.7	9.8	12.0	13.7
Local Fruits					
Intake Rate of Fruits	0[a]	234	268	258	247
Percentage of Fruits from Backyard Gardens= 10%					
Intake Rate of Fruits from Backyard Gardens	0[a]	23.4	26.8	25.8	24.7

Notes:

[a] Humans are only expected to consume milk during the infant life stage

Table 4.1-5 Aboriginal Receptor Characteristics

Units (g/day)	Infant	Toddler	Child	Teen	Adult
Local Cattle					
Meat Ingestion Rate	0[a]	86	123	170	182
Percentage of Total Meat Intake Rate Accounted for by Cattle= 10%					
Ingestion Rate for Cattle	0[a]	8.6	12.3	17	18.2
Local Wild Meat					
Ingestion Rate of Wild Meat from LSA	0[a]	85	125	175	270
Percentage Breakdown for Wild Meat- 80% Deer, 10% Snowshoe Hare, 10% Grouse					
Ingestion Rate of Deer	0[a]	68	100	140	216
Ingestion Rate of Snowshoe Hare	0[a]	8.5	12.5	17.5	27
Ingestion Rate of Grouse	0[a]	8.5	12.5	17.5	27
Local Fish					
Intake Rate of Fish from LSA	0[a]	95	170	200	220
Percentage of Total Fish Intake from the LSA= 10%					
Intake Rate of Fish from LSA	0[a]	9.5	17	20.0	22.0
Local Root Vegetables					
Intake Rate of Root Vegetables	0[a]	105	161	227	188
Percentage of Root Vegetables from Backyard Gardens= 10%					
Intake Rate of Root Vegetables from Backyard Gardens	0[a]	10.5	16.1	22.7	18.8
Local Other Vegetables					
Intake Rate of Other Vegetables	0[a]	67	98	120	137
Percentage of Other Vegetables from Backyard Gardens= 10%					
Intake Rate of Other Vegetables from Backyard Gardens	0[a]	6.7	9.8	12	13.7
Local Fruits					
Intake Rate of Fruits	0[a]	234	268	258	247
Percentage of Fruits from Backyard Gardens= 10%					
Intake Rate of Fruits from Backyard Gardens	0[a]	23.4	26.8	25.8	24.7
Traditional Plants[b]	0	2.3	3.4	4.1	4.7

Notes:
[a] Humans are only expected to consume milk during the infant life stage
[b] Based on information provided in Chan et al. (2011)

It was assumed that each receptor group is present in the HHERA RSA, on average, seven days per week, every week, each year of their life. This is considered conservative, as it does not account for time away for trips, vacations, work, or relocation to areas outside of the RSA. Exposure to COPCs is assessed for specific life stages for each applicable COPC.

Where possible exposure assumptions were based on site-specific information; in the absence of this information, assumptions were based on regulator recommendations or professional judgement. Changes in the assumptions can affect the magnitude of the estimated risk under Baseline Case and Future Case; however minor changes in assumptions are not expected to affect the overall outcome of the risk assessment. The focus of an HHERA in support of an EA is to determine the change in risk that could occur due to the Project. The change in risk is the difference between risk under Baseline Case and risk under Future Case. Since minor changes in assumptions apply to both the Baseline Case and the Future Case, these changes don't have a pronounced effect on the change in risk due to the Project. As a result the assumptions selected in this risk assessment are considered appropriate for estimating the change in risk between Baseline Case and Future Case.

4.1.2 Exposure Pathway Screening and Conceptual Site Model

Exposure pathway screening and development of the HHRA CSM outlines the linkages, or exposure pathways by which people might be exposed to COPCs for both the Baseline Case and the Future Case.

In the exposure assessment, the likelihood that human receptors may come into contact with a COPC is evaluated by examining the potential for movement of a COPC from its source to the eventual point of receptor exposure. The potential exposure media for human receptors, the COPCs that are considered for each exposure pathway and a pathway-specific rationale for inclusion or exclusion from this HHRA are shown in Table 4.1-6.

Table 4.1-6 Exposure Pathway Screening Summary

Exposure Pathway	Receptor Category	Inclusion in the HHRA	COPCs Assessed	Rationale for Selection or Exclusion
Inhalation of COPCs from air emissions	Residential	Yes	SO_2, NO_2, CO, PM_{10}, $PM_{2.5}$, PAH, Metals	COPCs will be released to the air as a result of Project activities. People who live within the LSA or who engage in traditional or recreational activities in the LSA could potentially inhale COPCs released to the air as a result of Project activities.
	Farmer/Rancher	Yes		
	Aboriginal	Yes		
	Recreational	Yes		
Dermal contact with soil Incidental	Residential	Yes	Metals	Dust from project-activities may affect soil quality via dust dispersion and deposition. The potential for incidental ingestion of soil exists for all receptor categories, though it is not assessed for the
	Farmer/Rancher	Yes		
	Aboriginal	Yes		

Exposure Pathway	Receptor Category	Inclusion in the HHRA	COPCs Assessed	Rationale for Selection or Exclusion
soil ingestion	Recreational	No		Recreational receptor as recreational exposure is infrequent and expected to be less than Residential exposure.
Surface Water Ingestion	Residential	No	Metals	Watercourses may receive COPC inputs via air deposition, runoff, and seepage. Farmer/Rancher receptors may use surface water from Peterson Creek as a source of drinking water and to water cattle. Residential receptors and Aboriginal receptors are expected to use the Kamloops municipal distribution system as a potable source, and are not expected to consume surface water.
	Farmer/Rancher	Yes		
	Aboriginal	No		
	Recreational	No		
Groundwater Ingestion or Contact	Residential	No	Metals	Groundwater may receive COPC via seepage and infiltration from surface water. Groundwater is used as drinking water in the Knutsford area (location of the Farmer/Rancher receptor). The Residential receptor and Aboriginal receptor are assumed to obtain their drinking water from the Kamloops municipal distribution system.
	Farmer/Rancher	Yes		
	Aboriginal	No		
	Recreational	No		
Ingestion of Cattle	Residential	Yes		Cattle may be exposed to COPCs as a result of Project activities due to deposition in soil, uptake into plants from soil and changes in water quality in surface water and groundwater. All three receptor groups are assumed to eat local cattle, though the percentage of the total daily intake of meat accounted for by cattle varies, with the Farmer/Rancher receptor having the largest percentage.
	Farmer/Rancher	Yes		
	Aboriginal	Yes		
	Recreational	No		
Ingestion of Wild Meat	Residential	Yes	Metals	Wild animals may be exposed to COPCs from Project activities due to deposition on soil, uptake into plants from soil and changes in surface water quality. All three receptor groups are assumed to eat wild meat, though the Aboriginal receptor has a considerably higher intake than the Residential and Farmer/Rancher receptor.
	Farmer/Rancher	Yes		
	Aboriginal	Yes		
	Recreational	No		
Ingestion of Garden Produce	Residential	Yes	Metals	Garden produce (root vegetables, other vegetables and fruits) may be exposed to COPCs from Project activities due to deposition on soil and then uptake into the plant. All three receptor groups are assumed to consume garden produce.
	Farmer/Rancher	Yes		
	Aboriginal	Yes		
	Recreational	No		

Exposure Pathway	Receptor Category	Inclusion in the HHRA	COPCs Assessed	Rationale for Selection or Exclusion
Ingestion of Traditional Plants	Residential	No	Metals	Traditional plants may be exposed to COPCs may be exposed to CPCs from Project activities due to the deposition of dust-bond metals on sol and the subsequent uptake of metals into the plants. Members of the Aboriginal community may consume traditional plants from within the LSA. Farmer/Rancher, residential and recreational receptors may consume some wild plants, but this is typically limited to berries and these receptors would be expected to consume fewer traditional plants than members of the aboriginal community.
	Farmer/Rancher	No		
	Aboriginal	Yes		
	Recreational	No		
Ingestion of Fish	Residential	Yes	Metals	COPCs can accumulate in fish, as a result of Project activities, due to change in surface water quality followed by uptake into fish. All three receptor groups are expected to consume fish from the LSA. The Aboriginal receptor is expected to consume a considerably higher level of local fish than either the Residential receptor or Farmer/Rancher receptor.
	Farmer/Rancher	Yes		
	Aboriginal	Yes		
	Recreational	No		

Beginning with source media (e.g. air, soil, water), the key exposure pathways through which potential dietary items can accumulate COPCs, and human receptors can become exposed to COPCs, are summarized in the conceptual HHRA model (Figure 4.1-1). The pathways on the CSM are considered complete and the checkmarks indicate the phases that are assessed for each pathway. The Future case concentrations for inhalation exposures are based on the data for the Operational phase as concentrations of CACs and airborne metals related to the Project are expected to be higher during this phase than during construction, decommissioning and closure phases.

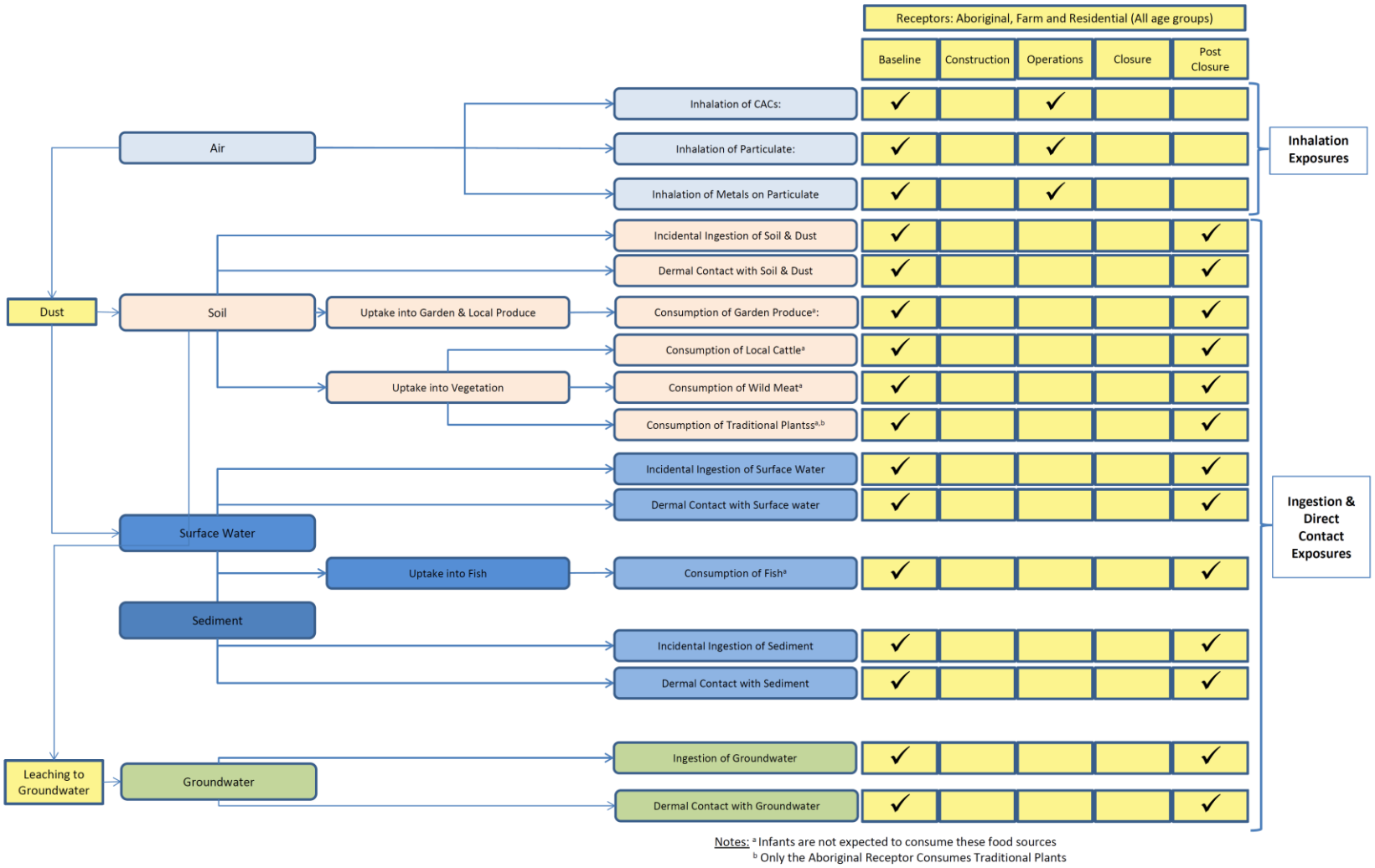


Figure 4.1-1 Human Health Conceptual Site Model

4.2 TOXICITY ASSESSMENT

Toxicity is the potential for a contaminant to produce a permanent or temporary change to the structure or functioning of the receptor's body. The toxicity of a contaminant depends on the amount taken into the body (referred to as the "dose") and the duration of exposure (the length of time the receptor is exposed to the contaminant). For each contaminant, there is a specific dose and duration of exposure necessary to produce a toxic environmental effect in a given receptor. This is referred to as the "dose-response relationship" of a contaminant. The toxic potency of a contaminant (its ability to produce damage to the structure or function of the body) is dependent on the inherent properties of the contaminant itself (its ability to cause a biochemical or physiological response at the site of action within the receptor's body) as well as the ability of the contaminant to reach the site of action. This dose-response principle is central to risk assessment methodology.

4.2.1 Toxicological Reference Values

Two basic categories of chemicals are commonly recognized by regulatory agencies (depending on the contaminant's mode of toxic action) and applied when estimating TRVs for human health (USEPA 1989). These are the "threshold" approach (typically used to evaluate non-carcinogens) and the "non-threshold" approach (typically used for carcinogenic compounds).

In the case of threshold contaminants, a threshold level must be exceeded for toxicity to occur. At low doses, processes in the human body are able to effectively remove chemical constituents without causing a consequent adverse or toxic effect. As the dose or exposure increases, the body's ability to effectively excrete the compounds is reduced. When the exposure to a compound exceeds the body's ability to process and excrete the compound, it can cause adverse or toxic effects. The point at which this occurs is called the threshold. The threshold is different for every compound. The exposure limits developed for each compound reflect the threshold for each chemical. Exposure limits for oral/dermal exposure and inhalation exposures are developed from toxicological studies of human or animal populations and are set to ensure that no adverse effects will result for the established exposure limit. The derivation of a TRV is often based on the identification of a no observable adverse effect level (NOAEL) which is the dose or amount of the contaminant that results in no obvious response in the most sensitive test species and test endpoint. The application of uncertainty or safety factors to the NOAEL provides an added level of protection, allowing for derivation of a TRV that is expected to be safe to the general public following exposure for a prescribed period of time. Generic nomenclature for TRVs for threshold contaminants includes Reference Concentration (RfC), which refers to the acceptable concentration of an airborne contaminant for which the primary route of exposure is inhalation, and Reference Dose (RfD), which refers to the acceptable dose of a contaminant and is most commonly expressed in terms of the total intake of the contaminant per unit of body weight per day (mg/kg-day).

Chemical interactions can also modify the toxicity of a given COPC via four general processes:

Non-interacting – contaminants do not produce a response in combination with each other; the toxicity of the mixture is the same as the toxicity of the most toxic component of the mixture;

Additive – contaminants have similar targets and modes of action on a target organ or component of the body but do not interact. The hazard for exposure to the mixture is simply the sum of hazards for the individual contaminants, commonly referred to as the hazard index;

Synergistic – there is a positive interaction among the contaminants such that the response is greater than would be expected if the contaminants acted independently or in an additive manner; or

Antagonistic – there is a negative interaction among the contaminants such that the response is less than would be expected if the contaminants acted independently or in an additive manner.

For human health exposures, quantitative information on interactions among chemical mixtures is rarely available. In the absence of available information on chemical mixture characteristics, the estimation of potential risk is sometimes based on the sum of each individual chemical's toxicological risk, unless there is information indicating that the interaction is other than additive in nature. However, this practice is only appropriate if the COPCs in question have similar modes of action and similar toxic endpoints in the human body.

4.2.2 Selection of Toxicological Reference Values (TRVs)

A hierarchy was used for the selection of toxicological information for threshold and non-threshold chemicals, consistent with guidance from the BC MOE. Based on this guidance, the following sources were consulted in the selection of air quality criteria for assessing inhalation exposures to CACs and in the selection of TRVs for assessing exposures to the COPCs.

The selection of human health-based ambient air quality criteria (AAQOs) for CACs used the following selection hierarchy:

- BC MOE human health-based AAQOs
- Canadian Council of Ministers of the Environment (CCME),
- United States Environmental Protection Agency (USEPA); and
- World Health Organization (WHO)

The ambient air quality criteria for the CACs used in this HHRA are summarized in Table 4.2-1.

Table 4.2-1 Air Quality Criteria for CACs

CAC	Averaging Period	Air Quality Criteria (TRV) (µg/m³)	Reference
SO_2	1-hour	200	BC MOE Interim AQO (2014d)
NO_2	1-hour	188	BC MOE Interim AQO (2014d)
	annual	40	WHO (2005)
CO	8-hour	14,300	BC Objective (2013)
$PM_{2.5}$	24-hour	25	BC Objective (2013)
	annual	8	BC Objective (2013)
PM_{10}	24-hour	50	BC Objective (2013)
	Annual	20	WHO(2005)

The selection of TRVs for assessing exposures to the other COPCs (i.e., metals) used the following selection hierarchy:

- USEPA Integrated Risk Information System (IRIS);
- Health Canada;
- US Agency for Toxic Substances and Disease Registry (ATSDR);
- California Environmental Protection Agency (Cal EPA);
- Rijksinstituut Voor Volksgezondheid En Milieu (RIVM) – The Netherlands National Institute for Public Health and the Environment;
- Texas Commission on Environmental Quality (TCEQ 2013);
- Ontario Ministry of the Environment (OMOE); and,
- Joint FAO/WHO Expert Committee on Food Additives (JECFA)

The oral TRVs and oral slope factors used in this HHRA are summarized in Table 4.2-2 and Table 4.2-3. The inhalation TRVs and UR are provided Table 4.2-4 and Table 4.2-5.

An inhalation TRV for thallium was not available in the literature. A reference concentration (RfC) for an adult was extrapolated from the reference dose (RfD) using Equation 1; this route to route extrapolation approach is supported by the USEPA.

$$extrapolated\ RfC\ \left(\frac{mg}{m^3}\right) = RfD\left(\frac{mg}{kg} - day\right) \times \frac{70.7\ kg}{\frac{15.8\ m^3}{day}}$$ (Equation 1)

The extrapolated RfC is 6.26E-05 mg/m³.

Table 4.2-2 Non-carcinogenic Oral Toxicological Reference Values

Compound	Oral TRV Infant (mg/kg-d)	Oral TRV Toddler (mg/kg-d)	Oral TRV Child (mg/kg-d)	Oral TRV Teen (mg/kg-d)	Oral TRV Adult (mg/kg-d)	Health Effect	Reference
Aluminum	1.00	1.00	1.00	1.00	1.00	bone toxicity, lung toxicity, and neurotoxicity	ATSDR (2008)
Antimony	0.0004	0.0004	0.0004	0.0004	0.0004	cellular necrosis, decreased blood glucose levels and altered and cholesterol levels	USEPA (1991a)
Arsenic	0.0003	0.0003	0.0003	0.0003	0.0003	hyperpigmentation, keratosis and possible vascular complications	USEPA (1993a)
Chromium	1.5	1.5	1.5	1.5	1.5	No effects observed	USEPA (1998a)
Cobalt	0.001	0.001	0.001	0.001	0.001	cardiomyopathy	OMOE (2011a) modified from ATSDR (2004)
Copper	0.0910	0.0910	0.110	0.126	0.141	hepatotoxicity, gastrointestinal effects	Health Canada (2010a)
Lead	0.0006	0.0006	0.0006	0.0013	0.0013	developmental neurotoxicity, increased systolic blood pressure	WHO (2011)
Manganese	0.14	0.14	0.14	0.14	0.14	CNS effects	USEPA (1996a)
Mercury	0.0003	0.0003	0.0003	0.0003	0.0003	nephrotoxicity	Health Canada (2010a)
Methylmercury	0.0002	0.0002	0.0002	0.0002	0.0002	neurotoxicity	Health Canada (2010a)
Molybdenum	0.005	0.005	0.005	0.005	0.005	Increased uric acid levels	USEPA (1993c)
Nickel	0.02	0.02	0.02	0.02	0.02	Decreased body weight and organ weight	USEPA (1996b)
Selenium	0.005	0.005	0.005	0.005	0.005	clinical selenosis	USEPA (1991)
Thallium	0.000014	0.000014	0.000014	0.000014	0.000014	Hairloss	MOE (Cal EPA DW 1999)
Uranium	0.003	0.003	0.003	0.003	0.003	Body weight loss and nephrotoxicity	USEPA (1989)

Table 4.2-3 Carcinogenic Oral Toxicological Reference Values

Compound	Oral SF $(mg/kg\text{-}d)^{-1}$	Health Effect	Reference
Arsenic	1.5	lung cancer	USEPA (1998b)

Table 4.2-4 Non-carcinogenic Inhalation Toxicological Reference Values

Compound	Inhalation TRV (mg/m^3)	Health Effect	Reference
Aluminum (As Aluminum Oxide)	0.120	not listed (particulate exposure)	OMOE (2012)
Antimony	0.025	not listed	OMOE (2012)
Arsenic	0.001	lung cancer	RIVM (2001)
Chromium	0.0001	lung effects	USEPA IRIS (1998a)
Cobalt	0.0001	Respiratory Effects	OMOE (2012)
Copper	0.001	lung and immune system effects	RIVM (2001)
Lead	0.0005	neurological effects in children	OMOE (2012)
Manganese	0.00005	neurological effects	USEPA IRIS (1996a)
Mercury	0.00006	reproductive system damage, behavioural problems and learning disabilities	Health Canada (2012a)
Molybdenum	0.012	Not provided	RIVM (2001)
Nickel	0.0001	carcinogenic and non-carcinogenic effects	OMOE (2012)
Selenium	0.02	alimentary, cardiovascular, nervous system effects	Cal EPA (2014)
Thallium	6.26E-05	Extrapolated from RfD	Section 4.2.2
Uranium	0.0001	kidney toxicity	OMOE (2011c, 2012)

Notes:
[a] RIVM acknowledged that lung cancer can occur at concentrations greater than 0.01 mg/m^3, however they concluded that arsenic is non-genotoxic and the mechanism for carcinogenicity is based on a threshold effect. RIVM derived a tolerable air concentration of 0.001 mg/m^3 based on the threshold concentration for cancer (0.01 mg/m^3) and an uncertainty factor of 10 applied for intrahuman variability

Table 4.2-5 Carcinogenic Inhalation Toxicological Reference Values

Compound	Inhalation UR $(mg/m^3)^{-1}$	Health Endpoint	Reference
Arsenic	4.3	bladder, lung, and liver cancer	USEPA IRIS (1996)
Chromium	11	lung cancer	Health Canada (2010a)
Nickel	1.3	lung and nasal cancer	Health Canada (2010a)

4.3 EXPOSURE ASSESSMENT

The main objective of the exposure assessment is to develop a quantitative estimate of exposure for human receptors to each COPC, based on COPC concentrations in media and receptor characteristics.

Section 3.3.3 presented the EPCs used in the risk assessment for air, soil, vegetation, water, wild meat, cattle and fish tissue for the Baseline Case and the Future Case. The HHRA used these EPCs to estimate exposure for the assessment of human health risk, assuming that the human receptors are present within their area of the LSA, 100% of the time. This is considered a conservative assumption as actual human receptors are likely to leave the LSA for at least a portion of their time (e.g. to go on vacation).

The intake of country food can account for a substantial part of the total amount of food that people eat. For the purpose of this HHERA, country foods consumed by the Residential, Farmer/Rancher, and Aboriginal receptors include local cattle, fish, wild meat and backyard produce. Aboriginal receptors are also assumed to consume traditional plants (e.g. berries, leafy plants, medicinal plants, etc.). Details related to receptor intakes are provided in Section 4.1.1.

4.3.1 Calculation of Average Daily Dose

4.3.1.1 Inhalation Exposures

The inhalation TRVs for the non-carcinogenic CACs and other COPCs are expressed as chemical concentrations in the air (mg/m^3) and not as doses on a per body weight basis (mg/kg-day). As a result, the predicted concentrations of the non-carcinogenic CACs and other COPCs can be compared directly to the TRVs in the Risk Characterization (Section 4.4); detailed exposure estimates are not required.

For the carcinogenic chemicals, the assessment of potential risk is based on a comparison of the lifetime averaged concentration of the chemical in air. Although inhalation exposures to the carcinogenic COPCs will only occur over the operational life of the mine, the predicted COPC

concentrations in air must be converted to lifetime averaged exposures so that the predicted lifetime exposures can be properly compared to the cancer TRVs. For inhalation exposures, the lifetime averaged daily concentration (inhalation exposure) in mg/m^3 is calculated as shown below.

$$LADC_{inhal}\left({}^{mg}/_{m^3}\right) = C_{air} \times \frac{Years_{operation}}{Years_{lifetime}}$$

Where:

$LADC_{inhal}$	Lifetime averaged daily concentration (inhalation)	mg/m^3
C_{air}	Chemical concentration in air. Includes the concentration of $PM_{2.5}$ multiplied by the concentration of COPC in dust.	mg/m^3
Years $_{operation}$	Years of mine operation (23 years)	years
$Years_{lifetime}$	Years of lifetime (80 years)	years

4.3.1.2 Ingestion and Dermal Contact Exposures

Daily intakes for each COPC in food were evaluated by food type (vegetation, fish, wild meat, cattle). The consumption rates for each food are provided in Table 4.1-3 to Table 4.1-5. Site-specific consumption rates and details on the proportion of each country food consumed by humans were not available. As a result, this HHRA relied upon the reported consumption quantities in Health Canada (2004 and 2012a) as well as the information provided in a Aboriginals food study (Chan *et al*., 2011) and conservative assumptions regarding what portion of the total consumption would originate from the LSA.
Daily intakes for each receptor age group are calculated in the form of chronic daily intakes (CDIs) (to assess non-carcinogenic endpoints) and lifetime average daily doses (LADDs) (to assess carcinogenic endpoints), using the equations presented below.

$$CDI_i = Intake_{nc} \times EPC_i$$

$$LADD_i = Intake_c \times EPC_i$$

where:

CDI_i = chronic daily intake via pathway *i*, mg/kg bw-day (Note: bw means body weight);

$LADD_i$ = lifetime average daily dose via pathway *i*, mg/kg bw-day;

$Intake_{nc}$ = intake rate for medium *i* (e.g. fish) (non-carcinogenic), kg medium/kg bw-day;

$Intake_{c}$ = intake rate for medium *i* (e.g. fish) (carcinogenic), kg medium/kg bw-day; and

EPC_i = Exposure concentration of contaminant in medium *i* (e.g. fish), mg COPC/kg medium.

4.4 RISK CHARACTERIZATION

The final step in the HHERA is risk characterization. The risk characterization compares the estimated exposures to the contaminants of potential concern for each of the receptors, with the toxicity reference values to determine if site-related exposures exceed the identified limits. Because of the differences in the biological mechanisms of action between non-carcinogenic and carcinogenic chemicals, the potential hazards/risks are determined differently. The characterization of hazards associated with exposure to non-carcinogenic chemicals and the risks associated with exposure to carcinogenic chemicals (e.g., arsenic) are presented below.

4.4.1 Non-Cancer Causing Chemicals

The assessment of human health risks from non-cancer causing contaminants is conducted using Concentration Ratios (CR) for the inhalation pathway and Hazard Quotients (HQ) for all other pathways.

Concentration Ratios (CR) were used to evaluate the health risks from short-term and long-term exposure of all life stages to metals in air. CRs were calculated by dividing the predicted ground-level air concentration (i.e. 1-hour, 24-hour, or annual average) as predicted by air dispersion modelling by the appropriate TRV. Note that the TRVs for non-cancer causing contaminants are considered protective of the general population, including all life stages and sensitive subpopulations. For assessment of non-carcinogenic health risks due to short-term direct inhalation of COPCs by people, a benchmark CR of 1.0 was used. In general, the risks associated with direct inhalation are distinct from those associated with oral and dermal exposures and are therefore assessed separately.

Hazard Quotients (HQ) were calculated by dividing the predicted exposure (or dose) by the TRV for a specific COPC. Humans are potentially exposed to contaminants via ingestion through multiple types of media, such as soil, water and food. The BC MOE recommend that the total HQ for ingestion exposures be compared to a benchmark of 1.0; total HQs that exceed the benchmark should be explored further to determine if they represent a potential health risk. The HQs of individual pathways have been presented herein to provide the contribution of each to the overall ingestion HQ; however, the HQs for individual ingestion pathways are not compared to a benchmark.

When predicted human health risks are less than the benchmark (CR<1.0, HQ<1.0), adverse human health effects are not expected. If predicted human health risks are higher than the benchmark, it does not necessarily indicate that an adverse health effect will occur, but rather

triggers a more in-depth review. Review of such HQ and CR values is important since both the exposure estimates and the toxicological criteria are based on a series of conservative assumptions, including multiple predictive models and reasonable "worst case" exposure scenarios. Within the framework of an environmental assessment, an additional consideration must be given to the incremental change in risk that is predicted to occur between baseline and Future Case in order to understand the Project contributions to the health risk.

4.4.2 Cancer-Causing Chemicals

Potential health risks associated with inhalation exposures to cancer-causing COPCs were expressed as concentration ratios (CRs). The CRs were derived by dividing the LADC of the carcinogenic COPC in air by the risk-specific concentration (RsC) associated with a 1 in 100,000 incremental increase in lifetime cancer risk. The RsC is derived from the inhalation unit risk (provided in Table 4.2-5) as shown below. A CR less than 1.0 indicates that the cancer risks associated with the predicted exposures to the COPC would not exceed the risk acceptability benchmark of 1 in 100,000 established by regulatory agencies such as Health Canada and the BC MOE.

$$RsC\ \left({}^{mg}/_{m^3}\right) = \frac{10^{-5}}{IUR\ \left({}^{mg}/_{m^3}\right)^{-1}}$$

Where:

RsC	Risk-specific concentration	mg/m^3
10^{-5}	Target level of risk	Unitless
IUR	Inhalation unit risk	$(mg/m^3)^{-1}$

Potential health risks associated with non-inhalation exposures to cancer-causing COPCs were expressed as Incremental Increase in Lifetime Cancer Risks (IILCRs), and represent the increased risk of a person in a given population developing cancer over his or her lifetime as a result of the Project. IILCRs consider the increase in risk over and above background risk. For cancer-causing COPCs evaluated as part of the soil, water, or food pathway assessment, IILCR estimates resulting from a lifetime of exposure through multiple pathways were calculated by estimating a lifetime average daily dose (LADD) (over an assumed lifetime for a person of 80 years), and multiplying that LADD by the TRV (which is also referred to as the slope factor (SF)) for cancer-causing contaminants in media other than air. Consistent with Health Canada (2012a) and BC MOE guidance, the IILCR was compared to a benchmark of 1 person in a population of 100,000 (i.e. 0.00001, or 1E-05) predicted to develop cancer as a result of their contaminant exposure from project-related releases. The IILCR does not include consideration of background risk

present under Baseline Case, thus only the Future Case IILCRs are reported and these represent the increase in potential cancer risk due to the Project only.

4.4.3 Risk Characterization Results

Non carcinogenic risks were evaluated for all five human receptor age groups including infant, toddler, child, teen and adult. The results for the toddler are included in this section of the report, as this age group is the most sensitive to non-carcinogenic exposure. The non-carcinogenic risk estimates for the other age groups are provided in Appendix G.

Baseline and Future Case non-carcinogenic risk estimates for the Residential Receptor in Aberdeen, the Farmer/Rancher in Knutsford and the Aboriginal receptor have been included in the report as examples. Aberdeen and Knutsford are the closest areas to the Project and thus would be expected to have the highest rates of Project related deposition. In addition, receptors in Knutsford are assumed to consume groundwater that may be affected by the Project, and consume a greater proportion of local cattle than other receptors. The Aboriginal receptor has higher ingestion rates than the general population and consumes traditional plants. The non-carcinogenic Risk Estimates for receptors in Brocklehurst, Sahali, North Shore and, West End/Downtown were below applicable benchmarks and are provided in Appendix G.

Similar to the non-carcinogenic risk estimates, carcinogenic risk estimates for the lifetime Residential receptor in Aberdeen, lifetime Farmer/Rancher receptor in Knutsford and the lifetime Aboriginal receptor are provided in the report, while the results for the remaining human receptor areas are included in Appendix G.

4.4.3.1 Human Health Risks via Inhalation – Criteria Air Contaminants (CACs)

The CAC CRs were calculated for the Baseline Case, Project-alone case and Future Case for each of the human receptor areas and at the MPOI (Plant Boundary). The CR results for the MPOI are applicable to the Recreational receptor and have been prorated based on an exposure time of 5 hours per 24 hour period. This is considered a reasonable upper limit estimate of the time that a Recreational receptor may spend in the vicinity of the location of the MPOI (e.g., near Jacko Lake) and corresponds to an exposure prorating factor of 0.21 (5 hours/24 hours) for 24-hour exposures. 1-hour CRs are not adjusted by these prorating factors as they already represent short term exposures. Annual exposures have not been assessed as the Recreational receptor does not reside the MPOI year round.

The CR results for the Recreational receptor at the MPOI, the Residential receptor in Aberdeen, Upper Aberdeen and the Aboriginal receptor (Results from West End/Downtown used as surrogate) are provided in Table 4.4-1 to Table 4.4-3. Although the Upper Aberdeen area is part of the Aberdeen, the area in the vicinity of Pacific Way Elementary School was identified by the community as an area of particular concern with respect to the effect that mine operations could have on $PM_{2.5}$ levels in the area. To address these concerns, Project-related effects on $PM_{2.5}$ levels and the levels of other CACs have been considered for the Upper Aberdeen area in addition to the assessment completed for the Aberdeen community in general.

For the MPOI, CRs are based on the reasonable upper limit exposure discussed above. The results for the remaining human receptor areas are provided in Appendix F.

Table 4.4-1 Concentration Ratios for Recreational Receptor Exposed to CACs at the MPOI (Reasonable Upper Limit Exposure Scenario)

CAC	Averaging Period	CR		
		Reasonable Upper Limit Exposure		
		Baseline Case	Project-alone Case	Future Case
SO_2	1-hour	1.87E-02	6.43E-03	1.95E-02
NO_2	1-hour	1.69E-01	6.18E-01	7.78E-01
CO	8-hour	4.18E-02	5.84E-02	7.66E-02
$PM_{2.5}$	24-hour[a]	6.58E-02	1.61E-01	2.95E-01
PM_{10}	24-hour[a]	6.79E-02	**1.35E+00**	**1.41E+00**

Notes:

Bold CR exceeds benchmark of 1.

[a] Adjusted for a realistic exposure time of 5 hours per 24 hour period.

Table 4.4-2 Concentration Ratios for Residential Receptor in Aberdeen and Upper Aberdeen Exposed to CACs

CAC	Averaging Period	CR			CR		
		Baseline Case	Project-alone Case	Future Case	Baseline Case	Project-alone Case	Future Case
		Aberdeen			Upper Aberdeen		
SO_2	1-hour	6.27E-02	6.12E-03	6.28E-02	5.17E-02	2.91E-03	5.18E-02
NO_2	1-hour	3.50E-01	4.52E-01	5.34E-01	2.87E-01	4.52E-01	5.34E-01
	annual	5.35E-01	1.38E-01	5.83E-01	4.83E-01	1.38E-01	5.83E-01
CO	8-hour	1.12E-01	2.23E-02	1.13E-01	1.04E-01	2.23E-02	1.04E-01
$PM_{2.5}$	24-hour	**1.16E+00**	7.23E-01	**1.17E+00**	8.05E-01	3.10E-01	8.69E-01
	annual	9.58E-01	7.67E-02	9.67E-01	8.29E-01	7.67E-02	8.55E-01
PM_{10}	24-hour	**1.39E+00**	**1.44E+00**	**1.90E+00**	8.50E-01	**1.44E+00**	**1.90E+00**
	annual	3.23E-01	1.23E-01	3.37E-01	2.31E-01	1.23E-01	2.94E-01

Notes:

Bold CR exceeds benchmark of 1.

Table 4.4-3 Concentration Ratios for Inhalation Exposures to CACs in West End/Downtown (Aboriginal Receptor Exposures)

CAC	Averaging Period	CR		
		Baseline Case	Project-alone Case	Future case
SO_2	1-hour	7.30E-02	1.42E-03	7.30E-02
NO_2	1-hour	3.58E-01	1.40E-01	3.62E-01
	annual	5.33E-01	2.25E-02	5.49E-01
CO	8-hour	1.10E-01	2.97E-03	1.10E-01
$PM_{2.5}$	24-hour	**1.24E+00**	1.17E-01	**1.30E+00**
	annual	9.67E-01	7.47E-03	9.74E-01
PM_{10}	24-hour	**1.57E+00**	7.06E-02	**1.59E+00**
	annual	3.07E-01	9.86E-03	3.16E-01

Notes:
Bold CR exceeds benchmark of 1.

Predicted CRs for NO_2, SO_2 and CO are below 1.0 for Baseline and Future Case conditions, for all receptor locations in each of the community areas indicating that Baseline and Future Case exposures to these CACs do not represent a potential human health risk.

Predicted CRs for the Recreational receptor for Baseline Case, Project-alone Case, and Future Case based on prorated (as applicable) exposure to the maximum concentration at the MPOI were less than 1.0 for $PM_{2.5}$. The Future Case CR for 24-hour PM_{10} of 1.4 exceeds the benchmark of 1.0. To better understand the temporal breakdown of Future Case, prorated 24-hour PM_{10} exposures were estimated for each 24-hour period over the course of one year. Based on this analysis, there was only one 24-hour period (i.e., day) where the CR was above 1.0. This accounts for only 0.27% of the time. This exceedance also occurs in the winter, when Recreational receptors are less likely to be present for long periods of time. Further, USEPA no longer recommends the use of PM_{10} as monitoring metrics for human health evaluations, since $PM_{2.5}$ provides a stronger linkage to the evaluation of potential health effects (USEPA 2006). As a result Recreational receptors are not anticipated to be at risk of potential health effects related to inhalation of CACs from the Project.

One or more predicted maximum CRs for $PM_{2.5}$ and PM_{10} in the human receptor areas (including in Aberdeen and for the Aboriginal receptor) were above the benchmark of 1.0; these results are analyzed further below.

The CRs and percent increase for 24-hour and annual $PM_{2.5}$ in the human receptor areas are provided in Table 4.4-4 to Table 4.4-9. While the CRs for 24-hour $PM_{2.5}$ concentrations for Aberdeen are above the 1.0 benchmark for the Baseline Case and Future Case, the annual average $PM_{2.5}$ CRs are below be benchmark for Baseline and Future Cases. In addition, the

increases in 24-hour and annual average $PM_{2.5}$ CRs from Baseline Case to Future Case are 1.1% or less (Table 4.4-4). This small increase indicates that the Project is not the primary contributor to $PM_{2.5}$ levels in the Aberdeen area, and the presence of the Project will not substantially increase the potential risk. $PM_{2.5}$ levels across the majority of the Aberdeen community are below the 24-hour guidelines. 24-hour $PM_{2.5}$ concentrations in Aberdeen exceed the guideline at 7 special receptor locations for the Baseline Case and 9 special receptor locations for the Future Case. This represents an increase in exceedances of less than 3.2% from baseline to Future Case based on 63 special receptors in Aberdeen. In the Upper Aberdeen area, which is the closest residential area to the proposed mine, changes in $PM_{2.5}$ levels were evaluated at 17 special receptor locations including schools, daycares and residential areas in the vicinity of Pacific Way Elementary School. The predicted increase in 24-hour $PM_{2.5}$ concentrations between Baseline and Future Cases in this area is approximately 8%. Although increases in $PM_{2.5}$ concentrations are predicted to occur in the Upper Aberdeen area, at no time do the $PM_{2.5}$ concentrations, predicted for Baseline and Future cases, exceed the BC air quality guideline of 25 µg/m^3. The CRs for 24-Hour $PM_{2.5}$ for Baseline and Future Case are below 1.0, indicating that 24-hour $PM_{2.5}$ concentrations do not represent a potential human health risk. Increases in annual average $PM_{2.5}$ concentrations were also evaluated for the Upper Aberdeen area. Under Baseline and Future Case conditions predicted annual average $PM_{2.5}$ concentrations are below the annual average air quality guideline of 8 µg/m^3 and the CRs for Baseline and Future Cases are less than 1.0. In addition, the increase in CR between Baseline and Future Case annual average $PM_{2.5}$ exposures is approximately 3.1%. This indicates that the project-related $PM_{2.5}$ emissions are not expected to contribute substantially to overall annual $PM_{2.5}$ concentrations in the Upper Aberdeen area, and would not be expected to alter the human health risk associated with $PM_{2.5}$ inhalation in the Upper Aberdeen area.

Beyond Upper Aberdeen, Knutsford sees the highest project-related $PM_{2.5}$ increase of the human receptor areas with approximately a 12% increase in the 24-hour $PM_{2.5}$ CR and an 8% increase in the annual average $PM_{2.5}$ CR. However, $PM_{2.5}$ levels in Knutsford meet the 24-hour and annual guideline (Table 4.4-7). In the four other human receptor areas the increase of $PM_{2.5}$ between Baseline and Future Case ranged between 0.1% at Sahali to 4.6% at West End/Downtown, indicating that project related emissions are not expected to contribute substantially to overall $PM_{2.5}$ concentrations in Kamloops, and the levels are driven by existing baseline conditions. The 4.5% increase in the West End/Downtown is attributed to vehicle traffic and home heating emissions.

The isopleth maps in Figure 4.4-1 and Figure 4.4-2 show $PM_{2.5}$ exceedances in Kamloops. The shape and size of the areas with exceedances in the North Shore, Brocklehurst, West End/Downtown, Sahali and Aberdeen (including Upper Aberdeen) do not substantially change between baseline and Future Case indicating the project related $PM_{2.5}$ emissions are not substantial contributors to $PM_{2.5}$ concentrations in Kamloops.

Table 4.4-4 Concentration Ratios and Percent Increase from Baseline to Future Case for Residential Receptor Exposed to the Maximum Concentration Location in Aberdeen and Upper Aberdeen

Aberdeen					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
$PM_{2.5}$	24-hour	**1.16E+00**	7.23E-01	**1.17E+00**	1.1%
	annual	9.58E-01	7.67E-02	9.67E-01	1.0%
Upper Aberdeen					
$PM_{2.5}$	24-hour	8.05E-01	3.10E-01	8.69E-01	8.0%
	annual	8.29E-01	7.67E-02	8.55E-01	3.2%

Notes:
Bold CR exceeds benchmark of 1.

Table 4.4-5 Concentration Ratios and Percent Increase from Baseline to Future Case for Residential Receptors Exposed to the Maximum Concentration Location in Brocklehurst

Brocklehurst					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
$PM_{2.5}$	24-hour	**1.35E+00**	2.46E-01	**1.36E+00**	0.7%
	annual	**1.33E+00**	5.75E-03	**1.33E+00**	0.4%

Notes:
Bold CR exceeds benchmark of 1.

Table 4.4-6 Concentration Ratios and Percent Increase from Baseline to Future Case for Residential Receptors Exposed to the Maximum Concentration Location in Sahali

Sahali					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
$PM_{2.5}$	24-hour	**1.32E+00**	6.94E-02	**1.32E+00**	0.1%
	annual	**1.05E+00**	9.92E-03	**1.06E+00**	0.9%

Notes:
Bold CR exceeds benchmark of 1.

Table 4.4-7 Concentration Ratios and Percent Increase from Baseline to Future Case for Residential Receptors Exposed to the Maximum Concentration Location in Knutsford

Knutsford					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
$PM_{2.5}$	24-hour	3.34E-01	1.94E-02	3.76E-01	12.4%
	annual	5.35E-01	6.00E-02	5.78E-01	8.1%

Notes:
Bold CR exceeds benchmark of 1.

Table 4.4-8 Concentration Ratios and Percent Increase from Baseline to Future Case for Residential Receptors Exposed to the Maximum Concentration Location in North Shore

North Shore					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
$PM_{2.5}$	24-hour	**1.39E+00**	2.64E-02	**1.39E+00**	0.1%
	annual	**1.36E+00**	6.64E-03	**1.37E+00**	0.4%

Notes:
Bold CR exceeds benchmark of 1.

Table 4.4-9 Concentration Ratios and Percent Increase from Baseline to Future Case for Residential Receptors Exposed to the Maximum Concentration Location in West End/Downtown (Aboriginal Exposure)

West End/Downtown					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
$PM_{2.5}$	24-hour	**1.24E+00**	1.17E-01	**1.30E+00**	4.6%
	annual	9.67E-01	7.47E-03	9.74E-01	0.7%

Notes:
Bold CR exceeds benchmark of 1.

Figure 4.4-1
Baseline $PM_{2.5}$ Isopleth Map

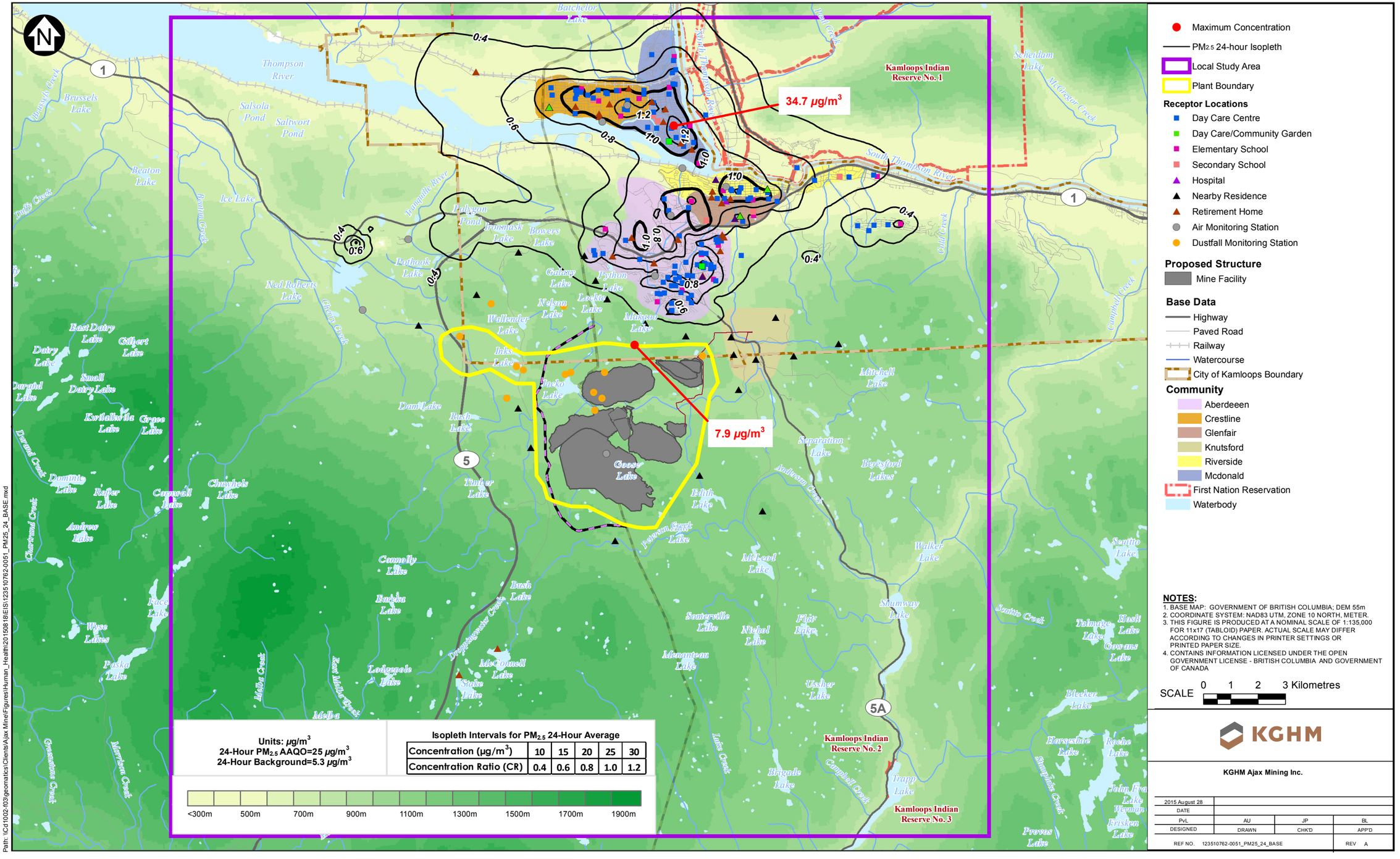
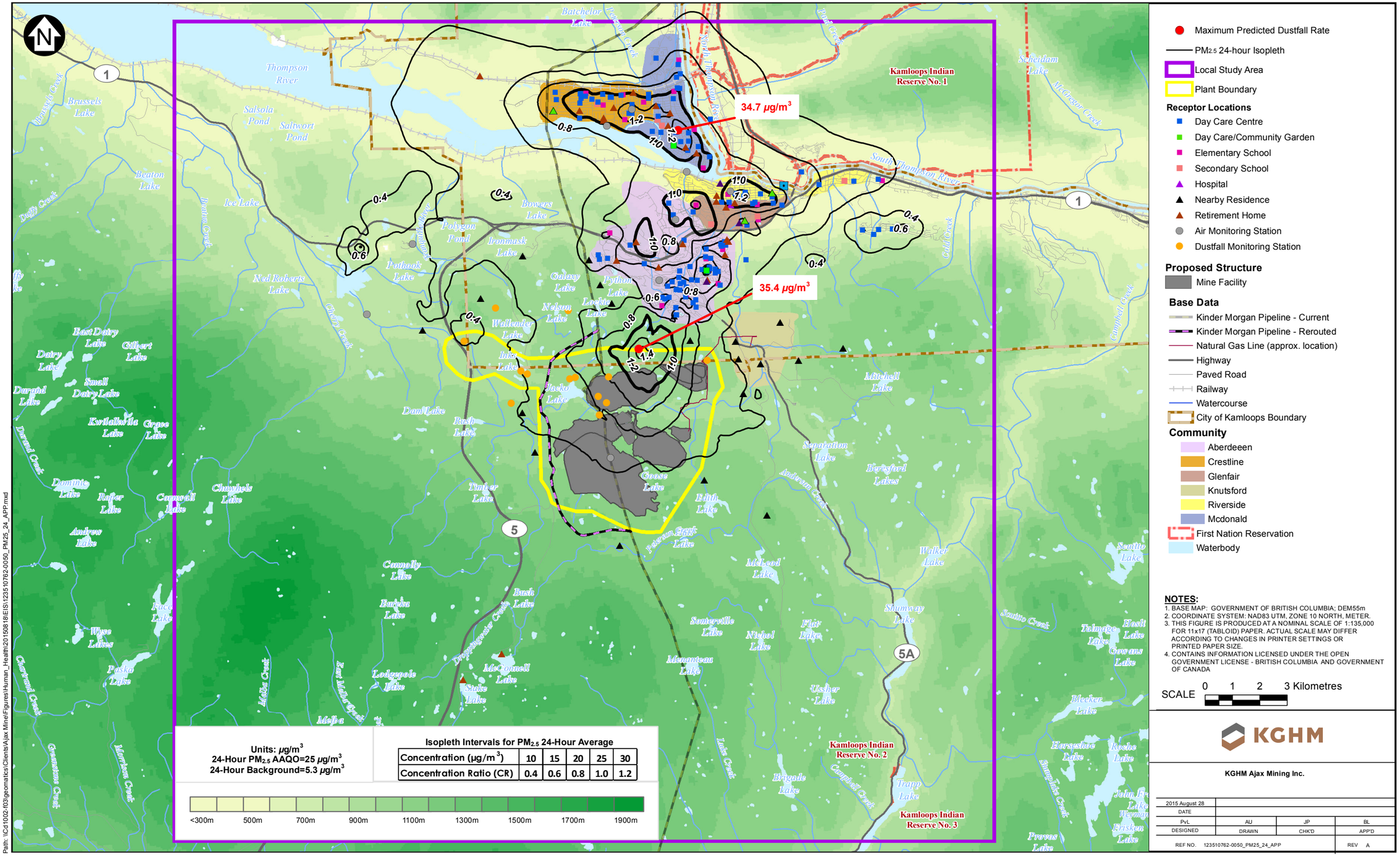


Figure 4.4-2
Future Case Operations $PM_{2.5}$ Isopleth Map

Stantec



PM_{10} is predicted to increase in the Aberdeen and other communities as result of project-related activities Figure 4.4-3 and Figure 4.4-4 show the isopleth maps for 24-hour $PM_{2.5}$ concentrations for Baseline Case and for Future Case show that the areas where the CR is above 1.0 do not change substantially between Baseline Case and Future Case. In Brocklehurst, Sahali, North Shore and West End/Downtown, the increase in maximum concentration over baseline for CRs that exceeded the benchmark ranged from 1.0% to 1.6%. These small changes between Baseline Case and Future Case indicate that future exposure is not expected to be substantially different than baseline exposure. The increases for 24-hour and annual PM_{10} in Knutsford were 29.9% and 144.9% respectively. However CRs were below the benchmark of 1.0, suggesting that the predicted PM_{10} levels would not represent a human health risk concern. The CR for the maximum 24-hour PM_{10} concentration in Upper Aberdeen increased by 123.2% between Baseline Case (CR=0.85) and Future Case (CR=1.90). However, these CRs are based on the maximum predicted concentration of PM_{10} which occur infrequently (Figure 4.4-5). Based on the bar graph in Figure 4.4-5, exceedances of the 24-hour PM_{10} guideline (i.e., 50 $\mu g/m^3$) occur only 7 days in a year (less than 2% of the time). These occur during the winter months (December through February) and do not happen on consecutive days. In addition, although the annual average CR increases by approximately 26.8% between Baseline Case (CR = 0.231) and Future Case (CR = 0.294), both the Baseline and Future Case CRs are below 1.0. The fact that the 24-hour PM_{10} concentrations exceed the air quality guideline infrequently and the fact that the annual average PM_{10} concentrations in Upper Aberdeen are below the air quality guideline in Baseline Case and Future Case indicates that Project-related changes in PM_{10} concentrations would not represent a potential human health risk concern.

For the 162 modelled special receptor locations across all six HHRA areas (including Upper Aberdeen), there are only 278 of 59130 (365 days per year x 162 receptor locations)24-hour PM_{10} concentrations that exceed the guideline in the Future Case. Over 78% of the Future Case exceedances that are predicted to occur are driven by the 218 exceedances in the Baseline Case. This indicates that the majority of PM_{10} exceedances occur as a result of background and are not project-related.

It should also be noted that the USEPA no longer recommends the use of PM_{10} as a monitoring metric for human health evaluations, since $PM_{2.5}$ provides a stronger linkage to the evaluation of potential health effects (USEPA 2006). Therefore, although CRs have been provided for PM_{10}, caution must be applied when interpreting the potential health risks that could be associated with the predicted exposures. The fact that increases in PM_{10} levels between Baseline and Future Cases are generally small across the city and the fact that the predicted exceedances of the PM_{10} guideline occur infrequently and during the winter months, suggests that exposure to Project-related PM_{10} does not pose a human health risk.

Figure 4.4-3
Baseline PM_{10} Isopleths

Stantec

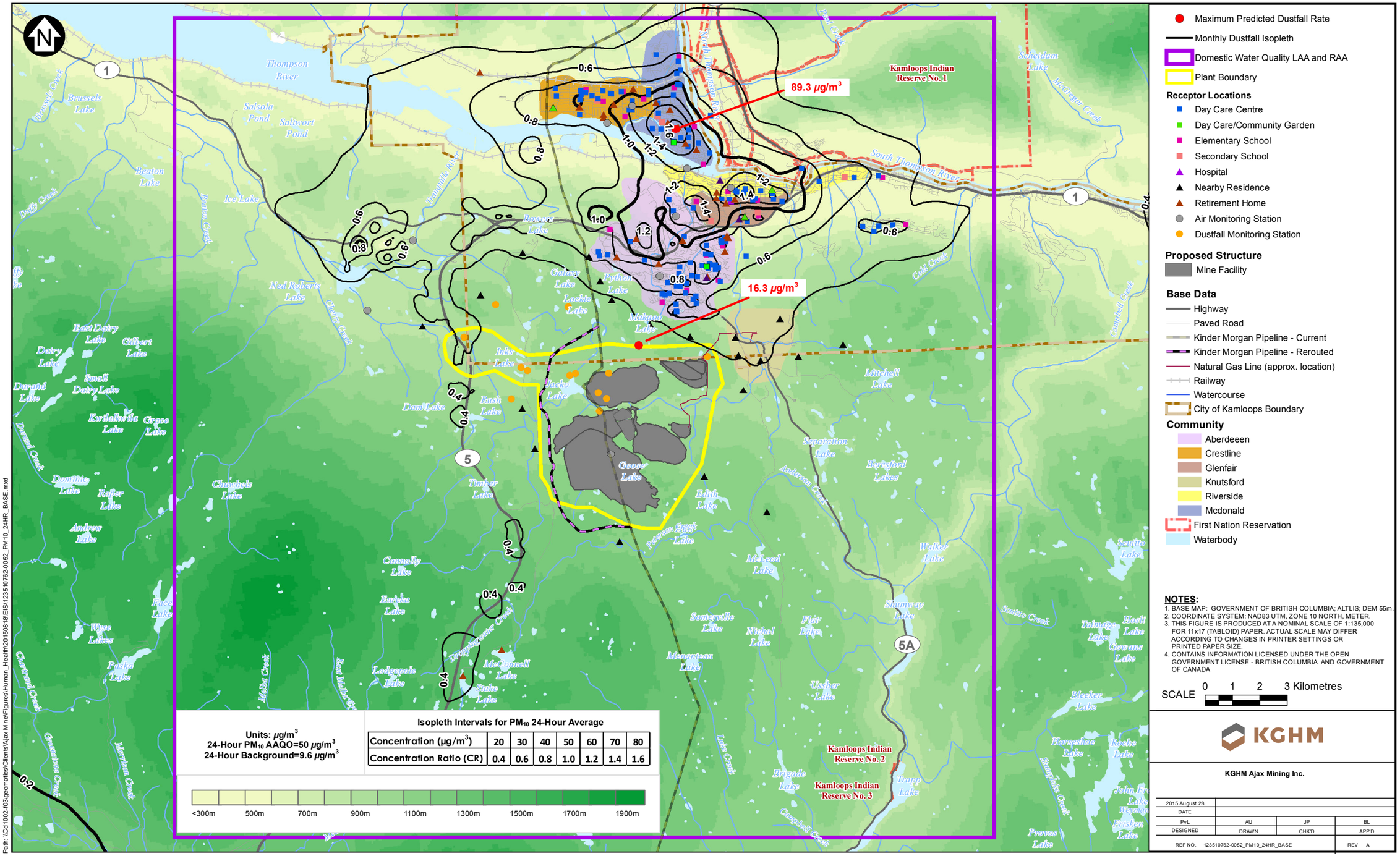
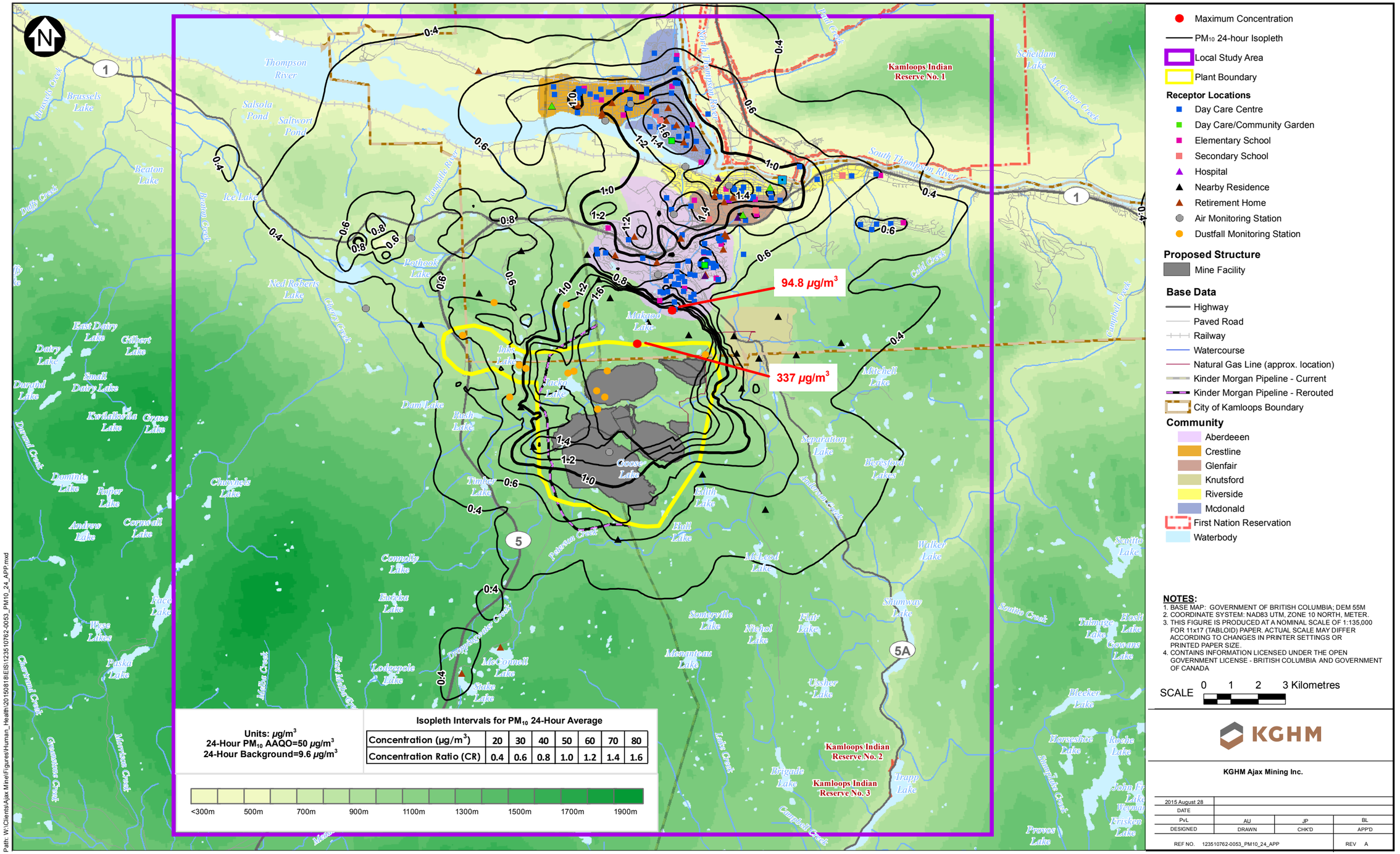


Figure 4.4-4
Future Case Operations PM_{10} Isopleths



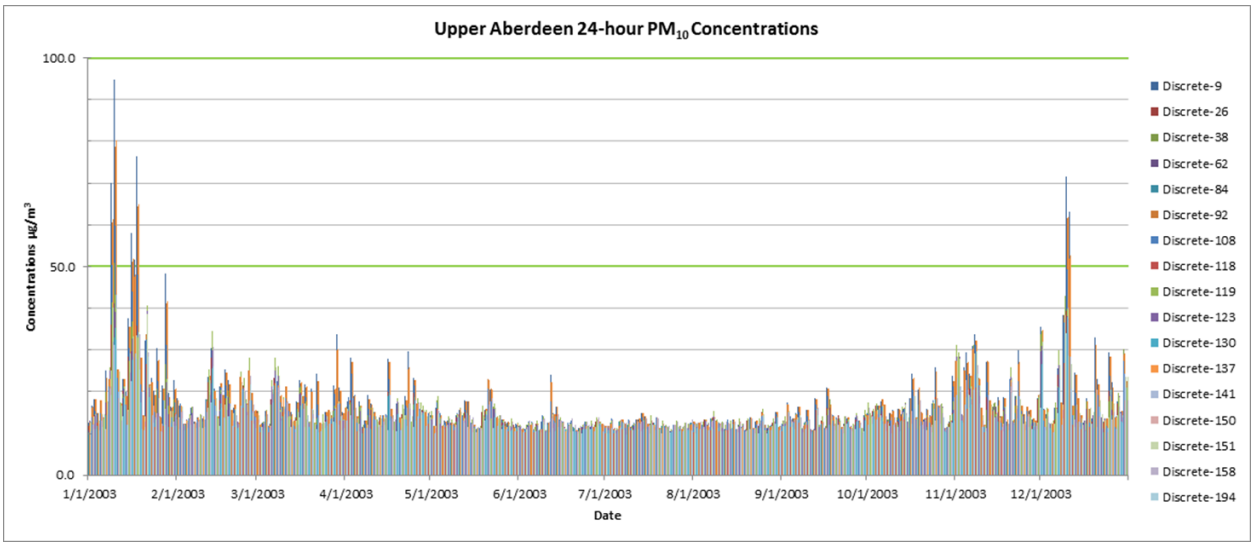


Figure 4.4-5 PM_{10} exceedances in Upper Aberdeen

CRs for the 24-hour and annual PM_{10} modelling are provided in Table 4.4-10 to Table 4.4-15.

Table 4.4-10 Maximum Concentration Ratios and percent increase from Baseline to Future Case for Aberdeen and Upper Aberdeen

Aberdeen					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
PM_{10}	24-hour	**1.39E+00**	**1.44E+00**	**1.90E+00**	36.2%
	annual	3.23E-01	1.23E-01	3.37E-01	4.5%
Upper Aberdeen					
PM_{10}	24-hour	8.50E-01	**1.44E+00**	**1.90E+00**	123.2%
	annual	2.31E-01	1.23E-01	2.94E-01	26.8%

Notes:

Bold CR exceeds benchmark of 1.

Table 4.4-11 Maximum Concentration Ratios and percent increase from Baseline to Future Case for Brocklehurst

Brocklehurst					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
PM_{10}	24-hour	**1.24E+00**	5.71E-02	**1.26E+00**	1.6%
	annual	4.95E-01	6.89E-03	5.01E-01	1.3%

Notes:

Bold CR exceeds benchmark of 1.

Table 4.4-12 Maximum Concentration Ratios and percent increase from Baseline to Future Case for Sahali

Sahali					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
PM_{10}	24-hour	**1.57E+00**	8.46E-02	**1.59E+00**	1.4%
	annual	3.84E-01	1.35E-02	3.95E-01	2.7%

Notes:

Bold CR exceeds benchmark of 1.

Table 4.4-13 Maximum Concentration Ratios and percent increase from Baseline to Future Case for Knutsford

Knutsford					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
PM_{10}	24-hour	4.54E-01	2.91E-01	5.90E-01	29.9%
	annual	5.42E-02	9.76E-02	1.33E-01	144.9%

Notes:

Bold CR exceeds benchmark of 1.

Table 4.4-14 Maximum Concentration Ratios and percent increase from Baseline to Future Case for North Shore

North Shore					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
PM_{10}	24-hour	**1.79E+00**	5.46E-02	**1.80E+00**	1.0%
	annual	5.34E-01	8.61E-03	5.41E-01	1.3%

Notes:

Bold CR exceeds benchmark of 1.

Table 4.4-15 Maximum Concentration Ratios and percent increase from Baseline to Future Case for West End/Downtown (Aboriginal Exposure)

West End/Downtown					
CAC	Averaging Period	CR			% Increase
		Baseline Case	Project-alone Case	Future Case	
PM_{10}	24-hour	**1.57E+00**	7.06E-02	**1.59E+00**	1.0%
	annual	3.07E-01	9.86E-03	3.16E-01	3.1%

Notes:

Bold CR exceeds benchmark of 1.

4.4.3.2 Human Health Risks via Inhalation – Metals

Inhalation TRVs for chronic exposures are typically used to assess the potential health risks associated with long-term exposures (years) to yearly-averaged (annual) chemical concentrations in air. This approach accounts for the fact that fluctuations in exposure can occur on an hourly or daily basis and recognizes that short-duration exposures that exceed the TRV do not represent a potential human health risk provided that the annual exposure does not exceed the exposure limit stipulated by the TRV.

The assessment of respiratory effects associated with inhalation of metals bound to particulate matter focuses on the $PM_{2.5}$ fraction, as this fraction has been demonstrated to have the potential to travel through the respiratory tract where it could lead to a potential health effect (USEPA 2006).

For each community the inhalation health risks are based on the maximum reported $PM_{2.5}$ concentration for each area. For Aberdeen, the maximum predicted emission value from across the Aberdeen community, which included Upper Aberdeen, was used. The predicted annual

concentration ratios for metal inhalation at Aberdeen, West End/Downtown (the surrogate for Aboriginal Exposure) and for the reasonable upper limit scenario at the location of the MPOI are provided in Table 4.4-16. CRs for these scenarios as well as the CRs for the remaining locations (provided in Appendix G) were below the benchmark of 1.0 indicating that potential inhalation health effects are not expected.

Table 4.4-16 Predicted annual Concentration Ratios for Metal Inhalation at Aberdeen (Project-alone Case)

COPC	Project-alone Case COPC (metal) Concentration Ratios (CRs)			
	Aberdeen	West End/Downtown	MPOI	
			No Prorating	Reasonable upper limit of exposure
Aluminum	1.65E-06	1.65E-07	5.4E-06	1.1E-06
Antimony	4.92E-09	4.94E-10	1.6E-08	3.4E-09
Arsenic	2.94E-07	2.95E-08	9.6E-07	2.0E-07
Barium	1.68E-06	1.68E-07	5.5E-06	1.1E-06
Chromium	2.09E-05	2.10E-06	6.8E-05	1.4E-05
Cobalt	3.95E-06	3.96E-07	1.3E-05	2.7E-06
Copper	1.58E-05	1.58E-06	5.2E-05	1.1E-05
Lead	4.84E-07	4.86E-08	1.6E-06	3.3E-07
Manganese	7.27E-05	7.29E-06	2.4E-04	5.0E-05
Mercury	4.33E-07	4.35E-08	1.4E-06	3.0E-07
Molybdenum	2.62E-08	2.63E-09	8.6E-08	1.8E-08
Nickel	2.12E-05	2.13E-06	7.0E-05	1.4E-05
Selenium	2.51E-09	2.52E-10	8.2E-09	1.7E-09
Thallium	4.01E-07	4.02E-08	1.3E-06	2.7E-07
Uranium	4.57E-07	4.58E-08	1.5E-06	3.1E-07

The lifetime averaged daily concentration for carcinogenic metals based on the maximum predicted metal concentrations in air for an annual averaging period were multiplied by the inhalation unit risk to determine the IILCR. IILCRs were calculated for residential exposures in the human health areas. The short term exposure of the Recreational receptor is not considered chronic, as a result IILCRs were not estimated for the Recreational receptor. The predicted IILCRs for Aberdeen and West End/Downtown are provided in Table 4.4-17; the results for the remaining locations are provided in Appendix G.

The predicted IILCRs at all locations were below the benchmark of 1.0E-05, indicating that potential carcinogenic health risks due to inhalation of metals are not expected.

Table 4.4-17 Predicted Lifetime Average Incremental Increase in Cancer for Metal Inhalation

COPC	IILCR	
	Aberdeen (Residential Receptor)	West End/Downtown (Aboriginal Exposure)
Arsenic	3.63E-10	3.65E-11
Chromium	6.61E-09	6.63E-10
Nickel	7.94E-10	7.97E-11

4.4.3.3 Human Health Risk Via Inhalation-PAHs

Health risks for PAHs are assessed based on the concentrations of $B[a]P_{TPE}$. The $B[a]P_{TPE}$ concentrations based on diesel emissions predicted to occur as a result of the project were multiplied by the inhalation slope factor for B[a]P in order to estimate the IILCR for receptors in each human health area. For each community the inhalation health risks are based on the maximum reported diesel emissions for each area. For Aberdeen, the maximum predicted emission value from across the Aberdeen community which included Upper Aberdeen, was used. IILCRs for human health areas are below the threshold of 1.0E-05, indicating that potential carcinogenic health effects due to inhalation of PAHs from diesel exhaust are not expected. IILCRs were not estimated for the Recreational receptor exposed to the MPOI as this is not considered a chronic exposure scenario.

Table 4.4-18 Predicted Annual Reasonable Upper Limit Exposure at the Location of the MPOI

Area	IILCR
Aberdeen	6.31E-10
Brocklehurst	1.64E-10
Sahali	9.60E-11
Knutsford	1.66E-10
North Shore	9.17E-11
West End/Downtown	5.29E-11

4.4.3.4 Human Health Risks via Ingestion of Country Foods

Individual HQs for the consumption of country foods (i.e. cattle, wild meat, fish, backyard produce and traditional plants) were estimated for receptors in each human receptor area. The

HQs estimated for the Residential toddler in Aberdeen, the Farmer/Rancher toddler in Knutsford and the Aboriginal Toddler are provided in Table 4.4-19 to Table 4.4-21; the HQs for the other areas are provided in Appendix G.

Table 4.4-19 Non-Carcinogenic Human Health Risks Associated with Ingestion of Country Foods for Residential Toddlers in Aberdeen

COPC	HQ									
	Garden Produce		Cattle Consumption		Fish Consumption		Wild Meat Consumption		Total for Country Food Consumption	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	1.78E-01	1.78E-01	3.86E-04	3.87E-04	3.39E-04	1.79E-03	4.15E-04	4.20E-04	1.79E-01	1.81E-01
Antimony	1.88E-02	1.91E-02	2.61E-03	2.92E-03	1.70E-03	1.70E-03	2.56E-05	2.71E-05	2.32E-02	2.38E-02
Arsenic	1.65E-01	1.65E-01	6.95E-03	7.06E-03	1.63E-02	1.95E-02	1.16E-03	1.18E-03	1.89E-01	1.93E-01
Chromium	1.68E-04	1.69E-04	6.74E-05	6.78E-05	9.05E-06	4.35E-05	4.83E-06	4.88E-06	2.50E-04	2.85E-04
Cobalt	1.31E-01	1.31E-01	2.08E-03	2.09E-03	1.99E-02	4.22E-02	2.05E-02	2.06E-02	1.73E-01	1.96E-01
Copper	2.50E-02	2.51E-02	2.38E-03	2.39E-03	1.98E-03	3.47E-03	4.29E-04	4.32E-04	2.98E-02	3.14E-02
Lead	1.34E-01	1.34E-01	3.47E-03	3.48E-03	1.78E-01	2.53E-01	4.98E-05	5.02E-05	3.15E-01	3.91E-01
Manganese	7.69E-02	7.69E-02	2.64E-04	2.82E-04	5.62E-04	7.38E-04	1.26E-04	1.28E-04	7.78E-02	7.81E-02
Mercury	8.20E-03	8.32E-03	2.08E-03	2.16E-03	9.66E-02	1.02E-01	1.08E-04	1.12E-04	1.07E-01	1.13E-01
Molybdenum	1.15E-01	1.16E-01	1.24E-03	1.24E-03	3.88E-03	7.20E-03	2.30E-03	2.32E-03	1.22E-01	1.26E-01
Nickel	2.70E-02	2.71E-02	2.19E-03	2.19E-03	2.60E-02	4.21E-02	4.78E-04	4.82E-04	5.56E-02	7.18E-02
Selenium	9.84E-03	9.96E-03	1.13E-02	1.14E-02	6.36E-02	1.13E-01	6.42E-05	6.50E-05	8.48E-02	1.34E-01
Thallium	1.55E-01	1.57E-01	1.49E-02	1.53E-02	7.39E-02	7.39E-02	4.89E-03	5.01E-03	2.49E-01	2.51E-01
Uranium	3.29E-03	3.30E-03	6.95E-05	7.56E-05	6.34E-05	7.88E-05	8.60E-07	1.01E-06	3.43E-03	3.45E-03

Table 4.4-20 Non-Carcinogenic Human Health Risks Associated with Ingestion of Country Foods for Farmer/Rancher Toddlers in Knutsford

COPC	HQ									
	Garden Produce		Cattle Consumption		Fish Consumption		Wild Meat Consumption		Total for Country Food Consumption	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	1.78E-01	1.78E-01	1.93E-03	1.94E-03	3.39E-04	1.79E-03	4.15E-04	4.20E-04	1.81E-01	1.83E-01
Antimony	1.88E-02	1.91E-02	1.30E-02	1.46E-02	1.70E-03	1.70E-03	2.56E-05	2.71E-05	3.36E-02	3.54E-02
Arsenic	1.65E-01	1.65E-01	3.47E-02	3.60E-02	1.63E-02	1.95E-02	1.16E-03	1.18E-03	2.17E-01	2.22E-01
Chromium	1.68E-04	1.69E-04	3.37E-04	3.39E-04	9.05E-06	4.35E-05	4.83E-06	4.88E-06	5.19E-04	5.56E-04
Cobalt	1.31E-01	1.31E-01	1.04E-02	1.05E-02	1.99E-02	4.22E-02	2.05E-02	2.06E-02	1.82E-01	2.04E-01
Copper	2.50E-02	2.51E-02	1.19E-02	1.19E-02	1.98E-03	3.47E-03	4.29E-04	4.32E-04	3.93E-02	4.09E-02
Lead	1.34E-01	1.34E-01	1.74E-02	1.74E-02	1.78E-01	2.53E-01	4.98E-05	5.02E-05	3.29E-01	4.04E-01
Manganese	7.69E-02	7.69E-02	1.32E-03	1.41E-03	5.62E-04	7.38E-04	1.26E-04	1.28E-04	7.89E-02	7.92E-02
Mercury	8.20E-03	8.32E-03	1.04E-02	1.08E-02	9.66E-02	1.02E-01	1.08E-04	1.12E-04	1.15E-01	1.21E-01
Molybdenum	1.15E-01	1.16E-01	6.20E-03	6.22E-03	3.88E-03	7.20E-03	2.30E-03	2.32E-03	1.27E-01	1.31E-01
Nickel	2.70E-02	2.71E-02	1.09E-02	1.10E-02	2.60E-02	4.21E-02	4.78E-04	4.82E-04	6.44E-02	8.06E-02
Selenium	9.84E-03	9.96E-03	5.63E-02	5.71E-02	6.36E-02	1.13E-01	6.42E-05	6.50E-05	1.30E-01	1.80E-01
Thallium	1.55E-01	1.57E-01	7.45E-02	7.65E-02	7.39E-02	7.39E-02	4.89E-03	5.01E-03	3.09E-01	3.12E-01
Uranium	3.29E-03	3.30E-03	3.47E-04	3.78E-04	6.34E-05	7.88E-05	8.60E-07	1.01E-06	3.70E-03	3.75E-03

Table 4.4-21 Non-Carcinogenic Human Health Risks Associated with Ingestion of Country Foods for Aboriginal Toddler

COPC	HQs											
	Garden Produce		Cattle Consumption		Fish Consumption		Wild Meat Consumption		Traditional Plant Consumption		Total for Country Food Consumption	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	1.16E-02	1.16E-02	3.86E-04	3.87E-04	5.76E-04	3.04E-03	4.10E-03	4.15E-03	3.56E-03	3.56E-03	2.02E-02	2.27E-02
Antimony	1.23E-02	1.23E-02	2.61E-03	2.92E-03	2.88E-03	2.88E-03	2.53E-04	2.67E-04	7.28E-04	7.37E-04	1.88E-02	1.91E-02
Arsenic	3.65E-02	3.65E-02	6.95E-03	7.19E-03	2.76E-02	3.31E-02	1.15E-02	1.17E-02	7.36E-03	7.37E-03	8.99E-02	9.58E-02
Chromium	3.72E-05	3.72E-05	6.74E-05	6.78E-05	1.54E-05	7.39E-05	4.77E-05	4.82E-05	5.06E-06	5.07E-06	1.73E-04	2.32E-04
Cobalt	1.65E-02	1.66E-02	2.08E-03	2.09E-03	3.37E-02	7.17E-02	2.02E-01	2.03E-01	5.18E-03	5.19E-03	2.60E-01	2.99E-01
Copper	1.57E-02	1.57E-02	2.38E-03	2.39E-03	3.35E-03	5.88E-03	4.24E-03	4.27E-03	3.65E-03	3.66E-03	2.93E-02	3.19E-02
Lead	2.92E-02	2.92E-02	3.47E-03	3.48E-03	3.02E-01	4.29E-01	4.92E-04	4.96E-04	1.32E-03	1.32E-03	3.37E-01	4.64E-01
Manganese	3.00E-02	3.00E-02	2.64E-04	2.82E-04	9.54E-04	1.25E-03	1.25E-03	1.26E-03	5.82E-02	5.82E-02	9.06E-02	9.10E-02
Mercury	8.20E-03	8.21E-03	2.08E-03	2.16E-03	1.64E-01	1.73E-01	1.07E-03	1.11E-03	1.13E-02	1.17E-02	1.86E-01	1.96E-01
Molybdenum	8.98E-02	8.99E-02	1.24E-03	1.24E-03	6.59E-03	1.22E-02	2.27E-02	2.29E-02	2.92E-02	2.94E-02	1.50E-01	1.56E-01
Nickel	2.41E-03	2.41E-03	2.19E-03	2.19E-03	4.40E-02	7.14E-02	4.72E-03	4.76E-03	2.94E-03	2.95E-03	5.63E-02	8.37E-02
Selenium	9.84E-03	9.85E-03	1.13E-02	1.14E-02	1.08E-01	1.91E-01	6.34E-04	6.43E-04	3.91E-03	3.94E-03	1.34E-01	2.17E-01
Thallium	7.03E-02	7.04E-02	1.49E-02	1.53E-02	1.25E-01	1.25E-01	4.84E-02	4.95E-02	3.61E-03	3.64E-03	2.63E-01	2.64E-01
Uranium	6.01E-04	6.01E-04	6.95E-05	7.56E-05	1.07E-04	1.34E-04	8.50E-06	1.00E-05	4.82E-05	4.83E-05	8.35E-04	8.69E-04

Cancer risks associated with the COPCs that are considered carcinogens (i.e. arsenic) were also assessed at each of the HHERA receptor areas. As noted previously, carcinogenic health endpoints are assessed over the lifetime of an individual, and not for any particular life stage. Individual IILCRs for exposure to arsenic in country foods for the Residential lifetime receptor in Aberdeen, the Farmer/Rancher lifetime receptor in Knutsford and the Aboriginal lifetime receptor are provided in Table 4.4-22 to Table 4.4-24. The results for other receptors and locations are provided in Appendix G. It is noted that IILCRs are based on increased cancer risk from the Project only (i.e., the Project-Alone Case).

Table 4.4-22 Carcinogenic Human Health Risks Associated with Ingestion of Country Foods for Residential Lifetime Receptor in Aberdeen

COPC	IILCR				
	Project-Alone				
	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Total for Country Food Consumption
Arsenic	8.40E-08	5.93E-08	7.66E-07	4.04E-09	9.14E-07

Table 4.4-23 Carcinogenic Human Health Risks Associated with Ingestion of Country Foods for Farmer/Rancher Lifetime Receptor in Knutsford

COPC	IILCR				
	Project-Alone Case				
	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Total for Country Food Consumption
Arsenic	8.40E-08	2.96E-07	7.66E-07	4.04E-09	1.15E-06

Table 4.4-24 Carcinogenic Human Health Risks Associated with Ingestion of Country Foods for Aboriginal Lifetime Receptor

COPC	IILCR					
	Project-Alone Case					
	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	Total for Country Food Consumption

COPC	IILCR					
	Project-Alone Case					
	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	Total for Country Food Consumption
Arsenic	1.78E-09	5.93E-08	1.48E-06	5.38E-08	3.10E-09	1.60E-06

The IILCRs associated with arsenic for the country food ingestion pathway for all receptors were less than the relevant benchmark of 1 in 100, 000 (i.e. IILCR <1E-05) for the Project-alone Case. Based on these results, the potential health risks associated with the predicted increases in COPC concentrations in country foods are negligible.

4.4.3.5 Human Health Risks via Ingestion of Water

As discussed in Section 4.1.2, humans in Knutsford are assumed to ingest groundwater from RES-2 or surface water from Peterson Creek, while humans located in the other areas, including Kamloops Indian Reserve No. 1 are assumed to obtain their water from the municipal distribution system which uses the Thompson River as a source. Water modelling indicated that groundwater quality from RES-2 and surface water quality from Peterson Creek could change as a result of the Project; water quality from the municipal distribution system is not expected to be affected by the Project.

Hazard quotients (HQs) for ingestion of groundwater for a Farmer/Rancher toddler in Knutsford and ingestion of municipal water by a Residential toddler in Aberdeen (also applies to the Aboriginal toddler) are provided in Table 4.4-25. The HQs for the other receptor age groups and locations are provided in Appendix G.

Table 4.4-25 Non-Carcinogenic Human Health Risks Associated with Water Consumption for a Residential Toddler in Aberdeen, an Aboriginal Toddler and a Farmer/Rancher Toddler in Knutsford

COPC	HQ			
	Aberdeen/Kamloops Indian Reserve No.1 (Municipal System)		Knutsford (Groundwater/Surface Water)	
	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	2.91E-04	2.91E-04	1.09E-04	3.21E-02
Antimony	1.82E-02	1.82E-02	9.63E-03	6.93E-02
Arsenic	6.06E-02	6.06E-02	1.13E-01	3.86E-01

COPC	HQ			
	Aberdeen/Kamloops Indian Reserve No.1 (Municipal System)		Knutsford (Groundwater/Surface Water)	
	Baseline Case	Future Case	Baseline Case	Future Case
Chromium	1.21E-05	1.21E-05	2.67E-06	7.88E-05
Cobalt	1.82E-03	1.82E-03	4.36E-03	3.66E-02
Copper	1.37E-01	1.37E-01	1.32E-03	3.67E-02
Lead	1.82E-02	1.82E-02	3.25E-03	3.23E-02
Manganese	3.38E-04	3.38E-04	9.61E-03	2.80E-01
Molybdenum	2.42E-03	2.42E-03	1.21E-03	5.28E-03
Mercury	5.09E-03	5.09E-03	1.13E-01	1.67E-01
Nickel	7.27E-04	7.27E-04	3.47E-03	5.99E-03
Selenium	3.64E-03	3.64E-03	8.00E-04	6.88E-03
Thallium	5.19E-02	5.19E-02	2.60E-02	8.02E-02
Uranium	8.48E-04	8.48E-04	1.65E-02	3.04E-02

The HQs for Baseline Case and Future Case for receptors who use municipally supplied water and those that use groundwater, are well below the HQ benchmark of 1.0. Based on these results, the potential health risks associated with the predicted increases in concentrations of the non-carcinogenic COPCs in drinking water are negligible.

Arsenic is the only metal COPC that would be considered to be carcinogenic when ingested. Arsenic concentrations in the City of Kamloops municipal water and from the Peterson Creek aquifer (Res-2 and Res-4) for Baseline Case and Future Case are below the BC drinking water guidelines and the Canadian Drinking Water Quality Guidelines (Table 4.4-26). The Res-2 location which is the well in the Peterson Creek aquifer located closest to the Project boundary and the well most likely to be affected by Project activities that may affect groundwater quality. Predicted Future Case arsenic concentrations at the Res-2 location are lower than the Baseline Case arsenic concentrations measured at Res-4. These results suggest that Project activities will not alter arsenic concentrations in the Peterson Creek aquifer beyond what would be considered to be naturally occurring in the area. Further arsenic concentrations in the City of Kamloops municipal water supply will not be influenced by Project activities. Based on the results, the potential cancer health risks associated with arsenic in domestic water are considered to be negligible.

Table 4.4-26 Comparison of Canadian and BC Drinking Water Guidelines with Baseline Case and Future Case Arsenic Concentrations in Domestic Water

COPC	Canadian Drinking Water Quality Guidelines	British Columbia Drinking water Quality Guideline	City of Kamloops Municipal Water	Knutsford - Peterson Creek Aquifer		
				Res-4[a]	RES-2	
			Baseline & Future Case	Baseline Case	Baseline Case	Future Case
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Arsenic	1.00E-02	2.50E-02	5.00E-04	4.48E-03	9.30E-04	1.82E-03

Notes:
[a] Future Case predicted concentrations have not been calculated for Res-4.

4.4.3.6 Human Health Risks via Direct Soil Contact

Direct soil contact includes incidental ingestion and dermal contact. HQs have been estimated for each pathway, and the sum of these HQs represents the non-carcinogenic risk for soil contact. Hazard quotients (HQs) for direct soil contact for the Residential toddler in Aberdeen, the Farmer/Rancher toddler in Knutsford and the Aboriginal toddler are provided in Table 4.4-27 to Table 4.4-29. Aberdeen and Knutsford are the closest areas to the Project and thus would be expected to have the highest rates of Project related deposition. The results are similar for Aberdeen and Knutsford as the same baseline soil concentration was used for each area; the future soil concentration was based on the predicted deposition that was specific to each area. The soil results from West End/Downtown were used as surrogates to evaluate risk to the Aboriginal toddler on Kamloops Indian Reserve No. 1. The HQs calculated for incidental ingestion and dermal contact for the other age groups and areas are provided in Appendix G.

Table 4.4-27 Non-Carcinogenic Human Health Risks Associated with Soil Exposure for a Residential Toddler in Aberdeen

COPC	HQ					
	Soil Ingestion		Dermal Contact		Soil Contact	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	7.46E-02	7.46E-02	6.41E-04	6.41E-04	7.52E-02	7.52E-02
Antimony	4.36E-03	4.43E-03	3.75E-04	3.81E-04	4.74E-03	4.81E-03
Arsenic	8.98E-02	8.99E-02	2.32E-03	2.32E-03	9.21E-02	9.23E-02
Chromium	1.58E-04	1.58E-04	1.36E-05	1.36E-05	1.72E-04	1.72E-04
Cobalt	5.82E-02	5.83E-02	5.00E-04	5.01E-04	5.87E-02	5.88E-02

COPC	HQ					
	Soil Ingestion		Dermal Contact		Soil Contact	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Copper	2.34E-03	2.36E-03	1.21E-04	1.22E-04	2.46E-03	2.48E-03
Lead	4.36E-02	4.37E-02	2.25E-04	2.26E-04	4.38E-02	4.40E-02
Manganese	1.95E-02	1.95E-02	1.68E-04	1.68E-04	1.97E-02	1.97E-02
Mercury	6.60E-04	6.82E-04	2.65E-04	2.73E-04	9.25E-04	9.56E-04
Molybdenum	9.85E-04	9.91E-04	8.47E-06	8.52E-06	9.94E-04	9.99E-04
Nickel	1.06E-02	1.06E-02	3.19E-03	3.20E-03	1.38E-02	1.38E-02
Selenium	2.17E-04	2.20E-04	1.87E-06	1.89E-06	2.19E-04	2.21E-04
Thallium	3.56E-02	3.59E-02	3.06E-04	3.08E-04	3.59E-02	3.62E-02
Uranium	1.22E-03	1.22E-03	1.05E-05	1.05E-05	1.23E-03	1.24E-03

Table 4.4-28 Non-Carcinogenic Human Health Risks Associated with Soil Exposure for a Farmer/Rancher Toddler in Knutsford

COPC	HQ					
	Soil Ingestion		Dermal Contact		Soil Contact	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	7.46E-02	7.46E-02	6.41E-04	6.41E-04	7.52E-02	7.52E-02
Antimony	4.36E-03	4.41E-03	3.75E-04	3.79E-04	4.74E-03	4.79E-03
Arsenic	8.98E-02	8.99E-02	2.32E-03	2.32E-03	9.21E-02	9.22E-02
Chromium	1.58E-04	1.58E-04	1.36E-05	1.36E-05	1.72E-04	1.72E-04
Cobalt	5.82E-02	5.83E-02	5.00E-04	5.01E-04	5.87E-02	5.88E-02
Copper	2.34E-03	2.36E-03	1.21E-04	1.22E-04	2.46E-03	2.48E-03
Lead	4.36E-02	4.37E-02	2.25E-04	2.26E-04	4.38E-02	4.39E-02
Manganese	1.95E-02	1.95E-02	1.68E-04	1.68E-04	1.97E-02	1.97E-02
Mercury	6.60E-04	6.77E-04	2.65E-04	2.71E-04	9.25E-04	9.49E-04
Molybdenum	9.85E-04	9.89E-04	8.47E-06	8.51E-06	9.94E-04	9.98E-04
Nickel	1.06E-02	1.06E-02	3.19E-03	3.19E-03	1.38E-02	1.38E-02
Selenium	2.17E-04	2.19E-04	1.87E-06	1.88E-06	2.19E-04	2.21E-04
Thallium	3.56E-02	3.58E-02	3.06E-04	3.08E-04	3.59E-02	3.61E-02
Uranium	1.22E-03	1.22E-03	1.05E-05	1.05E-05	1.23E-03	1.23E-03

Table 4.4-29 Non-Carcinogenic Human Health Risks Associated with Soil Exposure for an Aboriginal Toddler (Results for West End/Downtown)

COPC	HQ					
	Soil Ingestion		Dermal Contact		Soil Contact	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	7.03E-02	7.03E-02	6.05E-04	6.05E-04	7.09E-02	7.09E-02
Antimony	6.75E-03	6.75E-03	5.80E-04	5.81E-04	7.33E-03	7.34E-03
Arsenic	6.74E-02	6.74E-02	1.74E-03	1.74E-03	6.91E-02	6.91E-02
Chromium	1.42E-04	1.42E-04	1.22E-05	1.22E-05	1.54E-04	1.54E-04
Cobalt	6.73E-02	6.73E-02	5.79E-04	5.79E-04	6.79E-02	6.79E-02
Copper	4.50E-03	4.50E-03	2.32E-04	2.32E-04	4.74E-03	4.74E-03
Lead	2.76E-01	2.76E-01	1.42E-03	1.42E-03	2.78E-01	2.78E-01
Manganese	1.88E-02	1.88E-02	1.62E-04	1.62E-04	1.90E-02	1.90E-02
Mercury	1.29E-03	1.29E-03	5.17E-04	5.18E-04	1.81E-03	1.81E-03
Molybdenum	1.35E-03	1.35E-03	1.16E-05	1.17E-05	1.37E-03	1.37E-03
Nickel	1.36E-02	1.36E-02	4.08E-03	4.08E-03	1.76E-02	1.76E-02
Selenium	4.17E-04	4.17E-04	3.59E-06	3.59E-06	4.21E-04	4.21E-04
Thallium	3.56E-02	3.56E-02	3.06E-04	3.06E-04	3.59E-02	3.59E-02
Uranium	1.66E-03	1.67E-03	1.43E-05	1.43E-05	1.68E-03	1.68E-03

Summaries of IILCRs for the Residential lifetime receptor in Aberdeen, the Farmer/Rancher lifetime receptor in Knutsford and the Aboriginal lifetime receptor exposed to COPCs in soil are provided in Table 4.4-30 to Table 4.4-32; IILCRs for the remaining areas are provided in Appendix G.

Table 4.4-30 Carcinogenic Human Health Risks Associated with Soil Exposure for a Residential Lifetime Receptor in Aberdeen

COPC	IILCR		
	Soil Ingestion	Dermal Contact	Soil Contact
	Project-Alone Case		
Arsenic	8.42E-09	1.13E-09	9.55E-09

Table 4.4-31 Carcinogenic Human Health Risks Associated with Soil Exposure for a Farmer/Rancher Lifetime Receptor in Knutsford

COPC	IILCR		
	Soil Ingestion	Dermal Contact	Soil Contact
	Project-Alone Case		
Arsenic	6.59E-09	8.82E-10	7.47E-09

Table 4.4-32 Carcinogenic Human Health Risks Associated with Soil Exposure for the Aboriginal Lifetime Receptor.

COPC	IILCR		
	Soil Ingestion	Dermal Contact	Soil Contact
	Project-Alone Case		
Arsenic	9.16E-10	1.23E-10	1.04E-09

The IILCRs associated with arsenic for the soil pathway for all receptors were less than the relevant benchmark of 1 in 100, 000 (i.e. IILCR <1E-05) for the Project-Alone Case. Based on these results, the potential health risks associated with the predicted increases in COPC concentrations in soil associated with the deposition of ore dust are negligible.

4.4.3.7 Human Health Risks Via Total Ingestion

The HQs associated with total ingestion (includes exposure to COPCs in soil, water and country food as applicable) for the Residential toddler in Aberdeen, the Farmer/Rancher toddler in Knutsford and the Aboriginal Toddler in Table 4.4-33; the results for the other areas and receptors are provided in Appendix G. Total HQs for the toddler were below 1.0 indicating that potential health risks are not expected.

Table 4.4-33 Non-Carcinogenic Human Health Risks Associated with Total Ingestion for the Toddler

Chemical	HQ					
	Aberdeen (Residential Receptor)		Knutsford (Farmer/Rancher Receptor)		Aboriginal	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	2.55E-01	2.56E-01	2.56E-01	2.90E-01	9.14E-02	9.39E-02

Chemical	HQ					
	Aberdeen (Residential Receptor)		Knutsford (Farmer/Rancher Receptor)		Aboriginal	
	Baseline Case	Future Case	Baseline Case	Future Case	Baseline Case	Future Case
Antimony	4.61E-02	4.67E-02	4.79E-02	1.10E-01	4.43E-02	4.46E-02
Arsenic	3.42E-01	3.46E-01	4.22E-01	7.00E-01	2.20E-01	2.25E-01
Chromium	4.33E-04	4.69E-04	6.94E-04	8.07E-04	3.39E-04	3.98E-04
Cobalt	2.34E-01	2.57E-01	2.45E-01	3.00E-01	3.30E-01	3.69E-01
Copper	1.69E-01	1.71E-01	4.31E-02	8.01E-02	1.71E-01	1.74E-01
Lead	3.78E-01	4.53E-01	3.76E-01	4.81E-01	6.32E-01	7.59E-01
Manganese	9.79E-02	9.81E-02	1.08E-01	3.78E-01	1.10E-01	1.10E-01
Mercury	1.10E-01	1.16E-01	1.17E-01	1.28E-01	1.91E-01	2.01E-01
Molybdenum	1.28E-01	1.32E-01	2.42E-01	2.99E-01	1.56E-01	1.62E-01
Nickel	7.01E-02	8.64E-02	8.16E-02	1.00E-01	7.47E-02	1.02E-01
Selenium	8.86E-02	1.38E-01	1.31E-01	1.87E-01	1.38E-01	2.21E-01
Thallium	3.37E-01	3.39E-01	3.70E-01	4.28E-01	3.50E-01	3.52E-01
Uranium	5.51E-03	5.53E-03	2.15E-02	3.54E-02	3.36E-03	3.40E-03

As noted in Section 4.4.3.5, Project activities will not alter arsenic concentrations in municipally supplied water and the change in arsenic concentrations in the Peterson Creek aquifer are predicted to reflect existing measured concentrations. Further, measured arsenic concentrations in the municipal supply and measured and predicted arsenic concentrations in the Peterson Creek aquifer meet the drinking water guideline. Therefore, for arsenic, the assessment of combined cancer risk is based on exposures that occur through direct contact with soil and the ingestion of country foods. The IILCR for the combined ingestion of soil and country food for the Residential receptor, the Knutsford Farmer/Rancher receptor and the Aboriginal receptor were below the benchmark of 1.0E-05, indicating potential health risks are not expected. Thus potential health risks associated with the predicted increases in COPC concentrations in ingested media are negligible.

Table 4.4-34: Carcinogenic Human Health for Arsenic Associated Soil and Country Food Ingestion for Lifetime Receptor

COPC	IILCR for Total Ingestion		
	Aberdeen (Residential Receptor)	Knutsford (Farmer/Rancher Receptor)	Aboriginal
	Project Alone Case		
Arsenic	9.23E-07	1.16E-06	1.60E-06

4.5 UNCERTAINTY ASSESSMENT

All HHRAs have inherent uncertainties, which are addressed by incorporating conservative assumptions into the different aspects of the risk assessment. Although many factors contribute to a risk estimate, results are generally sensitive to only a few of these factors, which are described below.

4.5.1 Uncertainties in Toxicological Information

There is limited toxicological information on the effects associated with low-level chemical exposures to humans. Most of the information available is based on epidemiological studies of occupationally exposed workers. These are usually based on an 8 h/d or 40 h/week, higher level exposure regimes and do not apply well to low-level, chronic exposures. Additionally reference doses and cancer potency estimates for many contaminants are based on laboratory dose-response estimates in animals. The use of animals requires certain assumptions to be made, which introduces further uncertainty. Assumptions include:

- the toxicological effect in animals also occurs in humans;
- the short-term exposures used in animal studies can be extrapolated to chronic or long term human exposures;
- the toxicokinetic and toxicodynamic processes that occur in animals also occur in humans;
- the uptake of the contaminant from the test vehicle (the medium within which the test compound is delivered to the animals, (*e.g.* water) will be representative of the uptake of the contaminant from real-world environmental media (e.g. soil, biota); and
- the assumption that extrapolation from high-dose laboratory studies to low-dose environmental studies accurately reflects the shape of the dose response curve at the low dose-response range.

To account for these and other related uncertainties, regulatory agencies such as Health Canada and the USEPA adopt conservative assumptions. The use of Uncertainty Factors accounts for uncertainties by lowering the reference dose, used in the Hazard Quotient calculation, well below the level where no effects were seen in animals. Uncertainty Factors are

applied by factors of 10 to account for uncertainties such as, interspecies differences (e.g. physiology), individual variation (e.g. unusually sensitive individuals), limitations in toxicological information, and extrapolation from acute exposures to chronic exposures. Depending on the degree of uncertainty, typical factors will range from 100 to 10,000, with some being lower than 10 (in the case where reliable human data are available). The incorporation of these factors results in TRVs that are extremely conservative. The use of these TRVs means that potential risks are over estimated and that limited exposures above reference doses or reference concentrations will not result in adverse human health effects.

Further, the HHRA has assumed that the relative absorption rate for each COPC via inhalation and ingestion is 100%. Some of the TRVs used in this HHRA were determined from studies in which the effects were based on administered doses rather than absorbed doses. Because studies administer COPCs in forms that are more readily absorbed that would be found in environmental media, the TRVs derived from these studies may over-estimate the amount of COPC that would be absorbed by the human receptor. Thus, using these TRVs over-predicts the potential effects associated with the exposures experienced by the human receptors.

4.5.2 Sensitive Populations

A susceptible population will exhibit a different or enhanced response to a COPC than will most persons exposed to the same level of the contaminant in the environment. The reasons for this may include genetic makeup, age (e.g. children or seniors), health and nutritional status, behaviour and exposure to other toxic substances (e.g. cigarette smoke). Human receptors are selected such that the most sensitive individuals and individuals having the greatest potential for exposure to COPCs and adverse responses from such exposures are represented. The toddler represents the most sensitive individual for non-carcinogens for the reasons just mentioned plus the physiological (nutritional needs) and behavioural (frequent hand to mouth transfer) considerations associated with children of that age. The non-cancer TRVs used in this risk assessment were estimates of a continuous exposure to the human population, including sensitive subgroups that are to be without appreciable risk of adverse non-cancer effects during a lifetime.

Carcinogenic COPCs exposures were assessed over the entire lifetime of a receptor – incorporating all lifestages. Toxicity doses and cancer slope factors used in the assessment have accounted for sensitive populations by applying uncertainty factors (see toxicity assessment above).

4.5.3 Uncertainties in Exposure Assessment

The air concentrations and deposition rates used in the HHRA were obtained directly from the air dispersion modelling results while future surface water concentrations were obtained directly from water quality modelling results. Conservative assumptions were used in the development

of the air model (Air Quality TDR) and the predictive water quality model (Water Quality Model Report).

Maximum predicted 1-hour, 24-hour, and annual average concentrations in air at each HHERA receptor location were used to evaluate inhalation health risks associated with both short term and long term exposures. In reality, the frequency with which the maximum concentration would occur at any one receptor location is relatively low for most COPC. Therefore, the risk estimates tend to overestimate, rather than underestimate, health risks.

Estimation of COPC uptake through the food chain involves the use of assumptions regarding many factors, including the various uptake factors. Typically, these uptake factors are conservative and tend to overestimate, rather than underestimate, concentrations in biota. In addition, these uptake factors were applied to the reasonable maximum concentrations (e.g. soil concentrations at the end of Operation, maximum annual average surface water concentrations), and are assumed to remain constant throughout the lifetime of the receptor (e.g. 80 years for lifetime exposure); thus, the resulting exposure predictions are very conservative.

4.5.4 Receptor Characteristics

For each receptor scenario, published characteristics and professional judgment were used in determining exposure durations, consumption patterns and ingestion rates (e.g. Health Canada 2012a). Although the wild meat and fish consumption rates are specific to Aboriginal populations, the vegetation consumption rate used represents the consumption rate of all vegetation by the general population (including leafy vegetation, root vegetables, berries, and fruit). It is ideal to have receptor characteristics that are representative of site-specific conditions, however it is not the most critical factor in assessing potential health risks due to the Project. The ultimate goal of the HHERA in support of an EA is to determine the change in risk between baseline and future conditions, and to evaluate if this change represents a concern. Selection of receptor characteristics that may not be site specific could affect the magnitude of the risk under Baseline Case and Future Case, however the in risk is not expected to substantially increase the uncertainty of the results.

5.0 ECOLOGICAL RISK ASSESSMENT

The purpose of an ERA is to evaluate the potential that ecological receptors (i.e., birds, mammals, terrestrial plants, soil invertebrates and aquatic invertebrates) may experience adverse effects as a result of exposure to chemical stressors. For this ERA, adverse effects refer to toxicologically-induced changes in the health of ecological receptors that may be exposed to COPC released into the environment, specifically the LSA and RSA, as a result of Project related activities.

The ERA process was conducted according to a widely recognized framework that progresses from a qualitative Problem Formulation, to an Exposure Assessment, Toxicity Assessment, Risk Characterization, followed by an Uncertainty Analysis. The risk assessment methods applied in this ERA are based on a number of guidance documents, including but not limited to:

- "A Framework for Ecological Risk Assessment—Canadian Council of Ministers of the Environment" (CCME 1996); and
- Federal Contaminated Sites Action Plan (FCSAP) Ecological Risk Assessment Guidance. (Environment Canada, 2012).

5.1 PROBLEM FORMULATION

The problem formulation stage is an information gathering and interpretation stage that focuses the study on the primary areas of concern for the Project, namely the three main components of health risk illustrated in Figure 2.1-1 (i.e., receptors, hazard and exposure). The problem formulation culminates in a conceptual site model (CSM), which provides a visual depiction of the relevant pathways linking COPC in various environmental media and biota to the ecological receptors and biota of interest. In the following sections, the ecological receptors, hazards and exposure pathways from the Project are discussed.

5.1.1 Receptor Identification Selection

Jacko Lake and Peterson Creek best represent the range of aquatic habitats likely to be affected by Project activities. These locations are more likely to experience environmental changes than other waterbodies within the LSA and RSA due to their proximity to the Project and directional flow of surface and groundwater. Therefore, focusing the assessment of potential ecological risks on these areas adequately represent the range of ecological effects that may result from Project activities. Although Humphrey Creek flows from Edith Lake to join Peterson Creek upstream of Knutsford, it runs underground for much of the distance between Edith Lake and Peterson Creek and does not provide as much ecological habitat as Peterson Creek.

With the large number of wildlife and plant species present in and around the LSA and RSA (and the Jacko Lake and Peterson Creek area), it is neither practical nor necessary to conduct an assessment for each species. Rather, a representative subset of ecological receptors was selected as the basis for this ERA, chosen by focusing on species that were:

- indigenous to the area;
- most likely to receive the greatest exposure to contaminant releases due to their habitat and home range;
- representative of various levels in the aquatic and terrestrial trophic web (e.g., carnivore, herbivore, piscivore);
- suitable surrogates for species of concern that could be in the LSA and RSA (i.e., Blue listed [Special Concern] and Red listed [Extirpated, Endangered, or Threatened] in BC; listed as Special Concern, threatened or endangered under COSEWIC [Committee on the Status of Endangered Wildlife in Canada], and listed under Schedule 1 of SARA [*Species at Risk Act*]); and
- of cultural, economic, or social significance.

Selection of appropriate ecological receptors ensured that each applicable habitat and trophic level in the LSA and RSA was adequately represented. Each selected receptor was considered representative of other species occupying a similar position in the food web. In other words, results of the Risk Characterization stage for a selected ecological receptor can be used to make inferences about risk to other species occupying a similar level in the food web. Moreover, the selection of receptors was informed by discussions with Project biologists. For example, while the shrew is an abundant insectivore in Canada, it was not found in the LSA after a small mammal trapping program. As such, this species was not assessed in the ERA.

Fifteen ecological receptors were selected in this ERA (Table 5.1-1). Descriptions of these receptors are provided below.

Table 5.1-1 Ecological Receptors Selected for the Ecological Risk Assessment

Common Name of Species	Scientific Name (Genus and Species)	Feeding Guild[1]
American mink	*Mustela vison*	Piscivorous mammal (aquatic)
Black bear	*Ursus americanus*	Omnivorous mammal (terrestrial)
Domestic cattle	*Bos taurus*	Herbivorous mammal (terrestrial)
Meadow vole	*Microtus pennsylvanicus*	Herbivorous mammal (terrestrial)
Moose	*Alces alces*	Herbivorous mammal (terrestrial)
Mule deer	*Odocoileus hemionus*	Herbivorous mammal (terrestrial)

Common Name of Species	Scientific Name (Genus and Species)	Feeding Guild[1]
Muskrat	*Ondatra zibethicus*	Herbivorous mammal (aquatic)
Red fox	*Vulpes vulpes*	Carnivorous mammal (terrestrial)
Snowshoe hare	*Lepus americanus*	Herbivorous mammal (terrestrial)
American robin	*Turdus migratorius*	Omnivorous bird (terrestrial)
Bald eagle (inland)	*Haliaeetus leucocephalus*	Piscivorous/carnivorous bird (terrestrial)
Canada goose	*Branta canadensis*	Herbivorous bird (aquatic)
Great blue heron[2]	*Ardea herodias*	Piscivorous bird (aquatic)
Mallard duck	*Anas platyrhynchos*	Omnivorous bird (aquatic)
Ruffed grouse	*Bonasa umbellus*	Herbivorous bird (terrestrial)
Terrestrial plant community	Various	Various
Soil invertebrate community	Various	Various
Benthic invertebrate community	Various	Various

NOTES:
[1] FCSAP Ecological Risk Assessment Guidance (Environment Canada 2012) or other available literature
[2] Blue-listed (Special Concern) in British Columbia

5.1.1.1 Mammalian Ecological Receptors

American Mink



The mink (*Mustela vison*) is a member of the weasel family and is the most abundant and widely distributed carnivorous mammal in North America (USEPA 1993b). Mink are found throughout the continental portion of Canada, except in the most barren portions of northwestern Quebec, and eastern Nunavut. Mink are active year-round and are associated with aquatic habitats such as rivers, streams, lakes, ditches, swamps, marshes, and backwater areas (USEPA 1993b).

Home ranges vary considerably but are in the range of 7.8 ha to 380 ha (USEPA 1993b). The mink weighs approximately 850 g, and feeds extensively on small mammals, fish, amphibians, and crustaceans, birds, reptiles, and insects depending on the season (USEPA 1993b). Mink consume approximately 220 g of wet weight food per day and 90 mL of water, or its equivalent, per day. The mink's diet comprises mainly small mammals or birds, as well as freshwater fish and benthic invertebrates. For this assessment, the mink's diet is solely freshwater fish. Incidental soil ingestion by the mink is negligible (Environment Canada, 2012)

Black Bear



The American black bear (*Ursus americanus*) is found throughout most of Canada (with the exception of the Arctic and southern portions of the prairies and Ontario). Black bears are smaller than the grizzly bear (*Ursus arctos*) or the polar bear (*Ursus maritimus*), and prefer heavily wooded areas and dense bushland (CWS & CWF 2007). The black bear is not a true hibernator and enters its den in October to December and emerges in March to early May (Kronk 2007). The black bear relies heavily on vegetation (e.g. berries and nuts) and insects (CWS & CWF 2007). When available, they will supplement their diet with newborn ungulates, small mammals, birds and fish (CWS & CWF 2007).

The average home range of the black bear is approximately 1,000 to 4,000 ha for females and often more than 10,000 ha for males (CWS & CWF 2007). Black bears weigh approximately 68 kg (Eder and Pattie 2001) and consume approximately 14.0 kg of wet weight food and 4.1 L of water or its equivalent per day. The black bear's diet is modelled as including 80% terrestrial plants, 5% terrestrial invertebrates, 10% small mammal and bird prey and 5% freshwater fish. Based on the consumption of these foods, the black bear incidentally ingests 140 g/day of dry soil.

Domestic Cattle



In Kamloops, the farming and ranching community of Knutsford raises cattle (*Bos taurus*) for meat used for human consumption. Domestic cattle feed on grasses, stems, and other herbaceous plants (Ng & Dewey 2001), but their diets may be supplemented by hay, corn, other grain feed, or processed food pellets. There is no home range applicable to domestic cattle. Domestic cattle weigh approximately 755 kg, and consume 25.5 kg of wet weight food and 39 L of water per day. The diet of the domestic cattle is modelled as including 100% terrestrial plants from grazing activities and assumes no consumption of purchased or imported foods (e.g. pellets, grain feed or hay) from areas outside the influence of the Project. Based on its consumption of this food, the domestic cattle incidentally ingest 679 g/day of dry soil.

Meadow Vole



The meadow vole (*Microtus pennsylvanicus*) is a small rodent which makes its burrows along surface runways in grasses or other herbaceous vegetation (USEPA 1993b). It is active year-round and is the most widely distributed small grazing herbivore in North America, inhabiting moist to wet habitats including grassy fields, marshes, and bogs (USEPA 1993b). Meadow voles are found throughout Canada, roughly to the limit of the tree line in the north. Meadow voles are a major prey item for predators such as hawks and foxes, and they feed primarily on vegetation such as grasses, leaves, sedges, seeds, roots, bark, fruits, and fungi, but will occasionally feed on insects and animal matter (USEPA 1993b; Neuburger 1999).

The meadow vole's home range varies considerably, from less than 0.0002 ha to greater than 0.083 ha (USEPA 1993b). The vole weighs approximately 42 g and consumes 11 g of wet weight food and 6 mL of water per day (USEPA 1993b). The meadow vole's diet is modelled as including 98% terrestrial plant material and 2% invertebrates. Based on its consumption of these foods, the meadow vole incidentally ingests 0.32 g/day of dry soil.

Moose



In Canada, moose (*Alces alces*) can be found inhabiting forests from the Alaskan boundary to the eastern tip of Newfoundland and Labrador (CWS & CWF 1997). Their geographic distribution follows, but is not confined to, the boundaries of the boreal forest. Seasonal migration usually follows an elevational gradient, as moose seek higher grounds in summer and lower elevations in winter.

In winter, the diet consists primarily of conifer and hardwood twigs and shrubs (CWS & CWF 1997; NatureServe 2006; Dewey et al. 2000). The summer diet is more variable, consisting of leaves, twigs, bark, roots, and shoots of woody plants, as well as some grasses. Additionally, a considerable portion of the summer diet is aquatic vegetation (e.g., lilies, pondweed), which moose will occasionally dive underwater to retrieve (CWS & CWF 1997; NatureServe 2006; Dewey et al. 2000).

Seasonal home ranges are relatively small for a large herbivorous animal (500 to 1,000 ha), but annual home ranges can be up to 4,000 ha or more depending on habitat and food availability (BC MOE 2000; Lawson & Rodgers 1997 in NaturServe 2006). The average body weight (for both sexes) is 435 kg, although bulls of the northern sub-species, *A. A. gigans*, can weigh as much as 800 kg (Dewey et al. 2000; NWF 2007; CWS & CWF 1997). The moose consumes approximately 18.6 kg/day of wet weight food and 23.5 L of water per day. The moose's diet is modelled as

including 80% terrestrial plant material and 20% aquatic plant material. Based on its consumption of these foods, the moose incidentally ingests 140 g/day of dry soil and 110 g/day dry sediment.

Mule Deer



The mule deer (*Odocoileus hemionus*) inhabits most of western North America, except in the Arctic tundra. This ungulate moves seasonally between high elevation summer ranges and low elevation winter ranges. The mule deer requires a diet of highly digestible, succulent forage (e.g. woody and herbaceous forage), and also eats acorns, legume seeds, and fleshy fruits (Misuraca 1999).

The home range of the mule deer is approximately 36 ha to 243 ha, or more, depending on availability of food, water, and cover (Streubel 2000). It weighs approximately 96.5 kg, and consumes 6.5 kg of wet weight food and 6.0 L of water per day. The mule deer's diet is modelled as including 100% terrestrial plant material. Based on its consumption of these foods, the mule deer incidentally ingests 53.5 g/day of dry soil.

Muskrat



The muskrat (*Ondatra zibethicus*) is an aquatic rodent that is common throughout Canada except in the extreme north; living in saltwater and brackish marshes, freshwater creeks, streams, lakes, marshes, and ponds. Muskrats are prey for many species including foxes, hawks, minks, and otters. They are also one of the most valuable fur animals in North America. Muskrats are active year-round, and primarily feed primarily on aquatic vegetation, but also on terrestrial vegetation, benthic invertebrates, young birds, reptiles, amphibians, and fish (USEPA 1993b).

The home range for the muskrat ranges from 0.048 ha to 0.17 ha (USEPA 1993b). The muskrat weights approximately 1.17 kg and consumes 120 g of wet weight food and 110 mL of water per day. The muskrat's diet is modelled as including 12.5% terrestrial plant material, 80% aquatic plant material, 2.5% terrestrial mammals, 2.5% fish, and 2.5% benthic invertebrates. Based on its consumption of these foods, the muskrat incidentally ingests 0.0993 g/day of dry soil, and 2.05 g/day of dry sediment.

Red Fox



The red fox (*Vulpes vulpes*) is found throughout continental Canada and is the most widely distributed carnivore in the world. It is found in habitats as diverse as the Arctic and the temperate desert, and prefers areas with broken and diverse upland habitats. Foxes are active year-round and prey heavily on small mammals such as voles, mice and rabbits, and will also consume birds, insects, fruits, berries, and nuts; they are also noted scavengers (USEPA 1993b).

Family territories, which consist of home ranges of individuals from the same family, vary from approximately 57 ha to over 3,000 ha (USEPA 1993b). The red fox weighs approximately 4.5 kg and consumes 760 g of wet weight food and 380 mL of water per day. The red fox's diet is modelled as including 10% terrestrial plant material, 5% invertebrates, and 85% small mammal and bird prey. Based on its consumption of these foods, the red fox incidentally ingests 3 g/day of dry soil.

Snowshoe Hare



The snowshoe hare (*Lepus americanus*) is an herbivore found throughout Canada in every province and territory (CWS & CWF 2005). The snowshoe hare tends to inhabit forests, swamps, and West End/Downtown thickets (USEPA 1993b). A frequent prey item, the snowshoe hare may be a keystone species in boreal forests, maintaining food webs (CWS & CWF 2005). Active year-round, it feeds on herbaceous plants and leaves from shrubs in summer, and small twigs, buds, and bark in winter; it will eat meat occasionally, if available (CWS & CWF 2005). The home range varies from 3 ha to 7 ha (Shefferly 1999). Snowshoe hares weigh approximately 1.35 kg (USEPA 1993b). It consumes approximately 260 g of wet weight food and 130 mL of water per day. The snowshoe hare's diet is modelled as including 95% terrestrial plant material and 5% small mammal or bird carrion. Based on its consumption of these foods, the snowshoe hare incidentally ingests 3.58 g/day of dry soil.

5.1.1.2 Avian Ecological Receptors



American Robin

The American Robin (*Turdus migratorius*) is a medium-sized bird that inhabits most of Canada during the breeding season and overwinters in regions with milder climate (CWS & CWF 2010). Access to fresh water, breeding habitat, and foraging areas are important to the American robin. Breeding habitat includes moist forest, swamps, open woodlands, orchards,

parks, and lawns (USEPA 1993b). The American Robin is also well adapted to living urbanized environments.

The home range of the American Robin is approximately 0.15 to 0.81 ha. The robin weight approximately 80 grams, and forages for fruits, earthworms and insects. It consumes approximately 65 grams of wet weight food and 10 mL of water or its equivalent, per day (USEPA 1993b). The American Robin diet is modelled as including 52.3% terrestrial plant material and 47.8% soil invertebrates. Based on its consumption of these foods, the American Robin incidentally ingests 0.49 g/day of dry soil.

Bald Eagle (Inland)



The inland bald eagle (*Haliaeetus leucocephalus*) is the second largest bird of prey found in North America, and the largest found in Canada (CWS & CWF 1992). Adult birds are readily identified by their striking appearance, characterized by dark brown body plumage contrasting sharply with white head and tail plumage (Buehler 2000). The bald eagle prefers sea coasts, lake shores, or riverine habitat possessing suitable nesting trees in which to breed. Female bald eagles are typically larger than males by up to 25% (Buehler 2000). Bald eagles are opportunistic feeders, taking live prey when available but preferring to scavenge carrion or freshly killed prey from other predators (CWS & CWF 1992; USEPA 1993b). Their preferred food items include fish, aquatic birds, and mammals; however, choice of prey is site-specific and may vary widely across their range (Buehler 2000). Adult birds are more likely to hunt and kill food items whereas immature birds are more prone to obtaining food through scavenging and piracy (CWS & CWF 1992).

The typical body mass of the bald eagle ranges from 3,000 to 6,300 g (Palmer et al. 1988 in Buehler 2000), although masses of 7,000 g have been recorded (CWS & CWF 1992). Bald eagles consume an average of 649 g of wet weight food and 162 mL of fresh water per day. Bald eagles are modelled as consuming 45% terrestrial vertebrates (mammals and birds) and 55% freshwater fish. Based on the consumption of these foods, the Bald eagle also ingests 0.0879 g/day of soil and 1.02 g/day of sediment.

Canada Goose



The Canada Goose (*Branta canadensis*) is a large, primarily herbivorous waterfowl. The migratory Canada Goose is the most widespread and abundant goose in North America (USEPA 1993b), adapting well to urban environments, and is found breeding throughout the continental portion of Canada. It breeds in forested areas near lakeshores and coastal marshes from the Arctic tundra

through temperate climates, and forages primarily in open fields (USEPA 1993b).

The average home range during the breeding season is approximately 983 ha, and may vary from 290 ha to 2,830 ha in size (USEPA 1993b). The Canada Goose weighs approximately 3.7 kg (USEPA 1993b); however, several varieties exist, and body weights may range from as little as 1 kg (for the small "cackling" variety) to 8 kg (for the "giant" variety). The Canada Goose consumes approximately 800 g of wet weight food and 140 mL of water or its equivalent per day. The Canada Goose's diet is modelled as including 99% terrestrial plant material and 1% soil invertebrates. Based on its consumption of these foods, the Canada Goose incidentally ingests 26 g/day of dry soil.

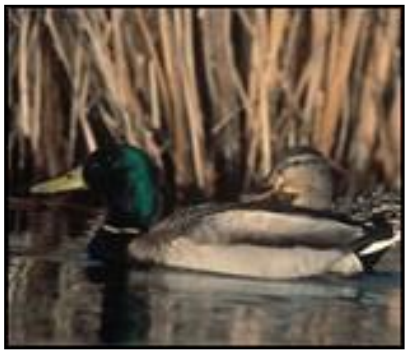
Great Blue Heron



The great blue heron (*Ardea herodias*) is primarily a piscivorous waterfowl and is the largest heron species in North America. The great blue heron is found from Central America to southern Canada and along the Pacific coastline to Alaska. Populations along the Pacific coast and in the United States do not migrate and are present year-round. The diet of the great blue heron consists primarily of small fish, but it is also known to consume small mammals, amphibians, invertebrates, birds and crustaceans when available (Palmer 1988, Kushlan 1978, Piefer 1979, Verbeek and Butler 1989, and Butler 1991). It can adapt to almost any wetland habitat, including marshes, flooded swamps and lake shores, but requires fish-bearing waters to remain unfrozen during winter months.

The average home range during the breeding season ranges from 1,660 to 282,700 ha (Environment Canada 2012). Based on the USEPA (1993b), the great blue heron weighs approximately 2.2 kg (Simpson 1984) and consumes 400 grams of wet weight food and 101 mL of water per day. The great blue heron's diet is modelled as including 95% freshwater fish, 5% benthic invertebrates. Based on its consumption of these foods, the great blue heron incidentally ingests 1.58 g/day of sediment and 0.01 g/day of soil.

Mallard Duck



The Mallard Duck (*Anas platyrhynchos*) is found throughout Europe, Asia, western and central North America. Mallard ducks nest near woodland lakes and streams, or in freshwater and tidal marshes, and adapt well to human activity in urban areas.

The home range varies from approximately 40 ha to 1,400 ha (USEPA 1993b). The Mallard Duck weighs approximately 1.16 kg and feeds primarily on aquatic invertebrates during the

breeding season and on aquatic and terrestrial plants during the nonbreeding season (CWS & CWF 2005). Breeding females consume approximately 610 g of wet weight food and 70 mL of water or its equivalent per day. The duck's diet is modelled as including 12.5% terrestrial plant material, 12.5% aquatic plant material, and 75% benthic invertebrates. Based on its consumption of these foods, the duck incidentally ingests 0.438 g/day of dry soil, and 12.4 g/day of dry sediment.

Ruffed Grouse



The ruffed grouse (*Bonasa umbellus*), commonly referred to as the "partridge", lives in treed areas, usually where birch and poplar are present (Centre d'Expertise en Analyse Environnementale du Quebec 2005). Ruffed grouse do not migrate and once established in an area, live all their life within a few hectares. They spend most of their lives on the ground and are mainly herbivorous, foraging on buds, leaves, twigs. In the winter, catkins and the buds of broad-leaved trees such as poplars, birch, and alders are the preferred food source. Ruffed grouse chicks will also feed on insects when they are available (CWS & CWF 2010).

The home range of a ruffed grouse is approximately 2.1 ha. Ruffed grouse weigh approximately 500 g, although males are larger than the females (males 500 to 750 g; females 450 to 600 g) (CWS & CWF 2010). Ruffed grouse consume approximately 65 g of wet weight food (Nagy 1987) and 37 mL of water per day (Calder and Braun 1983). The grouse's diet is modelled as including 99.6% terrestrial plant material and 0.4% soil invertebrates. Based on its consumption of these foods, the ruffed grouse incidentally ingests 0.11 g/day of dry soil.

5.1.1.3 Community Based Ecological Receptors

Soil invertebrates, terrestrial plants and benthic invertebrates were assessed at the community level (i.e., all soil invertebrates and terrestrial plants native to the study area) rather than the species level. Fish were not considered in this ERA. Rather, Project related effects on these receptors were assessed separately in the Aquatics Technical Data Report.

5.1.1 COPCs Selected for the ERA

The screening of COPCs was presented previously in Section 3.2.3, and provides the rationale for the inclusion of metal COPCs in the ERA. Briefly, a four-step screening process was used to identify metal COPCs for the HHERA:

1. metal concentrations present in the soil under baseline conditions, which may exceed applicable soil guidelines;

2. metal concentrations in ore that are less than the regional background concentrations;

3. the toxic potential of metal constituents in mined ore; and

4. the potential for measured and predicted Future Case concentrations of metals in surface water to exceed applicable guidelines for the protection of freshwater aquatic life, drinking water and agricultural uses.

Based on this screening, the COPC assessed in this ERA were: aluminum, antimony, arsenic, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, thallium and uranium.

5.1.2 Exposure Pathway Screening and Conceptual Site Model

The objective of the problem formulation stage is to develop a CSM that will aid in further stages of quantitative analyses. The exposure pathways considered in the ERA and the rationale for their inclusion or exclusion, are shown in Table 5.1-2. The CSM for the ERA is illustrated in , and identifies the exposure pathways contributing to ecological health risk in the ERA. Exposure pathways included in the ERA are marked with an "X".

The source media refers to the abiotic environment that the Project will directly influence with regards to ecological health. Dust generated by Project activities such as ore crushing will contain COPCs that will deposit onto the surrounding soil and surface waters. Dust deposited onto surface waters may eventually settle into the sediment. Treated effluent from the mine will also contain COPCs which are released into surface waters and may also settle into the sediment. These pathways constitute changes in the chemical quality of the environmental media to which ecological receptors are exposed.

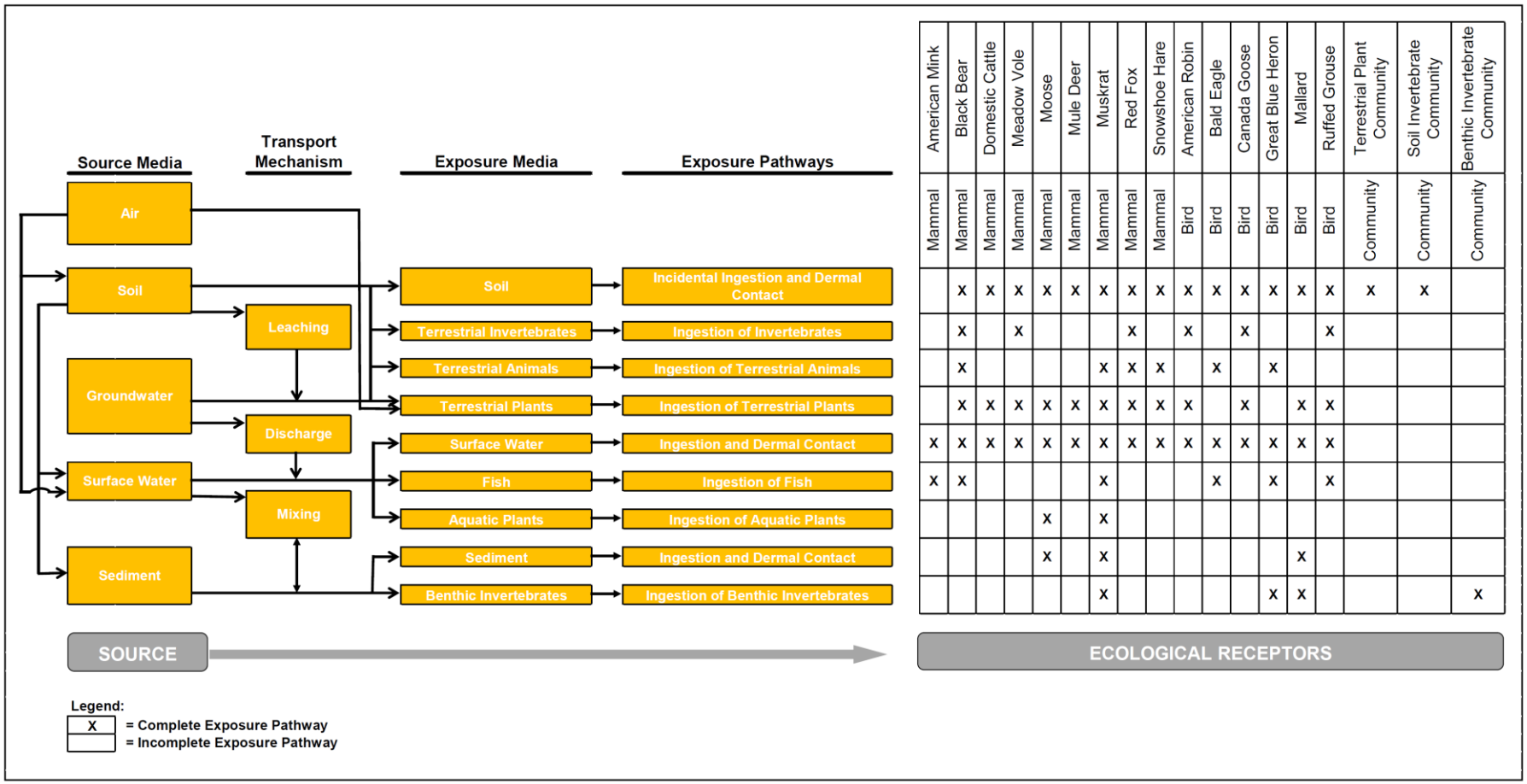
The exposure media refers to the material that ecological receptors are directly exposed to through ingestion of food (i.e., prey animals or vegetation) or dermal contact (i.e., direct exposure). The biotic forms of exposure media (i.e., animals and vegetation) uptake COPCs from the source media and incorporate these chemicals into their tissues, which are subsequently consumed by ecological receptors. Abiotic forms of exposure media (i.e., soil and sediment) may influence ecological health risk through dermal contact or when consumed incidentally along with food.

Table 5.1-2 Rationale for Exposure Pathway Inclusion or Exclusion in the ERA

Potential Exposure Pathway	Included in the ERA?	Rationale
Direct Exposure to Soil	Yes	Direct contact with soil is the primary exposure pathway for soil invertebrates and plants. Direct (dermal) contact with soil could be a potential exposure pathway for absorption of COPCs by mammals and birds. However, direct contact is not expected to represent a major source of exposure for most mammalian and avian receptors because fur and feathers will significantly reduce soil contact with skin (Sample and Suter 1994).
Ingestion of Soil	Yes	Soil ingestion is an important dietary component for many ecological receptors including herbivores and ungulates. Direct ingestion of soil provides essential minerals such as sodium, calcium, iron and zinc to supplement diets that are naturally low in mineral content. Incidental soil ingestion may occur through the ingestion of food items. Examples include soil bound to browse, forage and root vegetation when consumed by herbivores; or soil bound to prey items on the ground. Soil adhering to fur and feathers may be ingested incidentally during grooming activities. Therefore, the ingestion of soil constitutes a potential source of exposure to COPC by mammalian and avian receptors.
Ingestion of Terrestrial Foods	Yes	The consumption of terrestrial plants, soil invertebrates, small mammals and birds can be a COPC exposure pathway for mammals and birds.
Ingestion of Surface Water	Yes	The ingestion of surface water containing COPCs can be an exposure pathway for mammals and birds.
Ingestion of Aquatic Foods	Yes	The ingestion of aquatic plants and fish can be an exposure pathway for piscivorous mammals and birds.
Direct Exposure to Sediment	Yes	Benthic invertebrates live in, or are associated with, sediments for most of their lifespan. Therefore, direct contact with sediments is the primary exposure pathway for benthic invertebrates. For mammalian and avian receptors, direct contact with sediment is considered to be a minor exposure pathway relative to the exposures from ingestion of sediment and benthic foods.
Ingestion of Sediment	Yes	Ecological receptors that consume aquatic plants and invertebrates may also ingest sediments incidentally. Other activities such as grooming and constructing nests or dens may also result in incidental sediment ingestion.
Ingestion of Benthic Aquatic Foods	Yes	The diets of some mammalian and avian receptors include a proportion of benthic invertebrates. Therefore, this exposure pathway is considered in the ERA.

Potential Exposure Pathway	Included in the ERA?	Rationale
Inhalation	No	Ecological receptors may be exposed to COPCs through the inhalation of dust. However, this exposure pathway represents a minor component of overall COPC exposure relative to food and soil ingestion. Therefore, inhalation is not considered further in the ERA.
Direct Contact with Surface Water	No	Direct contact with surface water is an exposure pathway to aquatic receptors such as fish, aquatic plants and aquatic invertebrates. Aquatic receptors (e.g., fish and aquatic plants and invertebrates) are addressed in the Aquatics Technical Data Report and are, therefore, not included in this ERA. Exposure to COPCs from direct contact with water is assumed to be a minor exposure pathway relative to direct ingestion of water and ingestion of foods (e.g., fish) from the aquatic environment, both of which have been included in the ERA.
Terrestrial Vegetation Exposure to CACs	Yes	Terrestrial vegetation in the LSA could be exposed to CACs, including SO_2 and NO_2, emitted as a result of the Project. This pathway is evaluated by comparing predicted future concentrations of CACs to applicable guidelines protective of terrestrial plants.

December 2, 2015



American Mink	Black Bear	Domestic Cattle	Meadow Vole	Moose	Mule Deer	Muskrat	Red Fox	Snowshoe Hare	American Robin	Bald Eagle	Canada Goose	Great Blue Heron	Mallard	Ruffed Grouse	Terrestrial Plant Community	Soil Invertebrate Community	Benthic Invertebrate Community
Mammal	Mammal	Mammal	Mammal	Mammal	Mammal	Mammal	Mammal	Mammal	Bird	Bird	Bird	Bird	Bird	Bird	Community	Community	Community
	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	x		x				x		x		x			x			
	x					x	x	x		x		x					
	x	x	x	x	x	x	x	x	x		x		x	x			
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
x	x					x				x		x		x			
				x		x											
				x		x							x				
						x						x	x				x

SOURCE	ECOLOGICAL RECEPTORS

Legend:
X = Complete Exposure Pathway
= Incomplete Exposure Pathway

Figure 5.1-1 Conceptual Site Model for the Ecological Risk Assessment

5.2 TOXICITY ASSESSMENT

The objective of the Toxicity Assessment is to identify the potential adverse effects associated with chronic exposure of ecological receptors to each COPC. The amount of a substance that can be tolerated, below which adverse effects are not expected to be observed in a population, is referred to as the Toxicity Reference Value (TRV).

The TRVs for each COPC applicable to ecological receptors are presented in Appendix H.1. Numerous literature sources were reviewed to obtain the most applicable TRVs for ecological receptors including, but not limited to:

- CCME Environmental Quality Guidelines; (CCME 1999a,b and updates);
- USEPA Ecological Soil Screening Level (Eco-SSL) documents;
- Oak Ridge National Laboratory Toxicity Benchmarks for Wildlife (Sample et al. 1996);
- Agency for Toxic Substances and Disease Registry toxicity profiles;
- *Canadian Environmental Protection Act*, Priority Substance List Assessment Reports; and,
- Primary scientific literature.

For mammals and birds, TRVs for this ERA were based on dose response studies, typically conducted with laboratory animals, where the lowest observed adverse effects level (LOAEL) or no observed adverse effects level (NOAEL) has been quantified. The preferred toxicity measure used for in this ERA is the LOAEL; however, in the absence of a suitable value, NOAEL-based TRVs were used.

The focus of an ERA is to assess the risk for receptors at the population level. The application of TRVs derived from LOAELs is preferred in the calculation of risk. LOAELs are based on long-term growth or survival, or sub-lethal reproductive outcomes determined from chronic exposure studies. As such, these endpoints are relevant to the maintenance of wildlife populations. This is in contrast to human toxicology and human health risk assessment, where protection of individuals is of paramount concern. An exception to this occurs in ERA when federally or provincially designated species at risk or conservation concern are evaluated. To ensure that these species are afforded an appropriate level of protection in ERA, TRVs that are NOAEL based are preferred; if NOAELs are not available then a sensitive species factor (a numerical value of 3) is applied to LOAELs. This adjustment factor is applied to all avian species to account for designations under the *Migratory Bird and Convention Act*.

In addition to the sensitive species factor, other uncertainty factors were sometimes applied to TRVs. If the TRV was based on an acute lethal dose 50, then it was adjusted by a factor of 100 to make it comparable to a chronic LOAEL. A subchronic LOAEL or NOAEL was adjusted by 3 to make it comparable to a chronic LOAEL. A body mass scaling factor was also applied to extrapolate toxicity data between species with different body masses. The application of this factor only applies when TRVs were based on individual studies (rather than geometric means from numerous animals) and only when the test organism was smaller than the ecological receptor.

For community receptors, regulatory benchmarks protective of vegetation, soil invertebrates and sediment receptors were used in the ERA when available. Primary literature was applied when regulatory benchmarks were unavailable for a specific COPC and community receptor. Regulatory benchmarks are based on toxicity studies for multiple species; to establish the adverse environmental effects thresholds for organisms that reside or rely on these media. They are intended to represent a COPC concentration that will be protective of most species associated with that medium. As such, regulatory benchmarks protective of vegetation, soil invertebrate and sediment receptors were used in the ERA.

5.3 EXPOSURE ASSESSMENT

The purpose of the exposure assessment is to quantify an ecological receptor's total exposure to a COPC. The total exposure to a COPC is calculated as the sum of exposures from the contributing exposure pathways identified in the CSM (see). The exposure assessment corresponds to the "exposure" component of health risk illustrated in Figure 2.1-1. This section describes the method used to calculate the average daily dose (ADD) of COPCs that each ecological receptor would be exposed to under the base case and Future Case scenarios.

5.3.1 Method for Calculating the Average Daily Dose

The ADD represents the chronic exposure to COPCs for each ecological receptor based upon its body weight and ingestion of food, water and incidental ingestion of soil and sediment. The amount of food, water and media ingested by each ecological receptor was described in the ecological receptor profiles in Section 5.1.1.

For each mammalian and avian receptor, the following formula is used to calculate the ADD from each contributing exposure pathway and summed to calculate the total ADD:

$$\boldsymbol{ADD_i = IF \times AF \times EPC_i}$$

where:

ADD_i	=	Average daily dose for COPC "i" (mg COPC/kg body weight/day) from a specific exposure pathway;
IF	=	Intake factor (kg medium/kg body weight/day);
AF	=	Absorption factor for COPC (unitless; assumed as 100%); and,
EPC_i	=	Exposure point concentration for COPC "I" (mg COPC/kg medium).

The intake factor is the ingestion rate of each media type (i.e. ingestion of food, water, soil and sediment) that was described in Section 5.1.1.

The intake factor is also a function of the fraction of time each receptor spends at the site (f_{site}). The f_{site} is conservatively set at 1.0 for terrestrial foods, which assumes that receptors spend 100% of their time within the study area. For the ingestion of aquatic foods and water, the f_{site} is set at 0.67 because the surrounding lakes (e.g., Jacko Lake) that provide food and drinking water are

frozen between mid-November to mid-March (4 out of 12 months) and are only accessible for 67% of the year. The intake factor is also a function of the receptor's body weight (BW) in kilograms, as follows:

$$IF = \frac{(IR \times f_{site})}{BW}$$

To illustrate the derivation of ADD, sample calculations of the ADD of antimony for the American mink are provided in Appendix F. Total ADD for each COPC and ecological receptor is presented in Appendix H.2.

The exposure assessment for community-based receptors does not require the use of ADD calculations. Each of these receptors are primarily associated with a single environmental media (e.g., terrestrial plants and soil), and the potential for adverse environmental effects can be characterized by comparing COPC concentrations in each media with corresponding toxicity benchmarks. Therefore, the EPC associated with the relevant environmental media for each community-based receptor is used as the exposure estimate in this ERA

5.4 RISK CHARACTERIZATION

The purpose of the Risk Characterization step in ERA is to evaluate the evidence linking COPCs with adverse effects by combining information from the Exposure and Toxicity Assessments. For the assessment of mammalian and avian receptors the potential for adverse effects is quantified by comparing the dose of a substance that can be tolerated, or below which adverse environmental effects are not expected (i.e., TRV), to the expected daily dose, the amount of a COPC an organism is expected to be exposed to on a daily basis. The quotient of the two is referred to as a risk quotient (RQ) and the magnitude by which values differ from parity (i.e., TRV = daily dose) is used to make inferences about the possibility of ecological risks. For the assessment of potential risk to community-based receptors, a screening ratio (SR) is calculated rather than an RQ and is defined as the EPC of the associated environmental media divided by a toxicological benchmark (rather than dividing an ADD by a TRV, as used for birds and mammals).

An RQ or SR less than 1.0 (i.e., the ADD or EPC is less than the TRV or benchmark) indicates that the health risk is below the applicable threshold. When the RQ or SR is less than 1.0, the probability of adverse health risk to the ecological receptor is negligible because the COPC dose is less than the dose required to elicit an adverse biological response in laboratory toxicity tests or the SR is below a regulatory benchmark. When the RQ or SR is greater than 1.0, there is a potential (but not a certainty) that adverse risk to the ecological receptor may exist. In these cases, additional analysis and considerations are required including a review of the conservative assumptions applied in the assessment to provide a more accurate prediction of ecological risk. If it is ultimately determined that the RQ or SR indicates an ecological risk, mitigation or remediation activities may be recommended to reduce the risk to ecological receptors.

As with the human health risk assessment, mercury in fish tissue was assumed to be in the form of methylmercury.

5.4.1 Ecological Risk Characterization Results

The RQs for avian and mammalian receptors for the Baseline Case and Future Case are summarized in the following sections. RQs are presented for the Jacko Lake and Peterson Creek scenarios, which are assumed to be the sources of water and other aquatic exposures (i.e. consumption of fish and benthic invertebrates). These two scenarios were selected because Jacko Lake and Peterson Creek are the closest waterbodies to the Project and are more likely to experience environmental changes than other waterbodies within the Project's LSA and RSA.

RQs greater than 1.0 are shown in bold and underlined in Table 5.4-1 to Table 5.4-15. Appendix H.3 provides the detailed RQ contribution from each exposure pathway for each ecological species.

5.4.1.1 Mammalian Receptors

For all mammalian receptors modelled at Jacko Lake and Peterson Creek (with the exception of the American Mink exposed to selenium at Peterson Creek), RQs were less than 1.0 for the Baseline and Future Case (Table 5.4-1 to Table 5.4-9). The RQ for the American mink exposed to selenium at Peterson Creek is 2.1 and 3.7 for the Baseline and Future Case, respectively. Given that Baseline risk (present day risk without Project activities) marginally exceeds the risk threshold, and the difference in risk between the Baseline and Future case is also small, it is not expected that selenium exposure will manifest into adverse effects (the TRV for selenium is based on changes to reproduction).

An assumption in the ERA was that the American mink spends its entire life at Peterson Creek and that all food and water that is consumed will come from this waterbody year-round. The home range of the American mink ranges from 7.8 to 360 ha, and it is possible for an American mink to spend its entire life in the Peterson Creek area. During fish surveys in the waterbodies surrounding the proposed Project, it was observed that Peterson Creek currently has a low fish population. The low fish population in Peterson Creek may not sustain a population of American mink, which depend solely on freshwater fish. American mink may be required to fish in the surrounding other water bodies that are more distant from the Project. However, it is uncertain whether this more realistic scenario would reduce the RQ value below the threshold. Given that Baseline risk marginally exceeds the risk threshold, and the difference in risk between the Baseline and Future case is also small, it is not expected that selenium exposure by the mink will manifest into adverse effects (the TRV for selenium is based on changes to reproduction). Indeed, the American mink is not a blue or red listed species in BC, nor are there blue or red listed species with similar diets to the mink. As such, it is not expected that Project activities will affect this group of mammals.

The increase in RQ is based on model predictions of the increases in selenium levels in the tissue of fish living in Peterson Creek. Actual increases in selenium concentrations in fish tissue may be

lower than those assumed in the ERA. Monitoring selenium levels in the tissue of fish collected from Peterson Creek would better represent potential changes in exposure for mink living in the Peterson Creek area. Although there is a predicted increase in the selenium RQ for the mink in between the base and Future Cases, the change is unlikely to adversely affect the mink population in the area.

Table 5.4-1 Risk Quotients for the American Mink

Chemical of Potential Concern	Risk Quotients for the American Mink (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Aluminum	2.3E-03	1.2E-02	1.8E-02	7.9E-02
Antimony	7.5E-04	7.5E-04	1.1E-03	4.1E-03
Arsenic	1.9E-02	2.3E-02	3.6E-02	5.7E-02
Chromium	2.2E-03	1.0E-02	1.4E-02	5.7E-02
Cobalt	5.8E-04	1.2E-03	3.5E-03	6.6E-03
Copper	1.2E-01	2.1E-01	2.2E-01	2.8E-01
Lead	7.3E-04	1.0E-03	1.2E-04	1.7E-04
Manganese	6.4E-04	9.0E-04	1.5E-03	3.3E-03
Mercury	1.6E-01	1.7E-01	8.0E-02	8.3E-02
Molybdenum	2.7E-03	5.1E-03	7.5E-03	1.5E-02
Nickel	8.6E-03	1.4E-02	3.4E-02	3.9E-02
Selenium	4.2E-01	7.5E-01	**2.1E+00**	**3.7E+00**
Thallium	3.5E-04	3.6E-04	5.2E-03	5.2E-03
Uranium	4.2E-04	5.2E-04	1.6E-03	2.8E-03

Notes:
Bold RQ Value exceeds 1.0

Table 5.4-2 Risk Quotients for the Black Bear

Chemical of Potential Concern	Risk Quotients for the Black Bear (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Aluminum	1.1E-01	1.1E-01	1.2E-01	1.3E-01
Antimony	1.4E-02	1.4E-02	1.4E-02	1.5E-02
Arsenic	4.6E-02	4.7E-02	4.7E-02	4.9E-02
Chromium	8.1E-02	8.1E-02	8.1E-02	8.3E-02
Cobalt	6.4E-03	6.4E-03	6.5E-03	6.6E-03
Copper	2.2E-01	2.3E-01	2.3E-01	2.3E-01
Lead	5.0E-04	5.2E-04	4.8E-04	4.8E-04
Manganese	1.8E-02	1.8E-02	1.8E-02	1.9E-02

Chemical of Potential Concern	Risk Quotients for the Black Bear (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Mercury	2.9E-02	3.0E-02	1.9E-02	2.0E-02
Molybdenum	8.6E-01	8.7E-01	8.6E-01	8.7E-01
Nickel	3.7E-01	3.7E-01	3.7E-01	3.7E-01
Selenium	4.0E-01	4.4E-01	5.9E-01	7.9E-01
Thallium	4.3E-03	4.3E-03	4.8E-03	4.9E-03
Uranium	1.7E-03	1.8E-03	2.0E-03	2.2E-03

Table 5.4-3 Risk Quotients for the Domestic Cattle

Chemical of Potential Concern	Risk Quotients for the Domestic Cattle (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Aluminum	5.3E-02	5.3E-02	5.3E-02	5.9E-02
Antimony	6.6E-03	6.6E-03	6.6E-03	6.9E-03
Arsenic	3.1E-02	3.1E-02	3.1E-02	3.1E-02
Chromium	2.9E-02	2.9E-02	2.9E-02	2.9E-02
Cobalt	2.6E-03	2.6E-03	2.6E-03	2.6E-03
Copper	9.2E-02	9.2E-02	9.4E-02	9.4E-02
Lead	1.3E-04	1.4E-04	1.4E-04	1.4E-04
Manganese	2.9E-03	2.9E-03	2.9E-03	3.9E-03
Mercury	1.0E-03	1.0E-03	1.0E-03	1.1E-03
Molybdenum	8.5E-01	8.5E-01	8.5E-01	8.6E-01
Nickel	8.6E-02	8.6E-02	8.6E-02	8.6E-02
Selenium	9.3E-02	9.4E-02	9.3E-02	9.4E-02
Thallium	3.1E-03	3.1E-03	3.1E-03	3.1E-03
Uranium	1.4E-03	1.4E-03	1.5E-03	1.6E-03

Table 5.4-4 Risk Quotients for the Meadow Vole

Chemical of Potential Concern	Risk Quotients for the Meadow Vole (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Aluminum	2.7E-02	2.7E-02	2.7E-02	2.9E-02
Antimony	7.7E-03	7.8E-03	7.7E-03	7.9E-03
Arsenic	9.0E-02	9.0E-02	9.0E-02	9.1E-02
Chromium	2.3E-01	2.3E-01	2.3E-01	2.3E-01
Cobalt	1.8E-02	1.8E-02	1.8E-02	1.8E-02

Chemical of Potential Concern	Risk Quotients for the Meadow Vole (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Copper	4.3E-01	4.3E-01	4.3E-01	4.3E-01
Lead	1.1E-03	1.1E-03	1.1E-03	1.1E-03
Manganese	3.2E-02	3.2E-02	3.2E-02	3.3E-02
Mercury	5.3E-03	5.5E-03	5.3E-03	5.5E-03
Molybdenum	2.3E-01	2.3E-01	2.3E-01	2.3E-01
Nickel	7.4E-01	7.4E-01	7.4E-01	7.4E-01
Selenium	1.2E-01	1.2E-01	1.2E-01	1.2E-01
Thallium	3.2E-03	3.2E-03	3.2E-03	3.2E-03
Uranium	8.1E-04	8.2E-04	8.5E-04	9.0E-04

Table 5.4-5 Risk Quotients for the Moose

Chemical of Potential Concern	Risk Quotients for the Moose (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Aluminum	3.2E-02	3.3E-02	3.6E-02	4.4E-02
Antimony	4.5E-03	4.6E-03	4.8E-03	5.6E-03
Arsenic	3.8E-02	3.8E-02	4.0E-02	4.1E-02
Chromium	2.4E-02	2.4E-02	3.4E-02	3.4E-02
Cobalt	7.5E-03	7.8E-03	8.2E-03	8.9E-03
Copper	7.7E-02	8.1E-02	8.1E-02	8.5E-02
Lead	1.0E-04	1.1E-04	1.2E-04	1.2E-04
Manganese	8.0E-03	9.4E-03	2.3E-02	4.5E-02
Mercury	9.2E-03	9.7E-03	1.3E-02	1.4E-02
Molybdenum	1.1E-01	1.1E-01	1.4E-01	1.9E-01
Nickel	8.6E-02	9.1E-02	1.2E-01	1.3E-01
Selenium	8.6E-02	8.7E-02	8.6E-02	8.8E-02
Thallium	1.2E-02	1.2E-02	1.9E-02	1.9E-02
Uranium	4.8E-03	6.0E-03	1.0E-02	1.8E-02

Table 5.4-6 Risk Quotients for the Mule Deer

Chemical of Potential Concern	Risk Quotients for the Mule Deer (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Aluminum	4.4E-02	4.4E-02	4.5E-02	5.0E-02
Antimony	4.2E-03	4.2E-03	4.2E-03	4.4E-03
Arsenic	2.6E-02	2.6E-02	2.6E-02	2.7E-02

Chemical of Potential Concern	Risk Quotients for the Mule Deer (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Chromium	2.9E-02	2.9E-02	2.9E-02	2.9E-02
Cobalt	6.4E-03	6.4E-03	6.4E-03	6.4E-03
Copper	8.1E-02	8.1E-02	8.1E-02	8.1E-02
Lead	1.3E-04	1.3E-04	1.3E-04	1.3E-04
Manganese	5.5E-03	5.5E-03	5.6E-03	5.8E-03
Mercury	1.3E-03	1.4E-03	1.3E-03	1.4E-03
Molybdenum	6.9E-01	7.0E-01	7.0E-01	7.0E-01
Nickel	1.0E-01	1.0E-01	1.0E-01	1.0E-01
Selenium	1.1E-01	1.1E-01	1.1E-01	1.1E-01
Thallium	1.8E-03	1.9E-03	1.8E-03	1.9E-03
Uranium	7.8E-04	7.9E-04	8.9E-04	1.0E-03

Table 5.4-7 Risk Quotients for the Muskrat

Chemical of Potential Concern	Risk Quotients for the Muskrat (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Aluminum	5.9E-03	7.8E-03	1.3E-02	2.0E-02
Antimony	1.5E-03	1.5E-03	2.0E-03	3.3E-03
Arsenic	1.7E-02	1.7E-02	2.5E-02	2.6E-02
Chromium	2.6E-02	2.6E-02	1.0E-01	1.0E-01
Cobalt	3.7E-03	6.7E-03	1.0E-02	1.6E-02
Copper	7.3E-02	9.8E-02	1.1E-01	1.4E-01
Lead	2.0E-04	2.3E-04	3.4E-04	3.7E-04
Manganese	4.3E-02	5.6E-02	1.9E-01	4.0E-01
Mercury	1.9E-02	2.0E-02	2.7E-02	2.8E-02
Molybdenum	5.1E-02	6.6E-02	1.1E-01	2.1E-01
Nickel	9.8E-02	1.4E-01	4.0E-01	4.5E-01
Selenium	3.0E-02	3.4E-02	4.8E-02	6.6E-02
Thallium	2.4E-02	2.4E-02	3.8E-02	3.8E-02
Uranium	8.7E-03	1.1E-02	2.1E-02	3.6E-02

Table 5.4-8 Risk Quotients for the Red Fox

Chemical of Potential Concern	Risk Quotients for the Red Fox (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Aluminum	1.4E-01	1.4E-01	1.4E-01	1.5E-01
Antimony	5.5E-03	5.6E-03	5.5E-03	5.7E-03
Arsenic	1.6E-02	1.6E-02	1.6E-02	1.6E-02
Chromium	4.6E-02	4.6E-02	4.6E-02	4.6E-02
Cobalt	3.1E-03	3.2E-03	3.1E-03	3.2E-03
Copper	2.1E-01	2.1E-01	2.1E-01	2.1E-01
Lead	5.7E-04	5.8E-04	5.7E-04	5.8E-04
Manganese	4.5E-03	4.6E-03	4.7E-03	5.1E-03
Mercury	2.1E-03	2.2E-03	2.1E-03	2.2E-03
Molybdenum	1.0E-01	1.0E-01	1.0E-01	1.0E-01
Nickel	2.2E-01	2.2E-01	2.2E-01	2.2E-01
Selenium	3.5E-01	3.5E-01	3.5E-01	3.6E-01
Thallium	1.2E-03	1.3E-03	1.3E-03	1.3E-03
Uranium	4.3E-04	4.4E-04	5.0E-04	5.8E-04

Table 5.4-9 Risk Quotients for the Snowshoe Hare

Chemical of Potential Concern	Risk Quotients for the Snowshoe Hare (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Aluminum	5.0E-02	5.0E-02	5.1E-02	5.4E-02
Antimony	5.1E-03	5.1E-03	5.1E-03	5.2E-03
Arsenic	5.4E-02	5.4E-02	5.4E-02	5.4E-02
Chromium	1.1E-01	1.1E-01	1.1E-01	1.1E-01
Cobalt	1.8E-02	1.8E-02	1.8E-02	1.8E-02
Copper	2.6E-01	2.6E-01	2.6E-01	2.6E-01
Lead	5.0E-04	5.0E-04	5.0E-04	5.0E-04
Manganese	1.7E-02	1.7E-02	1.7E-02	1.7E-02
Mercury	1.8E-03	1.8E-03	1.8E-03	1.8E-03
Molybdenum	6.0E-01	6.1E-01	6.0E-01	6.1E-01
Nickel	3.6E-01	3.6E-01	3.6E-01	3.6E-01
Selenium	1.2E-01	1.2E-01	1.2E-01	1.2E-01
Thallium	2.2E-03	2.3E-03	2.2E-03	2.3E-03
Uranium	9.4E-04	9.5E-04	1.0E-03	1.1E-03

5.4.1.2 Avian Receptors

Aluminum and antimony were not quantitatively evaluated for avian species. Research indicates that birds effectively limit the absorption of aluminum, and excrete any excess in the body. In laboratory studies, high dietary levels of aluminum were required to observe any significant accumulation in the tissues (Scheuhammer 1987). The toxic potential of aluminum is very low to avian species and the level of exposure required to elicit an adverse biological response is greater than those observed in the natural environment. Consequently, the breadth of research on aluminum toxicity to avian species is poor and does not meet the requirements to develop a scientifically defensible TRV to apply in the ERA.

For antimony, ecological risk assessment guidance does not provide an avian TRV (USEPA 1999). The USEPA reference notes that Ridgeway and Karnofsky (1952) reported that toxicity values on bird eggs could not be converted to a dose based on post-hatching environmental exposures.

For all avian receptors modelled at Jacko Lake and Peterson Creek (with the following exceptions), RQs were less than 1.0 for the Baseline and Future Case (
Table 5.4-10 to Table 5.4-15):

- the selenium RQ for the great blue heron at Peterson Creek is greater than 1.0 in the Baseline Case (1.4) and Future Case (2.4).
- the chromium RQ for the mallard duck is greater than 1.0 for the baseline (1.9) and Future Cases (1.9) at Peterson Creek; and
- the selenium RQ for the mallard duck is greater than 1.0 at Jacko Lake and Peterson Creek for both baseline and Future Cases (RQ=1.6 for all).

In terms of the great blue heron, given that Baseline risk (present day risk without Project activities) marginally exceeds the risk threshold, and the difference in risk between the Baseline and Future case is also small, it is not expected that selenium exposure will manifest into adverse effects (the TRV for selenium is based on changes to reproduction). However it needs to be acknowledged that the great blue heron is a blue-listed species (i.e., of special concern due to their sensitivity to human activities or natural events (BC MOE 2015a)) and is used in this ERA as a surrogate for other fish eating birds. It is noted that a number of red and blue species were identified to be present in the LSA and/or RSA (Section 6 of the Main Report). As discussed in Section 5.1.1 (this report), it was not practical or necessary to assess potential health risks for each species. Rather, a representative subset of ecological receptors was selected as the basis for this ERA, and these receptors are expected to be representative of the identified red and blue species.

In terms of the mallard, while predicted RQs at Jacko Lake and Peterson Creek exceed the threshold of 1.0 for chromium and selenium for both Baseline and Future case scenarios, the value of the RQ is the same between the two. In other words, risk to mallard duck and the organisms it covers as a surrogate are expected to be no different for present day conditions

and from Project related activities. As such, it is not expected that exposure to these COPC will manifest into adverse effects.

The natural concentration of trace metals in soil and water is variable because it is derived from the underlying geological material. In mineralized regions such as the project area, trace metal concentrations in the soil, surface water and wildlife may reflect the local geological conditions. Under the baseline conditions, wildlife may be naturally exposed to trace metal in the environment that result in an RQ value greater than 1.0. This is not considered an ecological risk because wildlife are assumed to have either adapted to these concentrations of trace metals over generations; or acclimated to these conditions during its lifeline. Therefore, the potential health risk to the mallard duck from these COPCs is a naturally occurring and there is no additional risk resulting from the Project.

Table 5.4-10 Risk Quotients for the American Robin

Chemical of Potential Concern	Risk Quotients for the American Robin (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Arsenic	2.2E-02	2.2E-02	2.2E-02	2.2E-02
Chromium	6.3E-01	6.3E-01	6.3E-01	6.3E-01
Cobalt	8.6E-02	8.6E-02	8.6E-02	8.6E-02
Copper	1.4E-01	1.4E-01	1.4E-01	1.4E-01
Lead	2.0E-02	2.0E-02	2.0E-02	2.0E-02
Manganese	1.7E-02	1.7E-02	1.7E-02	1.8E-02
Mercury	5.7E-02	6.0E-02	5.7E-02	6.0E-02
Molybdenum	7.0E-03	7.1E-03	7.1E-03	7.3E-03
Nickel	6.4E-01	6.4E-01	6.4E-01	6.4E-01
Selenium	2.7E-01	2.7E-01	2.7E-01	2.7E-01
Thallium	7.7E-03	7.8E-03	7.7E-03	7.8E-03
Uranium	8.3E-05	8.4E-05	8.7E-05	9.1E-05

Table 5.4-11 Risk Quotients for the Bald Eagle

Chemical of Potential Concern	Risk Quotients for the Bald Eagle (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Arsenic	2.2E-03	2.5E-03	2.1E-03	2.7E-03
Chromium	1.4E-02	1.6E-02	1.8E-02	2.4E-02
Cobalt	3.9E-03	4.6E-03	5.1E-03	6.5E-03
Copper	2.0E-02	2.5E-02	2.0E-02	2.1E-02
Lead	1.6E-03	2.0E-03	8.7E-04	9.0E-04
Manganese	4.0E-04	4.2E-04	4.0E-04	4.9E-04

Chemical of Potential Concern	Risk Quotients for the Bald Eagle (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Mercury	4.4E-01	4.6E-01	2.2E-01	4.6E-01
Molybdenum	4.1E-03	4.2E-03	3.9E-03	4.0E-03
Nickel	6.3E-03	6.6E-03	7.1E-03	7.2E-03
Selenium	2.7E-01	3.8E-01	4.8E-01	7.8E-01
Thallium	2.2E-03	2.2E-03	5.5E-03	5.6E-03
Uranium	3.0E-05	3.8E-05	2.5E-05	3.9E-05

Table 5.4-12 Risk Quotients for the Canada Goose

Chemical of Potential Concern	Risk Quotients for the Canada Goose (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Arsenic	1.6E-02	1.6E-02	1.6E-02	1.6E-02
Chromium	2.0E-01	2.0E-01	2.0E-01	2.0E-01
Cobalt	5.5E-02	5.5E-02	5.5E-02	5.5E-02
Copper	6.6E-02	6.6E-02	6.6E-02	6.6E-02
Lead	3.9E-03	3.9E-03	3.9E-03	3.9E-03
Manganese	5.5E-03	5.5E-03	5.5E-03	5.5E-03
Mercury	9.8E-03	1.0E-02	9.8E-03	1.0E-02
Molybdenum	1.2E-01	1.2E-01	1.2E-01	1.2E-01
Nickel	8.0E-02	8.0E-02	8.0E-02	8.0E-02
Selenium	1.2E-01	1.2E-01	1.2E-01	1.2E-01
Thallium	1.9E-02	1.9E-02	1.9E-02	1.9E-02
Uranium	1.2E-04	1.2E-04	1.2E-04	1.2E-04

Table 5.4-13 Risk Quotients for the Great Blue Heron

Chemical of Potential Concern	Risk Quotients for the Great Blue Heron (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Arsenic	5.2E-03	5.7E-03	8.6E-03	1.1E-02
Chromium	2.1E-02	2.6E-02	7.2E-02	9.7E-02
Cobalt	2.5E-03	4.2E-03	1.0E-02	1.6E-02
Copper	3.0E-02	4.2E-02	4.9E-02	5.6E-02
Lead	2.2E-03	3.0E-03	1.1E-03	1.2E-03
Manganese	7.0E-04	7.7E-04	1.4E-03	1.7E-03
Mercury	7.7E-01	8.2E-01	3.8E-01	4.0E-01
Molybdenum	6.0E-03	6.6E-03	1.2E-03	1.9E-03
Nickel	6.9E-03	8.3E-03	2.0E-02	2.1E-02

Chemical of Potential Concern	Risk Quotients for the Great Blue Heron (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Selenium	3.1E-01	5.2E-01	**1.4E+00**	**2.4E+00**
Thallium	2.2E-03	2.2E-03	1.6E-02	1.6E-02
Uranium	6.4E-05	8.5E-05	7.0E-05	1.2E-04

Notes:
Bold RQ Value exceeds 1.0

Table 5.4-14 Risk Quotients for the Mallard Duck

Chemical of Potential Concern	Risk Quotients for the Mallard (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Arsenic	1.1E-01	1.1E-01	1.6E-01	1.6E-01
Chromium	6.8E-01	6.9E-01	**1.9E+00**	**1.9E+00**
Cobalt	2.9E-02	4.2E-02	7.9E-02	9.4E-02
Copper	7.1E-01	7.7E-01	1.0E+00	1.0E+00
Lead	1.2E-02	1.4E-02	2.5E-02	2.6E-02
Manganese	3.2E-02	3.5E-02	8.2E-02	1.3E-01
Mercury	9.6E-02	1.0E-01	1.4E-01	1.5E-01
Molybdenum	2.1E-01	2.3E-01	3.1E-02	4.6E-02
Nickel	2.1E-01	2.4E-01	5.7E-01	5.7E-01
Selenium	**1.6E+00**	**1.6E+00**	**1.6E+00**	**1.6E+00**
Thallium	9.3E-02	9.3E-02	1.6E-01	1.6E-01
Uranium	1.1E-03	1.5E-03	9.5E-04	1.7E-03

Notes:
Bold RQ Value exceeds 1.0

Table 5.4-15 Risk Quotients for the Ruffed Grouse

Chemical of Potential Concern	Risk Quotients for the Ruffed Grouse (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Arsenic	2.7E-05	2.7E-05	2.7E-05	2.7E-05
Chromium	6.8E-04	6.8E-04	6.8E-04	6.8E-04
Cobalt	9.3E-04	9.4E-04	9.3E-04	9.4E-04
Copper	4.6E-04	4.6E-04	4.6E-04	4.6E-04
Lead	1.1E-05	1.1E-05	1.1E-05	1.1E-05
Manganese	8.0E-05	8.0E-05	8.0E-05	8.2E-05
Mercury	6.2E-05	6.4E-05	6.2E-05	6.4E-05
Molybdenum	2.9E-05	2.9E-05	2.9E-05	3.0E-05

Chemical of Potential Concern	Risk Quotients for the Ruffed Grouse (unitless)			
	Jacko Lake		Peterson Creek	
	Baseline	Future	Baseline	Future
Nickel	4.1E-04	4.2E-04	4.2E-04	4.2E-04
Selenium	3.5E-04	3.5E-04	3.5E-04	3.5E-04
Thallium	9.0E-06	9.1E-06	9.0E-06	9.2E-06
Uranium	1.8E-07	1.9E-07	2.2E-07	2.7E-07

5.4.1.3 Plant and Invertebrate Communities

The SRs for ecological receptor communities are presented in Table 5.4-16 to Table 5.4-18. For these receptors, the maximum EPC from either Jacko Lake or Peterson Creek were used in the characterization of risk. In all cases, SR were less than 1.0 for baseline and Future Cases with the exception of manganese; however, the SR are the same for both scenarios, suggesting that Project related activities pose no greater risk to plant and invertebrate communities than present day baseline conditions.

Table 5.4-16 Screening Ratios for the Terrestrial Plant Communities

Chemical of Potential Concern	Maximum Screening Ratios for the Terrestrial Plant Communities (unitless)	
	Baseline Case	Future Case
Antimony	9.3E-02	9.4E-02
Arsenic	2.9E-01	2.9E-01
Chromium	2.2E-01	2.2E-01
Cobalt	3.9E-01	3.9E-01
Copper	6.5E-01	6.5E-01
Lead	2.1E-02	2.1E-02
Manganese	**3.6E+00**	**3.6E+00**
Mercury	4.4E-03	4.5E-03
Molybdenum	2.8E-02	2.8E-02
Nickel	5.8E-01	5.8E-01
Selenium	4.1E-02	4.1E-02
Thallium	6.1E-02	6.2E-02
Uranium	1.1E-01	1.1E-01

Notes:
Bold **SR exceeds benchmark of 1.0.**

Table 5.4-17 Screening Ratios for the Soil Invertebrate Communities

Chemical of Potential Concern	Maximum Screening Ratios for the Soil Invertebrate Communities (unitless)	
	Baseline Case	Future Case
Antimony	5.9E-03	6.0E-03
Arsenic	9.7E-02	9.8E-02
Chromium	2.2E-01	2.2E-01
Cobalt	3.9E-01	3.9E-01
Copper	6.5E-01	6.5E-01
Lead	3.1E-03	3.1E-03
Manganese	**1.8E+00**	**1.8E+00**
Mercury	4.4E-03	4.5E-03
Molybdenum	2.8E-02	2.8E-02
Nickel	2.1E-01	2.1E-01
Selenium	1.0E-01	1.0E-01
Thallium	6.1E-02	6.2E-02

Notes:

Bold SR exceeds benchmark of 1.0.

Potential health effects for benthic invertebrate communities were assessed by comparing COPC concentrations in sediment to sediment quality guidelines. Sediment quality guidelines were taken from Canadian Sediment Quality Guidelines for the Protection of Aquatic Life (CCME 2014), where available. The BC MOE sediment quality guidelines were not used since the CCME guidelines are more conservative. In cases where guidelines were not available from either the CCME or the BC MOE, sediment quality guidelines were selected from the National Institute for Public Health and the Environment, The Netherlands (hereafter RIVM), the Ontario MOE, or the Ohio EPA.

Baseline Case and Future Case sediment concentrations from Jacko Lake and Peterson Creek (PC02) in are compared to sediment quality guidelines in Table 5.4-18. Concentrations in sediment were below the applicable guidelines with the exception of Baseline Case and Future Case concentrations of chromium in Peterson Creek (PC02) and Baseline Case and Baseline Case and Future Case concentrations in both Jacko Lake and Peterson Creek. Concentrations of chromium at PC02 are not predicted to increase between Baseline Case and Future Case, indicating that the Project will not have a significant impact on Chromium sediment concentrations and is thus not expected to increase exposure that is present under Baseline Case. The increases in sediment concentrations between Baseline Case and Future Case for Jacko Lake and at Peterson Creek are small, representing changes of only 3.2% and 1.9% for Jacko Lake and Peterson Creek, respectively. These small increases in concentration are not expected to result in meaningful increases in exposure above what is present under Baseline Case.

Overall the Project is not expected to result in changes to COPC concentrations between Baseline Case and Future Case that would be indicative of potential ecological health effects.

Table 5.4-18 Comparison of Sediment Quality to Canadian Sediment Quality Guidelines

Chemical of Potential Concern	CCME SQG[1] (mg/kg dry weight)	RIVM, Ohio EPA, Ontario MOE SQG[2] (mg/kg dry weight)	Sediment Concentrations (EPC) (mg/kg dry weight) for Plant Boundary			
			Jacko Lake		Peterson Creek (PC02)	
			Baseline Case	Future Case	Baseline Case	Future Case
Aluminum	---	53000 [3]	6.48E+03	6.63E+03	1.31E+04	1.32E+04
Antimony	---	4303	3.78E-01	3.78E-01	3.30E-01	3.44E-01
Arsenic	17	---	4.36E+00	4.54E+00	4.43E+00	4.47E+00
Barium	---	2455	--	---	---	---
Chromium	90		3.47E+01	3.51E+01	**1.20E+02**	**1.20E+02**
Cobalt	---	459	6.79E+00	9.18E+00	1.33E+01	1.35E+01
Copper	197	---	6.95E+01	7.50E+01	5.66E+01	5.69E+01
Lead	91.3	---	3.41E+00	3.91E+00	4.89E+00	4.93E+00
Manganese	---	460 [4]	**7.49E+02**	**7.74E+02**	**9.47E+02**	**9.65E+02**
Mercury	0.486	---	5.57E-02	5.58E-02	6.30E-02	6.31E-02
Molybdenum	---	7000	1.71E+01	1.84E+01	1.29E+00	1.73E+00
Nickel	---	16[4]	3.48E+01	4.03E+01	7.36E+01	7.40E+01
Selenium	---	14.7	1.45E+00	1.46E+00	7.26E-01	7.27E-01
Thallium	---	---	5.00E-02	5.00E-02	6.26E-02	6.26E-02
Uranium	---	---	3.87E+00	5.27E+00	5.49E-01	1.09E+00

Notes:

[1] Canadian Sediment Quality Guidelines (SQG) for the Protection of Freshwater Aquatic Life – Probable Effects Level.

[2] The National institute for Public Health and the Environment, the Netherlands (RIVM).

[3] Ohio EPA (2002).

[4] Ontario MOE (2008).

NA indicates no applicable SQG available.

Bold Sediment Concentrations exceed the benchmark of 1.0.

5.4.1.3.1 Exposure of Terrestrial Plants to CACs

The presence of NO_2 and SO_2 can have adverse effects on terrestrial vegetation. The World Health Organization has derived ecological based guidelines for protecting vegetation from adverse effects; the applicable benchmarks for the Project are provided in Table 5.4-19.

Maximum annual concentrations of SO_2 and NO_2 considering all modelled location were below the applicable benchmarks (Table 5.4-19) indicating adverse effects to terrestrial plants are not expected.

Table 5.4-19 Comparison of SO_2 and NO_2 Annual Concentrations to Guidelines for Protection of Adverse Effects to Plants.

Criteria Air Contaminant	WHO Guideline (Annual) (µg/m³)	Basis of Guideline	Maximum Annual Concentration in RSA (µg/m³)
SO_2	10	Protection of Lichens (most stringent applicable guideline)	2.1
NO_2	30	Critical Effect Level for NO_X expressed as NO_2	16.6

5.5 UNCERTAINTY ASSESSMENT

The uncertainty assessment evaluates the validity and the confidence of the risk estimates by identifying uncertainties that may influence the final conclusions of the ERA. Uncertainties may include variability in the quality of results from media analyzed by the lab, variability in estimates of exposure from the ecological receptor profiles, derivation of TRVs and interactions between multiple COPCs on health risk and the assumptions used when best professional judgment is applied.

Uncertainties may result in the overestimation or underestimation of risk. A reasonable and conservative approach was taken when addressing uncertainties that would either overestimate the risk or avoid underestimating the risk. This section describes each area of uncertainty and the conservative approach used to address it.

5.5.1 Inherent Modelling Uncertainty

There are uncertainties inherent to all types of predictive modelling techniques. Predictive modelling that was conducted independently from the ERA includes the modelling of dust deposition and surface water quality. Differences between modelled conditions and actual Future Case conditions for climate, wind, weather and project influences may result in uncertainties. As part of the conservative approach to risk assessments, the worst-case modelling conditions are typically selected for application into the ERA.

5.5.2 Ecological Health Risk Modelling Assumptions

Assumptions are applied during the modelling of ecological health risk because uncertainties or information gaps may exist. When assumptions are made, conservatism is applied that tends to overestimate the risk. Some of these modelling assumptions include:

- The assumption that the uptake rate of COPCs from ingestion and dermal exposure to environmental media is 100% (i.e. Absorption Factor = 1.0);
- Ecological receptors spend their entire lifetime in the area that could be affected by the project;
- Ecological receptors are exposed to concentrations of COPCs in baseline environmental media based upon the 95% upper confidence limit of the mean, rather than the minimum, median or average concentrations that were measured;
- Ecological receptors are exposed to environmental media based on the modelled maximum or 95% UCLM concentrations of COPCs regardless of the relative geographical proximity between each media type; and
- Predicted concentrations of COPCs in fish are based on exposure to COPCs in the modelled water data at the worst case location. Fish are assumed to have been exposed to these concentrations long enough for their tissues to equilibrate with the surrounding water.

5.5.3 Ecological Receptor Selection

The ecological receptors that were selected are known to be present, or can reasonably be expected to be present, near the Project. These receptors are also known to be reasonable representatives of other species that may be present. The use of site-specific receptors decreases the uncertainty in the assessment.

5.5.4 Use of Ecological Receptors to Represent Other Organisms

The use of ecological receptors to represent a broader range of wildlife is intended to limit the number of ecological receptors evaluated in the ERA. The ecological receptors selected are considered sensitive, consistently present at or near the Project, and exposed to the COPCs present at the site through the applicable exposure pathways.

As part of the conservative approach to risk assessments, the health risk from each food exposure pathway (e.g. ingestion of fish, vegetation or terrestrial invertebrates) was represented by at least one ecological receptor. The diet of these ecological receptors is primarily comprised of a single food type. For example, the diet of the American mink is comprised of freshwater fish only. If a substantial change in the quality of fish exists, the American mink would have the greatest likelihood among all ecological receptors to show a potential health risk. If there is no significant health risk to the American mink from fish consumption, mammalian species that eat a lower proportion of fish are likely to be protected. In this manner, the ecological receptors applicable to each exposure pathway serve as sentinels for similar groups of wildlife in the study area.

5.5.5 Receptor-Specific Toxicity Data

For most COPCs and receptors, toxicity data are available in some form to derive a TRV. However, toxicity data are not necessarily available for the particular receptor species under

consideration (e.g. black bears), or to a reproductive or population-level endpoint. As a result, there is uncertainty associated with the extrapolations that may be used to translate toxicity data for one species into a TRV for a second species.

As part of the conservative approach to risk assessments, uncertainty factors are applied which is a reasonable and standard scientific approach to addressing uncertainties with toxicity data. For ecological receptor communities, the use of the probable effects level to estimate the TRV integrates toxicity data from multiple species, and provides a weight-of-evidence evaluation of the toxicity data in support of the TRV.

5.5.6 Food Chain Interactions

Very limited "real world" data exist that allow quantification of the true relationship between a COPC in an environmental medium and contaminant transfer through the food chain. Only a few classes of contaminants (excluding metals) appear to be magnified through the food chain. The extent of food chain magnification is another uncertainty that is treated in a conservative manner. Baseline concentrations of trace metals in a wide variety of environmental media and food items were measured, including surface water, sediment, soil, fish, forage, and browse. Future concentrations of trace metals in these environmental media and food items were predicted using methods and models that are considered to be realistic or conservative such as the application of a 100% COPC uptake factor.

5.5.7 Wildlife Exposure Factors

Almost every factor incorporated into dose calculations for ecological receptor species possesses a site-specific component. Validity of each exposure factor is dependent on consideration of the site-specific nature of these factors. In the absence of site-specific validation, exposure factors are incorporated based on validations performed elsewhere for other cases and sometimes for other species. Considerations such as food ingestion rates, water ingestion rates, incidental soil ingestion rates, dietary composition, home range, and time spent near the Project were collected from the scientific literature based on other sites and locations.

5.5.8 Measurement Endpoints from the Toxicity Data

The limited amount of toxicity data available for many COPCs reduces the measurement endpoints that were available. The health risk is evaluated using a NOAEL or LOAEL-based TRV. It is likely that no adverse risk to ecological health risk will exist below the RQ benchmark value of 1.0. This approach is conservative, and if observed RQ values are lower than the target RQ values, it is assumed that there is little potential for observable environmental effects at the population level. However, an RQ value greater than 1 is not by itself an indication that harm to receptor organisms will occur. The conservatism inherent in the model development mitigate this conclusion, and the movements of wildlife receptors and consequent risk-averaging tend to

reduce their actual exposure level in comparison with the exposure level predicted at point locations.

5.5.9 Chemical Interactions from Multiple COPCs

Ecological receptors are exposed to multiple COPCs in the environment. The chemical interaction between multiple COPCs or modifying factors (e.g. pH or water hardness) may result in additive, synergistic or antagonistic effects that are not detectable when evaluating the toxicity of COPCs individually. As the scientific understanding of the effects of multiple COPCs and modifying factors is still in its infancy, with limited assessment tools to evaluate these effects, chemical interactions are not evaluated in this assessment.

6.0 SUMMARY

A Human Health and Ecological Risk Assessment (HHERA) was completed to quantify the potential change in risks to human and ecological health that could result from the Construction, Operation, and Decommissioning, Reclamation and Closure of the Project. The potential human and ecological health risks were assessed for existing conditions, referred to as the Baseline Case, and future conditions which included contributions from both the Baseline and the Project (referred to as the Future Case). The risk assessment approach followed published regulatory guidance.

Health risks were evaluated at a total of six health areas inside and outside Kamloops including Aberdeen, Knutsford, Sahali, Brocklehurst, North Shore and West End/Downtown as well as the Kamloops Indian Reserve No. 1 located northeast of and along the boundary around the project tenure area. The boundary is the closest receptor modelled location to the Project and thus media in this area, including soil, vegetation and air, are expected to be the most highly affected by the Project.

Baseline sampling was conducted for various media including soil, vegetation, air, surface water, sediment, fish and cattle. Baseline concentrations in terrestrial invertebrates, small mammals, wild meat (deer, wild hare and grouse) and benthic invertebrates were modelled based on concentrations in sampled media and through the use of uptake factors. Future concentrations in media were estimated based on the results of predictive modelling.

6.1 HUMAN HEALTH RISK

Receptors for the human health evaluation include an Aboriginal receptor, a Residential receptor, a Farmer/Rancher receptor and a Recreational receptor. Each receptor was inclusive of all life stages. These receptors encompass the people who are likely to be exposed to emissions from the Project.

The Residential Receptors located in Aberdeen, Sahali, Brocklehurst, North Shore and West End/Downtown were evaluated for exposure to COPCs in air, soil, public drinking water, local produce (from community gardens), wild meat, cattle and fish. The Aboriginal receptor was assumed to also be exposed to COPCs in this media as well as to COPCs in vegetation that might be collected for traditional uses. The Farmer/Rancher receptor is specific to the Knutsford area where there are ranch lands used for raising cattle. The Farmer/Rancher receptor is exposed to the same media as the Residential receptor in Aberdeen; however they were assumed to consume five times more beef from local cattle and use groundwater and surface water as a source of drinking water. The Recreational receptor (e.g., someone fishing in Jacko Lake) was assumed to spend more time near the Project than other receptors and would thus likely be exposed to higher Project air emissions ($PM_{2.5}$ and CACs). The Recreational receptor was evaluated for inhalation exposure only, as ingestion exposures are assumed to be equivalent to or less than that of the Residential receptor. Potential non-carcinogenic health

risks were evaluated for all lifestages, however the results for the toddler were presented in the report as this receptor was identified as the sensitive life-stage for non-carcinogenic effects. Potential carcinogenic risks for the inhalation and ingestion pathways were evaluated over the lifetime of the various receptors.

The potential pathways considered in the human health risk assessment were inhalation of criteria air contaminants and metals, ingestion of metals in surface water, direct contact with metals in soil, and ingestion of metals in food (specifically cattle, wild meat, fish, backyard produce and traditional plants). Of these, health risks associated with the inhalation of criteria air contaminants and health risks associated with the ingestion of surface/groundwater were identified as those most likely to be affected by the Project.

The Future Case maximum 24-hour PM_{10} CR for the Recreational receptor exposed to air at the MPOI was 1.4, which exceeds the benchmark of 1.0. There was only one 24-hour period (i.e., day) where the CR was above 1.0. This accounts for only 0.27% of the exposure time. This exceedance also occurs in the winter, when Recreational receptors are less likely to be present for long periods of time. As a result Recreational receptors are not anticipated to be at risk of potential health effects related to inhalation of CACs from the Project.

Maximum 24-hour and/or annual concentrations of $PM_{2.5}$ in Aberdeen, Brocklehurst, Sahali, North Shore and West End/Downtown exceeded the applicable benchmark; however the increase over Baseline Case ranged from only 0.12% (Sahali) to 4.5% (West End/Downtown). This small change between Baseline Case and Future Case indicates that Project related emissions are not expected to contribute substantially to overall $PM_{2.5}$ concentrations in Kamloops. It is noted that the increase for the West End/Downtown is related to increased vehicle traffic and home heating emissions, rather than direct emissions from the Project.

Maximum 24-hour and/or annual PM_{10} concentrations in Aberdeen, Brocklehurst, Sahali, North Shore and West End/Downtown exceeded the applicable benchmark. For Brocklehurst, Sahali, North Shore and West End/Downtown, the increase in maximum concentration over baseline for CRs that exceeded the benchmark ranged from 1.0% to 1.6%. These small changes between Baseline Case and Future Case indicate that future exposure is not expected to be substantially different than baseline exposure. The CR for the 24-hour PM_{10} concentration in Aberdeen increased by 26.6% between Baseline Case (CR=1.39) and Future Case (CR=1.9). Most of these exceedances occur along the border of Aberdeen closest to the Plant Boundary. These exceedances occur less than 0.25% of the time. In all six HHRA areas 78% of Future Case exceedances are driven by exceedances in the Baseline Case (218 of 278). This indicates that the majority of PM_{10} exceedances occur as a result of background and are not Project related. As a result a substantial increase in potential health effects due to exposure to PM_{10} is not expected.

IILCRs associated with drinking water ingestion of arsenic for the Farmer/Rancher exceeded the benchmark of 1.0E-05 for the Project-Alone Case. Predicted concentrations of arsenic in drinking

water are below the applicable drinking water guideline thus potential health risks associated with the predicted increases in COPC concentrations in ingested media are negligible.

These risk assessment results indicate that the Project is unlikely to contribute to the health risks for humans in the LSA, including in Kamloops and Kamloops Indian Reserve No. 1.

6.2 ECOLOGICAL HEALTH RISK

The ERA evaluated the risk to 15 receptor species of mammals and birds, and communities of plants and invertebrates representing a range of feeding guilds and trophic levels. The COPCs included in the assessment were aluminum, antimony, arsenic, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, thallium and uranium.

Ecological risk was quantified for each receptor species based on the total exposure to COPCs from the environment relative to benchmark toxicological reference values. The change in potential risk to the American robin, bald eagle, black bears, Canada goose, domestic cattle, mallard duck, meadow vole, moose, mule deer, muskrat, red fox, ruffed grouse and snowshoe hare were below the risk threshold. The change in potential health risk to these ecological receptors is negligible.

Results of the ERA indicate that the Project related activity is unlikely to result in risk to ecological receptors above applicable threshold levels. Monitoring certain COCP in the tissue of fish collected from Peterson Creek would better represent potential changes in exposure for American mink living in the Peterson Creek area.

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APPENDIX A
UBIQUITOUS ELEMENTS

1.0 NON-TOXIC, UBIQUOUTOUS COMPOUNDS: CALCIUM, IRON, MAGNESIUM, PHOSPHOROUS, POTASSIUM, SODIUM AND TITANIUM

Calcium, magnesium, phosphorous, potassium, sodium, tin and titanium were not considered to pose a risk for one or both of the following reasons: 1) these parameters are ubiquitous, naturally occurring elements that, in some cases, play a role in the proper function of biological systems; 2) these parameters are generally not regarded as being particularly toxic. These parameters are not included in the screening tables and are not evaluated in the HHERA.

Further support for not evaluating these elements is provided below.

1.1 CALCIUM

Calcium is an essential mineral for living organisms, and one of the major components of bone in animals: in humans, over 99% of the calcium stored in the human body is found in the skeletal system (IOM, 1997). Calcium serves many functions in living organisms, but in the human body, its other major roles are the mediation of vascular contraction, vasodilation, muscle contraction, nerve transmission, and glandular secretion (IOM, 1997). It is also ubiquitous, as it makes up over 3% of the Earth's crust by weight, corresponding to an average concentration of 41 500 mg/kg (CRC, 2004), and is found at an average concentration of 412 mg/L in seawater. Given its essentiality and its common occurrence in the environment, calcium in environmental media is therefore not expected to contribute to excess health risks to human receptors and a quantitative assessment of the risk due to calcium is therefore considered unnecessary.

1.2 IRON

Iron is an essential nutrient which aids in the formation of haemoglobin, whose primary function is to transport oxygen in red blood cells. Anaemia is a deficiency condition that results from insufficient nutrient intake and can cause adverse health effects such as decreased cognitive performance and growth in children (WHO, 2006). Given that iron is an essential nutrient and a naturally occurring metal, toxicity reference values do not exist from any of the major regulatory agencies; however, US EPA Region 3 does provide a provisional value of 62000 mg/kg. Nevertheless, iron can still be excluded as a potential source of human health risk based upon its ubiquitous environmental nature and essential nutritional value.

1.3 MAGNESIUM

Magnesium is expected to be present in its ionic form in groundwater (CRC, 2004). Magnesium is an essential mineral for living organisms; the average adult human body contains about 25 g of magnesium (IOM, 1997). It is a required cofactor for various enzymes, and plays a role in

both anaerobic and aerobic energy generation in the body, as part of the glycolysis and oxidative phosphorylation processes (IOM, 1997). It is also a fundamental component of chlorophyll in green plants (CRC, 2004). It makes up an average of 23 300 mg/kg of the Earth's crust, and can be found in seawater at an average concentration of 1290 mg/L. Because it is essential for life, and because it occurs commonly, magnesium is not expected to pose any excess health risk to the construction worker receptor through the dermal exposure to groundwater, and a quantitative evaluation is thus not necessary. The appropriate site specific standards for Magnesium were therefore set at the maximum measured concentrations.

1.4 PHOSPHOROUS

Making up an average of 1050 mg/kg of the Earth's crust, phosphorus in nature is most commonly found as phosphate (PO43-) (CRC, 2004), and is therefore assumed to be present in this form in the soil, sediment and water. Phosphorus, as phosphate, is an essential constituent of plant and animal tissues, where it plays several roles, including pH maintenance, catalytic protein activation, and energy transfer and temporary storage (IOM, 1997). Phosphorus itself makes up 0.65% to 1.1% of adult human body weight (IOM, 1997). Given its essentiality to life, and its relative abundance in the Earth's crust, phosphorus in the soil or water is not expected to pose any excess risk to receptors, and a quantitative evaluation for phosphorus is therefore considered unnecessary.

1.5 POTASSIUM

Potassium ions are required for plant growth (CRC, 2004), and for normal cellular function in both plants and animals (IOM, 2004). Potassium is also abundant in the Earth's crust, making up 2.4% of the crust by weight, at an average concentration of 29 000 mg/kg (CRC, 2004), and is present in seawater at a concentration of 399 mg/L (CRC, 2004). Given its ubiquity and its essentiality to life, it is therefore reasonable to conclude that potassium in the soil or water is not expected to result in excess risk to the construction worker, and a quantitative evaluation of this CoPC is therefore considered unnecessary.

1.6 SODIUM

Sodium ions are essential to life, as they are required in living organisms to maintain extracellular fluid volume and serum osmolality (IOM, 2004). Given that sodium also makes up 2.6% of the Earth's crust, at an average concentration of 23 600 mg/kg (CRC, 2004), and exists in seawater at a concentration of 10 800 mg/L, combined with its essentiality to life, it is not expected that sodium in soil or water will pose excess risk to the human receptor, and a quantitative assessment of sodium is therefore considered unnecessary.

1.7 TITANIUM

Titanium exists in the Earth's crust at an average concentration of 5650 mg/kg (CRC, 2004). It does not exist in its metallic state in nature, but is found instead in ionic compounds such as

titanium dioxide (WHO, 1982). Titanium has not been shown to be essential to life, but has a wide variety of uses in consumer products, including food additives, as a material for implants and prostheses, and several dermal applications (WHO, 1982). For instance, titanium dioxide is used in cosmetics, sunscreen, and anti-acne ointments, among other uses, with no reported adverse effects. Titanium tetrachloride, on the other hand, is corrosive, and irritates the skin, eyes, mucous membranes, and the lungs on exposure (ATSDR, 1997); as this compound is not found in the environment (ATSDR, 1997), however, it is not expected that the titanium at the Site would be in this form. Given its existing uses as a physiologically inert material, it is not expected that titanium will pose excess risk to exposure to humans and a quantitative evaluation of titanium is therefore considered inappropriate.

APPENDIX B
MEASURED TRACE METAL CONCENTRATIONS IN SOIL, WATER, VEGETATION, ORE AND TISSUE

Baseline Data for Soil

Sample ID	AJX12-MIN-KS01-SS	AJX12-MIN-KS02-SS	AJX12-MIN-KS03-SS	AJX12-MIN-KS03-SSD	AJX12-MIN-KS04-SS	AJX12-MIN-KS05-SS	AJX12-MIN-KS06-SS	AJX12-MIN-KS06-SSD	AJX12-MIN-KS07-SS	AJX12-PRI-KS08-SS	AJX12-PR1-KS09-SS
Date Sampled	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	15-AUG-12	15-AUG-12	16-AUG-12
Time Sampled	08:00	10:00	12:30	12:30	14:30	15:30	16:30	16:30	14:30	09:00	00:00
ALS Sample ID	L1194731-10	L1194731-5	L1194731-3	L1194731-6	L1194731-4	L1194731-8	L1194731-9	L1194731-11	L1195226-4	L1195226-5	L1198506-16
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Physical Tests											
% Moisture	2.00	1.62	3.38	2.65	9.12	4.59	9.78	10.6	2.19	0.69	2.98
pH (1:2 soil:water)	7.01	7.50	7.41	7.41	6.81	7.95	6.77	7.29	7.16	6.94	7.47
Particle Size											
% Gravel (>2mm)	10.2	12.6	9.46	15.9	9.94	16.9	30.7	22.4	15.8	11.6	13.6
0.063mm)	43.8	39.8	34.1	29.2	25.3	39.1	38.4	40.7	43.1	33.4	34.9
4um)	41.2	42.5	51.1	50.5	60.7	39.8	26.1	31.1	36.4	48.1	46.9
% Clay (<4um)	4.69	5.05	5.32	4.42	4.08	4.29	4.77	5.74	4.70	6.88	4.56
Texture	Sandy loam	Silt loam / Sandy loam	Silt loam	Silt loam	Silt loam	Sandy loam	Sandy loam	Sandy loam	Sandy loam	Silt loam	Silt loam
Metals											
Aluminum (Al)	18600	16600	18500	18400	15200	16400	14500	14700	17300	17200	19200
Antimony (Sb)	0.55	0.42	0.33	0.30	0.28	0.42	0.60	0.51	0.30	0.50	0.48
Arsenic (As)	6.69	4.76	3.82	3.96	4.26	4.40	2.96	4.05	5.25	6.80	9.79
Barium (Ba)	169	168	231	206	259	169	136	154	246	192	235
Beryllium (Be)	0.39	0.33	0.37	0.39	0.29	0.40	0.33	0.40	0.35	0.34	0.41
Bismuth (Bi)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium (Cd)	0.209	0.146	0.173	0.144	0.171	0.133	0.105	0.096	0.226	0.199	0.228
Calcium (Ca)	10100	8860	9150	8920	9560	16500	8450	8870	5670	8270	7980
Chromium (Cr)	38.9	50.3	51.9	48.9	74.9	54.8	29.7	40.5	107	57.0	51.1
Cobalt (Co)	16.0	14.4	15.0	15.6	15.2	13.7	10.2	10.5	17.2	15.6	14.9
Copper (Cu)	93.9	137	124	122	47.5	72.3	61.1	81.1	48.9	78.9	90.7
Iron (Fe)	36000	34200	32200	31600	24000	33000	23000	26000	28200	36000	32000
Lead (Pb)	5.84	4.29	4.59	4.20	4.62	5.87	8.62	6.01	5.23	7.06	5.41
Lithium (Li)	7.9	7.4	7.6	8.0	8.1	10.2	9.8	9.1	10.0	7.5	8.8
Magnesium (Mg)	9890	7970	7500	7420	13800	17600	8780	9570	16100	9450	8420
Manganese (Mn)	976	690	875	802	721	661	843	531	835	795	854
Mercury (Hg)	0.0447	0.0494	0.0359	0.0989	0.0392	0.0381	0.0525	0.0426	0.0309	0.0293	0.0289
Molybdenum (Mo)	1.44	1.52	1.47	1.66	1.27	0.59	1.42	1.07	0.96	0.91	1.14
Nickel (Ni)	26.8	33.0	39.4	37.4	100	44.1	21.4	29.7	118	44.2	37.2
Phosphorus (P)	1370	924	763	714	1220	1250	539	516	753	975	1010
Potassium (K)	3480	2820	3390	3200	2930	2390	1870	2140	2850	2520	3180
Selenium (Se)	0.21	<0.20	<0.20	<0.20	<0.20	0.33	0.38	0.41	0.21	<0.20	0.33
Silver (Ag)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	0.15

Baseline Data for Soil

Sodium (Na)	270	250	220	210	180	450	260	300	240	240	270
Strontium (Sr)	106	72.4	76.9	69.2	91.1	202	241	224	46.7	85.7	87.3
Thallium (Tl)	0.090	0.067	0.073	0.064	<0.050	0.092	0.055	0.062	0.127	0.069	0.086
Tin (Sn)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium (Ti)	754	828	967	879	587	845	687	765	979	930	1040
Uranium (U)	0.338	0.359	0.340	0.320	0.274	0.417	0.675	0.543	0.374	0.332	0.476
Vanadium (V)	128	126	109	109	64.3	119	80.2	81.1	72.6	131	96.2
Zinc (Zn)	70.7	50.2	63.5	58.6	55.8	54.9	37.6	37.5	61.7	65.5	65.1

Baseline Data for Soil

Sample ID	AJX12-PR1-KS09-SS-D	AJX12-PR1-KS10-SS	AJX12-PR1-KS11-SS	AJX12-MIN-AS01-SS	AJX12-MIN-AS02-SS	AJX12-MIN-AS03-SS	AJX12-MIN-AS04-SS	AJX12-MIN-AS05-SS	AJX12-MIN-AS06-SS	AJX12-PR1-AS08-SS	AJX12-PR1-AS09-SS
Date Sampled	16-AUG-12	17-AUG-12	17-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	15-AUG-12	15-AUG-12	16-AUG-12	17-AUG-12	17-AUG-12
Time Sampled	00:00	00:00	00:00	10:00	14:00	17:35	12:15	13:33	00:00	00:00	00:00
ALS Sample ID	L1198506-17	L1198506-18	L1198506-19	L1194731-1	L1194731-7	L1194731-2	L1195226-2	L1195226-3	L1198506-13	L1198506-14	L1198506-15
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Physical Tests											
% Moisture	2.57	20.4	2.66	1	1.53	0.61	5.76	3.69	3.36	24.1	4.24
pH (1:2 soil:water)	7.32	7.48	7.38	7.38	7.51	7.42	6.63	6.97	6.77	7.59	7.87
Particle Size											
% Gravel (>2mm)	20.7	6.67	3.25	12.5	16.1	18.1	11.3	12.3	10.8	19.5	7.13
0.063mm)	33.8	20.5	12.7	29.2	38.2	38.8	31.5	31.9	33.6	30.0	19.7
4um)	41.8	65.6	76.6	52.8	39.8	36.7	46.9	45.4	52.3	45.8	67.4
% Clay (<4um)	3.68	7.24	7.38	5.45	5.88	6.36	10.4	10.5	3.24	4.79	5.71
Texture	Silt loam	Silt loam	Silt	Silt loam	Sandy loam	Sandy loam	Silt loam	Silt loam	Silt loam	Silt loam	Silt loam
Metals											
Aluminum (Al)	19800	19900	18300	19300	16300	17200	18800	19800	19600	18400	17500
Antimony (Sb)	0.46	0.48	0.44	0.52	0.42	0.57	0.29	0.45	0.36	0.38	0.47
Arsenic (As)	9.09	6.95	5.86	4.56	4.85	4.41	4.14	5.69	5.71	5.61	6.60
Barium (Ba)	215	171	156	225	166	221	201	210	240	145	163
Beryllium (Be)	0.39	0.41	0.41	0.39	0.35	0.37	0.54	0.37	0.50	0.41	0.40
Bismuth (Bi)	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium (Cd)	0.244	0.126	0.119	0.266	0.133	0.138	0.167	0.161	0.267	0.116	0.113
Calcium (Ca)	7840	9090	8980	9540	8550	8780	8960	7950	6600	10800	10200
Chromium (Cr)	51.3	62.0	64.7	50.7	50.0	60.4	49.2	96.0	45.9	47.4	64.6
Cobalt (Co)	15.5	14.3	14.0	14.1	13.9	16.2	14.3	17.0	13.5	13.0	13.9
Copper (Cu)	85.1	63.1	60.3	69.8	156	80.5	62.2	63.3	60.8	61.3	62.6
Iron (Fe)	32000	34400	33600	33500	33200	37100	34100	35100	30700	32800	34300
Lead (Pb)	5.57	3.98	3.98	5.89	4.10	4.47	9.69	4.48	7.85	3.63	3.88
Lithium (Li)	8.8	9.9	9.7	8.5	7.6	7.0	8.9	9.1	9.0	9.0	7.9
Magnesium (Mg)	8360	9410	8860	7460	7780	9150	10400	12000	7070	9130	8510
Manganese (Mn)	870	706	834	936	668	808	997	886	1000	655	790
Mercury (Hg)	0.0284	0.0308	0.0301	0.0350	0.0349	0.0314	0.0429	0.0268	0.0313	0.0311	0.0349
Molybdenum (Mo)	1.06	0.61	0.75	1.33	1.46	1.00	1.27	0.72	1.37	0.50	0.64
Nickel (Ni)	38.9	40.5	41.2	33.2	33.3	52.2	32.9	83.5	26.8	31.1	42.0
Phosphorus (P)	950	1060	931	1030	911	814	787	663	1090	1050	873
Potassium (K)	3190	2590	3780	3060	2720	3040	3070	3070	3420	2370	3630
Selenium (Se)	0.34	0.24	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.29	0.20
Silver (Ag)	0.14	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Baseline Data for Soil

Sodium (Na)	280	440	290	260	230	200	390	240	410	400	540
Strontium (Sr)	86.1	70.1	90.1	78.7	69.0	70.2	127	71.7	83.6	77.5	73.7
Thallium (Tl)	0.088	0.072	0.070	0.074	0.068	0.065	0.148	0.085	0.111	0.059	0.067
Tin (Sn)	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium (Ti)	1040	1150	1100	893	708	832	1390	998	1010	966	1050
Uranium (U)	0.469	0.386	0.456	0.336	0.351	0.282	0.625	0.339	0.528	0.358	0.377
Vanadium (V)	95.9	117	109	111	116	131	112	113	93.3	111	112
Zinc (Zn)	68.6	50.2	58.8	78.8	48.3	50.9	64.8	52.0	89.2	55.8	54.4

Baseline Data for Soil

Sample ID	AJX12-ABD-SS	AJX12-PRK-AMG-SS	AJX12-PRK-PET-SS	AJX12-PRK-PET-SS-D	AJX12-PRK-RIV-SS	AJX12-SCH-PWE-SS	AJX12-SCH-DUF-SS	AJX12-RBE-SS	AJX12-SCH-ABD-SS	AJX12-GAR-CRE-SS	AJX12-GAR-SAH-SS
Date Sampled	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	15-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	17-AUG-12	14-AUG-12	14-AUG-12
Time Sampled	12:00	12:45	14:15	14:15	17:00	11:30	10:30	13:40	00:00	13:00	09:00
ALS Sample ID	L1194738-13	L1194738-10	L1194738-11	L1194738-12	L1195226-1	L1194738-7	L1194738-8	L1194738-9	L1198506-12	L1194738-1	L1194738-2
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Physical Tests											
% Moisture	2.41	1.41	6.4	4.66	15.5	7.39	4.25	20.1	26	13.6	21.7
pH (1:2 soil:water)	7.00	6.73	7.90	7.88	6.88	7.73	8.10	7.70	7.10	7.67	7.89
Particle Size											
% Gravel (>2mm)	10.9	6.05	1.97	1.91	3.77	26.0	10.2	21.0	10.3	4.85	6.88
0.063mm)	43.8	47.9	61.9	42.0	44.3	53.8	34.7	45.9	42.5	34.5	50.2
4um)	39.8	41.8	30.1	48.1	45.1	15.6	47.3	26.7	41.1	49.7	33.4
% Clay (<4um)	5.49	4.22	6.10	7.97	6.83	4.65	7.84	6.38	6.10	11.0	9.57
Texture	Sandy loam	Sandy loam	Sandy loam	Silt loam	Sandy loam	Sandy loam	Silt loam	Sandy loam	Sandy loam	Silt loam	Sandy loam
Metals											
Aluminum (Al)	21000	11800	9940	15100	11300	23300	16500	22100	12500	17700	12800
Antimony (Sb)	0.53	0.29	0.35	0.37	1.11	0.58	0.27	0.14	0.31	0.33	0.35
Arsenic (As)	17.0	3.28	3.98	5.18	5.84	12.9	3.70	2.70	3.85	4.92	4.05
Barium (Ba)	235	131	90.8	143	170	197	166	131	129	144	124
Beryllium (Be)	0.50	0.34	0.28	0.43	0.32	0.54	0.50	0.61	0.36	0.41	0.32
Bismuth (Bi)	<0.20	<0.20	<0.20	<0.20	0.23	<0.20	<0.20	<0.20	<0.20	0.36	<0.20
Cadmium (Cd)	0.231	0.183	0.173	0.278	0.581	0.133	0.155	0.243	0.393	0.325	0.225
Calcium (Ca)	7720	7040	8230	14100	11500	19000	20400	14900	12500	10500	12800
Chromium (Cr)	44.2	53.6	37.0	52.2	43.3	49.9	44.0	55.3	49.4	43.4	47.5
Cobalt (Co)	20.6	10.7	10.7	14.3	11.2	13.5	13.6	22.3	11.7	13.5	10.5
Copper (Cu)	93.3	25.6	26.5	37.9	171	90.5	43.4	36.1	25.5	48.2	34.8
Iron (Fe)	38400	21400	21800	29300	21500	34400	30400	30000	24700	28400	22300
Lead (Pb)	6.60	5.10	7.95	10.4	81.0	5.45	6.06	5.10	4.64	12.5	5.74
Lithium (Li)	11.1	7.1	9.5	11.6	9.5	13.0	8.9	8.0	8.0	20.5	7.4
Magnesium (Mg)	8840	8230	8960	11400	8750	10100	13400	31000	12300	9730	8460
Manganese (Mn)	1130	505	401	569	403	641	730	868	471	483	474
Mercury (Hg)	0.0418	0.0326	0.0260	0.0257	0.163	0.0251	0.0411	0.0095	0.0530	0.0344	0.0524
Molybdenum (Mo)	1.30	0.74	0.70	0.90	2.38	1.66	1.13	0.59	0.77	1.51	0.78
Nickel (Ni)	33.4	44.4	37.1	48.5	39.1	51.3	34.1	102	49.4	37.3	39.2
Phosphorus (P)	1140	1100	833	1200	1700	734	1350	2810	1530	2580	1860
Potassium (K)	2520	2620	1550	2650	2350	1930	3260	3750	2130	5150	2220
Selenium (Se)	0.40	<0.20	0.22	0.44	0.61	<0.20	0.29	<0.20	<0.20	0.42	0.23
Silver (Ag)	0.17	<0.10	<0.10	<0.10	0.26	0.13	0.11	<0.10	<0.10	0.45	0.24

Baseline Data for Soil

Sodium (Na)	200	400	310	550	300	530	670	1740	570	380	380
Strontium (Sr)	69.7	55.7	46.4	70.6	88.1	199	196	140	97.5	69.5	78.0
Thallium (Tl)	0.090	0.096	0.096	0.120	0.119	0.102	0.130	0.090	0.097	0.209	0.089
Tin (Sn)	<2.0	<2.0	<2.0	<2.0	5.3	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Titanium (Ti)	914	830	730	1090	623	703	951	1330	843	1010	816
Uranium (U)	0.487	0.577	0.579	0.893	1.46	0.946	0.638	0.722	0.963	1.39	0.654
Vanadium (V)	94.5	50.1	46.1	61.1	44.7	125	82.7	107	62.2	47.0	53.3
Zinc (Zn)	79.3	52.3	49.5	65.3	125	66.4	62.6	118	58.3	97.1	61.1

Baseline Data for Soil

Sample ID	AJX12-GAR-MCD-SS	AJX12-GAR-GLE-SS	AJX12-GAR-RIV-SS	AJX12-GAR-RIV-SS-D
Date Sampled	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12
Time Sampled	12:30	09:30	10:30	10:30
ALS Sample ID	L1194738-3	L1194738-4	L1194738-5	L1194738-6
Matrix	Soil	Soil	Soil	Soil
Physical Tests				
% Moisture	23.7	34.9	36.4	37.2
pH (1:2 soil:water)	7.72	7.76	7.54	7.55
Particle Size				
% Gravel (>2mm)	22.5	11.4	7.81	8.68
0.063mm)	43.9	37.9	28.1	30.0
4um)	28.0	42.2	55.3	53.2
% Clay (<4um)	5.57	8.60	8.76	8.14
Texture	Sandy loam	Loam	Silt loam	Silt loam
Metals				
Aluminum (Al)	14000	10300	10000	10200
Antimony (Sb)	0.39	0.34	0.45	0.39
Arsenic (As)	5.65	4.22	4.02	3.92
Barium (Ba)	142	131	123	125
Beryllium (Be)	0.28	0.25	0.27	0.24
Bismuth (Bi)	0.23	<0.20	0.24	0.23
Cadmium (Cd)	0.190	0.211	0.427	0.435
Calcium (Ca)	18600	38700	17700	18600
Chromium (Cr)	47.8	37.3	34.2	32.1
Cobalt (Co)	11.6	8.91	8.28	8.04
Copper (Cu)	62.2	61.1	46.3	46.6
Iron (Fe)	23800	18900	17100	17000
Lead (Pb)	6.65	5.68	16.6	16.2
Lithium (Li)	7.4	6.5	8.7	8.8
Magnesium (Mg)	9020	10000	7420	7030
Manganese (Mn)	563	567	347	368
Mercury (Hg)	0.0462	0.0346	0.0771	0.0571
Molybdenum (Mo)	1.21	1.84	1.28	1.16
Nickel (Ni)	44.8	33.5	27.1	26.1
Phosphorus (P)	3440	4720	2870	3100
Potassium (K)	2830	4590	4260	4110
Selenium (Se)	0.44	0.68	0.45	0.51
Silver (Ag)	0.35	<0.10	0.30	0.34

Baseline Data for Soil

Sodium (Na)	330	590	360	350
Strontium (Sr)	88.2	173	112	116
Thallium (Tl)	0.085	0.078	0.101	0.097
Tin (Sn)	<2.0	<2.0	<2.0	<2.0
Titanium (Ti)	508	359	564	516
Uranium (U)	0.589	0.777	0.880	0.936
Vanadium (V)	68.4	52.9	32.8	32.8
Zinc (Zn)	88.5	133	108	109

Baseline Data for Sediment

Sample ID	ANDR-15-A	ANDR-15-B	ANDR-15-C	ANDR-15-D	ANDR-15-E	ANDR-15-GRAIN	ANDR-10-A	ANDR-10-B	ANDR-10-C	ANDR-10-D
Date Sampled	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14
Time Sampled	14:00	14:00	14:00	14:00	14:00	14:00	10:30	10:30	10:30	10:30
ALS Sample ID	L1520711-1	L1520711-2	L1520711-3	L1520711-4	L1520711-5	L1520711-6	L1520711-12	L1520711-13	L1520711-14	L1520711-15
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Physical Tests										
Moisture	42.3	45.2	52.5	54.3	55.5	-	26.2	55.7	36.7	35.5
pH (1:2 soil:water)	8.13	8.04	8.17	8.20	8.20	-	8.37	7.90	8.33	8.42
Particle Size										
% Gravel (>2mm)	-	-	-	-	-	1.64	-	-	-	-
% Sand (2.0mm - 0.063mm)										
% Sand (2.00mm - 1.00mm)	-	-	-	-	-	7.40	-	-	-	-
% Sand (1.00mm - 0.50mm)	-	-	-	-	-	14.5	-	-	-	-
% Sand (0.50mm - 0.25mm)	-	-	-	-	-	11.1	-	-	-	-
% Sand (0.25mm - 0.125mm)	-	-	-	-	-	12.8	-	-	-	-
% Sand (0.125mm - 0.063mm)	-	-	-	-	-	15.6	-	-	-	-
% Silt (0.063mm - 4um)										
% Silt (0.063mm - 0.0312mm)	-	-	-	-	-	16.8	-	-	-	-
% Silt (0.0312mm - 0.004mm)	-	-	-	-	-	17.1	-	-	-	-
% Clay (<4um)	-	-	-	-	-	3.08	-	-	-	-
Texture	-	-	-	-	-	Sandy loam	-	-	-	-
Organic/Inorganic Carbon										
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-
Metals										
Aluminum (Al)	11400.00	14000.00	12400.00	10500.00	11000.00	-	10400.00	12700.00	11300.00	10800.00
Antimony (Sb)	0.16	0.17	0.17	0.16	0.18	-	0.27	0.36	0.29	0.30
Arsenic (As)	1.95	2.06	2.60	2.18	2.08	-	4.21	5.51	4.16	3.78
Barium (Ba)	135.00	170.00	157.00	144.00	125.00	-	246.00	382.00	357.00	251.00
Beryllium (Be)	0.22	0.24	0.24	0.22	0.22	-	0.21	0.30	0.29	0.24
Bismuth (Bi)	0.16	0.26	0.24	0.19	0.20	-	<0.10	<0.10	<0.10	<0.10
Boron (B)	<10	<10	<10	<10	<10	-	<10	<10	<10	<10
Cadmium (Cd)	0.11	0.15	0.18	0.16	0.15	-	0.05	0.11	0.09	0.07
Calcium (Ca)	14400.00	12200.00	15300.00	14500.00	11500.00	-	16600.00	22300.00	21700.00	18300.00
Chromium (Cr)	35.90	40.30	39.40	37.00	31.00	-	73.40	81.10	89.80	79.80
Cobalt (Co)	9.80	11.10	11.00	9.49	9.77	-	13.20	15.10	14.10	12.20
Copper (Cu)	23.40	30.20	31.10	26.20	25.70	-	32.60	55.60	45.70	36.20
Iron (Fe)	21500.00	25000.00	23900.00	20700.00	22100.00	-	28200.00	27400.00	27400.00	24500.00

Baseline Data for Sediment

Lead (Pb)	3.69	5.20	5.04	4.22	4.22	-	2.08	2.90	2.38	2.16
Lithium (Li)	10.30	13.40	12.10	10.00	10.80	-	6.00	7.00	6.40	5.70
Magnesium (Mg)	7270.00	8790.00	9280.00	7110.00	7250.00	-	10000.00	11300.00	10600.00	10600.00
Manganese (Mn)	442.00	406.00	792.00	723.00	535.00	-	2570.00	7120.00	4930.00	3090.00
Mercury (Hg)	0.03	0.03	0.04	0.04	0.03	-	0.02	0.05	0.04	0.03
Molybdenum (Mo)	0.40	0.48	0.50	0.45	0.40	-	0.39	0.78	0.65	0.50
Nickel (Ni)	20.10	23.20	31.40	22.80	19.40	-	50.90	62.40	59.10	56.40
Phosphorus (P)	974.00	1070.00	1130.00	904.00	1010.00	-	736.00	1010.00	915.00	775.00
Potassium (K)	2350.00	3450.00	2580.00	1980.00	2110.00	-	1400.00	1830.00	1500.00	1430.00
Selenium (Se)	0.41	0.54	0.71	0.57	0.55	-	0.23	0.77	0.58	0.35
Silver (Ag)	0.07	0.10	0.10	0.08	0.08	-	<0.050	0.07	0.05	<0.050
Sodium (Na)	340.00	420.00	460.00	370.00	340.00	-	380.00	530.00	450.00	410.00
Strontium (Sr)	59.60	62.30	71.10	62.00	56.50	-	80.70	119.00	109.00	93.90
Sulfur (S)-Total	700.00	900.00	1200.00	800.00	800.00	-	500.00	1100.00	700.00	500.00
Thallium (Tl)	0.08	0.12	0.09	0.07	0.08	-	0.05	0.06	0.06	<0.050
Tin (Sn)	0.37	0.37	0.35	0.32	0.32	-	0.35	0.38	1.06	0.48
Titanium (Ti)	866.00	1020.00	852.00	692.00	742.00	-	794.00	801.00	810.00	763.00
Uranium (U)	0.94	1.14	0.90	0.73	0.80	-	0.34	0.58	0.40	0.36
Vanadium (V)	63.50	67.10	64.50	55.90	63.20	-	94.40	78.90	81.90	71.90
Zinc (Zn)	36.00	46.90	44.10	36.90	38.30	-	34.60	43.80	41.30	37.00

Baseline Data for Sediment

Sample ID	ANDR-10-E	EDITH-LK-A	EDITH-LK-B	EDITH-LK-C	EDITH-LK-D	EDITH-LK-E	EDITH-LK-GRAIN SIZE	ANDR-15-GRAIN <63UM	ANDR-10-GRAIN <63UM	EDITH-LK-GRAIN SIZE <63UM	GOOSE LK-PSA
Date Sampled	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	05-FEB-15
Time Sampled	10:30	00:00	00:00	00:00	00:00	00:00	00:00	14:00	10:00	00:00	15:30
ALS Sample ID	L1520711-16	L1520711-23	L1520711-24	L1520711-25	L1520711-26	L1520711-27	L1520711-28	L1520711-34	L1520711-35	L1520711-36	L1575383-1
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Physical Tests											
Moisture	29.0	84.9	87.0	86.7	87.2	84.4	-	-	-	-	
pH (1:2 soil:water)	8.17	8.19	8.26	8.22	8.26	8.33	-	-	-	-	-
Particle Size											
% Gravel (>2mm)	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10
% Sand (2.0mm - 0.063mm)											
% Sand (2.00mm - 1.00mm)	-	-	-	-	-	-	<0.10	<0.10	<0.10	<0.10	<0.10
% Sand (1.00mm - 0.50mm)	-	-	-	-	-	-	0.24	<0.10	<0.10	<0.10	<0.10
% Sand (0.50mm - 0.25mm)	-	-	-	-	-	-	0.39	<0.10	<0.10	<0.10	<0.10
% Sand (0.25mm - 0.125mm)	-	-	-	-	-	-	0.20	<0.10	<0.10	<0.10	<0.10
% Sand (0.125mm - 0.063mm)	-	-	-	-	-	-	0.62	<0.10	<0.10	<0.10	0.11
% Silt (0.063mm - 4um)											
% Silt (0.063mm - 0.0312mm)	-	-	-	-	-	-	35.4	46.9	36.0	28.7	22.7
% Silt (0.0312mm - 0.004mm)	-	-	-	-	-	-	46.6	48.4	50.2	54.0	51.2
% Clay (<4um)	-	-	-	-	-	-	16.5	4.72	13.7	17.3	26.0
Texture	-	-	-	-	-	-	Silt loam	Silt	Silt	Silt	Silt loam
Organic/Inorganic Carbon											
Total Organic Carbon	-	-	-	-	-	-	-	-	-	-	-
Metals											
Aluminum (Al)	10300.00	9860.00	9430.00	9340.00	9820.00	10400.00	-	-	-	-	-
Antimony (Sb)	0.26	0.47	0.51	0.54	0.62	0.57	-	-	-	-	-
Arsenic (As)	4.21	4.84	4.58	4.71	5.12	5.11	-	-	-	-	-
Barium (Ba)	228.00	241.00	212.00	227.00	220.00	218.00	-	-	-	-	-
Beryllium (Be)	0.25	0.24	0.23	0.22	0.28	0.25	-	-	-	-	-
Bismuth (Bi)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-	-	-
Boron (B)	<10	13.00	13.00	13.00	13.00	13.00	-	-	-	-	-
Cadmium (Cd)	0.06	0.15	0.15	0.15	0.17	0.16	-	-	-	-	-
Calcium (Ca)	16400.00	122000.00	93300.00	103000.00	99700.00	98900.00	-	-	-	-	-
Chromium (Cr)	73.40	32.30	95.50	42.40	39.40	45.50	-	-	-	-	-
Cobalt (Co)	12.10	8.73	8.89	8.65	8.85	8.92	-	-	-	-	-
Copper (Cu)	40.20	81.10	71.20	75.20	71.80	74.30	-	-	-	-	-
Iron (Fe)	24600.00	18500.00	18800.00	18800.00	19900.00	20200.00	-	-	-	-	-

Baseline Data for Sediment

Lead (Pb)	2.11	6.69	5.77	6.32	6.10	6.72	-	-	-	-	-
Lithium (Li)	5.70	7.70	7.30	7.50	8.30	8.40	-	-	-	-	-
Magnesium (Mg)	9990.00	13800.00	12100.00	13200.00	12600.00	12800.00	-	-	-	-	-
Manganese (Mn)	2530.00	885.00	777.00	834.00	787.00	799.00	-	-	-	-	-
Mercury (Hg)	0.03	0.06	0.05	0.05	0.05	0.05	-	-	-	-	-
Molybdenum (Mo)	0.68	5.28	4.98	5.36	5.77	5.23	-	-	-	-	-
Nickel (Ni)	51.40	34.00	70.60	37.20	33.80	37.50	-	-	-	-	-
Phosphorus (P)	786.00	1170.00	1220.00	1180.00	1210.00	1200.00	-	-	-	-	-
Potassium (K)	1350.00	1780.00	1510.00	1540.00	1620.00	1710.00	-	-	-	-	-
Selenium (Se)	0.40	0.98	0.99	0.88	0.92	0.93	-	-	-	-	-
Silver (Ag)	<0.050	0.09	0.09	0.09	0.09	0.09	-	-	-	-	-
Sodium (Na)	360.00	730.00	720.00	690.00	680.00	710.00	-	-	-	-	-
Strontium (Sr)	80.90	477.00	403.00	435.00	426.00	411.00	-	-	-	-	-
Sulfur (S)-Total	600.00	5500.00	9200.00	9700.00	10100.00	8900.00	-	-	-	-	-
Thallium (Tl)	<0.050	0.06	0.05	<0.050	0.06	0.06	-	-	-	-	-
Tin (Sn)	0.28	0.47	0.85	0.86	0.71	1.56	-	-	-	-	-
Titanium (Ti)	745.00	397.00	507.00	469.00	549.00	624.00	-	-	-	-	-
Uranium (U)	0.41	4.27	3.00	3.52	3.65	3.56	-	-	-	-	-
Vanadium (V)	74.90	64.20	63.50	66.10	66.50	71.10	-	-	-	-	-
Zinc (Zn)	34.90	36.10	46.00	42.70	40.10	43.80	-	-	-	-	-

Baseline Data for Sediment

A-1	Sample ID	A-2	A-3	B-1	B-2	B-3	C-1	C-2	C-3	D-1	D-2
05-FEB-15	Date Sampled	05-FEB-15	05-FEB-15	05-FEB-15	05-FEB-15	05-FEB-15	05-FEB-15	05-FEB-15	05-FEB-15	05-FEB-15	05-FEB-15
13:40	Time Sampled	13:45	13:50	14:00	14:05	14:10	14:30	14:35	14:40	14:45	14:50
L1575383-2	ALS Sample ID	L1575383-3	L1575383-4	L1575383-5	L1575383-6	L1575383-7	L1575383-8	L1575383-9	L1575383-10	L1575383-11	L1575383-12
Soil	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
	Physical Tests										
	Moisture										
10.07	pH (1:2 soil:water)	10.19	-	10.18	10.15	-	10.10	10.17	-	10.04	10.10
	Particle Size										
-	% Gravel (>2mm)	-	-	-	-	-	-	-	-	-	-
	% Sand (2.0mm - 0.063mm)										
-	% Sand (2.00mm - 1.00mm)	-	-	-	-	-	-	-	-	-	-
-	% Sand (1.00mm - 0.50mm)	-	-	-	-	-	-	-	-	-	-
-	% Sand (0.50mm - 0.25mm)	-	-	-	-	-	-	-	-	-	-
-	% Sand (0.25mm - 0.125mm)	-	-	-	-	-	-	-	-	-	-
-	% Sand (0.125mm - 0.063mm)	-	-	-	-	-	-	-	-	-	-
	% Silt (0.063mm - 4um)										
-	% Silt (0.063mm - 0.0312mm)	-	-	-	-	-	-	-	-	-	-
-	% Silt (0.0312mm - 0.004mm)	-	-	-	-	-	-	-	-	-	-
-	% Clay (<4um)	-	-	-	-	-	-	-	-	-	-
-	Texture	-	-	-	-	-	-	-	-	-	-
	Organic/Inorganic Carbon										
-	Total Organic Carbon	-	10.1	-	-	12.8	-	-	10.8	-	-
	Metals										
3840.00	Aluminum (Al)	1470.00	-	1520.00	1930.00	-	1270.00	2530.00	-	2000.00	2450.00
0.31	Antimony (Sb)	0.23	-	0.30	0.47	-	0.26	0.40	-	0.43	0.26
4.03	Arsenic (As)	2.63	-	4.42	4.87	-	3.46	6.00	-	5.48	4.63
145.00	Barium (Ba)	57.00	-	52.00	69.20	-	52.30	110.00	-	87.10	114.00
<0.10	Beryllium (Be)	<0.10	-	<0.10	<0.10	-	<0.10	<0.10	-	<0.10	<0.10
<0.10	Bismuth (Bi)	<0.10	-	<0.10	<0.10	-	<0.10	<0.10	-	<0.10	<0.10
77.00	Boron (B)	64.00	-	89.00	100.00	-	84.00	72.00	-	104.00	77.00
0.07	Cadmium (Cd)	<0.050	-	<0.050	0.07	-	<0.050	0.06	-	<0.050	0.05
50800.00	Calcium (Ca)	19900.00	-	16000.00	23900.00	-	19000.00	43500.00	-	29800.00	38100.00
18.70	Chromium (Cr)	8.90	-	7.67	11.00	-	7.78	15.60	-	10.90	11.70
3.58	Cobalt (Co)	1.63	-	1.72	2.02	-	1.43	3.17	-	2.10	2.73
53.90	Copper (Cu)	34.20	-	36.50	20.30	-	10.90	127.00	-	20.00	29.70
6850.00	Iron (Fe)	2800.00	-	2950.00	3730.00	-	2560.00	5330.00	-	3910.00	4920.00

Baseline Data for Sediment

2.51	Lead (Pb)	1.24	-	1.16	2.37	-	1.22	1.94	-	1.76	1.99
9.30	Lithium (Li)	5.60	-	5.40	6.10	-	5.40	8.30	-	6.90	6.80
98700.00	Magnesium (Mg)	127000.00	-	154000.00	137000.00	-	160000.00	126000.00	-	145000.00	131000.00
203.00	Manganese (Mn)	84.90	-	80.30	102.00	-	104.00	176.00	-	115.00	161.00
0.02	Mercury (Hg)	0.01	-	0.01	0.02	-	0.01	0.02	-	0.02	0.02
4.18	Molybdenum (Mo)	3.17	-	4.25	4.57	-	2.52	3.99	-	4.49	4.51
15.70	Nickel (Ni)	7.42	-	6.62	9.17	-	6.85	13.30	-	9.48	11.10
745.00	Phosphorus (P)	486.00	-	666.00	741.00	-	584.00	646.00	-	764.00	723.00
4300.00	Potassium (K)	3040.00	-	3900.00	5060.00	-	3760.00	3790.00	-	4460.00	4620.00
0.65	Selenium (Se)	0.35	-	0.43	0.53	-	0.38	0.48	-	0.57	0.56
0.05	Silver (Ag)	<0.050	-	<0.050	<0.050	-	<0.050	0.09	-	<0.050	<0.050
18800.00	Sodium (Na)	13200.00	-	17300.00	22700.00	-	17300.00	16000.00	-	19600.00	20000.00
1420.00	Strontium (Sr)	567.00	-	491.00	670.00	-	588.00	1140.00	-	807.00	1010.00
-	Sulfur (S)-Total	-	10400.00	-	-	13700.00	-	-	9700.00	-	-
<0.050	Thallium (Tl)	<0.050	-	<0.050	<0.050	-	<0.050	<0.050	-	<0.050	<0.050
0.68	Tin (Sn)	0.73	-	0.58	0.83	-	0.44	0.88	-	0.82	0.93
190.00	Titanium (Ti)	65.80	-	80.70	90.60	-	49.20	88.00	-	98.90	97.90
2.87	Uranium (U)	1.73	-	2.08	2.23	-	1.27	2.03	-	2.13	2.43
32.20	Vanadium (V)	17.30	-	18.30	20.70	-	14.30	23.20	-	20.90	25.40
16.40	Zinc (Zn)	8.90	-	8.80	22.00	-	7.80	15.30	-	12.60	12.00

Baseline Data for Sediment

D-3	DUP-1	Sample ID	E-1	E-2	E-3	DUP-2	PC-AL-01	PC-AL-01 <63UM	SCUITTO LK A	SCUITTO LK B	SCUITTO LK C
05-FEB-15	05-FEB-15	Date Sampled	05-FEB-15	05-FEB-15	05-FEB-15	05-FEB-15	17-SEP-14	17-SEP-14	19-SEP-14	19-SEP-14	19-SEP-14
14:55	14:45	Time Sampled	15:00	15:05	15:10	14:10	11:30	11:30	00:00	00:00	00:00
L1575383-13	L1575383-14	ALS Sample ID	L1575383-15	L1575383-16	L1575383-17	L1575383-18	L1519944-6	L1519944-7	L1522144-1	L1522144-2	L1522144-3
Soil	Soil	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		Physical Tests									
		Moisture							-	-	-
-	10.00	pH (1:2 soil:water)	10.04	9.92	-	-	8.78	-	-	-	-
		Particle Size									
-	-	% Gravel (>2mm)	-	-	-	-	<0.10	<0.10	-	-	-
		% Sand (2.0mm - 0.063mm)					74.3	-			
-	-	% Sand (2.00mm - 1.00mm)	-	-	-	-	-	<0.10	-	-	-
-	-	% Sand (1.00mm - 0.50mm)	-	-	-	-	-	<0.10	-	-	-
-	-	% Sand (0.50mm - 0.25mm)	-	-	-	-	-	<0.10	-	-	-
-	-	% Sand (0.25mm - 0.125mm)	-	-	-	-	-	<0.10	-	-	-
-	-	% Sand (0.125mm - 0.063mm)	-	-	-	-	-	<0.10	-	-	-
		% Silt (0.063mm - 4um)					22.7	-			
-	-	% Silt (0.063mm - 0.0312mm)	-	-	-	-	-	49.3	-	-	-
-	-	% Silt (0.0312mm - 0.004mm)	-	-	-	-	-	43.6	-	-	-
-	-	% Clay (<4um)	-	-	-	-	3.01	7.02	-	-	-
-	-	Texture	-	-	-	-	Loamy sand	Silt	-	-	-
		Organic/Inorganic Carbon									
10.2	-	Total Organic Carbon	-	-	10.9	11.1	0.29	-	9.94	11.0	12.7
		Metals									
-	3870.00	Aluminum (Al)	3820.00	5560.00	-	-	11800.00	-	20900.00	22200.00	22000.00
-	0.32	Antimony (Sb)	0.24	0.27	-	-	0.50	-	0.55	0.61	0.55
-	4.60	Arsenic (As)	3.08	4.11	-	-	6.60	-	4.38	4.33	4.65
-	148.00	Barium (Ba)	144.00	186.00	-	-	131.00	-	150.00	152.00	154.00
-	0.11	Beryllium (Be)	<0.10	0.13	-	-	0.32	-	0.70	0.74	0.70
-	<0.10	Bismuth (Bi)	<0.10	<0.10	-	-	<0.10	-	0.15	0.15	0.14
-	89.00	Boron (B)	72.00	72.00	-	-	<10	-	<10	<10	<10
-	0.07	Cadmium (Cd)	0.05	0.08	-	-	0.25	-	0.20	0.20	0.20
-	58600.00	Calcium (Ca)	53700.00	78400.00	-	-	24100.00	-	8180.00	8410.00	8280.00
-	23.50	Chromium (Cr)	47.40	41.20	-	-	60.50	-	46.80	55.20	54.90
-	3.74	Cobalt (Co)	3.63	4.58	-	-	14.50	-	10.00	10.20	10.20
-	33.50	Copper (Cu)	23.50	36.70	-	-	37.00	-	39.90	41.70	40.80
-	7170.00	Iron (Fe)	6950.00	9520.00	-	-	27400.00	-	25900.00	26600.00	27000.00

Baseline Data for Sediment

-	2.45	Lead (Pb)	2.05	2.89	-	-	6.07	-	8.34	8.53	8.24
-	9.70	Lithium (Li)	8.40	14.10	-	-	9.10	-	12.10	12.80	12.10
-	115000.00	Magnesium (Mg)	112000.00	103000.00	-	-	11900.00	-	7930.00	8160.00	7960.00
-	220.00	Manganese (Mn)	215.00	270.00	-	-	646.00	-	340.00	355.00	353.00
-	0.02	Mercury (Hg)	0.02	0.02	-	-	0.04	-			
-	4.12	Molybdenum (Mo)	3.85	2.94	-	-	1.18	-	2.77	3.13	3.36
-	18.20	Nickel (Ni)	32.80	28.60	-	-	54.70	-	48.70	55.40	53.60
-	882.00	Phosphorus (P)	805.00	774.00	-	-	886.00	-	1040.00	1050.00	1000.00
-	4550.00	Potassium (K)	4300.00	3880.00	-	-	1750.00	-	2130.00	2190.00	2190.00
-	0.69	Selenium (Se)	0.63	0.85	-	-	0.40	-	0.85	0.94	0.90
-	<0.050	Silver (Ag)	<0.050	<0.050	-	-	0.10	-	0.21	0.21	0.21
-	17900.00	Sodium (Na)	16500.00	13300.00	-	-	570.00	-	480.00	500.00	550.00
-	1520.00	Strontium (Sr)	1370.00	2060.00	-	-	130.00	-	86.70	92.60	91.80
8100.00	-	Sulfur (S)-Total	-	-	10600.00	10900.00	-	-	4200.00	3900.00	4000.00
-	<0.050	Thallium (Tl)	<0.050	<0.050	-	-	0.11	-	0.17	0.17	0.17
-	0.83	Tin (Sn)	0.60	0.70	-	-	0.70	-	1.16	1.12	0.85
-	183.00	Titanium (Ti)	181.00	265.00	-	-	1070.00	-	1030.00	1100.00	1110.00
-	2.19	Uranium (U)	2.21	3.53	-	-	0.74	-	4.89	5.59	5.02
-	30.70	Vanadium (V)	30.20	44.90	-	-	59.50	-	81.70	85.90	83.40
-	18.20	Zinc (Zn)	18.50	28.20	-	-	62.80	-	63.30	70.60	67.50

Baseline Data for Sediment

SCUITTO LK D	SCUITTO LK E	SCUITTO LK GRAIN SIZE	Sample ID	PC-AL-08-A	PC-AL-08-B	PC-AL-08-C	PC-AL-08-GRAIN SIZE <63UM	PC-AL-02-A	PC-AL-02-B	PC-AL-02-C	PC-AL-02-D
19-SEP-14	19-SEP-14	19-SEP-14	Date Sampled	16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14
00:00	00:00	00:00	Time Sampled	12:30	12:30	12:30	12:30	16:15	16:15	16:15	16:15
L1522144-4	L1522144-5	L1522144-6	ALS Sample ID	L1520000-1	L1520000-2	L1520000-3	L1520000-4	L1520000-5	L1520000-6	L1520000-7	L1520000-8
Soil	Soil	Soil	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
			Physical Tests								
-	-	-	Moisture	74.0	35.8	67.9	-	45.1	28.1	48.5	23.2
-	-	-	pH (1:2 soil:water)	7.60	7.98	7.85	-	7.88	8.05	7.87	8.09
			Particle Size								
-	-	<0.10	% Gravel (>2mm)				<0.10				
			% Sand (2.0mm - 0.063mm)								
-	-	<0.10	% Sand (2.00mm - 1.00mm)				<0.10				
-	-	<0.10	% Sand (1.00mm - 0.50mm)				<0.10				
-	-	<0.10	% Sand (0.50mm - 0.25mm)				<0.10				
-	-	<0.10	% Sand (0.25mm - 0.125mm)				<0.10				
-	-	<0.10	% Sand (0.125mm - 0.063mm)				<0.10				
			% Silt (0.063mm - 4um)								
-	-	22.0	% Silt (0.063mm - 0.0312mm)				35.7				
-	-	50.8	% Silt (0.0312mm - 0.004mm)				50.7				
-	-	27.2	% Clay (<4um)				13.5				
-	-	Silt loam	Texture				Silt				
			Organic/Inorganic Carbon								
12.5	12.9	-	Total Organic Carbon								
			Metals								
21900.00	22600.00	-	Aluminum (Al)	16100.00	14300.00	14400.00	-	13200.00	12300.00	14800.00	12400.00
0.58	0.57	-	Antimony (Sb)	0.44	0.43	0.43	-	0.33	0.31	0.37	0.30
4.83	4.87	-	Arsenic (As)	5.00	5.33	4.41	-	4.09	4.25	5.32	3.99
161.00	163.00	-	Barium (Ba)	178.00	136.00	169.00	-	145.00	131.00	163.00	133.00
0.71	0.74	-	Beryllium (Be)	0.25	0.24	0.26	-	0.27	0.26	0.33	0.28
0.16	0.17	-	Bismuth (Bi)	<0.10	<0.10	<0.10	-	<0.10	<0.10	<0.10	<0.10
<10	<10	-	Boron (B)	11.00	<10	<10	-	<10	<10	11.00	<10
0.21	0.21	-	Cadmium (Cd)	0.12	0.09	0.09	-	0.14	0.13	0.19	0.13
8530.00	8500.00	-	Calcium (Ca)	47000.00	34900.00	47400.00	-	17100.00	16400.00	18100.00	15700.00
59.50	55.50	-	Chromium (Cr)	104.00	74.80	109.00	-	112.00	130.00	104.00	127.00
10.60	10.80	-	Cobalt (Co)	15.80	16.10	14.90	-	13.00	12.30	15.60	12.70
40.70	41.00	-	Copper (Cu)	99.50	74.80	82.10	-	55.40	50.50	71.60	49.70
28000.00	27700.00	-	Iron (Fe)	38400.00	44200.00	42800.00	-	25700.00	25700.00	28500.00	25300.00

Baseline Data for Sediment

8.36	8.49	-	Lead (Pb)	3.30	2.37	2.65	-	4.96	4.23	6.12	4.46
14.90	14.40	-	Lithium (Li)	8.10	7.60	7.20	-	6.50	6.10	7.40	5.60
8230.00	8420.00	-	Magnesium (Mg)	14400.00	12900.00	13500.00	-	12600.00	11500.00	14000.00	11900.00
371.00	367.00	-	Manganese (Mn)	659.00	569.00	521.00	-	976.00	832.00	1440.00	816.00
			Mercury (Hg)	0.06	0.05	0.05	-	0.04	0.03	0.06	0.04
3.84	3.50	-	Molybdenum (Mo)	1.16	0.85	0.84	-	1.04	2.26	1.24	0.81
57.10	55.70	-	Nickel (Ni)	68.90	48.40	56.80	-	73.20	68.40	83.80	72.00
995.00	1030.00	-	Phosphorus (P)	1340.00	948.00	1300.00	-	1080.00	1060.00	1090.00	1040.00
2310.00	2340.00	-	Potassium (K)	1870.00	1350.00	1670.00	-	2230.00	2010.00	2520.00	2030.00
0.94	0.90	-	Selenium (Se)	0.65	0.26	0.37	-	0.66	0.73	0.96	0.56
0.19	0.19	-	Silver (Ag)	0.12	0.07	0.06	-	0.06	<0.050	0.09	0.05
530.00	540.00	-	Sodium (Na)	580.00	360.00	470.00	-	660.00	620.00	720.00	590.00
92.50	92.60	-	Strontium (Sr)	201.00	151.00	202.00	-	121.00	112.00	133.00	110.00
5000.00	4100.00	-	Sulfur (S)-Total	3000.00	1400.00	3100.00	-	2800.00	3000.00	5700.00	1700.00
0.19	0.19	-	Thallium (Tl)	0.06	<0.050	<0.050	-	0.07	0.06	0.07	0.07
0.88	0.87	-	Tin (Sn)	0.63	0.45	0.39	-	0.53	0.59	0.72	0.68
1170.00	1200.00	-	Titanium (Ti)	940.00	963.00	948.00	-	1000.00	1000.00	1020.00	982.00
4.80	5.12	-	Uranium (U)	0.62	0.41	0.49	-	0.51	0.74	0.59	0.44
85.70	89.40	-	Vanadium (V)	131.00	180.00	159.00	-	64.60	66.40	68.40	65.60
68.30	68.20	-	Zinc (Zn)	51.00	41.00	44.20	-	61.00	56.80	70.40	58.70

Baseline Data for Sediment

PC-AL-02-E	PC-AL-02-GRAIN SIZE <63UM	JACL-A	JACL-B	Sample ID	JACL-C	JACL-D	JACL-E	JACL-GRAIN SIZE <63UM	PC-AL-10-GRAIN SIZE <63UM	PC-AL-10-A	PC-AL-10-B
16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14	Date Sampled	16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14	16-SEP-14
16:15	16:15	12:30	12:30	Time Sampled	12:30	12:30	12:30	12:30	11:00	11:00	11:00
L1520000-9	L1520000-10	L1520000-11	L1520000-12	ALS Sample ID	L1520000-13	L1520000-14	L1520000-15	L1520000-16	L1520000-17	L1520000-18	L1520000-19
Soil	Soil	Soil	Soil	Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Physical Tests							
42.8	-	89.6	87.3	Moisture	88.4	88.0	87.2	-	-	35.9	21.2
7.87	-	7.96	8.03	pH (1:2 soil:water)	8.00	8.05	7.94	-	-	8.22	8.34
				Particle Size							
	<0.10			% Gravel (>2mm)				<0.10	<0.10		
				% Sand (2.0mm - 0.063mm)							
	<0.10			% Sand (2.00mm - 1.00mm)				<0.10	<0.10		
	<0.10			% Sand (1.00mm - 0.50mm)				<0.10	<0.10		
	<0.10			% Sand (0.50mm - 0.25mm)				<0.10	<0.10		
	<0.10			% Sand (0.25mm - 0.125mm)				<0.10	<0.10		
	<0.10			% Sand (0.125mm - 0.063mm)				<0.10	<0.10		
				% Silt (0.063mm - 4um)							
	42.7			% Silt (0.063mm - 0.0312mm)				13.3	35.8		
	52.1			% Silt (0.0312mm - 0.004mm)				53.0	52.5		
	5.12			% Clay (<4um)				33.7	11.7		
	Silt			Texture				Silt loam	Silt		
				Organic/Inorganic Carbon							
				Total Organic Carbon							
				Metals							
12800.00	-	7250.00	5180.00	Aluminum (Al)	7030.00	6810.00	6150.00	-	-	15900.00	13900.00
0.34	-	0.43	0.30	Antimony (Sb)	0.40	0.37	0.39	-	-	0.33	0.32
4.48	-	4.60	4.23	Arsenic (As)	4.56	4.32	4.08	-	-	4.98	4.39
131.00	-	215.00	205.00	Barium (Ba)	207.00	210.00	194.00	-	-	171.00	153.00
0.29	-	0.16	0.11	Beryllium (Be)	0.15	0.16	0.12	-	-	0.36	0.31
<0.10	-	<0.10	<0.10	Bismuth (Bi)	<0.10	<0.10	<0.10	-	-	<0.10	<0.10
<10	-	18.00	16.00	Boron (B)	18.00	18.00	16.00	-	-	<10	<10
0.12	-	0.12	0.10	Cadmium (Cd)	0.11	0.11	0.10	-	-	0.08	0.08
16000.00	-	151000.00	152000.00	Calcium (Ca)	139000.00	143000.00	139000.00	-	-	19600.00	23000.00
127.00	-	55.10	30.60	Chromium (Cr)	31.00	31.00	26.00	-	-	82.10	85.30
12.80	-	7.44	6.07	Cobalt (Co)	7.24	6.98	6.24	-	-	12.70	12.60
55.90	-	73.10	69.70	Copper (Cu)	71.30	71.00	62.50	-	-	83.80	62.80
26800.00	-	13600.00	10900.00	Iron (Fe)	13200.00	12700.00	11400.00	-	-	35000.00	33000.00

Baseline Data for Sediment

4.69	-	3.19	4.85	Lead (Pb)	3.17	3.14	2.69	-	-	3.46	3.27
5.80	-	<5.0	<5.0	Lithium (Li)	<5.0	<5.0	<5.0	-	-	7.20	6.20
11900.00	-	10100.00	8350.00	Magnesium (Mg)	9670.00	9480.00	8850.00	-	-	9190.00	8540.00
671.00	-	815.00	684.00	Manganese (Mn)	748.00	773.00	723.00	-	-	1060.00	961.00
0.14	-	0.06	0.06	Mercury (Hg)	0.06	0.06	0.05	-	-	0.05	0.09
1.08	-	19.00	15.30	Molybdenum (Mo)	16.40	16.20	18.60	-	-	0.50	0.46
70.60	-	47.50	29.70	Nickel (Ni)	31.00	31.70	33.90	-	-	37.10	35.70
1060.00	-	1390.00	1170.00	Phosphorus (P)	1420.00	1340.00	1280.00	-	-	1290.00	1320.00
2100.00	-	1320.00	920.00	Potassium (K)	1260.00	1210.00	1160.00	-	-	2060.00	1850.00
0.72	-	1.63	1.42	Selenium (Se)	1.51	1.39	1.32	-	-	0.56	0.55
0.05	-	0.08	0.08	Silver (Ag)	<0.050	<0.050	0.06	-	-	0.07	<0.050
610.00	-	610.00	480.00	Sodium (Na)	600.00	550.00	680.00	-	-	470.00	410.00
110.00	-	485.00	461.00	Strontium (Sr)	442.00	443.00	432.00	-	-	98.60	104.00
3900.00	-	4600.00	5900.00	Sulfur (S)-Total	7000.00	8000.00	8200.00	-	-	1500.00	600.00
0.06	-	<0.050	<0.050	Thallium (Tl)	<0.050	<0.050	<0.050	-	-	0.05	<0.050
0.61	-	1.75	1.14	Tin (Sn)	1.36	0.81	0.47	-	-	0.38	0.41
1020.00	-	378.00	219.00	Titanium (Ti)	323.00	287.00	315.00	-	-	928.00	943.00
0.47	-	4.49	3.91	Uranium (U)	3.82	3.70	3.45	-	-	0.49	0.43
69.00	-	48.20	38.50	Vanadium (V)	48.10	45.00	42.00	-	-	96.00	103.00
55.20	-	31.40	27.00	Zinc (Zn)	27.50	27.40	23.30	-	-	45.80	47.60

Baseline Data for Sediment

PC-AL-10-C	PC-AL-10-D	PC-AL-10-E
16-SEP-14 11:00	16-SEP-14 11:00	16-SEP-14 11:00
L1520000-20 Soil	L1520000-21 Soil	L1520000-22 Soil
41.6	18.6	22.3
8.08	8.49	8.38
13900.00	13900.00	14500.00
0.32	0.35	0.31
4.32	4.78	5.27
161.00	159.00	180.00
0.32	0.30	0.33
<0.10	<0.10	<0.10
<10	<10	<10
0.09	0.08	0.10
23900.00	21500.00	22300.00
74.20	85.50	69.80
13.00	12.80	13.90
66.10	62.40	72.00
31300.00	34300.00	32800.00

Baseline Data for Sediment

3.33	3.29	3.57
6.20	5.70	6.70
8700.00	8630.00	9400.00
982.00	1090.00	1330.00
0.05	0.04	0.06
0.47	0.49	0.50
35.80	36.60	38.80
1260.00	1300.00	1340.00
1920.00	1860.00	1990.00
0.61	0.49	0.62
<0.050	0.06	0.06
410.00	390.00	380.00
105.00	98.30	102.00
800.00	<500	<500
<0.050	0.06	0.05
0.36	0.46	0.43
901.00	955.00	804.00
0.46	0.42	0.42
92.50	106.00	90.10
48.10	47.10	52.20

Baseline Data for Small Mammals

Sample ID	AJX12-MIN-KS01-SM	AJX12-MIN-KS02-SM	AJX12-MIN-KS03-SM	AJX12-MIN-KS04-SM	AJX12-MIN-KS05-SM	AJX12-MIN-KS06-SM	AJX12-PR1-KS08-SM	AJX12-PR1-KS09-SM	AJX12-PR1-KS10-SM	AJX12-PR1-KS11-SM
Date Sampled	15-AUG-12	15-AUG-12	15-AUG-12	16-AUG-12	15-AUG-12	15-AUG-12	17-AUG-12	17-AUG-12	18-AUG-12	18-AUG-12
Time Sampled	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
ALS Sample ID	L1195257-3	L1195257-1	L1195257-2	L1195257-4	L1198506-6	L1198506-7	L1198506-8	L1198506-9	L1198506-10	L1198506-11
Matrix	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests										
% Moisture	70.2	70.5	69.8	67.1	68.8	72.1	68.9	66.9	69.4	71.5
Metals										
Aluminum (Al)-Total	299	73.3	520	219	25.0	60.9	158	245	81.8	111
Antimony (Sb)-Total	0.0026	0.0026	0.0053	<0.0020	<0.0020	<0.0020	<0.0020	0.0044	0.0021	<0.0020
Arsenic (As)-Total	0.0149	0.0152	0.0208	0.0145	0.0093	0.0345	0.0141	0.0313	0.0194	0.0094
Barium (Ba)-Total	3.36	2.64	2.65	7.85	2.15	8.41	3.93	3.56	2.08	3.24
Beryllium (Be)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	<0.0020	<0.0020	<0.0020	<0.0020	0.0035	<0.0020	<0.0020	<0.0020	<0.0020	0.0026
Boron (B)-Total	1.41	0.55	1.45	0.90	<0.80	<0.50	<3.2	<1.0	<0.60	<0.70
Cadmium (Cd)-Total	0.0070	0.0097	0.0270	0.0080	0.0103	0.0058	0.0098	0.0230	0.0045	0.0052
Calcium (Ca)-Total	12500	6770	4720	9280	10100	10400	6960	7870	5640	5750
Cesium (Cs)-Total	0.0041	0.0032	0.0050	0.0043	0.0036	0.0043	0.0065	0.0058	0.0050	0.0032
Chromium (Cr)-Total	0.127	0.144	0.258	0.099	0.279	0.097	0.214	0.461	0.203	0.149
Cobalt (Co)-Total	0.0401	0.0373	0.0582	0.0265	0.0324	0.0174	0.0455	0.104	0.112	0.0209
Copper (Cu)-Total	3.42	2.88	4.55	3.40	3.61	2.53	3.07	3.61	2.68	2.84
Gallium (Ga)-Total	0.0362	0.0138	0.0647	0.0266	0.0068	0.0099	0.0272	0.0352	0.0172	0.0173
Iron (Fe)-Total	89.3	120	127	80.6	116	59.3	119	124	108	102
Lead (Pb)-Total	<0.035	<0.026	0.110	<0.035	0.0316	0.0463	0.0408	0.0569	0.0163	0.0201
Lithium (Li)-Total	<0.020	<0.020	<0.020	<0.020	0.022	<0.020	0.022	0.038	0.023	<0.020
Magnesium (Mg)-Total	548	375	511	458	522	474	443	539	403	380
Manganese (Mn)-Total	6.50	3.07	10.4	5.03	2.77	2.98	4.73	6.40	5.02	4.23
Mercury (Hg)-Total	0.0037	0.0029	0.0011	0.0010	0.0067	0.0102	0.0012	0.0062	0.0017	0.0055
Molybdenum (Mo)-Total	0.316	0.322	0.337	0.283	0.443	0.423	0.314	0.852	0.212	0.263
Nickel (Ni)-Total	0.123	0.109	0.283	0.139	0.271	<0.11	0.201	0.365	0.258	<0.11
Phosphorus (P)-Total	8280	5270	4290	6700	6950	6940	5290	6000	4930	4830
Potassium (K)-Total	3500	3360	3280	3330	3530	3080	3410	3710	3310	3450
Rhenium (Re)-Total	0.0122	0.0283	0.0232	0.0388	0.0021	<0.0020	0.0060	0.0023	<0.0020	<0.0020
Rubidium (Rb)-Total	1.95	0.819	1.52	1.28	1.75	1.18	1.71	1.42	1.61	0.845
Selenium (Se)-Total	0.480	0.343	0.327	0.333	0.444	0.384	0.386	0.376	0.147	0.308
Silver (Ag)										
Sodium (Na)-Total	1590	1390	1350	1380	1530	1700	1400	1510	1320	1310
Strontium (Sr)-Total	22.5	6.09	4.25	9.61	25.7	30.4	6.08	8.72	6.03	8.98
Tellurium (Te)-Total	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	0.00054	0.00044	0.00056	<0.00040	<0.00040	<0.00040	<0.00040	0.00067	<0.00040	<0.00040
Thorium (Th)-Total	<0.0020	0.0028	0.0059	<0.0020	0.0021	<0.0020	<0.0020	<0.0020	0.0029	<0.0020

Baseline Data for Small Mammals

Titanium (Ti)										
Tin (Sn)-Total	0.086	0.053	0.046	0.149	0.037	0.062	<0.020	<0.020	0.047	0.035
Uranium (U)-Total	0.00075	0.00114	0.00179	0.00052	0.00095	<0.00040	0.00085	0.00212	0.00132	0.00061
Vanadium (V)-Total	0.095	0.176	0.213	0.058	0.103	0.046	0.187	0.266	0.178	0.128
Yttrium (Y)-Total	0.0077	0.0150	0.0182	0.0061	0.0097	0.0035	0.0150	0.0217	0.0145	0.0089
Zinc (Zn)-Total	32.9	25.1	29.5	29.1	28.7	27.0	26.4	27.6	20.7	22.7
Zirconium (Zr)-Total	0.153	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Baseline Data for Fish

Sample ID	ANDR-15 32 WHOLE FISH	ANDR-15 33 WHOLE FISH	ANDR-15 34 WHOLE FISH	ANDR-15 35 WHOLE FISH	ANDR-15 36 WHOLE FISH	ANDR-15 37 WHOLE FISH	PC-AL-01 12 WHOLE FISH	PC-AL-01 13 WHOLE FISH	PC-AL-01 14 WHOLE FISH	SCUITTO LAKE 1 WHOLE FISH	SCUITTO LAKE 2 WHOLE FISH
Date Sampled	17-SEP-14	17-SEP-14	17-SEP-14	17-SEP-14	17-SEP-14	17-SEP-14	17-SEP-14	17-SEP-14	17-SEP-14	19-SEP-14	19-SEP-14
ALS Sample ID	L1522144-7	L1522144-8	L1522144-9	L1522144-10	L1522144-11	L1522144-12	L1522144-13	L1522144-14	L1522144-15	L1522144-17	L1522144-18
Metals											
Aluminum (Al)-Total	4.74	32.0	25.5	32.1	15.2	29.1	9.52	29.3	22.7	1.60	8.05
Antimony (Sb)-Total	<0.0020	0.0023	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic (As)-Total	0.0672	0.0772	0.141	0.155	0.110	0.0571	0.0701	0.0768	0.0658	0.0222	0.0139
Barium (Ba)-Total	0.682	1.51	0.680	1.98	0.697	0.872	0.410	1.12	0.833	0.088	0.357
Beryllium (Be)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Boron (B)-Total	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium (Cd)-Total	0.0096	0.0091	0.0179	0.0139	0.0095	0.0059	0.0106	0.0175	0.0157	0.0019	0.0014
Calcium (Ca)-Total	6980	7470	3130	10800	4610	6380	7440	8280	9440	1310	6660
Cesium (Cs)-Total	0.0015	0.0031	0.0028	0.0034	0.0023	0.0025	0.0034	0.0045	0.0041	0.0030	0.0026
Chromium (Cr)-Total	<0.010	0.057	0.074	0.098	0.024	0.063	0.027	0.129	0.075	0.042	0.018
Cobalt (Co)-Total	0.0296	0.0440	0.0359	0.0409	0.0321	0.0360	0.0603	0.0691	0.0981	0.0160	0.0129
Copper (Cu)-Total	0.977	0.857	1.27	0.708	0.718	0.768	1.69	2.62	1.75	0.709	0.655
Iron (Fe)-Total	23.6	64.2	49.3	63.7	32.8	54.3	28.8	62.7	46.8	20.0	35.9
Lead (Pb)-Total	0.0055	0.0109	0.0109	0.0127	0.0050	0.0121	0.0094	0.0184	0.0167	0.0056	0.0133
Lithium (Li)-Total	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium (Mg)-Total	354	373	232	374	296	358	357	389	434	273	333
Manganese (Mn)-Total	3.14	4.60	2.34	6.18	1.97	5.33	1.13	1.94	2.45	0.605	1.82
Mercury (Hg)-Total	0.0546	0.0420	0.0429	0.0455	0.0371	0.0559	0.0219	0.0394	0.0254	0.253	0.234
Molybdenum (Mo)-Total	0.0096	0.0166	0.0404	0.0149	0.0166	0.0131	0.0116	0.0283	0.0257	0.0115	0.0129
Nickel (Ni)-Total	<0.040	0.044	0.045	0.050	<0.040	<0.040	0.045	0.100	0.103	<0.040	<0.040
Phosphorus (P)-Total	6080	6250	4230	8910	5180	6260	6030	6900	7670	2980	5600
Potassium (K)-Total	3490	3450	3360	3480	3500	3320	3350	3520	3330	3510	3090
Rubidium (Rb)-Total	0.365	0.404	0.463	0.414	0.417	0.452	0.416	0.436	0.430	1.21	1.18
Selenium (Se)-Total	0.761	0.716	0.826	0.646	0.674	0.658	1.71	2.12	1.65	0.178	0.168
Silver (Ag)-Total	0.0028	0.0025	0.0059	0.0043	0.0030	0.0014	0.0034	0.0064	0.0034	0.0061	0.0016
Sodium (Na)-Total	921	880	889	894	917	884	1020	1200	995	681	1180
Strontium (Sr)-Total	5.19	6.49	2.96	9.84	3.81	5.07	16.7	23.6	27.7	2.62	12.0
Tellurium (Te)-Total	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	0.00236	0.00300	0.00434	0.00399	0.00268	0.00234	0.00253	0.00398	0.00344	0.00232	0.00109
Tin (Sn)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Titanium (Ti)-Total	0.938	3.22	2.44	3.35	1.55	3.28	1.48	3.17	2.60	0.411	0.972
Uranium (U)-Total	0.00294	0.00528	0.00523	0.00719	0.00299	0.00542	0.00781	0.0153	0.0157	0.00080	0.00195
Vanadium (V)-Total	0.034	0.168	0.125	0.171	0.063	0.164	0.053	0.156	0.122	0.036	0.098
Zinc (Zn)-Total	25.7	27.8	21.3	31.5	21.1	25.2	29.0	34.5	41.6	12.2	26.6

Baseline Data for Fish

Zirconium (Zr)-Total	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Methyl Mercury	0.0328	0.0290	0.0315	0.0346	0.0286	0.0414	0.0233	0.0318	0.0235	0.0369	0.201

Baseline Data for Fish

Sample ID	SCUITTO LAKE 3 WHOLE FISH	SCUITTO LAKE 4 WHOLE FISH	SCUITTO LAKE 5 WHOLE FISH	SCUITTO LAKE 6 WHOLE FISH	SCUITTO LAKE 7 WHOLE FISH	SCUITTO LAKE 8 WHOLE FISH	SCUITTO LAKE 9 WHOLE FISH	JACKO LK 5 WHOLE FISH	JACKO LK 6 WHOLE FISH	JACKO LK 7 WHOLE FISH	JACKO LK 8 WHOLE FISH
Date Sampled	19-SEP-14	19-SEP-14	19-SEP-14	19-SEP-14	19-SEP-14	19-SEP-14	19-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14
ALS Sample ID	L1522144-19	L1522144-20	L1522144-21	L1522144-22	L1522144-23	L1522144-24	L1522144-25	L1522144-26	L1522144-27	L1522144-28	L1522144-29
Metals											
Aluminum (Al)-Total	1.67	4.40	3.82	3.77	5.29	5.11	8.61	5.51	4.99	2.03	1.37
Antimony (Sb)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic (As)-Total	0.0138	0.0178	0.0335	0.0291	0.0315	0.0088	0.0155	0.0626	0.0618	0.0531	0.0442
Barium (Ba)-Total	0.185	0.272	0.172	0.282	0.576	0.200	0.570	1.62	1.19	1.93	0.652
Beryllium (Be)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Boron (B)-Total	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium (Cd)-Total	0.0018	0.0017	0.0018	0.0019	0.0022	0.0010	<0.0010	0.0011	<0.0010	0.0016	<0.0010
Calcium (Ca)-Total	2470	6120	2710	7460	14600	2330	11400	8340	5920	4960	2710
Cesium (Cs)-Total	0.0032	0.0033	0.0032	0.0032	0.0032	0.0022	0.0031	0.0034	0.0035	0.0017	0.0029
Chromium (Cr)-Total	0.024	0.278	<0.010	0.046	<0.010	0.080	0.017	0.018	0.013	<0.010	<0.010
Cobalt (Co)-Total	0.0137	0.0171	0.0126	0.0154	0.0208	0.0105	0.0161	0.0242	0.0206	0.0336	0.0178
Copper (Cu)-Total	0.888	1.23	0.609	0.830	0.577	1.92	1.09	2.80	2.04	0.676	1.36
Iron (Fe)-Total	24.2	27.1	17.5	27.1	17.9	29.4	24.9	20.8	16.0	12.5	11.1
Lead (Pb)-Total	0.0146	0.0093	0.0073	0.0467	0.0117	0.0476	0.0474	0.146	0.122	0.168	0.0519
Lithium (Li)-Total	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium (Mg)-Total	270	368	322	353	525	283	442	392	339	338	303
Manganese (Mn)-Total	0.867	1.75	1.42	1.92	3.28	0.758	2.78	1.90	1.53	1.09	0.592
Mercury (Hg)-Total	0.251	0.145	0.223	0.178	0.162	0.102	0.0645	0.121	0.0923	0.0538	0.137
Molybdenum (Mo)-Total	0.0167	0.0180	0.0088	0.0132	0.0103	0.0076	0.0085	0.0181	0.0190	0.0074	0.0095
Nickel (Ni)-Total	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Phosphorus (P)-Total	3270	5600	3930	6130	10700	3460	8590	6030	5090	4900	3780
Potassium (K)-Total	3400	3420	3510	3320	3570	3460	3550	3660	3540	3870	3820
Rubidium (Rb)-Total	1.18	1.43	1.30	1.43	1.28	1.20	1.61	0.535	0.560	0.488	0.533
Selenium (Se)-Total	0.243	0.281	0.232	0.266	0.187	0.252	0.198	0.548	0.528	0.242	0.397
Silver (Ag)-Total	0.0150	0.0206	0.0019	0.0118	0.0026	0.0129	0.0066	0.0018	0.0011	<0.0010	<0.0010
Sodium (Na)-Total	870	694	798	700	635	624	942	735	743	835	738
Strontium (Sr)-Total	4.70	11.4	5.15	13.7	28.8	4.94	16.6	18.3	13.7	8.18	5.96
Tellurium (Te)-Total	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	0.00137	0.00311	0.00199	0.00282	0.00426	0.00051	0.00153	<0.00040	<0.00040	<0.00040	<0.00040
Tin (Sn)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Titanium (Ti)-Total	0.250	0.898	0.737	0.597	0.980	0.477	1.43	0.736	0.621	0.687	0.300
Uranium (U)-Total	0.00082	0.00116	0.00072	0.00081	0.00109	0.00113	0.00757	0.00339	0.00256	0.00232	0.00141
Vanadium (V)-Total	0.054	0.081	0.043	0.077	0.154	0.039	0.142	0.038	0.025	0.022	<0.020
Zinc (Zn)-Total	16.1	21.4	15.0	18.2	25.7	14.7	23.5	27.1	20.6	20.1	18.6

Baseline Data for Fish

Zirconium (Zr)-Total	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Methyl Mercury	0.0511	0.152	0.156	0.0271	0.204	0.0256	0.0632	0.125	0.103	0.0693	0.138

Baseline Data for Fish

JACKO LK 9 WHOLE FISH	Sample ID	EDITH LAKE 1 WHOLE FISH	EDITH LAKE 2 WHOLE FISH	EDITH LAKE 3 WHOLE FISH	EDITH LAKE 4 WHOLE FISH	EDITH LAKE 5 WHOLE FISH	EDITH LAKE 6 WHOLE FISH	EDITH LAKE 7 WHOLE FISH	EDITH LAKE 8 WHOLE FISH	JACKO LK 1 WHOLE FISH	JACKO LK 2 WHOLE FISH
18-SEP-14	Date Sampled	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14	18-SEP-14
L1522144-30	ALS Sample ID	L1522144-38	L1522144-39	L1522144-40	L1522144-41	L1522144-42	L1522144-43	L1522144-44	L1522144-45	L1522144-46	L1522144-47
	Metals										
4.05	Aluminum (Al)-Total	<0.40	1.91	0.77	0.45	1.62	0.89	0.89	9.06	6.16	4.85
<0.0020	Antimony (Sb)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
0.0480	Arsenic (As)-Total	0.0290	0.0312	0.0397	0.0327	0.0640	0.0286	0.0416	0.0386	0.0625	0.0455
1.17	Barium (Ba)-Total	0.069	0.291	0.430	0.089	0.486	0.252	0.431	0.587	1.36	0.430
<0.0020	Beryllium (Be)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
<0.0020	Bismuth (Bi)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
<0.20	Boron (B)-Total	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
<0.0010	Cadmium (Cd)-Total	<0.0010	<0.0010	0.0011	<0.0010	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	0.0012
8290	Calcium (Ca)-Total	694	6410	5290	689	8520	2820	3810	1590	3850	3730
0.0040	Cesium (Cs)-Total	0.0064	0.0040	0.0041	0.0042	0.0047	0.0070	0.0045	0.0066	0.0050	0.0026
0.011	Chromium (Cr)-Total	<0.010	<0.010	0.017	<0.010	<0.010	<0.010	<0.010	0.021	0.022	0.016
0.0176	Cobalt (Co)-Total	0.0096	0.0144	0.0146	0.0099	0.0167	0.0131	0.0132	0.0145	0.0227	0.0167
1.66	Copper (Cu)-Total	0.967	0.523	0.649	0.411	0.795	0.835	0.521	0.994	2.36	0.902
14.5	Iron (Fe)-Total	8.53	20.4	13.0	5.90	14.5	12.4	13.8	23.9	18.3	19.0
0.171	Lead (Pb)-Total	<0.0040	0.0133	<0.0040	<0.0040	<0.0040	0.0050	0.0047	<0.0040	0.144	0.198
<0.10	Lithium (Li)-Total	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
389	Magnesium (Mg)-Total	238	305	305	274	366	292	301	256	295	304
1.73	Manganese (Mn)-Total	0.192	1.03	1.45	0.227	1.87	0.619	1.30	0.934	1.35	0.834
0.109	Mercury (Hg)-Total	0.0856	0.0760	0.0642	0.0608	0.0594	0.0963	0.0788	0.0398	0.0762	0.134
0.0136	Molybdenum (Mo)-Total	0.0045	0.0073	0.0085	0.0047	0.0091	0.0055	0.0074	0.0107	0.0173	0.0112
<0.040	Nickel (Ni)-Total	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
6790	Phosphorus (P)-Total	2500	5610	5090	2770	7160	3890	4450	2840	4180	4000
3660	Potassium (K)-Total	3290	2970	3400	3850	3340	3410	3490	3740	3430	3470
0.600	Rubidium (Rb)-Total	0.691	0.428	0.516	0.599	0.558	0.753	0.597	0.791	0.661	0.435
0.534	Selenium (Se)-Total	0.193	0.223	0.233	0.204	0.305	0.210	0.245	0.180	0.651	0.415
<0.0010	Silver (Ag)-Total	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	0.0010	<0.0010	<0.0010	<0.0010	0.0021
727	Sodium (Na)-Total	467	890	665	513	752	586	652	612	687	632
16.3	Strontium (Sr)-Total	1.28	9.95	9.32	1.31	13.2	5.49	7.26	4.43	11.6	7.36
<0.0040	Tellurium (Te)-Total	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
<0.00040	Thallium (Tl)-Total	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
<0.020	Tin (Sn)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
0.730	Titanium (Ti)-Total	0.133	0.475	0.307	0.334	0.925	0.260	0.317	1.12	0.697	0.535
0.00594	Uranium (U)-Total	<0.00040	0.00055	0.00149	<0.00040	0.00246	0.00050	0.00072	0.00109	0.00159	0.00127
0.030	Vanadium (V)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.066	0.034	0.021
23.4	Zinc (Zn)-Total	9.22	26.8	23.4	8.76	23.0	16.8	19.3	11.3	18.0	17.3

Baseline Data for Fish

<0.040	Zirconium (Zr)-Total	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
0.102	Methyl Mercury	0.0482	0.0528	0.0193	0.0542	0.0575	0.0664	0.0471	0.0343	0.0844	0.105

Baseline Data for Fish

JACKO LK 3 WHOLE FISH	JACKO LK 4 WHOLE FISH
18-SEP-14	18-SEP-14
L1522144-48	L1522144-49
8.33	2.09
<0.0020	<0.0020
0.0720	0.0506
1.61	0.509
<0.0020	<0.0020
<0.0020	<0.0020
<0.20	<0.20
<0.0010	<0.0010
7890	8180
0.0043	0.0023
0.030	<0.010
0.0220	0.0142
2.30	0.756
19.6	11.3
0.164	0.158
<0.10	<0.10
365	391
2.48	1.11
0.0885	0.115
0.0198	0.0095
<0.040	<0.040
5990	6510
3390	3590
0.578	0.462
0.546	0.356
0.0011	<0.0010
722	724
17.7	13.2
<0.0040	<0.0040
<0.00040	<0.00040
<0.020	<0.020
0.925	0.900
0.00340	0.00201
0.047	<0.020
24.5	21.7

Baseline Data for Fish

<0.040	<0.040
0.0535	0.0964

Baseline Data for Groundwater

Site ID		AJGW01-D	AJGW01-D	AJGW02-D	AJGW02-D	AJGW02-S	AJGW02-S	AJGW03-D	AJGW03-D	AJGW03-D
Analytes	**MDL**	**26-Mar-08**	**5-Jun-10**	**12-Jul-08**	**5-Jun-10**	**9-Jul-08**	**4-Sep-08**	**11-Jul-08**	**2-Sep-08**	**2-Jun-10**
In Situ Parameters										
Conductivity µS/cm	...	2081	1483	732	810	3651	2317	916	893	934
Oxygen Dissolved %	...	51.7	39.7	50.4	36	39.5	30.2	31.6	6.5	0.8
Oxygen Dissolved	...	5.95	4.37	5.44	4.03	4.02	3.35	3.48	0.73	0.09
pH (unitless)	...	8.57	7.74	9.33	10.5	6.81	7.38	7.46	7.56	7.61
Redox Potential mV	...		-28.2	-172	-17.8	-29.7	-49.7	-67	-57.8	-82.3
Salinity ppt	...									
Specific Conductivity µS/cm	...	1434	2034	976	1134	4442	3185	1263	1245	1288
Temperature °C	...		10.8	11.7	10	12.8	10.7	10.6	10.3	10.6
Total Dissolved Solids	...									
Turbidity NTU	...									
Physical Tests										
Acidity to pH 8.3 (as CaCO3)	1	9.2	4.6	0.5	0.5	24	41.1	5.3	5.8	2
Alkalinity (Total as CaCO3)	1 to 2	293	254	59.8	0.5	469	688	292	281	277
Bicarbonate Alkalinity	1 to 2	293	254	23.4	0.5	469	688	292	281	277
Carbonate Alkalinity	1 to 2	1	1	36.4	0.5	0.5	0.5	1	1	1
Color TCU	5	2.5	2.5	2.5	2.5	23	63.7	2.5	2.5	2.5
Hardness as CaCO3 (Dissolved)	0.5 to 1.1	1080	1120	243	292	1090		586	588	647
Hydroxide Alkalinity	1 to 2	1	1	0.5	0.5	0.5	0.5	1	1	1
pH (unitless)	0.01 to 0.1	8.04	8.14	9.14	9.38	7.57	7.63	8.04	8.04	8.21
Specific Conductivity µS/cm	2	2150	1990	920	1030	4120	3190	1250	1240	1250
Total Dissolved Solids	1 to 2	1630	1640	661	768	4180	2970	881	881	896
Total Suspended Solids	3	338	86.5	144	24.3	151	39.3	1280	1.5	4.7
Turbidity NTU	0.1	191	53.7	160	19.2	89.4	25.3	128	2.24	1.23
Dissolved Anions										
Bromide	0.05 to 2.495	1.25	<0.5	<0.05	<0.5	1.25	2.5	<0.05	<0.05	<0.5
Chloride	0.5 to 1	62	41.6	3.38	2.5	152	104	8.29	7.25	7.3
Fluoride	0.02 to 0.4	0.5	<0.2		<0.2	1.7	8.1	0.183	0.2	<0.2
Sulphate	0.5 to 1	763	835	367	484	2020	1260	415	414	446
Nutrients										
Ammonia (Total)	0.005 to 0.05	0.108	<0.01	0.122	0.265	0.603	0.064		<0.02	0.015
Nitrate (as N)	0.005 to 0.1	35.3	25.7	<0.005	0.063	0.35	<0.5	<0.005	<0.005	<0.05
Nitrite (as N)	0.001 to 0.02	0.185	0.022	<0.001	<0.01	0.132	0.23	<0.001	<0.001	<0.01
Nitrogen (Dissolved)	0.05 to 0.1									
Nitrogen (Total)	0.0025 to 0.11									
Nitrogen Kjeldahl (Total)	0.05 to 0.2	0.87	<0.5	0.35	0.348	8.41	7.77		0.092	0.087
Orthophosphate (Dissolved)	0.001 to 0.01	0.0421	0.0455	0.0182	0.0033	0.0605	0.0489	0.0175	0.0161	
Phosphorus - Dissolved	0.002 to 0.02		0.148		0.0352					
Phosphorus - Total	0.002 to 0.02	0.0996		0.213		0.337	0.288	0.701	0.0204	0.0214

Baseline Data for Groundwater

Cyanide										
Cyanide (Free)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (Total)	0.005	0.007	<0.005	<0.005	<0.005	0.0352		<0.005		<0.005
Cyanide (WAD)	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Dissolved Metals										
Aluminum	0.001 to 0.025	<0.025	<0.025	0.016	<0.01	<0.05			<0.01	<0.01
Antimony	.0001 to 0.002	<0.0025	<0.0025	<0.001	<0.001	<0.005		<0.001	<0.001	<0.001
Arsenic	.0001 to 0.002	0.0046	0.0062	0.0026	<0.001	<0.005		0.0062	0.0064	0.0066
Barium	5E-005 to 0.02	0.175	0.062	0.213	0.169	0.058		0.037	0.028	0.029
Beryllium	).0001 to 0.005	<0.005	<0.005	<0.002	<0.002	<0.01		<0.002	<0.002	<0.002
Bismuth	0.0005 to 0.2									
Boron	0.01 to 0.1	<0.1	<0.1	<0.1	<0.1	0.26		<0.1	<0.1	<0.1
Cadmium	-005 to 8.5E-0	<0.000085	0.000119	<0.00085	<0.001	<0.00017			<0.000034	0.000055
Calcium	0.05 to 0.1	135	139	53.2	96.1	177		73.3	73.8	79.3
Chromium	).0001 to 0.01	<0.005	<0.005	<0.002	<0.002	<0.01		<0.002	<0.002	<0.002
Cobalt	.0001 to 0.001	0.0036	<0.0015	<0.0006	<0.0006	0.0192		<0.0006	<0.0006	<0.0006
Copper	).0002 to 0.00	<0.005	<0.005	<0.002	<0.002	0.093		<0.002	<0.002	<0.002
Dissolved Cadmium (SWE)	0.00002									
Iron	0.01 to 0.03	0.041	<0.03	<0.03	<0.03	0.231		0.085	0.074	0.089
Lead	E-005 to 0.002	<0.0025	<0.0025	<0.001	<0.001	<0.005		<0.001	<0.001	<0.001
Lithium	).0005 to 0.02	<0.025	<0.025	0.013	0.011	<0.05		<0.01	<0.01	<0.01
Magnesium	0.1	180	188	26.7	12.7	157		97.8	97.9	109
Manganese	E-005 to 0.001	1.04	0.12	0.00335	<0.0006	1.71		0.287	0.268	0.325
Mercury	E-005 to 5E-0	<0.00002	<0.00001	<0.00002	<0.00001	0.000032		<0.00002	<0.00002	<0.00001
Molybdenum	5E-005 to 0.00	0.556	0.593	0.492	0.377	0.231		0.0452	0.0472	0.0551
Nickel	).0005 to 0.00	0.0235	0.0128	<0.002	<0.002	0.028		<0.002	<0.002	<0.002
Phosphorus	0.05 to 0.3									
Potassium	0.05 to 2	47.5	50.1	29.5	29.2	30.7		17.6	17.7	19.4
Selenium	).0001 to 0.00	0.0317	0.0416	<0.002	<0.002	<0.01		<0.002	<0.002	<0.002
Silicon	0.05									
Silver	E-005 to 0.000	<0.0001	<0.0001	<0.00004	<0.00004	<0.0002		0.000086	<0.00004	<0.00004
Sodium	0.05 to 2	64.2	63.3	72.1	116	280		64.6	64.2	69.1
Strontium	).0001 to 0.005									
Sulphur	0.5									
Thallium	E-005 to 0.00	<0.001	<0.001	<0.0004	<0.0004	<0.002		<0.0004	<0.0004	<0.0004
Tin	.0001 to 0.002	<0.0025	<0.0025	<0.001	<0.001	<0.005		<0.001	<0.001	<0.001
Titanium	0.01	<0.01	<0.01	<0.01	<0.01	<0.02		<0.01	<0.01	<0.01
Uranium	E-005 to 0.00	0.0077	0.0065	<0.0004	<0.0004	0.0077		0.00284	0.00294	0.00287
Vanadium	0.001 to 0.03	<0.005	<0.005	<0.002	0.0034	<0.01		<0.002	<0.002	<0.002
Zinc	0.001 to 0.006	<0.005	<0.005	<0.005	<0.005	<0.01		<0.005	<0.005	<0.005
Total Metals										
Aluminum	0.003 to 0.025	8.22	1.98	19.5	0.712	2.63	0.245	14.3	0.143	0.055
Antimony	.0001 to 0.002	<0.0025	<0.0025	<0.001	<0.001	<0.005	<0.0025	<0.001	<0.001	<0.001
Arsenic	.0001 to 0.002	0.0145	0.0094	0.02	0.0018	0.0055	0.0067	0.0269	0.0064	0.0067

Baseline Data for Groundwater

Barium	5E-005 to 0.02	0.236	0.082	0.643	0.237	0.147	0.067	0.216	0.029	0.029
Beryllium	).0001 to 0.005	<0.005	<0.005	<0.002	<0.002	<0.01	<0.005	<0.002	<0.002	<0.002
Bismuth	0.0005 to 0.2									
Boron	0.01 to 0.1	<0.1	<0.1	<0.1	<0.1	0.46	0.25	<0.1	<0.1	<0.1
Cadmium	-005 to 8.5E-0	0.0006	0.000156	<0.00094	<0.0012	0.00055	<0.0004	0.000626	0.000051	0.000082
Calcium	0.05 to 0.1	164	138	98.4	100	241	203	128	71.9	76.3
Chromium	).0001 to 0.005	0.0729	0.0205	0.0579	0.0032	0.016	<0.005	0.038	0.0067	<0.002
Cobalt	.0001 to 0.001	0.029	0.005	0.0236	0.00114	0.0296	0.0121	0.0166	<0.0006	<0.0006
Copper	).0005 to 0.00	0.145	0.0212	0.214	0.0132	0.607	0.363	0.0847	0.0023	<0.002
Iron	0.01 to 0.03	12.4	3.05	26.8	0.974	3.46	4.36	24.5	0.324	0.168
Lead	E-005 to 0.002	<0.0025	<0.0025	0.0054	<0.001	<0.005	<0.0025	0.0049	<0.001	<0.001
Lithium	).0005 to 0.025	<0.025	<0.025	0.024	0.011	<0.05	<0.025	0.012	<0.01	<0.01
Magnesium	0.1	191	187	63.6	14.7	253	211	114	96.5	104
Manganese	E-005 to 0.001	1.54	0.228	0.902	0.041	2.23	2.99	1.08	0.288	0.349
Mercury	E-005 to 5E-0(	0.000048	<0.00001	<0.00002	<0.00001	0.00028	0.000057	0.000354	<0.00002	<0.00001
Molybdenum	5E-005 to 0.00	0.485	0.598	0.499	0.399	0.279	0.293	0.0456	0.0475	0.0594
Nickel	).0005 to 0.005	0.215	0.0535	0.0947	0.0046	0.055	0.0224	0.0786	0.0042	0.0021
Phosphorus	0.05 to 0.3									
Potassium	0.05 to 2	47.7	48.8	34.2	28.4	54.9	25.8	20.2	17.4	18.6
Selenium	).0001 to 0.00(	0.0318	0.0412	<0.002	<0.002	<0.01	<0.005	0.0049	<0.002	<0.002
Silicon	0.05									
Silver	E-005 to 0.000	<0.0001	<0.0001	0.00015	<0.00004	0.0008	0.00011	0.000234	<0.00004	<0.00004
Sodium	0.05 to 2	63	61.8	73.4	113	475	279	65.8	62.7	66.3
Strontium	).0001 to 0.005									
Sulphur	0.5									
Thallium	E-005 to 0.00	<0.001	<0.001	<0.0004	<0.0004	<0.002	<0.001	<0.0004	<0.0004	<0.0004
Tin	.0001 to 0.002	<0.0025	<0.0025	0.0015	0.0011	<0.005	<0.0025	<0.001	<0.001	<0.001
Titanium	0.01	0.271	0.096	1.19	0.047	0.121	0.022	0.832	0.011	<0.01
Total Cadmium (SWE)	0.00002									
Uranium	E-005 to 0.00	0.0077	0.0066	0.00149	<0.0004	0.0094	0.007	0.00367	0.00301	0.00294
Vanadium	0.001 to 0.03	0.0293	0.0107	0.0827	0.0069	0.017	0.0056	0.0605	<0.002	<0.002
Zinc	0.003 to 0.006	0.0194	0.0058	0.0489	<0.005	0.043	<0.005	0.0447	<0.005	<0.005
Organics										
Carbon Organic (Dissolved)	0.5 to 5	3.63	2.67	2.93	2.51	114		2.51	2.54	2.38
Carbon Organic (Total)	0.5 to 5									
Nitrogen Organic (Dissolved)	0.05 to 0.26									
Nitrogen Organic (Total)	0.05 to 0.3									
ALS LAB ID		**L613954**	**L894378**	**L655020**	**L894378**	**L653846**	**L678833**	**L655304**	**L678594**	**L893847**

NOTES:
1. UNITS ARE mg/L, UNLESS OTHERWISE STATED.

Baseline Data for Groundwater

AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D
23-Aug-10	24-Nov-10	28-Mar-11	18-May-11	24-Jul-11	2-Nov-11	10-Feb-12	6-Jun-12	28-Aug-12	5-Dec-12	4-Mar-13	24-May-13	12-Aug-13
930	907	913	883	1040	887	843	1325	1220	895	853	941	1113
0.4	4.7	2.7	2.4	29.3	1000	28.5	3.7		2.3	1.1	5.4	1.6
0.04	0.53	0.31	0.27	3.14	157	3.16	0.37	0.1	0.27	0.13	0.61	0.18
6.57	7.74	7.57	7.32	7.83	7.62	7.93	7.75	6.16	7.75	7.65	7.03	7.54
-1.7	-68.6	-44.5	-61.5			-287		-54	-100	-114	36.9	79.5
			0.602			0.64		0.6		0.62	0.66	0.77
1260	1290	1278	1234	1379	1262	1273	928		1281	1241	1310	1517
11.3	9.44	10.1	10.1	12.1	9.43	7.29	9.24	12.2	9.26	8.63	10.2	11
819	839	831	803			927		779	832	807	852	987
				0	-5.8	1.6	0	3.7	2	18.6	0	1.2
5.3	4.6	5.8	4.3	6.1				4.8		6.3	0.5	
275	275	276	286	287	272	282	272	284	279	275	257	293
275	275	276	286	287		282	272		279	275	257	293
1	0.5	1	1	1		1	0.5		0.5	1	1	1
2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
633	596	599	613	619	609	596	594	629	607	617	558	607
1	0.5	1	1	1		1	0.5		0.5	1	1	1
8.1	8.11	8.05	8.1	8.1	8.12	8.19	8.1	8.08	8.33	8.11	8.3	8.23
1270	1280	1270	1280	1320	1230	1210	1200	1220	1240	1250	1150	1300
944	891	922	928	974	916	879	913	984	926	854	853	940
8	4	1.5	1.5	1.5	3	3.3	1.5	11.9	10	2.5	1.5	1.5
0.58	1.04	0.75	0.8	0.65	1.29	3.72	0.66	2.83	1.85	2.07	0.67	0.96
<0.5	<0.5	1.15	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
9.1	8.1	9.9	11.1	10.7	8.3	8.5	8.7	9.6	9.1	8.4	8.9	9.2
<0.2	<0.2	<0.2	<0.2	0.38	0.22	0.22	0.21	<0.2	<0.2	0.35	0.2	0.31
458	459	457	465	496	463	428	448	460	466	451	419	464
<0.005	0.0087	0.0075	<0.005	0.0065	0.0153	0.0315	0.0698	0.0171	0.0127	0.0182	0.0473	0.0068
<0.05	<0.05	<0.05	<0.05	0.078	0.074	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			0.15	0.17	0.07	0.05	0.26		0.132	0.093		
0.105	0.116	0.134	0.153	0.08	0.146	0.163	0.295	0.146	0.128	0.158	0.173	0.128
0.0165	0.0145	0.0152	0.0165					0.0161				
0.0169			0.0156	0.0152	0.0197	0.0288	0.0219		0.0148	0.0188	0.0275	0.0175
0.0217	0.0195	0.02	0.0271	0.0188	0.0289	0.0424	0.0305	0.0388	0.0237	0.0273	0.0335	0.0232

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.01	<0.01		<0.01	<0.005	<0.003	<0.003	0.0016	<0.005	0.0013	0.0012	0.0024	0.0011
<0.001	<0.001		<0.001	<0.0005	<0.0001	0.00014	0.00019	<0.0005	<0.0001	<0.0001	0.00016	<0.0001
0.0058	0.0064		0.0057	0.00554	0.00552	0.00591	0.00558	0.00592	0.00565	0.0054	0.00551	0.00532
0.029	0.03		0.028	0.027	0.0275	0.0299	0.031	0.034	0.0281	0.0278	0.0304	0.0253
<0.002	<0.002		<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001
			<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.2	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	<0.1		<0.1	<0.1	0.031	0.032	0.042	<0.1	0.031	0.033	0.033	0.026
<0.00015	<0.0002		<0.000034	<0.0003	0.000013	0.000015	0.000033	<0.000017	0.000012	<0.00001	0.000013	<0.00001
78	74.8		77.7	76.1	76	73	75.1	77.8	73.9	75.2	70	78.9
<0.002	<0.002		<0.002	<0.001	0.00013	<0.0001	0.00043	<0.001	0.00027	<0.0001	0.00021	<0.0001
<0.0006	<0.0006		<0.0006	<0.0003	0.00012	0.00066	0.00018	<0.0003	0.00013	0.00014	0.00043	0.00011
<0.002	<0.002		<0.002	<0.002	<0.0005	<0.0005	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0002
0.082	0.088		0.106	0.097	0.136	0.156	0.124	0.134	0.125	0.14	0.079	0.119
<0.001	<0.001		<0.001	<0.0005	<0.00005	<0.00005	<0.00005	<0.0005	0.00008	<0.00005	<0.00005	<0.00005
<0.01	<0.01		<0.01	<0.005	0.00479	0.00503	0.00484	0.0052	0.00496	0.00463	0.00442	0.00377
106	99.4		102	104	102	100	98.8	106	103	104	93.1	99.6
0.269	0.287		0.292	0.249	0.327	0.321	0.296	0.317	0.316	0.284	0.271	0.284
<0.00001	<0.00001		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0437	0.0455		0.0458	0.043	0.0388	0.0467	0.0449	0.0513	0.0497	0.0478	0.0529	0.047
<0.002	<0.002		<0.002	<0.001	0.00114	0.00108	0.00098	<0.001	0.00075	0.00157	0.00627	0.00058
			<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05
19.1	18.1		17.6	17.6	20.2	18.7	16.9	20.5	18.8	18.7	17.2	18.4
<0.002	<0.002		<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001
			9.82	9.44	9.88	9.61	9.8	9.86	9.52	9.62	9.33	9.35
<0.00004	<0.00004		<0.00004	<0.00002	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
68.8	66.8		67.6	62.9	69.5	63.5	57.4	67.1	62.3	57.8	55.6	62.6
			0.86	0.809	0.922	0.838	0.782	0.888	0.845	0.782	0.767	0.789
									150	146	131	145
<0.0004	<0.0004		<0.0004	<0.0002	<0.00001	<0.00001	<0.00001	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001
<0.001	<0.001		<0.001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00266	0.0025		0.00262	0.00261	0.00242	0.00265	0.00263	0.00278	0.00284	0.00271	0.00254	0.00271
<0.002	<0.002		<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.005	<0.005		<0.005	<0.005	<0.003	<0.003	<0.001	<0.005	0.0017	<0.001	0.0018	0.0016
0.019	0.03	<0.005	0.027	0.0068	0.0294	0.0173	0.0092	0.171	0.0785	0.0351	0.0118	0.021
<0.001	<0.001	<0.0005	<0.001	<0.0005	0.00013	0.00014	0.00032	<0.0005	0.00013	0.00011	0.00035	0.00011
0.0054	0.0054	0.0046	0.0054	0.00535	0.00533	0.00552	0.00574	0.00631	0.00536	0.00565	0.00559	0.00528

Baseline Data for Groundwater

0.029	0.031	0.029	0.028	0.029	0.0279	0.0306	0.0323	0.033	0.0287	0.0291	0.0329	0.0249
<0.002	<0.002	<0.001	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001
		<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.2	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	0.037	0.036	0.054	<0.1	0.035	0.036	0.039	0.029
<0.0002	<0.0002	<0.0002	<0.000034	<0.0003	0.000644	0.000134	0.000092	0.00018	0.00004	0.000022	0.000046	0.000018
77.4	75.8	75.8	77.6	76.9	77.5	74	74.1	75.5	72.2	75.3	68.1	77.1
<0.002	<0.002	<0.001	<0.002	<0.001	0.00048	0.00033	0.0009	0.0015	0.0015	0.00027	0.00042	0.00037
<0.0006	<0.0006	0.00052	<0.0006	<0.0003	0.00017	0.00018	0.00026	0.00039	0.00026	0.0002	0.00071	0.00014
<0.002	<0.002	<0.002	<0.002	<0.002	<0.0005	<0.0005	0.00061	0.0023	0.00319	<0.0005	0.00081	<0.0005
0.122	0.145	0.096	0.141	0.109	0.181	0.173	0.155	0.416	0.249	0.172	0.067	0.151
<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.00005	<0.00005	<0.00005	<0.0005	0.000153	<0.00005	<0.00005	<0.00005
<0.01	<0.01	<0.005	<0.01	<0.005	0.00454	0.00488	0.00508	0.0056	0.00522	0.00469	0.0045	0.00341
105	103	100	105	109	102	101	99.4	104	98	103	91.4	99.3
0.283	0.29	0.25	0.306	0.269	0.343	0.326	0.29	0.326	0.296	0.291	0.278	0.298
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0469	0.0458	0.0431	0.049	0.0482	0.0408	0.0479	0.0457	0.0551	0.0506	0.0494	0.0566	0.0461
<0.002	<0.002	0.0012	<0.002	<0.001	0.00101	0.00098	0.00206	0.0036	0.00231	0.00198	0.0136	0.0008
		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05
18.9	19	17.8	17.4	18.6	17.4	18.5	16.6	20	18	18.2	17.5	18.3
<0.002	<0.002	<0.001	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.0001	0.00011
		9.87	9.77	9.7	10.1	9.86	9.98	10.2	9.37	9.68	9.42	9.29
<0.00004	<0.00004	<0.00002	<0.00004	<0.00002	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
68	69.4	67.6	67	65.3	71.1	63.3	56.5	65.6	60.1	59.5	56.6	61.3
		0.847	0.852	0.848	0.891	0.834	0.789	0.87	0.861	0.807	0.795	0.771
									147	151	130	149
<0.0004	<0.0004	<0.0002	<0.0004	<0.0002	<0.00001	<0.00001	<0.00001	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001
<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.014	<0.01	<0.01	<0.01	<0.01
0.00283	0.00267	0.00252	0.00279	0.00252	0.00236	0.00266	0.00254	0.00277	0.00277	0.00277	0.00253	0.00282
<0.002	<0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.005	<0.003	0.0045	0.0038	<0.003
2.42	2.57	2.68	1.9	2.64	2.49	2.44	4.4	2.64	2.69	2.95	2.47	2.81
			1.97	2.53	2.38	2.41	3.72	2.56	2.74	2.73	2.37	2.41
			0.147	0.073	<0.05	<0.05	0.19		0.119	0.075		
			0.157	0.073	0.131	0.131	0.226		0.115	0.14		
L924086	**L957406**	**L990458**	**L1007006**	**L1036787**	**L1081224**	**L1113319**	**L1159542**	**L1201474**	**L1246516**	**L1275064**	**L1306577**	**L1346553**

Baseline Data for Groundwater

AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW03-D	AJGW04-D	AJGW04-D	AJGW05-S	AJGW05-S	AJGW05-S	AJGW05-S	AJGW06-D	AJGW06-D
15-Nov-13	9-Mar-14	7-May-14	12-Jun-14	11-Sep-14	4-Sep-08	19-Nov-08	28-Apr-08	4-Sep-08	19-Nov-08	5-Jun-10	28-Apr-08	11-Jul-08
1220	1126	902	852	872	1573	1247		2007	1217	1701		480
10.6	2.7	-1.3	27	7.5	43.2	14.3		43.9	16.1	30.4		17.2
1.22	0.32	-0.14	3.04	0.84	4.6	1.78		5.05	1.91	3.35		1.94
7.74	7.72	6.49	7.68	7.72	7.68	8.6		7.97	8.12	7.94		8.66
101	-77.1	-55.3	-59.9	-3.8	-64.4	-91.5		-71.2	-75.6	-79.6		-139
0.63	0.63	0.63	0.6	0.62								
851	879	1259	1197	1239	2246	1985		2854	1807	2351		673
9.01	9.16	10.1	9.91	9.51	9.28	5.63		9.45	7.99	10.7		9.95
810	820	819	778	805								
1.2	2.1	-2.1	-2.3	0.9								
		3			11	4	4.4	7.3	7.5	5	0.5	0.5
289	279	288	294	278	523	384	82.1	141	155	174	84.9	79.9
289	279	288	294	278	523	384	82.1	141	155	174	84.9	72.2
1	1	1	1	1	0.5	1	1	1	1	1	0.5	7.7
					11.4	11	21.1	6.9	6.5	6	2.5	2.5
615	625	602	618	610	435	345	1080	990	976	963	150	129
1	1	1	1	1	0.5	1	1	1	1	1	0.5	0.5
8.27	8.27	8.14	8.23	8.26	7.95	8	7.84	7.71	7.62	8.07	8.48	8.55
1250	1260	1230	1240	1280	2300	2190	2650	2940	2390	2410	685	665
906	907	943	960	959	1680	1610	2220	2340	2020	2060	447	434
		1.5	1.5	1.5	73.1	93.3	105	27.1	828	218	114	18.8
		0.93	1.48	0.76	93.4		91.4	27		110	41.5	15.5
<0.5	<0.5	<0.5	<0.5	<0.5	1.25	1.25	<0.5	2.5	1.25	0.5	<0.05	<0.05
9.2	8.9	9.4	11	9.7	41	40	31	25	30	20	1.51	1.55
0.22	0.33	<0.2	0.22	0.229	57	0.5	0.37	1	0.5	<0.4	0.369	0.38
462	462	466	468	471	642	751	1450	1570	1260	1290	241	235
0.0166	0.0091	0.0083	0.0165	0.0071	0.03	0.0652	<0.02	0.029	<0.005	0.156	<0.02	
<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	0.675	<0.5	<0.25	<0.1	<0.005	<0.005
<0.01	<0.01	<0.01	<0.01	<0.01	0.111	1.02	0.111	0.14	0.959	<0.02	<0.001	<0.001
0.189	0.138	0.136	0.168	0.133	0.637		1.34	0.244		0.38	0.175	
0.017	0.0181	0.0159	0.0188	0.0158	0.267	0.519	<0.001	<0.001	0.0054	0.0339	0.0136	0.0236
0.0164	0.018	0.0183	0.0188	0.015		0.497			0.0108	0.372		
0.0236	0.0252	0.0239	0.0295	0.0191	0.59	0.67	0.0993	0.0549	1.08		0.0949	0.0523

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005		<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	0.0074		<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005		<0.005	<0.005	<0.005
0.0016	0.0011	0.0022	0.0023	0.0016	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.0125	0.0399
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.00131	0.0007
0.00574	0.00545	0.00557	0.00577	0.00569	0.0085	0.0221	<0.0025	<0.0025	<0.0025	<0.0025	0.0159	0.0271
0.0276	0.0282	0.0279	0.0282	0.0281	0.173	0.147	0.138	0.088	0.077	0.078	0.033	0.021
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005								
0.033	0.032	0.031	0.035	0.029	0.13	0.11	<0.1	0.13	0.11	0.11	0.21	0.2
<0.00002	<0.00002	<0.00002	0.000018	0.000021	<0.000085	0.000135	<0.000085	<0.000085	<0.000085	<0.000085	<0.000017	<0.0002
75.1	76.5	71.6	77.6	75.7	96.8	77.2	251	205	196	186	35.7	29.9
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0013	<0.001
0.00014	0.00012	0.00013	0.00015	0.00012	<0.0015	<0.0015	<0.0015	0.0083	0.0043	0.0033	<0.0003	<0.0003
<0.0002	<0.0002	0.00026	0.00034	<0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001
	<0.00002											
0.119	0.107	0.106	0.114	0.129	<0.03	<0.03	<0.03	0.191	0.063	<0.03	<0.03	<0.03
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0005	<0.0005
0.00516	0.00447	0.00455	0.0051	0.00502	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.005	<0.005
104	105	103	103	102	46.9	36.9	109	116	118	121	14.7	13.1
0.306	0.292	0.303	0.283	0.291		0.656	0.242	3.87	2.19	1.5	0.0117	0.0319
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00002	<0.00002
0.0492	0.0464	0.0465	0.0505	0.0464	0.0152	0.0376	0.0703	0.0726	0.0862	0.102	0.0494	0.0511
0.00099	0.00068	0.00069	0.00122	0.00129	<0.005	<0.005	0.0565	0.0435	0.016	0.0189	<0.001	<0.001
<0.05	<0.05	<0.05	<0.05	<0.05								
18.5	18.3	17.1	19.1	18.4	42.4	39.3	26	36.6	29.8	32.4	2.1	2
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0056	0.004
9.6	9.68	9.47	9.66	10.1								
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00002	<0.00002
63.3	58.9	61.5	60.8	64.6	379	341	217	344	218	208	91.6	90
0.708	0.798	0.826	0.895	0.852								
142	152	150	149	156								
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0002	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01
0.00283	0.00269	0.00271	0.00301	0.0028	<0.001	0.0021	0.0017	0.0057	0.0046	0.0037	0.00414	0.00257
<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0012	0.002
0.0018	0.0018	<0.001	0.0064	0.0018	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.013	0.0129	0.0182	0.0513	0.0218	1.6	0.678	3.43	1.68	17.3	7.27	1.77	0.24
0.00016	<0.0001	<0.0001	0.00018	0.00016	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	0.0012	0.0007
0.00576	0.00563	0.00555	0.00577	0.00579	0.012	0.0226	0.0029	0.0035	0.0096	0.0061	0.0154	0.029

Baseline Data for Groundwater

0.0274	0.0275	0.0262	0.0288	0.0282	0.195	0.159	0.223	0.112	0.439	0.211	0.098	0.032
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005								
0.042	0.034	0.038	0.038	0.034	0.13	0.11	<0.1	0.12	0.12	0.12	0.2	0.2
<0.00004	<0.00003	<0.00004	0.00005	0.000049	0.000162	0.000197	0.000136	0.000159	0.00123	0.00055	0.000046	<0.0003
74.6	76	71.1	74.9	73.9	96.8	82.6	267	198	224	194	38.6	31.5
0.00021	0.00012	0.00027	0.00067	0.00028	0.02	0.0604	0.017	0.0052	0.0648	0.0257	0.0029	0.0012
0.00017	0.00016	0.00015	0.0002	0.00018	0.0027	<0.0015	0.0056	0.0104	0.0294	0.0161	0.00128	0.00067
<0.0005	0.00055	0.0009	0.00238	0.00081	0.0124	0.0052	0.0406	0.0217	0.213	0.0913	0.0166	0.0011
0.137	0.136	0.145	0.207	0.176	2.45	1.26	6.41	2.97	27.7	11.1	2.58	0.461
<0.00005	<0.00005	<0.00005	0.000057	<0.00005	<0.0025	<0.0025	<0.0025	<0.0025	0.0064	0.0028	<0.0005	<0.0005
0.00523	0.0052	0.00487	0.00477	0.00516	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.005	<0.005
105	101	98.7	102	101	48.6	37.4	107	115	134	129	15.2	13.6
0.313	0.303	0.299	0.292	0.303	2.94	0.702	0.357	3.84	2.8	1.93	0.0652	0.051
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	0.000052	<0.00001	<0.00002	<0.00002
0.0516	0.0491	0.049	0.0503	0.0498	0.0394	0.0459	0.0591	0.0727	0.0948	0.101	0.0463	0.0509
0.00121	0.00084	0.00088	0.00176	0.00124	0.0239	0.0308	0.0784	0.0506	0.0921	0.0579	0.0029	0.0013
<0.05	<0.05	<0.05	<0.05	<0.05								
19.2	18.5	17.3	18.6	18.2	40.3	37.5	25.7	34	30.3	33.9	2.3	2.1
<0.0001	0.00013	<0.0001	<0.0001	<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0047	0.0046
9.75	9.74	9.36	9.83	10.1								
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	0.00015	<0.0001	<0.00002	<0.00002
64.2	63.2	63.1	62.3	64.2	368	333	222	325	204	216	86.3	91
0.717	0.838	0.83	0.85	0.898								
151	157	154	155	157								
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0002	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	<0.0025	0.0035	<0.0025	<0.0025	<0.0025	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	0.078	0.036	0.238	0.134	1.22	0.545	0.116	0.017
	<0.00002											
0.00287	0.00271	0.00273	0.00283	0.00285	<0.001	0.0021	0.0021	0.0058	0.0054	0.0041	0.00407	0.0028
<0.001	<0.001	<0.001	<0.001	<0.001	0.0066	<0.005	0.0161	0.0093	0.0907	0.039	0.0095	0.0029
<0.003	<0.003	<0.003	0.0087	0.0036	<0.005	<0.005	0.0142	<0.005	0.0612	0.0243	<0.005	<0.005
2.39					123	14.1	10.3	26.4	9.22	8.88	3.73	2.75
2.18	2.16	2.37	2.18	2.26								
L1392959	**L1430651**	**L1452371**	**L1470495**	**L1517413**	**L678833**	**L710078**	**L623639**	**L678833**	**L710078**	**L894378**	**L623639**	**L655304**

Baseline Data for Groundwater

AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D
7-Sep-08	19-Nov-08	31-May-10	24-Aug-10	24-Nov-10	29-Mar-11	19-May-11	25-Jul-11	9-Dec-12	3-Mar-13	28-May-13	12-Aug-13	15-Nov-13
671	996	530	521	497	530	545	583	447	448	567	613	681
	10.5	12.7	1	6.8	9	11	8.4	1.2	14.5	3.9	2.3	2.3
	1.25	1.38	0.11	0.79	1.02	1.17	0.92	0.15	1.71	0.45	0.25	0.28
8.22	8.64	7.97	7.12	7.55	7.99	7.14	8.14	8.04	8.18	8.01	7.97	8.11
-93.3	-93.8		-66	151	-33.2	-16.4		177	-91.3	-178	52.2	0.443
						0.36		0.33	0.34	0.4	0.4	0.33
	1476	721	698	723	753	736	796	677	688	815	818	438
9.88	7.98	11.1	11.7	8.65	9.49	11.3	11	7.07	6.68	9.02	11.9	6.21
			453	470	490			440	446	530	532	-140000
						20.8	0	-1.8	113	0	1	1.3
2.2	1.1	2	2.5	1.7	3.9	1.5	4.8	2.7	3.1			
91.8	94.9	109	109	107	123	126	125	112	159	115	122	117
91.8	94.9	109	109	107	123	126	125	112	159	115	122	117
1	1	1	1	0.5	1	1	1	1	1	1	1	1
2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
152	149	160	173	166	181	194	191	176	177	183	178	172
1	1	1	1	0.5	1	1	1	1	1	1	1	1
8.13	8.14	8.2	8.17	8.21	7.94	8.14	8.03	8.24	8.21	8.21	8.1	8.17
690	676	686	695	700	741	761	785	727	727	736	748	731
456	449	472	468	464	497	517	521	495	476	486	518	495
1.5	79	13.5	17	12.5	1.5	4.6	1.5	1.5	1.5	1.5	1.5	
1.74		4.96	2.72	7.89	2.7	1.91	0.61	0.62	0.39	0.26	0.37	
<0.05	<0.05	<0.05	<0.5	<0.05	0.6	<0.25	<0.25	<0.5	<0.05	<0.5	<0.25	<0.25
1.56	1.39	1.72	2.5	1.96	2.5	4.1	3.5	2.5	2.13	2.5	1.25	3.3
0.328	0.326	0.303	0.26	0.306	<0.2	0.24	0.4	0.26	0.309	0.25	0.34	0.28
247	234	239	252	237	249	259	278	265	258	270	265	278
0.031	<0.005	<0.02	0.0123	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0105
<0.005	<0.005	<0.005	<0.05	<0.005	<0.05	<0.025	<0.025	<0.05	<0.005	<0.05	<0.025	<0.025
<0.001	<0.001	<0.001	<0.01	<0.001	<0.01	<0.005	0.006	0.012	<0.001	<0.01	<0.005	<0.005
						0.12	0.13	0.143	0.06			
0.094		0.125	0.459	0.084	0.129	0.15	0.114	0.081	0.082	0.085	0.082	0.087
0.0105	0.0109	0.005	0.0076	0.0041	<0.001							0.0076
	0.0189		0.0076			0.0046	0.0111	0.0096	0.0082	0.0101	0.0113	0.0094
0.0178	0.09	0.0249	0.0129	0.0329	0.023	0.0086	0.0156	0.0143	0.0109		0.0124	0.0119

Baseline Data for Groundwater

<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	0.0056	<0.005	<0.005	<0.005	<0.01	<0.01	0.0056	0.0026	0.0021	0.0019	0.0023	0.002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.0334	0.025	0.0241	0.0223	0.0213	0.0215	0.0199	0.0202	0.0141	0.0176	0.0152	0.0161	0.0148
0.021	0.032	<0.02	0.024	0.023	<0.02	<0.02	0.024	0.0228	0.0184	0.0201	0.0201	0.02
<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
					<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.22	0.22	0.23	0.24	0.25	0.24	0.25	0.25	0.221	0.217	0.209	0.184	0.206
<0.000017	<0.00041	<0.0002	<0.00015	<0.00015	<0.00018	<0.000034	<0.0002	0.000013	<0.00001	<0.00001	0.000013	<0.00001
34.8	34	37.1	39.7	37.7	41.3	44	44.1	40.7	40.6	42.1	41.2	40.1
<0.001	<0.001	0.0011	<0.001	0.0017	<0.002	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0006	<0.0006	<0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.001	<0.001	<0.002	<0.001	<0.001	<0.002	<0.002	<0.003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.03	0.033	0.045	0.036	0.04	0.043	0.039	0.064	0.062	0.07	0.066	0.059	0.083
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	0.00308	0.00324	0.00294	0.00287	0.00309
15.9	15.6	16.4	18.1	17.5	19	20.4	19.6	18.1	18.3	18.8	18.2	17.4
0.0758	0.107	0.0704	0.0743	0.0822	0.0592	0.072	0.103	0.0832	0.08	0.0904	0.101	0.0971
<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0468	0.0478	0.0422	0.0385	0.04	0.0409	0.0394	0.0393	0.0426	0.0413	0.0421	0.0431	0.0427
<0.001	<0.001	0.0011	<0.001	0.0013	<0.002	<0.002	<0.001	0.00076	<0.0005	<0.0005	<0.0005	<0.0005
					<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05	<0.05
1	1	1	1	1	1	1	1	1.36	1.38	1.45	1.35	1.36
<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
					5.15	5.14	5.08	4.97	5	5.08	4.89	5.13
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004	<0.00004	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
87.2	83.7	91.2	97	97.3	100	102	95.6	93.3	87.5	84.7	89.7	87.6
					1.03	1.11	1.03	1.06	0.917	0.933	0.958	0.96
								89.5	86.5	86.6	82.7	93.8
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0004	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00191	0.00188	0.00106	0.00104	0.00096	0.00108	0.00104	0.00092	0.000514	0.000564	0.00053	0.000522	0.000478
<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.005	<0.005	<0.005	<0.005	0.0083	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	0.0012
0.0236	1.02	0.199	0.179	0.0603	0.011	0.268	0.0073	0.01	0.0053	0.0033	0.0048	0.0043
<0.0005	0.00105	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	0.00013	0.00018	0.00012	<0.0001	0.0001
0.036	0.024	0.0231	0.0205	0.0215	0.0208	0.0194	0.0187	0.0147	0.0175	0.016	0.0158	0.0153

Baseline Data for Groundwater

0.022	0.065	0.027	0.027	0.02	<0.02	0.02	0.024	0.023	0.019	0.0211	0.0203	0.0189
<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
					<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.22	0.22	0.23	0.24	0.24	0.24	0.26	0.26	0.232	0.228	0.225	0.207	0.22
0.000041	<0.00041	<0.0002	<0.0002	<0.00016	<0.00024	0.000051	<0.0003	0.000026	0.000016	0.000017	0.000017	<0.00002
35.3	41.8	37.7	39.7	36.6	40.9	45.4	43.3	41.4	40.4	41	41.8	40.5
0.0066	0.0922	0.0045	0.0018	0.0027	<0.002	<0.002	<0.001	0.00022	0.00012	0.00012	0.0002	<0.0001
0.00039	0.00184	0.00036	<0.0003	0.00031	0.00398	<0.0006	<0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.001	0.0119	<0.02	<0.004	<0.001	<0.002	<0.002	<0.002	0.00055	<0.0005	<0.001	<0.0005	<0.0005
0.08	1.65	0.26	0.216	0.122	0.065	0.191	0.092	0.103	0.092	0.076	0.084	0.092
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.005	0.00366	0.00317	0.00303	0.00309	0.00319
16.3	16.4	16.2	17.8	17.5	18.7	20.8	19.7	18.6	18.3	18.9	18.6	17.9
0.0773	0.157	0.0984	0.0922	0.0612	0.0604	0.0761	0.107	0.096	0.0858	0.0974	0.103	0.0987
<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0488	0.0487	0.0444	0.0426	0.0395	0.0425	0.0437	0.0425	0.0443	0.0442	0.0468	0.0466	0.0462
0.0039	0.0472	0.0037	0.0017	0.0024	<0.002	<0.002	<0.001	0.0011	0.00052	<0.0005	<0.0005	<0.0005
					<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05	<0.05
1	1	1	1	1	1	1	1	1.41	1.41	1.56	1.4	1.44
0.0011	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
					5.13	6.13	5.07	5.03	5.01	5.09	5.01	5.15
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000087	<0.00004	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
89.4	82.4	89.6	95.2	97.9	99.1	103	96	95.1	87.8	88.1	89.9	90.1
					1.02	1.13	1.05	1.06	0.958	0.96	1.03	0.974
								91.5	88.5	87.5	87	97.9
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0004	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0005	0.00069	0.00093	0.00095	<0.0005	<0.001	<0.001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	0.053	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00198	0.00213	0.00121	0.0012	0.00104	0.00114	0.00121	0.00087	0.00052	0.000608	0.000564	0.000543	0.000495
0.0011	0.0042	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.005	<0.005	<0.005	0.0099	0.007	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
4.12	2.91	2.66	2.66	4.19	4.6	4.14	2.87	2.94	2.93	2.52	2.91	2.75
						3.43	2.79	2.54	2.81	2.47	2.8	2.35
						0.12	0.123	0.128	0.055			
						0.15	0.113	0.081	0.082			
L679955	**L710078**	**L892818**	**L924086**	**L957406**	**L990459**	**L1007395**	**L1036787**	**L1249108**	**L1275064**	**L1308855**	**L1346553**	**L1394041**

Baseline Data for Groundwater

AJGW06-D	AJGW06-D	AJGW06-D	AJGW06-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D
9-Mar-14	27-May-14	25-Jun-14	7-Sep-14	27-Apr-08	11-Jul-08	2-Sep-08	19-Nov-08	1-Jun-10	24-Aug-10	23-Nov-10	28-Mar-11	18-May-11
706	515	522	535		733		1052	688	659	629	626	615
5.6	3.7	4.9			56.4		20.7	7.5	1.6	32.2	10	2.6
0.65	0.42	0.59			5.92		2.36	0.79	0.18	3.6	1.11	0.29
8.07	8.22	8.06	8.01		7.68	7.58	8.34	7.59	7.24	7.81	7.62	7.68
-89.9	-103	-141	-134		-79.1	-60.4	-83.7	-97.5	-130	-113	-71.6	144
0.35	0.37	0.36	0.37									0.42
481	748	744	790		966	911	1493	903	886	902	868	841
8.44	8.74	9.35	10		12.4	10.6	9.58	12.5	11.6	9.19	10.4	10.9
459	486	483	487						757	586	575	546
1.6	6.2	1.5	2									2.5
				4.2	2	3.8	3.9	1.8	4.2	3.9	5.7	4.1
106	108	112	113	217	208	214	224	228	218	211	227	230
106	108	112	113	217	208	214	224	228	218	211	227	230
1	0.5	0.5	0.5	1	1	1	1	1	1	0.5	1	1
				2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
177	181	179	172	449	426	443	423	416	436	408	407	413
1	0.5	0.5	0.5	1	1	1	1	1	1	0.5	1	1
8.25	7.88	8.14	8.18	8.09	8.18	8.1	7.87	8.19	8.12	8.1	8.01	8.08
728	735	739	756	935	918	910	919	857	888	890	859	865
509	486	500	508	641	653	645	641	623	641	612	609	611
	1.5	1.5	1.5	79.5	7.3	1.5	71	6	4	1.5	1.5	1.5
	0.31	0.44	0.53	84	7.21	3.14		4.6	6.44	8.67	3.86	7.16
<0.5	<0.05	<0.05	<0.5	<0.05	<0.05	<0.05	<0.05	<0.25		<0.5	0.65	<0.25
2.5	2.51	2.67	2.5	5.85	5.94	5.7	5.86	4.3		2.5	6.8	5.8
0.45	0.299	0.3	0.041	0.21	0.167	0.174	0.151	0.16		<0.2	<0.2	0.15
274	258	260	277	288	289	283	273	258		264	251	262
<0.005	<0.005	<0.005	<0.005	0.03		<0.02	0.0131	<0.02	<0.005	<0.005	<0.005	<0.005
<0.05	<0.005	0.0102	<0.05	0.0724	0.0264	0.0413	<0.005	<0.025		<0.05	<0.05	<0.025
<0.01	<0.001	<0.001	<0.01	<0.001	0.0021	<0.001	0.0012	<0.005		<0.01	<0.01	<0.005
												0.11
0.085	0.075	0.109	0.117	0.159		<0.05		<0.05	<0.05	<0.05	0.065	0.091
0.0079	0.0093	0.0093	0.0103	0.0075	0.005	0.0029	<0.001	0.0015	0.0012	0.0021	0.0017	<0.001
0.0095	0.0087	0.0107	0.0115				<0.002		0.0025			0.0022
0.0116	0.0106	0.0129	0.0136	0.0909	0.0189	0.0085	0.11	0.0168	0.0108	0.0127	0.0095	0.0129

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005
0.0013	0.0023	0.0015	0.0018	<0.01	<0.01	<0.005	<0.005	<0.01	<0.005	<0.01		<0.01
<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.001		<0.001
0.0152	0.0153	0.0152	0.0142	0.0016	0.0021	0.00193	0.00114	<0.001	0.00129	0.0013		0.0013
0.0179	0.0175	0.019	0.0201	0.05	0.051	0.037	0.044	0.036	0.037	0.038		0.033
<0.0001	<0.0001	<0.0001	<0.0001	<0.002	<0.002	<0.001	<0.001	<0.002	<0.001	<0.002		<0.002
<0.0005	<0.0005	<0.0005	<0.0005									<0.2
0.186	0.227	0.213	0.217	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1
<0.00002	0.000011	<0.00005	<0.00001	<0.000034	<0.000034	<0.000017	<0.00031	<0.0004	<0.00025	<0.000034		<0.000034
41.6	41.5	41.1	40	100	92.3	97.7	92.4	90.5	94.2	88.8		89.6
<0.0001	<0.0001	<0.0001	<0.0001	<0.002	<0.002	<0.001	<0.001	<0.002	<0.001	<0.002		<0.002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0006	0.00076	<0.0003	<0.0003	<0.0006	<0.0003	<0.0006		<0.0006
<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.002	<0.001	<0.001	<0.002	<0.001	<0.002		<0.002
<0.00002		<0.00002										
0.066	0.064	0.075	0.081	0.094	0.229	0.219	0.787	0.339	0.581	0.328		0.613
<0.00005	<0.00005	<0.00005	<0.00005	<0.001	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.001		<0.001
0.00316	0.00277	0.00297	0.00297	<0.01	<0.01	0.0056	0.0053	<0.01	<0.005	<0.01		<0.01
17.8	18.7	18.6	17.4	48.1	47.6	48.2	46.8	46.1	48.8	45.2		45.9
0.0809	0.0852	0.0978	0.102	0.0874	0.209	0.0931	0.138	0.0867	0.0979	0.0839		0.079
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001		<0.00001
0.0398	0.0411	0.0407	0.0405	0.11	0.0794	0.0722	0.0682	0.0797	0.0667	0.0715		0.0693
<0.0005	<0.0005	<0.0005	<0.0005	0.0049	0.0048	0.0031	0.0028	0.0042	0.0015	<0.002		<0.002
<0.05	<0.05	<0.05	<0.05									<0.3
1.39	1.34	1.38	1.21	7.9	8	8.2	8.9	7.7	8.5	8.4		7.6
<0.0001	<0.0001	<0.0001	<0.0001	0.0234	0.0227	0.0312	0.0255	0.0301	0.0061	0.0203		0.0058
5.12	5.1	5.04	4.73									6.99
<0.00001	<0.00001	<0.00001	<0.00001	<0.00004	<0.00004	<0.00002	<0.00002	<0.00004	<0.00002	<0.00004		<0.00004
89.4	90.4	86.7	94.5	40.6	41.7	39.3	41.6	39.5	42.3	42.5		41.5
0.937	0.968	1.01	0.972									0.591
91.9	90.2	88.4	94.3									
<0.00001	<0.00001	<0.00001	<0.00001	<0.0004	<0.0004	<0.0002	<0.0002	<0.0004	<0.0002	<0.0004		<0.0004
<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.001		<0.001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01
0.000441	0.0005	0.000514	0.00043	0.00206	0.00144	0.00141	0.00138	0.00138	0.00088	0.00107		0.00091
<0.001	<0.001	<0.001	<0.001	0.0027	0.0022	0.003	0.0019	<0.002	0.0013	<0.002		<0.002
<0.001	<0.001	0.0017	0.0023	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0102		<0.005
<0.003	0.0072	0.0052	0.0138	1.65	0.073	<0.022	0.182	0.065	0.0063	<0.01	0.0076	<0.01
<0.0001	<0.0001	<0.0001	0.00012	<0.001	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001
0.0152	0.0154	0.0155	0.0148	0.0033	0.0023	0.00191	0.00291	0.0013	0.00128	0.0014	0.00122	0.0014

Baseline Data for Groundwater

0.0181	0.0179	0.0193	0.0211	0.072	0.054	0.037	0.056	0.037	0.037	0.036	0.034	0.035
<0.0001	<0.0001	<0.0001	<0.0001	<0.002	<0.002	<0.001	<0.001	<0.002	<0.001	<0.002	<0.001	<0.002
<0.0005	<0.0005	<0.0005	<0.0005								<0.2	<0.2
0.199	0.213	0.232	0.225	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
<0.00003	0.000014	<0.00005	0.00002	0.000067	<0.000034	0.000019	<0.00041	<0.0004	<0.0003	<0.000034	0.000035	<0.000034
41.5	41.7	40.7	43.5	97	92.4	94.8	86.1	88.1	92.1	84.7	88.1	92.9
<0.0001	0.00013	<0.0001	0.00019	0.0059	<0.002	<0.002	0.0097	0.0052	<0.001	<0.002	<0.001	<0.002
<0.0001	<0.0001	<0.0001	<0.0001	0.00215	0.00094	<0.0003	0.00065	0.0007	<0.0003	<0.0006	<0.0003	<0.0006
<0.0005	<0.0005	<0.0005	<0.0005	0.0225	0.0059	0.0069	0.0303	0.0051	0.0045	0.0054	<0.0045	0.0036
0.076	0.089	0.087	0.123	3.15	0.703	0.38	8.88	0.606	0.665	0.84	0.497	0.769
<0.00005	<0.00005	<0.00005	<0.00005	<0.001	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001
0.00325	0.0025	0.00311	0.00281	<0.01	<0.01	0.0058	0.0052	<0.01	<0.005	<0.01	<0.005	<0.01
17.9	18.6	18.7	19.7	48	47.7	47.7	46.2	45.5	48	44.3	44.6	48.3
0.0903	0.0925	0.0988	0.113	0.156	0.215	0.1	0.212	0.102	0.107	0.0819	0.0622	0.0826
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0422	0.0407	0.0412	0.0429	0.104	0.0789	0.0749	0.0655	0.0835	0.0723	0.0699	0.0729	0.0758
<0.0005	<0.0005	<0.0005	<0.0005	0.0131	0.0058	0.0048	0.0096	0.0061	0.002	<0.002	0.0019	<0.002
<0.05	<0.05	<0.05	<0.05								<0.3	<0.3
1.41	1.31	1.39	1.39	8.1	8.1	8.2	9.1	7.6	8.3	8.2	7.7	7.9
<0.0001	<0.0001	<0.0001	<0.0001	0.0218	0.0236	0.0241	0.0113	0.0206	0.0046	0.0205	0.0148	0.0055
5.1	5.13	5.08	5.36								7.23	7.22
<0.00001	<0.00001	<0.00001	<0.00001	<0.00004	<0.00004	<0.00002	<0.00002	<0.00004	0.000028	<0.00004	<0.00002	<0.00004
93.3	92.2	90	94	39.2	42	39.6	43.1	39.2	41.8	41.4	41.4	43.3
0.963	0.958	1.01	0.987								0.586	0.62
93.8	89.6	89.2	96.6									
<0.00001	<0.00001	<0.00001	<0.00001	<0.0004	<0.0004	<0.0002	<0.0002	<0.0004	<0.0002	<0.0004	<0.0002	<0.0004
<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001
<0.01	<0.01	<0.01	<0.01	0.119	<0.01	<0.01	0.019	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00002		<0.00002										
0.000469	0.000499	0.000521	0.000457	0.00215	0.00143	0.00145	0.00099	0.00153	0.00103	0.00105	0.00117	0.00101
<0.001	<0.001	<0.001	<0.001	0.0111	0.0028	0.0036	0.0094	<0.002	0.0016	<0.002	0.0016	<0.002
<0.003	<0.003	<0.003	<0.003	0.0064	<0.005	<0.005	<0.005	<0.005	<0.005	0.0098	<0.005	<0.005
				2.1	1.95	1.59	1.93	1.51	1.51	1.22	1.53	0.97
2.18	2.51	2.46	2.83									0.85
												0.11
												0.11
L1430651	**L1461077**	**L1478436**	**L1514758**	**L623639**	**L655304**	**L678594**	**L710078**	**L892818**	**L924086**	**L957406**	**L990458**	**L1007006**

Baseline Data for Groundwater

AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-D	AJGW07-S
22-Jul-11	24-Oct-11	10-Feb-12	7-Jun-12	26-Aug-12	7-Dec-12	6-Mar-13	23-May-13	14-Nov-13	8-Mar-14	7-May-14	11-Jun-14	28-Apr-08
689	864	631	975	887	605	541	639	902	903	609	583	
	1.6	3.4	21.9		4.4	1.6	1.6	2.6	1.2	17.7	0.2	
	0.18	0.39	2	2.12	0.48	0.18	0.18	0.3	0.14	1.98	0.02	
8.16	7.92	8.04	7.98	7.89	7.94	8.33	8.17	8.19	8.17	6.93	8.29	
		-294		-165	-232	-213	-240	239	-106	-183	-213	
		0.45		0.4	0.41	0.38	0.44	0.45	0.45	0.42	0.39	
961	875	911	729		847	770	894	604	631	847	791	
10.3	9.98	8.91	11.4	14.8	10.5	9.24	10.1	9.81	9.31	10.3	11.3	
		592		568	544	501	581	538	585	551	515	
	-1.4	2	0	0	-1	2.1	0	6.3	5.6	-1.7	-3.6	
1.8	2			2.8			0.5			1.6		4.7
220	232	225	219	218	222	231	207	216	211	209	182	230
220	232	225	219		222	231	207	216	211	209	178	230
1	1	1	0.5		1	1	0.5	1	0.5	1	4.7	1
2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5					2.5
415	413	410	398	374	403	402	408	420	412	363	374	463
1	1	1	0.5		1	1	0.5	1	0.5	1	0.5	1
8.2	8.27	8.22	8.07	8.18	8.13	8.28	8.33	8.25	8.36	8.2	8.34	8.05
899	910	908	855	861	835	868	864	918	881	812	830	933
645	587	661	611	619	597	598	646	623	621	592	583	649
1.5	1.5	3.3	1.5	1.5	1.5	4.3	5.6			6.8	5	92
10.5	22.1	8.11	5.57	8.24	5.31	15.3	19.4			22.3	15.4	54.3
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.25	<0.05
5.6	2.5	5.3	5.2	13.8	2.5	2.5	6.8	6.3	2.5	5.3	7.4	6.63
0.25	<0.2	<0.2	<0.2	2.67	<0.2	0.29	<0.2	<0.2	0.38	<0.2	0.16	0.167
291	274	297	269	274	258	271	296	314	290	272	260	281
<0.005	0.0139	0.019	0.0064	0.0072	0.0067	0.0114	0.0085	0.0136	0.0101	0.0059	0.0064	<0.02
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.025	0.0383
<0.01	0.014	<0.01	<0.01	0.01	0.015	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	0.003
0.11	0.14	0.05	1.8		0.07	<0.05						
0.11	0.153	0.121	0.082	0.066	0.077	0.078	0.062	0.077	0.066	0.069	0.092	0.101
<0.001	0.0026			<0.001				<0.001	0.0021	<0.001	<0.001	0.017
<0.002	0.0036	0.0141	0.0047		0.0053	<0.002	<0.002	<0.002	0.0038	0.0026	<0.002	
0.0108	0.0378	0.0447	0.035	0.0237	0.0228	0.0271	0.0326	0.0297	0.0347	0.0298	0.0293	0.0973

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.003	<0.003	0.0012	0.0012	<0.001	0.0034	<0.001	0.0016	0.001	0.0015	0.0015	<0.01
<0.0005	0.00014	0.00025	0.00021	<0.0001	0.00019	<0.0001	<0.0001	<0.0001	0.00011	<0.0001	<0.0001	<0.001
0.0012	0.00047	0.00129	0.00117	0.00071	0.00121	0.0005	0.00057	0.00052	0.0006	0.0006	0.00069	0.0024
0.034	0.0433	0.0509	0.0441	0.0403	0.0405	0.0386	0.0414	0.0418	0.0408	0.0382	0.0376	0.043
<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.002
<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
<0.1	0.092	0.108	0.095	0.079	0.095	0.103	0.084	0.103	0.098	0.092	0.089	<0.1
<0.000017	<0.000015	<0.00003	<0.00005	<0.00005	0.000015	<0.00005	<0.00005	<0.00002	<0.00003	<0.00003	<0.00005	<0.000034
90.2	86.1	86.6	83.3		84.1	83.6	84	86.1	83.4	67.1	71.5	105
<0.001	0.00014	0.00023	0.00015	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.002
<0.0003	<0.0001	0.00013	0.00018	<0.0001	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0006
<0.001	<0.0005	<0.0005	0.00028	0.00022	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0022
									<0.00002		<0.00002	
0.835	0.841	0.42	0.545	1.19	0.612	1.45	2.05	2.05	1.33	2.13	1.93	<0.03
<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.001
<0.005	0.00525	0.00598	0.0057	0.0045	0.00544	0.0058	0.00442	0.00539	0.00613	0.00418	0.00454	<0.01
46.1	48	47.1	46.1		46.9	46.8	48.2	49.8	49.5	47.5	47.5	48.8
0.104	0.159	0.19	0.127	0.144	0.107	0.141	0.234	0.237	0.189	0.21	0.215	0.0501
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00002
0.0718	0.0537	0.0746	0.0771	0.0617	0.0772	0.0676	0.0724	0.0733	0.0758	0.0804	0.0952	0.0981
<0.001	<0.0005	0.00095	0.00218	0.001	0.00091	0.00071	0.00074	<0.0005	<0.0005	<0.0005	<0.0005	<0.002
<0.3	<0.3	<0.3	<0.3		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
8	8.65	8.9	8.04	7.94	8.45	8.59	8.2	8.68	9.02	7.75	8.67	6.9
0.0033	0.0169	0.0236	0.0163	0.00039	0.0205	0.00012	<0.0001	0.00322	0.00876	0.0001	<0.0001	0.0179
6.52	6.57	6.92	6.96		6.99	5.78	5.24	5.87	6.05	4.54	4.54	
<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00004
38.6	42.2	46.6	42.3	42.5	41.8	42.9	42.1	42.8	46.6	42.8	38.4	34.5
0.586	0.63	0.674	0.621	0.604	0.585	0.609	0.664	0.647	0.676	0.582	0.597	
					84	87.5	88.6	95.9	98.2	89.5	87.8	
<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0004
<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001
<0.01	0.012	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00079	0.000663	0.000999	0.000997	0.00027	0.00105	0.000245	0.000179	0.000472	0.000471	0.000146	0.000123	0.00243
0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0023
<0.005	<0.003	<0.003	<0.001	<0.001	0.0018	<0.001	<0.001	<0.001	0.0013	<0.001	<0.001	<0.005
<0.005	0.0118	0.0059	0.0061	0.0075	<0.003	0.0109	0.0092	0.009	0.0049	0.0068	0.011	2.16
<0.0005	0.00025	0.00028	0.00024	0.00013	0.0002	0.00011	0.00011	0.00014	0.00014	<0.0001	0.00011	<0.001
0.00132	0.00076	0.00142	0.00139	0.00073	0.00127	0.00058	0.00065	0.00056	0.00082	0.00062	0.00077	0.0037

Baseline Data for Groundwater

0.036	0.0449	0.0517	0.047	0.0393	0.0414	0.0405	0.0422	0.0432	0.0414	0.0369	0.0382	0.07
<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.002
<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
<0.1	0.1	0.116	0.105	0.087	0.094	0.108	0.094	0.113	0.102	0.094	0.097	<0.1
<0.00004	<0.00006	<0.00006	<0.00005	<0.00005	0.000022	<0.00005	<0.00005	<0.00003	<0.00005	<0.00003	<0.00005	0.00009
92.9	86.3	86.4	91.3		85.1	84.4	83.7	86.1	83.4	70.3	69.5	103
<0.001	0.00055	0.00098	0.0011	0.00087	0.00042	0.00028	0.00025	0.00031	0.00017	0.00014	0.00017	0.0055
<0.0003	0.00012	0.00016	0.00021	0.00011	0.00011	<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.0001	0.00245
0.0033	0.00226	0.00185	0.00311	0.00527	0.00265	0.00363	0.00189	0.00212	0.00182	0.00126	0.00085	0.0306
1.03	1.32	0.647	0.775	1.24	0.768	1.58	2.13	2.18	1.86	2.37	2.08	3.28
<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	0.000072	<0.00005	<0.00005	0.000062	<0.00005	<0.00005	<0.00005	<0.001
<0.005	0.00536	0.0056	0.00588	0.0044	0.00549	0.00581	0.00474	0.00561	0.00606	0.00428	0.0045	<0.01
48.3	48.7	47.6	45.7		46.6	46.9	47.9	50	47.1	46.4	46.7	49.4
0.112	0.174	0.203	0.137	0.145	0.11	0.149	0.245	0.251	0.19	0.217	0.221	0.126
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
0.0722	0.0641	0.0785	0.0805	0.0639	0.0819	0.0686	0.0766	0.0807	0.0799	0.0849	0.102	0.0958
<0.001	0.00068	0.00143	0.00243	0.00135	0.00114	0.00137	0.00129	0.00082	0.00076	0.00062	<0.0005	0.0078
<0.3	<0.3	<0.3	<0.3		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
8.3	9.04	9.06	8.53	7.87	8.86	8.8	8.32	9.53	8.81	7.99	8.33	7.5
0.0032	0.0149	0.0191	0.0155	0.00063	0.0185	0.00024	0.00012	0.00276	0.00873	0.00018	<0.0001	0.0168
6.75	6.56	6.75	7.33		7.16	5.77	5.3	5.93	6.15	4.65	4.5	
0.000021	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00004
40.8	43.9	49.2	44.5	41.4	42.2	43.3	43.3	45.9	46.7	43.5	39.7	34.9
0.615	0.629	0.735	0.637	0.608	0.61	0.62	0.698	0.67	0.677	0.598	0.631	
					87.9	89.3	91.2	99.4	97.9	91.4	89.5	
<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0004
<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001
<0.01	0.013	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.185
									<0.00002		<0.00002	
0.00078	0.000626	0.001	0.00101	0.000276	0.0011	0.000235	0.000188	0.000511	0.000533	0.000169	0.000127	0.00252
0.0012	<0.001	<0.001	0.0012	<0.001	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0126
<0.005	<0.003	0.0159	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	<0.003	<0.003	<0.003	0.0066
1.26	2.4	1.87	16.3	3.85	1.52	1.74	1.67	1.62				2.18
1.1	2.44	2.13	1.78	1.86	1.5	1.58	1.44	1.58	1.62	1.45	1.67	
0.105	0.112	<0.05	1.79		<0.05	<0.05						
0.105	0.122	0.102	0.075			<0.05						
L1035635	**L1077032**	**L1113319**	**L1159973**	**L1200094**	**L1247459**	**L1276505**	**L1306577**	**L1392288**	**L1430651**	**L1452371**	**L1469742**	**L623639**

Baseline Data for Groundwater

AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S
11-Jul-08	2-Sep-08	19-Nov-08	1-Jun-10	24-Aug-10	23-Nov-10	28-Mar-11	18-May-11	22-Jul-11	25-Oct-11	10-Feb-12	7-Jun-12	26-Aug-12
714	659	1255	713	662	644	674	615	695	662	636	1001	921
25.7	29	23	5.8	6.1	11.8	7.3	4.3	0	14.7	7.1	15.5	
2.69	3.2	2.69	0.62	0.67	1.27	0.81	0.47	0	1.69	0.83	1.41	1.62
7.43	7.56	8.23	7.51	7.66	7.66	7.57		7.35	7.76	7.87	7.84	8.68
-65.6	-59	-79.9	-3.3	-30.1	94.5	-32				609		-132
								0.49		0.46		0.5
938	910	1763	947	901	924	931	848	990	939	937	722	
12.5	10.6	9.2	12.1	11.1	9.12	10.5	10.6	9.4	9.6	8.19	10.3	13.9
				586	600	605				12.8		591
								48	8.2	11.8	6.4	1
3.2	5.1	1.6	2.7	4.6	3.1	5.9	4.1	2.8	0.5			4
268	240	254	266	270	256	256	268	274	265	259	254	260
268	240	254	266	270	256	256	268	274	265	259	246	
1	1	1	1	1	1	1	1	1	1	1	8.7	
2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
427	451	433	436	452	430	429	441	441	441	426	425	409
1	1	1	1	1	1	1	1	1	1	1	0.5	
8.16	8.06	7.9	8.16	8.12	8.15	8.01	8.03	8.15	8.28	8.23	8.34	8.13
917	921	913	893	913	910	896	903	924	934	897	881	902
650	650	640	645	637	637	634	632	646	590	640	630	641
38.3	12.6	247	3.5	3	5.2	6	6.4	42.9	13.7	8.7	3.2	3.3
21.4	37.2		1.17	0.36	6.24	6.57	6.66	43.3	9.74	7.64	0.65	1.08
<0.05	<0.05	<0.05	<0.25	<0.5	<0.5	0.65	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5
4.92	5.18	4.89	3.8	5.7	2.5	6	5.3	2.5	2.5	5.9	7.9	14.5
0.199	0.194	0.187	0.2	<0.2	<0.2	<0.2	0.18	0.35	0.22	0.22	0.21	3.82
252	258	249	255	256	251	252	254	264	263	259	260	257
	<0.02	<0.005	<0.02	<0.005	<0.005	<0.005	<0.005	0.0098	0.0077	0.0056	<0.005	<0.005
<0.005	0.017	0.0174	0.025	<0.05	<0.05	<0.05	<0.025	0.078	<0.05	<0.05	<0.05	0.074
<0.001	<0.001	<0.001	<0.005	<0.01	<0.01	<0.01	<0.005	<0.01	0.012	<0.01	<0.01	0.01
							0.09	0.17	0.08	0.05	0.05	
	0.063		<0.05	0.051	0.055	0.057	0.076	0.092	0.071	0.051	0.076	0.061
0.0196	0.0173	0.0194	0.0281	0.0292	0.0263	0.0279	0.0283	0.03	0.0312			0.0302
		0.0186		0.029			0.029	0.0332	0.0359	0.031	0.0292	
0.0686	0.0369	0.282	0.033	0.0294	0.0349	0.0388	0.0449	0.087	0.0537	0.0457	0.0322	0.0329

Baseline Data for Groundwater

<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.01	<0.01	0.0778	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	<0.003	<0.003	0.0015	0.0013
<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	0.00022	0.00024	0.00024	0.00023
0.0028	0.0036	0.00407	0.0043	0.00394	0.0036	0.00385	0.004	0.00454	0.00436	0.00473	0.00393	0.00455
0.052	0.048	0.085	0.04	0.043	0.046	0.042	0.042	0.042	0.0388	0.0373	0.0361	0.037
<0.002	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.0001
						<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.066	0.07	0.066	0.062
<0.000034	<0.000034	<0.00051	<0.0004	<0.000017	<0.000034	0.000029	<0.000034	<0.00005	<0.00004	<0.00005	<0.00005	<0.00005
92.3	99.8	94.2	91.7	95.3	90.8	92.5	94.3	94.3	93.5	89.4	90.8	
<0.002	<0.002	<0.001	<0.004	<0.001	<0.002	0.0012	<0.002	<0.001	0.00015	0.00014	0.00022	0.00021
0.00115	0.00117	0.00133	<0.0006	<0.0003	<0.0006	<0.0003	<0.0006	<0.0003	<0.0001	<0.0001	<0.0001	<0.0001
0.0027	<0.002	0.0027	0.0022		0.0024	<0.0035	0.0026	0.0012	<0.0005	0.00119	0.00174	0.00166
<0.03	0.053	0.227	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.01
<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005
<0.01	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	0.00406	0.00415	0.00402	0.00348
47.6	49.1	48.1	50.2	52	49.3	48.1	49.9	49.9	50.5	49.2	48.2	
0.241	0.257	0.368	0.0375	0.0415	0.0573	0.0626	0.0748	0.0516	0.0614	0.0602	0.02	0.0336
<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.12	0.109	0.106	0.135	0.124	0.121	0.107	0.127	0.136	0.132	0.141	0.129	0.138
<0.002	0.0023	0.004	<0.002	0.001	<0.002	0.001	<0.002	<0.001	<0.0005	0.00064	<0.0005	<0.0005
						<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
7.5	7.5	8	7.6	8.6	7.7	7.6	7.6	8	7.52	7.68	7.07	7.32
0.0179	0.022	0.0266	0.0396	0.0326	0.0317	0.0305	0.0286	0.0248	0.0269	0.0252	0.0221	0.0238
						7.6	7.51	7.31	7.53	7.32	7.68	
<0.00004	<0.00004	<0.00002	<0.00004	<0.00002	<0.00004	<0.00002	<0.00004	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
42.9	41.2	41.9	44	46.9	43.7	44.7	45.8	43.5	42.8	45.2	40.8	42.5
						0.702	0.72	0.705	0.679	0.728	0.667	0.694
<0.0004	<0.0004	<0.0002	<0.0004	<0.0002	<0.0004	<0.0002	<0.0004	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001
<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	
0.00308	0.00288	0.00327	0.00422	0.00405	0.00345	0.00325	0.00363	0.00399	0.00399	0.00397	0.00343	0.0038
0.0026	0.0029	0.0027	0.0032	0.003	0.0029	0.0025	0.0028	0.0031	0.0032	0.0033	0.003	0.0031
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.001	0.001
0.71	0.79	2.58	0.03	0.0076	0.281	0.261	0.256	1.84	0.517	0.268	0.0369	0.0442
<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	0.00025	0.00023	0.00025	0.00025
0.003	0.0041	0.0045	0.0039	0.00359	0.0038	0.00317	0.0039	0.00557	0.00445	0.00458	0.00399	0.00442

Baseline Data for Groundwater

0.058	0.058	0.093	0.04	0.043	0.047	0.046	0.047	0.062	0.0449	0.04	0.037	0.0378
<0.002	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.0001
						<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.071	0.073	0.073	0.083
0.00006	0.000039	<0.00051	<0.0004	<0.000017	<0.000034	0.000038	<0.000034	<0.00008	<0.00005	<0.00007	<0.00005	<0.00005
91.1	103	93.2	88.9	93.1	90.4	92	96.2	97.8	91	90.2	98.5	
<0.002	0.0068	0.0115	<0.002	<0.001	0.0021	0.0012	<0.002	0.0042	0.00137	0.0009	0.00042	0.00052
0.00196	0.00239	0.00408	<0.0006	<0.0003	<0.0006	0.00046	<0.0006	0.00211	0.00061	0.0004	<0.0001	0.00011
0.0169	0.0172	0.0404	0.004	0.0034	0.0072	0.0066	0.0063	0.0217	0.00776	0.00683	0.00332	0.00275
0.963	0.919	4.02	0.049	<0.03	0.404	0.369	0.352	2.09	0.602	0.36	0.053	0.06
<0.001	<0.001	0.0006	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	0.000108	0.000072	<0.00005	<0.00005
<0.01	<0.01	0.0057	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	0.00435	0.00401	0.00419	0.00371
46.9	49.3	49.5	48.7	50.6	49.3	48.7	51.5	52.1	49.9	49.6	48.6	
0.268	0.304	0.303	0.0854	0.0542	0.152	0.0786	0.0925	0.154	0.129	0.0946	0.0302	0.0447
<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.121	0.108	0.107	0.138	0.134	0.124	0.116	0.137	0.138	0.131	0.145	0.137	0.142
0.0038	0.008	0.012	<0.002	<0.001	0.0023	0.0019	<0.002	0.0053	0.00164	0.00129	0.00053	0.00051
						<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	
7.4	7.4	8.6	7.6	8.5	7.8	7.8	7.9	8.5	7.67	7.72	7.27	7.29
0.0167	0.0218	0.0206	0.029	0.0255	0.029	0.0211	0.0243	0.0253	0.0244	0.022	0.0216	0.0213
						8.31	8.31	11.2	8.51	8.01	8.05	
<0.00004	<0.00004	0.000048	<0.00004	0.000021	<0.00004	<0.00002	<0.00004	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
41.9	40.4	41.2	43.2	45.9	44.5	44.9	47.1	45.5	43.4	45.6	42.3	42.3
						0.716	0.743	0.746	0.673	0.748	0.697	0.704
<0.0004	<0.0004	<0.0002	<0.0004	<0.0002	<0.0004	<0.0002	<0.0004	<0.0002	0.00001	0.000011	<0.00001	<0.00001
<0.001	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001
0.054	0.047	0.228	<0.01	<0.01	0.026	0.027	0.024	0.121	0.047	0.028	<0.01	
0.00312	0.00296	0.00352	0.00443	0.00451	0.00355	0.00341	0.00388	0.00425	0.00396	0.004	0.00361	0.004
0.0056	0.0064	0.0149	0.0034	0.0032	0.0044	0.0038	0.004	0.0102	0.0053	0.0045	0.0035	0.0033
<0.005	<0.005	0.0083	<0.005	<0.005	0.0089	<0.005	<0.005	0.0055	<0.003	0.0033	<0.003	<0.003
2.12	1.85	2.01	1.78	1.74	2.28	1.84	1.04	1.86	1.82	1.79	2.16	1.78
							1.08	1.9	1.75	1.34	1.55	1.7
							0.088	0.082	0.06	<0.05	<0.05	
							0.108	0.082	0.09	<0.06	0.076	
L655304	**L678594**	**L710078**	**L892818**	**L924086**	**L956921**	**L990458**	**L1007006**	**L1035437**	**L1077032**	**L1113319**	**L1159973**	**L1200094**

Baseline Data for Groundwater

AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	AJGW07-S	BGC14-001D	BGC14-001D	BGC14-001D	BGC14-001D	BGC14-001D	BGC14-002D	BGC14-002D
6-Mar-13	23-May-13	14-Nov-13	8-Mar-14	6-May-14	11-Jun-14	8-Mar-14	28-May-14	18-Jun-14	14-Jul-14	21-Aug-14	13-Mar-14	8-May-14
638	664	900	931	605	689	1060	719	677	699	719	1297	842
5.3	34.6	56.2	2.5	7.77	14.7	73.3	4.4	4.2	16.3	3.9	32.5	0
0.61	3.92	6.5	0.29	41.6	1.61	8.65	0.52	0.47	1.88	0.48	3.79	0
8.08	7.72	7.81	7.75	8.7	7.89	7.68	7.41	7.5	6.55	6.96	7.43	7.71
-104	90.4	0.587	57.6	51.2	-13	76	11.2	-39.4	22.9	-31.4	53.7	-44.5
0.45	0.46	0.45	0.46	0.42	0.47	0.53	0.52	0.48	0.49	0.52	0.65	0.61
915	930	637	657	892	939	716	1047	960	994	1052	889	1212
9.14	10	9.69	9.59	10.3	11.1	8	8.57	9.45	9.45	8.39	8.45	9.05
595	606	42500	605	546	610	689	681	624	646	684	843	788
4.4	35.9	6.2	1.6	5.73	8.7	4.8	6.5	-3.4	0	0	2.9	-2.4
	0.5			2.8								4.8
265	258	286	271	293	271	424	437	451	449	457	288	291
265	258	286	271	293	263	424	437	451	449	457	288	291
0.5	0.5	1	0.5	1	7.9	1	0.5	0.5	0.5	1	1	1
2.5	2.5										2.5	5.8
437	430	444	439	438	455	445	404	439	422	429	409	385
0.5	0.5	1	0.5	1	0.5	1	0.5	0.5	0.5	1	1	1
8.32	8.34	8.21	8.31	8.15	8.34	8.2	8.31	8.19	8.01	8.23	8.16	8.02
915	881	903	905	879	908	1050	1030	1020	1010	1010	1260	1230
628	650	608	611	632	640	653	618	635	604	614	854	862
3	1.5			3.5	3.6		1.5	1.5	1.5	1.5	1.5	3
1.98	0.97			1.81	1.33		0.47	0.54	0.65	0.8	1.99	0.61
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2.5	5.2	5.3	2.5	2.5	9.4	2.5	2.5	2.5	2.5	2.5	6.3	7.1
0.31	<0.2	0.2	0.37	0.2	0.22	0.34	0.22	0.255	0.232	0.216	0.43	0.31
264	262	246	247	248	254	185	154	150	147	142	419	405
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0757	0.0542	0.0547	0.0625	0.0523	0.199	0.211
<0.05	<0.05	<0.05	<0.05	<0.05	0.056	0.282	0.27	0.301	0.313	0.299	<0.05	<0.05
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	0.015	<0.01	<0.01	0.014	<0.01	<0.01
0.055												
0.071	0.06	0.071	0.066	0.079	0.101	0.249	0.178	0.186	0.137	0.189	0.371	0.349
		0.0301	0.034	0.035	0.0371	0.0058	0.0151	0.0151	0.0168	0.0175	0.0128	0.0212
0.032	0.0341	0.0313	0.0328	0.0354	0.0367	0.014	0.0163	0.0144	0.0203	0.0173	0.0215	0.0241
0.0349	0.0368	0.0343	0.0328	0.0396	0.0412	0.0069	0.0179	0.0204	0.0246	0.0223	0.014	0.0264

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0034	0.0015	0.002	0.0012	0.0027	0.0013	0.0052	0.0038	0.003	0.003	0.003	0.0042	0.0043
0.00026	0.00022	0.00024	0.00025	0.00027	0.00024	0.00025	0.00022	0.0002	0.00015	0.00014	0.00024	0.00031
0.00483	0.00454	0.00481	0.00475	0.00481	0.00478	0.00044	0.00047	0.00065	0.00068	0.00057	0.00077	0.00136
0.0359	0.0369	0.0347	0.0331	0.0356	0.0363	0.0329	0.0299	0.0299	0.0305	0.0294	0.027	0.0245
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.076	0.06	0.071	0.063	0.068	0.061	0.122	0.122	0.116	0.106	0.114	0.504	0.58
<0.00005	<0.00005	<0.00004	<0.00006	<0.00005	<0.0001	0.000072	0.000025	0.000023	0.000023	0.000017	0.000035	0.000021
93	90.5	91.7	93	92	97.4	60.6	57.1	60.2	58.6	57.7	64.4	63.1
0.00018	0.00028	0.00025	0.00016	0.00027	0.00023	0.00047	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00117	0.00125	0.00132	0.00121	0.00105	0.0017	0.00217
0.00122	0.00145	0.00179	0.00181	0.00228	0.00163	0.00219	0.00058	0.00043	0.00043	0.00045	0.00064	0.00033
			<0.00002		<0.00002							
<0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	0.012	0.038	0.051	0.057	<0.01	0.023
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00464	0.00376	0.00419	0.00456	0.00392	0.00359	0.0158	0.0141	0.0148	0.0147	0.015	0.00946	0.00826
49.8	49.5	52.1	50.2	50.6	51.3	71.3	63.6	70.2	66.9	69.3	60.4	55.3
0.0373	0.0188	0.0166	0.0222	0.00946	0.00973	0.208	0.296	0.345	0.334	0.313	0.408	0.672
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.145	0.136	0.125	0.124	0.128	0.128	0.0101	0.00984	0.00978	0.00814	0.00943	0.0116	0.0122
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00405	0.00282	0.0026	0.00229	0.00184	0.00507	0.00518
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
7.82	7.76	8.02	8.05	7.59	8.32	7.35	6.51	7.57	7.72	7.46	8.9	8.31
0.025	0.0234	0.0266	0.0273	0.0223	0.0229	0.0038	0.00344	0.00314	0.00291	0.00281	0.00019	0.00022
7.23	7.19	7.51	7.42	7.4	7.44	4.74	4.74	4.82	4.69	4.65	6.27	6.07
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
43.3	41.4	41.2	42.4	42.4	40.1	99.9	85.3	81.3	81.4	76.8	148	148
0.724	0.699	0.682	0.685	0.706	0.716	1.18	1.13	1.26	1.13	1.3	1.52	1.33
86	78.6	77.7	81.3	77.3	80.6	57.1	51.4	47.7	47.7	48.9	135	129
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000034	0.000031	0.000029	0.000027	0.000027	0.000041	0.000027
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00017	<0.0001	<0.0001	<0.0001	<0.0001	0.00017	0.00013
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0044	0.00391	0.00386	0.00387	0.00405	0.00398	0.00336	0.00327	0.00312	0.00247	0.00299	0.00267	0.00319
0.0031	0.0029	0.003	0.0033	0.003	0.0029	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.001	0.0011	<0.001	0.001	0.0041	0.0106	0.005	0.0016	0.007	0.0061	0.0055	0.003	0.0032
0.0714	0.0408	0.0089	<0.003	0.0886	0.0632	0.134	0.016	0.0198	0.0233	0.0278	0.102	0.0305
0.00029	0.00022	0.00029	0.00024	0.00029	0.00029	0.00027	0.00024	0.0002	0.00021	0.00015	0.00027	0.00035
0.00491	0.0047	0.00465	0.00448	0.00487	0.0048	<0.0005	0.00045	0.00074	0.00078	0.00057	0.00084	0.00151

Baseline Data for Groundwater

0.0388	0.0378	0.0352	0.0331	0.0371	0.0384	0.0352	0.0303	0.0311	0.031	0.0294	0.0285	0.0269
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.08	0.065	0.08	0.066	0.077	0.064	0.129	0.127	0.126	0.131	0.119	0.534	0.614
<0.00005	<0.00005	<0.00004	<0.00006	<0.00006	<0.0001	0.000074	0.000027	0.000025	0.000025	0.000022	0.000044	0.000028
95.9	91	91.5	88.9	91	93.5	61.9	57.5	58.7	56.7	57.4	64	62.8
0.00043	0.00045	0.00041	0.00026	0.00053	0.00066	<0.0009	0.00013	0.00016	0.00014	<0.0001	0.00063	0.00022
0.00017	0.0001	<0.0001	<0.0001	0.00022	0.00016	0.00125	0.00131	0.00135	0.00128	0.00105	0.00194	0.00234
0.00351	0.00287	0.00201	0.00185	0.00459	0.00404	0.00331	0.0008	0.00089	0.00097	0.00101	0.00148	0.00067
0.099	0.057	0.022	<0.01	0.12	0.091	0.146	0.027	0.06	0.072	0.09	0.129	0.055
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00468	0.00388	0.00448	0.00444	0.00416	0.0033	0.016	0.0145	0.0147	0.016	0.0148	0.00973	0.00837
50.5	49	51	46.7	48	50.5	68.1	64.9	69.8	67.2	69.1	60.8	53.4
0.0899	0.039	0.0182	0.0213	0.12	0.0607	0.203	0.303	0.354	0.364	0.33	0.429	0.72
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.157	0.14	0.137	0.127	0.135	0.127	0.011	0.01	0.0101	0.00999	0.00997	0.0126	0.0123
0.00059	<0.0005	<0.0005	<0.0005	0.0007	0.0007	0.00406	0.00305	0.00288	0.00244	0.00195	0.00598	0.00574
<0.05	<0.05	<0.05	<0.05	0.051	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8.1	7.98	8.6	7.73	7.32	8.15	7.44	6.68	7.42	7.75	7.49	8.8	8.14
0.0231	0.0226	0.0248	0.0236	0.0219	0.022	0.00325	0.00294	0.00282	0.00255	0.00245	0.00021	0.00016
7.54	7.44	7.59	7.16	7.41	7.5	5.13	4.79	4.87	4.8	4.68	6.42	6.03
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
45	42.3	43.4	41.9	41.8	41.5	101	86.2	82.5	82.9	77.1	151	156
0.733	0.71	0.694	0.681	0.727	0.716	1.23	1.15	1.24	1.3	1.28	1.55	1.32
88.5	80.4	81.8	80.9	80.4	83.4	61.1	52.4	50.7	50.1	48.9	141	128
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000036	0.000035	0.000032	0.000031	0.000032	0.00004	0.000026
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00035	0.0001	<0.0001	<0.0001	<0.0001	0.00023	0.00023
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			<0.00002		0.000029							
0.00444	0.00401	0.0041	0.00395	0.00421	0.00401	0.00364	0.00346	0.00322	0.0031	0.003	0.00295	0.00328
0.0037	0.0035	0.0033	0.0033	0.0037	0.0034	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.003	<0.003	<0.003	<0.003	<0.003	0.0122	0.0038	<0.003	0.0087	0.0083	0.0067	<0.003	<0.003
1.7	1.41	1.46										
1.52	1.29	1.29	1.39	1.39	1.6	2.19	1.54	1.51	1.31	1.08	2.76	2.84
0.05												
0.055												
L1276505	**L1306577**	**L1392288**	**L1430651**	**L1452371**	**L1469742**	**L1435486**	**L1455485**	**L1473799**	**L1486405**	**L1507004**	**L1432458**	**L1453027**

Baseline Data for Groundwater

BGC14-002D	BGC14-002D	BGC14-002D	BGC14-002S	BGC14-002S	BGC14-002S	BGC14-002S	BGC14-002S	BGC14-003D	BGC14-003D	BGC14-003D	BGC14-003I	BGC14-003I
16-Jun-14	10-Jul-14	14-Aug-14	8-Mar-14	8-May-14	12-Jun-14	9-Jul-14	14-Aug-14	25-Jun-14	15-Jul-14	25-Aug-14	23-Mar-14	15-May-14
822	862	832	1419	876	873	943	920	570	632	1128	699	491
2.1	1.1	1.1	45	-0.3	2.9	2.7	9.8	0.6	2.4	5.5	43.3	12
0.25	0.12	0.12	5.27	-0.001	0.32	0.23	1.04	0.07	0.26	0.0006	5.28	1.41
7.26	9.32	7.11	7.32	7.64	7.44	9.13	7.51	9.41	9.14	9.14	8.35	8.25
-44.8	-158	-68.9	-37.9	-84.1	-83	-155	-97.6	-88.2	36.1	-4.9	37.8	38.4
0.6	0.59	0.59	0.72	0.62	0.62	0.6	0.6	0.4	0.42	0.0000008	0.35	0.35
1189	1193	1169	965	1240	1240	1209	1200	806	850	1588	458	722
8.83	10.6	9.83	8.37	9.49	9.49	13.9	12.7	9.7	11.8	9.84	6.8	8.27
773	772	761	923	806	805	781	780	525	553	0.00103	454	469
-3.2	0	0	1.8	-2.6	-3.1	0	0	0.7	0	2.5	10.5	12.4
				4.6								0.5
287	287	290	266	262	279	260	263	138	135	136	200	196
287	287	290	266	262	279	259	263	94.2	110	98.6	198	196
0.5	0.5	1	1	1	1	0.5	1	43.4	24.7	37.8	2.4	0.5
			6.2	8.6								2.5
399	393	399	512	443	459	437	445	22.1	21.5	20.2	125	118
0.5	0.5	1	1	1	1	0.5	1	0.5	0.5	0.5	0.5	0.5
8.14	8.29	8.08	8.09	8.02	8.1	8.28	8.08	8.97	8.86	8.9	8.3	8.38
1270	1240	1230	1330	1270	1270	1260	1240	848	856	844	703	694
795	856	843	963	921	929	887	852	569	575	573	463	455
1.5	3.2	4	1.5	1.5	1.5	1.5	3.6	4	1.5	1.5	7.9	1.5
0.56	0.78	0.81	1.29	0.75	1.98	1.83	1.67	3.33	2.71	1.31	6.68	4.1
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.117	<0.5	<0.5	<0.25	0.064
6	5.5	5.4	8.4	9.2	8.5	6.8	6.8	9.33	9.2	8.4	3	2.61
0.338	0.31	0.356	0.44	0.33	0.34	0.33	0.361	0.121	0.148	0.117	0.57	0.423
418	399	416	494	468	484	448	457	254	268	255	172	165
0.205	0.199	0.199	0.128	0.125	0.145	0.139	0.146	0.101	0.0819	0.0828	0.0215	0.0457
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	<0.05	<0.025	<0.005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.031	<0.01	<0.001	<0.01	<0.01	<0.005	<0.001
0.383	0.355	0.348	0.345	0.331	0.387	0.139	0.363	0.222	0.247	0.209	0.177	0.178
0.0209	0.022	0.0258	0.017	0.0234	0.0157	0.0228	0.0296	0.176	0.267	0.27	0.0286	0.0591
0.0194	0.0255	0.0241	0.026	0.0242	0.0151	0.0256	0.025	0.189	0.28	0.259	0.0502	0.0661
0.0354	0.0406	0.0448	0.0193	0.0359	0.0703	0.0679	0.0661	0.187	0.302	0.295		0.0787

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0029	0.0045	0.0034	0.0062	0.0054	0.0059	0.0054	0.0054	0.0465	0.0511	0.0592	0.0062	0.0068
0.00022	0.00017	<0.0001	0.00024	0.00022	0.00016	0.00012	0.00015	<0.0002	0.00023	0.00021	0.00028	0.00017
0.00247	0.00233	0.00242	0.00071	0.00129	0.00288	0.00256	0.00251	0.00535	0.00496	0.00547	0.00436	0.0048
0.0237	0.0237	0.0224	0.024	0.0217	0.0207	0.0198	0.0193	0.00979	0.00997	0.00906	0.0302	0.0266
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.0005
0.482	0.492	0.528	0.395	0.438	0.367	0.396	0.398	8.13	8.9	10.1	1.73	1.89
<0.00002	<0.00001	<0.00001	0.000019	0.00001	0.000013	0.000013	0.000018	<0.00002	<0.00002	<0.00002	0.000019	0.000015
62.6	59.9	59.4	86.7	73.3	73.7	67.8	67.7	5.15	5.09	4.73	21.3	19.8
<0.0001	<0.0001	<0.0001	0.00028	0.00017	0.00014	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	0.00021	<0.0001
0.00284	0.00244	0.00194	0.00247	0.00226	0.00276	0.00214	0.00182	<0.0002	0.00022	<0.0002	0.00029	0.00016
<0.0002	<0.0002	<0.0002	0.0002	0.00022	0.00064	0.00033	0.00059	<0.0004	<0.0004	<0.0004	0.00102	0.00042
<0.00002								<0.00002	<0.00002	<0.00002		
0.125	0.142	0.211	0.065	0.111	0.449	0.335	0.363	<0.01	0.013	0.014	<0.01	<0.01
<0.00005	0.000076	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001	<0.00005	<0.00005
0.00656	0.0073	0.00731	0.00589	0.00619	0.00576	0.00607	0.00585	0.0086	0.0064	0.0075	0.00915	0.0103
58.9	59	60.9	71.8	63.1	66.8	65	67	2.24	2.13	2.04	17.5	16.7
1.09	0.94	0.823	0.731	0.981	1.31	1.14	1.03	0.0281	0.0348	0.0336	0.107	0.107
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0116	0.0119	0.0125	0.0147	0.0163	0.0155	0.0164	0.0171	0.0172	0.0175	0.0178	0.0167	0.0168
0.00512	0.00414	0.00327	0.00615	0.00471	0.00449	0.00347	0.00338	<0.001	0.0017	0.0013	0.00157	0.00127
<0.05	0.072	<0.05	<0.05	0.051	0.067	0.133	0.079	0.182	0.284	0.292	<0.05	0.071
9.26	8.91	9.55	13.3	12.7	14.4	13.2	13.9	10.2	9.95	9.45	9.95	9.58
0.00028	0.00013	0.00015	0.00026	0.00015	0.00015	0.00016	0.00013	<0.0002	0.00026	0.00027	0.00128	0.001
6.34	6.19	6.18	6.57	6.33	6.69	6.52	6.44	4.29	3.97	4.12	5.56	6.04
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001
131	132	136	126	128	122	116	121	163	166	161	110	110
1.34	1.36	1.41	1.39	1.19	1.32	1.25	1.28	0.168	0.155	0.159	0.66	0.645
135	136	132	163	144	149	147	146	86.9	88	85.6	57.1	56.8
0.000026	0.000027	0.000017	0.000016	0.000012	0.000011	0.000013	0.000011	<0.00002	<0.00002	<0.00002	0.000018	<0.00001
<0.0001	<0.0001	<0.0001	0.00021	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	0.00014	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.01	<0.01
0.00274	0.00272	0.0026	0.0032	0.00306	0.00255	0.00261	0.00271	0.000532	0.00101	0.000812	0.00142	0.00128
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	0.002	0.0014
0.017	0.0042	0.005	0.0015	0.0021	0.0132	0.0074	0.0571	0.0025	0.0023	<0.002	0.0017	<0.001
0.0249	0.0365	0.0347	0.0426	0.0236	0.0108	0.0143	0.021	0.202	0.309	0.111	0.308	0.132
0.00025	0.0002	0.00012	0.00026	0.0003	0.00016	0.00012	0.00018	<0.0002	0.0003	0.0003	0.00035	0.00022
0.0025	0.00237	0.00242	0.00072	0.00137	0.00299	0.00268	0.00249	0.00533	0.00517	0.00509	0.00447	0.00456

Baseline Data for Groundwater

0.0246	0.0241	0.0234	0.0251	0.0221	0.0201	0.0203	0.0196	0.0107	0.0116	0.00952	0.0337	0.0288
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.0005
0.464	0.478	0.586	0.423	0.448	0.372	0.398	0.43	8.74	10.5	10.4	1.77	1.97
<0.00003	0.000029	0.000018	0.000025	0.000014	0.000014	0.000019	0.000034	<0.00002	0.000028	0.000023	0.000029	0.00003
61.7	59.8	59.5	86.4	73.9	70.2	68.2	67	5.1	5.28	4.72	20.9	20
0.00019	0.00026	0.00024	0.00058	0.00027	0.0002	0.00018	0.00018	0.00119	0.00244	0.00035	<0.0013	0.00056
0.00298	0.00256	0.00206	0.00265	0.00249	0.00286	0.00228	0.0019	0.0003	0.00053	0.00024	0.00062	0.00035
0.0007	0.00102	0.0007	0.00062	<0.0005	0.00098	0.00081	0.00121	<0.001	0.0017	<0.001	0.00326	0.00272
0.152	0.179	0.248	0.128	0.147	0.462	0.387	0.417	0.248	0.419	0.096	0.432	0.216
<0.00005	<0.00005	<0.00005	0.000098	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	0.00011	<0.0001	0.000129	0.000066
0.00552	0.00726	0.0077	0.00635	0.00593	0.00558	0.00641	0.00602	0.0089	0.0082	0.0075	0.00929	0.0102
59	57.8	63	70.9	62.2	64.9	64.2	67.1	2.54	2.72	2.1	17.1	16.9
1.11	0.953	0.849	0.766	1.07	1.36	1.18	1.08	0.0338	0.0449	0.0357	0.115	0.135
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0117	0.0125	0.0135	0.0163	0.0157	0.0162	0.0172	0.0179	0.0179	0.0209	0.0184	0.0173	0.0173
0.00557	0.00441	0.00356	0.00636	0.00522	0.00454	0.00386	0.00355	0.0026	0.005	0.0019	0.0032	0.00201
<0.05	0.053	0.056	<0.05	<0.05	0.068	0.091	0.091	0.186	0.305	0.294	0.053	0.08
9	8.93	9.8	13.2	12.6	13.6	13.3	13.7	9.73	9.97	9.28	9.58	9.61
0.00024	0.00017	0.00011	0.00031	0.00019	0.00017	0.00015	0.00015	0.00021	0.00029	0.0003	0.00124	0.00096
6.4	6.26	6.38	6.7	6.32	6.65	6.62	6.49	4.73	4.81	4.21	6.2	6.31
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001
134	132	141	131	130	125	120	123	161	171	161	107	109
1.33	1.42	1.48	1.45	1.17	1.35	1.3	1.31	0.174	0.182	0.161	0.676	0.661
142	136	139	169	144	153	149	149	87.4	90.4	85.1	56.2	57.7
0.000027	0.000026	0.000019	0.000018	0.000012	0.000013	0.000013	0.000013	<0.00002	<0.00002	<0.00002	0.000018	0.000013
0.00017	0.0002	0.00015	0.00027	0.00016	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	0.00035	0.00015
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	0.012	<0.01
<0.00002								<0.00002				
0.00289	0.00285	0.00276	0.00342	0.0032	0.00267	0.00271	0.0028	0.00058	0.00112	0.00085	0.00156	0.00132
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0021	0.0025	<0.002	0.0032	0.002
0.0188	0.0078	0.0104	<0.003	<0.003	0.0096	0.0087	0.0577	<0.006	<0.006	<0.006	<0.003	<0.003
2.62	3.04	2.39	4.16	3.8	3.69	3.58	3.45	3.03	3.68	3.36	2.64	1.78
L1471871	**L1485034**	**L1503481**	**L1432458**	**L1453027**	**L1470495**	**L1485034**	**L1503481**	**L1478436**	**L1488139**	**L1508557**	**L1435549**	**L1456126**

Baseline Data for Groundwater

BGC14-003I	BGC14-003I	BGC14-003I	BGC14-003S	BGC14-003S	BGC14-003S	BGC14-003S	BGC14-003S	BGC14-005	BGC14-005	BGC14-005	BGC14-005	BGC14-005
19-Jun-14	15-Jul-14	22-Aug-14	23-Mar-14	15-May-14	19-Jun-14	14-Jul-14	19-Aug-14	23-Apr-14	30-May-14	27-Jun-14	30-Jul-14	28-Aug-14
449	447	481	732	533	464	464	479	2100	2155	2010	2534	2095
1.3	8.3	8.1	53.3	3	1.4	1.4	101	0.31	4	1.7	2.9	4.8
0.16	0.58	0.91	7.27	0.35	0.17	0.17	11.6	0.03	0.42	0.19	0.33	0.52
8.22	7.6	8.23	7.99	7.88	7.99	7.99	8	8.86	8.16	9.83	10.2	8.45
-19.7	87.7	13.4	68.3	82.9	-31.3	-31.3	95.3	-182	-170	-274	-301	-216
0.33	0.34	0.34	0.36	0.39	0.34	0.34	0.33	1.53	1.6	1.46	1.88	1.54
674	703	699	470	785	689	689	683	2923	3058	2807	3558	2946
7.52	8.32	8.67	6.25	8.16	7.88	7.88	9.35	10.9	9.49	10.1	9.89	9.87
438	456	455	476	510	448	443	444	1899	1988	1824	2312	1915
2.8	2	3.2	4	7.4	-3.6	0	4.2	11.6	7.3	-1.7	-3.1	0
				0.5				2.7	4.4			
202	199	202	182	182	183	174	173	159	177	163	171	172
197	189	199	182	182	183	174	173	159	177	163	171	172
4.4	10	3.5	1	1	1	0.5	0.5	1	1	0.5	1	1
				6.6								
115	117	117	204	199	189	191	188	1580	1560	1530	1590	1540
0.5	0.5	0.5	1	1	1	0.5	0.5	1	1	0.5	1	1
8.32	8.41	8.4	8.17	8.27	8.19	8.15	8.35	8.17	8.09	8.24	8.22	8.24
721	715	719	697	733	712	692	686	2860	2890	2970	2880	2990
472	459	495	464	492	451	454	454	2920	2810	2830	2820	2880
5.5	4.7	1.5	1.5	1.5	1.5	1.5	1.5	8.4	5.9	9.4	4.3	7.6
4.31	2.94	0.62	1.59	1.17	0.46	0.41	0.38	1.83	4.06	2.53	3.28	2.47
<0.25	<0.5	0.051	<0.25	<0.25	<0.25	<0.5	0.068	0.5	0.5	0.5	0.5	0.5
2.6	2.5	2.5	4.1	4.9	3.7	2.5	3	13	10	5	5	5
0.35	0.313	0.317	0.36	0.27	0.29	0.258	0.288	<0.4	0.197	0.183	0.195	0.175
169	158	164	200	212	196	186	180	1840	1870	1850	1880	1890
0.0448	0.0627	0.043	0.0505	0.0617	0.0591	0.0678	0.0686	0.0676	0.0663	0.0683	0.0659	0.0798
<0.025	<0.05	<0.005	<0.025	<0.025	<0.025	<0.05	<0.005	<0.1	<0.1	<0.1	<0.1	<0.1
<0.005	<0.01	0.0037	<0.005	<0.005	<0.005	<0.01	<0.001	<0.02	<0.02	<0.02	<0.02	<0.02
0.156	0.176	0.165	0.19	0.195	0.186	0.192	0.176	0.143	0.171	0.16	0.162	0.153
0.0657	0.0679	0.065	0.0374	0.0498	0.0513	0.0522	0.0526	0.0149	0.001	0.0035	0.0075	0.0012
0.0674	0.0768	0.0627	0.0464	0.0507	0.0498	0.0566	0.0565	0.0139	<0.002	0.0029	0.0084	<0.002
0.0791	0.0821	0.0672	0.0425	0.0525	0.0511	0.0562	0.0577	0.0276	0.0272	0.0283	0.0224	0.0218

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0059	0.0066	0.0053	0.0052	0.006	0.0058	0.0086	0.0063	0.0037	0.0021	0.0025	0.0024	0.0013
0.00013	0.00013	0.00011	0.00029	0.00029	0.00028	0.00027	0.00034	<0.0001	<0.0002	<0.0001	0.00017	<0.0001
0.00487	0.00511	0.00531	0.00141	0.00145	0.00145	0.00151	0.00158	0.00135	0.00123	0.00113	0.00119	0.00114
0.0251	0.0254	0.0246	0.0338	0.0294	0.0273	0.0277	0.0277	0.0234	0.0229	0.0295	0.0322	0.0339
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
1.66	1.83	1.69	0.997	1.01	0.896	1.04	0.838	0.08	0.075	0.07	0.076	0.074
<0.00001	0.000011	0.00001	<0.00005	<0.00006	<0.00005	<0.00003	<0.00001	<0.00002	<0.00002	0.000011	<0.00001	<0.00001
19.1	19.1	19.2	38.4	37.9	35.2	34.5	34.3	297	294	283	301	293
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00033	0.0003	0.00017	0.00011	0.0001
0.00011	0.00012	0.00012	0.00058	0.00048	0.00044	0.00049	0.00051	0.00091	0.00092	0.00081	0.00083	0.00078
0.00046	0.00039	0.00038	0.00148	0.00063	0.00094	0.00053	0.00061	0.00047	<0.0004	<0.0002	0.00073	<0.0002
			0.00004	0.000029	0.000029	<0.00002		<0.00002	<0.00002			
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.485	0.578	0.575	0.597	0.572
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005
0.00979	0.0103	0.0115	0.00113	0.00094	0.00115	0.00099	0.00089	0.0145	0.0122	0.0138	0.0147	0.0149
16.4	16.7	16.8	26.2	25.4	24.5	25.4	24.9	204	201	200	202	197
0.0744	0.1	0.0915	0.111	0.158	0.166	0.184	0.199	0.496	0.493	0.461	0.457	0.465
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0165	0.0171	0.0174	0.0284	0.0287	0.0301	0.0313	0.0333	0.0353	0.0312	0.03	0.0302	0.0309
0.00069	0.00069	0.00052	0.0024	0.0022	0.00171	0.00141	0.00143	0.0022	0.0017	0.00111	0.00092	0.00102
0.065	0.083	0.066	<0.05	<0.05	<0.05	0.06	0.061	<0.05	<0.05	<0.05	<0.05	<0.05
9.59	9.85	9.72	8.95	8.57	8.45	9.16	8.66	11.1	12.1	12.1	13.7	13.7
0.00084	0.00066	0.00046	0.00088	0.00067	0.00054	0.00045	0.00042	<0.0001	<0.0002	0.00012	<0.0001	<0.0001
6.22	6.27	6.54	5.77	6.29	6.19	6.26	6.24	9.23	9.44	9.76	9.86	9.82
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001
105	110	105	81.8	82.6	74	76	74.6	192	171	169	187	181
0.638	0.663	0.677	0.603	0.547	0.533	0.569	0.565	2.53	2.21	2.17	2.32	2.37
55.2	57.7	56.9	66.8	69.4	62.2	61.2	61.2	596	592	564	567	570
<0.00001	0.000011	<0.00001	0.000026	0.000025	0.000021	0.000019	0.000019	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
0.00111	0.00108	0.00105	0.00306	0.00327	0.00309	0.00297	0.00317	0.00151	0.00162	0.0016	0.00164	0.00166
0.0015	0.0014	0.0014	0.0016	0.0012	0.0013	0.0013	0.001	<0.001	<0.002	<0.001	<0.001	<0.001
0.0021	0.0077	0.0019	0.0015	<0.001	0.0044	0.0067	0.0037	0.0029	<0.002	0.001	<0.001	<0.001
0.144	0.0815	0.0325	0.0958	0.0354	0.0326	0.0227	0.0618	0.0068	0.0071	0.01	0.0057	0.0071
0.00018	0.00016	0.00014	0.00028	0.00031	0.00034	0.0003	0.00042	<0.0001	<0.0002	0.0001	0.00021	0.00015
0.00493	0.0053	0.00558	0.00142	0.00146	0.0015	0.00156	0.00156	0.00132	0.0012	0.00119	0.00123	0.00117

Baseline Data for Groundwater

0.0272	0.0273	0.0252	0.0343	0.0306	0.0288	0.0275	0.0268	0.0235	0.0237	0.031	0.0333	0.0336
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
1.77	2.02	1.77	1.03	1.06	0.974	1.02	0.84	0.081	0.083	0.066	0.083	0.08
0.000019	0.000025	0.000011	<0.00008	<0.00006	<0.0001	<0.00003	0.000017	<0.00002	<0.00002	0.000014	0.00001	<0.00001
19	19	19.6	36.6	37.9	36.3	33.6	33	291	289	289	306	293
0.00063	0.00034	0.00016	<0.00037	0.00016	0.00026	0.00014	0.00035	0.00302	0.00167	0.00072	0.00058	0.00081
0.00036	0.00029	0.0002	0.00063	0.00053	0.0005	0.00052	0.00053	0.0009	0.00101	0.00088	0.00091	0.0009
0.00231	0.00139	0.00115	0.00172	0.00124	0.00179	0.00094	0.00195	<0.0005	<0.001	<0.0005	0.00106	<0.0005
0.233	0.136	0.046	0.107	0.038	0.035	0.02	0.073	0.522	0.607	0.648	0.668	0.697
0.000059	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000053	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005
0.0102	0.011	0.0118	0.00129	0.00107	0.00141	0.00108	0.00096	0.0137	0.0131	0.012	0.0156	0.015
16.3	16.7	16.9	25.3	25.6	25.2	25.1	24.2	204	200	198	217	196
0.133	0.151	0.129	0.114	0.164	0.181	0.185	0.193	0.479	0.502	0.483	0.469	0.483
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.018	0.0185	0.0184	0.03	0.0307	0.0329	0.0324	0.0328	0.035	0.0328	0.0283	0.0314	0.0322
0.00155	0.00119	0.00074	0.00281	0.00254	0.00205	0.00159	0.00162	0.00307	0.0022	0.00136	0.0014	0.00137
0.079	0.079	0.073	0.056	0.062	<0.05	0.062	0.059	<0.05	<0.05	<0.05	<0.05	<0.05
9.39	9.77	10.1	8.59	8.66	8.63	9.15	8.49	10.9	11.5	12.3	14	13.5
0.00084	0.00067	0.00048	0.00087	0.00063	0.00061	0.00045	0.0004	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001
6.46	6.44	6.66	5.91	6.31	6.36	6.28	6.13	9.12	9.42	9.99	10.1	9.93
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001
103	112	105	80.4	84	79.4	77.9	70.8	187	178	170	186	187
0.664	0.716	0.693	0.605	0.571	0.553	0.575	0.566	2.46	2.38	1.97	2.39	2.38
55.3	58.8	58.1	65.9	70.9	64.8	62.1	59	590	611	561	613	577
0.000012	0.000012	<0.00001	0.000025	0.000034	0.000022	0.000021	0.000017	<0.00001	<0.00002	0.00002	<0.00001	<0.00001
0.00011	<0.0001	<0.0001	0.00014	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
			0.000063	0.000038	0.000037	0.000022		<0.00002	<0.00002			
0.00118	0.00112	0.0011	0.00318	0.00355	0.0034	0.00319	0.00318	0.00146	0.00169	0.00154	0.00169	0.00175
0.0025	0.0018	0.0015	0.002	0.0015	0.0017	0.0014	0.0013	<0.001	<0.002	<0.001	<0.001	<0.001
<0.003	0.0092	0.0031	<0.003	<0.003	0.0068	0.0044	0.0067	<0.003	<0.006	0.0045	<0.003	<0.003
1.64	1.84	1.66	2.94	2.89	2.45	2.05	2.16	1.62 2.34	1.91	2.11	2	1.88
L1475118	**L1488139**	**L1507004**	**L1435549**	**L1456126**	**L1475118**	**L1486405**	**L1505010**	**L1447261**	**L1463124**	**L1478887**	**L1496084**	**L1510175**

Baseline Data for Groundwater

BGC14-006D	BGC14-006D	BGC14-006D	BGC14-006D	BGC14-009	BGC14-009	BGC14-009	BGC14-009	BGC14-009	BGC14-010	BGC14-010	BGC14-010	BGC14-010
22-May-14	9-Jul-14	5-Aug-14	2-Sep-14	4-Apr-14	28-May-14	4-Jul-14	28-Jul-14	26-Aug-14	19-Mar-14	13-May-14	16-Jun-14	10-Jul-14
	2774	2592	2623	728	706	641	788	1289	1586	1079	1026	1108
	6.3	20.2	15	7.6	2.2	0.6	4	7.3	6.3	5.5	17.6	2.7
	0.69	2.11	1.74	0.89	0.25	0.07	0.44	0.79	0.76	0.64	2.02	0.3
	7.32	6.97	7.01	7.64	7.56	9.41	7.81	7.54	6.93	7.03	7.06	8.78
	-87.9	-31.7	-47	-53.1	-101	-189	-103	-67.1	-9.6	-36.3	-20.7	-128
	2.02	1.89	2.03	0.36	0.51	0.45	0.54	0.88	0.8	0.79	0.75	0.76
	3817	3576	3833	489	1016	909	1074	1724	1044	1561	1482	1504
	10.7	10.6	8.48	7.85	9	9.58	11.1	11.8	7.1	8.8	8.95	11.1
	2477	2322	2942	473	661	591	698	1121	1031	1013	964	980
	5.2	0	0	-2	6.5	-2.3	-4.4	2.2	6.7	7.1	-1.3	0
					4					16.5		
137	108	131	135	121	125	136	146	150	383	392	377	371
137	108	131	135	121	125	136	146	150	383	392	377	371
1	0.5	1	1	1	1	0.5	1	1	1	1	0.5	0.5
2460	2360	2360	2450	175	248	236	233	232	896	856	885	892
1	0.5	1	1	1	1	0.5	1	1	1	1	0.5	0.5
7.73	7.93	7.71	7.68	8.03	7.96	8.08	7.96	8.1	7.88	7.75	8	8.1
3700	3840	3700	3700	715	975	954	907	917	1520	1510	1580	1570
4010	4020	3910	4020	524	619	689	625	642	1240	1240	1270	1330
33.4	9.4	5.4	5.8	1.5	1.5	1.5	1.5	18.2		1.5	4.3	4
28.8	16.7	11	10.4	0.62	2.09	1.31	1.04	7.57		2.34	4.3	6.4
0.5	0.5	0.5	0.5	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
12	11	5	10	7.5	11.2	7.8	6.7	6.2	8.2	9.5	8.8	7.7
<0.4	0.24	0.226	0.232	0.19	0.21	0.28	0.165	0.166	0.28	0.27	0.307	0.28
2740	2710	2720	2730	250	374	368	329	324	573	579	593	607
0.238	0.248	0.247	0.267	0.131	0.146	0.162	0.156	0.185	0.054	0.0553	0.0726	0.0705
<0.1	<0.1	<0.1	<0.1	<0.025	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<0.02	<0.02	<0.02	<0.02	0.0054	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.391	0.323	0.258	0.29	0.298	0.416	0.368	0.406	0.352	0.216	0.201	0.22	0.789
<0.001	<0.001	<0.001	<0.001	0.0027	0.0078	0.0384	0.0394	0.0602	0.0016	0.002	0.0013	0.0021
<0.002	<0.002	<0.002	<0.002	0.0339	0.017	0.0415	0.0402	0.0538	0.0021	0.0031	<0.002	<0.002
0.0137	<0.002	0.0034	0.004	0.0041	0.0666	0.075	0.0694	0.0567	0.016	0.0182	0.0181	0.0221

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.002	<0.002	<0.002	<0.002	0.008	0.0048	0.0051	0.0058	0.0056	0.0024	0.0033	0.003	0.0029
<0.0002	<0.0002	<0.0002	<0.0002	0.00317	0.00077	0.00038	0.00044	0.00029	0.00031	0.00023	0.0001	<0.0001
<0.0002	0.00598	0.00644	0.00662	0.00431	0.0051	0.00498	0.00503	0.0053	0.00096	0.00072	0.00081	0.00074
0.00773	0.00849	0.00787	0.00738	0.023	0.0259	0.024	0.0215	0.0208	0.0247	0.0244	0.0279	0.0275
<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.123	0.144	0.151	0.138	0.122	0.122	0.131	0.125	0.149	0.02	0.019	0.022	0.022
<0.00002	0.000024	<0.00002	0.00002	0.000012	<0.00001	<0.00002	<0.00002	<0.00001	0.000052	0.00004	0.000027	0.000028
453	446	461	477	52.8	74.5	70.4	69.6	69.8	166	160	163	164
<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00076	0.00096	0.00082	0.00071	0.00167	0.00257	0.00182	0.00154	0.00125	0.00154	0.00159	0.00256	0.00232
<0.0004	<0.0004	<0.0004	<0.0004	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00034	0.00028	<0.0002
<0.00002		0.000022				<0.00002	<0.00002					
1.19	1.49	1.6	1.88	<0.01	0.31	0.251	0.221	0.238	0.507	0.626	0.745	0.803
<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0235	0.0275	0.0283	0.0256	0.00469	0.00495	0.0051	0.00477	0.00581	0.0396	0.0427	0.0424	0.0433
322	304	294	306	10.6	15	14.7	14.4	14.1	117	111	116	117
0.323	0.384	0.355	0.362	0.471	1.27	1.11	0.92	0.727	0.287	0.327	0.699	0.557
<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00464	0.00485	0.00467	0.00483	0.0247	0.0236	0.0227	0.0213	0.0213	0.00297	0.00306	0.00333	0.00324
<0.001	0.0013	0.0011	<0.001	0.00399	0.00453	0.00365	0.00314	0.00262	0.00224	0.00268	0.00434	0.00356
<0.05	<0.05	<0.05	<0.3	<0.05	0.07	0.073	0.075	0.102	<0.05	<0.05	<0.05	<0.05
6.15	6.05	5.95	6.38	0.79	0.98	0.93	0.91	0.83	11.5	11.3	12	11.8
<0.0002	<0.0002	<0.0002	<0.0002	0.00026	0.00023	0.00021	0.00017	0.00026	<0.0001	<0.0001	<0.0001	<0.0001
8.74	8.25	8.28	8.4	8.53	7.96	8.08	8.5	8.64	24.7	24.2	22.1	23.5
<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
131	145	154	155	97.1	111	115	103	108	41.1	40.4	47.9	42.7
8.31	8.57	8.54	8.65	0.0857	0.131	0.139	0.121	0.128	1.76	2.02	1.93	2.02
879	854	773		79.6	129	117	106	107	174	174	192	198
<0.00002	<0.00002	<0.00002	<0.00002	0.00002	<0.00001	0.000013	0.000015	0.000013	0.000024	0.000021	0.000028	0.000027
0.00085	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00017	0.00011	<0.0001	<0.0001
<0.02	<0.02	<0.02	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000616	0.00127	0.000984	0.000939	0.00251	0.0027	0.00249	0.00231	0.00262	0.00242	0.00228	0.00295	0.00265
<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.002	0.0025	0.0052	0.0033	<0.001	0.0018	0.0079	0.0026	0.0033	0.0023	0.003	0.0105	0.0057
0.282	0.0165	0.0148	0.0205	0.0335	0.0217	0.0247	0.0489	0.185	0.439	0.0437	0.0149	0.0407
0.00024	<0.0002	<0.0002	<0.0002	0.00315	0.00083	0.00046	0.00049	0.00059	0.00057	0.00028	0.00014	0.00013
0.00358	0.00636	0.00694	0.00765	0.00425	0.00521	0.00528	0.00516	0.00533	0.00106	0.00072	0.00084	0.00077

Baseline Data for Groundwater

0.0107	0.00927	0.0083	0.00751	0.022	0.0264	0.0255	0.0216	0.022	0.0271	0.0244	0.0288	0.0284
<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.133	0.155	0.155	0.146	0.127	0.123	0.147	0.128	0.159	0.022	0.02	0.027	0.03
0.000032	0.00003	0.000027	0.000028	0.00002	0.000012	<0.00003	<0.00002	0.000032	0.00006	0.000042	0.000032	0.000033
437	460	475	483	52.4	74.3	73.3	66.9	66	166	156	165	164
0.00083	<0.0002	<0.0002	<0.0002	0.00011	0.00015	0.00023	0.00022	0.00054	0.00031	0.00012	0.00015	0.00026
0.00089	0.00106	0.00091	0.00075	0.00171	0.00275	0.00196	0.00161	0.00144	0.00173	0.00164	0.0027	0.00237
0.0017	<0.001	<0.001	<0.001	<0.001	<0.0005	0.00052	0.00073	0.00205	0.00052	<0.0005	<0.0005	<0.0005
2.06	1.68	1.77	2.23	0.035	0.341	0.298	0.267	0.405	0.844	0.677	0.803	0.854
0.00016	<0.0001	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	0.000099	0.000198	<0.00005	<0.00005	<0.00005
0.0258	0.0282	0.0281	0.0261	0.00448	0.00463	0.0052	0.00468	0.00605	0.0406	0.0416	0.0437	0.0442
316	312	319	313	10.8	14.7	15.5	13.9	13.5	115	110	120	119
0.341	0.398	0.381	0.358	0.464	1.34	1.12	0.926	0.736	0.299	0.331	0.708	0.582
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00471	0.00522	0.00489	0.00499	0.0265	0.0241	0.0252	0.0215	0.0222	0.00319	0.00321	0.00353	0.00343
0.0015	0.0015	0.0012	<0.001	0.0041	0.00478	0.00391	0.0034	0.0032	0.00245	0.00287	0.00454	0.00387
<0.05	<0.05	<0.05	<0.3	<0.05	0.074	0.081	0.078	0.105	<0.05	<0.05	<0.05	<0.05
6.17	6.34	6.24	6.37	0.83	0.94	0.99	0.89	0.81	11.5	10.8	12.6	11.8
<0.0002	<0.0002	<0.0002	<0.0002	0.00027	0.00024	0.00022	0.00025	0.00045	<0.0001	<0.0001	<0.0001	<0.0001
9.15	8.6	8.64	8.69	8.74	7.73	8.6	8.35	8.73	26.6	23.9	24.2	23.6
<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
132	153	164	154	92.2	114	123	104	110	42.7	40.7	50.8	43.2
8.35	8.78	8.79	8.94	0.0881	0.134	0.149	0.121	0.129	1.8	2	2.06	2.09
851	869	825		80.8	130	126	104	106	186	174	204	203
<0.00002	<0.00002	<0.00002	<0.00002	0.00002	0.00001	0.000015	0.000014	0.000018	0.000027	0.00002	0.000029	0.000028
0.00458	0.00026	<0.0002	<0.0002	0.00019	0.00011	0.00016	0.00015	0.00041	0.00052	0.00027	0.00012	0.00016
<0.02	<0.02	<0.02	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
						<0.00002	<0.00002					
0.000635	0.00137	0.0011	0.000945	0.00246	0.00273	0.00272	0.00231	0.00275	0.00258	0.00231	0.00298	0.00272
<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.006	<0.006	0.0073	<0.006	<0.003	<0.003	0.0099	0.0035	0.0081	<0.003	<0.003	0.0117	0.0066
				4.02								
4.19	1.41	1.13	1.22	4.92	6.96	6.46	5.97	6.82	3.17	3.24	3.35	3.53
L1459725	**L1485034**	**L1497579**	**L1512652**	**L1440275**	**L1463124**	**L1481825**	**L1494504**	**L1508557**	**L1434993**	**L1454698**	**L1471871**	**L1485034**

Baseline Data for Groundwater

BGC14-010	BGC14-011D	BGC14-011D	BGC14-011D	BGC14-011D	BGC14-011D	BGC14-011S	BGC14-011S	BGC14-011S	BGC14-011S	BGC14-011S	BGC14-012D	BGC14-012D
18-Aug-14	20-Mar-14	12-May-14	17-Jun-14	10-Jul-14	15-Aug-14	20-Mar-14	12-May-14	17-Jun-14	10-Jul-14	15-Aug-14	22-Mar-14	14-May-14
1176	966	1000	660	754	653	714	834	453	532	528	2029	1408
14.3	13.4	0	0.8	4.3	2.1	14.4	0	0.5	18.6	2.8	75.5	3.7
1.66	1.64	0	0.1	0.48	0.28	1.75	0	0.06	2.13	0.31	9.51	0.43
6.97	8.57	8.07	8.1	7.97	7.65	9.36	8.28	8.92	8.4	7.83	7.81	7.72
-47.6	-108	-134	-77.5	-32.1	-99.6	-2.3	-199	-215	-144	-218	-84.2	-97.2
0.86	0.48	0.5	0.48	0.51	0.48	0.35	0.4	0.33	0.37	0.36	1.03	1.06
1678	629		967	1030	965	459		671	759	739	1267	2072
9.52	6.7	10.5	8.35	10.6	8.07	6.28	10.7	8.03	9.37	9.92	5.36	8.25
1096	628	640	628	670	627	464	539	436	493	431	1320	1345
0	6.7		-2.6	1.5	0	2.4		-2.9	3.1	0	2.3	6.3
		0.5					0.5					
386	321	318	331	323	328	194	179	157	174	178	219	220
386	312	310	311	307	319	164	174	150	168	178	219	220
1	9.4	8.1	19.6	16.4	8.8	29.6	5	6.9	5.7	0.5	1	1
907	58.4	65.4	70.4	71.6	66.5	73.1	78	69.4	79.8	82.8	718	666
1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1
7.95	8.56	8.39	8.53	8.53	8.42	8.99	8.48	8.46	8.42	8.32	8.04	8.28
1590	974	968	1010	1020	1000	659	760	703	746	752	1970	2010
1290	621	636	648	658	656	438	505	456	489	502	1550	1600
6.4		5.5	1.5	1.5	1.5		1.5	1.5	4.6	7.2	1.5	1.5
5.69		2.76	1	0.82	0.54		0.75	0.6	1.18	1.81	1.35	0.9
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.25	0.153	0.149	<0.25	<0.5	0.5	0.5
7.9	20.2	18.6	19.5	19.1	19.5	11.9	11.9	11.9	12.7	13.5	5	12
0.286	0.66	0.63	0.656	0.62	0.674	0.49	0.584	0.583	0.52	0.539	0.72	<0.4
619	172	173	182	185	189	158	185	178	181	194	993	995
0.0868	0.0096	0.0216	0.025	0.0237	0.031	0.0225	0.0184	0.0106	0.0055	0.0088	0.0992	0.0932
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.025	<0.005	<0.005	<0.025	<0.05	<0.1	<0.1
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	<0.001	<0.005	<0.01	<0.02	<0.02
0.26	0.096	0.151	0.224	0.181	0.201	0.182	0.214	0.303	0.337	0.349	0.248	0.226
<0.001	0.009	0.0278	0.0309	0.039	0.0379	0.0641	0.0588	0.0825	0.141	0.13	0.0046	0.0089
<0.002	0.0111	0.0302	0.0345	0.0432	0.0398	0.0708	0.0666	0.086	0.165	0.14	0.0059	0.0087
0.0489	0.0207	0.0502	0.0384	0.0451	0.0406	0.071	0.0752	0.0985	0.177	0.169	0.0134	0.0205

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0024	0.0083	0.0105	0.0097	0.0092	0.0082	0.0449	0.034	0.0501	0.033	0.0286	0.0043	0.0055
<0.0001	0.00016	0.00026	0.00019	0.00012	<0.0001	0.00018	0.00024	0.00026	0.00027	0.00024	<0.0002	0.00012
0.00087	0.00037	0.00062	0.00069	0.00068	0.00061	0.00105	0.00086	0.00124	0.00183	0.00197	0.0371	0.0379
0.0268	0.0207	0.0231	0.0242	0.0251	0.0218	0.015	0.0172	0.0162	0.0242	0.0263	0.016	0.0187
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
0.018	0.029	0.028	0.03	0.03	0.033	0.017	0.016	0.014	0.017	0.017	0.626	0.586
0.000026	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	0.000027	<0.00001	<0.00001	<0.00001	<0.00001	0.000033	0.000017
168	7.44	9.78	10.7	10.9	9.49	9.85	10.2	9.09	10.5	11.1	71.6	66.6
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
0.00226	0.00014	0.00052	0.00057	0.00061	0.00041	0.00017	0.00052	0.00034	0.00034	0.00025	0.00122	0.002
0.00023	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	0.00023	<0.0002	0.00067	<0.0002	<0.0004	<0.0002
0.719	<0.01	0.023	0.023	0.025	0.032	<0.01	<0.01	0.035	0.111	0.105	0.134	0.184
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005
0.0387	0.0196	0.0158	0.0155	0.0125	0.0158	0.0147	0.0151	0.013	0.0136	0.0133	0.0465	0.0452
118	9.67	9.95	10.6	10.8	10.4	11.8	12.7	11.3	13	13.4	131	121
0.67	0.0288	0.119	0.155	0.17	0.123	0.0175	0.108	0.163	0.324	0.386	0.173	0.442
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00326	0.00477	0.00617	0.00614	0.0059	0.00597	0.0183	0.0225	0.0228	0.0238	0.0217	0.0168	0.0162
0.00374	<0.0005	0.00173	0.00199	0.00259	0.00144	0.00094	0.00162	0.00105	0.00154	0.00088	0.002	0.00244
<0.05	<0.05	<0.05	<0.05	0.084	<0.05	0.084	0.062	0.103	0.211	0.164	<0.05	<0.05
12.3	5.17	5.95	6.18	6.14	5.81	6.19	6.26	5.69	5.9	5.89	6.71	5.97
<0.0001	<0.0001	0.00012	0.00011	<0.0001	0.00012	0.00061	0.0006	0.0003	0.00025	0.00033	<0.0002	<0.0001
23	4.11	4.31	4.44	4.43	4.31	3.21	3.09	3.07	3.19	3.37	7.32	7.12
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001
44.4	200	191	191	197	203	130	127	112	125	124	226	207
2.05	0.297	0.286	0.293	0.254	0.296	0.28	0.322	0.25	0.323	0.336	10.5	10
199	53.9	55.3	60	62	59.4	50.9	59	61.4	64.6	70.6	308	313
0.000025	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	0.000014
<0.0001	0.00018	0.00021	0.00012	0.00011	0.00014	0.00015	0.00025	0.00032	0.00019	0.00028	0.00022	0.00018
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01
0.00269	0.000359	0.00138	0.00152	0.00156	0.0013	0.00161	0.00209	0.00128	0.00151	0.00123	0.000745	0.000961
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0013	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
0.015	<0.001	<0.001	0.0025	0.0013	0.0071	0.0022	0.0017	0.0014	0.0059	<0.001	<0.002	0.0017
0.145	0.241	0.144	0.0864	0.046	0.064	0.0771	0.0554	0.0697	0.122	0.0999	0.0362	0.0218
0.00019	0.00038	0.00037	0.00029	0.00017	0.00019	0.00019	0.00027	0.00035	0.00035	0.00036	<0.0002	0.00019
0.00091	0.0004	0.00061	0.00071	0.00073	0.00068	0.00106	0.00087	0.00126	0.0019	0.0021	0.0379	0.0386

Baseline Data for Groundwater

0.0298	0.0242	0.0257	0.0291	0.0255	0.0237	0.0151	0.018	0.0168	0.0236	0.0282	0.0172	0.0204
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
0.022	0.031	0.029	0.032	0.035	0.047	0.017	0.016	0.018	0.022	0.024	0.629	0.608
0.000035	0.000014	0.000013	0.00001	0.000011	<0.00001	0.000024	0.000021	0.000014	0.000023	0.00002	0.000027	0.000029
162	7.71	9.89	10.8	10.7	9.96	9.81	10.2	9.12	10.1	11.3	70.2	66.5
0.00072	0.00031	0.00029	0.00019	0.00022	0.00021	0.00016	0.00014	0.00017	0.00047	0.00027	<0.0002	0.00016
0.00245	0.00026	0.00058	0.0007	0.00064	0.0005	0.0002	0.00055	0.00068	0.00059	0.00049	0.00124	0.002
0.00179	0.00059	0.00065	<0.0005	<0.0005	0.00061	0.0006	0.00066	0.00059	0.00118	0.00073	<0.001	0.00051
1.08	0.252	0.173	0.104	0.061	0.088	0.046	0.031	0.067	0.25	0.243	0.193	0.239
0.000131	0.000065	<0.00005	0.000105	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000187	0.000054	<0.0001	0.000228
0.0388	0.019	0.015	0.0143	0.0139	0.0162	0.0141	0.014	0.015	0.0134	0.0136	0.0469	0.0471
118	9.89	9.96	10.5	10.6	10.8	11.7	12.6	11.4	12.3	13.5	135	125
0.71	0.0352	0.122	0.168	0.169	0.141	0.0182	0.114	0.168	0.315	0.398	0.171	0.433
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00338	0.00502	0.00712	0.00709	0.00692	0.00677	0.0196	0.0243	0.0283	0.0237	0.0234	0.0174	0.0176
0.00452	0.00066	0.002	0.00239	0.00281	0.00181	0.00098	0.00177	0.00131	0.00244	0.00129	0.0019	0.00265
<0.05	<0.05	<0.05	<0.05	0.075	<0.05	0.093	0.077	0.11	0.186	0.185	<0.05	<0.05
12.2	5.22	5.96	6.06	6.05	6.16	6.18	6.13	5.73	5.48	5.96	6.59	6.36
<0.0001	<0.0001	0.00012	0.00014	0.00013	0.00011	0.00057	0.00054	0.00033	0.00027	0.00022	<0.0002	<0.0001
22.7	4.71	4.61	4.61	4.45	4.61	3.32	3.14	3.14	3.23	3.58	7.36	7.32
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001
44.5	206	191	189	190	210	128	128	112	115	126	222	210
2	0.304	0.305	0.312	0.294	0.315	0.285	0.333	0.299	0.311	0.35	10.8	10.5
200	56.7	57	61.9	61.8	62.6	53.6	59.4	62.3	61.6	66	321	319
0.000024	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000012	<0.00001	<0.00001	<0.00001	<0.00001	0.000024	0.000015
0.00023	0.00043	0.00044	0.00025	0.00017	0.00033	0.00017	0.0003	0.00047	0.00069	0.0006	0.00037	0.00038
<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01
0.0027	0.000391	0.00146	0.00176	0.00189	0.0016	0.0017	0.00211	0.00153	0.00146	0.00132	0.000737	0.000987
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0016	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
0.0206	<0.003	<0.003	0.0032	<0.003	0.0083	<0.003	<0.003	<0.003	0.0053	0.0045	<0.006	<0.003
4.02	2.09	3.13	3.79	4.58	3.42	22.6	23.1	30.7	24.4	14.5	2.41	2.45
L1505010	**L1434993**	**L1454698**	**L1472814**	**L1485034**	**L1503481**	**L1434993**	**L1454698**	**L1472814**	**L1485034**	**L1503481**	**L1435549**	**L1455485**

Baseline Data for Groundwater

BGC14-012D	BGC14-012D	BGC14-012D	BGC14-012S	BGC14-012S	BGC14-012S	BGC14-012S	BGC14-012S	BGC14-013	BGC14-013	BGC14-013	BGC14-013	BGC14-013
18-Jun-14	14-Jul-14	22-Aug-14	22-Mar-14	14-May-14	18-Jun-14	14-Jul-14	21-Aug-14	31-Mar-14	3-Jun-14	7-Jul-14	31-Jul-14	28-Aug-14
1314	1581	1446	796	1047	1368	1507	1522	280	327	285	370	289
5.7	25	7.4	18.1	5.1	2.3	34.8	51.1	6.3	60.7	1.8	4.8	1.1
0.66	2.62	0.85	133	0.63	0.28	4	5.82	0.8	7.27	0.21	0.55	0.13
7.68	7.55	7.32	8	7.61	7.43	7.39	6.9	8.45	8.23	9.64	9.54	8.03
-86.3	-62.4	-81.8	58.9	-28.1	33.1	-35.4	0.8	3.8	49.4	-81	-81.2	-32.8
0.97	1.06	1.08	0.39	0.85	1.09	1.11	1.12	0.21	0.24	0.2	0.26	0.21
1910	12055	2092	461	1683	2121	2164	2169	444	490	419	535	434
8.72	13.1	8.82	2.97	5.23	6.38	9.06	9.39	5.68	7.53	8.25	8.9	7.47
1241	1340	1362	517	1093	1380	1140	1410	289	320	272	347	282
-3.6	0.9	0	2.3	1.09	-3.6	1.9	0	2.4	8.1	-2.4	51.2	0
213	212	221	190	286	406	411	455	142	141	132	131	130
213	212	221	190	286	406	411	455	142	141	131	131	130
0.5	0.5	1	1	1	0.5	0.5	1	1	1	0.5	0.5	1
734	699	718	289	698	1090	985	927	56.3	55.6	42.2	46	42.6
0.5	0.5	1	1	1	0.5	0.5	1	1	1	0.5	0.5	1
8.2	8.03	8.18	8.17	8.21	8.16	8	8.12	8.18	8.27	8.28	8.33	8.25
2010	2030	2020	771	1630	2230	2140	2070	438	453	440	430	434
1580	1540	1690	512	1260	1840	1810	1730	294	284	299	293	283
1.5	3.3	7.1	1.5	1.5	1.5	1.5	1.5	3.1	1.5	1.5	1.5	1.5
1.09	1.14	2.1	0.58	0.27	0.28	0.29	0.46	1.65	1	0.93	0.25	0.22
0.5	0.5	0.5	<0.5	<0.5	0.5	0.5	0.5	0.073	0.077	0.079	0.061	0.063
5	5	5	2.5	14.1	16	13	11	5.11	5.3	4.98	4.77	4.69
0.301	0.281	0.258	0.45	0.2	0.232	0.228	0.231	0.249	0.271	0.275	0.277	0.27
995	974	985	237	671	1030	939	860	82.7	88.3	86.1	83.8	82.6
0.0901	0.0936	0.084	<0.005	0.0126	0.0182	0.022	0.0206	0.0711	0.054	0.0712	0.0651	0.0824
<0.1	<0.1	<0.1	<0.05	<0.05	<0.1	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.005
<0.02	<0.02	<0.02	<0.01	<0.01	<0.02	<0.02	<0.02	0.001	<0.001	<0.001	0.0012	<0.001
0.244	0.257	0.246	0.39	0.495	0.871	0.717	0.637	0.152	0.157	0.143	0.126	0.158
0.0088	0.0125	0.0089	0.0384	0.0351	0.0389	0.0398	0.0428	0.0193	0.0185	0.0259	0.0285	0.031
0.0081	0.0127	0.0086	0.0531	0.0392	0.0416	0.0456	0.0432	0.0233	0.0188	0.0294	0.0311	0.0305
0.0162	0.0243	0.0257	0.0613	0.0415	0.0466	0.0457	0.049	0.0261	0.0269	0.0325	0.0315	0.0311

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0055	0.005	0.0038	0.0052	0.0042	0.0038	0.0062	0.0035	0.0127	0.0123	0.0116	0.0119	0.0113
0.00011	0.00015	<0.0001	0.0009	0.00024	0.00017	0.00013	0.00012	<0.0001	0.00012	<0.0001	<0.0001	<0.0001
0.0387	0.036	0.0401	0.0038	0.00265	0.00295	0.00265	0.00283	0.00311	0.00317	0.00337	0.00356	0.00369
0.0173	0.0183	0.0152	0.0225	0.0287	0.0386	0.0365	0.0367	0.0193	0.0173	0.0147	0.0145	0.0139
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.602	0.592	0.571	0.068	0.149	0.176	0.179	0.184	0.241	0.257	0.278	0.281	0.239
0.000017	0.000011	0.000013	0.000024	0.000025	0.000021	0.000013	0.000012	0.000014	0.000017	0.000014	<0.00001	<0.00001
71.3	70.9	70.1	39.1	98	152	140	128	12.9	12.8	9.62	10.6	9.65
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00146	0.00152	0.00093	0.00044	0.00099	0.00067	0.00061	0.00066	0.00026	0.0004	0.0003	0.0003	0.0002
<0.0002	<0.0002	<0.0002	0.00847	0.00394	0.00485	0.00349	0.0028	0.00085	0.00055	0.00038	0.00063	0.00028
0.227	0.191	0.256	<0.01	0.013	0.032	0.044	0.058	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0495	0.0448	0.0493	0.00762	0.0127	0.0172	0.0167	0.0179	0.0148	0.0146	0.0142	0.014	0.0145
135	127	132	46.5	110	174	155	148	5.86	5.73	4.41	4.76	4.49
0.365	0.381	0.248	0.0489	0.0847	0.0743	0.0696	0.0777	0.0447	0.122	0.119	0.101	0.0829
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0163	0.0164	0.0167	0.0105	0.00965	0.0102	0.00957	0.00823	0.00597	0.00648	0.00639	0.00618	0.00571
0.00186	0.00204	0.00116	0.00168	0.0022	0.00275	0.0026	0.00268	0.00098	0.00112	0.0008	0.00071	0.00054
<0.05	<0.05	<0.05	0.056	<0.05	<0.05	0.063	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6.76	6.74	6.66	12	17.3	24.9	25.3	25.4	2.85	2.7	2.25	2.62	2.49
<0.0001	<0.0001	<0.0001	0.00225	0.00028	0.00029	0.00022	0.00021	0.00013	0.00011	<0.0001	<0.0001	<0.0001
7.36	7.16	7.36	5.29	6.48	7.68	8.04	9.09	6.47	6.33	5.56	6.48	6.3
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
218	217	208	63.5	115	162	155	155	75.1	73.2	72.8	77.6	75.9
9.92	9.62	10.1	0.596	1.46	2.24	2.13	2.05	0.31	0.312	0.302	0.282	0.272
311	316	321	77.8	220	315	296	279	27.8	29.6	29.6	28.7	26.5
0.000017	0.000017	0.000015	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000022	0.000011	0.000012	<0.00001	<0.00001
0.00014	0.00016	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00012	0.00029	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000848	0.00113	0.000827	0.0012	0.00205	0.00343	0.0031	0.00288	0.000596	0.000639	0.000517	0.000487	0.000448
<0.001	<0.001	<0.001	0.0337	0.0096	0.0089	0.0072	0.0061	0.0012	<0.001	<0.001	<0.001	<0.001
0.0033	0.0019	0.0024	0.0011	0.002	0.0052	0.0021	0.0095	0.0032	0.0094	0.0079	0.0045	0.0022
0.0195	0.0247	0.0807	0.0163	0.0116	0.0151	0.0106	0.009	0.0658	0.0683	0.0609	0.0162	0.025
0.00016	0.00026	0.00014	0.00095	0.00025	0.00023	0.00017	0.00013	<0.0001	0.00015	0.00013	<0.0001	<0.0001
0.0411	0.0367	0.0431	0.00391	0.00264	0.00297	0.00287	0.00287	0.00312	0.00323	0.00362	0.00357	0.00359

Baseline Data for Groundwater

0.0178	0.0187	0.0164	0.0226	0.029	0.0399	0.0373	0.037	0.02	0.0184	0.0163	0.0138	0.0138
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.642	0.614	0.612	0.071	0.152	0.196	0.212	0.197	0.268	0.262	0.298	0.278	0.276
0.000016	0.000023	0.000023	0.000021	0.00003	0.000024	0.000019	0.000015	0.000018	0.000033	0.000019	<0.00001	0.000011
69.5	69.6	70.7	38.6	97.4	153	138	128	12.4	12.9	10.9	10.2	9.57
0.00019	0.00018	0.00029	<0.00026	0.00015	0.00027	0.00024	0.00021	0.00021	0.00032	0.0002	<0.0001	0.00011
0.00151	0.00156	0.00106	0.00046	0.00104	0.00071	0.00068	0.00063	0.00023	0.00046	0.00038	0.0003	0.00023
0.00059	<0.0005	0.00119	0.00956	0.00516	0.0062	0.00462	0.00334	0.00069	0.00148	0.00077	<0.0005	0.00089
0.253	0.234	0.374	0.021	0.022	0.043	0.049	0.054	0.071	0.074	0.056	0.011	0.023
<0.00005	0.000101	0.000063	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000055	0.000059	<0.00005	<0.00005	<0.00005
0.0502	0.0451	0.0505	0.00763	0.0122	0.0178	0.0188	0.0183	0.0148	0.0143	0.0139	0.0133	0.0159
134	128	134	44.2	110	178	157	147	5.74	5.74	5	4.7	4.47
0.375	0.4	0.262	0.0496	0.088	0.0771	0.0723	0.075	0.044	0.122	0.131	0.103	0.0828
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.018	0.0171	0.0179	0.0111	0.0102	0.0114	0.0108	0.00879	0.00628	0.00644	0.00655	0.00649	0.00645
0.00188	0.00228	0.00147	0.00179	0.0023	0.00294	0.00275	0.00253	0.00095	0.00134	0.00101	0.00066	0.0006
<0.05	<0.05	<0.05	0.072	<0.05	0.057	0.054	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6.62	6.62	6.83	11.7	17.1	24.3	24.4	24.7	2.79	2.68	2.59	2.6	2.49
<0.0001	<0.0001	<0.0001	0.00241	0.00023	0.00031	0.00037	0.00021	0.00013	0.00013	<0.0001	<0.0001	<0.0001
7.51	7.31	7.68	5.25	6.44	7.93	8.15	9.06	6.57	6.37	6.39	6.45	6.34
0.000015	<0.00001	<0.00001	0.000013	<0.00001	0.000012	<0.00001	<0.00001	<0.00001	0.000021	<0.00001	<0.00001	<0.00001
221	218	215	65.3	104	168	167	157	75.3	75.2	79	74.9	75.1
10.2	9.84	10.4	0.585	1.51	2.37	2.28	2.02	0.332	0.306	0.296	0.291	0.293
321	327	329	78.9	215	334	310	284	27.9	30.3	29.9	28.6	26.4
0.000019	0.000019	0.000015	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000015	0.000012	0.000011	<0.00001	0.00001
0.00026	0.00031	0.00029	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00026	0.00047	0.00021	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00091	0.0012	0.000898	0.00128	0.00204	0.00377	0.00339	0.00299	0.000597	0.000665	0.000546	0.000513	0.000475
<0.001	<0.001	<0.001	0.0346	0.0102	0.0098	0.0079	0.0064	0.0015	0.001	<0.001	<0.001	<0.001
0.0038	0.0042	0.0046	<0.003	<0.003	0.0069	0.0033	0.0092	<0.003	0.0127	0.0102	<0.003	0.0034
2.73	2.68	2.58	6.9	9.15	13.1	11.5	9.41	1.24	1.74	1.21 1.41	1.07	0.89
L1473799	**L1486405**	**L1507004**	**L1435549**	**L1455485**	**L1473799**	**L1486405**	**L1507004**	**L1438371**	**L1464552**	**L1483419**	**L1496084**	**L1510175**

Baseline Data for Groundwater

BGC14-014D	BGC14-014D	BGC14-014D	BGC14-015D	BGC14-015D	BGC14-015D	BGC14-015D	BGC14-015S	BGC14-015S	BGC14-015S	BGC14-015S	BGC14-016	BGC14-016
9-May-14	31-Jul-14	29-Aug-14	22-May-14	3-Jul-14	29-Jul-14	25-Aug-14	22-May-14	27-Jun-14	23-Jul-14	22-Aug-14	27-Mar-14	20-May-14
	2100	3281	433	419	456	429	550	507	526	567	535	621
	51.9	73.8	-0.3	0.8	8.2	30.9	2.4	1.2	2	10.7	26	2.7
	5.47	7.75	-0.04	0.09	0.87	3.52	0.27	0.13	0.22	1.18	3.28	0.31
	10.3	7.61	8.31	8.64	8.18	7.95	7.76	8.06	7.72	7.26	7.59	7.32
	-196	-2.2	-147	-114	-101	-10.1	8.5	-104	-103	-83.3	30.9	-135
	1.51	2.49	0.29	0.28	0.29	0.3	0.37	0.34	0.35	0.38	0.42	0.44
	2881	453	604	576	601	607	756	693	716	771	855	892
	10.8	10.7	10.2	10.7	12.3	9.73	10.7	11	11.1	11.3	5.43	9.11
	1876	3013	392	374	391	394	491	450	455	504	556	579
	-2.6	2.5	12.4	0.3	26	4	9.1	-0.3	2.6	0	2.3	6.6
10.2												
131	109	123	167	179	180	176	299	296	296	298	387	388
131	109	123	167	177	177	176	299	296	296	297	387	388
1	0.5	1	0.5	2.6	3.5	0.5	1	0.5	0.5	0.5	1	1
1120	1230	1240	64.2	68.7	71.2	68.7	355	343	351	353	477	479
1	0.5	1	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	1	1
7.45	7.84	7.69	8.36	8.41	8.34	8.4	8.17	8.16	8.2	8.27	8.13	7.98
2200	2380	2330	572	593	615	611	707	710	734	728	844	858
1820	2200	2170	380	386	399	403	440	408	443	452	510	517
25.2	5.4	10.3	20.8	9.4	45.4	14.5	6.5	3.6	1.5	1.5	1.5	1.5
16.8	3.9	3.99	5.15	3.26	18.7	4.87	1.37	0.97	1.12	0.87	1.16	0.85
0.5	0.5	0.5	0.062	0.053	0.065	<0.05	<0.25	<0.5	<0.25	<0.05	<0.5	<0.5
18	5	5	2.6	2.68	2.83	2.73	2.7	2.5	1.25	2.03	2.5	2.5
<0.4	0.204	0.48	0.391	0.394	0.437	0.406	0.24	0.233	0.242	0.26	<0.2	<0.2
1370	1410	1420	127	128	131	130	121	119	120	118	135	123
<0.005	0.222	0.441	0.0582	0.0838	0.0819	0.122	0.0332	0.039	0.0491	0.0554	<0.005	<0.005
<0.1	<0.1	<0.1	<0.005	<0.005	<0.005	<0.005	<0.025	<0.05	<0.025	<0.005	<0.05	<0.05
<0.02	<0.02	<0.02	<0.001	<0.001	<0.001	<0.001	<0.005	<0.01	<0.005	0.0013	<0.01	<0.01
0.528	0.516	0.551	0.203	0.228	0.275	0.244	0.155	0.169	0.168	0.18	0.114	0.147
0.0024	0.0017	0.0017	0.0382	0.057	0.0672	0.0641	0.0533	0.0628	0.0619	0.0648	0.014	0.0169
0.0068	<0.002	<0.5*0.02	0.0441	0.0579	0.0687	0.0646	0.0607	0.0643	0.0649	0.0654	0.0178	0.0159
0.0861	0.0449	0.0449	0.0535	0.0643	0.0778	0.0588	0.0654	0.0704		0.0776	0.0208	0.0311

Baseline Data for Groundwater

<0.005	<0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.5*0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0075	0.0029	0.0034	0.0108	0.0097	0.0086	0.0094	0.0056	0.0044	0.0047	0.0046	0.0055	0.0049
0.00043	0.00024	0.00044	0.00011	0.00011	0.00017	0.00017	0.00015	0.00012	0.00011	<0.0001	0.00035	0.00037
0.00159	0.00208	0.00228	0.00406	0.00398	0.0034	0.00402	0.00259	0.00253	0.00275	0.00279	0.00177	0.00207
0.0416	0.0379	0.0372	0.0164	0.0156	0.0172	0.0169	0.0368	0.0372	0.0367	0.0353	0.0393	0.0397
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.09	0.072	0.077	0.122	0.114	0.116	0.129	0.063	0.063	0.062	0.067	0.031	0.027
0.000013	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		0.000013	<0.00001	<0.00001	0.000043	<0.00001
208	216	220	9.05	9.41	10.4	9.86	42.4	42.6	43.3	43.2	61.3	64.4
0.00011	<0.0001	0.00089	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00035	<0.0001
0.00112	0.0068	0.00633	0.00049	0.00051	0.00064	0.00052	0.00098	0.00112	0.00147	0.00136	0.00174	0.00319
<0.0002	0.00022	0.00029	0.00099	<0.0002	<0.0002	0.00047	0.00079	0.00029	<0.0002	<0.0002	0.00072	<0.0002
0.318	0.765	0.768	0.012	0.013	0.024	0.029	0.011	<0.01	0.038	0.081	<0.01	0.205
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00459	0.00382	0.0037	0.0453	0.043	0.0382	0.043	0.00494	0.00438	0.00435	0.00396	0.0223	0.0189
145	168	168	10.1	11	11	10.7	60.4	57.5	59	59.5	78.8	77.4
4.2	2.9	2.78	0.122	0.133	0.197	0.154	0.249	0.294	0.374	0.371	0.3	1
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0196	0.0312	0.0353	0.0156	0.0152	0.0159	0.0158	0.0173	0.0159	0.0164	0.0161	0.00321	0.00374
0.00582	0.0096	0.00935	0.00168	0.00139	0.00208	0.00164	0.0028	0.0025	0.0025	0.00232	0.00345	0.00399
<0.05	<0.05	0.054	0.051	0.06	0.081	0.082	0.071	0.076	0.076	0.071	<0.05	<0.05
16.6	18.4	17.9	1.26	1.29	1.34	1.26	7.68	7.38	8.05	7.72	2.16	2.33
		0.00067	<0.0001	0.00011	0.00015	0.00015	0.00013	0.00011	<0.0001	<0.0001	0.00039	0.00047
6.29	5.94	5.8	8.31	7.82	7.36	7.46	9.22	9.2	8.98	8.85	8.01	8.28
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
131	127	131	98.6	99.2	109	107	33.4	35.3	36.1	34.4	22.1	20.9
3.92	4.13	4.44	0.515	0.566	0.595	0.598	0.671	0.683	0.688	0.676	2.58	2.92
401	449	472	45	44.3	44.2	44.4	40.7	38.8	39.1	40.7	43.7	44.7
<0.00001	<0.00001	0.000014	<0.00001	<0.00001	<0.00001	<0.00001	0.000016	0.000019	0.000012	<0.00001	0.000018	<0.00001
0.00131	<0.0001	0.00013	0.00018	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00021	0.00016
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00326	0.0026	0.00276	0.000507	0.000547	0.000898	0.000731	0.00367	0.00346	0.00369	0.00358	0.00131	0.00182
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.001	0.0094	0.0106	0.0059	0.0093	0.0025	0.0083	0.0059	0.0039	0.0021	0.0015	0.0035	<0.001
0.271	0.0205	0.0246	0.943	0.417	0.79	0.72	0.271	0.101	0.0344	0.0308	0.0307	0.0146
0.00045	0.00035	0.00046	0.00014	0.00019	0.00024	0.00021	0.00016	0.00013	0.00012	0.00011	0.00038	0.00041
0.00169	0.00226	0.0025	0.00399	0.00435	0.00298	0.0041	0.00264	0.00275	0.00293	0.00276	0.0018	0.00203

Baseline Data for Groundwater

0.045	0.0375	0.0369	0.018	0.0187	0.0179	0.0192	0.0393	0.0409	0.0385	0.0358	0.04	0.0399
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.101	0.081	0.083	0.127	0.125	0.113	0.133	0.062	0.067	0.072	0.096	0.031	0.03
0.000146	0.000053	0.000035	0.000012	0.000013	0.000019	0.000023	0.000027	0.000021	0.000013	<0.00001	0.000063	0.000015
200	212	212	8.76	9.84	9.84	9.8	41.5	41.3	44.2	42.5	61	63.4
0.00127	0.00025	0.00066	0.00033	0.00031	0.00028	0.00046	0.00087	0.00036	0.00018	0.0002	0.00058	0.00013
0.00608	0.00684	0.00626	0.0007	0.00071	0.00074	0.00068	0.00121	0.00129	0.00156	0.00145	0.00181	0.00331
<0.0015	0.00137	0.00092	0.00055	0.00051	0.00072	0.00177	0.0029	0.00113	<0.0005	0.00063	<0.001	<0.0005
0.971	0.866	0.905	0.356	0.211	0.361	0.305	0.36	0.119	0.072	0.108	0.063	0.216
0.000234	<0.00005	0.000091	0.000384	0.000141	0.000482	0.000277	0.000126	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00463	0.00404	0.00358	0.0442	0.0424	0.0347	0.0413	0.00472	0.00427	0.00451	0.00407	0.0211	0.0188
144	168	175	10.1	11.5	10.6	11	58.2	55.5	60.9	58.2	75.6	78
4.24	2.94	2.73	0.13	0.163	0.179	0.164	0.262	0.319	0.397	0.371	0.314	1.01
0.000021	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0241	0.0353	0.0355	0.0162	0.0167	0.0147	0.0157	0.0169	0.0167	0.0173	0.0169	0.00336	0.00377
0.0114	0.00985	0.00922	0.00175	0.00194	0.00216	0.00201	0.00378	0.00306	0.00286	0.00249	0.00372	0.00437
0.07	0.064	0.067	0.051	0.064	0.078	0.081	0.074	0.075	0.07	0.089	<0.05	<0.05
16	18.3	18.9	1.31	1.38	1.43	1.34	7.5	7.23	8.26	7.34	2.38	2.35
0.00057	0.00059	0.00147	<0.0001	0.00013	0.00016	0.00012	0.00012	0.00011	0.00012	<0.0001	0.00036	0.00055
6.63	5.93	5.87	11.1	9.52	9.39	9.84	9.52	9.17	9.39	8.73	8.3	8.24
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
128	124	131	96.8	107	95.3	108	34	37.7	38.6	33.6	21.9	20.9
3.76	4.57	4.39	0.556	0.603	0.561	0.585	0.653	0.679	0.722	0.687	2.59	2.92
391	447	469	43.5	47.9	42.5	43.6	40.6	38.7	43.2	40.8	45.8	44.1
0.000015	0.000015	0.000016	0.000016	0.000016	0.000022	0.000015	0.00002	0.000018	0.000014	<0.00001	0.000019	<0.00001
0.00275	0.0002	0.00019	0.00027	0.00014	0.00012	0.00017	0.00011	0.0001	<0.0001	0.0001	0.00024	0.0003
<0.01	<0.01	<0.01	0.015	<0.01	0.011	0.013	0.013	<0.01	<0.01	<0.01	<0.01	<0.01
0.00301	0.00283	0.00279	0.000612	0.000724	0.000971	0.000781	0.00379	0.00361	0.00394	0.00372	0.00139	0.00193
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001
0.0041	0.0464	0.0202	<0.003	0.0206	0.0046	0.0204	<0.003	0.0059	<0.003	0.0051	<0.003	<0.003
8.1	6.5	5.76	2.19	2.77	3.11	3.06	1.99	1.9	2.02	1.94	3.5	2.31
L1459061	**L1496798**	**L1510761**	**L1459725**	**L1481200**	**L1494491**	**L1508557**	**L1459725**	**L1478887**	**L1491785**	**L1507004**	**L1437641**	**L1458341**

Baseline Data for Groundwater

BGC14-016	BGC14-016	BGC14-016	BGC14-017D	BGC14-017D	BGC14-017D	BGC14-017S	BGC14-017S	BGC14-017S	BGC14-017S	KAX-14-107S	KAX-14-107S	KAX-14-107S
27-Jun-14	21-Jul-14	27-Aug-14	21-May-14	2-Jul-14	29-Jul-14	21-May-14	26-Jun-14	22-Jul-14	26-Aug-14	17-Jul-14	20-May-14	10-Sep-14
572	615	1179	457	414	483	474	445	495	491	767	738	769
0.9	-7.4	14.9	11	42.6	26.5	84.5	27.1	83.6	9.5	12.8	0.8	8.3
0.1	-0.32	1.72	1.29	4.61	3.03	9.7	3.16	9.3	1.06	1.42	0.08	0.94
7.58	7.35	7.28	8.23	10.2	8.61	8.26	8.04	5.4	7.55	5.5	7.41	5.91
-74.2	-63.6	-32.4	39	-15.9	-18.1	111	68.6	208	70.6	-134	-267	-163
0.41	0.42	0.84	0.33	0.27	0.34	0.33	0.31	0.34	0.34	0.53	0.51	0.54
826	854	1649	669	556	692	675	644	684	689	1062	1017	1076
9.08	10.4	10.1	8.38	11.7	9.12	9.4	8.85	10.6	10.1	10.4	10.6	10.1
536	585	1070	436	362	450	439	419	444	448	688	661	701
-3.2	2.3	0.7	60.1	-3	0.3	56.8	3.9	0	0	-0.7	0	0
			0.5			0.5						
383	395	380	205	210	200	350	392	391	401	424	441	437
383	395	380	205	203	195	342	392	391	401	405	441	437
0.5	1	1	1	6.9	4.1	8.2	0.5	0.5	1	19.2	1	0.5
455	475	468	61.2	58.8	59.2	387	396	401	396	257	256	250
0.5	1	1	1	0.5	0.5	0.5	0.5	0.5	1	0.5	1	0.5
8.06	7.97	7.79	8.27	8.5	8.36	8.31	8.17	8.22	8.08	8.46	8.28	8.24
854	833	854	635	579	580	641	673	679	659	1090	1070	1060
522	527	568	426	371	366	356	366	398	366	690	759	688
1.5	1.5	1.5	27	1.5	1.5	62	8.4	1.5	1.5	5.2	5.2	1.5
0.77	2.07	0.92	46.9	0.98	2	24.8	4.47	0.96	0.17	8.19	7.78	11.6
<0.5	<0.5	<0.5	<0.25	0.062	0.059	<0.25	<0.05	<0.25	<0.05	<0.5	<0.5	<0.5
2.5	2.5	2.5	8.6	4.43	4.08	1.25	0.8	1.25	0.81	8.2	8.3	8.2
0.126	0.134	0.136	0.27	0.295	0.297	0.14	0.153	0.148	0.156	0.283	0.31	0.297
134	134	145	134	100	98.1	13.9	13	12.9	12.8	175	162	172
<0.005	0.0089	0.0104	<0.005	0.0062	0.0052	<0.005	<0.005	0.024	<0.005	0.0375	0.0587	0.0788
<0.05	<0.05	<0.05	<0.025	<0.005	<0.005	0.277	0.245	0.248	0.259	<0.05	<0.05	<0.05
<0.01	<0.01	<0.01	<0.005	<0.001	<0.001	<0.005	<0.001	0.0085	0.0061	<0.01	<0.01	<0.01
0.143	0.142	0.155	0.121	0.107	0.133	0.155	0.123	0.128	0.102	0.554	0.627	0.552
0.0209	0.0107	0.0155	0.0518	0.0593	0.0591	0.023	0.0194	0.0184	0.0231	0.135	0.115	0.119
0.0188	0.0132	0.0136	0.0605	0.0612	0.0604	0.0291	0.0205	0.0251	0.025	0.148	0.112	0.16
0.0344	0.0333	0.0369	0.0925	0.0611	0.0628	0.109	0.037		0.025	0.202	0.184	0.21

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0041	0.0042	0.0045	0.0074	0.0079		0.0039	0.0045	0.0034	0.0034	0.0072	0.0059	0.0058
0.00016	0.00012	<0.0001	0.0002	0.00017	0.00017	0.00012	<0.0001	0.00011	<0.0001	<0.0001	<0.0001	<0.0001
0.00228	0.00248	0.00275	0.00126	0.00131	0.00133	0.00085	0.00097	0.0009	0.00093	0.00536	0.00534	0.00534
0.0397	0.038	0.0368	0.0258	0.0248	0.0244	0.126	0.15	0.137	0.137	0.0322	0.0339	0.0317
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.031	0.031	0.027	0.096	0.095	0.088	0.015	0.015	0.015	0.014	0.642	0.701	0.67
<0.00001	<0.00001	<0.00001	0.000011	0.000018	0.000014	0.000037	<0.00005	0.00002	0.00002	<0.00001	<0.00001	<0.00001
60.2	60.7	60.6	13.8	12	11.9	65	65.8	67	65.3	30.3	29.7	28.6
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0027	0.00267	0.00278	0.00275	<0.0001	0.00012	0.00011
0.00291	0.00256	0.00241	0.00036	0.00037	0.00044	0.00018	<0.0001	<0.0001	<0.0001	0.0005	0.00039	0.00027
<0.0002	<0.0002	<0.0002	0.00039	0.00184	0.00054	0.00169	0.00231	0.0009	0.00081	<0.0002	<0.0002	<0.0002
							0.000035					
0.165	0.231	0.303	<0.01	<0.01	0.131	<0.01	<0.01	<0.01	<0.01	0.756	0.645	0.415
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000068	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0196	0.0218	0.0207	0.0442	0.0436	0.0407	0.00849	0.00852	0.00854	0.00862	0.00492	0.00535	0.00504
74.1	78.6	76.9	6.5	6.99	7.14	54.7	56.4	56.7	56.5	44	44.1	43.3
0.886	0.731	0.924	0.0785	0.0801	0.0865	0.0272	0.0105	0.00635	0.00608	0.668	0.646	0.469
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0038	0.00372	0.00443	0.0069	0.00588	0.00622	0.00154	0.00145	0.00149	0.00148	0.00506	0.00444	0.00422
0.00374	0.00337	0.00321	0.00161	0.00141	0.00169	0.00112	0.00082	0.00067	0.00051	0.00265	0.00249	0.0023
<0.05	<0.05	<0.05	0.064	0.066	0.065	<0.05	<0.05	<0.05	<0.05	0.175	0.163	0.169
2.25	2.24	2.33	1.27	1.12	1.24	2.24	2.44	2.35	2.3	13.9	13.9	14
0.00017	0.00013	0.00012	0.00018	0.00012	0.00017	0.00099	0.00085	0.0009	0.00092	0.00032	0.00053	0.00023
8.27	8.1	8.09	7	6.99	7.18	7.52	7.51	7.53	7.71	10.6	10.9	10.3
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
23.3	24.2	28.9	119	108	102	9.25	9.32	9.56	9.87	150	158	146
2.68	2.73	2.66	0.835	0.836	0.87	1.48	1.53	1.51	1.49	0.791	0.809	0.811
41.9	44	46.3	42.6	32.9	32.4	4.63	4.39	4.51	4.44	81	95.4	104
0.000017	<0.00001	0.000013	0.000014	0.000012	0.000012	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00013	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00161	0.00132	0.00156	0.00347	0.00247	0.00244	0.00126	0.00113	0.00114	0.00111	0.00142	0.00138	0.00152
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0034	0.0039	0.0039	0.0041	0.0011	<0.001	<0.001
0.0049	0.0025	0.0029	<0.001	0.0064	0.0034	0.0031	0.0172	0.0135	0.007	0.0019	<0.001	0.0098
0.0292	0.0421	0.0069	2.93	0.026	0.0081	1.63	0.177	0.0282	0.0095	0.0198	0.019	0.0195
0.0002	0.00019	0.00012	0.00026	0.00021	0.00015	0.00025	0.00011	0.00016	0.00012	0.00015	0.00015	0.00015
0.00221	0.00266	0.00265	0.0017	0.0013	0.00116	0.00152	0.00105	0.00094	0.00098	0.00576	0.00561	0.00578

Baseline Data for Groundwater

0.0394	0.0406	0.0365	0.0383	0.025	0.0213	0.144	0.16	0.137	0.14	0.0322	0.0335	0.0323
<0.0001	<0.0001	<0.0001	0.00023	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.034	0.035	0.032	0.099	0.099	0.087	0.015	0.018	0.02	0.018	0.676	0.745	0.684
0.000013	0.000019	<0.00001	0.000057	0.000032	<0.00001	0.000065	<0.00005	0.000026	0.000023	<0.00001	<0.00001	<0.00001
59.8	64.3	59.4	14.3	11.9	10.9	63.4	65.6	64.6	65.9	30.1	29	28.2
0.00021	0.0003	0.00012	0.00104	0.00013	<0.0001	0.00688	0.00333	0.00297	0.00301	0.00024	0.0002	0.00029
0.00299	0.0028	0.00245	0.00125	0.00039	0.00037	0.00148	0.00023	<0.0001	<0.0001	0.00076	0.00059	0.00046
0.00057	0.00073	<0.0005	0.00294	0.00204	<0.0005	0.0117	0.00233	0.00121	0.00099	0.00124	0.00052	<0.0005
0.179	0.29	0.295	2.03	0.032	<0.01	2.06	0.194	0.031	0.012	0.8	0.668	0.502
0.000051	<0.00005	<0.00005	0.00111	<0.00005	<0.00005	0.000464	0.000058	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0191	0.0225	0.0206	0.0422	0.0448	0.0373	0.0081	0.00834	0.00846	0.00874	0.00501	0.00551	0.00528
73.5	80.2	76.5	7.46	6.96	6.58	53.1	55.8	55.9	56.5	44.5	43.2	43.2
0.867	0.769	0.91	0.107	0.0822	0.0771	0.0722	0.0173	0.00828	0.00643	0.689	0.656	0.511
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00405	0.00412	0.00459	0.00685	0.00651	0.00589	0.00145	0.00151	0.00154	0.00154	0.00599	0.00518	0.00546
0.00369	0.00373	0.00312	0.00289	0.00152	0.0015	0.00646	0.00109	0.00074	0.00056	0.00297	0.00269	0.00245
<0.05	<0.05	<0.05	0.102	0.074	0.064	0.084	<0.05	<0.05	<0.05	0.211	0.179	0.188
2.26	2.44	2.29	1.67	1.1	1.19	2.36	2.31	2.32	2.34	13.7	13.4	14.1
0.0002	0.00014	0.00013	0.00021	0.00013	0.00012	0.00087	0.00093	0.00085	0.00084	0.00014	0.00012	0.00012
8.29	8.68	7.97	16.5	7.04	6.36	11	7.86	7.54	7.7	10.6	10.5	10.4
<0.00001	<0.00001	<0.00001	0.000016	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
22.8	25.2	28.2	117	104	94.3	9.07	9.5	9.87	9.96	152	160	150
2.67	2.92	2.66	0.868	0.914	0.804	1.4	1.57	1.54	1.56	0.81	0.811	0.83
41.9	47.2	47.4	41.3	33.7	30.2	4.56	4.66	4.71	4.57	58.8	54.6	57.3
0.00002	0.000012	0.000014	0.000045	<0.00001	0.00001	0.000023	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00029	0.0002	<0.0001	0.00034	<0.0001	<0.0001	0.00024	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.00017
<0.01	<0.01	<0.01	0.059	<0.01	<0.01	0.072	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
							0.000033					
0.00159	0.00147	0.00164	0.00358	0.00251	0.00224	0.00126	0.00118	0.00119	0.00119	0.00144	0.00137	0.00154
<0.001	<0.001	<0.001	0.0046	<0.001	<0.001	0.0091	0.0048	0.0041	0.0043	0.0013	0.001	<0.001
0.0066	0.0037	0.0031	0.0053	0.0069	0.0053	0.0065	0.014	0.0186	0.0098	<0.003	0.0036	0.0088
										10.9	13.4	4.49
2.31	2.95	2.88	3.27	2.56	3.03	2.6	1.61	1.23	1.34			
L1478887	**L1490937**	**L1509422**	**L1459061**	**L1481200**	**L1494504**	**L1459061**	**L1478436**	**L1491785**	**L1509422**	**L1488886**	**L1502282**	**L1516148**

Baseline Data for Groundwater

KAX-14-108S	KAX-14-108S	KAX-14-108S	KAX-14-114S	KAX-14-114S	KAX-14-114S	KAX-14-114S	KAX-14-128D	MW11-01S	MW11-01S	MW11-01S	MW11-01S	MW11-01S
16-Jul-14	13-Aug-14	10-Sep-14	2-Jun-14	4-Jul-14	13-Aug-14	10-Sep-14	11-Sep-14	23-Jul-11	18-Oct-11	12-Feb-12	9-Jun-12	29-Aug-12
1425	1347	1314		809	350	824	765	725	741	625	1071	951
3.8	0.3	46.9		7.3	21.7	9.7	0.9	595	9.3	8.1	20.2	
0.4	0.03	5.31		0.81	1.97	1.07	0.26	6.22	1.01	0.97	1.96	1.03
5.95	7.62	5.88		10.5	7.12	6.05	5.57	8.37	8.4	8.85	9.05	6.31
-41	-125	19		-250	167	-45.8	-196			36.5		179
0.96	0.93	0.95		0.56	0.02	0.58	0.53			0.46		0.5
1867	1819	1866		1118	390	1166	1055	936	529	934	775	
12.6	11.4	9.52		10.5	20.1	9.64	10.6	13.2	10.1		10.1	13.5
1220	1183	1207		725	25	758	686			7.67		608
-0.6	0	0		17.8	1.1	0	0	9.8	9.1	21.8	1.4	9.1
								1.6				0.5
194	201	195	287	334	328	320	209	129	232	124	148	141
194	201	195	281	315	315	317	209	129		110	132	
0.5	1	0.5	5.8	18.6	13	2.5	0.5	1		13	15.4	
								13.5	2.5	5.9	2.5	2.5
484	477	471	285	273	281	273	325	297	232	313	351	367
0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	1		0.5	0.5	
8.27	8.15	8.12	8.42	8.53	8.45	8.31	8.57	8.19	8.3	8.54	8.63	8.59
1890	1880	1810	1190	1190	1170	1150	1030	895	443	928	950	941
1400	1420	1340	778	788	796	749	856	600	241	630	672	697
6	13.8	5.6	7.7	12.6	8.3	3	1.5	10.3	3.2	4	4.7	8.5
3.84	5.93	3.4	5.07	5	3.78	2.79	106	5.5	3.64	3.94	1.33	4.62
0.5	0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5
22	24	18	17.4	15	20.2	14.8	13.1	2.5	1	2.5	2.5	19.6
0.252	0.288	0.252	0.3	0.37	0.301	0.269	0.072	0.42	0.239	<0.2	<0.2	0.33
835	873	762	340	313	310	310	291	351	17.3	345	344	390
0.128	0.163	0.175	1.01	1.02	1.11	1.09	0.0561	0.345	0.0565	0.089	0.119	0.103
<0.1	<0.1	<0.1	<0.05	<0.05	0.064	<0.05	<0.05	<0.05	<0.005	8.81	9.01	10.8
<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	0.155	0.167	0.635
								0.67	0.16	15.2	10.9	
								0.67	0.139	9.17	9.18	11.7
0.388	0.491	0.404	2.17	2.35	2.87	2.25	0.521	0.67	0.139	0.21	<0.05	0.249
0.043	0.0643	0.0756	0.152	0.176	0.246	0.229	0.0724	0.0668				0.0762
0.0423	0.0652	0.077	0.167	0.228	0.251	0.273	0.0821	0.0707	0.0192	0.115	0.0717	
0.165	0.181	0.196	0.201	0.301	0.339	0.356	0.0831	0.0869	0.0272	0.116	0.0751	0.0923

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0081	0.0071	0.0068	0.005	0.0045	0.0048	0.0079	0.0113	0.0092	0.0048	0.0131	0.0116	0.0105
<0.0001	<0.0001	<0.0001	0.00031	0.00026	<0.0001	0.00019	0.00012	<0.0005	0.00288	0.00021	<0.0005	0.0002
0.00621	0.00615	0.00637	0.00526	0.00599	0.00666	0.00583	0.00165	0.00252	0.00339	0.00349	0.00288	0.00302
0.0238	0.0256	0.0223	0.0565	0.0691	0.0835	0.0729	0.0501	<0.02	0.09	0.0187	0.022	0.0202
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.0005	<0.0005	<0.2	<0.0005
0.182	0.193	0.183	0.352	0.346	0.402	0.368	2.61	<0.1	0.014	0.057	<0.1	0.074
<0.00006	<0.00001	0.000021	<0.00003	<0.00003	<0.00001	<0.00001	<0.00001	<0.00004	0.00004	0.000042	0.000044	0.000011
57.7	56.5	55.2	31.2	32.9	32.7	31.5	95.8	36	50.7	31.6	33.3	37.2
<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	0.00024	0.0078	0.00081	0.00107	0.0021	0.00074
0.00202	0.00177	0.00125	0.00107	0.00112	0.00147	0.00136	<0.0001	<0.0003	0.00079	<0.0001	<0.0003	<0.0001
0.00043	<0.0002	<0.0002	0.00158	0.00113	0.00098	0.00063	<0.0002	0.002	0.0009	0.00092	<0.001	0.00074
<0.00002			<0.00002	<0.00002								
0.804	0.664	0.444	0.159	0.362	0.617	0.462	0.074	<0.03	<0.03	<0.03	<0.03	<0.01
<0.00005	<0.00005	<0.00005	0.000053	<0.00005	<0.00005	<0.00005	<0.00005	<0.0005	<0.00005	<0.00005	<0.0005	<0.00005
0.00386	0.00403	0.00459	0.00889	0.00956	0.0086	0.00823	0.01	<0.005	0.00431	0.0056	0.0052	0.00513
82.5	81.6	80.8	50.2	46.3	48.5	47.2	20.9	50.3	25.5	56.9	65	66.5
1.16	1.13	0.752	0.356	0.673	1.1	0.974	0.339	0.00079	0.111	0.00891	0.0165	0.0161
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
0.208	0.212	0.233	0.0341	0.0389	0.0338	0.0303	0.0277	0.0835	0.0117	0.0442	0.0471	0.0446
0.00366	0.00326	0.00246	0.00923	0.00888	0.00984	0.00972	<0.0005	0.0012	0.00513	0.0006	<0.001	0.00106
0.137	0.164	0.15	0.19	0.259	0.319	0.3	0.086	<0.3	<0.3	<0.3	<0.3	0.089
33	32.2	33.6	23	24.9	21	20.8	31.3	17.7	1.35	22.9	21.5	20.6
0.00013	0.00011	<0.0001	0.00046	0.00053	0.00024	0.00024	0.00138	0.0044	0.00136	0.0039	0.0048	0.00567
11.5	11.4	12.4	7.61	6.69	7.24	7.62	13.2	4.96	5.03	4.4	6.1	5.97
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00002	<0.00001
234	246	227	150	152	159	153	103	71.4	8.3	75.5	77.8	74.9
1.23	1.26	1.18	1.02	1.14	1.02	0.923	1.64	0.693	0.867	0.736	0.824	0.825
253	256	251	112	101	99.4	101	415					
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	0.000021	0.000013	<0.0002	0.000011
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	0.0001	<0.0001	<0.0005	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00171	0.00162	0.00138	0.00312	0.00355	0.00254	0.00231	0.000159	0.0019	0.00306	0.00109	0.00087	0.000964
<0.001	<0.001	<0.001	<0.001	0.0014	0.0011	<0.001	<0.001	0.0029	<0.001	0.0078	0.0093	0.0074
0.0176	0.0039	0.0037	0.0018	<0.001	<0.001	0.0019	0.0045	<0.005	0.0047	<0.003	<0.005	0.0011
0.0813	0.175	0.0927	0.0948	0.0758	0.0647	0.0568	0.015	0.245	0.136	0.117	0.0509	0.267
0.00011	0.00023	0.00014	0.00037	0.00032	0.0002	0.00032	0.00036	<0.0005	0.00253	0.00021	<0.0005	0.00029
0.00647	0.00663	0.00655	0.00538	0.00647	0.00667	0.00596	0.00275	0.00274	0.00347	0.00356	0.0031	0.00306

Baseline Data for Groundwater

0.0244	0.0276	0.0235	0.0653	0.0873	0.0818	0.0728	0.0496	0.024	0.0936	0.0204	0.02	0.024
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.0001	<0.0001	<0.001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.0005	<0.0005	<0.2	<0.0005
0.19	0.22	0.194	0.383	0.358	0.4	0.396	2.65	<0.1	0.015	0.063	<0.1	0.094
<0.00012	0.000053	0.000062	<0.00006	<0.00008	0.000029	0.000032	<0.00001	<0.00004	0.000045	0.000045	0.000046	0.000031
58.1	58.9	55.2	32.7	32.5	31.3	30.4	92.2	37.2	51.2	30.5	35.7	36.3
0.00263	0.00079	0.00049	0.00051	0.00057	0.00043	0.00037	0.00092	0.0085	0.00331	0.00162	0.0027	0.0111
0.0021	0.002	0.00141	0.00124	0.00137	0.00154	0.00151	0.00017	<0.0003	0.00084	0.00014	<0.0003	0.00042
0.00102	0.00162	0.00139	0.017	0.0164	0.0142	0.0111	<0.0005	0.0038	0.00091	0.00171	0.0019	0.00398
0.949	0.887	0.585	0.302	0.574	0.677	0.565	0.123	0.302	0.18	0.145	0.047	0.304
0.000064	0.000101	0.000071	0.000219	0.000385	0.000311	0.000226	<0.00005	<0.0005	0.00009	<0.00005	<0.0005	0.000144
0.00391	0.0043	0.00463	0.00886	0.00924	0.00836	0.00813	0.00961	<0.005	0.00407	0.00541	0.0055	0.00562
85.1	82.7	81.7	49.5	45.7	46.8	46.4	19.9	52.6	26.1	56.3	65.4	65
1.2	1.19	0.789	0.355	0.697	1.05	0.951	0.348	0.0124	0.118	0.0149	0.0197	0.0345
<0.00001	<0.00001	<0.00001	0.000032	0.000049	0.000048	0.000028	<0.0001	<0.00001	<0.00001	<0.00001	<0.00001	
0.217	0.225	0.244	0.0349	0.0391	0.0315	0.0332	0.0774	0.0868	0.0113	0.0421	0.0489	0.0481
0.00406	0.00418	0.00297	0.011	0.0105	0.0107	0.0107	0.00098	0.0017	0.00545	0.00103	<0.001	0.00726
0.162	0.173	0.157	0.208	0.293	0.306	0.297	0.091	<0.3	<0.3	<0.3	<0.3	0.099
33.3	32.9	33.9	23.5	23.6	19.8	20.5	28.5	18.3	1.43	23.6	23.1	20.5
0.00015	0.00012	0.0001	0.00053	0.00072	0.00037	0.00038	<0.0001	0.0046	0.00124	0.00406	0.0051	0.00558
11.9	12	12.7	8	6.75	7.12	7.67	12.6	5.66	5.41	4.58	6.29	6.39
<0.00001	<0.00001	<0.00001	0.000028	0.000024	0.000021	0.000025	<0.00001	<0.00002	<0.00001	<0.00001	<0.00002	0.000028
237	254	231	159	154	148	143	101	73.8	8.56	77.8	83.4	77.8
1.28	1.32	1.23	1.05	1.19	0.978	1	1.64	0.731	0.82	0.689	0.88	0.842
266	266	258	117	102	96.7	99.8	103					
<0.00001	<0.00001	<0.00001	0.00003	0.000051	0.000032	0.00002	<0.00001	<0.0002	0.000021	0.000014	<0.0002	0.000011
0.00011	0.00028	0.00019	0.00013	0.00021	<0.0001	0.00011	0.00015	<0.0005	0.00029	0.00011	<0.0005	0.00042
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	<0.01	<0.01	0.01
0.000057			0.000033	0.000048								
0.00179	0.00167	0.00143	0.00335	0.0037	0.00237	0.00237	0.000182	0.00202	0.0029	0.00105	0.00094	0.001
<0.001	<0.001	<0.001	0.0015	0.0025	0.0019	0.0016	<0.001	0.0039	<0.001	0.0084	0.0099	0.0087
0.0115	0.0075	0.0056	0.0036	0.0056	0.0041	0.0037	<0.003	<0.005	0.0055	0.0044	<0.005	0.0051
4.38	4.48	3.76	10.6	12.9	9.05	7.9	12.5	4.32	1.43	1.96	2.35	1.81
								4.14	1.29	2	1.71	1.8
								0.33	0.103	6.1	1.1	
								0.33	0.103	<0.3	<0.06	
L1488886	**L1502282**	**L1516148**	**L1464552**	**L1481825**	**L1502282**	**L1516148**	**L1517413**	**L1035635**	**L1074388**	**L1114029**	**L1160966**	**L1202478**

Baseline Data for Groundwater

MW11-01S	MW11-01S	MW11-01S	MW11-01S	MW11-01S	MW11-01S	MW11-01S	MW11-01S	MW11-02	MW11-02	MW11-02	MW11-02	MW11-02
9-Dec-12	8-Mar-13	28-May-13	14-Aug-13	13-Nov-13	10-Mar-14	25-Jun-14	11-Sep-14	3-Aug-11	2-Nov-11	12-Feb-12	6-Jun-12	22-Aug-12
680	625	800	808	948	658	740	653	1931	1957	1830	3284	3010
3.8	1.8	0.6	1.1	2.2	1.5	4.6	3.4	9.5	324	48.5	25.4	
0.43	0.21	0.07	1.1	0.26	0.17	0.49	0.43	1.04	39.3	5.95	2.46	0.15
9.03	8.58	8.55	8.59	8.48	8.5	8.44	8.49	7.23	7.64	7.83	7.76	7.27
19.3	105	134	212	125	3.74	67.3	115					-140
0.49	0.46	0.58	0.56	0.47	0.48	0.48	0.46					1.6
979	926	1156	1125	655	959	966	934	2643	3016	2934	2294	
8.99	7.78	8.86	10.2	8.79	8.43	12.7	9.24	10.9	6.62	5.23	9.08	14.7
635	605	752	730	617	627	628	607					1930
3.8	3.4	14	2.2	2.7	4.1	3.7	3.8	0.8	1.8	23.6	0	32.3
								5.3				4.5
159	153	152	159	146	148	161	161	220	203	218	177	186
143	143	149	154	146	141	156	158	220		218	177	
15.5	9.9	2.9	4.4	0.5	6.5	5.5	2.7	1		1	0.5	
2.5	2.5	2.5	2.5					10.5	10.5	7.4	5.2	5.2
382	389	386	374	369	366	370	366	428	464	428	450	463
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1		1	0.5	
8.67	8.41	8.4	8.37	8.43	8.38	8.38	8.41	7.93	8.07	7.87	8.02	7.97
975	1040	1040	1010	991	980	974	965	2870	2910	2800	2840	2870
697	705	700	717	662	666	669	686	2180	2260	2170	2270	2240
3.7	1.5	1.5	1.5			3.5	1.5	4	11.7	26	1.5	7.2
7.33	0.75	0.81	4.55			1.61	0.56	4	7.14	22.2	2.07	4.07
<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.25	<0.5	0.5	0.5	0.5	0.5	2.5
2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.5	17	16	16	16	25
<0.2	0.32	<0.2	0.4	<0.2	0.4	0.191	0.199	<0.4	<0.4	<0.4	<0.4	0.13
356	361	371	365	361	369	359	367	1340	1460	1360	1430	1460
0.11	0.101	0.0819	0.0933	0.0888	0.0879	0.0974	0.102	0.0458	0.0885	<0.05	0.072	0.0928
9.42	11.9	11.4	9.13	6.43	3.73	2	1.37	<0.1	<0.1	<0.1	<0.1	<0.5
0.069	0.084	0.025	0.059	0.116	0.142	0.174	0.201	<0.02	<0.02	<0.02	<0.02	<0.1
9.98	10.8							0.25	0.22	0.14	1.75	
8.72	12	11	8.68					0.28	0.323	0.334	0.224	<0.51
<0.05	<0.05	0.255	<0.05	<0.05	<0.05	<0.05	0.189	0.28	0.323	0.33	0.224	0.181
				0.0429	0.0436	0.0414	0.0441					0.0522
0.0507	0.0596	0.0588	0.0546	0.0471	0.0471	0.0442	0.0452	0.0426	0.0153	0.021	0.0558	0.0522
0.0568	0.0608		0.057	0.05	0.0499	0.0507	0.047	0.0558	0.0692	0.098	0.0826	0.0823

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0059	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0075	0.0062	0.0057	0.0055	0.0055	0.006	0.0052	0.0057	<0.05	0.0108	<0.015	0.0106	0.0072
0.00014	0.00015	0.00012	0.00014	0.00015	0.00016	0.00013	0.00014	0.0055	0.00069	0.0016	<0.0005	<0.0005
0.00271	0.00243	0.00222	0.0023	0.00208	0.00201	0.00211	0.00205	<0.005	0.00288	0.00331	0.00306	0.00348
0.019	0.0209	0.0211	0.0212	0.0205	0.0208	0.0211	0.021	0.033	0.0421	0.0395	0.0363	0.0364
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01	<0.0002	<0.0005	<0.0005	<0.0005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.0025	<0.0025	<0.0025
0.073	0.08	0.066	0.067	0.074	0.071	0.068	0.068	1.31	1.36	1.22	1.32	1.24
<0.00001	0.000012	0.000014	0.00002	<0.00002	<0.00003	<0.00005	0.000011	<0.00017	<0.00002	0.000105	<0.00005	<0.00005
39.8	37.7	39.9	38.8	38.4	39.6	40.8	39.9	84.8	92.9	86.3	88.5	91.5
0.00106	0.00045	0.00027	0.00048	<0.0001	0.0001	<0.0001	<0.0001	<0.01	<0.0002	0.00105	<0.0005	0.00124
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.003	0.00283	0.00259	0.00162	0.00156
0.00065	0.00055	0.00063	0.00052	0.00041	0.00045	0.00079	0.00045	<0.01	<0.001	<0.0025	<0.001	<0.001
					<0.00002	<0.00002						
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.03	0.332	0.038	0.083	0.207
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.005	<0.0001	<0.00025	<0.00025	<0.00025
0.00429	0.00476	0.00422	0.00388	0.00474	0.00387	0.0036	0.00387	<0.05	0.0264	0.0381	0.0435	0.0452
68.7	71.5	69.4	67.4	66.3	64.9	65.1	64.6	52.6	56.3	51.6	55.6	56.9
0.0319	0.037	0.0408	0.0491	0.0485	0.0588	0.0641	0.0656	1.04	1.41	1.43	1.27	1.24
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
0.0527	0.0467	0.0468	0.05	0.0518	0.0537	0.0591	0.0619	0.014	0.0103	0.00862	0.00489	0.00462
<0.0005	0.00051	<0.0005	<0.0005	<0.0005	<0.0005	0.00059	<0.0005	0.017	0.0095	0.0141	0.0041	0.0051
<0.05	0.066	0.059	0.053	<0.05	<0.05	0.053	<0.05	<0.3	<0.3	<0.3	<0.3	0.097
20.1	19.6	20	18.9	19.7	19.3	20.3	20.5	2.7	2.31	2.66	1.61	1.37
0.00489	0.00459	0.00369	0.00291	0.00197	0.00119	0.00071	0.00059	<0.01	0.00021	<0.0005	<0.0005	<0.0005
6.64	6.59	6.84	6.85	6.85	6.79	7.19	7.64	5.86	5.52	6.19	6.37	6.42
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.00002	<0.00005	<0.00005	<0.00005
77.1	74.9	72.5	76.6	72	71.5	68.9	72.1	551	627	528	547	530
0.933	0.979	0.89	0.894	0.865	0.912	0.935	0.931	3.07	4.03	3.45	3.55	3.68
113	117	119	118	115	117	118	125					
0.000011	0.000011	0.00001	0.000011	<0.00001	0.000015	<0.00001	<0.00001	<0.002	<0.00002	<0.00005	<0.00005	<0.00005
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.05
0.000934	0.000846	0.000834	0.00084	0.000731	0.000803	0.000786	0.000758	0.0069	0.0034	0.0034	0.00171	0.00165
0.0083	0.0066	0.0059	0.0064	0.0063	0.0058	0.0056	0.0056	<0.01	<0.002	<0.005	<0.005	<0.005
<0.001	<0.001	<0.001	0.0013	<0.001	<0.001	0.0019	<0.001	<0.005	0.0061	0.035	<0.005	0.0061
0.197	0.0301	0.0576	0.0437	0.0667	0.0451	0.063	0.0381	0.184	0.14	0.617	0.085	0.15
0.00015	0.00018	0.00017	0.00018	0.0002	0.00017	0.00016	0.00018	0.0055	0.00083	0.00301	<0.0005	<0.0005
0.00283	0.00249	0.00242	0.00228	0.00211	0.00202	0.00218	0.00208	<0.005	0.00297	0.00364	0.00298	0.00354

Baseline Data for Groundwater

0.0218	0.0215	0.0239	0.0216	0.0217	0.0217	0.0225	0.0219	0.035	0.0441	0.0516	0.0347	0.036
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01	<0.0002	<0.0005	<0.0005	<0.0005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.0025	<0.0025	<0.0025
0.067	0.088	0.074	0.072	0.079	0.077	0.077	0.077	1.32	1.24	1.24	1.38	1.27
0.000014	0.000017	0.000016	0.000025	<0.00003	<0.00004	<0.00005	0.000018	<0.00017	0.000077	0.000308	<0.00005	<0.00005
37.5	37.4	40	38.4	39.3	38.2	40.4	39.1	84.5	97.5	81.6	86.2	89.7
0.00181	0.00061	0.00059	0.00109	0.00067	0.00051	0.0005	0.00042	<0.01	0.00104	0.00835	0.00076	0.00804
0.00025	<0.0001	0.00012	0.00011	0.00015	0.00013	0.00016	0.00014	<0.003	0.00293	0.00296	0.00159	0.00179
0.0029	0.00094	0.00135	0.00112	0.00108	0.00143	0.00145	0.00109	<0.01	0.0012	0.0049	<0.0025	<0.0025
0.415	0.028	0.059	0.048	0.092	0.057	0.076	0.047	0.392	0.77	0.85	0.211	0.396
0.00005	<0.00005	0.000257	0.00006	<0.00005	0.000137	0.000086	0.000074	<0.005	<0.0001	0.00044	<0.00025	<0.00025
0.00399	0.00471	0.00428	0.00406	0.00463	0.00398	0.00349	0.00412	<0.05	0.0241	0.0394	0.0442	0.045
64	67.4	70.7	66.3	65.9	63.1	64.4	63.2	52.6	57.5	51.8	56.4	56.6
0.0402	0.0395	0.0478	0.051	0.052	0.0625	0.0693	0.0702	0.972	1.44	1.39	1.15	1.25
0.000012	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	
0.0462	0.0482	0.0494	0.0518	0.0572	0.0572	0.0615	0.0664	0.014	0.0104	0.00935	0.00555	0.00518
0.00096	0.00062	0.00059	0.00067	0.00071	0.00078	0.0008	0.00063	0.018	0.0124	0.017	0.004	0.0072
0.055	0.053	0.06	0.059	0.051	0.052	0.057	<0.05	<0.3	<0.3	<0.3	<0.3	0.104
18.8	19.7	20.3	19.1	21.3	20	20.1	20.2	2.7	2.31	2.65	1.39	1.41
0.00485	0.0045	0.00353	0.00284	0.00194	0.0011	0.00068	0.0006	<0.01	0.00028	<0.0005	<0.0005	<0.0005
6.96	6.52	7.07	6.82	7.19	6.82	7.38	7.73	6.08	6.21	7.54	6.49	6.78
<0.00001	0.000017	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.00002	<0.00005	<0.00005	0.000053
76.2	75.9	78.5	74.6	73.4	72.1	69.7	73.4	547	630	506	497	531
0.819	1	0.916	0.91	0.88	0.921	0.979	0.997	3.06	3.9	3.55	3.56	3.59
109	118	122	119	122	119	122	124					
0.000014	0.000014	0.000012	0.000015	<0.00001	<0.00001	<0.00001	0.00002	<0.002	<0.00002	0.000056	<0.00005	<0.00005
<0.0001	<0.0001	0.00018	<0.0001	0.00011	0.00015	0.00011	<0.0001	<0.005	0.00051	0.00112	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	0.013	0.04	0.016	<0.05
					<0.00002	<0.00002						
0.000806	0.000878	0.000893	0.000843	0.00079	0.000797	0.00084	0.000797	0.0067	0.00341	0.00346	0.0017	0.00175
0.0092	0.0069	0.0067	0.0065	0.0069	0.0061	0.0063	0.0062	<0.01	<0.002	<0.005	<0.005	<0.005
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0033	0.0031	<0.005	<0.006	0.036	<0.015	<0.015
2.41	1.73	1.56	1.71	1.38				8.81	4.7	9.21	17.2	3.99
2.07	1.31	1.41	1.62	1.34	1.34	1.42	1.39	9.45	4.88	11.3	4.04	3.59
1	1.1							0.204	0.132	0.094	1.68	
	<0.06							0.234	0.172	0.33	0.152	
L1247921	**L1277099**	**L1308855**	**L1348177**	**L1392288**	**L1431355**	**L1478436**	**L1517413**	**L1041015**	**L1081224**	**L1114029**	**L1159542**	**L1202478**

Baseline Data for Groundwater

MW11-02	MW11-02	MW11-02	MW11-02	MW11-02	MW11-02	MW11-02	MW11-02	MW11-04D	MW11-04D	MW11-04D	MW11-04D	MW11-04S
10-Dec-12	8-Mar-13	27-May-13	14-Aug-13	17-Nov-13	11-Mar-14	19-Jun-14	9-Sep-14	9-Jun-12	25-Aug-12	11-Dec-12	12-Aug-13	27-Jul-11
1918	1841	2234	2494	2850	3072	2030	2052	1081	1000	611	1688	1609
59	14.2	19.7	6	7.2	6.1	5	5.3	28.4		3	6.8	56.3
7.02	1.67	2.27	0.65	0.86	0.72	0.59	0.63	2.64	1.87	0.36	0.75	5.45
7.6	7.64	7.71	7.67	7.73	7.66	7.73	8.06	9.91	9	9.62	7.81	7.85
-99.3	-76.7	-38.6	237	1.48	-36.7	-67.4	-88.5		30		147	
1.51	1.44	1.7	1.81	59.7	1.6	1.54	1.54		0.5		1.22	
2893	2778	3240	3437	1900	3029	2945	2943	795		906	2360	1937
7.36	7.33	8.76	10.7	7.51	7.13	8.74	9.14	11	13.4	7.93	10.1	16.3
1880000	1806	2102	2234	1851000	1997	1916	1911		638		1533	
3.3	4.7	0	3.4	2.4	3.2	13.2	3	5.2	1.5	-0.4	1.6	4
									0.5			4.6
180	195	176	165	192	176	182	173	48.9	37.1	50.5	71.1	81.9
180	195	176	165	192	176	182	173	33.3		35.7	71.1	81.9
1	1	1	1	1	1	1	0.5	15.6		14.8	1	1
2.5	2.5	2.5	2.5	2.5				17	11.6	14.6	7.3	11.6
432	431	426	433		433	443	429	38.1	33.8	43.2	237	257
1	1	1	1	1	1	1	0.5	0.5		0.5	1	1
8.12	8.06	8.1	8.05	8.17	8.05	8.17	8.03	9.04	9.22	8.81	7.94	8.11
2850	3010	2900	2900	2940	2950	2980	2950	936	905	917	2030	2110
2260	2240	2210	2200	2220	2260	2260	2140	644	592	610	1470	1500
11.7	7.4	4.7	6.8			12.5	3.8	1.5	1.5	4.7	1.5	1.5
7.54	4.24	2.32	3.18			7.82	1.17	0.93	0.84	2.39	1.22	0.81
0.5	0.5	0.5	0.5	1.25	0.5	0.5	0.5	<0.5	<0.5	<0.5	0.5	0.5
16	16	17	15	16	16	17	16	26.1	26.1	25.7	21	23
<0.4	<0.4	<0.4	0.58	<0.4	<0.4	0.119	0.099	1.11	1.02	0.99	0.83	0.54
1430	1440	1430	1410	1420	1480	1470	1440	356	341	349	941	967
0.0835	0.0831	0.0701	0.0699	0.0687	0.0674	0.0434	0.0705	0.124	0.092	0.108	0.065	0.0765
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	<0.05	<0.05	<0.05	<0.1	<0.1
<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	0.037	0.028	<0.02
0.137	0.129							0.3		0.265		0.44
0.19	0.13	0.15	0.133					0.3	0.189	0.327	0.31	0.44
0.194	0.13	0.154	0.186	0.161	0.179	0.192	0.169	0.3	0.189	0.338	0.286	0.44
				0.0693	0.0721	0.0832	0.0808		0.169			
0.066	0.0639	0.0705	0.0753	0.0706	0.0728	0.079		0.247		0.264	0.0842	0.0556
0.0987	0.0895	0.0916	0.0927	0.0926	0.0972	0.0986	0.117	0.252	0.178	0.287	0.0964	0.0601

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.006	0.007	0.0061	0.006	0.0053	0.0047	0.0074	0.0054	0.147	0.0833	0.175	0.0114	<0.025
<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00028	<0.0005	0.00023	0.00043	<0.0002	<0.0025
0.00262	0.00284	0.00258	0.00251	0.00278	0.0035	0.00321	0.00306	0.012	0.0123	0.00925	0.00197	<0.0025
0.0318	0.0314	0.0288	0.0265	0.029	0.0283	0.0286	0.0277	<0.02	0.00859	0.0106	0.0428	0.054
<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0001	<0.0001	<0.0002	<0.005
<0.0025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.2	<0.0005	<0.0005	<0.001	<0.2
1.31	1.47	1.22	1.35	1.3	1.34	1.32	1.3	2.25	1.7	1.75	1.35	1.67
<0.00005	<0.00002	<0.00002	0.000022	<0.00002	<0.00002	<0.00002	<0.00002	<0.00017	<0.00006	<0.00007	<0.00012	<0.00085
84.7	83.3	84.5	83.1	82.1	83.7	86	83.7	14.4		16.3	82.1	87.6
<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	0.00029	<0.0001	<0.0002	<0.005
0.00129	0.00125	0.00113	0.00103	0.00099	0.00102	0.00093	0.00093	<0.0003	<0.0001	<0.0001	0.00051	<0.0015
<0.001	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.001	<0.0002	0.00062	0.00069	<0.005
					<0.00002	<0.00002						
0.046	0.075	0.018	0.012	0.079	0.044	0.136	0.102	<0.03	<0.01	<0.01	0.023	<0.03
<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.00005	<0.00005	<0.0001	<0.0025
0.0515	0.0538	0.0607	0.0595	0.0681	0.0648	0.0637	0.0616	<0.005	0.003	0.00269	0.0037	<0.025
53.6	54.3	52.2	54.9	56.1	54.5	55.3	53.3	0.51		0.59	7.77	9.41
1.13	1.2	1.08	1.06	1.08	1.01	0.967	0.967	0.017	0.0164	0.0158	0.564	0.118
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00313	0.00263	0.00179	0.00166	0.00148	0.00152	0.00121	0.00124	0.216	0.218	0.204	0.222	0.165
<0.0025	0.0029	0.0019	0.0017	0.0019	0.0017	0.0018	0.0015	0.0015	0.00093	0.0014	0.0019	<0.005
0.077	0.072	0.076	0.087	0.087	0.096	0.103	0.108	<0.3		0.247	0.095	<0.3
1.22	1.14	1.09	1.06	1.07	1.03	1.02	0.95	10.2	6.24	9.73	7.08	8.6
<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	0.00026	0.00036	<0.0002	<0.005
6.09	6.33	6.67	6.65	6.73	6.31	6.6	6.51	2.66		2.73	3.19	3.22
<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00002	<0.0001
538	542	523	510	517	545	533	564	175	169	170	357	391
3.75	4.02	3.62	3.96	3.47	3.82	3.75	3.98	0.235	0.212	0.228	1.8	1.49
455	435	464	445	442	455	459	458			114	289	
<0.00005	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.0002	<0.00001	0.000013	0.000034	<0.001
<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0001	0.0003	<0.0002	<0.0025
<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01		<0.01	<0.02	<0.01
0.0014	0.00129	0.000989	0.00095	0.000857	0.000746	0.000696	0.000679	0.00026	0.000137	0.000282	0.000806	0.0018
<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0033	0.0018	0.003	<0.002	<0.005
<0.005	<0.002	0.004	0.0025	0.0032	0.135	0.0062	0.0048	<0.005	<0.001	<0.001	0.0023	0.0062
0.264	0.164	0.0754	0.0667	0.0259	0.0405	0.381	0.0411	0.236	0.0977	0.287	0.0294	0.041
<0.0005	0.00024	0.0003	0.00023	0.00022	0.00033	0.00034	0.00041	<0.0005	0.00025	0.00051	<0.0002	<0.0025
0.00305	0.00303	0.00279	0.00272	0.00291	0.00394	0.00351	0.00309	0.0126	0.0124	0.00879	0.00199	<0.0025

Baseline Data for Groundwater

0.0361	0.0319	0.0279	0.0272	0.0292	0.0288	0.0323	0.0265	<0.02	0.00845	0.0116	0.0391	0.053
<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0001	<0.0001	<0.0002	<0.005
<0.0025	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.2	<0.0005	<0.0005	<0.001	<0.2
1.34	1.42	1.26	1.28	1.34	1.35	1.39	1.23	2.33	1.75	1.82	1.3	1.64
<0.00005	<0.00002	0.000023	0.000038	<0.00002	0.000026	0.00007	<0.00002	<0.00026	<0.00009	<0.0001	<0.00011	<0.00085
84.3	83.8	81.6	81.5	81.9	82.2	86.9	80.4	16.3		16.6	77.8	86
0.00115	0.00062	0.00152	0.00068	0.00042	0.00061	0.00104	0.00045	0.0036	0.00182	0.00119	0.00044	<0.005
0.00153	0.0014	0.00122	0.00114	0.00104	0.00105	0.0012	0.00093	<0.0003	0.00011	0.00014	0.00051	<0.0015
<0.0025	<0.001	0.0021	<0.001	0.0018	0.0015	0.0027	0.0014	0.0026	0.00104	0.00369	0.0012	<0.005
0.409	0.288	0.168	0.164	0.163	0.157	0.59	0.166	0.081	0.03	0.088	0.072	<0.03
<0.00025	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00016	<0.0001	<0.0005	0.000052	0.00012	<0.0001	<0.0025
0.0522	0.0516	0.0602	0.0559	0.0701	0.0649	0.0658	0.0581	<0.005	0.00324	0.00255	0.0038	<0.025
53.6	54.1	52	54	55.7	54.5	57	53.2	0.63		0.64	7.51	9.24
1.18	1.24	1.08	1.11	1.09	1	0.996	0.909	0.0232	0.0176	0.0279	0.526	0.123
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00324	0.00279	0.00219	0.00162	0.00186	0.00237	0.0013	0.00124	0.231	0.224	0.201	0.213	0.17
0.0035	0.0032	0.0021	0.0021	0.002	0.0019	0.0023	0.0018	0.0031	0.00152	0.00211	0.0019	<0.005
0.104	0.091	0.092	0.097	0.111	0.1	0.117	0.112	<0.3		0.255	0.097	<0.3
1.26	1.14	1.1	1.03	1.14	1.03	1.08	0.94	11.8	6.02	10	6.82	8.3
<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	0.00032	0.00041	<0.0002	<0.005
6.62	6.63	6.75	6.82	6.92	6.42	7.45	6.42	3.01		2.9	3.14	3.22
<0.00005	<0.00002	<0.00002	0.000033	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000011	<0.00001	<0.00002	<0.0001
555	541	525	532	512	542	536	535	194	163	173	336	382
3.88	3.88	3.72	3.72	3.64	3.86	3.95	3.81	0.265	0.21	0.229	1.76	1.48
466	450	461	453	459	474	476	460			113	284	
<0.00005	<0.00002	0.000031	0.000033	<0.00002	<0.00002	0.000027	<0.00002	<0.0002	0.000015	0.000017	0.00004	<0.001
<0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	0.00014	0.00041	<0.0002	<0.0025
<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	0.036	<0.02	<0.01		<0.01	<0.02	<0.01
0.00146	0.00126	0.00102	0.000927	0.000909	0.000772	0.000754	0.000656	0.00031	0.000142	0.000315	0.000779	0.0018
<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	0.0029	<0.002	0.0041	0.0019	0.0036	<0.002	<0.005
<0.015	<0.006	<0.006	<0.006	<0.006	0.149	0.0246	0.0141	<0.005	<0.003	0.0038	<0.006	<0.005
3.42	3.51	3.81	3.78	3.41				6.4	4.54	4.75	6.57	7.03
3.22	3.48	3.38	3.69	3.21	2.24	2.25	2.33	5.81	4.5	4.85	6.53	6.88
0.054	<0.05							0.176		0.12		0.363
	<0.06							0.176				0.363
L1247928	**L1277099**	**L1307601**	**L1348177**	**L1393344**	**L1431355**	**L1474413**	**L1516193**	**L1160966**	**L1200094**	**L1248467**	**L1346553**	**L1038606**

Baseline Data for Groundwater

MW11-04S	MW11-04S	MW11-04S	MW11-04S	MW11-04S	MW11-04S	MW11-04S	MW11-04S	MW11-04S	MW11-04S	MW11-04S	MW11-05D	MW11-05D
23-Oct-11	15-Feb-12	9-Jun-12	30-Aug-12	6-Dec-12	10-Mar-13	27-May-13	18-Nov-13	8-Mar-14	19-Jun-14	9-Sep-14	27-Oct-11	15-Feb-12
1342	1412	2317	1970	1274	1356	1560	1970	1783	1420	1472	971	1062
19	36.8	15.1		38.9	2.1	10.6	9.5	19.5	5.7	7.7	293	33
2.43	4.26	1.44	1.65	4.56	0.25	1.21	1.14	2.27	0.64	0.9	34.4	3.96
7.85	7.78	8.11	9.75	7.83	7.53	7.76	7.47	7.42	7.85	8.23	9.04	7.56
	-298		-74	-25.3	122	92.8	96.6	97.5	50.2	61		-292
	1.11		1	0.96	1.28	1.14	1.01	0.91	1.04	1.07		0.81
1909	2166	1679		1882	1976	2220	1310	1219	2028	2088	1435	1610
9.42	6.78	10.3	12.7	8.06	8.56	9.42	8	8.43	9.29	9.56	8.06	7.16
	1410		1260	1222	1283	1443	1283	1159	1319	1355		1047
0.4	6.7	0	0.8	-0.9	-2.1	4.6	1.4	2.6	2.8	2.1	7.6	10.6
3.2			4								0.5	
106	99	91.8	80.9	84.5	75.7	77.1	80.1	71.7	68.7	53.8	275	313
106	99	91.8		84.5	75.7	77.1	80.1	71.7	68.7	53.8	272	313
1	1	0.5		1	1	1	1	1	1	0.5	3.2	1
15.7	13.2	10.7	8.9	9.1	8.6	7.7	7.4	6.7			18.7	16.6
291	259	246	246	221	236	230		237	248	248	582	626
1	1	0.5		1	1	1	1	1	1	0.5	0.5	1
8.22	8.01	7.98	7.78	7.98	7.96	7.97	8	7.91	7.86	7.75	8.33	8.01
2150	2110	2030	1960	1920	2030	2010	2060	2000	2070	2060	1600	1510
1457	1540	1510	1440	1420	1340	1470	1470	1520	1490	1540	1190	1150
9.7	10.4	3.3	1.5	4	1.5	1.5		1.5	1.5	3.4	36	25.8
4.47	6.06	1.35	0.44	1.19	0.86	0.9		0.39	0.98	0.84	21.9	24.1
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	<0.5
24	28	24	23	22	22	23	25	21	21	22	27	19.7
0.44	0.42	0.48	0.52	0.5	0.9	0.55	0.6	0.86	0.645	0.572	<0.4	0.29
986	990	972	934	921	952	924	960	965	970	1010	597	560
0.118	0.101	0.067	0.0744	0.0728	0.0639	0.092	0.127	0.0933	0.0677	0.0713	0.314	0.176
<0.1	<0.1	<0.1	<0.1	0.13	<0.1	<0.1	<0.1	<0.1	<0.1	0.13	<0.1	<0.05
0.028	0.024	<0.02	<0.02	0.024	0.044	<0.02	<0.02	<0.02	<0.02	0.023	<0.02	<0.01
0.49	0.27	0.63		0.321	0.219						0.89	0.41
0.61	0.441	0.352	0.25	0.243	0.261	0.28					0.661	0.502
0.666	0.42	0.352	0.254	0.302	0.28	0.282	0.304	0.287	0.301	0.256	0.661	0.5
0.031			0.0643				0.0837	0.09	0.0973	0.099	0.0392	
0.0346	0.0496	0.0585		0.0737	0.0723	0.0886	0.0914	0.0984	0.0912		0.0368	<0.002
0.0547	0.0757	0.0692	0.0766	0.0848	0.0815	0.097	0.119	0.129	0.0962	0.132	0.101	0.153

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	0.0075
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0119	0.0146	0.043	0.0131	0.0129	0.0112	0.012	0.0111	0.0089	0.0148	0.0159	<0.003	0.0058
0.00094	0.00075	<0.0025	0.00034	0.00026	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0006	0.00047
0.00154	0.00147	<0.0025	0.00193	0.00187	0.00187	0.00182	0.00189	0.002	0.00189	0.00192	0.00496	0.00496
0.057	0.0482	0.048	0.0413	0.0383	0.0403	0.0386	0.0419	0.0412	0.0406	0.0434	0.0536	0.0527
<0.0002	<0.0002	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001
<0.001	<0.001	<0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
1.72	1.72	1.71	1.45	1.56	1.32	1.44	1.58	1.54	1.62	1.59	0.045	0.048
<0.0002	0.000129	0.000219	<0.00007	0.0001	<0.0001	<0.0001	<0.00007	<0.00009	<0.00009	0.000022	0.000027	0.000015
100	88.6	83.8	85.4	75.5	81.7	79.5	83.3	82.6	85.9	85.8	86.9	86.8
0.0006	0.00056	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00016	0.0005
0.00055	0.00074	<0.0015	0.0006	0.0006	0.00045	0.00038	0.00051	0.00034	0.0004	0.00045	0.00279	0.00442
0.0014	0.0032	0.0224	0.00088	0.00094	0.00069	0.00041	<0.0004	0.00096	0.00066	0.00069	<0.0005	<0.0005
									0.00003			
<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	0.082	<0.01	0.013	<0.01	0.519	1.71
<0.0001	<0.0001	<0.0025	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	0.000066
0.0073	0.0028	<0.025	0.003	0.0028	<0.001	0.0036	0.005	0.0038	0.0043	0.0037	0.0116	0.0103
9.89	9.05	8.85	7.91	7.8	7.8	7.73	8.07	7.41	8.09	8.13	88.7	99.4
0.158	0.363	0.337	0.371	0.439	0.543	0.537	0.547	0.514	0.516	0.519	3.21	3.61
<0.00001	<0.00001	<0.00001		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.145	0.158	0.165	0.198	0.201	0.206	0.21	0.22	0.2	0.2	0.212	0.0474	0.041
0.0082	0.0045	<0.005	0.0046	0.0024	0.0022	0.0018	0.0019	0.0017	0.0017	0.0015	0.00519	0.011
<0.3	<0.3	<0.3	0.081	0.08	0.089	0.092	0.108	0.108	0.11	0.109	<0.3	<0.3
11.3	8.06	7.8	7.29	7.39	7.28	7.07	7.48	6.84	7.3	6.96	53	25.9
0.00051	0.00034	<0.005	0.00029	0.00022	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00046	0.00029
3.47	3.53	3.88	3.57	3.46	3.48	3.31	3.37	3.26	3.26	3.23	9.73	12.2
<0.00002	<0.00002	<0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001
373	357	382	340	343	343	341	351	374	347	381	134	116
1.56	1.73	1.83	1.73	1.6	1.7	1.7	1.82	1.82	1.82	1.95	0.684	0.666
				298	312	299	303	308	314	312		
0.000058	0.000058	<0.001	0.000041	0.000047	0.000045	0.000029	<0.00002	0.000047	0.000026	0.000028	<0.00001	<0.00001
0.00184	<0.0002	<0.0025	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00015	0.00015
<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01
0.00214	0.00202	0.0019	0.00123	0.00103	0.000982	0.000787	0.000695	0.000673	0.000595	0.000624	0.00328	0.00741
<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
0.0073	0.0202	0.0054	0.0034	0.0034	0.0032	0.0031	<0.002	0.0064	0.006	0.006	<0.003	<0.003
0.102	0.302	0.131	0.0739	0.0407	0.0363	0.0294	0.0236	0.0199	0.0496	0.0265	0.0651	0.118
0.00091	0.00101	<0.0025	0.00035	0.0003	0.00022	<0.0002	<0.0002	<0.0002	0.00022	0.00022	0.00106	0.00112
0.0015	0.00164	<0.0025	0.00196	0.00189	0.00199	0.00193	0.00203	0.0021	0.00203	0.00193	0.0044	0.00554

Baseline Data for Groundwater

0.0564	0.0562	0.05	0.0426	0.0386	0.0425	0.0399	0.0416	0.0416	0.04	0.0411	0.0471	0.0648
<0.0002	<0.0002	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001
<0.001	<0.001	<0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005
1.68	1.76	1.81	1.55	1.55	1.42	1.52	1.6	1.68	1.64	1.56	0.055	0.052
<0.00024	0.000168	0.000252	<0.00009	<0.00012	<0.0001	<0.0002	<0.00008	<0.0001	<0.00009	<0.00002	0.000094	0.000171
93.4	91	88.4	83.3	75.3	84.1	75.1	82	85.1	84.3	80.5	72.5	90.8
0.00164	0.00496	<0.005	0.00054	0.00038	0.00065	0.00026	0.00043	0.00023	0.00039	0.00048	0.00093	0.00454
0.00066	0.00097	<0.0015	0.00065	0.00065	0.00051	0.00042	0.00051	0.00038	0.00045	0.00042	0.00231	0.00507
0.0028	0.0088	0.0244	0.0024	0.002	0.0035	0.0014	0.001	0.0016	0.0019	0.0011	0.00149	0.00305
0.106	0.352	0.103	0.066	0.054	0.069	0.077	0.105	0.032	0.066	0.094	1	2.35
<0.0001	0.00053	<0.0025	<0.0001	0.00014	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.000088	0.00027
0.0072	0.0032	<0.025	0.0033	0.0027	0.0012	0.0038	0.0044	0.0043	0.0042	0.0038	0.0126	0.0104
9.39	9.48	9.33	7.78	7.85	8	7.87	8.05	7.89	8	7.65	80.2	98.9
0.16	0.415	0.368	0.379	0.444	0.578	0.574	0.554	0.541	0.539	0.485	2.5	3.85
<0.00001	<0.00005	<0.00001		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005
0.145	0.161	0.172	0.199	0.202	0.209	0.222	0.214	0.217	0.206	0.202	0.0548	0.0427
0.0104	0.0082	<0.005	0.0028	0.0027	0.0026	0.002	0.0021	0.0018	0.0023	0.0016	0.00583	0.0129
<0.3	<0.3	<0.3	0.084	0.09	0.107	0.102	0.105	0.117	0.119	0.129	<0.3	<0.3
11.8	8.19	8.3	7.04	7.38	7.35	7.48	7.46	7.34	7.05	6.56	67.5	26.5
0.00046	0.00035	<0.005	0.00026	0.00024	0.00022	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0005	0.00026
3.38	4.37	4.16	3.61	3.49	3.58	3.32	3.37	3.49	3.34	3.09	9.98	12.5
<0.00002	0.000022	<0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001
358	368	403	348	340	361	336	358	381	347	348	121	118
1.45	1.75	1.9	1.74	1.66	1.76	1.74	1.76	1.95	1.81	1.87	0.673	0.71
				298	322	297	311	319	314	302		
0.000056	0.000056	<0.001	0.000044	0.000049	0.000043	0.00003	<0.00002	0.000052	0.000031	0.000026	<0.00001	<0.00001
0.00262	0.00135	<0.0025	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0009	0.00103
<0.01	0.023	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.018
									0.000033			
0.00192	0.00204	0.002	0.00128	0.00104	0.000969	0.000817	0.000709	0.000761	0.000623	0.000606	0.00334	0.0079
<0.002	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001
0.0105	0.0254	0.0086	<0.006	<0.006	<0.006	<0.006	<0.006	0.0068	0.009	0.0083	0.01	0.0186
8.47	7.69	10.1	6.87	6.76	6.2	6.37	6.7				33	22.7
8.59	8.96	7.3	6.65	6.96	6.25	6.34	6.28	11.4	4.63	5.4	31.8	23.9
0.344	0.146	0.563		0.097	0.111						0.58	0.235
0.464	0.32	0.285			0.154						0.37	0.33
L1076555	**L1115110**	**L1160966**	**L1202478**	**L1248467**	**L1277798**	**L1307601**	**L1393344**	**L1432458**	**L1474413**	**L1516193**	**L1078289**	**L1115110**

Baseline Data for Groundwater

MW11-05D	MW11-05D	MW11-05D	MW11-05D	MW11-05D	MW11-05D	MW11-05D	MW11-05D	MW11-05D	MW11-05D	MW11-05S	MW11-05S	MW11-05S
11-Jun-12	27-Aug-12	11-Dec-12	6-Mar-13	27-May-13	13-Aug-13	17-Nov-13	18-Mar-14	19-Jun-14	9-Sep-14	2-Nov-11	15-Feb-12	11-Jun-12
1827	1590	914	933	1016	1111	1230	1295	832	792	875	913	1732
10.1		3.7	79.9	43.9	58.2	20.9	6.8	53.8	5.6	1000	37.6	26.4
1.04	3	0.45	9.6	5.11	6.39	2.5	0.8	6.19	0.67	115	4.75	2.56
7.68	6.86	7.35	7.31	7.36	7.27	7.74	7.33	7.47	7.47	7.27	7.6	7.69
	-127		-167	-184	-104	-143	-127	-141	-145		-293	
	0.8		0.71	0.75	0.77	0.801	0.65	0.6	0.58		0.74	
1351		1391	1403	1482	1525	823	871	1195	1157	1273	1478	1181
10.1	13.8	7.03	7.47	8.55	10.8	7.61	7.85	9.02	8.47	8.41	4.97	8.25
	1010		912	963	991	620	842	775	752		961	
40.1	21.2	7.9	-2.7	0	9.3	3.1	4.7	2.7	5.5	3.2	6.7	4.1
	14.9											
364	431	439	441	416	419	402	398	315	375	268	286	292
364		439	441	416	419	402	398	315	375		286	292
0.5		1	1	1	1	1	1	1	0.5		1	0.5
12.7	14.1	11.9	10	8.8	7.5	7.2				14.7	12.3	8.7
652	675	619	619	590	569		569	578	547	562	607	597
0.5		1	1	1	1	1	1	1	0.5		1	0.5
8.01	7.76	7.98	8.03	7.96	8.02	8.12	8.15	8.19	7.93	7.97	7.95	7.91
1480	1480	1440	1460	1340	1260	1260	1200	1210	1170	1220	1510	1510
1140	1140	1080	994	958	905	876	853	847	814	930	1210	1210
36.7	30.5	22	14.4	13.3	15.2			14.4	11.8	23.7	7.1	14.7
37.1	50.9	61	60.3	55.5	51.1			37.8	35.9	10.7	7.58	9.34
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15.5	14.4	10.8	9	8.5	5.4	8	7.8	2.5	2.5	14.9	25.1	26.4
0.3	0.34	0.32	0.49	0.35	0.53	0.37	0.63	0.397	0.343	0.24	0.25	0.26
518	509	456	399	380	359	353	344	339	327	437	573	573
0.107	0.134	0.14	0.138	0.12	0.122	0.131	0.116	0.1	0.115	<0.005	<0.05	0.0342
<0.05	<0.05	<0.05	0.073	0.051	<0.05	<0.05	0.119	<0.05	0.06	<0.05	<0.05	<0.05
0.015	<0.01	<0.01	0.017	<0.01	<0.01	<0.01	0.026	<0.01	<0.01	<0.01	<0.01	<0.01
0.28		0.312	0.176							0.33	0.2	0.79
<0.25	0.39	<0.5	0.221	0.313	0.21					0.406	<0.043	<0.25
<0.5	0.39	0.357	0.294	0.262	0.248	0.283	0.255	0.287	0.203	0.406	<0.2	<0.5
	<0.001					0.002	0.0046	0.0023	0.0022			
0.0035		<0.002	<0.002	<0.002	0.0038	<0.002	<0.002	<0.002		0.0136	0.0027	<0.002
0.205	0.242	0.292	0.218	0.29	0.304	0.306	0.305	0.211	0.336	0.0728	0.107	0.118

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0056	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0068	0.0055	0.0047	0.0036	0.0046	0.0025	0.0058	0.0053	0.006	0.0046	0.0058	0.0074	0.0071
<0.0005	<0.0005	0.00032	0.00032	0.00033	0.00034	0.00034	0.00046	0.00047	0.00054	0.00037	0.0001	<0.0005
0.00568	0.0073	0.00661	0.00685	0.00674	0.00654	0.00729	0.00661	0.00603	0.00683	0.00142	0.00379	0.00409
0.072	0.067	0.0556	0.0552	0.0511	0.0474	0.0475	0.0445	0.042	0.0414	0.0662	0.0809	0.089
<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001
<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2
<0.1	<0.1	0.068	0.055	0.06	0.055	0.064	0.054	0.056	0.049	0.05	0.042	<0.1
0.000025	<0.000017	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000032	0.000013	0.000045
82.4	92.8	80.3	81	76.9	73.7	75.6	73.4	75.7	70.7	103	104	93.7
<0.001		0.00016	0.00016	0.00013	<0.0001	0.00015	0.00012	<0.0001	<0.0001	0.00059	0.00031	<0.001
0.00536	0.00507	0.00555	0.00455	0.00408	0.00377	0.00302	0.00312	0.00275	0.00254	0.00385	0.00533	0.0043
<0.001	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0005	<0.0005	<0.001
2.66	4.72	4.35	4.38	4.17	3.44	4.14	3.73	3.3	3.17	0.105	0.904	1.18
<0.0005	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0005
0.0094	0.0104	0.00977	0.0101	0.0108	0.00996	0.014	0.0104	0.0108	0.00961	0.00433	0.00635	0.0065
108	108	102	101	96.6	93.6	98.2	93.7	94.4	89.9	73.8	84.5	88.1
3.81	4.12	3.62	3.31	2.89	2.63	2.31	2.15	1.93	1.76	2.34	4.29	4.46
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0348	0.032	0.0332	0.0304	0.0297	0.0296	0.0329	0.0304	0.03	0.0309	0.0212	0.0258	0.0275
0.0085	0.0095	0.00818	0.00599	0.0055	0.00556	0.00408	0.00467	0.00473	0.00413	0.0136	0.00751	0.0048
<0.3	<0.3	0.17	0.219	0.196	0.149	0.293	0.211	0.225	0.264	<0.3	<0.3	<0.3
11.5	11.4	9.99	8.43	8.15	6.36	6.05	6.06	5.4	4.68	10.2	7.79	6.8
<0.001	<0.001	0.0001	0.00013	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00054	0.00044	<0.001
14.8	14.2	14.5	15.1	15.4	15.5	16.2	15.8	16.8	16.9	8.74	9.76	10.3
<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
113	151	120	113	97.1	88.9	81.2	78.4	72.8	68.2	85.4	118	133
0.678	0.706	0.648	0.642	0.606	0.587	0.634	0.6	0.592	0.587	0.664	0.655	0.683
		142	133	121	113	107	108	109	108			
<0.0002	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000029	<0.00001	<0.0002
<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00038	<0.0001	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01
0.00577	0.00587	0.00439	0.00367	0.00302	0.00275	0.00275	0.00236	0.00212	0.00191	0.0116	0.0159	0.0187
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
0.0083	0.0073	0.0016	0.0025	0.0019	0.0026	0.0012	0.0029	0.0032	0.0027	0.0043	<0.003	0.0094
0.188	0.159	0.0569	0.0261	0.017	0.0212	0.0333	0.0267	0.0496	0.0244	0.327	0.0706	0.0723
0.00052	0.00058	0.00049	0.00041	0.00035	0.00041	0.00043	0.00054	0.00068	0.00072	0.0004	0.00025	<0.0005
0.0066	0.00754	0.00699	0.00725	0.00688	0.00683	0.00753	0.00669	0.007	0.00643	0.00156	0.00406	0.00461

Baseline Data for Groundwater

0.075	0.071	0.0599	0.0588	0.0524	0.0524	0.05	0.0465	0.0464	0.0416	0.0714	0.0858	0.088
<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001
<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2
<0.1	<0.1	0.073	0.057	0.067	0.059	0.065	0.056	0.062	0.051	0.058	0.047	<0.1
0.000113	0.000092	0.000049	0.000023	0.00002	0.000023	0.000028	<0.00003	<0.00003	0.000014	0.000124	0.000056	0.000105
94.4	94.3	79.8	83	74.1	71.7	77.8	71.2	75.5	67.5	106	105	101
0.0065	0.0152	0.00085	0.00065	0.00041	0.0005	0.00058	0.00036	0.00057	0.00034	0.00201	0.00129	<0.001
0.00641	0.0059	0.00559	0.00481	0.00426	0.00391	0.00327	0.00325	0.003	0.00257	0.00426	0.00578	0.00469
0.0051	0.0056	0.00212	0.00146	0.00063	0.00067	0.00781	0.0037	0.00222	0.0011	0.00298	0.0013	0.0015
4	5.22	5.04	5.03	4.58	4.1	4.38	4.1	3.89	3.28	0.514	0.979	1.55
<0.0005	<0.0005	0.000092	0.000057	<0.00005	<0.00005	<0.00005	0.000067	0.000165	<0.00005	0.000187	0.000142	<0.0005
0.01	0.0107	0.01	0.0105	0.0113	0.00996	0.0125	0.0101	0.0111	0.00918	0.00422	0.00611	0.0072
111	105	96.9	100	94.1	89.8	98.2	91.5	91.6	85.9	73.5	85.7	88.8
4.08	4.23	3.5	3.44	2.9	2.59	2.5	2.2	2.06	1.72	2.51	4.56	4.72
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001
0.0368	0.0349	0.0341	0.0319	0.0308	0.0302	0.0317	0.031	0.0316	0.0306	0.023	0.0271	0.0296
0.0113	0.0146	0.00837	0.00657	0.0058	0.00594	0.00461	0.00503	0.00539	0.00435	0.0168	0.00867	0.0054
<0.3	<0.3	0.257	0.284	0.28	0.27	0.299	0.292	0.319	0.287	<0.3	<0.3	<0.3
12.7	10.1	9.33	8.44	7.96	6.08	6.12	5.76	5.32	4.47	10.8	8	7.1
<0.001	<0.001	<0.0001	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00067	0.00052	<0.001
16.3	14.4	14.3	15.3	15.1	15	16.6	15.5	16.7	16.2	9.48	9.89	10.8
<0.00002	0.000097	0.000021	<0.00001	0.000021	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
125	143	114	114	101	89	84.4	79.3	74.5	66.1	87.4	124	140
0.773	0.7	0.654	0.658	0.63	0.591	0.585	0.595	0.605	0.574	0.694	0.673	0.733
		143	138	121	113	114	108	109	105			
<0.0002	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000035	<0.00001	<0.0002
<0.0005	<0.0005	0.00021	0.00013	<0.0001	<0.0001	0.00011	<0.0001	0.00013	<0.0001	0.00112	0.0003	<0.0005
0.014	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.015	<0.01
								0.000025				
0.00597	0.00614	0.0045	0.00387	0.00307	0.00268	0.0026	0.00235	0.00218	0.00187	0.0118	0.0157	0.0197
0.0015	0.0014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0013	<0.001	<0.001
0.017	0.0183	0.0047	0.0033	0.0034	0.0036	0.0032	0.0032	0.0049	0.0048	0.007	0.0066	0.011
21	20.3	17.8	17.8	13.5	11.9	11.1				12.8	22.5	23
21.4	20.4	18.4	19.3	13.1	12.4	11.3	11.1	9.78	8.8	12.6	21.9	27.4
0.158		0.172	<0.05							0.329	0.168	0.756
<0.5			<0.05							0.406	<0.3	<0.5
L1160966	**L1201474**	**L1248467**	**L1277798**	**L1307601**	**L1348177**	**L1393344**	**L1434002**	**L1474413**	**L1516193**	**L1081224**	**L1115110**	**L1160966**

Baseline Data for Groundwater

MW11-05S	MW11-05S	MW11-05S	MW11-05S	MW11-05S	MW11-05S	MW11-05S	MW11-05S	MW11-05S	MW11-06D	MW11-06D	MW11-06D	MW11-06D
29-Aug-12	11-Dec-12	6-Mar-13	27-May-13	13-Aug-13	17-Nov-13	18-Mar-14	19-Jun-14	9-Sep-14	26-Jul-11	31-Oct-11	10-Jun-12	28-Aug-12
1050	911	891	1031	1111	1290	1303	855	854	856	709	1992	2010
	2.9	31.1	16.2	7	15.6	36	2.1	10.2	43.6	1000	24.4	
3.47	0.35	3.73	1.86	0.77	1.88	4.29	0.24	1.17	4.18	136	2.32	2.32
6.98	7.39	7.39	7.36	7.17	7.47	7.39	7.42	7.5	7.98	8.35	8.4	8.15
-9	-191	-154	-190	-115	0.809	-112	-136	-156				-158
0.5	0.69	0.67	0.75	0.78	0.65	0.63	0.62	0.62				1
	1369	1337	1486	1531	851	867	1238	1232	1005	1031	1474	
16.9	7.49	7.52	8.95	10.6	7.49	7.5	8.76	8.54	17.3	8.67	10.9	12.3
661	889	869	966	996	131000	847	806	801				1300
22.1	9.5	-3.3	0	5	5.1	13	9.5	14.3	0	-5.2	0	2
10.3									4.4			3.3
318	339	330	298	284	347	337	338	330	48.2	42.9	38.6	41.3
	339	330	298	284	347	337	338	330	48.2		38.6	
	1	1	1	1	1	1	1	0.5	1		0.5	
8	10.4	7.8	8.5	5.9	7				2.5	2.5	2.5	2.5
609	568	597	563	554		571	559	543	157	140	424	586
	1	1	1	1	1	1	1	0.5	1		0.5	
7.75	8.01	8.04	7.97	7.95	8.1	8.04	8.1	7.92	7.8	7.9	7.7	8.02
1390	1380	1400	1320	1290	1310	1210	1260	1240	1090	987	1730	1920
1150	1060	968	963	948	678	887	922	920	720	675	1340	1630
7.9	4	12.7	12	17.3			15.1	16.2	1.5	1.5	1.5	1.5
17.6	29.8	29.6	37.4	55			49.6	34.7	0.39	1.87	0.38	0.47
<0.5	<0.5	<0.5	1.2	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.5
16.9	15.3	12.8	13.4	9.8	11.9	7.9	9	8.8	11.8	9.1	12	12
0.3	0.28	0.45	0.3	0.48	0.33	0.63	0.342	0.326	0.63	0.38	<0.4	<0.4
511	489	450	433	416	415	399	415	405	476	423	918	1040
0.0109	0.0318	0.0367	0.0279	0.0342	0.0782	0.0564	<0.005	0.03	0.0215	0.0509	0.0707	0.0814
<0.05	<0.05	0.078	<0.05	<0.05	<0.05	0.051	<0.05	0.059	<0.05	<0.05	<0.1	<0.1
<0.01	<0.01	0.017	<0.01	<0.01	0.014	0.013	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
	0.23	0.136							0.19	0.1	0.28	
0.21	<0.5	0.232	0.212	0.184					0.14	0.09	0.119	0.13
0.21	0.28	0.307	0.212	0.219	0.307	0.347	0.332	0.264	0.14	0.128	0.119	0.127
0.0026					0.0023	<0.001	0.0015	<0.001				0.0116
0.0026	0.0021	<0.002	<0.002	<0.002	0.0035	<0.002	<0.002		0.0214	0.0485	0.0135	
0.142	0.237	0.16	0.232	0.285	0.287	0.207	0.225	0.284	0.0281	0.055	0.0165	0.015

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0062	0.0059	0.0029	0.0039	0.0024	0.0026	0.0022	0.0023	0.0015	0.019	0.0139	0.022	<0.01
<0.0001	<0.0001	0.00011	0.0001	<0.0001	<0.0001	<0.0001	0.00015	0.00031	<0.001	<0.0001	<0.001	<0.001
0.00501	0.00572	0.0052	0.00706	0.00761	0.00658	0.00595	0.00557	0.00569	0.0084	0.01	0.0156	0.015
0.0821	0.0719	0.0725	0.0746	0.0704	0.0694	0.0684	0.0655	0.0641	<0.02	0.015	0.022	0.023
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.002	<0.0001	<0.002	<0.002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.0005	<0.2	<0.2
0.048	0.047	0.037	0.044	0.042	0.045	0.04	0.049	0.045	0.65	0.612	0.64	0.59
0.000011	0.000013	<0.00001	<0.00001	0.000012	<0.00001	<0.00003	<0.00001	<0.00001	<0.0004	<0.00003	0.000071	<0.000034
100	89.7	97.7	90	89	83.8	92.1	93	88	47.6	42.5	119	164
0.00016	0.00024	0.00019	0.00019	0.00016	0.00027	0.00021	<0.0001	0.0002	<0.002	<0.0001	<0.002	<0.002
0.00368	0.00148	0.00211	0.00191	0.00239	0.0005	0.00103	0.00135	0.00067	<0.0006	0.00016	<0.0006	<0.0006
<0.0002	<0.0002	0.0015	<0.0002	<0.0002	<0.0002	0.00029	<0.0002	0.00032	<0.004	<0.0005	0.0051	0.0025
2.1	1.94	2.2	3.35	4.51	0.077	4.04	4.05	2.85	<0.03	0.043	0.095	0.098
0.000066	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.001	<0.00005	<0.001	<0.001
0.00867	0.00901	0.00997	0.0108	0.00982	0.0183	0.0126	0.0106	0.00992	<0.01	0.00541	0.01	0.013
86.8	83.6	85.8	82.1	80.7	56.5	82.7	79.5	78.5	9.39	8.2	31	42.9
4.52	4.78	5.07	4.54	4.26	3.73	3.87	3.26	2.71	0.081	0.124	0.092	0.0882
	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0259	0.0266	0.0307	0.0263	0.0303	0.0173	0.0234	0.024	0.0237	0.0777	0.0921	0.083	0.0833
0.00262	0.00225	0.00283	0.00177	0.00174	0.00141	0.00165	0.0026	0.00157	<0.002	<0.0005	<0.002	<0.002
0.155	0.207	0.123	0.2	0.178	0.085	0.145	0.085	0.142	<0.3	<0.3	<0.3	<0.3
7.69	7.96	7.96	7.82	6.26	1.02	7.85	5.65	5.59	1	1.08	1	1
0.00063	0.0003	0.00022	0.00014	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.002	0.0001	<0.002	<0.002
10.9	9.66	10.4	10.4	10.2	6.59	10.4	10.6	10.8	3.32	3.78	3.9	4.04
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00004	<0.00001	<0.00004	<0.00004
118	118	101	99.2	90.1	93	76.3	81.3	88.4	162	156	234	269
0.666	0.646	0.699	0.673	0.646	0.6	0.663	0.637	0.635	2.44	2.31	7.88	8.14
	156	148	139	132	431	125	127	133				
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0004	<0.00001	<0.0004	<0.0004
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0017	0.00014	<0.001	<0.001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0198	0.0214	0.0183	0.0149	0.0128	0.0114	0.0102	0.00849	0.0082	<0.0004	0.00014	<0.0004	<0.0004
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002
0.0031	0.0022	0.0031	0.0039	0.0036	0.0024	0.0058	0.0074	0.0068	0.0131	0.0067	<0.005	<0.005
0.0426	0.0258	0.0302	0.0196	0.0114	0.0564	0.0678	0.032	0.0568	0.02	0.113	0.036	0.024
0.0001	0.00013	0.00018	0.00015	0.00011	0.00023	0.00016	0.00026	0.0007	<0.001	<0.0001	<0.001	<0.001
0.00512	0.00569	0.00643	0.00708	0.00807	0.00709	0.00564	0.00662	0.00651	0.008	0.00972	0.0161	0.0156

Baseline Data for Groundwater

0.0736	0.0746	0.0788	0.0722	0.0715	0.0739	0.0698	0.0705	0.0673	<0.02	0.0164	0.023	0.023
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.002	<0.0001	<0.002	<0.002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.0005	<0.2	<0.2
0.043	0.049	0.04	0.046	0.045	0.051	0.043	0.08	0.054	0.67	0.617	0.67	0.61
0.000043	0.000045	0.000049	0.000034	0.000037	0.000069	0.000207	0.000038	0.000037	<0.0004	<0.00003	0.000074	<0.000034
93.9	87.1	101	87.9	88.8	84.3	90.9	92.5	81.9	47.7	42.2	125	161
0.00046	0.00065	0.0011	0.00059	0.00047	0.00103	0.00121	0.00082	0.00121	<0.002	0.00019	<0.002	<0.002
0.00395	0.00247	0.00273	0.00218	0.00252	0.00066	0.00128	0.00161	0.00083	<0.0006	0.00022	<0.0006	<0.0006
0.00192	0.00209	0.00208	0.00215	0.00099	0.00388	0.00357	0.00205	0.00314	<0.006	<0.0005	0.0056	0.0085
2.28	2.47	3.19	3.55	5.15	0.161	4.08	5.05	3.98	<0.03	0.119	0.106	0.114
0.000167	0.000139	0.000104	0.000071	0.000059	0.000148	0.000147	0.000124	0.000088	<0.001	<0.00005	<0.001	<0.001
0.00817	0.0089	0.0108	0.0108	0.00971	0.0189	0.0129	0.0111	0.0095	<0.01	0.00509	0.011	0.013
82.9	79.6	86.4	80.5	78.1	55.4	81.5	79.3	74.5	9.58	8.17	31.7	43.5
5.03	4.79	5.24	4.59	4.22	3.77	3.95	3.33	2.66	0.0834	0.128	0.103	0.0927
	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0267	0.0282	0.034	0.0279	0.0321	0.0215	0.0253	0.0262	0.0239	0.0807	0.0964	0.087	0.0863
0.00308	0.00298	0.0036	0.00196	0.00178	0.00185	0.00308	0.00331	0.00206	<0.002	<0.0005	<0.002	<0.002
0.182	0.221	0.235	0.233	0.241	0.099	0.178	0.212	0.231	<0.3	<0.3	<0.3	<0.3
7.19	7.34	8.08	7.06	6.11	1.07	8.17	5.71	5.18	1	1.12	1	1
0.00026	0.0002	0.0002	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.002	<0.0001	<0.002	<0.002
10.6	9.43	10.7	10.3	10.2	6.78	10.4	10.8	10.2	3.36	3.93	4	4.09
<0.00001	0.000015	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00004	<0.00001	<0.00004	<0.00004
120	114	104	102	89.1	93.3	77.8	80.5	85.4	165	160	248	266
0.685	0.642	0.709	0.665	0.63	0.643	0.684	0.643	0.623	2.46	2.38	8.23	8.05
	155	156	138	133	444	127	130	126				
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0004	<0.00001	<0.0004	<0.0004
0.00011	0.00012	0.00016	<0.0001	<0.0001	0.00015	0.00015	0.00017	0.00021	0.0022	0.00023	<0.001	<0.001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0215	0.0215	0.0195	0.0155	0.0128	0.012	0.0107	0.00876	0.00802	<0.0004	0.000142	<0.0004	<0.0004
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002
0.0043	0.0033	0.0056	0.0055	0.0036	0.0053	0.011	0.0106	0.0105	0.0084	<0.003	0.0484	<0.005
20.2	16.2	13.1	12.6	12	13.8				7.28	2.38	3.25	2.18
20.4	17.1	13.8	12.2	12.1	11.8	9.69	9.23	9.9	5.47	2.18	1.78	2.03
	0.199	<0.05							0.169	<0.05	0.209	
		0.1							0.119	<0.05	<0.06	
L1202478	**L1248467**	**L1277798**	**L1307601**	**L1348177**	**L1393344**	**L1434002**	**L1474413**	**L1516193**	**L1036785**	**L1079367**	**L1160966**	**L1201474**

Baseline Data for Groundwater

MW11-06D	MW11-06D	MW11-06D	MW11-06D	MW11-06D	MW11-06D	MW11-06D	MW11-06D	MW11-06S	MW11-06S	MW11-06S	MW11-06S	MW11-06S
5-Dec-12	7-Mar-13	24-May-13	11-Aug-13	15-Nov-13	8-Apr-14	18-Jun-14	10-Sep-14	26-Jul-11	29-Oct-11	10-Jun-12	27-Aug-12	5-Dec-12
771	650	927	1400	2120	1919	1597	1585	1700	1664	2633	2330	1574
28.8	0.5	0.7	3.6	1.3	3.4	3.3	25.8	16.5	349	24.8		19.9
3.43	0.06	0.08	0.4	0.16	0.4	0.36	2.85	1.92	39.6	2.08	2.1	2.35
8.48	8.86	8.22	8.31	8.33	8.28	8.26	8.28	7.75	7.84	7.97		8.04
-140	-210	-244	-92.5	1.38	-152	-151	-160				63	-55.4
0.58	0.49	0.67	0.98	1.08	0.98	1.12	1.13				1.2	1.23
1163	999	1327	1987	1410	1293	2169	2195	2509	2429	2011		2384
7.35	6.72	9.2	10.9	7.54	7.91	11.2	10.4	8.11	8.53	12.6	12.5	7.3
756	649	863	1246	184600	1248	1410	1426				1490	1553
2.1	1.8	0	0	1	-2.4	1.4	1.4	2.5	4	23.6	18.5	5.6
		2.3						6.1			4.6	
42.3	39.7	40.4	41.2	42.4	27.8	39.7	39.9	83.9	78.4	59.5	77.2	77.4
42.3	39.7	40.4	41.2	42.4	27.8	39.7	39.9	83.9		59.5		77.4
1	1	1	1	1	1	0.5	0.5	1		0.5		1
2.5	2.5	2.5	2.5					9.8	6.7	2.5	2.5	2.5
195	156	205	557	638	544	652	653	787	815	807	789	729
1	1	1	1	1	1	0.5	0.5	1		0.5		1
7.85	7.92	8.03	7.67	7.86	7.9	7.81	7.77	7.56	7.93	7.69	7.9	7.88
1130	1080	1180	2020	2140	1900	2170	2210	2360	2310	2280	2230	2310
797	690	857	1560	1720	1530	1750	1740	1960	1950	1960	1970	1970
1.5	3.3	1.5	1.5		4.5	1.5	1.5	1.5	4.2	25.3	3.9	4
0.83	0.42	0.57	0.51		0.35	0.34	0.57	2.61	4.97	21.2	5.18	3.7
<0.5	<0.5	<0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
9.8	9.1	11.7	11	14	17	12	11	38	33	29	31	29
0.31	0.55	0.32	0.51	<0.4	<0.4	0.28	0.251	<0.4	<0.4	<0.4	<0.4	<0.4
520	476	558	1080	1190	1000	1220	1230	1290	1290	1270	1280	1310
0.048	0.059	0.058	0.071	0.0904	0.08	0.0892	0.0961	0.125	0.14	0.13	0.129	0.102
<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.01	<0.01	<0.01	<0.02	0.024	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
0.072	0.074							0.41	0.24	0.99		0.188
0.117	<0.071	0.108	0.17					0.48	0.273	0.324	0.21	0.19
0.117	0.066	0.123	0.165	0.167	0.146	0.205	0.169	0.48	0.273	0.324	0.208	0.192
				0.0072	0.0067	0.0052	0.0038				0.0503	
0.0448	0.0348	0.0225	0.0085	0.007	0.0105	0.0056		0.0134	0.0305	0.0245		0.0504
0.0496	0.038	0.0239	0.0093	0.0089	0.0081	0.0057	0.0055	0.0329	0.0511	0.0982	0.0732	0.0735

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0078	0.0074	0.0065	0.0039	0.0034	0.0046	0.0046	0.0033	<0.025	0.0061	0.013	<0.01	0.0063
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	<0.0002	<0.001	<0.001	<0.0002
0.0116	0.0122	0.0136	0.0135	0.0137	0.0138	0.0134	0.013	<0.0025	0.00146	0.0014	0.0014	0.00149
0.0138	0.0126	0.016	0.0214	0.0242	0.0229	0.0232	0.0218	0.063	0.0514	0.042	0.035	0.0353
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.002	<0.002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.2	<0.2	<0.001
0.561	0.545	0.481	0.493	0.555	0.507	0.424	0.49	0.27	0.269	0.3	0.28	0.279
<0.00003	0.000017	<0.00005	<0.00002	<0.00003	<0.00006	<0.00005	<0.00001	<0.000085	0.00003	0.000124	<0.000034	0.000043
55.7	46.9	60.4	153	167	143	171	169	176	168	164	167	170
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.002	<0.002	0.00543
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.003	0.00176	0.00148	0.00098	0.00088
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00059	<0.0002	<0.0002	<0.005	<0.001	0.0051	<0.002	0.00089
					<0.00002	<0.00002						
0.058	0.057	0.044	0.074	0.104	0.078	0.089	0.103	0.063	0.083	0.212	0.1	0.054
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0025	<0.0001	<0.001	<0.001	<0.0001
0.00679	0.00549	0.00704	0.012	0.0137	0.0113	0.0142	0.0117	<0.025	0.0092	0.011	<0.01	0.0139
13.7	9.53	13	42.7	53.6	45.2	54.6	56.3	84.3	96.2	96.6	90.4	74.2
0.105	0.0838	0.0725	0.0543	0.0668	0.056	0.0553	0.0558	1.46	1.14	0.541	0.498	0.497
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001
0.0945	0.0871	0.0857	0.0769	0.0825	0.0809	0.0779	0.0809	0.0753	0.0964	0.102	0.11	0.115
<0.0005	0.00201	0.00076	<0.0005	<0.0005	<0.0005	0.00149	<0.0005	<0.005	0.0026	<0.002	<0.002	0.0057
0.051	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3	<0.3	<0.3	<0.3	0.061
1.19	0.98	1.13	1.82	2.05	1.96	2.15	2.2	8.9	8.67	8.3	9	8.71
0.00015	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.005	<0.0002	<0.002	<0.002	<0.0002
3.66	3.51	3.71	3.69	3.82	3.99	3.85	3.79	4.51	4.5	4.48	4.5	4.52
<0.00001	<0.00001	<0.00001	<0.00001	0.00005	<0.00001	<0.00001	<0.00001	<0.0001	<0.00002	<0.00004	<0.00004	<0.00002
162	148	168	240	256	242	253	264	288	275	272	275	261
3.2	2.6	3.4	7.59	7.45	7.25	8.06	8.28	5.03	5.77	6.25	5.87	6.61
170	147	169	333	370	345	377	389					340
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.001	0.000036	<0.0004	<0.0004	0.000024
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	<0.0002	<0.001	<0.001	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02
0.000114	0.00004	0.000025	0.000017	0.000024	0.000023	0.000021	0.000022	0.0012	0.000749	0.0005	0.00053	0.000547
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.002	<0.002	<0.002	<0.002
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0024	<0.001	<0.005	<0.006	1.66	0.0529	0.0214
0.0341	0.0303	0.0143	0.0067	0.0066	0.0234	0.0098	0.0227	0.071	0.164	0.305	0.176	0.198
<0.0001	<0.0001	<0.0001	0.00012	0.00013	0.0001	<0.0001	0.00014	<0.0025	<0.0002	<0.001	<0.001	<0.0002
0.0122	0.0123	0.0139	0.0135	0.0141	0.015	0.0145	0.0135	<0.0025	0.003	0.0015	0.0016	0.00156

Baseline Data for Groundwater

0.0145	0.0125	0.0159	0.0226	0.0239	0.0233	0.0237	0.0209	0.063	0.0518	0.049	0.036	0.0373
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.002	<0.002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.2	<0.2	<0.001
0.629	0.576	0.503	0.515	0.584	0.563	0.445	0.498	0.27	0.273	0.31	0.28	0.288
<0.00003	0.000017	<0.00005	<0.00002	<0.00003	<0.00006	<0.00005	<0.00001	0.000125	0.000067	0.000155	0.000038	0.000063
55.1	46.3	59.9	151	165	136	170	159	168	170	170	164	165
0.00059	0.00023	0.00011	0.00017	0.00011	0.00022	<0.0001	0.00016	<0.005	0.00051	<0.002	<0.002	0.00852
<0.0001	0.00023	<0.0001	<0.0001	<0.0001	0.00013	<0.0001	<0.0001	0.0032	0.00189	0.00366	0.00116	0.0011
0.00058	0.00347	<0.0005	<0.0005	<0.0005	<0.0015	0.0005	<0.0005	<0.005	0.0017	0.0086	<0.002	0.0029
0.083	0.259	0.101	0.082	0.113	0.368	0.124	0.605	0.138	0.266	2.24	0.353	0.322
0.000078	<0.00005	<0.00005	<0.00005	<0.00005	0.000062	<0.00005	<0.00005	<0.0025	0.00011	0.0013	<0.001	0.00013
0.00764	0.00588	0.00743	0.0138	0.0142	0.0121	0.0149	0.0116	<0.025	0.0089	0.01	0.011	0.0142
13.5	9.95	12.9	42.4	53.4	43.6	56.3	54.6	82.2	95.2	96.4	90.9	75.3
0.107	0.0842	0.0727	0.0565	0.0691	0.0587	0.0589	0.0559	1.55	1.17	0.505	0.514	0.506
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.104	0.0906	0.0899	0.0814	0.0874	0.0832	0.0855	0.0778	0.0828	0.0951	0.0919	0.112	0.118
0.00063	0.0022	0.00069	<0.0005	<0.0005	<0.0005	0.00204	<0.0005	<0.005	0.0031	0.0027	0.0021	0.0071
0.054	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3	<0.3	<0.3	<0.3	0.069
1.18	1.06	1.11	1.84	2.15	1.84	2.14	2.12	8.7	8.68	8.6	8.8	8.49
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.002	<0.002	<0.0002
3.7	3.59	3.69	3.72	3.87	3.86	3.95	3.66	4.52	4.86	5.5	4.94	5.02
<0.00001	<0.00001	<0.00001	<0.00001	0.000049	<0.00001	<0.00001	<0.00001	<0.0001	<0.00002	<0.00004	0.000053	<0.00002
166	151	167	244	267	241	265	250	281	277	281	271	260
3.44	2.65	3.6	7.78	7.75	7.45	8.45	8	4.85	5.7	6.52	5.76	6.89
168	154	170	333	377	344	393	374					351
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.001	0.000038	<0.0004	<0.0004	0.00003
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	0.00031	<0.001	<0.001	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	0.024	0.018	<0.02
					<0.00002	<0.00002						
0.000118	0.000045	0.000033	0.000022	0.000025	0.000025	0.000021	0.000021	0.0013	0.000762	0.00046	0.00055	0.000543
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.002	<0.002	<0.002	<0.002
<0.003	0.03	0.0129	0.0046	<0.003	0.0711	0.0062	0.0387	<0.005	<0.006	2.28	0.0628	0.0317
2.06	1.72	1.5	1.99	1.97	1.52			5.97	4.04	9.08	3.06	2.99
2.18	1.53	1.33	1.87	1.75	1.52	1.49	1.6	5.73	3.81	5.08	2.94	2.76
<0.05	<0.05							0.285	0.1	0.86		0.085
<0.08	<0.08							0.355	0.09	0.194		0.089
L1246516	**L1277099**	**L1306577**	**L1346553**	**L1392959**	**L1441050**	**L1473868**	**L1516193**	**L1037497**	**L1079375**	**L1160966**	**L1201474**	**L1246516**

Baseline Data for Groundwater

MW11-06S	MW11-06S	MW11-06S	MW11-06S	MW11-06S	MW11-06S	MW11-06S	MW11-07D	MW11-07D	MW11-07D	MW11-07D	MW11-07D	MW11-07D
7-Mar-13	24-May-13	11-Aug-13	15-Nov-13	7-Apr-14	18-Jun-14	10-Sep-14	29-Jul-11	24-Oct-11	8-Feb-12	8-Jun-12	25-Aug-12	9-Dec-12
1545	1793	1816	2290	1616	1758	1629	1167	945	1078	1803	1670	954
3.8	3	66.2	1.9	66.2	4.5	9.9	3.9	0.2	19.1	20.8		2.4
0.44	0.35	7.19	0.236	7.75	0.49	1.14	0.4	0.02	2.21	2.03	0.09	0.29
8.3	7.66	7.91	7.86	7.92	8	8.02		7.8	7.92	7.9	8.36	8.06
-106	-144	26.9	-69	-92.4	-96.4	-76.9			-199		-230	-260
1.22	1.36	1.26	1.18	1.23	1.21	1.21			0.84		0.8	0.73
2369	2640	2426	1510	2382	2348	2341	1510	1466	1657	1254		1454
6.73	8.06	11.9	7.21	8.16	11.7	9.07	13.1	6.39	6.71	8.89	10.5	6.99
1540	1780	1576	1486	1548	1526	1521			1079		1070	947
10.7	0	2.3	2.2	-0.5	10.4	9.1	9.9	18.2	0.001	8.6	10.1	-1.3
	2.6						5.8	4.6			2.6	
75.3	72.8	74.4	76.8	104	54.7	56.2	126	124	132	120	128	126
75.3	72.8	74.4	76.8	104	54.7	56.2	126	124	132	120		126
1	1	1	1	1	0.5	0.5	1	1	1	0.5		1
2.5	2.5	2.5					10.7	7.4	11.1	9.6	8.2	7
750	814	793	803	834	823	807	310	300	290	285	279	268
1	1	1	1	1	0.5	0.5	1	1	1	0.5		1
7.83	7.97	7.95	7.84	7.82	7.91	7.81	7.97	8.09	8.07	8.01	8.12	8.14
2400	2290	2360	2320	2400	2350	2330	1640	1640	1600	1560	1580	1420
1750	1990	1910	1910	2020	1980	1830	1160	1110	1120	1160	1160	1150
11.4	9.7	7.1		8.3	33.2	5.4	7.1	7.1	3.3	1.5	1.5	1.5
7.74	6.95	3.76		1.91	9.04	6.11	4.27	5.05	2.3	1.47	2.25	2.76
0.5	0.5	0.5	0.5	0.5	0.5	0.5	<0.5	0.5	<0.5	0.5	0.5	0.5
28	31	28	30	34	28	29	16.5	17	19.9	21	19	17
0.56	<0.4	0.58	<0.4	<0.4	0.237	0.228	0.47	0.47	0.44	0.45	0.47	0.46
1320	1340	1300	1300	1320	1330	1310	695	714	688	711	700	683
0.143	0.124	0.096	0.067	0.11	0.0572	0.116	0.11	0.067	0.0564	0.0398	0.0561	0.0475
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.05	<0.1	<0.05	<0.1	<0.1	<0.1
<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.028	<0.01	<0.02	<0.02	<0.02
0.175							0.41	0.2	0.21	0.17		0.182
0.18	0.213	0.2					0.41	0.26	0.211	0.253	<0.27	0.149
0.181	0.202	0.203	0.165	0.215	0.194	0.308	0.41	0.233	0.211	0.25	<0.25	0.154
			0.0532	0.0382	0.0433	0.0312		0.0321			0.0982	
0.048	0.0494	0.0528	0.0525	0.0591	0.0442		0.0409	0.0306	0.0668	0.0914		0.082
0.0828	0.0765	0.0656	0.0712	0.0416	0.032	0.0362	0.0559	0.0743	0.111	0.162	0.129	0.136

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0054	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0046	0.0043	0.0038	0.0038	0.0039	0.0054	0.0023	<0.025	0.0087	0.0107	0.0098	0.0112	0.0076
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00016	<0.0001	<0.0025	<0.0002	<0.0002	<0.0002	0.00022	<0.0002
0.00165	0.00144	0.00138	0.00151	0.00136	0.00137	0.00114	<0.0025	0.00368	0.00425	0.00536	0.00606	0.00574
0.0278	0.0284	0.0253	0.0282	0.0259	0.0248	0.0245	0.041	0.0386	0.0468	0.0438	0.0456	0.0432
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.001	<0.001	<0.001	<0.001
0.292	0.253	0.245	0.294	0.286	0.238	0.257	0.3	0.314	0.305	0.29	0.281	0.288
<0.00005	<0.00002	<0.00004	<0.00006	<0.00009	<0.00005	0.000011	0.000147	<0.00002	0.000025	<0.00002	<0.00002	<0.00002
175	171	170	169	175	175	170	71.1	69.8	68.2	68		63.7
<0.0001	<0.0001	<0.0001	0.00023	0.00033	0.00012	0.0017	<0.005	<0.0002	0.00064	0.00021	<0.0002	0.00023
0.00066	0.00061	0.00059	0.00063	0.00059	0.00046	0.00055	<0.0015	0.00114	0.00109	0.0007	0.00057	0.00047
<0.0002	<0.0002	<0.0002	<0.0002	0.00162	0.00034	<0.0002	<0.005	<0.001	<0.001	<0.0004	<0.0004	<0.0004
				<0.00002	<0.00002							
0.136	0.136	0.054	0.047	0.099	0.035	0.041	0.054	0.111	0.25	0.201	0.205	0.245
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0025	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.0132	0.0131	0.0152	0.0155	0.016	0.0192	0.0131	<0.025	0.0246	0.0241	0.0273	0.0222	0.0289
75.9	94.1	89.4	92.9	96.8	94.1	93	32.1	30.4	29	27.9		26.5
0.405	0.372	0.344	0.353	0.304	0.232	0.319	0.65	0.777	1.16	0.908	0.97	0.855
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.11	0.106	0.0984	0.111	0.107	0.105	0.105	0.0354	0.0292	0.0264	0.0231	0.024	0.0228
0.001	0.00083	0.00086	0.00165	0.00122	0.00091	0.00109	<0.005	0.002	0.0023	0.0012	0.0014	<0.001
0.08	0.066	0.068	0.073	0.061	<0.05	<0.05	<0.3	<0.3	<0.3	<0.3		0.15
7.91	8.34	8.09	8.19	8.73	8.87	7.94	4.7	3.32	3.23	2.5	4.85	3.5
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	0.0003	<0.0002	<0.0002	<0.0002
4.36	4.46	4.26	4.38	4.59	4.37	4.44	4.15	4.83	4.92	5.01		4.58
<0.00001	<0.00001	<0.00001	0.000035	<0.00001	<0.00001	<0.00001	<0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
255	255	253	257	269	264	262	255	237	261	241	260	243
6.33	5.89	5.57	5.53	6.47	6.09	6.24	7.4	7.53	7.78	7.65	7.26	7.8
361	392	397	405	436	408	418						222
0.000015	0.000012	0.000014	0.000017	0.000015	<0.00001	0.000015	<0.001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	0.00026	0.0002	<0.0002	<0.0002	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01		<0.02
0.000378	0.000348	0.000351	0.000377	0.000341	0.000248	0.000335	0.0022	0.000993	0.000968	0.000769	0.000735	0.000673
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
0.101	0.0815	0.038	0.0284	0.146	0.0236	0.323	<0.005	<0.006	<0.006	<0.002	<0.002	<0.002
0.275	0.279	0.15	0.0402	0.0439	0.67	0.0805	0.189	0.117	0.0147	0.0156	0.018	0.0138
0.00013	<0.0001	0.00012	0.00012	<0.0001	0.00024	0.00015	<0.0025	<0.0002	<0.0002	0.0002	0.00029	<0.0002
0.00193	0.0016	0.00155	0.00156	0.00143	0.00186	0.00137	0.0026	0.00362	0.00474	0.00588	0.00597	0.00591

Baseline Data for Groundwater

0.0313	0.0313	0.0279	0.0281	0.0253	0.031	0.0237	0.049	0.0432	0.0458	0.0457	0.0423	0.0446
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.001	<0.001	<0.001	<0.001
0.298	0.275	0.251	0.313	0.271	0.252	0.259	0.31	0.326	0.302	0.316	0.288	0.301
<0.00005	<0.00004	<0.00005	<0.00009	<0.00009	<0.0001	0.000018	0.000228	0.000073	0.000022	<0.00002	<0.00002	<0.00002
171	167	168	166	165	176	157	72.4	70	67.2	73.3		66.6
0.00066	0.00052	0.00049	0.00059	0.00057	0.00092	0.00293	<0.005	0.00296	0.00095	0.00057	0.00111	0.00071
0.00095	0.00087	0.00072	0.00067	0.00062	0.00106	0.00067	0.0018	0.00123	0.00118	0.00081	0.0006	0.00054
0.00551	0.00221	0.00109	0.00165	<0.0015	0.00435	0.00114	<0.005	0.0014	<0.001	<0.001	<0.001	<0.001
0.631	0.501	0.228	0.135	0.295	0.972	0.851	0.175	0.229	0.295	0.247	0.263	0.289
0.000136	0.000098	0.000054	0.000095	0.000091	0.000305	0.000221	<0.0025	0.00012	<0.0001	<0.0001	<0.0001	<0.0001
0.013	0.0133	0.015	0.0154	0.0149	0.02	0.0124	<0.025	0.0239	0.0223	0.0272	0.0231	0.0298
76.1	92.9	89	91.8	92	97.2	86.2	33.1	30.3	28.6	28.2		27
0.423	0.378	0.36	0.35	0.304	0.257	0.321	0.695	0.81	1.17	0.962	0.931	0.881
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.109	0.105	0.102	0.114	0.11	0.112	0.101	0.0384	0.0294	0.0268	0.0251	0.0251	0.0238
0.00157	0.00137	0.00122	0.00187	0.00127	0.00219	0.00141	<0.005	0.0025	0.0025	0.0014	0.0016	0.0011
0.058	0.081	0.077	0.071	0.06	0.099	0.054	<0.3	<0.3	<0.3	<0.3		0.151
7.9	8.08	7.94	8.43	8.25	9	7.56	4.9	3.44	3.21	2.56	3.96	3.6
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	0.00032	0.00022	<0.0002	<0.0002	<0.0002
4.99	5.02	4.59	4.52	4.57	6.02	4.42	4.75	5.05	4.8	5.28		4.78
<0.00001	<0.00001	<0.00001	0.000035	<0.00001	0.000017	<0.00001	<0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
250	253	271	260	264	262	252	264	243	257	245	240	255
6.21	6.01	5.86	5.48	6.23	6.36	5.99	7.68	7.5	7.72	7.85	7.36	8.13
352	392	405	411	430	429	391						225
0.000018	0.000017	0.000016	0.000018	0.000019	0.000019	0.000013	<0.001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
<0.0001	<0.0001	<0.0001	0.00013	<0.0001	0.0001	<0.0001	<0.0025	0.00077	0.0002	<0.0002	<0.0002	<0.0002
0.015	0.013	<0.01	<0.01	<0.01	0.032	<0.01	0.011	0.015	<0.01	<0.01		<0.02
				<0.00002	0.000034							
0.000403	0.00036	0.000369	0.000392	0.000346	0.000289	0.000346	0.0023	0.00107	0.000998	0.000834	0.000766	0.00069
0.0012	0.0011	<0.001	<0.001	<0.001	0.0025	<0.001	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
0.153	0.127	0.0522	0.04	0.16	0.0989	0.617	<0.005	<0.006	<0.006	<0.006	<0.006	<0.006
2.55	2.03	2.55	2.11	1.9			5.69	8.5	16.6	13.1	12.8	10
2.28	2	2.4	2.02	2.05	1.83	1.99	5.26	8.68	17.1	13.8	13.5	9.54
<0.05							0.3	0.105	0.154	0.13		0.134
<0.08							0.3	0.135	0.154	<0.3		
L1277099	**L1306577**	**L1346553**	**L1392959**	**L1441050**	**L1473868**	**L1516193**	**L1038606**	**L1077032**	**L1113106**	**L1159973**	**L1200094**	**L1247928**

Baseline Data for Groundwater

MW11-07D	MW11-07D	MW11-07D	MW11-07D	MW11-07D	MW11-07D	MW11-07D	MW11-07S	MW11-07S	MW11-07S	MW11-07S	MW11-07S	MW11-07S
3-Mar-13	23-May-13	9-Aug-13	14-Nov-13	12-Mar-14	18-Jun-14	5-Sep-14	3-Aug-11	22-Oct-11	16-Feb-12	10-Jun-12	25-Aug-12	9-Dec-12
968	1720	1083	1560	1514	1106	2217	928	958	867	1603	1480	935
1.5	1.4	6.3	1.3	68.9	1.7	22.4	17.3	79.4	40.9	25.3		14.3
0.18	0.17	0.78	0.16	8.41	0.21	2.46	1.98	9.08	5.36	2.46	1.06	1.71
7.91	8.04	7.94	8.01	7.83	7.83	7.68	7.7	7.96	8.06	7.87	7.73	7.83
-189	-159	-107	254	-93.9	-163	-130			-292		-131	52.4
0.77	0.81	0.73	0.79	0.76	0.8	1.6			0.75		0.7	0.71
1528	1593	1436	1050	980	1577	3050	1294	1369	1498	1107		1410
5.82	7.88	12.2	7.7	6.54	9.42	10.7	10.2	9.27	2.94	8.15	11.4	7.35
993	1036	934	1015	984	1025	1983			973		944	916
179	0	0	8.5	9.8	0.7	4.2	0	1.5	7.5	16.1	2.6	2
7.1	1.6						1.7	3.2			3	
195	112	119	134	128	131	134	170	167	182	161	167	155
195	112	119	134	128	131	134	170	167	182	161		155
1	1	1	1	1	0.5	0.5	1	1	1	0.5		1
2.5	2.5	2.5		10.2			5.8	6.4	7.1	5.2	5.9	5.8
278	273	266	255	263	270	272	278	279	288	273	290	287
1	1	1	1	1	0.5	0.5	1	1	1	0.5		1
8.02	8.23	8.18	8.18	8.14	8.12	8.15	8.17	8.19	8.26	8.1	8.11	8.03
1560	1530	1530	1590	1540	1610	1610	1360	1430	1410	1350	1420	1400
1030	1160	1100	872	1130	1150	1160	940	999	1010	962	1040	1020
3.9	6.6	1.5		6.7	1.5	3.6	3.8	1.5	7.3	4	5.3	6.4
6.43	5.26	1.22		7.83	3.09	3.82	0.62	0.35	4.09	1.36	4.27	4.86
<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15.5	18.4	14.7	17	15.5	16	15.5	10.9	10.5	11.2	10.8	12	11.3
0.65	0.5	0.62	0.48	0.74	0.114	0.484	0.47	0.32	0.3	0.3	0.33	0.33
676	722	678	673	670	708	673	530	578	579	551	598	616
0.0372	0.0331	0.026	0.0986	0.0891	<0.005	0.158	0.0123	0.0281	<0.05	0.0157	0.0249	0.0271
<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	0.074
<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.076							0.17	0.21	0.07	0.3		0.268
0.144	0.139	0.108					0.14	0.2	<0.043	0.261	0.151	0.26
0.144	0.136	0.108	0.37	0.296	0.324	0.306	0.09	0.185	<0.2	0.261	0.151	0.25
			0.103	0.0825	0.0748	0.0764		0.0355			0.0216	
0.0943	0.11	0.0993	0.12	0.0806	0.075	0.081	0.0304	0.036	0.0219	0.0277		0.0399
0.138	0.165	0.129	0.206	0.197	0.185	0.169	0.036	0.0375	0.0389	0.0383	0.0444	0.0538

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0066	0.0062	0.0075	0.0052	0.004	0.0117	0.0171	<0.025	0.0108	0.023	0.02	0.0082	0.0184
0.00012	<0.0001	<0.0001	0.00049	0.00049	0.00072	0.00051	<0.0025	<0.0002	<0.0002	<0.001	<0.0002	<0.0002
0.00562	0.00542	0.00622	0.00354	0.00395	0.00448	0.0042	0.0045	0.00531	0.00383	0.0041	0.00412	0.00386
0.0408	0.0432	0.0387	0.0439	0.0485	0.0496	0.047	0.041	0.0418	0.0431	0.041	0.041	0.0428
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.0002	<0.002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.001	<0.2	<0.001	<0.001
0.283	0.293	0.285	0.308	0.298	0.279	0.304	0.29	0.308	0.241	0.28	0.244	0.258
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00003	<0.00001	0.000194	0.000063	0.000119	0.000471	0.000026	0.000224
64.9	65.1	62.5	58.9	62.5	63.6	64.6	46.5	48.7	49.3	42.3		48.6
<0.0001	<0.0001	<0.0001	0.00024	0.0002	0.00057	0.00034	<0.005	<0.0002	<0.0002	<0.002	<0.0002	0.00026
0.0004	0.00041	0.00033	0.00024	0.00036	0.0005	0.00037	<0.0015	0.00087	0.00108	0.00098	0.001	0.00087
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00035	0.00026	<0.005	<0.001	0.0013	0.0069	0.00045	0.00321
					<0.00002							
0.257	0.302	0.255	0.207	0.392	0.579	0.504	<0.03	<0.03	<0.03	<0.03	0.081	<0.01
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0025	<0.0001	<0.0001	<0.001	<0.0001	<0.0001
0.029	0.028	0.0299	0.0213	0.0186	0.027	0.0271	0.028	0.0327	0.025	0.025	0.0228	0.0229
28.1	26.8	26.8	26.2	25.9	26.9	26.9	39.3	38.2	40	40.7		40.3
0.712	0.737	0.547	1.1	1.24	0.908	0.831	0.19	0.342	0.573	0.584	0.713	0.792
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0216	0.0214	0.0211	0.0211	0.0222	0.0253	0.0212	0.0184	0.0172	0.0155	0.0167	0.0179	0.016
0.00091	0.00232	<0.0005	0.00111	0.00134	0.00212	0.00159	<0.005	0.0026	0.0041	0.0024	0.0024	0.0029
0.172	0.16	0.125	0.167	0.161	0.174	0.177	<0.3	<0.3	<0.3	<0.3		<0.05
2.74	2.39	2.31	7.49	8.11	10	8.7	2.7	2.03	5.79	2.2	1.65	2.2
0.00012	<0.0001	<0.0001	0.00025	<0.0001	0.00011	<0.0001	<0.005	<0.0002	<0.0002	<0.002	<0.0002	<0.0002
4.78	4.75	4.79	4.45	4.42	4.41	4.48	4.71	5.07	4.62	4.73		4.79
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0001	<0.00002	<0.00002	<0.00004	<0.00002	<0.00002
214	223	217	220	249	228	232	206	210	214	207	220	215
7.59	7.29	6.98	7.42	7.61	7.8	7.51	8.11	8.4	8.55	9.48	9.19	8.68
219	213	210	211	214	227	220						197
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.001	0.000026	0.000025	<0.0004	<0.00002	0.000026
<0.0001	<0.0001	<0.0001	0.00011	0.00018	0.00019	<0.0001	<0.0025	<0.0002	<0.0002	<0.001	<0.0002	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.02
0.000489	0.000465	0.000325	0.000726	0.000693	0.000703	0.000724	0.0046	0.00435	0.00477	0.00443	0.00402	0.00348
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
<0.001	<0.001	<0.001	0.0011	0.0011	0.0021	0.0015	<0.005	<0.006	<0.006	0.0212	0.0033	0.0131
0.027	0.0288	0.0114	0.136	0.0256	0.0048	0.0211	0.026	0.0314	0.154	0.118	0.165	0.106
0.00053	0.00022	0.00011	0.00164	0.00059	0.00065	0.00074	<0.0025	<0.0002	0.00029	<0.001	<0.0002	0.00026
0.00582	0.00553	0.00621	0.00421	0.00419	0.00444	0.00439	0.0045	0.00478	0.00405	0.0047	0.00475	0.00423

Baseline Data for Groundwater

0.042	0.0436	0.0397	0.0543	0.0507	0.0477	0.0483	0.042	0.0418	0.0451	0.04	0.0423	0.0458
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.0002	<0.002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.001	<0.2	<0.001	<0.001
0.312	0.319	0.331	0.331	0.318	0.288	0.321	0.3	0.332	0.24	0.29	0.263	0.253
0.000023	0.000037	<0.00001	0.000168	<0.00005	<0.00003	0.00003	0.000097	0.000107	0.00017	0.000526	0.000065	0.000263
66.5	67.1	62.8	65.8	64.4	61.7	65.2	46.2	47.5	48.1	44.6		48.3
0.00067	0.00104	0.00021	0.00506	0.00102	0.00052	0.00083	<0.005	0.0005	0.00137	<0.002	0.00059	0.0019
0.00046	0.00048	0.00037	0.00061	0.00049	0.00047	0.00045	<0.0015	0.00098	0.00121	0.00114	0.00118	0.00101
0.00096	0.00076	<0.0005	0.00402	0.001	<0.0005	0.00052	<0.005	0.0016	0.0039	0.0087	0.0033	0.0068
0.304	0.363	0.281	0.659	0.56	0.54	0.538	<0.03	0.036	0.188	0.131	0.268	0.135
0.000053	0.00006	<0.00005	0.00029	0.000058	<0.00005	<0.00005	<0.0025	<0.0001	0.0002	<0.001	<0.0001	0.0002
0.032	0.0285	0.0322	0.0217	0.0189	0.0261	0.0272	0.029	0.0308	0.0255	0.028	0.023	0.0239
27.8	27.4	26.9	27.5	26.4	26.2	27.2	39.8	37.2	40.5	41.2		39.5
0.756	0.794	0.588	1.21	1.26	0.893	0.875	0.186	0.328	0.608	0.608	0.782	0.816
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0235	0.0235	0.0225	0.0284	0.0261	0.0319	0.0223	0.0183	0.0173	0.0156	0.0179	0.0184	0.0165
0.00122	0.00279	<0.0005	0.00348	0.00184	0.00167	0.00192	<0.005	0.003	0.0059	0.003	0.004	0.004
0.182	0.158	0.132	0.209	0.18	0.184	0.202	<0.3	<0.3	<0.3	<0.3		0.061
2.56	2.48	2.29	7.69	8.05	9.48	9.07	2.2	2.08	6.94	2.1	1.7	2.19
<0.0001	<0.0001	<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.005	<0.0002	<0.0002	<0.002	<0.0002	<0.0002
4.94	4.97	4.86	4.89	4.6	4.32	4.54	4.82	4.91	5.07	5.08		4.89
0.000052	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.0001	<0.00002	<0.00002	<0.00004	<0.00002	<0.00002
219	231	225	221	249	229	240	212	204	212	218	220	221
8.34	7.88	7.37	7.68	7.98	7.71	7.56	8.48	8.19	8.38	10.1	9.61	8.77
226	216	214	218	222	223	218						200
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.001	0.000027	0.00003	<0.0004	<0.00002	0.000027
0.00033	0.00018	0.00012	0.00101	0.00038	0.00013	0.00022	<0.0025	0.00026	0.00021	<0.001	<0.0002	0.0003
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01		<0.02
					<0.00002							
0.000531	0.000495	0.000329	0.000816	0.00076	0.000724	0.000759	0.0046	0.00419	0.00488	0.00466	0.00429	0.0036
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
0.0042	<0.003	<0.003	0.0086	0.0036	<0.003	0.0036	<0.005	<0.006	0.008	0.0319	<0.006	0.0155
7.95	7.04	5.01	7.57				3.58	4.1	4.24	4.48	4.51	3.9
7.75	7.31	5.09	8.27	9.11	6.88	4.8	3.22	3.93	4.22	4.01	4.68	3.64
<0.05							0.107	0.182	0.05	0.284		0.167
0.107							0.077	0.172	<0.3	0.246		
L1275064	**L1306577**	**L1345714**	**L1392288**	**L1432458**	**L1473868**	**L1513822**	**L1041015**	**L1076555**	**L1115490**	**L1160966**	**L1200094**	**L1247921**

Baseline Data for Groundwater

MW11-07S	MW11-07S	MW11-07S	MW11-07S	MW11-07S	MW11-07S	MW11-07S	MW11-08D	MW11-08D	MW11-08D	MW11-08D	MW11-08D	MW11-08D
5-Mar-13	23-May-13	9-Aug-13	14-Nov-13	12-Mar-14	18-Jun-14	5-Sep-14	1-Aug-11	1-Nov-11	14-Feb-12	6-Jun-12	29-Aug-12	9-Dec-12
786	876	1011	1440	1506	940	2008	1448	1141	992	1776	1530	1050
28.6	12.3	12	3.5	63.4	23.4	61.2	8.8	506	12.8	10.2		7.3
3.61	1.45	1.24	0.4	7.74	2.72	6.47	0.89	60.7	1.69	0.98	7.24	0.82
7.9	7.9	7.87	7.83	8.04	7.86	7.7	8.18	7.66	7.8	7.8		7.99
27.2	-57.2	119	0.933	91.4	21	20.1			-298		-45	-220
0.63	0.66	0.64	0.72	0.76	0.69	1.37			0.84		0.8	0.74
1273	1307	1281	974	941	1370	2639	1812	1720	1683	1232		1462
4.95	7.71	14	8.17	5.35	8.57	12.5	14.5	7.34	3.51	8.89	14	10.3
828	850	833	123700	979	890	1716			1093		979	948
16.8	0	0	1.6	1.3	1.8	1.2	8.7	4	4	0	9.9	-1.4
	0.5						2.6				2.3	
177	204	284	170	163	183	194	204	219	234	233	237	235
177	204	284	170	163	183	194	204		237	233		235
1	0.5	1	1	1	0.5	0.5	1		1	0.5		1
2.5	2.5	2.5		2.5			17.2	15.1	16.4	20.8	9	11.1
246	253	422	274	288	274	272	192	181	180	177	164	158
1	0.5	1	1	1	0.5	0.5	1		1	0.5		1
8.14	8.34	8.24	8.25	8.22	8.2	8.26	8.22	8.08	8.12	7.93	8.18	8.23
1280	1260	897	1450	1410	1370	1370	1790	1600	1610	1540	1470	1470
853	896	610	997	985	958	946	1240	1130	1110	1150	1070	1040
3.3	1.5	12.4		1.5	1.5	1.5	13.3	13.6	6.5	1.5	3.2	1.5
1.83	0.15	0.64		0.53	0.38	0.26	6.68	8.28	6.43	1.66	3.68	2.84
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.5	0.5	0.5	0.5	<0.5
9	10.7	2.5	12.9	11.2	10.9	10	15	12	15	14	11	9.2
0.44	0.29	0.33	0.31	0.45	0.321	0.313	0.49	<0.4	<0.4	<0.4	0.42	0.4
494	480	243	594	587	539	519	696	626	626	578	553	538
0.0155	0.0161	<0.005	0.0212	0.0124	<0.005	0.0189	0.0585	0.0245	<0.05	0.0256	0.0238	0.0311
0.1	<0.05	<0.05	<0.05	<0.05	0.066	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01
0.239							0.46	0.66	0.32	0.24		0.217
0.314	0.13	0.075					0.45	0.3	0.348	<0.26	0.18	0.195
0.259	0.095	0.075	0.118	0.128	0.176	0.123	0.45	0.303	0.35	<0.5	0.18	0.202
			0.039	0.0493	0.0391	0.046					0.18	
0.0298	0.0354	0.0362	0.0418	0.0454	0.0374	0.0459	0.0682	0.0745	0.112	0.17		0.191
0.0434	0.0397	0.0344	0.053	0.0502	0.0431	0.0466	0.099	0.119	0.153	0.227	0.208	0.224

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0054	0.0053	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0114	0.0062	0.0012	0.0072	0.0048	0.0082	0.0063	<0.025	0.0103	0.0103	0.01	0.0108	0.0095
0.00012	<0.0001	0.00024	<0.0001	0.0001	0.00012	<0.0001	<0.0025	0.00042	0.00027	0.00025	<0.0002	<0.0002
0.0054	0.00622	0.00499	0.00494	0.00373	0.00555	0.00654	0.0028	0.00312	0.00338	0.00321	0.00289	0.00294
0.03	0.0293	0.0372	0.0372	0.037	0.036	0.0322	0.053	0.0576	0.0591	0.059	0.0548	0.0515
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.001	<0.001	<0.001	<0.001
0.208	0.2	0.063	0.297	0.272	0.281	0.262	2.69	2.55	2.51	2.28	2.36	2.35
0.000098	0.000034	<0.00004	<0.00001	0.00005	0.000039	0.000023	<0.000085	0.000023	<0.00002	0.000051	<0.00002	<0.00002
38.9	40.3	89.7	44.2	49.7	44.4	43.5	32.1	30.6	30.9	28.7	25.1	23.7
0.00029	<0.0001	0.00032	<0.0001	0.00013	0.00011	<0.0001	<0.005	0.00032	0.00053	0.00034	0.00091	0.00107
0.0005	0.0005	<0.0001	0.00062	0.00022	0.00062	0.00057	<0.0015	0.00128	0.00102	0.00106	0.00077	0.00075
0.00199	0.00081	0.00173	0.00028	0.00235	0.00081	0.00047	<0.005	<0.001	<0.001	<0.0004	<0.0004	<0.0004
<0.01	0.03	<0.01	0.115	<0.01	0.021	0.031	<0.03	0.241	0.269	0.286	0.28	0.272
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0025	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.0263	0.0278	0.00386	0.0303	0.0217	0.0311	0.0283	<0.025	0.0011	0.0011	<0.001	<0.001	<0.001
36.2	36.9	48.2	39.8	39.8	39.7	39.8	27.1	25.5	24.9	25.5	24.6	23.9
0.488	0.433	0.0167	0.646	0.212	0.766	0.552	0.391	1.1	1.23	1.29	1.05	1.08
<0.00001	<0.00001	<0.00001	<0.00001	0.000012	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001
0.0178	0.0161	0.127	0.0176	0.0159	0.0166	0.0166	0.0676	0.0604	0.061	0.0605	0.059	0.0578
0.00172	0.00098	<0.0005	0.00103	0.00109	0.00172	0.00086	<0.005	0.0066	0.0062	0.0038	0.0029	0.0026
<0.05	<0.05	<0.05	0.061	0.056	<0.05	0.057	<0.3	<0.3	<0.3	<0.3	0.24	0.273
1.41	1.25	7.61	1.44	1.72	1.63	1.31	26.1	13.2	12.6	11.4	10	9.91
0.00024	0.0002	0.0271	<0.0001	0.00014	<0.0001	0.00012	<0.005	0.00023	0.00039	<0.0002	<0.0002	<0.0002
4.5	4.51	7.07	4.9	4.89	4.84	5.05	3.48	4.04	4.01	3.91	4.29	3.98
<0.00001	<0.00001	<0.00001	0.000019	<0.00001	<0.00001	<0.00001	<0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
188	187	40.6	204	219	206	197	341	296	300	281	271	284
8.9	9.11	0.68	9.71	10.3	9.68	9.21	1.24	1.1	1.16	1.22	1.17	1.18
156	142	75.8	183	194	166	166						172
0.000027	0.000026	<0.00001	0.000013	0.000037	0.000025	0.00003	<0.001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	0.00067	0.00043	0.0002	<0.0002	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
0.00448	0.00474	0.00403	0.00364	0.004	0.0045	0.00419	0.0057	0.00529	0.00454	0.00457	0.00304	0.00302
<0.001	<0.001	0.0033	<0.001	<0.001	<0.001	<0.001	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
0.0035	0.0037	<0.001	0.0022	0.0062	0.004	0.0095	<0.005	<0.006	<0.006	<0.002	0.0021	0.0023
0.0627	0.0106	0.0538	0.0096	0.0145	0.0199	0.009	0.389	0.286	0.179	0.0507	0.209	0.0637
0.00035	<0.0001	0.00024	<0.0001	0.00015	0.00017	<0.0001	<0.0025	0.00033	0.0004	0.00036	0.00027	0.0002
0.00568	0.00626	0.00466	0.0048	0.00395	0.00555	0.00654	0.0031	0.00309	0.00341	0.00359	0.00294	0.00294

Baseline Data for Groundwater

0.0314	0.0288	0.0362	0.0373	0.0381	0.0359	0.0316	0.055	0.0586	0.0627	0.0594	0.053	0.0509
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.001	<0.001	<0.001	<0.001	<0.001
0.223	0.234	0.071	0.305	0.285	0.263	0.278	2.64	2.38	2.6	2.34	2.51	2.26
0.000153	0.000032	<0.00005	0.000014	0.000086	0.000107	0.000027	0.000119	0.000068	0.000068	0.000081	0.000022	0.000023
39.4	39.9	88.2	44.8	48.7	43	43.3	31.9	28.6	31	28.7	25.2	23.3
0.00251	0.00019	0.00049	0.00025	0.00031	0.00027	<0.0001	<0.005	0.00145	0.00171	0.00069	0.00456	0.00309
0.00064	0.00054	0.00012	0.00066	0.00036	0.00068	0.00057	<0.0015	0.00152	0.00122	0.00119	0.00097	0.00081
0.00487	0.00142	0.00325	<0.0005	0.00296	0.00174	0.00066	<0.005	0.0047	0.0013	0.0011	<0.001	<0.001
0.064	0.034	0.069	0.133	0.022	0.039	0.034	0.21	0.51	0.43	0.368	0.442	0.309
0.000149	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0025	0.00019	0.00017	0.00013	0.00011	0.00026
0.0286	0.0256	0.00446	0.0297	0.0228	0.0293	0.0287	<0.025	0.0012	0.0013	<0.001	<0.001	<0.001
36.4	36.1	47.2	39.5	39.5	39.1	40	26.9	23.9	25.5	24.9	24.5	24
0.515	0.474	0.0499	0.688	0.363	0.796	0.555	0.449	1.15	1.28	1.38	1.13	1.06
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000013	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001
0.0186	0.0164	0.13	0.0189	0.0173	0.0181	0.0174	0.0737	0.0602	0.064	0.0664	0.0616	0.0585
0.00276	0.00099	0.0005	0.00124	0.00141	0.00197	0.00093	0.0055	0.0069	0.0093	0.0046	0.0047	0.0035
<0.05	<0.05	<0.05	0.062	<0.05	0.059	<0.05	<0.3	<0.3	<0.3	<0.3	0.24	0.246
1.53	1.21	7.82	1.53	1.66	1.59	1.36	23.8	12.8	13.5	11.1	9.96	9.86
0.00025	0.00018	0.0227	<0.0001	0.00017	0.00011	0.00012	<0.005	0.00037	0.0003	0.00027	<0.0002	<0.0002
4.68	4.49	7.14	5.03	4.91	4.87	5.11	4.25	4.28	4.47	3.95	4.97	4.04
<0.00001	<0.00001	<0.00001	0.000029	<0.00001	<0.00001	<0.00001	<0.0001	<0.00002	<0.00002	<0.00002	0.000074	<0.00002
195	183	42.1	220	226	205	197	333	286	317	283	274	276
8.9	8.97	0.659	10.1	10.3	10.1	9.21	1.24	1.06	1.23	1.25	1.2	1.17
162	141	76.5	189	195	170	169						169
0.000026	0.000026	<0.00001	0.000017	0.000041	0.000028	0.000031	<0.001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
0.00018	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	0.00113	0.00097	0.00054	<0.0002	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	0.012	<0.01	<0.01	<0.02	<0.02
0.00456	0.00471	0.00408	0.00385	0.00426	0.0047	0.00441	0.0061	0.00505	0.00489	0.00486	0.00318	0.00309
0.0012	<0.001	0.0036	<0.001	<0.001	<0.001	<0.001	<0.005	<0.002	0.002	<0.002	<0.002	<0.002
0.007	0.0042	<0.003	<0.003	0.0067	0.0046	0.0037	<0.005	<0.006	<0.006	<0.006	<0.006	0.0063
3.38	3.49	1.59	2.98				29.6	19.8	21.8	27.5	15.6	14.1
3.25	3.23	1.39	2.91	3.2	3.16	3.58	30.1	21.2	22.3	27.1	16.7	14.8
							0.401	0.635	0.291	0.214		0.185
0.244							0.391	0.275	0.35	<0.5		
L1275748	**L1306577**	**L1345714**	**L1392288**	**L1432458**	**L1473868**	**L1513822**	**L1039843**	**L1080651**	**L1114498**	**L1159542**	**L1202478**	**L1247928**

Baseline Data for Groundwater

MW11-08D	MW11-08D	MW11-08D	MW11-08D	MW11-08D	MW11-08D	MW11-08D	MW11-09D	MW11-09D	MW11-09D	MW11-09D	MW11-09D	MW11-09D
11-Mar-13	29-May-13	11-Aug-13	20-Nov-13	1-Apr-14	22-Jun-14	10-Sep-14	2-Aug-11	29-Oct-11	15-Feb-12	7-Jun-12	30-Aug-12	10-Dec-12
992	1114	1104	1480	998	1019	1076	1296	1340	1084	1882	1660	1020
2.4	6.8	3.7	1.6	13.9	1.1	5.6	19.2	523	36.6	12.1		12.3
0.28	0.79	0.4	0.16	1.64	0.12	0.62	2.14	65.1	4.6	1.18	1.53	1.5
7.92	8.11	7.9	8.13	8.38	8.12	8.02	8.1	8.12	8.34	8.07		8.19
-161	-179	-106	0.96	-174	-162	-147			-293		-42	-248
0.75	0.83	0.76	0.74	0.75	0.74	0.75			0.88		0.8	0.8
1493	1630	1504	976	1483	1461	1492	1807	2133	1735	1323		1593
7.41	8.45	11.1	7.19	7.88	9.19	10.4	10.1	5.53	5.34	9.22	8.66	6.17
970	1060	979	-155400	964	950	970			1129		1060	1035000
-1.9	0	0.5	1.2	1.7	1.8	2.1	3.3	26.1	6.9	1.7	10.1	
							0.5				2.6	
225	216	213	231	223	219	232	116	163	134	143	145	144
214	216	213	231	223	219	232	116		134	143		144
11.7	0.5	0.5	1	0.5	0.5	0.5	0.5		1	0.5		1
9.8	2.5	5.8					13.8	2.5	12.5	17	15.2	14.7
160	162	158	159	165	164	158	85.8	112	66.8	76	64.6	59
0.5	0.5	0.5	1	0.5	0.5	0.5	0.5		1	0.5		1
8.33	8.3	8.32	8.2	8.37	8.38	8.23	8.34	8.16	8.19	7.97	8.06	8.18
1540	1470	1480	1400	1460	1480	1480	1770	2040	1660	1720	1610	1600
1020	971	1010	965	1010	984	1030	1150	1470	980	1220	1110	1120
1.5	7.3	4.4		1.5	1.5	1.5	1.5	32.2	11.8	13.3	8.5	1.5
2.06	2.53	1.68		0.62	0.66	0.81	1.82	37.9	6.92	4.95	4.92	2.4
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.5	0.5	0.5	0.5	0.5
8.8	8.4	8	9.6	14.6	8.7	8.8	32	41	21	30	20	17
0.53	0.31	0.51	0.35	0.36	0.34	0.306	0.55	<0.4	<0.4	<0.4	0.44	0.41
530	535	530	528	535	526	535	705	830	672	713	662	650
0.0367	0.0292	0.0349	0.037	0.0423	0.0305	0.0432	<0.005	<0.005	<0.05	0.0188	<0.005	0.0311
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	<0.1	<0.1	<0.1	0.17	<0.1
0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	0.056	<0.02
0.136							0.29	0.25	0.15	0.24		0.247
0.153	0.134	0.153					0.27	0.488	0.256	1.24	0.51	0.237
0.193	0.162	0.153	0.202	0.203	0.199	0.2	0.146	0.488	0.26	1.24	0.28	0.244
			0.218	0.238	0.226	0.222					0.325	
0.196	0.194	0.201	0.229	0.251	0.249		0.116	0.147	0.22	0.253		0.391
0.217		0.239	0.257	0.274	0.242	0.303	0.124	0.234	0.29	0.352	0.365	0.396

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0086	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.01	0.0098	0.0092	0.0091	0.0087	0.011	0.0081	<0.025	0.0178	0.0232	0.0193	0.0184	0.0194
0.0002	0.00019	0.00018	0.00018	0.00014	<0.0002	0.00012	<0.0025	0.00049	0.00025	<0.0002	0.00022	<0.0002
0.00288	0.0035	0.00285	0.00284	0.00299	0.00274	0.00324	0.0042	0.00639	0.00464	0.00492	0.0053	0.00542
0.0497	0.0491	0.0452	0.0456	0.0441	0.0422	0.043	0.038	0.0527	0.0355	0.0445	0.0401	0.0399
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.2	<0.001	<0.001	<0.001	<0.001	<0.001
2.14	2.34	2.42	2.42	2.31	2.5	2.33	0.49	0.461	0.518	0.481	0.415	0.456
<0.00005	<0.00005	<0.00002	<0.00003	<0.00002	<0.00002	<0.00001	0.00019	0.00002	<0.00002	<0.00002	<0.00002	<0.00002
23.2	22.2	21.5	21.3	22.4	22.2	21.3	25.8	33.3	19.5	22	18.6	17
0.00022	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.005	0.00033	0.00069	0.00144	0.00343	<0.0002
0.0006	0.00067	0.00048	0.00043	0.00046	0.00037	0.0004	<0.0015	0.00104	0.00059	0.00058	0.00055	0.00025
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.005	<0.001	<0.001	0.00067	<0.0004	<0.0004
				<0.00002	<0.00002							
0.246	0.141	0.165	0.16	0.189	0.168	0.186	<0.03	0.131	0.163	0.386	0.305	0.296
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.0025	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	0.00067	<0.0005	<0.001	<0.0005	<0.025	0.0118	0.0146	0.0145	0.0158	0.0152
24.7	25.9	25.4	25.6	26.4	26.2	25.3	5.21	7.02	4.37	5.13	4.39	4.01
0.954	0.778	0.73	0.676	0.71	0.599	0.629	0.0629	0.8	0.691	0.945	0.787	0.817
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001		<0.00001
0.0545	0.0558	0.0559	0.0525	0.0528	0.0546	0.0504	0.0404	0.0537	0.028	0.0279	0.0247	0.0191
0.00209	0.00309	0.00156	0.00166	0.00113	0.0011	0.00107	<0.005	0.0056	0.0063	0.0034	0.0071	0.0028
0.271	0.21	0.219	0.237	0.269	0.241	0.261	<0.3	<0.3	<0.3	0.41	0.387	0.413
10.4	10.2	9.89	11.2	9.87	10.4	9.84	3.8	3.82	1.75	1.68	1.69	1.44
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.005	0.00107	<0.0002	<0.0002	<0.0002	<0.0002
4.25	4.15	4.08	4.31	4.12	4.25	3.92	2.86	3.43	3.4	3.88	3.69	3.41
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.0001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
274	274	264	254	251	243	256	381	432	331	352	320	327
1.17	1.19	1.19	1.14	1.29	1.23	1.25	0.775	1.02	0.697	0.854	0.745	0.739
177	170	162	169	166	169	171						208
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0025	0.0004	<0.0002	<0.0002	<0.0002	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02
0.0027	0.00255	0.00243	0.00251	0.00263	0.00252	0.00257	0.0049	0.00722	0.00324	0.0035	0.00244	0.00199
<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
0.0013	0.0012	<0.001	<0.001	0.0012	<0.002	0.0012	<0.005	<0.006	0.0114	0.0025	<0.002	<0.002
0.0405	0.183	0.103	0.0435	0.0233	0.0302	0.0241	0.084	0.632	0.117	0.143	0.181	0.0547
0.00028	0.00023	0.0002	0.00019	0.00015	<0.0002	0.00019	<0.0025	0.00055	0.00044	0.00029	0.00037	<0.0002
0.00287	0.00359	0.0027	0.00282	0.00295	0.00282	0.00318	0.0044	0.00805	0.00476	0.00534	0.00563	0.00539

Baseline Data for Groundwater

0.0499	0.0496	0.041	0.0432	0.0435	0.0425	0.0413	0.04	0.0654	0.0421	0.0482	0.044	0.0422
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.2	<0.001	<0.001	<0.001	<0.001	<0.001
2.45	2.38	2.33	2.42	2.29	2.57	2.38	0.51	0.451	0.543	0.504	0.496	0.411
<0.00005	<0.00005	<0.00002	<0.00003	<0.00002	<0.00002	<0.00001	0.000239	0.000147	0.000129	0.000059	0.000058	<0.00002
23.5	22	21	20.7	21.4	21.6	20.6	25.8	39.9	20.7	22.6	18.9	17.4
0.00057	0.00051	0.00037	0.00018	0.0002	<0.0002	0.00026	<0.005	0.00209	0.00389	0.00429	0.0113	0.00059
0.00061	0.00079	0.00048	0.00043	0.00047	0.00041	0.00041	<0.0015	0.00152	0.00077	0.00096	0.00085	0.00036
0.00083	0.0009	<0.0005	<0.0005	0.00146	<0.001	<0.0005	<0.005	0.0041	0.0079	0.0025	0.0032	0.0011
0.278	0.272	0.219	0.187	0.209	0.189	0.207	0.056	0.781	0.441	0.541	0.564	0.371
0.000064	0.000105	0.000052	<0.00005	<0.00005	<0.0001	<0.00005	<0.0025	0.00054	0.00029	0.00023	0.00028	0.00013
<0.0005	0.00059	0.00079	0.00055	<0.0005	<0.001	<0.0005	<0.025	0.0118	0.0148	0.0151	0.0169	0.0135
24.8	26	24.6	25.4	25.1	25.7	24.7	5.27	7.16	4.4	5.21	4.46	4.06
0.948	0.793	0.689	0.672	0.69	0.632	0.623	0.0745	0.84	0.713	0.973	0.863	0.795
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001		<0.00001
0.0615	0.0592	0.0532	0.0549	0.0538	0.0559	0.0501	0.0462	0.0534	0.0291	0.0302	0.0267	0.0175
0.00232	0.00381	0.00157	0.00148	0.00129	0.0012	0.00126	<0.005	0.0072	0.0081	0.0061	0.0112	0.0035
0.262	0.212	0.225	0.239	0.271	0.273	0.257	<0.3	<0.3	0.31	0.39	0.406	0.406
10.4	10.2	9.48	11.2	9.34	10.1	9.61	3.8	3.63	1.77	1.74	1.68	1.49
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.005	0.0008	<0.0002	<0.0002	<0.0002	<0.0002
4.29	4.71	4.33	4.32	4.07	4.26	3.87	3.02	4.62	3.61	3.98	4.02	3.5
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.0001	<0.00002	<0.00002	<0.00002	0.000053	<0.00002
272	267	247	245	250	255	251	385	420	336	357	335	336
1.29	1.23	1.13	1.16	1.29	1.25	1.23	0.791	1.07	0.721	0.886	0.778	0.657
179	172	162	170	166	174	167						212
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
0.00015	0.00012	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0025	0.00175	0.00054	0.00032	0.00033	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	0.029	<0.01	<0.01	<0.02	<0.02
				<0.00002	<0.00002							
0.00307	0.00272	0.00232	0.00257	0.00256	0.00256	0.00257	0.0055	0.0071	0.00328	0.00363	0.00253	0.00179
<0.001	0.0011	<0.001	<0.001	<0.001	<0.002	<0.001	<0.005	0.0025	<0.002	<0.002	<0.002	<0.002
<0.003	<0.003	<0.003	<0.003	<0.003	<0.006	<0.003	<0.005	0.0082	0.0186	0.0067	0.0068	<0.006
7.28	5.26	8.57	9.72				26.3	33.4	17.7	18.7	14.1	11.7
13.1	5.28	9.41	10.5	12.1	9	12	26.1	33.4	18.2	17.8	14.4	11.4
0.085							0.161	0.246	0.144	0.221		0.216
0.102							0.141	0.496	<0.3	1.22		
L1277798	**L1308855**	**L1346553**	**L1394557**	**L1439433**	**L1475661**	**L1516193**	**L1039844**	**L1079375**	**L1115110**	**L1159973**	**L1202478**	**L1247921**

Baseline Data for Groundwater

MW11-09D	MW11-09D	MW11-09D	MW11-09D	MW11-09D	MW11-09D	MW11-09S	MW11-09S	MW11-09S	MW11-09S	MW11-09S	MW11-09S	MW11-09S
8-Mar-13	26-May-13	13-Aug-13	18-Mar-14	20-Jun-14	8-Sep-14	1-Aug-11	29-Oct-11	15-Feb-12	11-Jun-12	24-Aug-12	10-Dec-12	8-Mar-13
999	1172	1289	1722	1030	1022	1486	1371	1197	2273	2160	1238	1242
18.4	33.4	28	12.8	8.3	9.9	4.5	480	46.1	20.8		2.9	6
2.26	4.03	3.29	1.57	0.98	1.17	0.54	58.5	6.18	2.03	1.38	0.36	0.74
8.1	8.06	8.13	8.08	8.27	8.22	7.99	8.11	8.25	8.11	7.78	8.1	8.04
-146	-206	34.3	-157	-126	-182			-296		-153		81.8
0.79	0.91	0.98	0.87	0.78	0.77			1.06		1.1		0.99
1565	1791	1913	1109	1549	1564	2247	2116	2108	1506		1931	1955
6.07	6.88	7.92	6.36	7.48	7.75	7.22	6.56	2.39	7.23	8.27	6.21	5.89
1016	1165	1244	1119	1006	991			1361		1380		1270
1.4	0	1.8	1.6	2.6	1.5	4.1	2.3	8.6	0	2.1	-1.5	1.2
						2.3				2.6		
137	142	143	185	173	171	153	134	139	121	152	117	124
137	142	143	185	173	169	153		139	121		117	124
0.5	1	1	1	1	1.9	1		1	0.5		1	0.5
12.1	11.4	10.1				6.6	8.5	8.9	2.5	11.1	6.4	7.1
59.5	58.9	59.3	64.2	55.3	56.4	137	126	110	104	110	102	104
0.5	1	1	1	1	0.5	1		1	0.5		1	0.5
8.32	8.2	8.23	8.03	8.27	8.3	8.19	8.24	8.22	8.1	8.14	8.13	8.33
1680	1650	1630	1610	1550	1550	2240	2050	2000	2010	2000	1920	2040
1140	1120	1140	1100	1060	1040	1490	1430	1220	1440	1410	1330	1380
4.1	1.5	1.5		1.5	1.5	3.3	8.2	6.4	1.5	1.5	1.5	1.5
1.27	1.57	1.98		1.41	0.97	3.12	5.87	5.79	0.79	1.46	2.18	0.8
0.5	0.5	0.5	0.5	<0.5	<0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17	20	15	16	14	13.5	36	23	23	24	23	19	19
0.75	0.41	0.87	0.75	0.398	0.375	0.46	<0.4	<0.4	<0.4	<0.4	<0.4	0.6
673	657	636	624	599	571	979	881	859	874	879	841	876
<0.005	<0.005	<0.005	0.0228	<0.005	0.0221	0.0112	0.029	<0.05	0.0219	0.0326	0.0217	0.0209
<0.1	<0.1	<0.1	<0.1	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.02	<0.02	<0.02	<0.02	0.01	<0.01	0.027	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
0.113						0.28	0.21	0.17	0.16		0.173	0.152
0.15	0.17	0.148				0.33	0.287	0.276	0.169	<0.27	0.178	0.16
0.154	0.174	0.187	0.234	0.177	0.169	0.303	0.287	0.28	0.169	<0.25	0.184	0.16
			0.398	0.375	0.287					0.098		
0.352	0.375	0.377	0.42	0.401	0.367	0.0549	0.061	0.086	0.0727		0.092	
0.4	0.43	0.445	0.467	0.429	0.437	0.0618	0.0804	0.104	0.0825	0.11	0.101	0.107

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.012	0.0168	0.01	0.0095	0.0096	0.0097	<0.025	0.0144	0.0124	0.043	0.0109	0.0115	0.0144
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0025	0.00031	<0.0002	<0.0025	<0.0002	<0.0002	<0.0002
0.00534	0.00573	0.00619	0.00641	0.00588	0.00624	0.0039	0.00637	0.00379	0.0045	0.00433	0.00475	0.00449
0.0403	0.0429	0.0442	0.049	0.0411	0.0452	0.047	0.0405	0.0338	0.037	0.0345	0.0288	0.0281
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.005	<0.0002	<0.0002	<0.005	<0.0002	<0.0002	<0.0002
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.2	<0.001	<0.001	<0.2	<0.001	<0.001	<0.001
0.441	0.441	0.447	0.472	0.471	0.461	0.49	0.465	0.529	0.52	0.423	0.441	0.45
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000157	0.000061	0.000089	<0.000085	<0.00002	<0.00002	0.000039
17.1	16.7	17.1	18.4	15.8	16.2	39.9	37.5	32.5	29.8		29.8	30.2
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.005	<0.0002	0.00031	<0.005	<0.0002	<0.0002	<0.0002
0.00043	0.00031	0.00029	0.00023	<0.0002	<0.0002	<0.0015	0.00056	0.00026	<0.0015	0.00059	0.00033	0.00023
0.00076	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.005	<0.001	0.0074	0.02	0.00045	<0.0004	0.00147
0.214	0.239	0.3	0.389	0.159	0.43	<0.03	0.042	<0.03	<0.03	0.083	0.021	0.031
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0025	<0.0001	<0.0001	<0.0025	<0.0001	<0.0001	<0.0001
0.0155	0.0197	0.0191	0.0198	0.0199	0.023	0.033	0.0258	0.0238	0.031	0.0158	0.0254	0.0234
4.05	4.17	4.05	4.44	3.82	3.87	9.05	7.95	7.04	7.16		6.78	7.01
0.795	0.831	0.912	0.955	0.682	0.862	0.201	0.26	0.17	0.207	0.327	0.224	0.168
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0295	0.0162	0.0162	0.0149	0.0136	0.0128	0.0162	0.0184	0.0188	0.0186	0.0209	0.0182	0.0367
0.0055	0.0034	0.0025	0.0014	0.0018	0.0017	<0.005	0.003	0.0037	<0.005	0.0024	0.0011	0.0016
0.434	0.399	0.391	0.452	0.422	0.41	<0.3	<0.3	<0.3	<0.3		0.096	0.113
1.34	1.33	1.24	1.3	1.1	1.11	1	1.59	1.25	1	1.15	1.03	1.14
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.005	0.00022	<0.0002	<0.005	0.0002	<0.0002	<0.0002
3.57	3.6	3.59	3.89	3.9	4.03	4.06	4.09	3.79	4.19		3.89	3.95
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.0001	<0.00002	<0.00002	<0.0001	<0.00002	<0.00002	<0.00002
318	340	325	335	303	319	456	418	399	397	428	394	387
0.747	0.793	0.764	0.815	0.701	0.683	1.59	1.28	1.18	1.32	1.31	1.25	1.34
213	211	202	202	189	204						270	275
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.001	<0.00002	0.000023	<0.001	<0.00002	<0.00002	0.000025
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0025	0.00026	0.00021	<0.0025	<0.0002	<0.0002	<0.0002
<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01		<0.02	<0.02
0.00175	0.0014	0.00117	0.00136	0.00121	0.000757	0.0019	0.0016	0.00145	<0.001	0.00155	0.000739	0.000917
<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002
<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.006	0.0174	<0.005	<0.002	<0.002	0.0034
0.0369	0.0413	0.0244	0.0374	0.0258	0.0291	0.166	0.195	0.24	0.072	0.0519	0.0276	0.055
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0025	0.00031	0.00033	<0.0025	<0.0002	<0.0002	<0.0002
0.0055	0.00571	0.00635	0.00639	0.00605	0.00618	0.0039	0.00559	0.00385	0.0046	0.0043	0.00508	0.00466

Baseline Data for Groundwater

0.0434	0.0429	0.0465	0.0485	0.0433	0.0434	0.05	0.0428	0.0412	0.032	0.0358	0.0293	0.0292
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.005	<0.0002	<0.0002	<0.005	<0.0002	<0.0002	<0.0002
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.2	<0.001	<0.001	<0.2	<0.001	<0.001	<0.001
0.461	0.449	0.459	0.47	0.498	0.516	0.5	0.473	0.56	0.53	0.44	0.441	0.458
<0.00002	<0.00002	<0.00002	<0.00002	0.00002	<0.00002	0.000182	0.000082	0.000137	<0.000085	0.00005	<0.00002	0.000048
16.9	16.1	17.3	17.2	15.7	17	40.2	37.9	32.8	31.8		29.6	30.6
0.00035	0.00122	0.00043	0.00071	0.00043	0.00045	<0.005	0.00078	0.0021	<0.005	0.00022	<0.0002	0.00033
0.0005	0.0004	0.00033	0.00029	0.00024	0.00023	<0.0015	0.00069	0.00047	<0.0015	0.00062	0.00038	0.00026
0.0011	0.002	<0.001	<0.001	0.001	0.001	<0.005	0.0019	0.0163	0.021	<0.001	<0.001	0.0024
0.37	0.358	0.44	0.458	0.342	0.55	0.128	0.284	0.298	0.059	0.135	0.063	0.077
0.0001	0.00013	0.00015	0.00014	0.00014	0.00016	<0.0025	0.00012	0.00022	<0.0025	<0.0001	<0.0001	<0.0001
0.0164	0.0195	0.0194	0.0192	0.021	0.0256	0.034	0.0261	0.0244	0.031	0.0156	0.0262	0.0238
4.07	4.05	4.11	4.15	3.79	4.13	9.21	8.04	7.15	7.61		6.91	7.24
0.789	0.812	0.93	0.933	0.691	0.854	0.226	0.283	0.214	0.22	0.34	0.241	0.171
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001
0.0307	0.0168	0.0172	0.0157	0.014	0.0145	0.0171	0.0189	0.0194	0.0184	0.0213	0.019	0.0325
0.0058	0.0038	0.0026	0.0021	0.0022	0.0012	<0.005	0.0039	0.0053	<0.005	0.0026	0.0012	0.0019
0.426	0.415	0.422	0.445	0.434	0.4	<0.3	<0.3	<0.3	<0.3		0.101	0.11
1.37	1.31	1.16	1.21	1.08	1.18	1	1.59	1.31	1	1.14	1.06	1.15
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.005	0.00027	0.00023	<0.005	0.00023	<0.0002	<0.0002
3.6	3.56	3.6	3.78	3.89	4.34	4.35	4.45	4.41	4.34		3.93	4.05
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.0001	<0.00002	<0.00002	<0.0001	<0.00002	<0.00002	<0.00002
322	325	322	334	309	306	461	420	408	421	408	399	387
0.77	0.781	0.785	0.809	0.728	0.747	1.6	1.31	1.2	1.43	1.34	1.27	1.39
215	210	204	198	188	176						276	279
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.001	<0.00002	0.000026	<0.001	<0.00002	<0.00002	0.000028
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0025	0.00137	0.0078	<0.0025	<0.0002	0.0002	<0.0002
<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	0.017	<0.01		<0.02	<0.02
0.00179	0.00141	0.00125	0.00142	0.00125	0.000835	0.0021	0.00165	0.00149	<0.001	0.00163	0.000751	0.000963
<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	<0.002	<0.002	<0.005	<0.002	<0.002	<0.002
<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.005	<0.006	0.0221	<0.005	<0.006	<0.006	<0.006
13.3	13.2	12.5				5.9	5.65	6.6	5.28	7.55	4.3	5.27
13	12.7	12.8	13.2	10.5	11.1	5.84	5.76	6.58	4.76	8	4.17	5.16
0.11						0.242	0.181	0.146	0.138		0.152	0.131
0.154						0.292	0.258	<0.3	0.148			0.139
L1277099	**L1307601**	**L1348177**	**L1434002**	**L1475117**	**L1514758**	**L1039843**	**L1079375**	**L1115110**	**L1160966**	**L1200094**	**L1247921**	**L1277099**

Baseline Data for Groundwater

MW11-09S	MW11-09S	MW11-09S	MW11-09S	MW11-09S	MW11-10D	MW11-10D	MW11-10D	MW11-10D	MW11-10D	MW11-10D	MW11-10D	MW11-10D
26-May-13	13-Aug-13	18-Mar-14	20-Jun-14	8-Sep-14	6-Dec-11	9-Feb-12	11-Jun-12	27-Aug-12	7-Dec-12	5-Mar-13	27-May-13	13-Aug-13
1440	1695	2074	1301	1299	1961	1856	2642	2920	2016	1946	2228	2561
19.2	18.3	67.3	38.7	11.5	5	1.9	11.7		2.9	2	1.7	8.7
2.36	2.12	8.41	4.66	1.36	0.56	0.22	1.03	0.05	0.33	0.23	0.19	0.94
7.98	8.11	8.11	8.21	8.28	7.91	9.07	9.01		7.65	7.5	7.5	7.4
117	135	8.3	75.4	77.2	-338			-137	-198	82.7	-189	-96.3
1.14	1.24	1.06	1.01	1	1.45			1.5	1.49	1.51	1.68	1.83
2219	2392	1312	1980	1963	2778	2747	1981		2844	2898	3200	3469
6.66	9.94	5.76	7.03	7.3	9.52	8.03	12.2	11.9	9.72	7.81	9.12	11.3
1442	1557	1348	1288	1276	1.81			1870	1850000	1884	2081	2252
0	2.3	1.5	2.8	2.8	68.1	44.7	3.8	2.8	-2.1	82.7	0	3.2
								3.1				
123	111	110	129	122	208	152	174	228	243	245	230	247
123	111	110	129	122		152	174		243	245	230	247
1	1	0.5	1	0.5		1	0.5		1	1	1	1
6.1	6				2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
106	103	102	106	105	1530	1410	1540	1580	1480	1630	1610	1620
1	1	0.5	1	0.5		1	0.5		1	1	1	1
8.18	8.19	8.3	8.16	8.23	8.12	8.24	8.09	8.22	7.96	7.93	8	8.04
2010	2020	1960	2000	2010	2790	2680	2680	2690	2780	2870	2920	2900
1400	1330	1260	1320	1370	2830	2490	2580	2740	2730	2710	2820	2860
1.5	5		1.5	1.5	1.5	163	98.7	3.2	1.5	11.3	10	11
0.7	3.45		1.28	0.64	2.57	97	90.8	2.89	8.88	11.9	12.3	11.7
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
20	19	20	21	21	5	5	5	5	5	5	5	5
<0.4	0.63	0.71	0.301	0.294	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.67
866	865	872	881	852	1720	1640	1660	1740	1700	1740	1730	1720
0.0186	0.0208	0.0187	0.0175	0.0118	0.0632	0.148	0.103	0.0659	0.0547	0.0518	0.0558	0.0574
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.02	<0.02	<0.02	<0.02	0.024	<0.02	<0.02	<0.02	<0.02	0.042	<0.02	<0.02	<0.02
						0.34	0.21		0.271	0.182		
0.18	0.168				0.13	0.357	0.274	0.21	0.174	0.182	0.22	0.205
0.177	0.184	0.223	0.198	0.174	0.264	0.357	0.274	0.211	0.225	0.21	0.224	0.208
		0.107	0.111	0.111				<0.001				
0.104	0.12	0.125	0.122	0.147	0.0082	0.0058	0.0021		0.0025	<0.002	<0.002	<0.002
0.114	0.129	0.134	0.139	0.161	0.0105	0.0196	0.0212	0.0192	0.0215	0.0235	0.021	0.0243

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0106	0.01	0.0092	0.0099	0.015	<0.006	<0.006	<0.01	<0.01	<0.002	0.0011	0.0022	<0.002
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00737	0.00045	<0.001	<0.001	<0.0002	<0.0001	<0.0002	<0.0002
0.00485	0.00487	0.00506	0.00479	0.00481	0.0056	0.00453	0.0051	0.0051	0.00543	0.00547	0.00558	0.00554
0.0267	0.0273	0.0258	0.0266	0.0265	0.0214	0.0589	0.034	<0.02	0.00934	0.00832	0.00876	0.00752
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.002	<0.0002	<0.0001	<0.0002	<0.0002
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.2	<0.2	<0.001	<0.0005	<0.001	<0.001
0.45	0.446	0.466	0.452	0.467	0.078	0.088	0.1	<0.1	0.082	0.088	0.089	0.09
0.000067	0.000067	0.000052	0.000029	0.000034	<0.00002	<0.00002	<0.000034	<0.000034	<0.00002	<0.00001	<0.00002	<0.00002
30.6	29.9	29.5	30.5	30.4	262	244	265	262	272	280	284	288
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00021	<0.0002	<0.002	<0.002	<0.0002	<0.0001	<0.0002	<0.0002
0.00029	0.00025	0.00024	0.00029	0.00026	0.00214	<0.0002	<0.0006	<0.0006	<0.0002	0.00017	<0.0002	<0.0002
0.00042	<0.0004	0.00074	<0.0004	0.00087	<0.001	<0.001	<0.002	<0.002	<0.0004	0.00029	<0.0004	<0.0004
<0.01	<0.01	0.016	0.016	0.033	0.148	<0.03	0.347	0.805	0.978	0.982	0.994	1.02
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.0001	<0.00005	<0.0001	<0.0001
0.0273	0.0253	0.0273	0.0239	0.0268	0.0097	0.0125	0.012	0.011	0.0091	0.0118	0.0114	0.0098
7.12	7.01	6.88	7.2	7.14	213	195	214	224	195	226	219	218
0.214	0.218	0.179	0.227	0.207	0.282	0.153	0.33	0.319	0.34	0.343	0.368	0.356
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.021	0.0206	0.0207	0.0201	0.0224	0.0296	0.0262	0.0255	0.0272	0.0222	0.027	0.0255	0.0248
0.0012	0.0011	0.0011	0.0012	0.0013	0.0111	0.0023	<0.002	<0.002	<0.001	0.00138	<0.001	<0.001
0.108	0.111	0.11	0.117	0.124	<0.3	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05
1.03	0.99	1	1.02	1.04	14.8	17.9	15.2	14.3	14.4	13.9	14.3	14.4
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	QA/QC Issue	<0.0002	<0.002	<0.002	<0.0002	<0.0001	<0.0002	<0.0002
3.96	3.88	3.95	4.06	3.88	11	12.9	13.8	13.6	14.3	14.7	14.4	14.9
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004	<0.00004	<0.00002	<0.00001	<0.00002	<0.00002
407	398	387	374	398	161	183	163	167	169	163	166	163
1.35	1.35	1.37	1.32	1.35	2.67	4.16	3.64	3.04	2.86	3.58	3.26	3.16
283	274	271	269	274					493	539	546	552
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.0004	<0.0004	<0.00002	<0.00001	<0.00002	<0.00002
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.0002	<0.0001	<0.0002	<0.0002
<0.02	<0.02	<0.02	<0.02	<0.02	0.017	0.012	<0.01	<0.01	<0.02	<0.01	<0.02	<0.02
0.000789	0.000765	0.000657	0.000692	0.000705		0.00301	0.00277	0.00235	0.00236	0.00291	0.00276	0.00274
<0.002	<0.002	<0.002	<0.002	<0.002	0.0027	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002
0.0035	<0.002	0.0026	0.0021	0.0058	<0.006	<0.006	<0.005	<0.005	0.0043	0.0011	<0.002	<0.002
0.0474	0.0372	0.043	0.0436	0.0696	0.0086	0.01	0.055	0.018	<0.006	0.0049	0.0103	<0.006
<0.0002	<0.0002	<0.0002	<0.0002	0.00023	0.00683	0.00043	<0.001	<0.001	<0.0002	<0.0001	<0.0002	<0.0002
0.00516	0.00534	0.00501	0.00501	0.00537	0.00541	0.00479	0.0056	0.0053	0.00541	0.00581	0.00552	0.0056

Baseline Data for Groundwater

0.0276	0.028	0.0254	0.0265	0.029	0.0246	0.0502	0.063	0.054	0.00983	0.0102	0.0203	0.0146
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.002	<0.0002	<0.0001	<0.0002	<0.0002
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.2	<0.2	<0.001	<0.0005	<0.001	<0.001
0.48	0.46	0.459	0.459	0.497	0.084	0.092	0.11	<0.1	0.093	0.096	0.095	0.11
0.00009	0.000053	0.000088	0.000041	0.000046	<0.00002	<0.00002	<0.000034	<0.000034	<0.00002	<0.00001	<0.00002	<0.00002
30	29.7	28.9	29.7	30.8	252	259	278	272	278	288	275	276
0.00025	0.00028	0.00039	0.00032	0.00056	0.00114	0.00108	<0.002	0.0025	0.00053	0.0001	0.00089	<0.0002
0.00035	0.00033	0.00024	0.00034	0.00036	0.00229	0.0003	<0.0006	<0.0006	0.0002	0.00017	<0.0002	<0.0002
0.0019	<0.001	0.0019	0.0012	0.002	<0.001	<0.001	<0.002	0.0024	<0.001	0.00082	0.0015	<0.001
0.067	0.075	0.083	0.09	0.122	0.166	0.489	0.834	1.04	1.02	1.02	1	1
0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	0.00021	<0.00005	<0.0001	<0.0001
0.0287	0.0258	0.0263	0.0254	0.0282	0.0102	0.0126	0.012	0.013	0.0108	0.0122	0.0118	0.0112
7.06	6.95	6.79	7.05	7.34	210	201	216	223	202	230	219	211
0.232	0.236	0.175	0.242	0.239	0.289	0.285	0.346	0.331	0.36	0.356	0.369	0.365
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0218	0.021	0.021	0.0204	0.0231	0.0295	0.0268	0.0268	0.0286	0.026	0.0278	0.0267	0.028
0.0014	0.0013	0.0014	0.0013	0.0016	0.0111	0.0024	0.0021	0.0027	<0.001	0.00156	<0.001	<0.001
0.109	0.105	0.111	0.13	0.14	<0.3	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05
1.03	1.02	0.98	1.01	1.09	14.7	17.1	16.4	18	14.7	14.2	14	13.5
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00843	<0.0002	<0.002	<0.002	<0.0002	<0.0001	<0.0002	<0.0002
4.02	3.9	3.98	4.06	4.11	10.8	13	14.4	13.7	14.7	15.2	14.3	14.4
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000022	<0.00002	<0.00004	0.000106	<0.00002	<0.00001	<0.00002	<0.00002
418	394	384	384	428	162	183	175	179	175	173	167	163
1.44	1.35	1.35	1.31	1.41	2.68	4.12	3.89	3.41	3.31	3.66	3.45	3.6
282	275	268	270	281					526	570	552	547
<0.00002	<0.00002	<0.00002	0.000029	0.000024	<0.00002	<0.00002	<0.0004	<0.0004	<0.00002	<0.00001	<0.00002	<0.00002
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.001	<0.0002	<0.0001	<0.0002	<0.0002
<0.02	<0.02	<0.02	<0.02	<0.02	0.017	0.012	0.011	0.01	<0.02	<0.01	<0.02	<0.02
0.000823	0.000767	0.000679	0.000702	0.000782	0.0263	0.00315	0.00284	0.00253	0.00269	0.00312	0.00286	0.00288
<0.002	<0.002	<0.002	<0.002	<0.002	0.0025	<0.002	<0.002	<0.002	<0.002	<0.001	<0.002	<0.002
<0.006	<0.006	<0.006	<0.006	0.0144	<0.006	0.0108	<0.005	<0.005	<0.006	<0.003	<0.006	<0.006
5.22	5.88				5.09	15.4	8.26	5.15	3.96	4.66	4.17	3.85
4.88	5.35	4.96	5	5.42	4.8	14.1	8.11	4.6	3.96	4.22	3.57	3.8
						0.193	0.107		0.174			
					0.067	0.209	0.172			0.159		
L1307601	**L1348177**	**L1434002**	**L1475117**	**L1514758**	**L1092874**	**L1113319**	**L1160966**	**L1201474**	**L1247459**	**L1275748**	**L1307601**	**L1348177**

Baseline Data for Groundwater

MW11-10D	MW11-10D	MW11-10D	MW11-10D	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-01	MW12-02
17-Nov-13	10-Mar-14	20-Jun-14	9-Sep-14	2-Dec-12	10-Mar-13	28-May-13	15-Aug-13	20-Nov-13	21-Mar-14	22-Jun-14	7-Sep-14	2-Dec-12
2880	3019	2057	1941		2229	2558	2855	3330	3431	2379	2406	
1.4	7	1.9	16.3		1.5	2	29.3	2.9	79.9	12	6.1	
0.16	0.84	0.21	1.87	1.8	0.21	0.22	3.24	0.34	9.15	1.35	0.68	3.56
7.54	7.48	7.53	8.35	7.25	7.22	7.38	7.48	7.49	7.64	7.47	7.49	7.36
-140	-132	-137	-195	130	191	224	236	2.17	71.4	99.3	101	167
1.5	1.58	1.5	1.46		1.71	1.95	2.11	1.75	1.81	1.78	1.78	
1940	2083	2876	2795	3229	3265	3695	3976	2270	2343	3385	3376	3156
7.96	8.82	10.1	9.01	8.5	8.4	8.9	10.3	8.22	8.42	9.44	9.96	7.36
1871	1963	1870	1817		2121	2403	2582	38200	2230	2201	2196	
2.4	1.8	1.8	4.8		-1.8	0	1.5	-2.2	1.9	2	1.6	
							0.5					
266	245	256	245	175	178	173	177	189	183	185	179	171
266	245	256	245		178	173	177	189	183	185	179	
1	1	1	0.5		1	1	1	1	1	1	0.5	
2.5					2.5	2.5	2.5					
	1590	1620	1520	1760	1620	1810		1870	1950	1860	1920	1730
1	1	1	0.5		1	1	1	1	1	1	0.5	
8.07	7.89	7.99	8.01	8.05	7.98	7.98	8.06	7.88	8.07	8.1	8.08	8.1
2920	2870	2880	2820	3190	3340	3280	3260	3290	3350	3440	3410	3120
2750	2690	2790	2640	3160	3070	3350	3270	3200	3290	3420	3300	3390
		8.9	6.6	1.5	1.5	8.7	7.3			7.3	3	1.5
		10.8	8.84	0.46	0.43	0.19	0.19			0.5	0.15	0.72
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
10	5	5	5	18	17	19	17	20	17	19	17	15
<0.4	<0.4	0.213	0.185	<0.4	0.47	<0.4	0.46	<0.4	<0.4	0.189	0.165	<0.4
1760	1730	1770	1720	1670	1660	1700	1720	1730	1790	1790	1800	1650
0.0721	0.0546	0.0618	0.0809	<0.005	0.0213	0.0058	<0.005	<0.005	<0.005	<0.005	<0.005	0.0055
<0.1	<0.1	<0.1	<0.1	88.2	80.6	88.4	89.4	88.5	90.3	88	87.1	76.3
<0.02	<0.02	<0.02	<0.02	0.334	0.429	0.318	0.204	0.163	0.194	0.097	0.168	0.527
					85.9							
				88.5	110	83.5	83.5					76.8
0.219	0.262	0.223	0.298	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
0.0011	0.001	0.0014	0.0035	0.0037				0.0154	0.0165	0.0183	0.0164	0.0079
<0.002	<0.002	0.0024		0.0047	0.0153	0.0183	0.0192	0.0194	0.0185	0.0191	0.0191	0.0075
0.0209	0.0219	0.022	0.0153		0.0153		0.0182	0.0193	0.0186	0.0202	0.0169	

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
0.0017	0.0016	<0.001	0.0025	0.0022	0.0042	0.0031	0.0021	0.0023	0.0031	0.0041	0.0044	<0.002
<0.0001	<0.0001	<0.0001	0.00035	0.00398	0.00372	0.00412	0.00353	0.00372	0.00371	0.00396	0.00364	0.0169
0.0056	0.00577	0.00581	0.00544	0.00578	0.0043	0.00521	0.00503	0.00488	0.00472	0.00525	0.00494	0.0229
0.00769	0.00813	0.00723	0.0102	0.0315	0.0487	0.0404	0.0347	0.0364	0.0326	0.0297	0.031	0.0212
<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001
0.093	0.089	0.089	0.083	0.115	0.098	0.109	0.101	0.12	0.115	0.105	0.117	0.117
<0.00001	<0.00001	<0.00001	<0.00001	<0.0007	<0.001	0.000712	<0.0008	<0.0015	<0.0012	<0.001	<0.0001	<0.00068
299	281	291	278	245	243	238	242	240	258	254	245	233
<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002
0.00013	0.00012	0.00011	0.00011	0.00192	0.00122	0.00092	0.00088	0.00081	0.00074	0.00073	0.00071	0.00275
<0.0002	<0.0002	<0.0002	<0.0002	0.00712	0.003	0.00311	0.00335	0.00301	0.00271	0.00312	0.00479	0.0173
									<0.00015	<0.00015	<0.00012	
1.02	1.03	1.03	0.947	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.0001	<0.0001
0.0109	0.0102	0.0102	0.00909	0.0296	0.0328	0.0294	0.0282	0.033	0.0331	0.028	0.0318	0.0301
223	217	218	201	279	247	295	296	310	317	298	318	278
0.358	0.367	0.357	0.34	0.0875	0.0879	0.068	0.0598	0.0545	0.0529	0.0458	0.0461	0.11
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000022
0.0249	0.0237	0.0245	0.0253	3.42	3.37	3.26	3.1	3.41	3.59	3.62	3.55	3.33
0.00052	<0.0005	<0.0005	0.00089	0.0148	0.01	0.00999	0.0124	0.0128	0.0123	0.0142	0.0136	0.0282
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
13.8	14.4	13.7	14.1	41.7	41.2	41.3	44.1	49.5	46.8	45.8	46.6	38.1
<0.0001	<0.0001	<0.0001	<0.0001	0.0405	0.0425	0.0423	0.0414	0.0437	0.044	0.0463	0.0394	0.04
14.6	14.4	14.9	14.6	7.35	6.93	6.92	7.23	7.36	7.33	7.19	7.27	7.29
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002
161	156	159	174	151	147	145	144	150	151	132	148	153
3.2	3.12	3.22	3.44	3.51	3.58	3.35	3.01	3.4	3.44	3.51	3.45	3.65
520	541	543	534	541	448	532	538	553	553	561	587	539
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	0.000019	0.000015	0.000017	0.000012	0.000012	<0.00002	<0.00002	0.000042
<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02
0.00274	0.00275	0.00281	0.00275	0.0146	0.0141	0.0138	0.0138	0.0142	0.0145	0.0153	0.0152	0.0117
<0.001	<0.001	<0.001	<0.001	0.004	0.0026	0.0031	0.003	0.0028	0.0027	0.0029	0.0029	0.0039
0.0014	<0.001	<0.001	0.0027	<0.002	0.0024	0.0022	0.0024	0.0027	0.0038	<0.002	0.0032	<0.002
0.0035	0.0046	<0.003	0.0154	0.0154	0.0084	0.0072	0.0036	0.0045	0.0056	0.0168	0.0166	0.0264
0.00017	<0.0001	<0.0001	0.00048	0.00401	0.00392	0.00434	0.00354	0.00389	0.00377	0.00412	0.00395	0.0163
0.00592	0.00602	0.00546	0.00519	0.00586	0.00434	0.0053	0.00494	0.00506	0.00486	0.00531	0.00564	0.0226

Baseline Data for Groundwater

0.0117	0.0103	0.00807	0.0224	0.0312	0.0497	0.0422	0.0365	0.0359	0.0314	0.0284	0.0335	0.0221
<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001
0.099	0.101	0.099	0.091	0.117	0.104	0.124	0.108	0.132	0.127	0.112	0.132	0.11
<0.00001	<0.00002	<0.00001	<0.00001	<0.0007	<0.001	<0.0009	<0.0008	0.0016	<0.0012	<0.001	<0.0002	<0.00068
291	275	275	263	240	247	236	242	234	254	242	257	225
0.00019	0.00011	0.00014	0.00022	<0.0002	0.00016	<0.0002	0.00023	0.00012	<0.0002	0.00024	<0.0002	0.00037
0.00013	0.00013	0.00011	0.00011	0.0019	0.0013	0.00101	0.00093	0.00084	0.00081	0.00091	0.00081	0.00283
<0.0005	<0.0005	0.00059	0.00061	0.0094	0.00371	0.00486	0.0035	0.00346	0.00309	0.004	0.0055	0.0205
1.03	1.03	1.01	0.954	0.028	0.045	0.029	0.016	0.014	0.033	0.102	0.036	0.036
<0.00005	<0.00005	<0.00005	0.000119	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00015	0.00034	<0.0001	<0.0001
0.0104	0.011	0.0105	0.00979	0.0299	0.0352	0.0336	0.0279	0.0341	0.0338	0.0287	0.0345	0.0277
221	212	213	194	275	255	300	298	308	314	297	340	270
0.379	0.368	0.349	0.337	0.0871	0.0934	0.0751	0.0606	0.0563	0.0539	0.0499	0.0519	0.111
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000056
0.0253	0.0251	0.0247	0.0245	3.36	3.62	3.54	3.13	3.64	3.57	3.71	3.95	3.12
0.00055	<0.0005	<0.0005	0.00113	0.0148	0.0105	0.0114	0.0122	0.0131	0.0129	0.0139	0.0154	0.0293
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14.1	14.3	13.3	13.6	40.7	40.7	42.3	43.5	50.3	45.7	44.1	49.7	36.4
<0.0001	<0.0001	<0.0001	<0.0001	0.0395	0.0437	0.0447	0.0413	0.0443	0.0431	0.0454	0.0437	0.0388
14.8	14.4	14.1	13.9	7.33	7.13	6.99	7.25	7.39	7.31	7.13	7.7	7.16
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002
163	157	155	165	146	153	152	144	154	145	131	161	154
3.08	3.23	3.13	3.35	3.46	3.71	3.62	2.98	3.57	3.41	3.62	3.74	3.36
540	550	529	518	543	473	540	552	564	561	563	633	533
<0.00001	<0.00001	<0.00001	<0.00001	0.00002	0.000019	0.000023	0.000021	0.000014	0.000015	<0.00002	<0.00002	0.000039
<0.0001	<0.0001	<0.0001	0.00011	<0.0002	0.00026	0.00019	0.00018	0.00011	0.00046	0.00148	0.00051	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02
	<0.00002								<0.00015	<0.00015	<0.0001	
0.00285	0.00286	0.00279	0.00265	0.0142	0.0148	0.0146	0.0141	0.0153	0.0148	0.016	0.0166	0.0112
<0.001	<0.001	<0.001	<0.001	0.004	0.0027	0.0033	0.0033	0.0032	0.003	0.0032	0.0034	0.0041
<0.003	<0.003	<0.003	0.0044	<0.006	0.0035	<0.003	0.0032	0.0031	<0.003	<0.006	0.0065	<0.006
3.38				2.69	2.72	2.51	2.72	2.59				2.49
3.39	3.25	3.27	5.24	2.69	2.45	2.42	2.82	2.41	2.34	2.25	2.48	2.44
					8.5							
					29							
L1393344	**L1431355**	**L1475117**	**L1516193**	**L1245169**	**L1277798**	**L1308855**	**L1348395**	**L1394557**	**L1435486**	**L1475661**	**L1514758**	**L1245169**

Baseline Data for Groundwater

MW12-02	MW12-02	MW12-02	MW12-02	MW12-02	MW12-02	MW12-02	MW12-04	MW12-04	MW12-04	MW12-04	MW12-04	MW12-04
10-Mar-13	28-May-13	15-Aug-13	20-Nov-13	21-Mar-14	22-Jun-14	7-Sep-14	1-Dec-12	10-Mar-13	29-May-13	14-Aug-13	18-Nov-13	2-Apr-14
2122	2540	3924	3250	3401	2469	2435		823	914	1023	1180	840
11.2	28.3	35.8	2.4	24.1	17.1	2		0.4	1	56.2	1.2	48.9
1.25	3.29	4.09	0.27	2.84	1.85	0.22	0.48	0.05	0.12	6.38	0.15	5.74
7.29	7.33	7.59	7.53	7.79	7.56	7.58	7.78	7.72	7.77	7.83	7.94	7.97
165	171	221	63.7	30.4	119	87.8	51.6	-76.1	-116	151	-143	-160
1.62	1.92	2.08	1.7	1.79	1.76	1.76		0.61	0.67	0.73	0.59	0.62
3090	3640	3924	2180	2281	3340	3343	1159	1217	1333	1447	787	1237
8.54	9.17	9.56	7.94	7.76	11.4	10.8	7	7.93	8.54	9.67	7.66	8.16
2011	2366	2550	2100	2212	2172	2171		791	866	941	764	806
-3.9	0	2.5	-1.9	2.1	2.7	2		3.4	0	6.4	2.7	-0.4
		4.7										
171	176	174	186	169	188	181	219	222	193	182	202	185
171	176	174	186	169	188	181		222	193	182	202	185
1	1	1	1	1	1	0.5		1	1	1	1	1
2.5	2.5	2.5						7.1	2.5	2.5	2.5	
1740	1780		1830	1890	1810	1880	405	422	359	395		460
1	1	1	1	1	1	0.5		1	1	1	1	1
8.05	7.95	8.09	7.92	8.1	8.13	8.09	8.28	8.24	8.24	8.13	8.25	8.29
3290	3260	3240	3260	3340	3360	3370	1150	1260	1210	1220	1260	1250
1470	2890	3240	3130	3190	3160	3150	823	772	770	851	838	899
1.5	10	8.6			5.2	1.5	7.7	16.2	16	8.1		3.3
0.78	0.28	0.74			0.78	0.19	2.27	7.27	3.03	3.92		1
0.5	0.5	0.5	0.5	0.5	0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
15	17	15	19	15	16	17	6.5	5.6	14.6	18.5	23.1	28.2
0.49	<0.4	<0.4	<0.4	<0.4	0.186	0.175	<0.2	0.35	0.23	0.37	<0.2	<0.2
1710	1720	1740	1720	1800	1790	1760	436	457	436	443	471	484
0.0203	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.243	0.211	0.306	0.316	0.321	0.377
69.6	83.4	82.6	77.7	77.7	83.3	87.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
0.426	0.545	0.533	0.37	0.28	0.451	0.533	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
73.5								0.356				
70.1	77.5	73.6					0.333	0.355	0.418	0.417		
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.333	0.4	0.449	0.443	0.43	0.446
			0.018	0.0277	0.0269	0.0225	0.0688				0.14	0.126
0.019	0.023	0.0185	0.0213	0.0317	0.0253	0.0248	0.082	0.0816	0.168	0.181	0.16	0.143
0.0212		0.0206	0.0216	0.0321	0.0274	0.0195		0.0951		0.198	0.17	0.143

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005
0.0017	0.0015	0.0017	0.0016	0.002	0.0041	0.0024	0.0068	0.0043	0.0034	0.0025	0.0025	0.0032
0.0108	0.0107	0.00953	0.00821	0.0075	0.0196	0.017	0.00063	0.00016	0.00012	<0.0001	<0.0001	<0.0001
0.0104	0.0139	0.0159	0.0138	0.011	0.0224	0.0261	0.0118	0.00711	0.00426	0.00473	0.00461	0.00375
0.0334	0.0304	0.023	0.026	0.0275	0.0217	0.0224	0.0696	0.0983	0.0801	0.0746	0.0703	0.0627
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.094	0.116	0.102	0.12	0.116	0.114	0.12	0.098	0.087	0.097	0.096	0.102	0.098
<0.001	<0.001	<0.0008	<0.0014	<0.0012	<0.001	<0.0002	<0.00005	<0.00005	<0.00005	<0.00005	<0.00004	<0.00003
235	232	243	235	230	238	237	43.4	51.4	40.3	41.7	45.4	47.6
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00187	0.00171	0.00179	0.00166	0.00098	0.00159	0.0021	0.00045	0.00084	0.00064	0.00048	0.00043	0.00041
0.00744	0.00654	0.00851	0.00798	0.00331	0.00579	0.0094	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
				<0.00015	<0.00015	<0.00012						<0.00002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	0.024	0.03	0.024	0.026	0.024
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0341	0.0311	0.0288	0.0336	0.0343	0.0305	0.036	0.00255	0.00119	0.00166	0.00238	0.0035	0.0028
279	291	291	303	321	296	312	72	71.4	62.8	70.6	79.4	82.7
0.121	0.109	0.101	0.1	0.0752	0.0845	0.0991	0.092	0.394	0.346	0.3	0.272	0.24
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
3.33	3.32	3.03	3.32	3.39	3.48	3.44	0.204	0.181	0.166	0.148	0.145	0.12
0.0265	0.0224	0.0232	0.0214	0.0271	0.0235	0.0218	0.00123	0.00331	0.00188	0.00137	0.00149	0.00162
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.067	0.088	0.165	0.17	0.162	0.135
44.8	39.4	37.9	42.4	56.9	44.2	41	43.7	42.3	37.5	36.9	40.8	39
0.0396	0.0395	0.0371	0.0401	0.0418	0.0414	0.0409	0.00017	0.00012	0.00042	0.00015	<0.0001	<0.0001
6.97	7.13	7.45	7.52	7.98	7.31	7.31	12.4	11.3	10.8	11.6	12.3	12.8
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
160	159	145	154	154	135	152	92.2	101	116	106	97.8	91.3
3.46	3.63	3.28	3.61	3.47	3.69	3.72	0.276	0.272	0.257	0.287	0.318	0.351
510	529	531	553	562	550	571	143	150	136	144	149	153
0.000037	0.000031	0.000025	0.000025	0.00003	0.000021	0.000021	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00012	0.00017	<0.0001	<0.0001	0.00015	<0.0002	<0.0001	<0.0001	0.00025	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0109	0.0131	0.0127	0.0131	0.0103	0.0135	0.0147	0.000847	0.00128	0.00133	0.00105	0.000958	0.00099
0.0018	0.0023	0.0032	0.0031	0.0022	0.0023	0.0029	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
0.001	0.0021	0.0014	0.0011	0.0016	0.0044	0.0041	<0.001	<0.001	<0.001	<0.001	<0.001	0.0015
0.0294	0.017	0.0151	0.004	0.0201	0.0406	0.009	0.216	0.352	0.299	0.175	0.0656	0.0861
0.0107	0.0109	0.00938	0.00865	0.00753	0.0191	0.0171	0.00061	0.00019	0.00014	<0.0001	<0.0001	0.00013
0.0102	0.0135	0.016	0.0138	0.0112	0.0227	0.0259	0.0113	0.00733	0.00436	0.00436	0.00463	0.00379

Baseline Data for Groundwater

0.0328	0.0298	0.0239	0.026	0.0273	0.0225	0.0224	0.0695	0.106	0.0849	0.0737	0.0711	0.0616
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.094	0.127	0.108	0.132	0.125	0.14	0.127	0.1	0.089	0.1	0.1	0.119	0.102
<0.001	<0.001	<0.00085	<0.0015	<0.0012	<0.001	<0.0001	<0.00006	<0.00005	<0.00005	<0.00005	<0.00005	<0.00003
222	228	241	228	224	233	246	42.2	52.6	39.6	40.1	45.3	46.1
0.00035	0.00023	0.00034	0.00015	0.00021	0.00043	0.00011	0.00062	0.0011	0.00078	0.00054	0.00027	0.00041
0.002	0.0018	0.00182	0.0017	0.00102	0.00165	0.00215	0.00061	0.00112	0.00089	0.00059	0.00051	0.0005
0.00945	0.00734	0.0102	0.00838	0.00451	0.0083	0.0105	0.00216	0.00254	0.00222	0.00089	0.00085	0.00114
0.043	0.026	0.024	0.012	0.029	0.082	0.011	0.304	0.516	0.415	0.261	0.104	0.145
<0.00005	0.000062	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005	<0.00005	0.000132	0.000127	0.000052	<0.00005	0.000161
0.0343	0.0342	0.0296	0.0345	0.0343	0.0325	0.0337	0.00263	0.00157	0.00168	0.0025	0.00365	0.00285
275	284	294	302	317	300	326	70.4	72.2	64.6	67.4	78.5	76.8
0.123	0.114	0.103	0.101	0.0767	0.0892	0.101	0.0996	0.418	0.364	0.292	0.287	0.251
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
3.26	3.44	3.05	3.44	3.42	3.46	3.67	0.208	0.194	0.172	0.149	0.154	0.127
0.0283	0.0228	0.0241	0.0222	0.028	0.0247	0.0227	0.00192	0.00489	0.00311	0.00201	0.00197	0.00208
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.077	0.114	0.186	0.178	0.161	0.155
42.5	38.6	38.2	43.2	55.4	43.3	42.9	41.4	43.3	38.9	36.6	43.3	37.2
0.038	0.0376	0.0377	0.0396	0.0418	0.0406	0.041	0.00018	0.00015	0.0004	0.00017	<0.0001	<0.0001
6.9	7.12	7.67	7.55	7.96	7.43	7.69	12.5	12.5	11.7	11.7	12.4	12.5
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
162	157	150	160	156	142	161	91.4	104	115	101	102	90.7
3.49	3.74	3.11	3.73	3.47	3.7	3.91	0.287	0.286	0.266	0.292	0.336	0.344
518	526	553	572	571	569	602	142	156	140	141	155	152
0.000036	0.000035	0.000026	0.000023	0.00003	0.000022	0.000021	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00017	0.00027	<0.0001	<0.0001	0.00024	<0.0002	<0.0001	0.00013	0.00047	0.0002	0.00011	<0.0001	0.00056
<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	0.012	0.024	0.02	0.011	<0.01	<0.01
				<0.00015	<0.00015	<0.0001						<0.00002
0.0106	0.0139	0.0129	0.0132	0.0101	0.0134	0.0153	0.000862	0.00137	0.0014	0.00104	0.00101	0.000998
0.0019	0.0025	0.0036	0.0034	0.0026	0.0028	0.003	0.0013	0.0019	0.0015	<0.001	<0.001	<0.001
0.0039	<0.003	<0.003	<0.003	<0.003	<0.006	0.0049	<0.003	<0.003	0.0079	<0.003	<0.003	<0.003
2.71	2.72	2.58	2.6				2.6	3.81	2.6	2.5	2.48	
2.5	2.57	2.63	2.48	2.24	2.28	2.38	2	3.6	2.52	2.49	2.26	2.32
7.5								0.144				
7								0.143				
L1277798	**L1308855**	**L1348395**	**L1394557**	**L1435486**	**L1475661**	**L1514758**	**L1245169**	**L1277798**	**L1308855**	**L1348177**	**L1393344**	**L1439433**

Baseline Data for Groundwater

MW12-04	MW12-04	PW01	PW01
25-Jun-14	7-Sep-14	22-Oct-14	28-Oct-14
847	832		
16.9			
1.8			
7.96	8.01		
-124	55.6		
0.59	0.58		
1186	1164		
10.1	10.1		
770	756		
15.7	3.1		
		63	57.1
186	189	63	57.1
186	189	<1	<1
0.5	0.5		
415	419	1080	1700
0.5	0.5	<1	<1
8.18	8.28	7.92	7.77
1200	1180	2460	3580
825	791	2050	3520
24.8	3.7	<3	<3
7.71	0.56	1.38	2.18
<0.5	<0.5	<1	<1
24.6	26.6	37	64
0.203	0.038	0.108	0.116
436	423	1440	2290
0.372	0.397	0.0214	0.0114
<0.05	<0.05	<0.1	<0.1
<0.01	<0.01	<0.02	<0.02
0.582	0.536	0.098	0.068
0.127	0.111	<0.001	<0.001
0.138	0.131	<0.002	<0.002
0.18	0.154	<0.002	<0.002

Baseline Data for Groundwater

<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005
0.0024	0.0193	<0.001	<0.002
<0.0001	<0.0001	<0.0001	<0.0002
0.00433	0.0046	0.0185	0.0289
0.0558	0.0506	0.0117	0.0105
<0.0001	<0.0001	<0.0001	<0.0002
<0.0005	<0.0005	<0.0005	<0.001
0.092	0.09	0.512	0.391
<0.00005	<0.00001	<0.00001	<0.00002
45.7	45.7	238	377
<0.0001	<0.0001	<0.0001	<0.0002
0.00045	0.00039	<0.0001	<0.0002
<0.0002	0.00043	<0.0002	<0.0004
<0.00002			
0.078	0.081	0.386	0.632
<0.00005	<0.00005	<0.00005	<0.0001
0.00278	0.0029	0.035	0.0563
73.1	74.1	118	184
0.256	0.206	0.0319	0.0575
<0.00001	<0.00001	<0.00001	<0.00001
0.125	0.101	0.278	0.188
0.00146	0.00129	0.00133	<0.001
0.153	0.121	<0.05	<0.05
39.7	38	22.3	15.3
<0.0001	<0.0001	<0.0001	<0.0002
12.3	12.1	13.7	16.9
<0.00001	<0.00001	<0.00001	<0.00002
92.4	89.9	176	281
0.341	0.324	4.09	6.8
142	137	447	720
<0.00001	<0.00001	<0.00001	<0.00002
0.00017	0.00019	<0.0001	<0.0002
<0.01	<0.01	<0.01	<0.02
0.0011	0.000998	0.000015	<0.00002
<0.001	<0.001	<0.001	<0.002
0.0012	0.0016	0.0063	0.0037
0.434	0.0036	0.0039	<0.006
0.00019	<0.0001	<0.0001	<0.0002
0.00445	0.00474	0.019	0.0289

Baseline Data for Groundwater

0.0588	0.0515	0.0116	0.0103
<0.0001	<0.0001	<0.0001	<0.0002
<0.0005	<0.0005	<0.0005	<0.001
0.096	0.101	0.542	0.394
<0.0001	<0.00001	<0.00001	<0.00002
42.9	46.5	237	360
0.00139	<0.0001	0.00026	<0.0002
0.00083	0.0004	<0.0001	<0.0002
0.00362	<0.0005	0.00098	0.0016
0.697	0.056	0.416	0.639
0.000188	<0.00005	0.000102	<0.0001
0.00282	0.00303	0.0358	0.0567
68.8	75.8	119	180
0.269	0.211	0.0329	0.0575
<0.00001	<0.00001	<0.00001	<0.00001
0.124	0.111	0.285	0.185
0.00344	0.00123	0.00141	<0.001
0.179	0.127	<0.05	<0.05
36.8	39	22.6	14.8
0.0001	<0.0001	<0.0001	<0.0002
12.5	12.3	13.8	16.2
<0.00001	<0.00001	<0.00001	<0.00002
88.7	93.1	178	283
0.337	0.346	4.16	6.57
139	143	453	702
<0.00001	<0.00001	<0.00001	<0.00002
0.00057	<0.0001	<0.0001	<0.0002
0.026	<0.01	<0.01	<0.02
<0.00002			
0.00105	0.00111	0.000018	<0.00002
0.0023	<0.001	<0.001	<0.002
0.0034	<0.003	0.0099	<0.006
		1.81	1.88
2.16	2.29	1.74	1.93
L1478436	**L1514758**	**L1537086**	**L1540210**

Baseline Data for Surface Water

Site ID		PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02
Analytes	**MDL**	**28-Apr-08**	**7-Jul-08**	**6-Sep-08**	**29-Mar-11**	**14-Apr-11**	**21-Apr-11**	**28-Apr-11**	**5-May-11**
In Situ Parameters									
Conductivity µS/cm	...	1376	1118	969	968	1095	1226	1192	1316
Oxygen Dissolved %	...	92.4	90.7	85.5	77.2	70.5	73.2	64.7	74.3
Oxygen Dissolved	...	10.7	9.52	9.41	10	9.45	10.3	8.45	8.91
pH (unitless)	...		8.08	7.79	7.89	7.34	7.67	7.57	7.58
Redox Potential mV	...		-102	-70.3	122	154	65.8	106	128
Salinity ppt	...						1.15	1.01	1.02
Specific Conductivity µS/cm	...	1993	1451	1326	1608	1896	2276	2000	1997
Temperature °C	...	8.79	13	10.9	4.14	2.89	1.07	3.84	7.14
Total Dissolved Solids	...				1050	1230	1476	1300	1298
Turbidity NTU	...								
Physical Tests									
Acidity to pH 8.3 (as CaCO3)	1								
Alkalinity (Total as CaCO3)	1 to 2	421	413	446	395	448	448	437	430
Bicarbonate Alkalinity	1 to 2						448		
Carbonate Alkalinity	1 to 2						<2		
Color TCU	5	7.7	22	8.3	15.1	8.7	8.1	6.6	6.3
Hardness as CaCO3 (Dissolved)	0.5 to 1.1	931	654	780	753	866	880	914	917
Hydroxide Alkalinity	1 to 2						<2		
pH (unitless)	0.01 to 0.1	8.12	8.33	8.3	8.12	8.2	8.11	8.1	8.22
Specific Conductivity µS/cm	2	1990	1450	1850	1580	1880	1880	1880	1920
Total Dissolved Solids	1 to 2	1420	999	1320	1120	1370	1410	1380	1370
Total Suspended Solids	3	19.3	15.3	4.7	<3	3.2	4.7	<3	3.3
Turbidity NTU	0.1	0.71	5.64	2.29	1.19	1.08	2.07	0.75	1.2
Dissolved Anions									
Bromide	0.05 to 2.495	<0.5	0.067	0.077	<2.1	<2.5	<1	<1	<1
Chloride	0.5 to 1	125	80.1	113	86.5	132	133	130	142
Fluoride	0.02 to 0.4	0.24	0.243	0.244	<0.2	<0.4	<0.4	<0.4	<0.4
Sulphate	0.5 to 1	582	324	476	422	499	523	485	507
Nutrients									
Ammonia (Total)	0.005 to 0.05	0.021	0.021	0.041	0.0248	0.0197	0.0196	0.0233	0.0178
Nitrate (as N)	0.005 to 0.1	0.442	0.0931	0.167	0.408	0.47	0.36	0.37	0.37
Nitrite (as N)	0.001 to 0.02	0.019	0.0011	0.0036	<0.01	<0.02	<0.02	<0.02	<0.02
Nitrogen (Dissolved)	0.05 to 0.1							0.81	0.58
Nitrogen (Total)	0.0025 to 0.11				0.916	0.797	0.46	0.751	0.69
Nitrogen Kjeldahl (Total)	0.05 to 0.2	0.563	0.637	0.365	0.508	0.331	<0.1	0.382	0.359
Orthophosphate (Dissolved)	0.001 to 0.01	0.0277	0.073		0.0646				
Phosphorus - Dissolved	0.002 to 0.02					0.0323	0.0353	0.0376	0.03
Phosphorus - Total	0.002 to 0.02	0.0326	0.08		0.0794	0.0369	0.0415	0.0354	0.0365

Baseline Data for Surface Water

Cyanide									
Cyanide (Free)	0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005
Cyanide (Total)	0.005	<0.005	0.0071		<0.005		<0.005	<0.005	<0.005
Cyanide (WAD)	0.005	<0.005	<0.005	<0.005	0.0073		<0.005	<0.005	<0.005
Dissolved Metals									
Aluminum	0.001 to 0.025	<0.025	<0.01	<0.025	<0.01	<0.01	<0.01	<0.01	<0.01
Antimony	0.0001 to 0.0025	<0.0025	<0.001	<0.0025	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.0001 to 0.0025	<0.0025	0.0025	<0.0025	0.0019	0.0017	0.0018	<0.002	0.0017
Barium	5E-005 to 0.02	0.065	0.056	0.056	0.053	0.057	0.058	0.057	0.059
Beryllium	0.0001 to 0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Bismuth	0.0005 to 0.2				<0.2	<0.2	<0.2	<0.2	<0.2
Boron	0.01 to 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	1E-005 to 8.5E-005	<0.000085	0.000052	<0.000085	0.000201	0.000039	0.000064	<0.000034	<0.000034
Calcium	0.05 to 0.1	147	102	132	116	142	141	149	147
Chromium	0.0001 to 0.018	<0.005	<0.002	<0.005	<0.002	<0.002	<0.003	<0.018	<0.002
Cobalt	0.0001 to 0.0015	<0.0015	<0.0006	<0.0015	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Copper	0.0002 to 0.006	<0.005	0.0028	<0.005	0.0027	0.0021	<0.006	0.002	0.002
Dissolved Cadmium (SWE)	0.00002								
Iron	0.01 to 0.03	0.031	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.038
Lead	5E-005 to 0.0025	<0.0025	<0.001	<0.0025	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium	0.0005 to 0.025	<0.025	<0.01	<0.025	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	0.1	137	96.7	110	112	124	128	132	133
Manganese	5E-005 to 0.0015	0.0589	0.0432	0.117	0.0444	0.107	0.112	0.0984	0.102
Mercury	1E-005 to 5E-005	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	5E-005 to 0.005	0.011	0.0147	0.0121	0.011	0.0092	0.0086	0.0081	0.0084
Nickel	0.0005 to 0.005	<0.005	0.0029	0.0054	0.0029	0.0044	0.0036	0.0036	0.0039
Phosphorus	0.05 to 0.3				<0.3	<0.3	<0.3	<0.3	<0.3
Potassium	0.05 to 2	20.4	19	20.4	17.7	20.1	20	20.6	20.7
Selenium	0.0001 to 0.006	<0.005	<0.002	<0.005	<0.002	0.0024	0.0029	<0.006	<0.002
Silicon	0.05				7.89	8.36	8.15	8.71	8.59
Silver	1E-005 to 0.0001	<0.0001	<0.00004	<0.0001	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
Sodium	0.05 to 2	109	83.7	101	86.5	108	108	111	114
Strontium	0.0001 to 0.005				1.08	1.24	1.3	1.3	1.34
Sulphur	0.5								
Thallium	1E-005 to 0.001	<0.001	<0.0004	<0.001	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Tin	0.0001 to 0.0025	<0.0025	<0.001	<0.0025	<0.001	<0.001	<0.001	<0.001	<0.001
Titanium	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.011
Uranium	1E-005 to 0.001	0.0038	0.00234	0.0035	0.00271	0.00325	0.00308	0.00311	0.00329
Vanadium	0.001 to 0.03	<0.005	0.0037	<0.005	0.0031	0.0039	0.0035	<0.006	0.0034
Zinc	0.001 to 0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Total Metals									
Aluminum	0.003 to 0.025	<0.025	0.174	0.043	0.044	0.042	0.072	0.02	0.02
Antimony	0.0001 to 0.0025	<0.0025	<0.001	<0.0025	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	0.0001 to 0.0025	<0.0025	0.0026	<0.0025	0.0017	0.0016	0.0016	<0.0018	0.0016
Barium	5E-005 to 0.02	0.065	0.054	0.057	0.053	0.059	0.06	0.059	0.062

Baseline Data for Surface Water

Beryllium	0.0001 to 0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Bismuth	0.0005 to 0.2				<0.2	<0.2	<0.2	<0.2	<0.2
Boron	0.01 to 0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	1E-005 to 8.5E-005	<0.000085	0.000058	<0.000085	0.000183	0.000047	0.000072	<0.000034	0.000037
Calcium	0.05 to 0.1	146	100	132	114	140	141	146	150
Chromium	0.0001 to 0.005	<0.005	<0.002	<0.005	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt	0.0001 to 0.0015	<0.0015	<0.0006	<0.0015	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Copper	0.0005 to 0.007	<0.005	0.0045	<0.005	0.0036	0.003	<0.006	0.0027	0.0027
Iron	0.01 to 0.03	0.05	0.249	0.099	0.1	0.089	0.131	0.066	0.079
Lead	5E-005 to 0.0025	<0.0025	<0.001	<0.0025	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium	0.0005 to 0.025	<0.025	<0.01	<0.025	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	0.1	137	94.1	112	110	128	132	133	137
Manganese	5E-005 to 0.0015	0.0603	0.0702	0.123	0.0488	0.121	0.127	0.109	0.114
Mercury	1E-005 to 5E-005	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Molybdenum	5E-005 to 0.005	0.011	0.0147	0.0119	0.0116	0.0096	0.0093	0.0086	0.0092
Nickel	0.0005 to 0.005	<0.005	0.0043	0.0056	0.003	0.0047	0.0043	0.004	0.0041
Phosphorus	0.05 to 0.3				<0.3	<0.3	<0.3	<0.3	<0.3
Potassium	0.05 to 2	20.5	18.9	20.6	17.3	20.7	20.3	21.1	21.7
Selenium	0.0001 to 0.006	<0.005	<0.002	<0.005	<0.002	0.0021	0.0026	<0.006	<0.002
Silicon	0.05				7.8	8.5	8.41	8.77	8.89
Silver	1E-005 to 0.0001	<0.0001	<0.00004	<0.0001	<0.00004	<0.00004	<0.00004	<0.00004	<0.00004
Sodium	0.05 to 2	109	82.6	104	84.9	111	110	113	118
Strontium	0.0001 to 0.005				1.06	1.28	1.32	1.34	1.39
Sulphur	0.5								
Thallium	1E-005 to 0.001	<0.001	<0.0004	<0.001	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Tin	0.0001 to 0.0025	<0.0025	<0.001	<0.0025	<0.001	<0.001	<0.001	<0.001	<0.001
Titanium	0.01	<0.01	0.012	0.012	<0.01	<0.01	0.01	0.011	0.012
Total Cadmium (SWE)	0.00002								
Uranium	1E-005 to 0.001	0.0038	0.00237	0.0034	0.00279	0.00349	0.0034	0.00334	0.00352
Vanadium	0.001 to 0.03	<0.005	0.0044	<0.005	0.0033	0.0044	0.004	<0.006	0.0036
Zinc	0.003 to 0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Organics									
Carbon Organic (Dissolved)	0.5 to 5	6.93	11.2	6.44	9.05	6.52	6.61	5.87	6.83
Carbon Organic (Total)	0.5 to 5					6.52	6.7	5.89	6.62
Nitrogen Organic (Dissolved)	0.05 to 0.26							0.42	0.19
Nitrogen Organic (Total)	0.05 to 0.3					0.311		0.359	0.3
ALS LAB ID		**L623545**	**L652819**	**L679672**	**L990459**	**L995583**	**L997645**	**L999654**	**L1002049**

NOTES:
1. UNITS ARE mg/L, UNLESS OTHERWISE STATED.

Baseline Data for Surface Water

PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02
12-May-11	30-May-11	28-Jun-11	28-Jul-11	30-Aug-11	28-Sep-11	25-Oct-11	5-Dec-11	9-Jan-12	13-Feb-12	6-Mar-12	10-Apr-12	25-Apr-12
1089	961	916	990	792		1225	1124	1017	1055	559	1042	1138
85.7	63.6	81.7	77.1	116	67.7	48.7	64.5	65.8	70.8	73.9	77	85.9
10.1	6.77	8.3	8.09	12.3	7.37	5.66	8.59	8.43	9.42	10.3	9.54	10.1
7.69	7.14	7.88	7.91	8.05	7.64	7.31	7.57	7.54	7.31	8.05	7.6	7.47
62.8	326	183	104	138	25.9	76.5	48.2	8.2	69.9	96.9	140	118
0.82	0.64	0.57	0.65	0.52		0.91	0.97	0.84	0.91	0.5	0.83	0.85
1618	1266	1146	1284	1041	1913	1786	1925	1665	1816	1030	1637	1679
7.87	12.4	14.5	13	12.5	11.3	8.54	3.22	4.66	3.05	1.05	5.98	8.15
1050	823	745	835	678		1163	1251	1081	1181	670	1064	1091
	37.9	45	15.1		4.9		3.3	0.7	0.1	4.8		0.6
			4		4.5	7.2						
394	327	333	370	328	449	468	458	444	447	254	414	409
					449	468		444	447	254	395	409
					<2	<2		<2	<2	<2	18.9	<2
22.3	23.2	31.7	26.3	36.8	10	9.6	9	7	6.7	63.6	7.5	7
1040	540	486	537	439	803	821	816	774	785	423	757	762
					<2	<2		<2	<2	<2	<1	<2
	8.18	8.33	8.21	8.4	8.19	8.12	8.32	8.16	8.14	7.94	8.41	8.26
2230	1230	1070	1240	1020	1850	1900	1800	1820	1730	956	1640	1630
1710	782	714	832	644	1280	1240	1240	1320	1240	646	1160	1150
7	99.5	14.4	38.1	62.7	8.7	7.1	<3	6.7	6	8	<3	<3
2.81		5.65	14.7	15.4		2.42	2.76	2.31	0.98	5.52	0.59	1.03
<1	<1	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<0.5	<1	<0.5
129	78	65.1	78.1	62.7	129	122	125	130	126	54.2	113	123
<0.4	<0.4	0.33	0.42	0.23	<0.4	<0.4	<0.4	<0.4	<0.4	<0.2	<0.4	0.24
775	256	192	232	138	444	433	427	438	412	203	380	406
0.0163	0.0344	0.0269	0.0207	0.0184	0.028	0.0199	0.019	0.022	<0.05	0.0577	0.0213	0.0157
0.36	<0.1	<0.05	0.116	<0.05	<0.1	0.15	0.18	0.43	0.6	0.34	0.63	0.483
<0.02	<0.02	<0.01	<0.01	<0.01	<0.02	0.028	<0.02	<0.02	<0.02	<0.01	<0.02	0.01
1.25	0.79	0.97	0.75	1.15	0.55	0.34		0.68	1.05	1.26	0.94	0.73
1.34	0.79	1.01	0.85	1.14	0.55	0.595	0.49	0.91	0.956	1.52	0.951	0.888
0.856	0.79	1.01	0.734	0.917	0.55	0.42	0.434	0.483	0.35	1.18	0.318	0.394
	0.0548	0.0896	0.105									
0.125	0.0628	0.092	0.105	0.0915	0.0463	0.0374	0.0427	0.0328	0.0307	0.348	0.0344	0.0303
0.141	0.217	0.117	0.151	0.144	0.0724	0.0627	0.0562	0.0516	0.041	0.436	0.0404	0.0372

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	0.0086	0.0081	0.0081		<0.005	<0.005	<0.005	<0.005	<0.005	0.015	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005		<0.005	0.0078	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.01	<0.01	<0.005	<0.005	<0.005	<0.01	<0.003	<0.003	<0.003	<0.003	0.0032	<0.006	<0.003
<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
0.0027	0.0019	0.00287	0.00261	0.00242	0.0016	0.00145	0.00154	0.00124	0.00122	0.00184	0.0014	0.00152
0.074	0.053	0.056	0.048	0.047	0.063	0.0638	0.0625	0.0545	0.0554	0.0362	0.0541	0.0522
<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.077	0.079	0.074	0.065	0.037	0.065	0.063
0.000045	0.000045	<0.00003	<0.000017	<0.000017	<0.000034	<0.00001	<0.00001	0.000011	0.000016	0.00001	0.00002	0.000014
148	86.1	78.9	88.7	73.2	129	134	129	122	124	67.4	114	120
<0.002	<0.002	<0.003	<0.001	<0.001	<0.002	0.00011	<0.0001	0.00011	<0.0001	0.00014	<0.0002	0.00018
<0.0006	<0.0006	<0.0003	<0.0003	<0.0003	<0.0006	0.00024	0.00028	0.00024	0.00027	0.00028	<0.0002	0.00018
<0.006	0.0028	0.0024	0.0017	0.0027	<0.002	0.00165	0.00119	0.0015	0.00173	0.00397	0.0021	0.0021
<0.03	<0.03	0.036	0.039	0.033	0.035	0.061	0.043	0.04	0.049	0.107	0.033	<0.03
<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005
<0.01	<0.01	0.0073	0.0086	0.0072	0.01	0.00867	0.0108	0.00931	0.00892	0.00461	0.0088	0.00877
163	78.9	70.2	76.6	62.1	116	118	120	114	115	62	115	112
0.021	0.189	0.0628	0.0805	0.0519	0.165	0.174	0.229	0.106	0.0932	0.102	0.0908	0.087
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0138	0.0126	0.0105	0.0103	0.0137	0.0104	0.0091	0.00865	0.00832	0.00863	0.00995	0.00984	0.00862
0.0022	0.0021	0.0029	0.0021	0.0025	0.0043	0.00425	0.00398	0.00378	0.00424	0.00297	0.0038	0.00389
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.38	<0.3	<0.3
24.8	16.8	16.1	17.3	17	22.2	22.1	25.3	20.7	20.1	16.8	18.3	19.3
<0.002	<0.002	0.0011	<0.001	<0.001	<0.002	0.00021	0.00022	0.00041	0.00063	0.0005	0.00162	0.00229
8.22	5.94	6.79	8.39	8.02	10.4	10.3	9.76	8.93	8.92	6.01	8.59	8.21
<0.00004	<0.00004	<0.00002	<0.00002	<0.00002	<0.00004	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001
154	73	66	74.3	56.1	114	108	122	109	101	46.3	92	101
1.47	0.766	0.712	0.786	0.646	1.2	1.17	1.35	1.16	1.14	0.577	1.07	0.967
<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0004	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001
<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	0.011	<0.01	<0.01	<0.01	<0.01
0.00439	0.00219	0.00158	0.00143	0.00137	0.0035	0.00306	0.00293	0.00292	0.00311	0.00158	0.00318	0.00268
0.0038	0.0033	0.003	0.0027	0.0036	0.0029	0.0026	0.0024	0.0023	0.0028	0.0029	0.0036	0.0034
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	0.0033	<0.003	<0.003	<0.003	<0.006	<0.003
0.146	2.04	0.277	0.576	1.05	0.081	0.0395	0.0777	0.0562	0.0258	0.288	0.0171	0.01
<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	0.00013
0.0026	0.0025	0.00246	0.00248	0.00251	0.0018	0.00141	0.00149	0.00131	0.00131	0.00198	0.00156	0.0016
0.075	0.081	0.055	0.055	0.062	0.065	0.065	0.0606	0.0566	0.0604	0.039	0.0557	0.0533

Baseline Data for Surface Water

<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.089	0.08	0.081	0.074	0.044	0.071	0.079
0.000053	0.000071	<0.00004	<0.000017	<0.000017	0.000046	0.000013	<0.00001	0.000011	0.00002	0.000015	0.000022	0.000017
144	85.2	79.6	87.5	73.1	132	139	124	127	124	67.7	117	120
<0.002	0.0055	0.0015	0.0021	0.003	<0.002	0.00039	0.00034	0.00035	0.00032	0.00088	0.00024	0.00029
<0.0006	0.00187	0.00046	0.00054	0.00093	<0.0006	0.00029	0.00033	0.00031	0.0003	0.00045	<0.0002	0.00018
<0.007	0.0119	0.0042	0.0047	0.0072	0.0031	0.00269	0.00207	0.00238	0.00248	0.00579	0.0029	0.00291
0.211	2.67	0.43	0.855	1.32	0.212	0.16	0.165	0.185	0.114	0.404	0.078	0.072
<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.00005	<0.00005	<0.00005	0.000066	0.00009	<0.0001	<0.00005
<0.01	<0.01	0.0065	0.0069	0.0077	0.011	0.00964	0.0106	0.00923	0.00884	0.00467	0.0088	0.00957
160	79.1	71.4	76	62.9	119	122	119	125	119	62.9	117	114
0.0353	0.375	0.0997	0.114	0.119	0.181	0.178	0.23	0.131	0.102	0.116	0.0944	0.0905
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0144	0.0129	0.0113	0.0108	0.0149	0.0107	0.00962	0.00881	0.00911	0.00901	0.0111	0.0104	0.0102
0.0026	0.0102	0.0045	0.0044	0.0066	0.0049	0.00468	0.00422	0.00435	0.00464	0.00411	0.0039	0.00406
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.44	<0.3	<0.3
24.6	17.3	16.2	17.2	17.5	22.6	22.8	24.4	21.6	21.1	17.6	18.8	19.5
<0.002	<0.002	<0.001	<0.001	<0.001	<0.002	0.0002	0.00021	0.00037	0.00068	0.00049	0.0016	0.00219
8.46	11.6	7.8	9.94	11.1	10.8	10.7	9.77	9.81	9.15	6.66	8.84	8.35
<0.00004	<0.00004	<0.00002	<0.00002	<0.00002	<0.00004	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001
152	73.7	66.8	73.1	56.7	117	113	118	115	107	48.3	94.7	102
1.46	0.795	0.723	0.789	0.659	1.23	1.22	1.34	1.23	1.16	0.59	1.09	1.12
<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0004	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001
<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
0.015	0.098	0.021	0.035	0.055	<0.01	<0.01	0.015	0.015	<0.01	0.014	<0.01	<0.01
0.00459	0.00235	0.00172	0.0016	0.0015	0.00356	0.00323	0.00292	0.00314	0.00315	0.00167	0.00324	0.00311
0.0043	0.0088	0.004	0.0045	0.0061	0.0034	0.0029	0.0026	0.0027	0.0031	0.0036	0.0037	0.0036
<0.005	0.0095	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	0.004	0.0048	<0.006	<0.003
15.7	13.4	15.7	13.2	15.9	9.42	8.96	8.3	7.09	7.29	16.7	6.96	6.44
15.4	13.7	15.9	14.3	17.6	9.23	9.78	8.34	6.99	7.36	19.6	6.66	6.21
0.877	0.756	0.943	0.613	1.13	0.522	0.145		0.23	0.42	0.862	0.28	0.22
0.839	0.756	0.983	0.713	1.12	0.522	0.165	0.288	0.461	0.35	1.12	0.296	0.379
L1005044	**L1011001**	**L1025075**	**L1038168**	**L1052387**	**L1066047**	**L1076994**	**L1092368**	**L1102695**	**L1114029**	**L1122039**	**L1133342**	**L1140194**

Baseline Data for Surface Water

PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02
2-May-12	9-May-12	16-May-12	24-May-12	10-Jul-12	7-Aug-12	5-Sep-12	11-Oct-12	5-Nov-12	4-Dec-12	8-Jan-13	5-Feb-13	6-Mar-13
704	1187	994	1006	972	820	1211	1163	1136	714	921	532	916
83	82.9	82.1	77.6	78	85.5	83.1	65.1	65.5	60.5	73.8	73	88
10.1	9.83	9.02	8.98	7.59	8.15	8.86	7.35	7.51	7.6	9.89	9.42	12.4
7.78	7.81	8.24	7.93	8.06	8.05	7.79	7.55	7.53	7.66	8.21	7.8	7.79
145	135	191	83.2	201	81.7	49.2	-243	-0.2	21.1	73.8	47.4	17.4
0.54	0.94	0.68	0.74		0.47	0.81	0.83	0.83	0.57	0.8	0.43	0.76
1085	1850	1357	1459	1161	956	1601	1643	1634	1138	1592	875	1525
6.59	6.24	11	8.72	16.5	17.5	12.3	9.71	9.03	5.5	2.94	4.49	4.08
705	1203	882	949		622	1041	1068	1062	740	1035	569	991
8	1.7	73.7	4.8	7.1	12.7	4	2.6	1.4	0	4.5	1.5	0.5
						<1						
410	418	429	413	363	346	441	463	468	467	481	446	451
410	418	429	401	360	336	441	463	468	467	481	446	451
<1	<2	<1	12.4	3.4	10.5	<1	<2	<2	<2	<2	<2	<1
12	12.1	43.7	17.6	27.5	36.1	9.8	9	9.8	8	6.2	6.8	6.1
803	853	662	666	517	434	690	748	706	742	711	718	730
<1	<2	<1	<1	<1	<1	<1	<2	<2	<2	<2	<2	<1
8.2	8.29	8.4	8.32	8.49	8.35	8.39	8.1	8.26	8.19	8.14	8.14	8.32
1670	1820	1400	1430	1090	956	1560	1570	1610	1600	1560	1590	1650
1230	1360	990	1030	784	636	1100	1140	1130	1120	1070	1240	1100
<3	3.8	245	11.8	16.2	53.5	4.1	<3	<3	<3	8.3	<3	4.3
1.34	1.01	75.7	4	5.71	14.5	2.01	1.2	0.82	0.59	3.23	1.34	0.45
<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1
101	110	76.2	80.1	67.5	59.8	106	112	110	112	114	118	124
<0.4	<0.4	<0.2	0.23	0.24	0.26	0.25	<0.4	0.51	<0.4	0.4	<0.4	<0.4
469	535	315	353	187	133	347	361	359	361	345	341	351
0.0087	0.0179	0.0227	0.0141	0.0165	0.0164	0.0283	0.0168	0.0152	0.0276	0.0209	0.0159	0.0174
0.73	0.38	0.138	0.155	0.091	0.062	0.104	<0.1	0.13	0.31	0.76	1.17	1.14
<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	0.012	0.029	<0.02	0.028	<0.02	<0.02	<0.02
0.95	0.83	1.09	0.61	0.83	0.82	0.5	0.45	0.44	0.678	1.13	1.34	1.19
1.2	0.87	1.81	0.708	0.815	0.883		0.45	0.5	0.76	1.06	1.34	1.29
0.467	0.49	1.67	0.553	0.724	0.821	0.411	0.42	0.373	0.424	0.482	0.423	0.475
							0.0432					
0.081	0.0802	0.124	0.0745	0.114	0.121	0.0524	0.046	0.0504	0.0422	0.0586	0.0282	0.0256
0.0897	0.0847	0.648	0.091	0.139	0.195	0.0613	0.0539	0.0568	0.0488		0.0346	0.0295

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.006	0.0136	<0.003	0.001	0.0019	0.0018	0.0013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.0002	0.00012	0.00015	0.00012	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00211	0.00218	0.00271	0.00226	0.00259	0.00275	0.00197	0.0015	0.00154	0.00119	0.00124	0.00121	0.0012
0.0601	0.0653	0.0529	0.0509	0.0434	0.0436	0.0552	0.054	0.0607	0.0537	0.0499	0.0494	0.0495
<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.052	0.059	0.035	0.044	0.05	0.046	0.09	0.095	0.092	0.078	0.075	0.074	0.071
<0.00002	0.000012	0.000014	<0.00001	0.000019	<0.00001	0.000012	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
118	126	102	102	83.9	70.4	112	119	115	114	111	112	117
<0.0002	0.00029	0.00015	0.00016	<0.0001	0.00013	0.00016	0.00012	<0.0001	0.00012	<0.0001	0.00014	0.00012
<0.0002	0.00012	0.00027	0.00015	0.00016	0.00016	0.00021	0.00019	0.00022	0.00023	0.00023	0.00019	0.00019
0.0027	0.00278	0.00275	0.00236	0.0022	0.00199	0.00134	0.00176	0.00181	0.0014	0.00159	0.00178	0.00195
<0.03	<0.03	0.035	0.016	0.02	0.038	0.025	0.029	0.037	0.04	0.033	0.032	0.029
<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.009	0.0107	0.00786	0.0065	0.00753	0.00679	0.0104	0.00977	0.00917	0.00842	0.00887	0.00853	0.0083
124	130	98.6	99.7	74.6	62.8	99.8	110	101	111	106	106	106
0.0327	0.0345	0.138	0.0475	0.0414	0.0394	0.168	0.14	0.148	0.123	0.0836	0.0719	0.0615
<0.00001		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0123	0.0125	0.0119	0.0137	0.011	0.00923	0.0121	0.0102	0.00886	0.00849	0.00907	0.0089	0.00858
0.0027	0.00273	0.00305	0.00273	0.00272	0.00272	0.00428	0.00438	0.00436	0.0039	0.00406	0.00395	0.00404
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.059	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05
19.4	19.8	19.5	17.2	15.3	15.1	21.9	20.5	22.7	20.9	20.3	19.8	19.9
0.00159	0.00148	0.00042	0.00083	0.00028	0.00023	0.00026	0.0002	0.00022	0.0003	0.00073	0.00103	0.00119
7.84	7.94	7.53	7.47	7.33	7.8	9.85	10.2	10.1	9.72	8.95	8.96	8.72
<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
95.1	117	77.7	80.9	60.5	53.1	104	102	105	104	102	96.9	92.6
1.11	1.16	0.928	0.915	0.706	0.627	1.01	1.04	1.06	1.01	1.1	1.03	0.979
									112	110	106	113
<0.00002	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00344	0.00345	0.00204	0.00231	0.00132	0.000839	0.00271	0.00262	0.00249	0.00249	0.00275	0.00272	0.00272
0.0035	0.0037	0.0042	0.0031	0.0026	0.0023	0.0033	0.0026	0.0021	0.0021	0.0025	0.0025	0.0027
<0.006	0.0037	<0.003	0.0032	0.001	0.0028	0.0019	<0.001	<0.001	<0.001	<0.001	0.005	<0.001
0.0786	0.0787	3.45	0.196	0.302	0.534	0.102	0.0517	0.0234	0.0139	0.0474	0.0214	0.058
<0.0002	0.00018	0.00024	0.00014	0.00012	0.00011	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00015
0.00216	0.00228	0.004	0.0023	0.00263	0.00285	0.00202	0.0015	0.00145	0.00123	0.00131	0.00133	0.00133
0.0592	0.0673	0.106	0.0516	0.0459	0.0487	0.0567	0.0549	0.0532	0.0515	0.0497	0.0515	0.0523

Baseline Data for Surface Water

<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.057	0.058	0.046	0.05	0.055	0.048	0.095	0.104	0.105	0.081	0.084	0.08	0.082
<0.00002	<0.00001	0.000059	0.000012	0.000016	0.000019	0.000017	0.000014	<0.00001	<0.00001	<0.00001	0.000012	0.000013
115	129	101	104	83.3	68	110	114	110	110	112	113	121
0.00068	0.00056	0.011	0.00083	0.00118	0.00169	0.00058	0.0003	0.00018	0.00021	0.00028	0.00033	0.00032
<0.0002	0.00018	0.00335	0.00031	0.0004	0.00062	0.00031	0.00023	0.00021	0.00022	0.00025	0.00022	0.00025
0.0038	0.00349	0.0204	0.00359	0.00406	0.00496	0.0032	0.00274	0.00229	0.00418	0.00321	0.00268	0.00278
0.128	0.127	4.88	0.294	0.412	0.739	0.192	0.129	0.087	0.078	0.121	0.086	0.133
<0.0001	<0.00005	0.00128	0.000086	0.00011	0.000196	0.000066	<0.00005	<0.00005	<0.00005	0.000069	<0.00005	<0.00005
0.0091	0.00952	0.0101	0.00686	0.0074	0.0068	0.0105	0.00977	0.00945	0.00853	0.00971	0.00864	0.00927
120	134	99.6	96.8	73	59.9	99.6	107	98.7	106	109	107	107
0.0366	0.0419	0.62	0.0648	0.086	0.103	0.187	0.143	0.14	0.12	0.0872	0.0726	0.0705
<0.00001		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0122	0.0133	0.0131	0.0144	0.0111	0.00917	0.0127	0.0103	0.0097	0.00833	0.00983	0.00896	0.00976
0.003	0.00307	0.0197	0.00365	0.00411	0.00508	0.00496	0.0045	0.00401	0.00381	0.00432	0.00405	0.00443
<0.3	<0.3	0.38	<0.3	<0.3	<0.3	0.071	<0.3	<0.3	0.056	<0.05	<0.05	<0.05
19.1	20.2	19.4	16.9	14.7	14.5	22	20.1	20.4	19.6	21	19.7	20.6
0.0015	0.00145	0.00059	0.00076	0.00028	0.00024	0.00021	0.00025	0.00027	0.00027	0.00068	0.00102	0.0012
7.89	8.34	16.1	8.1	7.99	9	10.1	10.1	9.77	9.35	9.4	9.06	9.16
<0.00002	<0.00001	0.000045	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
94.8	110	76.2	80.6	59.5	52	107	97.7	98.2	97.2	103	100	96.8
1.11	1.19	1.01	0.917	0.696	0.607	1.06	1.01	1.03	0.992	1.16	1.05	1.09
									111	117	112	119
<0.00002	<0.00001	0.000023	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.013	<0.01	0.14	0.013	0.019	0.031	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00337	0.00366	0.0024	0.00243	0.00134	0.000839	0.00269	0.00268	0.00259	0.00247	0.00286	0.00284	0.00304
0.0038	0.004	0.0134	0.0039	0.0035	0.0038	0.0041	0.0028	0.0021	0.0023	0.0029	0.003	0.0032
<0.006	<0.003	0.0182	<0.003	0.0036	0.0038	0.0035	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
8.3	8.82	16.9	10.2	11.9	14.2	7.94	8.15	7.82	7.36	7.58	7.23	7.11
8.28	8.91	24.7	10.8	12.4	14.7	8.15	8.36	7.93	7.4	7.12	7.05	6.97
0.21	0.43	0.929	0.44	0.723	0.741	0.356	0.404	0.294	0.31			<0.24
0.459	0.472	1.65	0.539	0.707	0.805	0.383	0.403	0.357	0.397	0.461	0.407	<0.26
L1142492	**L1145681**	**L1148880**	**L1152500**	**L1176520**	**L1190914**	**L1205273**	**L1222966**	**L1233797**	**L1245799**	**L1256678**	**l1265809**	**L1276517**

Baseline Data for Surface Water

PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02
2-Apr-13	7-May-13	5-Jun-13	2-Jul-13	7-Aug-13	4-Sep-13	9-Oct-13	6-Nov-13	4-Dec-13	8-Jan-14	4-Feb-14	12-Mar-14	19-Mar-14
1166	801	725	856	794		1169	1029	972	986	908	356	719
	84.7	77.5	87.2	68.5	67.8	77.5	55	68.1	75.2	73.5	78.8	82.6
	8.8	7.84	7.61	6.73	7.15	9.27	6.86	9.43	1.15	10.6	11.2	11.1
7.72	8.26	8.22	8.25	8.15	7.6	7.58	7.66	7.75	7.69	7.3	7.96	7.98
43.3	115	70.3	104	286	177	46.7	30.8	-7.2	4.5	-61.3	14.4	4
0.88	0.51	0.45	0.45	0.47	0.85	0.85	0.82	0.87	0.86	0.85	0.32	0.62
1724	1025	902	908	955	1678	1120	1633	1747	1725	1714	658	1243
8.03	13.5	14.7	22.1	16.2	12.7	7.38	5.65	1.75	2.55	0.39	0.95	2.92
1121	666	586	590	621	1091	1096	1061	1134	1121	1114	428	808
0.4	12.1	7.8	7	6.4		2.5	0.6	3.8	2.2			
							3					
433	317	283	287	322	432	475	459	466	448	455	160	319
433	311	279	272	317	432	475	459	466	448	455	160	319
<1	5.9	4	15.3	5.1	<2	<2	<2	<2	<2	<2	<2	<2
6.5	27.6	27	35.6	33.5	9.7	8.6	9.3	7.9	7.3			
745	433	393	410	435	712	759	715	740	746	760	282	567
<1	<1	<1	<1	<1	<2	<2	<2	<2	<2	<2	<2	<2
8.13	8.49	8.42	8.43	8.37	8.14	8.18	8.17	7.97	8.12	8.17	7.93	8.19
1680	963	877	912	937	1610	1660	1670	1630	1650	1710	625	1220
1150	628	553	599	603	1100	1100	1130	1110	1130	1000	421	818
3.3	20	12.9	23.5	11.5	16.7	9.3	<3	7	9.8	<3	61.4	<3
1.03	13.3	7.8	3.5	2.05	9.36	6.09	1	4.15	4.68	0.67	29	1.35
<1	<0.5	<0.5	<0.5	<0.5	<1	<1	<1	<1	<1	<1	0.051	<0.5
125	63.9	57.4	57.9	61	113	117	120	129	133	137	27.8	67.3
0.45	0.31	0.35	0.24	0.4	0.44	0.67	<0.4	<0.4	<0.4	<0.4	0.105	<0.2
392	157	121	126	132	337	357	373	376	378	380	141	295
0.0146	0.0119	0.01	0.0177	0.0189	0.0328	0.0207	0.013	0.0244	0.0221	0.0201	0.268	0.1
0.96	<0.05	<0.05	<0.05	0.069	<0.1	0.11	<0.1	0.31	0.76	1.18	0.381	0.677
0.031	<0.01	<0.01	<0.01	<0.01	0.021	<0.02	0.035	<0.02	<0.02	0.025	0.0097	<0.01
1.3				0.773	0.92							
1.39	0.953	0.815	0.907	0.826	0.597	0.487	0.429					
0.4	0.815	0.699	0.907	0.964	0.572	0.44	0.417	0.382	0.417	0.375	1.64	0.695
						0.0385	0.0327	0.0296	0.0273	0.0212	0.432	0.0953
0.0329	0.0724	0.062	0.122	0.123	0.0899	0.0427	0.0347	0.0314	0.0293	0.0246	0.502	0.115
0.0318	0.124	0.0895	0.0909	0.146		0.0614	0.0432	0.0489	0.0475	0.0292	0.671	0.117

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.001	0.0015	0.0018	0.0044	0.002	0.0013	0.001	<0.001	<0.001	0.0011	<0.001	0.004	0.0021
0.00011	0.00013	<0.0001	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.00011
0.00165	0.00188	0.00166	0.0023	0.00273	0.00185	0.00167	0.00139	0.00115	0.00121	0.00122	0.00175	0.00174
0.0548	0.0437	0.0424	0.0486	0.0456	0.061	0.0565	0.0585	0.0552	0.0536	0.0562	0.0256	0.0475
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.072	0.036	0.032	0.038	0.043	0.082	0.098	0.086	0.073	0.079	0.078	0.029	0.039
0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001
120	71.3	68.3	70.5	70.6	111	119	108	114	119	117	44.9	89.2
0.00013	0.00014	0.0001	0.00012	0.00013	<0.0001	0.00012	0.00012	<0.0001	<0.0001	<0.0001	0.00012	0.00015
0.00016	0.00011	0.00011	0.00015	0.00014	0.00024	0.00027	0.00023	0.00026	0.00024	0.00024	0.00025	0.00018
0.00228	0.00254	0.00227	0.00487	0.0021	0.00152	0.00128	0.00129	0.001	0.00119	0.0015	0.00374	0.00257
0.022	0.019	0.021	0.024	0.029	0.018	0.037	0.046	0.047	0.034	0.039	0.073	0.036
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00896	0.00675	0.00568	0.00603	0.00649	0.0094	0.0111	0.0102	0.00861	0.00963	0.00879	0.00307	0.00615
108	62	54	56.8	62.8	105	112	108	111	109	114	41.2	83.6
0.0645	0.0226	0.0305	0.0337	0.0266	0.251	0.195	0.135	0.166	0.112	0.0853	0.108	0.0793
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0107	0.0137	0.007	0.00827	0.00922	0.0114	0.0101	0.00822	0.00791	0.0089	0.00881	0.00835	0.0152
0.00397	0.00184	0.00174	0.00209	0.00254	0.00417	0.00577	0.00411	0.00388	0.00413	0.00421	0.00218	0.00254
<0.05	0.063	0.059	0.083	0.123	0.056	<0.05	<0.05	<0.05	<0.05	<0.05	0.528	0.111
20.6	15	14	14.7	15.2	23.4	22.2	21.9	21.4	19.4	19.8	13.1	16.2
0.00267	0.00039	0.00046	0.0003	0.00028	0.00032	0.00027	0.00028	0.00044	0.00097	0.00139	0.00058	0.00101
8.5	5.53	4.06	6.05	8.95	10.5	10.4	10.2	9.45	9.1	9.34	4.5	7.3
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
97.2	49.7	42.4	46.2	51.3	99.8	98.8	104	95.8	103	103	29.3	62.3
1.08	0.641	0.511	0.58	0.605	1.05	1.1	1.07	1.02	1.09	1.04	0.372	0.798
117	50.6	38.7	40.4	42.7	106	114	122	116	116	123	46.9	95.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000025	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00334	0.00154	0.00108	0.00117	0.000906	0.00258	0.0025	0.00233	0.00235	0.00265	0.00302	0.000916	0.00221
0.0047	0.0031	0.0022	0.0028	0.0024	0.0036	0.0027	0.0022	0.0021	0.0024	0.0027	0.0026	0.0031
0.0013	0.0022	0.001	0.0037	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0017	0.0033
0.0269	0.684	0.335	0.501	0.289	0.605	0.544	0.0459	0.177	0.0787	0.0234	1.36	0.0608
0.00013	0.00015	0.00011	0.00013	0.00015	0.00011	0.0001	0.00013	<0.0001	<0.0001	0.0001	0.00013	0.00012
0.00161	0.00196	0.00178	0.00241	0.00278	0.00205	0.0017	0.00152	0.00129	0.00132	0.00129	0.0022	0.00176
0.0558	0.0506	0.0457	0.0531	0.0508	0.0671	0.0616	0.0617	0.0575	0.0542	0.0555	0.0416	0.0465

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.078	0.039	0.033	0.04	0.048	0.088	0.095	0.093	0.082	0.085	0.084	0.031	0.04
0.000011	0.000012	<0.00001	0.000012	0.000012	0.000012	0.000012	<0.00001	<0.00001	0.000011	0.000012	0.000025	<0.00001
117	69.4	64.2	65.3	73.8	115	119	107	115	125	117	44.3	87.3
0.00028	0.0021	0.00108	0.00153	0.00101	0.00211	0.00182	0.00035	0.00068	0.00041	0.00027	0.00367	0.00041
0.00019	0.00071	0.00042	0.00058	0.00037	0.00066	0.00065	0.00028	0.00037	0.00029	0.00025	0.00137	0.00021
0.00288	0.00647	0.00412	0.00501	0.00374	0.00702	0.00527	0.00222	0.00257	0.00252	0.00241	0.0111	0.00328
0.065	0.934	0.483	0.651	0.412	0.9	0.717	0.123	0.294	0.172	0.088	1.87	0.126
<0.00005	0.000241	0.000131	0.000178	0.000128	0.000203	0.000165	<0.00005	0.000064	<0.00005	<0.00005	0.000483	<0.00005
0.00922	0.00707	0.00562	0.00587	0.00698	0.00983	0.0105	0.0102	0.00944	0.00964	0.00924	0.0036	0.00602
105	59.1	51.6	54	64.4	105	113	105	109	112	113	40.5	79.5
0.0675	0.127	0.0907	0.119	0.0795	0.28	0.221	0.168	0.176	0.116	0.0866	0.237	0.082
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0113	0.0141	0.00683	0.00798	0.0101	0.012	0.0107	0.00932	0.00916	0.00934	0.00948	0.0087	0.0162
0.00418	0.00478	0.00332	0.00406	0.00391	0.00687	0.00682	0.00436	0.00481	0.0044	0.00454	0.00815	0.00284
<0.05	0.109	0.091	0.119	0.153	0.088	0.085	<0.05	<0.05	<0.05	<0.05	0.661	0.129
21.5	14.5	13.4	14.1	16	23.9	22	22.9	22.4	20.4	19.6	12.7	15.5
0.00246	0.00041	0.00044	0.00033	0.00028	0.00038	0.00026	0.00025	0.00041	0.00092	0.0013	0.00064	0.00093
8.53	7.17	4.68	6.95	10.1	13.3	11.9	10.4	10.3	9.77	9.54	7.78	7.18
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000028	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000018	<0.00001
103	48.6	42.2	45.2	54.4	100	103	106	100	105	103	28.7	59.7
1.07	0.634	0.491	0.549	0.628	1.09	1.19	1.14	1.09	1.13	1.07	0.381	0.801
119	50.1	37.7	38.9	46.3	114	121	127	125	122	127	45.5	96.6
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	0.028	0.015	0.02	0.012	0.029	0.026	<0.01	<0.01	<0.01	<0.01	0.051	<0.01
0.00332	0.00161	0.00105	0.00114	0.001	0.00264	0.00262	0.00251	0.00258	0.0028	0.003	0.00101	0.00223
0.0049	0.0049	0.0031	0.0042	0.0033	0.0051	0.0043	0.003	0.0027	0.0029	0.003	0.0061	0.0033
<0.003	0.0046	0.003	0.0042	0.0032	0.0031	<0.003	<0.003	<0.003	<0.003	<0.003	0.0074	<0.003
7.35	12	7.26	16.5	14.5	8.69	7.8	8.29	7.6	7.19	7	13.3	8.56
7.03	12.2	14.3	16.8	15	10	8.18	8.33	7.77	7.61	6.93	15.3	9.03
0.29					0.87							
0.385					0.539							
L1285503	**L1298960**	**L1312719**	**L1326032**	**L1344180**	**L1358222**	**L1375698**	**L1388680**	**L1399806**	**L1410216**	**L1418933**	**L1432163**	**L1434695**

Baseline Data for Surface Water

PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02	PC02
26-Mar-14	2-Apr-14	9-Apr-14	23-Apr-14	06/May/2014	21-May-14	3-Jun-14	18-Jun-14	3-Jul-14	16-Jul-14	30-Jul-14	12-Aug-14	4-Sep-14
852	964	929	1302	1067	873	888	807	975	873	821	966	
70.4	79.4	80.2	86.1	107	93.3	86.8	84	86.4	80.3	72.2	84.7	
9.22	9.96	9.9	10.6	12.3	9.38	8.52	8.85	8.42	7.54	7.44	8.12	
7.83	7.98	7.84	8.12	8.33	8.35	8.31	8.33	8.27	8.53	8.19	8.33	7.95
8.5	38.9	-1.1	88.1	195	60.1	166	85.1	84.8	126	126	78.9	
0.71	0.77	0.73	1.04	0.78	0.54	0.53	0.52	0.58	0.5	0.52	0.57	
1429	1533	1454	2031	1540	1079	1070	1049	1666	1001	1043	1135	
3.85	5.57	6.08	6.21	8.9	15	16.1	12.9	16.4	18.3	13.8	17.2	11.4
929	996	945	1320	1001	702	695	682	758	651	679	738	
381	388	367	375	390	286	304	326	428	401	381	388	396
381	388	367	375	390	286	299	312	408	375	381	360	390
<2	<2	<2	<1	<2	<1	4.6	13.6	19.4	25.2	<2	28.1	5.7
691	674	690	911	760	485	478	482	551	507	591	535	580
<2	<2	<2	<1	<2	<1	<1	<1	<1	<1	<2	<1	<1
8.17	8.18	8.14	8.32	8.25	8.36	8.46	8.4	8.54	8.48	8.25	8.45	8.31
1450	1400	1470	2030	1500	1040	1050	1040	1130	1080	1360	1130	1320
1010	1000	1050	1510	1030	697	699	689	732	716	633	781	876
4.5	<3	<3	4.9	9.8	33.1	14.4	9.9	13.3	11.2	7.8	32.3	7
0.95	0.67	0.43	2.38	20.4	7.97	4.5	1.23	3.06	2.55	1.88	10	2.47
<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
88.9	85	96.6	107	63.3	64.4	62.8	62.3	56.1	60.3	84	65.4	83
<0.2	0.2	0.21	<0.4	0.23	0.21	0.23	0.257	0.42	0.27	0.265	0.313	0.253
362	363	375	734	442	218	199	183	179	146	280	186	255
0.0359	0.0199	0.0155	0.0156	0.0131	0.0118	0.0137	0.0173	0.0242	0.019	0.0363	0.0291	0.026
0.893	0.697	0.633	0.44	0.067	<0.05	<0.05	<0.05	0.06	0.09	0.149	<0.05	0.099
<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	0.012
					0.779							
0.514	0.461	0.387	0.989	1.07	0.803	0.76	0.751	1.01	0.905	0.618	1.32	0.571
0.0648	0.0553	0.0415	0.178	0.0751	0.0696	0.0736	0.0877	0.106	0.133	0.0933	0.152	0.084
0.0746	0.0646	0.0503	0.198	0.0855	0.0836	0.0828	0.0914	0.127	0.154	0.0981	0.174	0.0917
0.0868	0.0708	0.0452	0.22	0.252	0.128	0.104	0.122	0.143	0.172	0.112	0.223	0.0763

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0011	0.0153	<0.001	<0.001	0.0017	0.0016	0.0015	0.0016	0.0015	0.0026	0.0013	0.0019	0.0011
<0.0001	0.00012	0.00012	0.00016	0.00014	0.00013	0.00012	<0.0001	0.00013	0.0001	<0.0001	0.00014	<0.0001
0.0017	0.00187	0.00171	0.00303	0.00211	0.00215	0.00226	0.00242	0.00295	0.00304	0.00262	0.00322	0.00236
0.0527	0.0545	0.0533	0.0567	0.0638	0.0509	0.0507	0.0435	0.0501	0.0479	0.0516	0.0557	0.0505
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.05	0.054	0.057	0.043	0.035	0.042	0.036	0.037	0.045	0.047	0.057	0.045	0.067
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
104	107	108	111	121	78.1	78.7	77.7	86.7	80.8	91.1	88.6	92.6
0.00017	0.00021	0.00022	0.00021	0.00011	0.00014	0.00012	0.00013	0.00013	0.00014	0.00012	0.00015	0.00011
0.00016	0.00015	0.00013	0.00017	0.00015	0.00012	0.00012	0.00013	0.00018	0.00016	0.00017	0.00021	0.00017
0.0023	0.00242	0.00218	0.00259	0.00221	0.00269	0.00261	0.00209	0.00295	0.00235	0.00196	0.00224	0.00181
0.028	0.061	0.024	0.022	0.018	0.015	0.02	0.019	0.02	0.025	0.023	0.038	0.031
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00711	0.00801	0.00812	0.00979	0.00701	0.00726	0.0062	0.00588	0.00853	0.00763	0.0087	0.00825	0.00849
105	98.9	102	154	111	70.4	68.4	70	81.1	74.2	88.2	76.2	84.6
0.084	0.0796	0.0782	0.0371	0.0689	0.0309	0.0316	0.0298	0.0291	0.0276	0.108	0.0483	0.103
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0138	0.0137	0.0121	0.0122	0.0147	0.014	0.0116	0.0104	0.0128	0.0116	0.0125	0.0152	0.0119
0.00265	0.00263	0.00297	0.00225	0.00233	0.0018	0.00205	0.00228	0.00266	0.00284	0.0032	0.00281	0.00329
0.079	0.075	0.053	0.19	0.093	0.085	0.085	0.096	0.118	0.151	0.106	0.18	0.099
17.8	16.1	17.4	26.6	18.2	15.1	14.7	14.4	18.7	16.8	20.1	16.8	18.6
0.0015	0.00166	0.00211	0.00113	0.00058	0.00041	0.00036	0.00027	0.00031	0.00029	0.00029	0.00029	0.00023
8.18	7.53	7.37	7.4	6.89	5.04	5.46	5.93	6.38	7.41	8.67	10.8	9.79
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
76.3	78.3	85.9	127	74.2	58.8	52.1	53.3	61.2	58.9	79.9	61.3	79.6
0.889	0.939	1.02	1.24	0.99	0.672	0.675	0.619	0.749	0.715	0.847	0.77	0.807
112	113	119	236	136	74.3	68.8	56.5	58.6	47.7	89.7	59.7	82.8
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00269	0.00246	0.00259	0.00379	0.00237	0.00177	0.00156	0.00132	0.00187	0.00139	0.00195	0.00133	0.00187
0.0035	0.0037	0.004	0.0033	0.0029	0.0033	0.0028	0.0024	0.003	0.0027	0.0029	0.0035	0.0028
0.0028	0.0014	0.0018	0.0019	0.0011	0.0014	0.0018	0.0014	0.0012	<0.001	<0.001	0.0012	<0.001
0.0443	<0.003	0.0266	0.215	1.63	0.493	0.262	0.203	0.108	0.216	0.0993	0.673	0.198
<0.0001	0.00013	0.00011	0.00018	0.0002	0.00016	0.00014	<0.0001	0.00013	0.00014	0.00011	0.00018	0.00013
0.00185	0.00174	0.00171	0.00308	0.00264	0.00215	0.00234	0.00237	0.00286	0.0032	0.00247	0.00355	0.00236
0.0528	0.0547	0.0551	0.0594	0.0802	0.0536	0.0524	0.0449	0.0535	0.0513	0.053	0.0652	0.0528

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.051	0.058	0.059	0.046	0.037	0.042	0.04	0.043	0.044	0.051	0.06	0.055	0.068
<0.00001	<0.00001	<0.00001	0.000012	0.000027	0.000014	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	<0.00001
103	103	103	114	115	74.5	75.5	75.7	83	80.6	90.4	89.7	91.6
0.00029	0.00022	0.00034	0.00084	0.00476	0.00152	0.00088	0.00073	0.00049	0.00074	0.00052	0.00194	0.00067
0.00019	0.00014	0.00016	0.00034	0.00159	0.00054	0.00038	0.00029	0.00034	0.00036	0.00024	0.0008	0.00034
0.00287	0.00221	0.00276	0.0039	0.00992	0.00511	0.00414	0.00323	0.0041	0.00369	0.00292	0.00556	0.00326
0.1	0.02	0.065	0.313	2.24	0.616	0.4	0.28	0.184	0.322	0.158	0.871	0.271
<0.00005	<0.00005	<0.00005	0.000084	0.000611	0.000182	0.000116	0.00007	0.000107	0.000085	<0.00005	0.00025	0.000087
0.00728	0.00786	0.00788	0.00995	0.00752	0.00717	0.00612	0.0067	0.00767	0.00781	0.00866	0.00851	0.00815
101	95.6	97.9	157	106	67.3	66	65.6	79.5	75.1	88.5	77.6	84.4
0.089	0.0786	0.0793	0.0563	0.361	0.0977	0.0802	0.0662	0.0872	0.0781	0.123	0.211	0.133
0.000025	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0148	0.0143	0.012	0.0132	0.0142	0.0141	0.0117	0.0111	0.0127	0.0127	0.013	0.0161	0.0125
0.00303	0.00264	0.00307	0.00336	0.00955	0.00382	0.00329	0.00311	0.0036	0.00384	0.00361	0.00577	0.00414
0.083	0.054	0.056	0.237	0.227	0.113	0.096	0.114	0.145	0.169	0.102	0.247	0.112
17.2	15.5	16.5	27.7	16.9	14.8	14.1	13.6	17.8	17	20.3	17.4	18.6
0.00148	0.00162	0.00197	0.00109	0.0006	0.00038	0.00037	0.00026	0.0003	0.00031	0.00025	0.00034	0.00022
8.23	7.32	7.12	8.24	10.7	6.07	5.98	6.23	6.53	7.97	8.95	12.4	10.2
<0.00001	<0.00001	<0.00001	<0.00001	0.000014	0.000033	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
78.8	81.6	83.5	130	71.5	55.5	52.2	52.1	61.3	61.3	80.3	62.7	81.1
0.929	0.902	0.989	1.26	0.979	0.654	0.646	0.634	0.774	0.728	0.878	0.802	0.83
117	111	117	242	140	70.9	67.1	56.1	59.8	49.3	92	62.2	84.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	0.067	0.02	0.011	<0.01	<0.01	<0.01	<0.01	0.026	<0.01
0.00287	0.00258	0.00262	0.00399	0.0024	0.00179	0.00162	0.00133	0.00189	0.00155	0.00205	0.00147	0.00197
0.0038	0.0036	0.004	0.004	0.0073	0.0049	0.0036	0.0034	0.0035	0.0033	0.0034	0.0054	0.0033
<0.003	<0.003	<0.003	<0.003	0.0077	0.0035	<0.003	<0.003	<0.003	<0.003	<0.003	0.0051	<0.003
7.61	7.65	7.21	14.6	11.5	12.7	12.7	11.9	14.9	15.3	11.1	18.1	11.6
7.71	7.53	6.84	17.3	13.9	13.4	12.9	12.2	15	15.6	12.9	19	11.3
L1437439	**L1439467**	**L1441961**	**L1446462**	**L1451608**	**L1458340**	**L1465108**	**L1473827**	**L1481215**	**L1488886**	**L1495443**	**L1502292**	**L1513418**

Baseline Data for Surface Water

PC02	PC02WH	PC02.3	PC02.3	PC02.3	PC02.3	PC02.3	PC02.3	PC02.3	PC02.3	PC02.5	PC02.5	PC02.5
17-Sep-14	12-Aug-14	4-Jun-14	18-Jun-14	3-Jul-14	16-Jul-14	30-Jul-14	12-Aug-14	4-Sep-14	17-Sep-14	14-Apr-11	28-Jun-11	30-Aug-11
1154		695	709	933	774	783	739		751	718	679	659
72.5		88.7	89.4	96.3	89.3	79.6	87.5		97.9	66.4	74.7	70.8
7.88		8.62	8.96	9.24	8.26	7.74	8.21		10.9	8.97	7.27	7.39
7.71		8.41	8.48	8.34	8.61	8.74	8.24	8.5	8.38	7.58	7.82	7.75
78.4		154	96	87.3	134	121	45.4		84.5	117	155	146
0.079		0.41	0.43	0.55	0.43	0.46	0.42		0.52		0.4	
1558		827	875	1096	875	933	848		1044	1252	809	848
11.4		16.7	15.1	17.2	19	16.6	18.3	12.3	10.3	2.66	16.6	13.3
1013		537	568	713	569	607	551		678	814	526	
											-0.7	3.2
439	383	279	301	449	395	404	282	390	404	409	277	289
439	383	270	286	428	368	377	265	364	374			
<1	<2	8.3	15.7	20.6	27	27.3	16.3	25.4	30.1			
										31.4	37.9	43.1
702	738	369	402	527	445	459	375	465	497	579	340	347
<1	<2	<1	<1	<1	<1	<1	<1	<1	<1			
8.27	7.94	8.48	8.44	8.55	8.54	8.5	8.41	8.5	8.54	8.31	8.27	8.31
1610	1670	799	855	1060	945	1020	845	1020	1080	1220	758	832
1200	1240	498	553	641	617	911	580	665	732	831	475	508
6.7	90	7.8	8.6	11.7	11.8	5.5	17.8	3	4.1	3.2	6.4	7.3
2.17	83	4.7	2.91	2.86	3.29	1.27	5.53	1.38	0.76	2.51	1.51	2.25
<0.5	<0.5	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.2	<0.25	<0.5
109	127	54.4	52.4	49	52.1	54.6	59.9	57	57.5	52.9	49.4	55.3
0.23	0.273	0.22	0.235	0.44	0.274	0.277	0.274	0.269	0.25	<0.2	0.27	0.22
369	418	87.4	109	130	80.7	118	108	127	160	241	70.7	77.9
0.0248	0.0153	0.0099	0.021	0.0219	0.0177	0.0279	0.0191	0.0202	0.014	0.0581	0.0204	0.0252
0.113	0.172	<0.025	<0.05	<0.05	<0.05	0.137	<0.05	0.177	0.137	0.051	<0.025	<0.05
0.013	<0.01	<0.005	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.005	<0.01
											1.03	1.21
										0.802	1.05	1.24
0.457	0.449	0.784	0.856	1.09	1.04	0.956	1.16	0.778	0.617	0.751	1.05	0.999
0.0448	0.0012	0.0385	0.0317	0.0824	0.0999	0.108	0.0831	0.105	0.104		0.035	
0.0509	0.0045	0.0505	0.0432	0.0975	0.124	0.119	0.105	0.148	0.123	0.118	0.0529	0.0805
0.0529	0.0325	0.0734	0.0567	0.13	0.137	0.127	0.141	0.161	0.0945	0.138	0.0661	0.0953

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		0.0085	
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	
0.0012	0.004	0.0018	0.0069	0.0017	0.0026	0.0016	0.003	0.002	0.0015	<0.005	<0.005	<0.005
<0.0001	0.00014	0.00011	<0.0001	0.00014	0.00012	<0.0001	0.00014	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005
0.00176	0.00174	0.00175	0.00158	0.00224	0.00226	0.0025	0.00207	0.00203	0.00213	0.00161	0.00159	0.00172
0.0569	0.0429	0.0519	0.0493	0.0596	0.0527	0.05	0.0535	0.0526	0.0517	0.055	0.051	0.05
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.2	<0.2
0.085	0.091	0.03	0.029	0.033	0.036	0.033	0.04	0.032	0.035	<0.1	<0.1	<0.1
<0.00001	0.000016	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000033	0.000025	<0.000017
112	125	65.2	69.1	83.7	72.3	74.6	67.9	78.2	82.3	94.9	60.4	58.3
0.00012	<0.0001	<0.0001	0.00013	0.00012	0.00012	0.00011	0.00013	0.00013	0.00012	<0.0015	<0.002	<0.001
0.00019	0.00033	0.0001	0.0001	0.00014	0.00013	0.00014	0.00012	0.00014	<0.0001	<0.0003	<0.0003	<0.0003
0.00193	0.00239	0.00234	0.00218	0.00332	0.00241	0.00252	0.00221	0.00207	0.00249	0.0016	0.0021	0.0015
0.022	0.069	0.016	0.018	0.025	0.026	0.012	0.026	0.022	0.017	0.063	0.042	0.043
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0005	<0.0005	<0.0005
0.0105	0.0106	0.00561	0.00532	0.00845	0.00668	0.00728	0.00677	0.00664	0.00772	<0.005	0.0061	0.0061
103	103	50	55.7	77.2	64.1	66.3	49.8	65.6	70.8	83	46	48.9
0.196	0.00952	0.00792	0.00799	0.0113	0.00896	0.00903	0.018	0.0293	0.0335	0.149	0.0266	0.0416
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0119	0.00976	0.00992	0.00923	0.0123	0.0098	0.0147	0.0192	0.0149	0.0184	0.0087	0.0058	0.0085
0.0041	0.00512	0.00168	0.00175	0.00212	0.0021	0.0025	0.00186	0.0023	0.00218	0.0024	0.0021	0.0015
0.062	<0.05	0.053	<0.05	0.107	0.118	0.126	0.096	0.115	0.109	<0.3	<0.3	<0.3
21.1	19.9	12.7	12.2	18.7	15.3	17.5	12.7	16	16.3	14.9	12.7	14.8
0.00023	0.00091	0.00022	0.0002	0.00038	0.00031	0.00027	0.0002	0.00018	0.00018	<0.001	<0.001	<0.001
9.98	10	4.94	4.33	7.09	8.15	8.07	8.79	10.8	9.64	8.97	3.87	7.29
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002
103	104	39.2	42.1	54.7	50.3	54	44	53.5	56.8	63.8	44.4	43
1.06	0.984	0.472	0.49	0.669	0.591	0.627	0.526	0.612	0.71	0.75	0.473	0.491
116	127	30.9	34.8	43.2	27	38.2	34.8	41.4	51.6			
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00268	0.00247	0.00108	0.00106	0.00176	0.00115	0.00132	0.00116	0.00112	0.00127	0.00132	0.00069	0.00077
0.0034	0.0097	0.0027	0.0025	0.0028	0.002	0.003	0.0029	0.0024	0.0026	0.0024	0.0014	0.0016
0.0013	0.0034	<0.001	<0.001	<0.001	<0.001	0.0013	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005
0.0715	0.0645	0.307	0.193	0.131	0.225	0.0823	0.329	0.0612	0.041	0.0672	0.059	0.107
<0.0001	0.00023	0.00014	0.00011	0.00014	0.00014	0.00012	0.00017	0.0001	<0.0001	<0.0005	<0.0005	<0.0005
0.00185	0.00278	0.00172	0.00166	0.0023	0.00219	0.00232	0.00217	0.00204	0.00217	0.0014	0.0015	0.00163
0.058	0.0449	0.0513	0.0494	0.0615	0.0539	0.0499	0.0565	0.0549	0.0527	0.057	0.049	0.053

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.2	<0.2
0.092	0.101	0.031	0.033	0.036	0.038	0.036	0.047	0.036	0.04	<0.1	<0.1	<0.1
0.000011	0.000061	<0.00001	0.000012	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.000017	0.000026	<0.000017
112	122	62.1	65	79.8	70.1	73.4	67.4	78.2	82.7	93.8	59.9	57.9
0.00049	0.00043	0.00071	0.00053	0.00041	0.00059	0.0003	0.0008	0.00042	0.0003	<0.001	<0.001	<0.001
0.00025	0.00106	0.00032	0.00025	0.00028	0.00033	0.00021	0.0004	0.0002	0.00013	<0.0003	<0.0003	<0.0003
0.00331	0.00917	0.00434	0.00376	0.00473	0.00401	0.00329	0.00585	0.0027	0.00311	0.0022	0.0027	0.0023
0.138	2.69	0.403	0.279	0.218	0.366	0.13	0.477	0.113	0.074	0.183	0.131	0.189
<0.00005	0.000737	0.000097	0.000053	0.000057	0.000066	<0.00005	0.000102	<0.00005	<0.00005	<0.0005	<0.0005	<0.0005
0.0107	0.0108	0.0054	0.00579	0.00741	0.0066	0.00722	0.00695	0.00646	0.00785	0.005	0.0059	0.0062
104	103	47.7	51.7	75.2	62.8	66.1	49.2	66	71.5	82.7	46.3	49.3
0.212	0.0117	0.0384	0.0277	0.036	0.0479	0.0223	0.0701	0.0458	0.0413	0.168	0.0472	0.0561
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.013	0.015	0.00969	0.00955	0.0123	0.0102	0.0153	0.0188	0.0158	0.0204	0.01	0.0067	0.0093
0.00444	0.013	0.00236	0.00224	0.00272	0.00265	0.0027	0.00277	0.00269	0.00252	0.0028	0.0029	0.0018
0.056	0.066	0.081	0.068	0.105	0.14	0.128	0.121	0.131	0.111	<0.3	<0.3	<0.3
21.3	19.6	11.8	11.5	17.4	14.7	17.7	12.7	15.9	16.3	14.9	12.5	15.4
0.00028	0.00085	0.00024	0.00022	0.00037	0.00026	0.00024	0.00023	0.00018	0.00018	<0.001	<0.001	<0.001
10.3	9.98	5.39	4.58	7.22	8.4	8.17	9.5	10.9	9.73	9.09	4.01	7.59
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002
106	102	39.2	40.9	57.3	49.3	52.4	43.6	54.2	59.5	63.6	42.8	45.7
1.13	1.04	0.448	0.493	0.657	0.589	0.626	0.518	0.636	0.738	0.754	0.468	0.497
121	132	30.2	33.9	43.6	27.1	39	35	42.4	53.8			
<0.00001	0.000014	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005
<0.01	<0.01	0.013	0.011	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	0.01	<0.01	0.01
0.00287	0.00313	0.00111	0.00107	0.00173	0.00123	0.00136	0.0012	0.00123	0.00138	0.00144	0.00076	0.00083
0.0041	0.041	0.0035	0.0032	0.0034	0.0026	0.0034	0.004	0.0028	0.0032	0.0027	0.0018	0.0018
<0.003	0.0123	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	0.0056
8.79	7.15	12.9	13.2	17.1	17.2	15.6	16.9	14.3	11.9	12.2	16.6	18.3
8.9	7.13	13.6	13.2	16.7	17	15.8	17.1	14.3	12.1	12.4	17.1	18.6
											1.01	1.18
										0.693	1.03	1.21
L1519657	**L1502292**	**L1465478**	**L1473827**	**L1481215**	**L1488886**	**L1495443**	**L1502292**	**L1513418**	**L1519657**	**L995583**	**L1025075**	**L1052387**

Baseline Data for Surface Water

PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5
28-Sep-11	25-Oct-11	5-Dec-11	9-Jan-12	6-Mar-12	10-Apr-12	25-Apr-12	2-May-12	9-May-12	16-May-12	24-May-12	10-Jul-12	7-Aug-12
	756	783	698	205	512	801	786	456	1111	811	793	726
57.5	46	66.8	64.3	79.9	65.4	65.5	69.3	65.8	76.2	75	69	58.5
6.48	5.95	9.66	9.24	11.7	9.03	7.07	8.09	7.56	8.17	7.97	6.17	5.31
7.78	7.77	7.8	7.76	7.71	7.69	7.66	7.99	7.57	8.08	8.13	8.01	7.74
30.2	154	47.1	30.3	76.4	110	109	133	123	136	51	171	138
	0.62	0.73	0.65	0.19	0.45	0.85	0.58	0.32	0.75	0.53		0.39
1166	1247	1472	316	394	914	1074	1153	653	1479	1066	867	803
9.86	4.37	0.49	0.41	0.05	1.99	11.7	8.34	9.2	12	12.5	20.6	20
	811	957	857	256	594	698	749	424	961			522
10.2	12.6	5.8	5.5	13.6		9.5	3.8	6	3.1	1.8	1.6	2
2.2	1.4											
444	489	550	530	131	319	381	413	444	428	365	313	305
444	489		530	131	312	381	413	444	428	347	313	305
<2	<2		<1	<2	7.5	<1	<1	<1	<1	18	<2	<1
42.6	38.1	32.2	23.7	100	21.4	32.9	35.3	36.5	48.5	35.7	41.7	44.6
495	574	644	613	157	422	509	541	578	691	482	381	353
<2	<2		<1	<2	<1	<1	<1	<1	<1	<1	<2	<1
8.24	8.27	8.39	8.23	8	8.41	8.32	8.23	8.34	8.38	8.37	8.26	8.25
1140	1280	1370	1360	393	908	1060	1130	1220	1440	1040	813	786
704	788	868	823	272	588	693	761	804	1050	682	532	516
27.3	34.4	5	6.7	14.7	5.3	15.3	49.7	7.8	8.8	3.8	4.9	4.9
	13.1	4.18	7.22	12.2	3.66	5.41	12.1	5.16	2.71	2.41	1.84	1.65
<0.5	<0.5	<0.5	<0.5	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
66.7	73	77.2	73.1	15.6	40.4	53.7	57	61.4	57.3	58.4	53.4	52.5
0.26	0.28	0.24	0.23	<0.1	<0.2	0.24	0.22	0.23	0.24	0.23	0.23	0.24
109	139	154	152	51.8	147	176	178	188	371	176	76.7	69.5
0.0429	0.0243	0.164	0.151	0.108	0.142	0.0455	0.0346	0.0356	0.0198	0.0179	0.019	0.0253
<0.05	0.062	0.06	<0.05	0.139	<0.05	0.108	0.063	<0.05	0.064	<0.05	<0.05	<0.05
<0.01	<0.01	0.013	0.012	0.0104	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.97	0.7		0.66	1.58	0.64	0.84	0.83	0.82	1.11	0.73	1.08	0.89
1.02	1.09	0.93	0.834	1.99	0.849	1.21	0.806	0.873	1.15	0.833	0.897	0.947
1.02	1.02	1.05	0.822	1.84	0.849	1.09	0.743	0.873	1.09	0.833	0.897	0.947
0.237	0.237	0.248	0.166	0.77	0.0779	0.111	0.122	0.135	0.0856	0.0715	0.0746	0.0799
0.289	0.323	0.291	0.234	0.965	0.116	0.152	0.22	0.171	0.094	0.0851	0.0909	0.097

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0144	0.0111	0.0071	0.0066	0.019	0.0082	<0.005	0.0056	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.003	<0.003	<0.003	0.0092	<0.003	<0.003	<0.003	<0.003	<0.003	0.0016	0.0018	0.0018
<0.0005	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.0001	0.00011	0.00012	<0.0001	<0.0001	<0.0001
0.00251	0.00235	0.00203	0.00166	0.00136	0.00123	0.00209	0.00213	0.00228	0.00153	0.0014	0.00155	0.0016
0.066	0.0632	0.0723	0.0715	0.0233	0.0539	0.0692	0.0642	0.0692	0.0706	0.048	0.0492	0.0489
<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	0.031	0.029	0.029	0.026	0.023	0.031	0.031	0.034	0.036	0.03	0.032	0.034
<0.000017	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	0.000017	<0.00001	<0.00001	<0.00001
81.3	94.9	101	98.2	25.9	65.4	82.7	86.1	95.3	102	77.2	64.4	57.7
<0.001	0.00017	0.00016	0.00014	0.00014	0.0001	<0.0001	0.00012	0.00016	0.00014	0.00013	<0.0001	<0.0001
<0.0003	0.00033	0.00037	0.00031	0.0003	0.00022	0.00019	0.00017	0.0002	0.00018	0.00014	0.00012	0.00011
0.0013	0.00116	0.00091	0.00083	0.00489	0.00091	0.00154	0.00186	0.00164	0.00187	0.00195	0.00141	0.00104
0.089	0.119	0.129	0.101	0.137	0.105	0.061	0.068	0.07	0.052	0.032	0.03	0.037
<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0072	0.00624	0.00828	0.00684	0.00173	0.00474	0.00549	0.00633	0.0073	0.00821	0.00508	0.00619	0.00597
71	81.9	94.9	89.4	22.4	62.9	73.4	79.2	82.5	106	70.2	53.4	50.8
0.384	0.616	0.826	0.721	0.162	0.423	0.177	0.129	0.178	0.0598	0.0444	0.0409	0.039
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001	<0.00001	<0.00001	<0.00001
0.0051	0.00459	0.00372	0.00469	0.00994	0.0103	0.0104	0.00775	0.0069	0.0218	0.0119	0.00495	0.00416
0.0024	0.00239	0.00221	0.00209	0.00253	0.00168	0.00234	0.00235	0.00248	0.00197	0.00184	0.00156	0.00151
<0.3	<0.3	<0.3	<0.3	0.83	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
16.8	16.3	20.8	16.4	15.6	11.8	15.6	16.4	16.6	20.2	14.6	12.8	13.2
<0.001	0.00019	0.00017	0.00015	0.00018	0.00012	0.00016	0.00017	0.00017	0.00024	0.00019	0.0002	0.00021
13	14.1	12.8	12	4.35	6.7	7.78	8.06	8.8	7.6	4.77	2.71	5.82
<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
62.1	63.4	81.2	70.2	15.2	42.6	55	60.3	68.4	78.2	55.2	43.2	42.2
0.696	0.745	0.955	0.818	0.208	0.537	0.647	0.702	0.748	0.925	0.613	0.49	0.478
<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	0.012	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00086	0.001	0.000842	0.000812	0.000405	0.00124	0.00142	0.00127	0.00122	0.00207	0.00103	0.000445	0.000295
0.0022	0.002	0.0016	0.0013	0.0026	0.002	0.0031	0.0027	0.0029	0.0027	0.0021	0.0012	<0.001
<0.005	0.0073	<0.003	<0.003	<0.003	<0.003	0.0035	<0.003	<0.003	<0.003	0.0037	0.0095	0.0031
0.512	0.5	0.117	0.169	0.512	0.149	0.303	0.126	0.209	0.128	0.0754	0.0637	0.0661
<0.0005	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	0.00013	0.00013	0.00014	0.00013	0.00012	<0.0001	<0.0001
0.00253	0.00253	0.00188	0.0016	0.0014	0.00132	0.00213	0.00213	0.00221	0.00158	0.0014	0.00157	0.0017
0.067	0.0684	0.0734	0.0717	0.0276	0.0558	0.0715	0.0633	0.0686	0.0721	0.0476	0.0499	0.0499

Baseline Data for Surface Water

<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	0.037	0.031	0.031	0.032	0.028	0.036	0.036	0.037	0.04	0.035	0.037	0.04
<0.000017	0.000012	<0.00001	<0.00001	<0.00001	0.000014	<0.00001	<0.00001	0.00001	0.000021	<0.00001	<0.00001	<0.00001
80.3	96.6	96.4	93.5	25.9	66.6	81.6	84.7	89.4	101	73.7	63	58.2
0.0014	0.00121	0.00037	0.00056	0.0012	0.00048	0.00087	0.00047	0.0007	0.00056	0.00038	0.0004	0.00038
0.00064	0.00073	0.00048	0.00044	0.00065	0.00033	0.00044	0.00028	0.00036	0.00029	0.00021	0.00018	0.00017
0.0047	0.00468	0.00186	0.0019	0.0084	0.00209	0.00382	0.00364	0.00315	0.00328	0.00264	0.00216	0.00173
0.841	0.858	0.342	0.375	0.736	0.36	0.527	0.275	0.395	0.227	0.147	0.121	0.128
<0.0005	0.000151	<0.00005	0.00006	0.00015	<0.00005	0.000086	<0.00005	0.000076	<0.00005	<0.00005	<0.00005	<0.00005
0.0072	0.00727	0.00749	0.00616	0.00183	0.00449	0.00532	0.00638	0.00682	0.00782	0.00506	0.00581	0.00638
70.2	83.9	93.4	87.6	22.7	63.8	72.7	76.7	77	105	67.1	52.7	49.6
0.488	0.797	0.849	0.742	0.182	0.445	0.236	0.161	0.208	0.0893	0.0766	0.0642	0.0731
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001	<0.00001	<0.00001	<0.00001
0.0054	0.00485	0.00403	0.00459	0.0109	0.0109	0.0111	0.00793	0.0068	0.0213	0.0124	0.00503	0.00462
0.0035	0.00356	0.00246	0.00245	0.00407	0.00212	0.00294	0.00273	0.00295	0.00238	0.00205	0.00181	0.00175
<0.3	0.37	0.3	<0.3	0.91	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
16.8	16.5	20.1	16.1	15.5	11.9	15.3	16	15.9	20.2	14.1	12.6	13.3
<0.001	0.00021	0.00017	0.00016	0.00023	0.00015	0.00018	0.00019	0.00018	0.0003	0.00018	0.00019	0.00021
14.1	15.6	12.8	12.1	5.86	7.13	8.5	8.22	8.78	7.71	4.75	2.8	5.99
<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
61	64.5	80.5	69.1	15	43	53.5	59.5	65.6	78.3	54.4	42.2	44.2
0.694	0.771	0.941	0.771	0.212	0.55	0.649	0.695	0.714	0.88	0.611	0.475	0.475
<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.023	0.025	0.016	0.018	0.027	0.012	0.016	0.013	0.012	<0.01	<0.01	<0.01	0.01
0.0009	0.00105	0.000857	0.000783	0.000444	0.00128	0.00153	0.00129	0.00123	0.0021	0.0011	0.000452	0.000331
0.0035	0.0035	0.0019	0.0018	0.0038	0.0024	0.0039	0.0032	0.0034	0.0031	0.0025	0.0016	0.0013
<0.005	0.0055	0.0065	<0.003	0.0049	<0.003	<0.003	0.0032	0.0032	0.0033	0.0039	<0.003	<0.003
17.5	16.9	15	12	25.4	10.3	12.8	14.1	14.6	17.6	15.3	15.8	17
18.3	17.2	16	12.8	28.8	10.8	13.8	14.5	15.1	21.2	15.4	15.8	16.5
0.927	0.613		0.497	1.32	0.498	0.677	0.732	0.784	1.03	0.712	1.06	0.865
0.977	0.583	0.693	0.672	1.73	0.707	1.05	0.709	0.838	1.07	0.816	0.878	0.921
L1066047	**L1076994**	**L1092368**	**L1102695**	**L1122039**	**L1133342**	**L1140194**	**L1142492**	**L1145681**	**L1148880**	**L1152500**	**L1176520**	**L1190914**

Baseline Data for Surface Water

PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5
5-Sep-12	4-Dec-12	8-Jan-13	5-Feb-13	6-Mar-13	2-Apr-13	7-May-13	5-Jun-13	2-Jul-13	7-Aug-13	4-Sep-13	9-Oct-13	6-Nov-13
749	643	644	649	572	797	696	629	813	679		671	662
66.9	68.6	66.3	63	79.1		75.4	68.4	100	48.2	61.4	62.6	72.7
6.98	9.72	9.66	9.1	11.4		7.7	6.78	8.32	4.52	6.11	7.98	10.1
7.92	7.93	8.25	7.84	7.88	8.1	8.01	7.82	8.13	7.73	7.87	7.89	8.06
61.8	10.2	45.3	93.7	65.4	103	101	121	110	287	199	76.5	60
0.48	0.58	0.6	0.6	0.53	0.6	0.43	0.38	0.4	0.38	0.59	0.33	0.59
966	1188	1235	1228	1080	1194	876	764	821	780	1185	415	1194
13.3	0.99	0	0.29	0.4	7.6	14.3	15.7	24.6	18.2	15.4	5.03	1.68
628	772	802	799	702	776	570	497	535	507	770	437	776
4.4	1.3	2.1	1.8	3.2	3.2	1.1	1.2	0	2.3		6	6
<1												<1
389	452	430	483	434	386	273	251	278	310	442	475	442
389	452	430	483	434	386	273	251	265	310	442	475	442
<1	<1	<20	<1	<1	<1	<1	<1	13	<2	<1	<1	<1
42	24.7	20.6	19.6	26.5	19.8	27.3	27.9	35.8	38.7	40.9	32.6	25.9
422	527	554	588	549	550	358	323	346	334	521	573	544
<1	<1	<20	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1
8.44	8.32	8.21	8.16	8.35	8.18	8.4	8.3	8.41	8.22	8.28	8.31	8.32
945	1130	1130	1210	1140	1130	817	736	778	737	1130	1190	1200
597	717	714	745	673	756	295	445	504	462	727	770	786
6.1	<3	4.3	18.6	<3	6.7	<3	<3	3.7	3.9	18.5	16	6.6
3.37	2.3	2.62	3.64	1.67	3.64	2.46	1.25	0.71	1.11	11.8	10.4	6.29
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
59.9	67.8	65.4	65.9	60.1	52.6	57.4	52.5	51.7	52.6	59.3	66.5	65.5
0.28	0.23	0.37	<0.2	0.34	0.31	0.27	0.36	0.23	0.28	0.37	0.36	0.26
65.2	119	122	138	150	208	97.8	63.8	81	55.5	142	151	166
0.0528	0.0846	0.203	0.185	0.122	0.0415	0.0158	0.01	0.0208	0.0447	0.0893	0.1	0.0598
0.073	0.1	0.1	0.099	0.095	0.065	<0.05	<0.05	<0.05	<0.05	0.12	0.08	0.078
<0.01	0.025	0.018	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	0.018	<0.01	0.014
0.94	0.902	0.836	0.89	0.74	0.65				0.936	2.39		
	1	0.95	0.853	0.805	0.827	0.872	0.727	0.861	0.995	1.42	1.61	1.19
1.03	0.875	0.863	0.807	0.855	0.749	0.893	0.734	0.861	1.16	1.39	1.64	1.08
											0.126	0.119
0.112	0.081	0.177	0.134	0.102	0.0646	0.0511	0.0325	0.0665	0.121	0.242	0.189	0.164
0.129	0.11		0.183	0.125	0.0801	0.0653	0.0389	0.0566	0.144		0.27	0.223

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0024	0.002	0.0018	0.0017	0.0013	0.0016	0.0016	0.0013	0.0019	0.0026	0.0026	0.0025	0.0018
<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	0.00012	<0.0001	0.00013	0.0001	<0.0001
0.00194	0.00129	0.00139	0.00125	0.00115	0.00113	0.00129	0.00129	0.00191	0.00196	0.00275	0.00255	0.00197
0.0462	0.061	0.0617	0.0658	0.0584	0.061	0.0497	0.0428	0.0502	0.0517	0.0715	0.0712	0.0672
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.027	0.026	0.025	0.025	0.023	0.025	0.033	0.026	0.03	0.034	0.025	0.029	0.027
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
67.8	86.6	87.8	93.6	85	90.8	61	60.1	62.4	57.6	82	90.7	81.1
0.00018	0.00015	0.00016	0.00016	0.00011	<0.0001	<0.0001	0.00011	0.0001	0.00013	0.00014	0.00014	0.00016
0.00017	0.00016	0.00019	0.0002	0.00018	0.0001	<0.0001	<0.0001	0.0001	0.00014	0.0002	0.00022	0.0002
0.00066	0.00124	0.00089	0.00082	0.00131	0.00131	0.0019	0.00183	0.00195	0.00111	0.00101	0.00082	0.00098
0.054	0.099	0.095	0.078	0.081	0.036	0.024	0.021	0.021	0.043	0.05	0.089	0.083
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0073	0.00667	0.00637	0.00696	0.00585	0.00533	0.00634	0.00515	0.00554	0.00581	0.00756	0.0072	0.00723
61.5	75.4	81.4	86.1	81.8	78.4	50	41.9	46.1	46.3	76.8	84	82.9
0.142	0.228	0.408	0.387	0.172	0.0752	0.0355	0.0151	0.0104	0.142	0.255	0.368	0.295
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0055	0.00648	0.00527	0.00495	0.00648	0.0144	0.0108	0.00477	0.00574	0.00521	0.00806	0.00844	0.0069
0.00201	0.00172	0.00192	0.00194	0.00173	0.00163	0.00124	0.0013	0.0015	0.00152	0.00238	0.00222	0.0019
0.129	0.122	0.168	0.148	0.115	0.06	0.054	<0.05	0.059	0.122	0.182	0.184	0.167
16.7	16.2	15.6	15.2	17.1	15.9	13.3	12.5	13	13.3	19.2	17.5	16.3
0.0002	0.00013	0.00013	0.00013	0.00015	0.00014	0.00016	0.00017	0.0003	0.00023	0.00023	0.0002	0.00018
8.15	11.5	11.5	12	10.5	7.34	4.34	2.69	5.16	9	13.9	14.5	12.9
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
56.4	60.8	59.6	68.3	53.4	53.5	42.5	36.1	39.9	39.7	61.1	60.1	61.2
0.552	0.676	0.762	0.8	0.662	0.691	0.501	0.398	0.462	0.425	0.735	0.747	0.768
	39.5	40.4	43.9	49.6	65.1	32.9	20.5	25.5	18.8	46.4	49.1	54.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000459	0.000721	0.000654	0.00071	0.000821	0.00158	0.00115	0.000821	0.000826	0.000466	0.000827	0.00103	0.00105
0.0014	0.0016	0.0013	0.0013	0.0019	0.0026	0.0023	0.0017	0.002	0.0011	0.003	0.0027	0.0021
0.0016	0.0011	0.0015	0.0063	0.0019	0.001	0.0019	0.0019	0.002	0.0017	<0.001	<0.001	<0.001
0.151	0.07	0.0421	0.0398	0.0665	0.114	0.0901	0.0409	0.0762	0.0858	0.466	0.396	0.11
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.00011	<0.0001	0.00015	0.00013	0.00015	0.00012	0.00012
0.00176	0.00138	0.00137	0.00134	0.00122	0.00119	0.00125	0.00126	0.00192	0.00205	0.00297	0.00248	0.00223
0.049	0.0611	0.0631	0.0676	0.0615	0.0617	0.0475	0.043	0.0532	0.0564	0.0816	0.0769	0.0671

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.032	0.028	0.028	0.031	0.026	0.028	0.034	0.028	0.033	0.038	0.029	0.03	0.031
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
65.9	83.4	86.2	95.4	87.3	85.7	59.3	58.6	63.2	60.2	82.8	89.7	84.6
0.0006	0.00038	0.00029	0.0003	0.00028	0.00039	0.00031	0.00025	0.00026	0.00036	0.00128	0.00098	0.00052
0.00029	0.00021	0.00023	0.00024	0.00025	0.00021	0.00016	0.00011	0.00017	0.00021	0.00057	0.00052	0.00029
0.00229	0.00392	0.00187	0.00183	0.00201	0.00259	0.00295	0.00246	0.0026	0.00201	0.00437	0.00359	0.00196
0.264	0.245	0.204	0.19	0.235	0.223	0.15	0.083	0.123	0.174	0.78	0.736	0.304
0.000058	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000141	0.000116	0.000052
0.0072	0.00672	0.00661	0.00722	0.00622	0.00532	0.00621	0.00502	0.00576	0.00606	0.00818	0.00741	0.00596
59.9	72.4	81.5	86.3	81.1	73.9	48.4	41.1	46.9	47.8	75.2	84.2	82.3
0.215	0.252	0.455	0.424	0.207	0.103	0.0486	0.0229	0.0242	0.176	0.36	0.453	0.34
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00587	0.00651	0.00562	0.00534	0.00713	0.0146	0.0111	0.00484	0.0066	0.00583	0.00883	0.00956	0.00797
0.0023	0.00186	0.00217	0.0021	0.00201	0.00196	0.00149	0.00144	0.00169	0.00188	0.00369	0.00327	0.00236
0.145	0.148	0.182	0.173	0.14	0.074	0.056	<0.05	0.079	0.152	0.216	0.274	0.219
15.9	15.5	15.3	15.3	17.2	15.8	12.8	12.4	13.5	14.8	19.4	17.1	17.6
0.00017	0.00013	0.00014	0.00015	0.00014	0.00014	0.00016	0.00018	0.00028	0.00023	0.00028	0.00021	0.0002
8.31	11.1	11.5	12.2	10.8	7.48	4.43	2.77	5.47	9.64	15.6	15.8	13.6
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000094	<0.00001	<0.00001	0.000057	<0.00001	0.000013
57.6	58.6	61.2	69.2	53	53.8	41.9	36.1	39.1	41.9	63.7	61.7	64.8
0.561	0.66	0.799	0.84	0.679	0.696	0.493	0.39	0.514	0.459	0.761	0.803	0.768
	39.7	42	46.8	52.1	65.2	32.8	20.8	26.7	20.4	49.2	52	58.9
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	0.017	<0.01
0.000476	0.000725	0.000666	0.000715	0.000887	0.0016	0.00117	0.000816	0.000949	0.000498	0.000911	0.00116	0.00113
0.0021	0.002	0.0016	0.0016	0.0023	0.0029	0.0026	0.0019	0.0022	0.0014	0.0045	0.004	0.0026
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
17.1	11.9	11.2	11.9	11.2	10.4	12.7	14.5	16.2	18.1	17.2	16	14.5
17.2	13.5	12.3	11.7	11.6	10.9	12.8	14.6	16.5	19.1	18.6	18.6	15.3
0.815	0.693			0.523	0.531					2.17		
0.975	0.791	0.66	0.622	0.588	0.708					1.31		
L1205273	**L1245799**	**L1256678**	**l1265809**	**L1276517**	**L1285503**	**L1298960**	**L1312719**	**L1326032**	**L1344180**	**L1358222**	**L1375698**	**L1388680**

Baseline Data for Surface Water

PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5	PC02.5
4-Dec-13	13-Mar-14	21-Mar-14	26-Mar-14	2-Apr-14	9-Apr-14	23-Apr-14	6-May-14	21-May-14	04/Jun/2014	18-Jun-14	3-Jul-14	16-Jul-14
489	257	564	667	774	866	849	1110	688	689	702	958	566
72.4	76.6	66.8	69.2	79.6	80.9	87.4	110	98.9	89.5	74.2	99.5	90.6
10.6	11.1	9.6	9.88	10.3	9.57	10.4	12.3	9.48	8.64	7.41	9.4	8.32
7.89	7.76	7.74	7.87	8.03	8.08	8.1	8.25	8.25	8.19	8.14	8.1	8.32
64.9	50.1	180	59.9	47.2	-31.6	97.1	203	75.6	158	104	81	140
0.45	0.23	0.52	0.61	0.64	0.65	0.64	0.8	0.4	0.4	0.56	0.55	0.777
934	491	1060	1249	1277	1288	1269	1573	808	814	861	1107	871
0.02	0.088	0.51	0.61	4.35	7.86	7.66	10.3	17.2	16.9	15.3	17.9	19.4
609	319	589	812	830	837	825	825	525	529	702	720	430
1.9												
606	130	321	397	387	413	387	413	263	272	301	458	385
606	130	321	397	387	413	366	413	263	272	293	436	363
<20	<2	<2	<2	<2	<2	20.2	<2	<1	<1	8.5	21.9	22.8
21.7												
615	209	504	625	606	641	609	775	358	360	389	524	442
<20	<2	<2	<2	<2	<2	<1	<2	<1	<1	<1	<1	<1
8.09	7.93	8.18	8.21	8.22	8.23	8.36	8.23	8.33	8.41	8.35	8.49	8.49
1260	469	1080	1260	1160	1240	1290	1530	781	781	842	1070	934
833	306	715	850	821	895	875	1080	496	427	533	692	531
5.1	20.3	3.2	5.6	<3	3.4	<3	5.9	<3	<3	4.8	5.1	6.2
2.18	12.7	1.55	1.16	1.47	1.28	1.99	2.13	0.89	1.61	0.8	0.65	1.35
<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.25	<0.5	<0.5	<0.5
70.5	16.1	41	48.4	46.2	50.6	48.1	55.7	55.3	53.6	52	48.2	52.4
0.27	0.087	<0.2	<0.2	<0.2	0.21	0.2	0.22	0.21	0.22	0.232	0.42	0.273
187	94	235	274	270	285	307	442	90.7	80.4	101	127	77.2
0.155	0.255	0.298	0.128	0.0523	0.0576	0.0182	0.0139	0.0094	0.0144	0.0167	0.0255	0.0193
0.116	0.186	0.142	0.097	<0.05	0.058	0.056	<0.05	<0.05	<0.025	<0.05	<0.05	<0.05
<0.01	0.0102	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01
								0.713				
0.92	1.67	1.17	0.851	0.768	0.765	0.753	1.1	0.776	0.83	0.824	1.11	1.05
0.104	0.418	0.0935	0.0545	0.035	0.0427	0.0399	0.0495	0.0265	0.0343	0.0283	0.0779	0.0892
0.117	0.511	0.113	0.0739	0.0538	0.0754	0.0538	0.0696	0.0401	0.0467	0.041	0.117	0.111
0.143	0.638	0.146	0.0926	0.0792	0.0609	0.0732	0.122	0.0493	0.0554	0.0488	0.121	0.127

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0119	0.0043	0.0015	0.0011	0.0012	0.0019	0.001	0.0022	0.0012	0.0017	<0.001	0.0016	0.0021
<0.0001	0.00011	0.00013	<0.0001	0.00014	0.00015	0.00013	0.00017	<0.0001	0.00011	<0.0001	0.00014	0.00012
0.00168	0.00146	0.00147	0.00133	0.00141	0.00152	0.0015	0.00181	0.00151	0.00174	0.00158	0.00212	0.00217
0.0751	0.0274	0.0626	0.0691	0.0654	0.0719	0.0601	0.0756	0.0527	0.0523	0.0496	0.0574	0.053
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.029	0.025	0.031	0.031	0.032	0.031	0.026	0.036	0.027	0.031	0.029	0.036	0.036
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	0.000013	<0.00001		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
97.8	36.4	79.7	94.4	93	103	97.4	123	65	64.3	67.8	81.5	71.6
0.00019	<0.0001	0.00013	0.00011	0.00012	0.00012	0.0001	0.00017	0.0001	0.00012	0.00012	0.00013	0.00016
0.00015	0.00021	0.00022	0.0002	0.00017	0.00016	0.00016	0.00017	<0.0001	0.00011	<0.0001	0.00016	0.00015
0.00149	0.00539	0.00236	0.00189	0.00179	0.00185	0.002	0.00266	0.00223	0.00227	0.00191	0.00315	0.00209
							<0.00002					
0.095	0.069	0.057	0.046	0.045	0.038	0.034	0.039	0.017	0.023	0.023	0.029	0.029
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00699	0.00202	0.00544	0.00582	0.00626	0.0062	0.00649	0.00745	0.00525	0.00564	0.00559	0.00681	0.00695
90.1	28.6	74	94.5	90.9	93	88.8	113	47.5	48.3	53.3	77.9	63.8
0.258	0.0809	0.121	0.108	0.0828	0.0705	0.0791	0.0696	0.0134	0.0235	0.0202	0.0343	0.0341
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0122	0.0142	0.0304	0.0305	0.03	0.0246	0.0196	0.0468	0.0109	0.00937	0.00873	0.0116	0.00967
0.0024	0.00189	0.0021	0.00224	0.00219	0.00225	0.00216	0.0023	0.00133	0.00157	0.00168	0.00209	0.00201
0.121	0.527	0.127	0.071	<0.05	0.074	<0.05	0.061	<0.05	<0.05	<0.05	0.102	0.115
17.2	12.2	15.6	16.5	15.7	16.8	16.6	20.9	11.8	12.1	12.8	18.5	15
0.00023	0.00033	0.00039	0.0003	0.00036	0.00025	0.00032	0.00054	0.0002	0.0002	0.0002	0.00037	0.00028
11.4	4.34	7.61	8.81	7.62	7.41	6.56	6.56	3.6	4.61	4.07	6.84	7.69
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
64	18.9	48.2	57.6	58.7	57.8	55.7	76.9	41.3	40.8	41.4	57.8	49.6
0.798	0.258	0.644	0.737	0.754	0.841	0.787	0.919	0.375	0.461	0.484	0.675	0.587
57.9	31.2	76.3	86.6	85.8	91.6	99	144	32.3	28.7	32.1	41.7	26
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000012	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00147	0.000865	0.0031	0.00316	0.00291	0.00283	0.00264	0.00349	0.00109	0.00108	0.00101	0.00181	0.00113
0.0021	0.0027	0.0035	0.003	0.0032	0.0034	0.0029	0.0038	0.003	0.0026	0.0022	0.0027	0.0018
<0.001	0.0022	0.0024	<0.001	0.0011	0.0014	0.0015	0.0011	<0.001	<0.001	<0.001	0.0011	0.0012
0.0574	0.465	0.0653	0.0308	0.0497	0.0841	0.102	0.188	0.0762	0.0724	0.0578	0.0195	0.0762
<0.0001	0.00012	0.00015	0.0001	0.00016	0.00016	0.00013	0.00021	0.00011	0.00012	<0.0001	0.00016	0.00014
0.00162	0.00161	0.00148	0.00144	0.00139	0.00151	0.00152	0.00168	0.00155	0.00174	0.00163	0.00218	0.00212
0.0788	0.0331	0.0624	0.0713	0.065	0.0703	0.0612	0.0741	0.0536	0.0524	0.0511	0.0582	0.0531

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.033	0.028	0.031	0.034	0.034	0.035	0.027	0.039	0.041	0.032	0.034	0.036	0.037
<0.00001	0.000014	<0.00001	<0.00001	<0.00002	0.000011	<0.00001		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
101	35.5	78.2	94.9	89.8	98.1	98.8	117	63.5	61.5	67	80	69.1
0.00033	0.00115	0.00028	0.0002	0.00023	0.00083	0.00036	0.00056	0.00032	0.00031	0.00032	0.00019	0.0003
0.00019	0.00057	0.00027	0.00023	0.00022	0.00023	0.00028	0.00033	0.00015	0.00017	0.00015	0.00017	0.00023
0.002	0.0106	0.00331	0.00269	0.00243	0.00273	0.00331	0.00411	0.00322	0.003	0.00258	0.00354	0.00277
0.173	0.633	0.171	0.138	0.149	0.189	0.193	0.305	0.115	0.116	0.103	0.062	0.15
<0.00005	0.000133	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000062	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00771	0.00227	0.00519	0.00642	0.00625	0.00641	0.00625	0.00777	0.00622	0.00557	0.00588	0.00762	0.0068
88.6	28.4	70.1	91.2	86.9	87.9	89.2	107	45.6	45.9	51.8	76.8	62.1
0.283	0.107	0.124	0.113	0.0858	0.091	0.0951	0.0906	0.0231	0.0368	0.0341	0.0456	0.061
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0132	0.0152	0.0318	0.0339	0.0325	0.0256	0.0199	0.0484	0.0145	0.00948	0.00932	0.013	0.01
0.00262	0.00374	0.00227	0.00244	0.00229	0.00248	0.00266	0.00274	0.0016	0.00187	0.0019	0.00224	0.00221
0.146	0.617	0.149	0.082	0.08	0.082	0.076	0.11	0.054	0.051	0.061	0.114	0.123
18.3	11.8	15.1	16.4	15.1	15.7	16.8	19.7	11.7	11.3	12.4	17.9	14.4
0.00018	0.00035	0.00038	0.00034	0.00028	0.00022	0.00031	0.00052	0.00017	0.00022	0.00022	0.00041	0.00028
12	5.42	7.49	8.91	7.64	7.28	6.96	6.86	3.73	4.57	4.18	6.91	7.59
<0.00001	0.000015	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
65.2	18.4	47.6	59.2	56.6	56	55.5	75.3	41.2	40.1	41.7	53.8	48.5
0.837	0.27	0.641	0.777	0.764	0.832	0.767	0.948	0.48	0.458	0.495	0.69	0.594
63	31.2	78.2	90.9	90.2	88.9	102	142	31.7	27.8	32.6	44.1	25.9
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	0.017	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
							<0.00002					
0.00153	0.000917	0.00311	0.00337	0.0031	0.00287	0.0027	0.00345	0.00148	0.00113	0.0011	0.00194	0.00118
0.0024	0.004	0.0037	0.0034	0.0035	0.0037	0.0035	0.0044	0.0038	0.0029	0.0029	0.0029	0.0021
<0.003	<0.003	<0.003	<0.003	<0.003	0.0033	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
13.3	13.3	11.1	11.6	11.2	11.2	12.9	14.5	13.1	13.3	13.6	17.4	17.3
14	14	11.4	10.8	10.9	11.4	12.5	16.6	12.8	13.5	13.6	17.5	17.2
L1399806	**L1432163**	**L1434695**	**L1437439**	**L1439467**	**L1441961**	**L1446462**	**L1451608**	**L1458340**	**L1465478**	**L1473827**	**L1481215**	**L1488886**

Baseline Data for Surface Water

PC02.5	PC02.5	PC02.5	PC02.5	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03
30-Jul-14	12-Aug-14	4-Sep-14	17-Sep-14	2-May-07	18-Jul-07	28-Apr-08	7-Jul-08	4-Sep-08	4-Jun-10	29-Mar-11	14-Apr-11	21-Apr-11
816	734		740	652	824	1295	823	599	661	645	451	765
67.1	70.3		61.6			87.5	112	60.9	80.2	44	66.1	76.2
6.26	6.55		6.92	7.87	4.37	9.61	10.2	6.22	8.59	6.2	8.57	10.7
8.26	7.92	8.05	7.9	8.09	7.59	8.32	8.11	7.8	8.27	7.71	7.79	8.09
127	75.3		96	-60.8			-106	-71.4	-68.3	112	164	44.8
0.46	0.41		0.51									0.7
931	835		1033	929	933	1780	909	782	872	1183	744	1443
18.5	18.7	12.1	10.1	9.4	18.9	10.7	20	12.8	12.2	1.18	4.35	0.33
605	542		672							770	484	
420	272	401	450	253	276	471	339	326	241	366	314	340
407	266	389	433						241			340
13.5	6.5	12.6	17						<1			<2
				21.3	35.2	27.1	44.2	37.3	30.8	25.6	22.2	22.7
454	367	452	483	425	371	880	391	364	385	532	459	510
<1	<1	<1	<1						<1			<2
8.3	8.32	8.39	8.42	8.25	8.29	8.34	8.37	8.28	8.42	7.94	8.22	8.27
1010	827	988	1070	877	855	1790	896	867	863	1120	972	1080
626	569	610	735	572	544	1320	565	528	547	764	664	714
5.6	4.8	5	13.3	<3	4.6	3.3	4.5	3.3	<3	<3	<3	13.3
2.25	2.32	3.08	4.38			1.43	0.9	3.54	0.75	1.82	1.9	5.74
<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<2.5	<0.05	<0.05	<0.5	<1.3	<1.1	<0.5
53.6	59.5	55.4	55.7	60.3	61.6	57	55.8	61.5	55.7	36.3	36.3	39.9
0.284	0.273	0.278	0.3	0.206		1.1	0.236	0.224	<0.2	<0.2	<0.2	<0.2
94.6	104	94	106	145	92.9	568	99.3	70.6	138	266	213	237
0.0862	0.0318	0.189	0.168	0.152	0.037	0.025	0.033	0.035	0.015	0.18	0.0668	0.065
0.092	<0.05	0.138	0.211	<0.005	<0.005	0.76	<0.005	0.0546	<0.05	<0.05	<0.05	<0.05
0.012	<0.01	0.043	0.063	<0.001	<0.001	0.157	<0.001	0.0293	<0.01	<0.01	<0.01	<0.01
									0.88	0.877	0.734	0.37
1.15	1.23	1.11	1.17	0.852	1.1	0.836	1.01	0.746	0.878	0.877	0.734	0.37
0.131	0.0836	0.122	0.172	0.0067	0.0557	0.0117	0.0353	0.121	0.0069	0.0439		
0.149	0.11	0.183	0.197								0.032	0.034
0.167	0.13	0.194	0.248	0.0337	0.0847	0.045	0.0701	0.128	0.0282	0.0917	0.0522	0.0617

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005			<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
<0.005	<0.005	<0.005	<0.005	0.0067	0.0109	0.0081	0.0101		0.0082	<0.005		0.0059
<0.005	<0.005	<0.005	<0.005			<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
0.0016	0.0017	0.0015	0.0022	<0.005	<0.01	<0.025	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005
0.00011	0.00014	<0.0001	<0.0001	<0.0005	<0.001	<0.0025	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
0.00249	0.00198	0.00205	0.00212	0.00136	0.002	<0.0025	0.0021	0.0022	0.00133	0.00093	0.00104	0.00116
0.052	0.0547	0.0621	0.0646	0.045	0.04	0.096	0.059	0.062	0.028	0.06	0.056	0.063
<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.002	<0.005	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005							<0.2	<0.2	<0.2
0.033	0.037	0.03	0.03	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.00001	<0.00001	<0.00001	<0.00001	0.000023	0.000039	0.000143	0.00004	<0.000034	<0.000017	<0.000017	<0.000017	<0.00007
74.3	67	76.1	79.6	69.2	59.7	126	62.6	58.7	57.2	77.7	73.1	79.4
0.00013	0.00011	0.00015	0.00017	<0.003	<0.002	<0.005	<0.002	<0.002	<0.001	<0.001	<0.0015	<0.002
0.00021	0.00012	0.00018	0.0002	<0.0003	<0.0006	<0.0015	<0.0006	<0.0006	<0.0003	<0.0003	<0.0003	<0.0003
0.00177	0.00195	0.0012	0.00129	0.0022	<0.002	<0.005	<0.002	<0.002	0.0016	<0.001	<0.001	0.001
0.03	0.036	0.035	0.042	<0.03	0.068	0.037	0.058	0.035	<0.03	0.1	0.045	0.039
<0.00005	<0.00005	<0.00005	<0.00005	<0.0005	<0.001	<0.0025	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
0.00721	0.00642	0.00626	0.0072	0.0077	<0.01	<0.025	<0.01	<0.01	0.0052	<0.005	<0.005	<0.005
65.1	48.5	63.6	69.1	61.3	53.9	137	57	52.7	58.8	82	67.1	75.6
0.241	0.0486	0.191	0.335	0.00817	0.062	0.115	0.0676	0.0991	0.008	0.21	0.106	0.107
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
0.0118	0.0185	0.0117	0.0148	0.023	0.0095	0.0438	0.0119	0.0111	0.0129	0.0278	0.0214	0.021
0.00252	0.00174	0.00231	0.00298	0.0014	<0.002	<0.005	<0.002	<0.002	0.0011	0.0017	0.0016	0.0015
0.165	0.096	0.151	0.181							<0.3	<0.3	<0.3
17.6	12.5	15.7	16.5	13.1	12.2	19.8	16	15.2	15.7	14.3	13.4	14.9
0.00032	0.0002	0.00018	0.00021	<0.001	<0.002	<0.005	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001
8.38	8.69	11.9	11.5							7.35	4.98	5.23
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00004	<0.0001	<0.00004	<0.00004	<0.00002	<0.00002	<0.00002	<0.00002
52	42.4	52.4	58	52.4	48.5	97.4	50.3	48.8	50	57.1	47.9	55.5
0.607	0.497	0.605	0.672							0.705	0.59	0.676
30.5	34	31.5	34.7									
<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0004	<0.001	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.001	<0.0025	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00113	0.00113	0.00112	0.00133	0.00179	0.00085	0.0031	0.00063	0.00105	0.00126	0.00141	0.0016	0.00164
0.0026	0.0027	0.0026	0.0028	<0.03	<0.03	<0.005	<0.002	0.0026	0.0016	0.0014	0.0022	0.0027
<0.001	<0.001	<0.001	0.0028	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.106	0.0901	0.101	0.274	0.014	0.012	<0.025	0.012	0.072	0.0102	0.034	0.0449	0.161
0.00012	0.00016	<0.0001	0.00014	<0.0005	<0.001	<0.0025	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
0.00216	0.00206	0.00193	0.00229	0.00101	0.0017	<0.0025	0.002	0.002	0.00103	0.00091	0.0009	0.001
0.051	0.0557	0.0633	0.073	0.042	0.039	0.095	0.062	0.062	0.028	0.061	0.061	0.066

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.002	<0.005	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005							<0.2	<0.2	<0.2
0.034	0.044	0.03	0.036	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.00001	<0.00001	<0.00001	<0.00001	<0.000017	0.000035	0.000137	0.000034	0.000053	<0.000017	0.000021	<0.000017	<0.00007
69.2	67.1	74.9	82.7	66.9	58.6	128	62.7	55.6	56.9	77.6	72.1	75.7
0.0004	0.00032	0.00039	0.00087	<0.001	<0.002	<0.005	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001
0.0003	0.00021	0.00025	0.0004	<0.0003	<0.0006	<0.0015	<0.0006	<0.0006	<0.0003	<0.0003	<0.0003	<0.0003
0.00268	0.00315	0.00218	0.00371	0.0025	<0.002	<0.005	<0.002	0.0022	0.0018	0.0016	0.0013	0.0026
0.188	0.162	0.187	0.457	0.049	0.086	0.081	0.091	0.125	0.039	0.216	0.117	0.274
<0.00005	<0.00005	<0.00005	0.000087	<0.0005	<0.001	<0.0025	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
0.00686	0.0068	0.00572	0.00767	0.0068	<0.01	<0.025	<0.01	<0.01	0.0061	<0.005	<0.005	0.0052
61.6	48.6	63.7	72.2	58.7	52.3	137	56.3	50.4	58.2	81.4	67.6	73.5
0.274	0.0725	0.23	0.456	0.0153	0.0675	0.123	0.0715	0.109	0.00965	0.244	0.117	0.121
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
0.0119	0.0197	0.0105	0.0169	0.0215	0.0094	0.0435	0.0114	0.011	0.0138	0.0303	0.0239	0.0227
0.00283	0.00206	0.00261	0.00398	0.0015	<0.002	<0.005	<0.002	0.0026	0.0014	0.0021	0.002	0.0025
0.165	0.126	0.158	0.226							<0.3	<0.3	<0.3
16.2	12.7	15.7	17.2	12.5	11.8	19.9	15.8	15	15.2	14.2	13.6	14.4
0.00024	0.00022	0.00022	0.00022	<0.001	<0.002	<0.005	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001
8.11	8.95	12.2	12.7							7.36	5.12	5.48
<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00004	<0.0001	<0.00004	<0.00004	<0.00002	<0.00002	<0.00002	<0.00002
51	44.1	50.9	60.4	51.2	47	96.6	49.6	46.7	48.1	57	49	54.1
0.567	0.52	0.504	0.715							0.709	0.602	0.665
29.3	34.5	32.3	37.6									
<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0004	<0.001	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.001	<0.0025	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011
0.00117	0.00123	0.000975	0.00149	0.00166	0.00083	0.0031	0.00061	0.00106	0.00135	0.00155	0.00183	0.00181
0.0029	0.0032	0.003	0.0038	<0.03	<0.03	<0.005	<0.002	0.0027	0.0018	0.0017	0.0025	0.0032
<0.003	<0.003	<0.003	<0.003	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
18.1	16.5	15.7	7.48		17	13.5	17.6	17.8	14.4	11.4	9.5	10.4
18.7	16.7	15.9	7.85	14.8							9.85	10.4
											0.667	
L1495443	**L1502292**	**L1513418**	**L1519657**	**L501627**	**L532402**	**L623545**	**L652819**	**L678833**	**L894162**	**L990459**	**L995583**	**L997645**

Baseline Data for Surface Water

PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03
28-Apr-11	5-May-11	12-May-11	30-May-11	28-Jun-11	28-Jul-11	30-Aug-11	28-Sep-11	25-Oct-11	5-Dec-11	6-Mar-12	10-Apr-12	25-Apr-12
783	878	876	624	630	669	598		403	772	1007	606	315
54.8	48.1	65.6	91.5	86.9	40.8	79.9	151	85.6	23.4	60.7		94.5
6.65	5.43	7.03	8.9	8.29	3.96	8.13	15.1	10.9	3.28	8.82	13	9.85
7.92	7.79	7.77	8.07	8.17	7.77	7.84	7.97	8.45	7.57	7.66	8.14	8.18
86.5	118	88.5	407	157	107	153	-112	-21.7	-21.4	107	18.3	98.3
0.6	0.62	0.59	0.37	0.36	0.36			0.32	0.71	0.96	0.45	0.2
1200	1238	1169	744	735	796	749	895	653	1428	1926	902	413
6.79	9.79	11.9	16.6	17.5	16.5	14.4	12.6	4.95	0.96	0	7.85	13.4
780	805	760	484	478	518			424	928	1252	586	263
			0.7		0.8	1.3	2.4		12.2	65.7		0.9
					4.6		<1	<1				
385	380	374	247	245	270	248	323	345	512	676	291	320
							323	334		676	276	314
							<2	10.9		<1	15	6.7
27.5	32.2	35.1	22.5	34.7	37.4	28.4	36.9	31.5	30.3	57.7	19.2	27.1
537	570	582	313	305	323	301	361	392	625	976	432	481
							<2	<1		<1	<1	<1
8.23	8.26		8.2	8.34	8.16	8.21	8.3	8.46	8.1	7.96	8.48	8.5
1140	1180	1220	704	685	764	711	872	947	1370	1940	913	989
773	791	812	427	433	459	439	545	556	829	1420	597	657
5.9	<3	105	<3	5.7	<3	<3	8.7	3.1	12.3	5.3	<3	<3
3.54	1.06	1.16		1.53	0.97	0.89		1.79	4.39	15.3	1.42	0.66
<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.25	<0.5	<0.5	<0.5	<1	<0.5	<0.5
42.1	43.7	43.5	52.9	48.8	51.6	51.3	60.1	62.9	66	79	30.2	39.4
<0.2	<0.2	<0.2	<0.2	0.199	0.39	0.2	0.22	0.23	0.22	<0.4	<0.2	<0.2
249	245	262	69.6	67.3	76	63.8	67.5	84.8	169	435	193	216
0.16	0.326	0.207	0.0209	0.0152	0.0567	0.0177	0.0891	0.093	0.349	2.26	0.0786	0.0259
<0.05	<0.05	<0.05	<0.05	<0.005	<0.05	0.028	<0.05	0.067	<0.05	<0.1	<0.05	<0.05
<0.01	<0.01	<0.01	<0.01	<0.001	<0.01	<0.005	<0.01	<0.01	0.011	<0.02	<0.01	<0.01
1.12	0.91	1.12	0.78	1	1.01	1.13	1.18	0.93		3.27	0.68	0.68
0.983	0.88	1.21	0.76	1.09	1.03	1.19	1.19	1.15	1.55	3.37	0.895	0.934
0.983	0.88	0.908	0.76	1.09	1.03	0.996	1.19	1.09	1.42	3.37	0.895	0.934
			0.0052	0.0066	0.028							
0.0875	0.154	0.095	0.0179	0.0254	0.0489	0.0331	0.0703	0.0411	0.0585	0.561	0.0615	0.0424
0.0855	0.186	0.118	0.0259	0.0387	0.0582	0.0421	0.0838	0.0562	0.096	0.647	0.0937	0.0532

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0083	0.0079	0.0078	0.0071	0.0078	0.0083		0.0069	0.0087	0.01	0.011	0.0055	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	0.00011	0.0001	<0.0001
0.00147	0.00203	0.00176	0.0012	0.0015	0.00143	0.00147	0.00169	0.00122	0.00136	0.00265	0.00093	0.00139
0.065	0.075	0.075	0.048	0.05	0.061	0.058	0.066	0.0617	0.112	0.139	0.0618	0.0675
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.028	0.034	0.046	0.028	0.035
<0.00006	<0.000017	<0.000017	0.000024	0.000025	<0.000017	<0.000017	<0.000017	<0.00001	<0.00001	<0.00001	0.000023	<0.00001
83.7	87.9	88.7	56.2	53.4	55	51.8	57	60.1	95.9	143	64	72
<0.002	<0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00016	0.00016	0.00023	0.00011	<0.0001
<0.0003	0.00039	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0001	0.00018	0.0005	0.00013	0.00017
0.001	<0.001	<0.002	0.0015	0.0015	<0.001	<0.001	<0.001	0.00132	<0.0005	0.00145	0.00079	0.00104
0.079	0.168	0.146	<0.03	0.034	0.034	<0.03	0.051	<0.03	0.085	0.119	0.044	0.031
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
<0.005	<0.005	<0.005	0.005	<0.005	0.0058	0.0055	0.0066	0.00561	0.00755	0.00887	0.00411	0.00472
79.7	85.1	87.5	42	41.7	45.1	41.6	53	58.8	93.7	150	66.1	73.1
0.294	0.518	0.401	0.0075	0.0326	0.0491	0.0236	0.087	0.0503	1.67	1.11	0.107	0.0823
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0184	0.0137	0.0115	0.0058	0.0054	0.0044	0.0062	0.0088	0.0113	0.00384	0.00974	0.017	0.0153
0.0019	0.0021	0.0018	<0.001	0.0012	<0.001	0.0011	0.0018	0.00175	0.00153	0.00252	0.00105	0.00153
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.6	<0.3	<0.3
15.7	17.2	17.8	11.9	11.4	12.4	12.6	15.5	15	21.4	27.5	11.6	14.5
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00017	0.00024	0.00028	0.00014	0.00014
5.64	6.73	5.9	1.37	2.77	2.76	5.61	5.74	5.24	12.6	13.6	3.9	2.91
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
58.5	66	66.5	39.7	39.3	40.7	38.2	48.4	51.6	77.8	100	41.7	51.6
0.695	0.77	0.801	0.408	0.407	0.442	0.417	0.487	0.487	0.94	1.19	0.573	0.619
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00152	0.00124	0.00114	0.00115	0.00077	0.00043	0.00077	0.00095	0.00113	0.000645	0.00118	0.00105	0.0012
0.0029	0.0021	0.0023	0.002	0.0015	0.0011	0.0018	0.0028	0.003	0.0012	0.0019	0.0017	0.0026
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0083	0.0067	<0.003	<0.003	<0.003
0.209	0.126	0.0278	0.0232	0.0873	0.0184	0.0199	0.0279	0.0678	0.515	0.0784	0.01	0.005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0001	<0.0001	0.00012	<0.0001	<0.0001
0.00125	0.00151	0.00158	0.00117	0.00143	0.00141	0.00136	0.00156	0.00123	0.00153	0.00262	0.00092	0.00137
0.07	0.079	0.076	0.05	0.055	0.064	0.057	0.064	0.0625	0.121	0.143	0.0627	0.0658

Baseline Data for Surface Water

<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.035	0.038	0.051	0.033	0.04
<0.00012	<0.000017	<0.000017	0.000029	0.000029	0.000018	<0.000017	<0.000017	<0.00001	0.000015	0.000014	0.000018	<0.00001
83.6	86.2	86.6	55.7	53.1	55.7	49.5	55.2	60.3	96	146	64.2	71.4
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00043	0.00156	0.00065	0.00019	0.00032
0.00044	0.00048	0.00031	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00016	0.00064	0.00058	0.00014	0.00017
0.0029	0.0023	<0.003	0.002	0.0025	0.0011	0.0012	0.0013	0.00194	0.00525	0.00255	0.00085	0.00121
0.399	0.353	0.2	0.042	0.162	0.065	0.046	0.084	0.112	0.797	0.355	0.099	0.043
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00005	0.000168	<0.00005	<0.00005	<0.00005
<0.005	0.006	0.0055	0.0055	<0.005	0.006	0.0054	0.0065	0.00647	0.00722	0.00876	0.00389	0.00456
79.9	84.4	87.8	42.1	41.6	45.9	40.3	51.6	58.3	91.5	151	66.5	73.7
0.316	0.531	0.414	0.0103	0.0829	0.0665	0.0302	0.0879	0.0677	1.92	1.11	0.108	0.0911
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0197	0.0146	0.0128	0.0069	0.0061	0.005	0.0066	0.0095	0.0117	0.00417	0.0116	0.0173	0.0169
0.003	0.0026	0.0021	0.0012	0.0017	<0.001	0.0012	0.0019	0.00211	0.00385	0.00325	0.00116	0.00157
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.67	<0.3	<0.3
15.9	17.2	17.7	12.1	11.8	12.7	12.5	15.1	15.2	20.9	27.5	11.4	14
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00018	0.00024	0.00028	0.00015	0.00015
6.36	7.03	5.96	1.45	3.04	2.81	5.49	5.61	5.37	13.5	14.2	3.88	2.94
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
59.3	65.7	65.8	39.5	40.4	42.7	38.3	47	52.6	74.7	99.4	41	50.3
0.708	0.773	0.803	0.413	0.419	0.463	0.41	0.478	0.492	0.931	1.22	0.568	0.63
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001	<0.00001	0.000011	<0.00001	<0.00001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.016	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.022	<0.01	<0.01	<0.01
0.00161	0.00137	0.00128	0.00137	0.0009	0.00054	0.00085	0.001	0.00117	0.000672	0.00125	0.0011	0.00134
0.0036	0.0025	0.0025	0.0023	0.0019	0.0013	0.0018	0.0029	0.0032	0.0029	0.0021	0.0018	0.0026
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0036	0.0222	0.003	<0.003	<0.003
10.6	13.6	14.5	15	17.1	15.5	17.3	17.7	17.5	17	24.5	10	11.5
10.5	13.9	15.3	15	16.5	16.5	17.7	18.8	18.1	17.9	25.4	10.1	11.4
0.96	0.58	0.913	0.759	0.985	0.953	1.08	1.09	0.77		1.01	0.601	0.654
0.823	0.55	0.701	0.739	1.07	0.973	1.14	1.1	0.8	1.19	1.1	0.816	0.908
L999654	**L1002049**	**L1005044**	**L1011001**	**L1025075**	**L1038168**	**L1052387**	**L1066047**	**L1076994**	**L1092368**	**L1122039**	**L1133342**	**L1140194**

Baseline Data for Surface Water

PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03
2-May-12	11-May-12	16-May-12	24-May-12	10-Jul-12	7-Aug-12	4-Dec-12	8-Jan-13	5-Feb-13	6-Mar-13	2-Apr-13	7-May-13	5-Jun-13
540	135	754	747	767	689	580	633	703	730	777	663	564
88.9	93.7	76	90.3	175	123	73.9	17	6.9	41.1		81.9	89.9
10.2	11.2	7.92	9.27	14.2	10.4	10.4	2.46	1	5.99		8.3	8.83
8.32	8.7	8.1	8.15	8.71	8.16	7.83	7.94	7.56	7.57	8.2	8.21	8.42
117	-9.8	107	62.8	144	128		4.6	-73.6	29.7	-27.6	89.4	155
0.38	0.1	0.48	0.47		0.34	0.52	0.59	0.66	0.69	0.51	0.39	0.33
772	202	969	945	756	708	1056	1216	1349	1396	1032	789	678
9.27	7.6	13.4	14	25.7	23.6	1.52	-0.08	-0.07	0.01	12.1	14.7	16.2
502	131	630	614		460	688	790	877	908	670	513	441
0.6	0.9	2.4	1.3	0.9	1.2	2.2	13.7	25	48.9	1.3	2.8	1.7
364	383	290	314	263	255	417	468	488	700	325	250	243
345	333	290	298	244	245	417	468	488	700	325	247	243
19	49.8	<1	16.2	19.5	10.1	<2	<20	<1	<20	<1	2.5	<1
28.2	29.8	28.3	26.4	35.4	33	26.5	27.7	27.9	23.1	19	20.1	23.6
554	602	419	416	325	303	482	571	633	748	494	326	307
<1	<1	<1	<1	<1	<1	<2	<20	<1	<20	<1	<1	<1
8.39	8.54	8.38	8.36	8.57	8.36	8.23	8.01	8	8.25	8.24	8.46	8.39
1140	1270	947	923	707	688	993	1190	1270	1490	1060	737	699
767	850	626	601	444	436	633	824	810	1000	707	455	428
3.1	<3	4.2	<3	<3	<3	<3	<3	3.1	6.3	9.3	<3	<3
0.68	0.69	1.09	0.91	1.06	0.98	2.7	4.64	6.17	13.6	3.07	0.56	0.85
<0.5	<0.5	<0.5	<0.5	<0.25	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.25	<0.5
43.4	48.1	56.6	57.2	50.4	51.7	61.7	61.3	62.8	60.2	39.2	56.9	51.8
<0.2	<0.2	0.2	0.21	0.2	0.22	<0.2	0.33	<0.2	0.34	0.28	0.23	0.33
264	303	173	148	69.3	61.6	92	159	176	312	247	78.5	58.3
0.0205	0.0128	0.0243	0.0157	0.0139	0.0225	0.221	1	1.62	1.21	0.031	0.0093	0.0115
<0.05	0.062	<0.05	<0.05	<0.025	<0.025	0.073	<0.05	<0.05	<0.05	<0.05	<0.025	<0.05
<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.01	0.01	<0.01	<0.01	<0.01	<0.005	<0.01
0.72	0.84	1.06	0.81	1.03	0.89	1.15	1.91	2.1	1.89	0.597		
0.783	0.609	0.959	0.908	0.898	0.902	1.32	2.12	2.46	1.98	0.804	0.806	0.819
0.783	0.547	0.959	0.908	0.898	0.902	1.24	2.1	2.43	2.09	0.804	0.794	0.799
0.0434	0.0325	0.0336	0.027	0.0344	0.0502	0.0763	0.326	0.35	0.148	0.0245	0.0235	0.0212
0.0528	0.0381	0.0514	0.0396	0.0455	0.06	0.0954		0.405	0.215	0.107	0.0295	0.029

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.003	<0.003	<0.003	0.0018	0.0019	0.0013	0.0013	0.0022	0.0018	0.001	0.0016	0.0014	0.0017
<0.0001	0.00011	0.00015	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.0001	<0.0001
0.00147	0.00148	0.00129	0.00126	0.00154	0.00158	0.00091	0.00141	0.00128	0.00128	0.00094	0.00124	0.00123
0.079	0.0721	0.053	0.0531	0.0463	0.049	0.0657	0.114	0.111	0.103	0.0633	0.0484	0.0437
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.039	0.04	0.036	0.033	0.03	0.028	0.029	0.027	0.031	0.033	0.035	0.025	0.024
<0.00001	<0.00001	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001
84.1	83.5	62.8	66.2	54.7	49.6	73.7	88.6	98.1	115	74.3	57.8	58.2
0.00015	0.00013	<0.0001	0.00012	<0.0001	<0.0001	0.00019	0.00024	0.00025	0.00016	<0.0001	<0.0001	<0.0001
0.00014	0.00016	0.00011	0.00011	0.00011	<0.0001	0.00013	0.00024	0.00018	0.00021	0.00012	<0.0001	<0.0001
0.00101	0.00105	0.0014	0.00123	0.00114	0.00066	0.00063	<0.0002	<0.0002	0.0003	0.00086	0.0013	0.00147
<0.03	<0.03	<0.03	0.039	0.03	0.023	0.043	0.243	0.192	0.128	0.036	0.015	0.018
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00562	0.00542	0.00672	0.0051	0.00601	0.0053	0.00545	0.00565	0.00616	0.00639	0.00437	0.00601	0.00478
83.6	95.5	63.6	60.9	45.7	43.4	72.2	84.9	94.2	112	74.9	44.2	39.2
0.0553	0.0523	0.0359	0.0514	0.0227	0.0437	0.317	1.98	1.45	0.867	0.122	0.0226	0.016
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0132	0.0131	0.0249	0.0149	0.00585	0.00416	0.00384	0.00166	0.00102	0.0106	0.0301	0.00822	0.00423
0.00159	0.00169	0.00127	0.00138	0.00125	0.00106	0.00158	0.0014	0.0013	0.0015	0.00134	0.00093	0.00101
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.081	0.317	0.391	0.173	<0.05	<0.05	<0.05
16.3	16.9	14.4	13.4	11.2	11.8	16.7	16.7	16.8	18.3	14.3	12.1	11.9
0.00015	0.00017	0.00021	0.00021	0.00021	0.0002	0.00015	0.00017	0.00017	0.00019	0.00019	0.00017	0.00018
3.71	0.998	3.32	2.58	1.79	4.04	10.3	11.9	13.4	11.3	4.55	3.18	2.15
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
58.3	63.7	50.8	48.1	38.6	35.8	52.5	57.3	67.8	67.5	49	37.8	33.9
0.757	0.763	0.541	0.52	0.41	0.389	0.636	0.824	0.874	0.916	0.636	0.434	0.364
						30.2	50.1	56.2	98.9	77.2	26.5	19
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00116	0.00127	0.00173	0.00123	0.000576	0.000412	0.000561	0.000368	0.000286	0.00106	0.00173	0.00121	0.000919
0.0023	0.0023	0.0028	0.0023	0.0014	0.0012	0.0015	<0.001	<0.001	0.0012	0.0027	0.0023	0.0019
0.0049	0.0034	<0.003	0.0044	0.0022	0.0011	<0.001	0.005	0.0046	<0.001	0.0035	0.0013	0.0024
0.0035	0.0075	0.0169	0.0164	0.0147	0.0366	0.0853	0.0406	0.0358	0.03	0.0375	0.013	0.0283
0.00011	0.00013	0.00015	0.00013	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00012	0.00011	0.0001
0.00137	0.0015	0.00132	0.00125	0.00156	0.00164	0.00095	0.00153	0.00133	0.00144	0.00091	0.00123	0.00134
0.0757	0.0714	0.0533	0.0508	0.0447	0.0519	0.0664	0.118	0.109	0.104	0.0633	0.0488	0.0463

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.045	0.046	0.045	0.037	0.034	0.034	0.027	0.03	0.035	0.037	0.037	0.027	0.026
<0.00001	<0.00001	0.000018	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
82.9	85.5	62.5	63.4	53.4	49.5	70.8	88.5	97.4	118	71.7	57.8	59.4
0.00019	<0.0003	0.00025	0.00022	0.00027	0.00028	0.00046	0.00042	0.00039	0.00027	0.00024	0.00016	0.00023
0.00014	0.00017	0.00014	0.00013	0.00012	0.00012	0.00022	0.0003	0.00021	0.00028	0.00015	<0.0001	0.00012
0.00191	0.00143	0.00227	0.00151	0.00165	0.00126	0.0038	0.00181	0.00079	0.00094	0.00146	0.00175	0.0021
0.035	<0.03	0.055	0.064	0.055	0.069	0.179	0.345	0.272	0.258	0.105	0.033	0.068
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00568	0.00557	0.00721	0.00502	0.00573	0.00567	0.00488	0.00601	0.00614	0.0069	0.00432	0.00609	0.005
82.2	97.6	63.2	57.5	44.6	42.9	69.1	86.3	92.2	112	72.5	43.8	39.2
0.0598	0.0564	0.0382	0.0528	0.0294	0.0531	0.317	2.04	1.49	0.905	0.122	0.0247	0.0227
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0137	0.0141	0.0276	0.0153	0.00592	0.00457	0.00378	0.00197	0.00127	0.0131	0.0299	0.00897	0.00442
0.00165	0.00175	0.00132	0.00149	0.00134	0.00126	0.00225	0.00177	0.00148	0.00163	0.00144	0.00101	0.00117
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.109	0.346	0.408	0.226	0.059	<0.05	<0.05
16	16.8	14.5	12.9	10.9	12	16.2	16.9	16.3	18.8	14.4	12.1	12.1
0.00016	0.00017	0.00022	0.0002	0.00022	0.00021	0.00015	0.00017	0.00016	0.00023	0.00021	0.00018	0.00018
3.66	1.08	3.36	2.49	1.81	4.18	10.2	12.1	13.3	11.8	4.53	3.23	2.25
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000015
58.4	64.4	52	46.5	37	37	50.6	59.7	69.5	68.4	47.4	37.9	36.7
0.744	0.79	0.577	0.517	0.397	0.408	0.607	0.854	0.922	0.961	0.62	0.446	0.377
						29.5	52.9	57.1	105	76	27.1	19.6
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00298	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00122	0.00137	0.00193	0.0013	0.000607	0.000459	0.000585	0.0004	0.000267	0.00113	0.00175	0.00129	0.000987
0.0023	0.0024	0.003	0.0025	0.0016	0.0016	0.0021	0.0012	<0.001	0.0015	0.0029	0.0025	0.0022
0.0034	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0044	0.0038	<0.003	<0.003	<0.003	<0.003
13.4	13.4	15.8	15	15.2	15.6	12.6	14.2	13.6	12.4	10	12.1	14.7
13.3	13.8	16.1	15.1	15.5	15.9	14.1	13.9	14.5	12.9	10.7	12.2	14.9
0.7	0.766	1.04	0.794	1.02	0.868	0.853			3.47	0.566		
0.762	0.534	0.935	0.893	0.884	0.88	1.02	1.1	0.81	0.77	0.773		
L1142492	**L1146570**	**L1148880**	**L1152500**	**L1176520**	**L1190914**	**L1245799**	**L1256678**	**l1265809**	**L1276517**	**L1285503**	**L1298960**	**L1312719**

Baseline Data for Surface Water

PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03	PC03
2-Jul-13	7-Aug-13	9-Oct-13	6-Nov-13	13-Mar-14	21-Mar-14	27-Mar-14	3-Apr-14	10-Apr-14	23-Apr-14	6-May-14	21-May-14	3-Jun-14
667	653	132	826	453	806	438	891	513	1174	673	655	831
128	69.8	80	113	81.4	53.9	95.7	89.5	134	108	115	117	55.4
10.4	5.74	10.3	15.8	11.8	7.71	12.9	11.3	15.9	12.2	12.2	10.9	5.38
8.54	7.98	8.35	8.28	7.93	7.68	7.9	8.13	8.1	8.07	8.29	8.55	7.81
79.1	281	135	87.7	67.4	58.3	77.5	27.9	-48.2	119	195	77.5	39.6
0.33	0.34	0.66	0.73	0.42	0.74	0.37	0.72	0.38	0.84	0.44	0.37	0.49
677	703	798	1467	867	1503	757	1435	764	1654	884	744	992
25.8	21.2	4.44	2.13	0.02	0.7	2.89	5.17	7.78	9.82	12.5	18.7	16.5
440	457	865	954	563	977	492	932	497	1175	572	484	645
0	1.4	0	0.9									
			2									
226	264	401	447	230	445	459	375	410	370	271	232	247
208	264	386	447	230	445	459	367	410	351	271	225	231
18.3	<2	14.2	<2	<2	<2	<2	8.1	<2	19.3	<2	6.3	16.2
<5	31.1	34.9	23.2									
276	294	645	725	395	762	799	720	722	785	385	327	312
<1	<2	<1	<2	<2	<2	<2	<1	<2	<1	<2	<1	<1
8.55	8.24	8.41	8.22	7.99	8.26	8.22	8.33	8.23	8.32	8.27	8.37	8.57
643	662	1310	1480	832	1500	1570	1330	1440	1650	862	725	720
384	394	906	1080	547	982	1020	969	1070	1200	532	450	444
<3	4.4	3.5	<3	9.5	3.4	5.1	6.6	5.4	3.5	5.9	3.7	3
0.69	0.9	0.94	0.9	4.79	2.11	1.74	2.64	2.92	1.34	1.76	1.11	1.34
<0.05	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.25	<0.05
49.4	50	58.8	60.8	25.9	49.1	49.4	42.2	46	53	58.7	48.5	52.1
0.226	0.25	0.33	0.23	0.34	<0.2	0.2	0.2	0.22	<0.4	0.2	0.17	0.228
48.9	48	305	399	209	421	441	374	424	548	132	67.8	68.2
0.0217	0.043	0.0681	0.0609	0.404	0.464	0.179	0.149	0.195	0.121	0.0228	0.0098	0.0121
0.0097	0.027	0.125	0.139	0.153	0.131	0.054	0.058	0.065	0.14	<0.05	<0.025	<0.005
0.0013	0.0093	0.033	0.024	0.013	0.011	<0.01	<0.01	0.011	<0.02	<0.01	<0.005	<0.001
	0.954											
0.945	1.02	1.25	0.918								0.693	
0.934	1.07	1.18	0.817	1.82	1.32	1.16	1.16	1.29	1.01	1.11	0.763	0.854
		0.0277	0.0183	0.171	0.0469	0.0214	0.0111	0.0213	0.016	0.0116	0.0073	0.0093
0.0422	0.0659	0.0504	0.0283	0.251	0.0702	0.0399	0.0939	0.0434	0.0337	0.0288	0.0239	0.0256
0.0321	0.0755	0.0609	0.0359	0.294	0.15	0.0936	0.0333	0.092	0.0622	0.0538	0.0301	0.0419

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0019	0.0013	0.0041	0.0012	0.0036	0.0019	0.0013	0.0012	0.0015	<0.001	0.0018	0.0015	0.0019
0.0001	0.00011	0.00034	0.00011	0.00011	0.00017	0.00011	0.00015	0.00015	0.00015	0.00019	0.00011	0.00011
0.0017	0.00168	0.00228	0.00127	0.00144	0.00156	0.0013	0.00118	0.00141	0.0013	0.00145	0.00143	0.00165
0.0428	0.056	0.0812	0.093	0.0508	0.0772	0.0694	0.0655	0.0792	0.0729	0.0508	0.0563	0.0508
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.024	0.034	0.049	0.034	0.035	0.051	0.051	0.041	0.043	0.044	0.032	0.034	0.026
<0.00001	<0.00001	<0.00003	<0.00002	<0.00001	<0.00004	<0.00002	<0.00003	<0.00003	<0.00003	<0.00001	<0.00001	<0.00001
51.1	51.3	110	108	64.4	112	111	105	107	115	65.9	61.5	58.9
<0.0001	0.00011	0.00025	0.00022	0.00016	0.00012	0.00013	0.00013	<0.0001	0.00011	<0.0001	0.0001	<0.0001
0.00013	0.0001	0.00019	0.00017	0.00036	0.00036	0.00029	0.00024	0.00023	0.00023	0.00013	<0.0001	0.00013
0.00161	0.00078	0.00306	0.00126	0.00437	0.00184	0.0016	0.00124	0.00125	0.00172	0.00187	0.00186	0.00181
						<0.00002	<0.00002	<0.00002	<0.00002			
0.017	0.027	0.026	0.026	0.109	0.065	0.061	0.056	0.046	0.053	0.024	0.016	0.03
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00472	0.00549	0.00782	0.00796	0.00432	0.00732	0.00785	0.0058	0.00667	0.00779	0.00572	0.00593	0.00532
36	40.2	90.1	110	56.8	117	127	111	110	121	53.6	42.1	39.9
0.0153	0.0439	0.047	0.0868	0.252	0.314	0.18	0.175	0.172	0.153	0.0376	0.0103	0.0241
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00469	0.00581	0.103	0.0308	0.0273	0.0805	0.0771	0.0687	0.065	0.0705	0.0265	0.0117	0.00825
0.00093	0.00118	0.00205	0.00161	0.00156	0.00211	0.00181	0.00167	0.0018	0.0018	0.00119	0.00104	0.00109
<0.05	0.071	<0.05	<0.05	0.225	0.073	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
11.1	11.7	21.7	19.2	15.1	19.2	18.3	16.3	16.3	19.2	12.5	10.9	10.4
0.00019	0.00022	0.00048	0.00023	0.00042	0.00106	0.00079	0.00061	0.0007	0.0006	0.00042	0.00023	0.00023
3.91	7.84	9.11	9.01	5.88	9.41	9.4	7.54	7.09	5.92	4.76	3.19	4.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
33	35.4	67.1	72.3	36	72.6	76.3	62.9	69.4	77	42.6	37.8	34.8
0.369	0.379	0.878	0.925	0.53	0.919	0.975	0.809	0.944	1	0.479	0.414	0.413
16.1	16.2	96.7	132	67.2	130	132	125	142	171	42	26.6	24.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000958	0.000758	0.00564	0.0036	0.00188	0.00494	0.0049	0.00445	0.0039	0.00393	0.00255	0.00132	0.00121
0.003	0.0021	0.0066	0.003	0.0036	0.0044	0.0039	0.0034	0.0038	0.0036	0.005	0.0034	0.0036
0.0013	<0.001	0.001	<0.001	0.0021	0.0013	<0.001	<0.001	<0.001	<0.001	<0.001	0.0012	<0.001
0.0164	0.0564	0.0141	0.0126	0.243	0.0487	0.0216	0.0451	0.0515	0.0371	0.0806	0.0488	0.0471
0.00014	0.00014	0.00034	0.00014	0.00013	0.00018	0.00011	0.00019	0.00016	0.00015	0.00021	0.00011	0.00011
0.00172	0.00177	0.00211	0.00133	0.00145	0.00142	0.00135	0.00134	0.00139	0.0013	0.00136	0.00139	0.00164
0.0435	0.0582	0.0808	0.0985	0.0535	0.0761	0.0693	0.0666	0.0831	0.0752	0.0499	0.055	0.051

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.026	0.039	0.053	0.031	0.038	0.053	0.052	0.045	0.047	0.047	0.033	0.036	0.026
<0.00001	<0.00001	<0.00003	<0.00002	0.000012	<0.00004	<0.00002	<0.00003	<0.00003	<0.00003	<0.00001	<0.00001	<0.00001
51.3	53	106	110	64.8	107	106	97.5	110	115	62.5	59.6	56.5
0.00016	0.00031	0.00042	0.00028	0.0007	0.00036	0.00022	0.00027	0.00029	0.00027	0.00033	0.00028	0.00026
0.00015	0.00017	0.00022	0.0002	0.00058	0.00039	0.00031	0.0003	0.00029	0.00027	0.00019	0.00014	0.00016
0.00207	0.00156	0.00341	0.00162	0.0087	0.00335	0.00246	0.00242	0.00185	0.00269	0.003	0.00261	0.00249
0.041	0.106	0.043	0.058	0.395	0.192	0.146	0.227	0.17	0.138	0.135	0.077	0.095
<0.00005	<0.00005	<0.00005	<0.00005	0.000063	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00494	0.00579	0.00861	0.00697	0.00436	0.00722	0.00764	0.00642	0.00683	0.00775	0.00551	0.00577	0.00478
36.7	40.8	90.3	108	57.1	111	117	103	112	123	47.7	40.5	38.3
0.0213	0.0546	0.0502	0.0916	0.267	0.301	0.181	0.189	0.177	0.158	0.0417	0.0131	0.0272
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00494	0.00653	0.111	0.0285	0.0294	0.0823	0.0763	0.0747	0.0718	0.0742	0.0255	0.0124	0.0078
0.00107	0.00151	0.00218	0.00182	0.00336	0.00226	0.00189	0.00195	0.00199	0.00208	0.00153	0.00125	0.00128
<0.05	0.088	0.058	<0.05	0.303	0.112	0.071	0.095	0.094	0.063	0.055	<0.05	<0.05
11.6	12.4	21.1	19.1	15.2	18.1	17.2	15.3	17.1	18.9	11.7	10.6	10.2
0.00019	0.00023	0.00041	0.00024	0.00044	0.00092	0.00075	0.00061	0.0006	0.00057	0.00037	0.0002	0.00022
4.04	8.21	9.21	9.01	6.61	9.14	9.09	7.45	7.69	5.96	4.72	3.24	4.2
<0.00001	<0.00001	<0.00001	0.000033	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
33.9	38.1	69.3	74.8	36.8	71.8	73.5	64.7	71.9	77.6	40.4	37.5	34.3
0.385	0.397	0.919	0.813	0.532	0.924	0.95	0.83	1.01	1.02	0.456	0.418	0.393
16.6	17.7	101	138	69.1	132	136	124	148	177	41	25.9	23
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
						<0.00002	<0.00002	<0.00002	<0.00002			
0.00103	0.000833	0.00608	0.00337	0.00197	0.00517	0.00498	0.00459	0.00405	0.00403	0.00253	0.00145	0.00117
0.0031	0.0025	0.0071	0.004	0.0045	0.0047	0.0041	0.0042	0.0041	0.0039	0.0053	0.004	0.0038
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
15.1	17.3	18.1	14.4	14.4	12.7	12.4	12.4	12.1	13.5	13.5	12.5	13.3
15.8	17.9	18.9	14.5	16.6	13.2	12.9	13.6	12.6	13.7	13.9	12.6	13.6
L1326032	**L1344180**	**L1375698**	**L1388680**	**L1432661**	**L1435186**	**L1437439**	**L1439655**	**L1442672**	**L1446462**	**L1451608**	**L1458340**	**L1465108**

Baseline Data for Surface Water

PC03	PC03	PC03	PC03	PC03	PC03	PC08	PC08	PC08	PC08	PC08	PC08	PC08
18-Jun-14	3-Jul-14	16-Jul-14	30-Jul-14	12-Aug-14	4-Sep-14	2-May-07	17-Jul-07	14-Sep-07	28-Apr-08	7-Jul-08	4-Sep-08	1-Jun-10
660	782	782	923	637		518		621	626	595	610	565
112	178	178	193	82.9					94.2	85.1	80.2	123
10.8	14.6	14.6	14.9	7.59		11	9.4	8.02	10.1	7.84	8.44	12.2
8.48	8.74	8.74	9.18	8.13	8.52	8.6	8.44	7.05	8.26	8.34	8	8.97
103	79.5	79.5	126	79.5		-88.4				-119	-75.2	-354
0.38	0.38	0.38	0.42	0.35								
775	780	780	863	710		969	755	847	826	674	793	687
17.2	25.1	25.1	28.7	19.6	18.4	8.01	23.2	11.1	12.3	19.3	12.9	15.7
504	507	507	561	461								
267	278	247	343	242	387	231	238	315	295	220	314	
255	251	233	299	234	360							
12.1	27	14.5	44	8.2	26.7							
						14	16.1	21.7	14.5	20.2	23.7	19.2
341	348	309	414	311	500	342	319	344	370	296	335	286
<1	<1	<1	<1	<1	<1							
8.42	8.72	8.5	8.78	8.37	8.51	8.38	8.45	8.16	8.1	8.43	8.12	8.79
758	753	691	930	707	1060	725	756	845	845	672	802	668
470	441	440	598	470	695	455	441	502	515	416	478	432
5.4	8.9	<3	8.9	<3	7.5	7.5	7.6	18.7	6.8	4	10.8	3
1.58	2.05	1.63	3.95	1.14	3.79				6.59	6.63	3.38	1
<0.5	<0.25	<0.25	<0.5	<0.25	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
52.9	52.3	54.1	56.8	56.3	54.6	60.7	61	61.2	60.5	52.8	58.7	55.3
0.214	0.31	0.213	0.231	0.233	0.232	0.192		0.274	0.237	0.194	0.264	0.174
77	78.8	51.9	122	64.6	163	85	83	54.5	80.2	64.9	51.3	73.2
0.0245	0.0231	0.0167	0.194	0.014	0.0408	0.029	0.081	0.024	0.02	0.197	0.36	0.08
0.064	<0.025	<0.025	<0.05	<0.025	0.065	<0.005	0.005	<0.005	<0.005	0.0146	<0.005	<0.005
0.018	<0.005	<0.005	0.021	<0.005	0.012	<0.001	0.0024	<0.001	<0.001	0.0012	0.0014	<0.001
												0.762
0.999	1.12	0.95	1.62	1.04	1.02	1	1.03	0.836	0.842	1.56	1.48	0.762
0.0117	0.0265	0.0226	0.153	0.012	0.0339	0.0026	0.0027	0.0056	0.0024	<0.001	0.01	<0.001
0.0275	0.0487	0.0442	0.191	0.0273	0.0548			0.0158				
0.0455	0.0495	0.059	0.208	0.034	0.0476	0.0433	0.0302	0.082	0.0435	0.031	0.0598	0.0197

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	<0.005		<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0057	0.006	0.0078	0.0065	0.0077		0.0066
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	<0.005		<0.005
0.0016	0.0034	0.003	0.0035	0.0019	0.0029	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005
<0.0001	0.00012	0.00011	0.00014	0.00013	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
0.00152	0.00204	0.00173	0.00338	0.00176	0.00184	0.00105	0.00127	0.00158	0.0009	0.00133	0.0018	0.00166
0.0461	0.0367	0.049	0.0578	0.0528	0.0486	0.05	0.043	0.044	0.072	0.048	0.062	<0.02
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005							
0.027	0.034	0.028	0.037	0.028	0.037	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000034	<0.000017
62.3	59.4	56.1	65.6	58.9	83.6	61.4	53.1	67.4	72.7	51.5	64.7	46.2
0.00011	0.00016	<0.0001	0.00022	<0.0001	0.00018	<0.001	<0.001	<0.001	0.0012	<0.001	<0.002	<0.002
0.00014	0.00018	0.00013	0.00029	0.00012	0.00019	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0006	<0.0003
0.00131	0.00172	0.00143	0.00144	0.00174	0.00131	<0.001	<0.001	<0.001	0.0013	<0.001	<0.002	0.0011
0.035	0.04	0.033	0.035	0.029	0.032	<0.03	<0.03	0.082	0.073	0.032	0.176	<0.03
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
0.00521	0.00565	0.00517	0.00668	0.00582	0.00599	0.0059	0.0076	0.0063	<0.005	0.0053	<0.01	0.0057
45	48.3	41	60.8	39.8	70.7	46	45.3	42.7	45.7	40.6	42.2	41.5
0.0518	0.0753	0.0456	0.282	0.0184	0.0824	0.00482	0.00425	0.183	0.185	0.0082	0.0955	0.00296
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001
0.00741	0.00975	0.00534	0.0129	0.0133	0.0142	0.0026	0.0029	0.003	0.0021	0.0024	0.0032	0.0032
0.00116	0.00148	0.00119	0.00208	0.00103	0.00155	<0.001	<0.001	0.0025	0.0017	<0.001	0.0022	<0.001
<0.05	0.053	<0.05	0.19	<0.05	0.056							
11	12.9	11	16.3	10.6	14.1	11.1	10.5	12.1	10.3	12	12.4	11.5
0.00025	0.00027	0.00022	0.00046	0.0002	0.00029	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
4.6	5.61	7.26	12.9	7.25	12.3							
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004	<0.00002
36.5	39.7	35.8	51.8	36.1	53.5	43.5	40.2	45.9	39	35.7	40.1	37.8
0.429	0.439	0.391	0.533	0.395	0.649							
24.4	26.6	17.7	39.2	21.2	54.1							
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00112	0.000994	0.000842	0.00125	0.00127	0.00131	0.00122	0.0013	0.0004	0.00056	0.00107	0.00062	0.00137
0.0031	0.0046	0.0032	0.0067	0.0036	0.0053	<0.03	<0.03	<0.03	<0.001	0.0018	<0.002	0.003
<0.001	<0.001	0.0023	<0.001	<0.001	0.0027	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.106	0.0657	0.0268	0.109	0.0319	0.157	0.111	0.0169	0.193	0.0559	0.0354	0.262	0.0233
0.00013	0.00012	0.00019	0.00016	0.00014	0.00012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
0.00152	0.00206	0.00186	0.0031	0.0017	0.00199	0.00108	0.00125	0.00191	0.0012	0.00154	0.002	0.00139
0.0445	0.0399	0.0509	0.0595	0.0523	0.0563	0.049	0.043	0.057	0.077	0.05	0.071	<0.02

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005							
0.03	0.037	0.03	0.038	0.035	0.042	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.000017	<0.000017	0.000018	<0.000017	<0.000017	<0.000034	<0.000017
58.7	58.6	56.5	61	59	83.3	59.8	53.6	64.4	73.8	44.1	65.2	45.3
0.00046	0.00034	0.00023	0.00051	0.00021	0.00066	<0.001	<0.001	<0.001	0.0015	<0.001	<0.002	<0.001
0.00022	0.00023	0.00017	0.00036	0.00014	0.00032	<0.0003	<0.0003	0.00037	<0.0003	<0.0003	<0.0006	<0.0003
0.00251	0.00265	0.00198	0.00254	0.00241	0.00293	0.0015	<0.001	0.0028	0.0024	0.0015	0.0048	0.0014
0.184	0.137	0.081	0.195	0.073	0.238	0.153	0.04	1.37	1.23	0.078	1.04	0.037
<0.00005	<0.00005	0.000074	<0.00005	<0.00005	0.000053	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
0.00518	0.00556	0.00512	0.00645	0.00517	0.00615	0.0057	0.0071	0.0059	<0.005	0.0065	<0.01	0.0067
41.6	47.8	40.2	56.6	39.8	70.8	44.4	46.8	41.3	46	40	42.2	40.9
0.0584	0.0849	0.0506	0.325	0.0201	0.0995	0.0121	0.00632	0.215	0.188	0.0159	0.102	0.00451
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001
0.00727	0.0105	0.00566	0.013	0.0134	0.0156	0.0026	0.0026	0.0029	0.0021	0.0028	0.0031	0.0032
0.00149	0.0018	0.00137	0.00238	0.00124	0.00224	0.0011	<0.001	0.0034	0.0018	<0.001	0.0031	<0.001
<0.05	0.061	0.063	0.187	<0.05	0.073							
10.2	12.9	11.1	15.1	10.6	14	10.9	10.6	11.6	10.2	12.8	12.9	11.3
0.00028	0.00027	0.00024	0.00041	0.0002	0.00034	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001
4.58	5.78	7.46	12.4	7.36	12.8							
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004	<0.00002
34.3	39.8	36.8	47.9	34.9	54.6	42	40.4	44.3	39.1	38.9	38.7	37.2
0.42	0.45	0.401	0.513	0.382	0.665							
23.8	27.3	17.9	36.7	21.6	54.9							
<0.00001	<0.00001	0.000052	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	0.017	<0.01
0.00112	0.00105	0.000939	0.00128	0.00131	0.00144	0.00125	0.00114	0.00036	0.00055	0.00126	0.00064	0.00155
0.0036	0.005	0.0033	0.0067	0.0038	0.0062	<0.03	<0.03	<0.03	0.002	0.0023	0.0032	0.0032
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
13.6	15	14.7	20	14.5	16.2		14.8	13.2	11.7	15.9	14.7	13.6
12.9	16.4	15	20.9	14.6	16.7	14.9						
L1473827	**L1481215**	**L1488886**	**L1495443**	**L1502292**	**L1513418**	L501627	L532007	L554763	L623545	L652819	L678833	L892818

Baseline Data for Surface Water

PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08
1-Sep-10	22-Nov-10	29-Mar-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11	12-May-11	30-May-11	28-Jun-11	28-Jul-11	30-Aug-11	28-Sep-11
907	542	598	515	608	571	624	595	563	530	712	558	
48.5	53.2	55.8	36.5	94.4	72.5	79.9	89.4	91	117	71.8	68.1	169
5.16	6.39	6.85	4.76	10.9	8.6	8.66	9.47	9.13	11.3	6.66	6.7	17.6
6.81	6.82	7.86	7.14	7.81	7.59	7.67	7.69	8.04	8.86	7.49	8.04	8.27
15.8	300	101	132	24.9	89.7	113	67.3	427	183	140	152	86.7
0.45				0.43	0.42	0.41	0.38	0.34	0.3	0.39	0.33	
688	842	928	858	876	854	840	780	694	622	803	675	812
12.4	6.44	6.38	4.1	8.94	7.65	11.5	12.6	15.1	17.3	19	16	13.5
590	547	603	558	570	555	545	507	451	404	522	438	
								2.3	18.4	9.1		7.4
										7		<1
308	308	317	309	292	300	296	283	231	223	295	223	314
	308			292								305
	<2			<2								9
24.6	22.4	15.9	15.4	14.4	14.8	14.8	15.5	20.2	25.9	18.4	20.4	18.6
380	357	393	369	360	388	369	350	291	268	325	268	333
	<2			<2								<1
7.73	8.07	7.86	8.1	8.16	8.08	8.2		8.54	8.61	8.04	8.33	8.37
822	820	866	801	799	801	798	777	664	612	770	638	782
506	497	531	498	498	496	484	471	392	389	460	395	466
3.4	3.7	3.5	40.9	10.5	4.9	4.5	33.8	4.6	11.1	4.8	3.3	6.7
3.5	8.42	4.84	29.6	10.2	7.59	7.22	19.2		12.4	7.96	2.5	
<0.5	<0.25	<0.5	<0.5	<0.5	<0.25	<0.5	<0.5	<0.25	<0.05	<0.5	<0.05	<0.25
59.2	57.6	62.5	58.9	58.7	58.3	58.8	58.2	52.6	47.4	55.1	50.4	53.7
0.24	0.22	<0.2	<0.2	0.21	0.2	<0.2	<0.2	0.13	0.201	0.43	0.216	0.31
55.4	58	68.2	64.8	64.1	64.6	61.7	69.4	57.7	48.7	46.4	51.3	32.2
0.198	0.488	0.0102	0.029	0.0591	0.0385	0.0193	0.06	0.0295	0.0464	0.347	0.162	0.194
<0.05	<0.025	<0.05	<0.05	<0.05	<0.025	<0.05	<0.05	<0.025	<0.005	0.06	0.0398	0.066
<0.01	<0.005	<0.01	<0.01	<0.01	<0.005	<0.01	<0.01	<0.005	<0.001	<0.01	0.0241	0.015
					0.72	0.48	0.82	0.77	1.24	1.26	1.39	0.96
1.36	0.89	0.921	1.06	0.33	0.669	0.46	0.86	0.8	1.87	1.2	1.52	0.9
1.36	0.89	0.921	1.06	0.33	0.669	0.46	1.03	0.8	1.87	1.14	1.17	0.819
0.0064	0.0037	<0.001						0.0039	<0.001	0.0042		
0.0513			0.0059	0.0066	0.0508	0.0069	0.0117	0.0256	0.0141	0.0119	0.0177	0.0123
0.0511	0.0629	0.056	0.097	0.0422	0.0462	0.0498	0.0973	0.0321	0.0502	0.0585	0.0279	0.0316

Baseline Data for Surface Water

<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
0.0062	0.0059	0.0051		0.006	0.0054	0.0055	0.0064	0.0074	0.007	0.0066	0.0076
<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00138	0.00118	0.00086	0.00111	0.00077	0.00092	0.00106	0.00094	0.00121	0.00128	0.00122	0.00135	0.00125
0.073	0.074	0.079	0.084	0.071	0.075	0.071	0.067	0.05	0.059	0.078	0.061	0.063
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017		<0.000017	<0.000017
73.8	69.5	76.8	74.4	72.4	76.8	73.6	66.7	54	51.3	64.7	49.3	65.7
<0.003	<0.001	<0.001	<0.0015	<0.001	<0.002	<0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
<0.001	<0.001	0.0012	<0.001	<0.001	<0.001	<0.001	0.0011	0.0012	0.0013	<0.001	<0.001	<0.001
0.046	0.751	0.081	0.071	<0.03	<0.03	<0.03	0.039	<0.03	<0.03	0.101	<0.03	<0.03
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0054	<0.005	<0.005	<0.005	0.0051	0.0061
47.6	44.5	48.9	44.4	43.5	47.7	45	44.5	38	34.1	39.7	35.2	41.1
0.141	0.146	0.117	0.23	0.21	0.18	0.157	0.105	0.0052	0.00867	0.172	0.00417	0.0942
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0036	0.0028	0.0019	0.002	0.0021	0.002	0.002	0.0024	0.0023	0.0021	0.0019	0.0025	0.0035
0.0024	0.0019	0.0019	0.0017	0.0015	0.0016	0.0016	0.0011	<0.001	<0.001	<0.001	<0.001	0.0022
		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
13.6	11.5	10.9	10.2	9.7	11	10.4	11.5	11.2	10.1	11.3	11	11.4
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		8.04	8.13	8	8.7	8.28	5.54	2.45	3.67	8.37	4.32	10.1
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
46.4	41.4	42.3	38.8	38.4	42.1	39.6	40.8	36.1	33	38.8	34.2	40.5
		0.497	0.467	0.454	0.503	0.47	0.444	0.369	0.337	0.432	0.353	0.441
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00044	0.00048	0.0007	0.00058	0.00058	0.00059	0.00054	0.00084	0.00114	0.00102	0.00047	0.00103	0.00056
0.0012	0.0024	<0.001	0.0014	<0.001	<0.001	<0.001	0.0012	0.0022	0.0021	<0.001	0.0024	0.0018
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0073	<0.005	<0.005

0.0114	0.0137	0.0087	1.28	0.0806	0.0755	0.12	0.191	0.055	0.122	0.145	0.0319	0.109
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00136	0.00099	0.00097	0.00164	0.00097	0.00101	0.00114	0.00117	0.00119	0.00124	0.00163	0.00133	0.00138
0.074	0.07	0.091	0.103	0.077	0.074	0.078	0.075	0.051	0.06	0.089	0.062	0.069

Baseline Data for Surface Water

<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.000017	<0.000017	0.00002	0.000023	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	0.000018	0.000025	<0.000017	<0.000017
72.9	68	75.2	72.7	72.5	73.4	71.9	68.6	53.9	51.8	67.9	47.9	67
<0.001	<0.001	<0.001	0.0031	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0013
<0.0003	<0.0003	<0.0003	0.00115	0.00033	<0.0003	0.00033	<0.0003	<0.0003	<0.0003	0.00044	<0.0003	0.00033
<0.001	0.0013	0.0018	0.0093	0.0021	0.0019	0.002	0.0026	0.0017	0.0021	0.0019	<0.001	0.0013
0.867	1.32	0.837	3.38	1.12	0.978	1.11	1.03	0.078	0.184	1.27	0.051	0.513
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.0063	0.0054	0.0055	<0.005	<0.005	<0.005	<0.005	0.0062	0.0053	<0.005	0.0065	0.005	0.0063
47.2	44.4	48.2	43.1	44.1	45.2	44.4	45.7	37.9	33.4	41.2	34.9	42
0.171	0.134	0.129	0.271	0.227	0.178	0.168	0.127	0.00751	0.0162	0.248	0.00664	0.106
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0038	0.0027	0.0021	0.0022	0.0024	0.0023	0.0022	0.0029	0.0028	0.0025	0.0021	0.0028	0.004
0.0025	0.0018	0.0024	0.0044	0.002	0.002	0.0027	0.0017	0.0011	0.0013	0.0014	<0.001	0.0026
		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
13.3	11.5	10.8	9.7	9.8	10.1	10.3	11.6	11.3	10.3	12	11.4	11.6
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		7.95	11.3	8.37	8.39	8.49	6.61	2.57	3.96	9.01	4.42	10.5
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000032	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
45.5	41.7	41.9	36.4	39	38.3	39.1	41.8	36.4	33.6	40.3	34.5	41.4
		0.496	0.457	0.459	0.467	0.472	0.462	0.372	0.344	0.461	0.353	0.452
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	0.061	<0.01	0.011	0.013	0.014	<0.01	<0.01	0.013	<0.01	<0.01
0.00047	0.0005	0.0008	0.00067	0.00064	0.00065	0.00061	0.001	0.00139	0.00115	0.00057	0.00116	0.0006
0.0019	0.0027	0.0015	0.0074	0.0023	0.0019	0.002	0.0026	0.0026	0.0026	0.0022	0.0024	0.0027
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0085
11.6	12.6	12.7	10.8	10.7	9.65	11.4	13.6	14.8	17.4	12.6	16.6	12.5
			14.4	10.8	9.68	11.7	13.6	15.2	19.4	12.6	16.9	12.9
					0.681	0.461	0.76	0.74	1.19	0.854	1.16	0.685
			1.03		0.63	0.441	0.973	0.77	1.82	0.79	1.29	0.625
L927896	L956921	L990459	L995583	L997645	L999654	L1002049	L1005044	L1011001	L1025075	L1038168	L1052387	L1066047

Baseline Data for Surface Water

PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08
25-Oct-11	5-Dec-11	9-Jan-12	10-Apr-12	25-Apr-12	2-May-12	11-May-12	16-May-12	24-May-12	10-Jul-12	7-Aug-12	4-Dec-12	9-Jan-13
532	481	453	411	686	313	527	536	534	659	600	416	475
105	49.8	60.7	52.9			69.6	110		106	115	82.9	11.3
13.1	6.89	8.13	6.25	13.7	14	8.27	11.4	10.6	9.1	9.88	11.2	1.6
7.87	7.42	7.36	7.32	7.96	7.92	7.72	8.71	8.7	8.59	8.58	7.9	7.45
169	46.4	82.3	37.2	110	117	22.9	131	72.4	184	122	71.4	97.4
0.41	0.42	0.38	0.3	0.39	0.21	0.39	0.33	0.34		0.3	0.35	0.43
840	863	786	607	798	426	801	682	683	691	624	721	883
5.82	1.83	2.87	8.11	17.6	11.1	7.14	13.8	13.6	22.7	22.9	2.82	0.86
546	561	511	394	518	277	520	443	444		406	468	573
2.3	13.1	15.9		23.3	9.9	12.1	4.3	1.3	1	4	8.4	47.1
2.4												
328	357	306	314	320	313	305	239	250	238	221	312	308
328		306	302	320	313	305	215	219	220	202	312	308
<2		<2	12.2	<1	<1	<2	24.5	31	18	19	<2	<2
19.9	19	21.3	23	21.9	17.8	16.9	18.8	17.8	18.8	17.7	22.5	20.4
344	362	332	359	370	358	357	288	296	294	270	333	341
<2		<2	<1	<1	<1	<2	<1	<1	<1	<1	<2	<2
8.23	8.08	8	8.45	8.4	8.16	8.28	8.56	8.54	8.6	8.55	8.29	7.95
809	837	784	787	785	787	802	673	667	631	610	743	755
457	474	442	486	489	479	470	413	414	412	407	463	468
21.7	22	4	4.7	14.7	23.7	13.3	4.8	3.2	<3	5.7	<3	11.7
10.8	21.8	9.93	4.8	10.4	11.7	11.9	4.32	1.4	1.36	3.28	10.1	27.3
<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.25	<0.05	<0.05	<0.05	<0.5	<0.5
56	56.9	55.6	58.8	57.2	57.3	58.3	52.8	52.7	49.4	49.7	56.8	57.1
0.29	0.27	0.25	0.26	0.312	0.25	0.24	0.18	0.209	0.212	0.212	0.27	0.37
35	39.8	40	49.7	47	48.4	50.2	58.7	58.9	51.7	51.6	37.6	35.9
0.181	0.389	0.239	0.0177	0.0093	<0.005	0.0129	0.0175	0.0212	0.0235	0.0277	0.165	0.516
0.122	<0.05	<0.05	<0.05	<0.005	<0.05	0.062	<0.025	<0.005	<0.005	<0.005	0.05	<0.05
0.014	0.011	<0.01	0.018	<0.001	<0.01	<0.01	<0.005	<0.001	0.001	<0.001	0.014	0.011
0.78		0.73	0.53	0.65	0.49	0.54	0.88	0.77	0.93	0.92	0.881	1.17
3.68	1.03	0.886	0.538	0.878	0.391	1.04	1.07	0.893	0.833	0.943	0.916	1.45
3.55	1.1	0.886	0.521	0.878	0.391	0.975	1.07	0.893	0.832	0.943	0.852	1.45
0.0056	0.0068	0.0146	0.0149	0.014	0.0125	0.0182	0.0192	0.0185	0.0119	0.0128	0.0109	0.0275
0.0896	0.09	0.0999	0.047	0.0794	0.219	0.106	0.0384	0.0349	0.022	0.0263	0.0603	0.266

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0065	0.0064	0.0062	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0022	0.0016	0.0019	0.0011	0.0019
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00093	0.00107	0.0009	0.00085	0.00137	0.00104	0.00116	0.00116	0.00117	0.0012	0.00126	0.00088	0.00105
0.0648	0.0677	0.0517	0.023	0.0259	0.0399	0.0579	0.0548	0.0535	0.0434	0.0488	0.0488	0.077
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.028	0.027	0.023	0.022	0.025	0.024	0.024	0.017	0.016	0.018	0.02	0.03	0.023
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
68.9	70.5	65.9	68	72.8	70.7	68.8	52.4	54.9	56.4	48.2	67.6	66.8
0.00042	0.00045	0.00045	0.00043	0.00034	0.00033	0.00028	<0.0001	<0.0001	<0.0001	<0.0001	0.00053	0.00053
0.00024	0.00038	0.00026	<0.0001	0.00015	0.00016	0.00025	<0.0001	<0.0001	<0.0001	<0.0001	0.00012	0.00022
0.00054	<0.0005	0.00071	0.00109	0.00085	0.00089	0.00061	0.00102	0.00093	0.00096	0.00067	0.00074	0.00032
0.078	0.216	0.19	0.241	0.122	0.086	0.17	<0.03	0.015	0.016	0.014	0.142	0.632
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00536	0.00591	0.00462	0.00525	0.00481	0.00493	0.00468	0.00562	0.00479	0.00563	0.00509	0.00542	0.00445
41.8	45.1	40.8	46	45.8	43.9	44.9	38	38.6	37.1	36.3	39.7	42.2
0.124	0.263	0.213	0.127	0.202	0.163	0.284	0.00399	0.00374	0.0128	0.00412	0.16	0.25
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00308	0.00253	0.00197	0.00217	0.0023	0.00196	0.00187	0.00216	0.00225	0.00221	0.00213	0.00261	0.00197
0.00234	0.00237	0.00184	0.00186	0.00185	0.00178	0.00177	0.00066	0.00073	0.00079	0.00061	0.00154	0.00155
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.05	0.068
11	11.4	9.82	9.7	10	9.95	9.72	10.9	10.6	10.5	10.2	10.7	11
0.0001	0.00011	0.00011	0.00011	0.00012	0.00013	0.00011	0.00014	0.00015	0.00013	0.00014	0.0001	0.00013
9.42	10.2	8.78	9.32	9.49	8.93	8.7	1.79	1.33	1.31	1.58	9.45	9.39
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
38.5	43.5	36.1	36.1	37.4	37.4	35.5	34.4	34.3	32.9	31.5	37.6	34.1
0.433	0.516	0.412	0.466	0.434	0.444	0.436	0.353	0.348	0.358	0.324	0.425	0.411
											13	12.6
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000455	0.000459	0.000433	0.000542	0.00049	0.000488	0.000496	0.00103	0.00113	0.000998	0.000912	0.000369	0.000346
0.0012	0.0013	<0.001	0.0012	0.0016	<0.001	<0.001	0.0022	0.0023	0.002	0.0019	0.0014	0.0014
0.0098	<0.003	<0.003	<0.003	<0.003	0.004	<0.003	0.0042	0.0014	0.0032	0.0013	<0.001	<0.001
0.13	0.715	0.0432	0.0158	0.342	0.0615	0.558	0.0532	0.0191	0.0232	0.0677	0.126	0.43
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.00011	0.00012	<0.0001	0.00011	<0.0001	<0.0001
0.00107	0.00171	0.0012	0.00107	0.00194	0.00134	0.00164	0.00126	0.00117	0.00116	0.00133	0.00114	0.0014
0.0661	0.079	0.0566	0.0245	0.0386	0.0451	0.073	0.0572	0.0517	0.0414	0.0507	0.0534	0.0962

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.033	0.029	0.027	0.026	0.031	0.03	0.026	0.022	0.02	0.02	0.025	0.032	0.024
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000035	<0.00001
68.4	70.2	65.8	67.3	73	70.7	68.5	53.5	54.3	53.4	48.1	66.7	67.1
0.00099	0.00223	0.00076	0.00069	0.00114	0.00065	0.00167	0.00033	0.00018	0.00027	0.00034	0.00112	0.00166
0.00035	0.00094	0.00029	0.00011	0.00043	0.00022	0.00071	0.00013	<0.0001	<0.0001	0.00013	0.00022	0.00061
0.00143	0.00556	0.00141	0.00151	0.00337	0.00255	0.00527	0.00193	0.00112	0.00134	0.00133	0.00443	0.00363
0.767	2.71	1.77	1.18	1.8	1.31	2.5	0.084	0.043	0.041	0.115	1.43	2.45
<0.00005	0.000138	<0.00005	<0.00005	0.000072	<0.00005	0.000103	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000095
0.00596	0.00582	0.0044	0.00477	0.00486	0.00491	0.00415	0.00547	0.00469	0.00472	0.00546	0.00529	0.00476
42.1	44	41.2	45.2	46.1	43.5	44.1	38.9	36.7	35.4	36	38.4	41.9
0.133	0.283	0.226	0.13	0.223	0.168	0.281	0.00657	0.00535	0.00689	0.00946	0.16	0.27
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00323	0.00258	0.0021	0.00227	0.00394	0.00206	0.00176	0.00229	0.00254	0.00196	0.00224	0.00256	0.00209
0.00277	0.00419	0.00206	0.0019	0.00259	0.00192	0.00326	0.00091	0.00077	0.00077	0.00081	0.00198	0.00276
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.062	0.192
11.1	11.1	10	9.49	9.99	9.69	9.37	11.2	10.2	9.89	10.8	10.5	11.1
0.00012	0.00012	0.0001	0.00013	0.00013	0.00014	0.00012	0.00017	0.00015	0.00013	0.00015	0.00011	0.00012
9.79	11.7	9.02	9.3	10.6	9.07	9.81	1.98	1.35	1.07	1.79	9.72	10.6
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
39	42.5	37.4	35.5	37.3	36.8	34.2	36.1	33.8	31.1	32.8	36.7	36.9
0.435	0.512	0.424	0.454	0.451	0.452	0.401	0.347	0.352	0.303	0.332	0.426	0.429
											13.2	12.8
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.018	0.033	0.01	<0.01	0.023	<0.01	0.027	<0.01	<0.01	<0.01	<0.01	<0.01	0.02
0.000487	0.000484	0.000452	0.000535	0.000537	0.0005	0.000474	0.00121	0.00126	0.000934	0.00105	0.000367	0.000398
0.0025	0.0056	0.0023	0.0021	0.0041	0.0023	0.0041	0.0026	0.0025	0.0021	0.0025	0.0034	0.0044
<0.003	0.0057	<0.003	<0.003	0.0039	0.0034	0.0042	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
12.9	12.6	11.8	13.5	14.2	12.9	11.3	14.3	14.5	13.6	15.5	10.7	12.3
13.7	13.2	12.5	14.1	15.9	13.7	12.9	14.6	14.6	14.1	16.7	10.7	13.8
0.46		0.491	0.495	0.641	0.485	0.465	0.863	0.749	0.906	0.892	0.652	
0.59	0.63	0.647	0.503	0.869	0.391	0.962	1.05	0.872	0.809	0.915	0.687	0.932
L1076994	L1092368	L1102695	L1133342	L1140194	L1142492	L1146570	L1148880	L1152500	L1176520	L1190914	L1245799	L1256679

Baseline Data for Surface Water

PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08
6-Feb-13	2-Apr-13	7-May-13	5-Jun-13	2-Jul-13	7-Aug-13	4-Sep-13	9-Oct-13	7-Nov-13	8-Jan-14	4-Feb-14	13-Mar-14	21-Mar-14
449	666	568	564	622	603		779	509	290	362	383	481
77		114	89.9	146	54	143	75.6	93.6	26.6	45.5	60.7	91.8
10.6		11.6	8.83	12.3	4.7	13.5	9.07	12.3	3.78	6.3	8.18	11.5
7.49	8.05	8.56	8.42	8.94	8.27	7.82	7.78	7.91	7.41	8.01	7.38	7.75
72	98.5	170	155	100	265	-64.4	96.1	123	18.8	-48	21.9	15.3
0.39	0.43	0.35	0.33	0.31	0.31	0.38	0.38	0.42	0.26	0.31	0.32	0.38
801	866	711	678	633	637	769	415	850	535	690	664	767
2.02	12.9	14.5	16.2	24.1	22.2	18	7.25	3.97	1	0.22	2.95	5.51
520	563	462	441	412	414	500	506	553	347	445	431	500
8.9	9.8	2	1.7	20.6	2.9		9.9	28.9	9.1			
311	318	242	236	212	218	301	351	329	324	349	259	314
311	318	232	228	191	214	301	351	329	324	349	259	314
<2	<1	9.8	7.7	20.4	3.4	<1	<2	<2	<2	<2	<2	<1
20.7	19	16	21.9	21.1	21.4	23.2	20.5		19.4			
344	357	295	289	266	263	318	351	348	357	381	295	369
<2	<1	<1	<1	<1	<1	<1	<2	<2	<2	<2	<2	<1
7.94	8.19	8.54	8.5	8.6	8.39	8.38	8.24	8.25	7.87	8.03	7.86	8.34
743	799	672	656	606	601	716	772	781	771	848	632	792
474	496	401	410	378	371	406	450	461	477	510	371	489
5	15.3	3.3	3.5	25.5	6.3	8.5	7.5	6.8	10.1	12.3	18.1	10.1
10.5	11.6	1.35	1.62	22.6	1.36	7.48	11.5	10.4	8.9	13	10.5	9.97
<0.5	<0.5	<0.25	<0.25	<0.05	<0.05	<0.25	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5
56	60.8	55.5	50.6	48.8	49.7	51.8	54	54.3	61.9	65.1	45.8	59.1
0.21	0.4	0.24	0.27	0.204	0.216	0.28	0.43	0.28	0.27	0.28	0.242	0.25
40.4	49.3	55.4	46.9	43.2	41.8	22.6	23.4	25.7	30.8	37.8	33.9	45.9
0.23	0.0102	0.0244	0.0357	0.0233	0.146	0.0774	0.137	0.229	0.36	0.384	0.126	0.0264
<0.05	<0.05	0.029	<0.025	<0.005	0.0131	<0.025	<0.05	0.067	<0.05	<0.05	0.0168	<0.05
<0.01	<0.01	<0.005	<0.005	<0.001	0.0116	0.0135	<0.01	0.013	0.016	<0.01	0.0016	<0.01
0.825	0.535				1.12	1.75						
0.825	0.735	1.05	0.876	1.69	1.2	0.865	0.909	0.931				
0.983	0.735	0.88	0.833	1.69	1.19	0.931	0.937	1.01	0.926	0.999	1.27	0.687
							0.0059	0.0064	0.0061	0.0023	0.022	0.0025
0.0132	0.0111	0.0366	0.0429	0.052	0.0316	0.0714	0.014	0.0104	0.0101	0.0087	0.0377	0.0105
0.0696	0.0744	0.0448	0.0526	0.0143	0.0493		0.061	0.0487	0.0943	0.0759	0.192	0.0587

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0018	0.0017	0.0012	0.0027	0.0013	0.0024	0.0023	0.0019	<0.001	<0.001	0.0013	0.0019	<0.001
<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00074	0.00106	0.00116	0.0013	0.00131	0.00145	0.00151	0.00105	0.00085	0.00089	0.00089	0.00099	0.00083
0.0459	0.046	0.046	0.04	0.0445	0.0644	0.0694	0.0561	0.0601	0.0661	0.0692	0.0549	0.0421
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.023	0.025	0.019	0.017	0.02	0.026	0.029	0.032	0.029	0.029	0.03	0.023	0.025
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
66.3	71	56	58.2	50.8	46.3	59.7	67.8	66.3	70.5	73.2	58.6	72.3
0.00045	0.0003	0.0001	<0.0001	<0.0001	<0.0001	0.00033	0.00036	0.00047	0.00053	0.00056	0.00032	0.00036
0.00013	0.00017	<0.0001	0.0001	<0.0001	<0.0001	0.00016	0.00018	0.00023	0.00027	0.00021	0.00052	0.00028
0.00056	0.00122	0.00085	0.00132	0.00115	0.00083	0.0005	0.00044	0.00067	0.00047	0.00042	0.00164	0.00099
0.15	0.16	0.011	0.025	<0.01	0.018	0.079	0.097	0.086	0.343	0.305	0.358	0.066
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00455	0.00432	0.00544	0.00425	0.00472	0.00513	0.00553	0.00567	0.00513	0.0051	0.00527	0.00447	0.00476
43.2	43.7	37.6	34.8	33.8	35.7	41	44.1	44.4	44	48.1	36.1	45.7
0.145	0.138	0.00489	0.0112	0.00599	0.00781	0.0739	0.0839	0.132	0.223	0.193	0.215	0.178
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00217	0.0021	0.00228	0.00203	0.0023	0.00221	0.00287	0.00342	0.00298	0.00215	0.00254	0.00246	0.00253
0.00147	0.00194	0.00066	0.00084	0.00069	0.00065	0.00169	0.00198	0.00199	0.0017	0.00165	0.00195	0.00202
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.058	<0.05
10.1	11.6	11	11.3	10.5	11.1	11.9	11.6	11.9	10.9	11.1	11.1	10.8
0.00011	0.00017	0.00013	0.00016	0.00016	0.00017	0.00013	0.00013	0.00012	0.00011	0.00012	0.00013	0.00015
9.08	9.02	3.63	4.32	4.05	6.12	10.1	9.93	9.87	9.53	10.5	7.52	8.93
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
30.5	36	34.5	30.8	31.2	32	39.3	37.2	35.3	36	39.1	27.9	36
0.4	0.444	0.36	0.319	0.337	0.317	0.417	0.456	0.439	0.455	0.486	0.378	0.454
14	16.2	18.7	15.4	14.1	14.1	8.16	8.39	9.04	11	13.7	11.4	15.6
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000445	0.000569	0.00111	0.000985	0.000992	0.000892	0.000435	0.00052	0.000489	0.000474	0.000519	0.000515	0.000609
0.0012	0.0013	0.0022	0.0023	0.0024	0.0027	0.0017	0.0014	0.0014	0.0013	0.0015	0.0014	0.0011
0.0018	0.0013	0.0017	0.0014	0.0014	0.0018	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
0.0834	0.161	0.0694	0.0334	0.0347	0.0755	0.293	0.345	0.232	0.123	0.26	0.571	0.177
<0.0001	<0.0001	0.0001	0.00011	0.00014	0.00015	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00012	<0.0001
0.00118	0.0013	0.00112	0.00135	0.00134	0.00149	0.00185	0.00131	0.00115	0.00116	0.00125	0.00151	0.00112
0.0612	0.0491	0.0449	0.0392	0.0452	0.0677	0.0668	0.0613	0.0644	0.0702	0.0809	0.0642	0.0463

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.024	0.028	0.019	0.021	0.023	0.03	0.032	0.033	0.03	0.03	0.031	0.026	0.028
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
66.4	68.1	55.3	56.4	51.4	48.6	58	66.2	64.5	68.7	71	59.6	69.4
0.00087	0.0008	0.00034	0.0002	0.0002	0.00032	0.00098	0.00131	0.00146	0.00104	0.00127	0.00147	0.0008
0.00022	0.00031	0.00013	0.00013	0.00012	0.00016	0.00039	0.00048	0.00043	0.00039	0.00042	0.00103	0.00045
0.00181	0.00301	0.00193	0.00165	0.00179	0.00154	0.00288	0.0034	0.00349	0.0017	0.00285	0.00704	0.00299
1.43	1.09	0.122	0.077	0.064	0.133	0.869	1.24	1.11	1.84	1.76	1.79	1.24
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000058	0.000078	0.000065	<0.00005	0.000054	0.000104	<0.00005
0.00475	0.00451	0.00551	0.00465	0.00479	0.00532	0.00563	0.00613	0.00498	0.0047	0.0049	0.00471	0.00491
43.5	42.2	36.3	34	33.4	36.1	39.6	42	41.2	43.3	46.1	37	43.1
0.173	0.138	0.00746	0.0154	0.00999	0.0114	0.0648	0.1	0.14	0.226	0.214	0.237	0.184
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00221	0.00218	0.00246	0.00225	0.00264	0.00243	0.00301	0.00417	0.00301	0.0022	0.00254	0.00274	0.0031
0.002	0.00234	0.00097	0.00097	0.00098	0.00087	0.00234	0.00292	0.00272	0.00209	0.00238	0.00348	0.00267
0.07	0.052	0.066	0.055	0.064	0.056	0.072	<0.05	0.052	0.111	0.06	0.182	0.061
10.2	11.6	10.8	11.2	10.7	11.7	12.3	11.1	11.8	10.5	10.5	11.2	10.3
0.0001	0.00017	0.00015	0.00016	0.00018	0.00017	0.00016	0.00012	0.00017	0.0001	0.00014	0.00016	0.00011
9.26	9.24	3.7	4.35	4.15	6.53	11	10.6	10.1	9.77	10.8	9.2	9.01
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000013	<0.00001	<0.00001	<0.00001	<0.00001	0.000031	<0.00001
36	35.4	32.9	32.8	30.9	34.3	38.6	36.2	33	35.9	40.4	29.2	36
0.411	0.448	0.381	0.34	0.367	0.336	0.404	0.479	0.42	0.443	0.466	0.421	0.485
14.7	16	18.6	15.4	14.2	15	8.61	8.68	9	11.2	13.7	11.9	15.6
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.018	0.01	<0.01	0.012	0.024	<0.01
0.000455	0.000583	0.0012	0.00102	0.00111	0.00103	0.000463	0.000555	0.000484	0.000485	0.000516	0.00056	0.000655
0.0028	0.0029	0.0025	0.0025	0.0024	0.0032	0.0033	0.0038	0.0039	0.0031	0.004	0.0042	0.0031
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
12.4	13.6	11.3	15.1	15.1	17.4	13.6	12.6	12.2	12.2	13.1	12.7	11.7
12.3	14.4	11.5	15.1	18.1	18.1	13.7	13.3	11.9	13.3	13.5	14.9	12.2
	0.525					1.66						
0.752	0.724					0.853						
L1265999	L1285503	L1298960	L1312719	L1326032	L1344180	L1358222	L1375698	L1389979	L1410216	L1418933	L1432661	L1435186

Baseline Data for Surface Water

PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC08	PC03
27-Mar-14	3-Apr-14	10-Apr-14	24-Apr-14	6-May-14	21-May-14	4-Jun-14	18-Jun-14	3-Jul-14	16-Jul-14	30-Jul-14	12-Aug-14	4-Sep-14
438	538	513	529	567	549	591	595	633	560	577	610	
95.7	87.9	134	73.3	103	106	88.8	89.1	105	108	163	93.1	
12.9	10.5	15.9	8.42	10.9	10.4	8.82	8.26	9.07	9.08	14.3	8.15	
7.9	7.8	8.1	7.33	8.26	8.6	7.94	8.74	8.59	8.91	8.71	8.65	8.52
77.5	116	-48.2	150	173	101	160	93.1	74.5	110	119	79.4	
0.37	0.4	0.38	0.37	0.36	0.32	0.35	0.33	0.32	0.28	0.3	0.32	
757	812	764	757	739	662	720	673	664	572	618	649	
2.89	7.37	7.78	9.21	12.8	16.1	15.6	18.9	22.5	23.9	21.5	21.8	18.4
492	527	497	492	481	430	467	437	432	372	402	422	
311	316	310	285	251	230	240	239	236	233	254	231	387
311	316	310	285	242	222	230	224	222	218	244	215	360
<2	<2	<2	<2	8.7	7.8	9.9	15.1	13.6	14.8	10.2	16.1	26.7
353	344	339	334	310	291	301	289	290	290	290	283	500
<2	<2	<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1
8.24	8.26	8.24	8.25	8.43	8.47	8.51	8.51	8.61	8.54	8.42	8.58	8.51
780	754	729	714	701	654	662	662	640	647	676	645	1060
458	466	449	458	406	393	408	409	290	422	311	416	695
13.7	42.4	10	6.5	13.8	12	4.3	<3	5.1	4.6	4.5	<3	7.5
10.3	19.1	12.7	4.28	4.68	3.06	5.66	1.76	2.06	2.48	2.87	1.79	3.79
<0.5	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.5
56.4	56.6	54.9	57.2	55.7	52.4	52.5	52.9	52.3	53.7	54.3	54.9	54.6
0.26	0.27	0.28	0.25	0.229	0.213	0.22	0.215	0.231	0.227	0.228	0.237	0.232
44.2	43.7	42.6	49.1	54.3	46.4	45.5	45.6	44.5	45.2	41.1	46.1	163
0.0315	0.0104	0.007	0.0057	0.0144	0.0276	0.0195	0.0562	0.0875	0.0578	0.0414	0.0352	0.0408
<0.05	<0.05	<0.025	<0.025	<0.005	<0.005	<0.005	0.0166	0.0646	0.0265	<0.025	0.0087	0.065
<0.01	<0.01	<0.005	<0.005	<0.001	<0.001	0.001	0.0057	0.0242	0.0078	0.0078	0.002	0.012
					0.763							
0.609	0.737	0.451	0.481	0.963	0.83	0.855	1.1	1.03	1	0.798	1.03	1.02
0.005	0.0033	0.0017	0.0029	0.0058	0.0096	<0.001	0.0016	0.0045	0.0016	0.01	<0.001	0.0339
0.0094	0.136	0.0066	0.0394	0.021	0.0255	0.013	0.0156	0.0202	0.0176	0.021	0.0175	0.0548
0.0501	0.008	0.0461	0.0069	0.0569	0.0504	0.0331	0.0308	0.0363	0.04	0.0422	0.024	0.0476

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0016	0.0018	0.002	<0.001	0.0069	0.0015	0.0021	0.0021	0.0019	0.0021	0.0017	0.0023	0.0029
<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.0001	<0.0001	0.00011	<0.0001
0.00069	0.00083	0.00075	0.00068	0.0012	0.00132	0.00123	0.00129	0.00131	0.00136	0.00129	0.00136	0.00184
0.0351	0.036	0.0222	0.0521	0.0649	0.0586	0.0531	0.0538	0.054	0.0538	0.059	0.0425	0.0486
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.024	0.022	0.023	0.021	0.02	0.018	0.019	0.019	0.022	0.02	0.021	0.021	0.037
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
65.3	66.7	65.7	65.9	59.4	60.6	60	57.9	57.2	55.8	54.2	54.3	83.6
0.00033	0.00033	0.00032	0.00023	<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.0001	0.00014	<0.0001	0.00018
0.0002	0.00016	0.00014	0.00017	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	<0.0001	0.00015	<0.0001	0.00019
0.00085	0.00103	0.00118	0.00109	0.00099	0.00112	0.00134	0.00112	0.00117	0.00092	0.00083	0.00085	0.00131
0.169	0.159	0.229	0.092	0.045	0.014	0.051	0.015	0.023	0.019	0.13	<0.01	0.032
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00483	0.00442	0.00444	0.00494	0.00489	0.00494	0.00481	0.00453	0.00556	0.00495	0.00539	0.00544	0.00599
46.2	43.2	42.5	41.2	39.2	33.8	36.8	35	35.8	36.6	37.5	35.8	70.7
0.151	0.131	0.11	0.122	0.0321	0.00635	0.0289	0.00723	0.0106	0.00857	0.0242	0.00258	0.0824
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00253	0.00277	0.00236	0.00244	0.00253	0.0021	0.00246	0.00241	0.0025	0.00246	0.00271	0.00258	0.0142
0.00179	0.00187	0.0018	0.00181	0.00091	0.00073	0.00107	0.00077	0.00074	0.00068	0.00131	0.00065	0.00155
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.056
10.1	9.63	9.77	9.98	10.5	10.1	10.2	10	10.8	10.3	11.8	10.4	14.1
0.0001	<0.0001	0.00011	0.00014	0.00016	0.00017	0.00015	0.00016	0.00016	0.00016	0.00014	0.00016	0.00029
8.75	8.25	8.6	8	4.92	5.01	5.59	5.18	5.71	6.27	6.53	6.65	12.3
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
35.1	35.5	34.8	35.3	35.2	33.5	32.8	29.9	31.2	32.7	33.5	33.7	53.5
0.447	0.427	0.426	0.457	0.351	0.305	0.353	0.337	0.348	0.354	0.368	0.348	0.649
14.8	15.2	15	17	18.1	15.6	15.8	14.6	15.1	15.2	13.8	15.5	54.1
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000615	0.000611	0.000542	0.000594	0.00112	0.000965	0.00103	0.0011	0.000989	0.001	0.000786	0.00106	0.00131
0.0012	0.0014	0.0013	0.001	0.0023	0.0027	0.0025	0.0026	0.0028	0.0029	0.0024	0.003	0.0053
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0016	<0.001	<0.001	<0.001	<0.001	0.0027
0.194	0.565	0.235	0.0421	0.198	0.142	0.0408	0.0342	0.0393	0.0972	0.0566	0.0317	0.157
<0.0001	0.00013	<0.0001	<0.0001	0.00015	<0.0001	0.00012	0.0001	0.0001	0.00011	<0.0001	0.00011	0.00012
0.00105	0.00144	0.00109	0.00077	0.00122	0.00131	0.0013	0.00135	0.00129	0.00149	0.00137	0.00141	0.00199
0.0416	0.047	0.0267	0.0529	0.0662	0.0582	0.0568	0.0535	0.0544	0.0538	0.0603	0.0425	0.0563

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.024	0.025	0.027	0.021	0.022	0.018	0.023	0.023	0.022	0.022	0.024	0.026	0.042
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
66.3	67.7	65.1	64.1	58.1	59.2	60.2	57.7	54.8	55.1	52.2	52.3	83.3
0.00091	0.00174	0.00095	0.00036	0.00064	0.00058	0.00026	0.00023	0.00023	0.0004	0.00029	0.00015	0.00066
0.0004	0.00064	0.00033	0.00021	0.00025	0.00019	0.00015	0.00012	0.00014	0.00019	0.00019	0.00011	0.00032
0.00264	0.00548	0.00327	0.00209	0.00273	0.00223	0.0017	0.00141	0.00151	0.00161	0.00145	0.00112	0.00293
1.51	2.1	1.55	0.76	0.536	0.208	0.261	0.074	0.103	0.171	0.415	0.049	0.238
<0.00005	0.000117	0.000054	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000053
0.00477	0.00471	0.00446	0.00482	0.00521	0.00484	0.00513	0.00487	0.00458	0.00498	0.00523	0.00549	0.00615
44.2	44	41.7	40.6	35.8	33.6	37	34	34.2	35.6	36.7	34.9	70.8
0.168	0.159	0.128	0.113	0.0376	0.0108	0.0476	0.0107	0.0112	0.016	0.0275	0.00497	0.0995
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00301	0.00324	0.00256	0.00249	0.00257	0.00219	0.0026	0.00255	0.00254	0.00261	0.00288	0.00265	0.0156
0.00247	0.00341	0.00233	0.00174	0.00145	0.00131	0.00117	0.00087	0.00094	0.00107	0.00151	0.00077	0.00224
<0.05	0.076	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.073
9.99	9.8	9.57	9.71	10.1	10.1	10.5	9.92	10.7	10.2	11.5	10	14
0.00011	0.00012	0.00012	0.00013	0.00017	0.00014	0.00015	0.00016	0.00015	0.00016	0.00016	0.00015	0.00034
9.26	10.1	9.28	8	5.18	5.29	6.09	5.31	5.69	6.43	6.51	6.48	12.8
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
35.8	35.4	34.1	33.2	33.3	33	33.9	30.4	31.8	32.9	33.2	34.6	54.6
0.442	0.438	0.441	0.46	0.375	0.299	0.372	0.354	0.343	0.359	0.368	0.351	0.665
15.3	15.9	15.1	17.1	18	15.5	16.3	14.9	14.9	15.2	13.8	15.3	54.9
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	0.026	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000643	0.000688	0.000576	0.000622	0.00116	0.00101	0.00109	0.00118	0.00103	0.00108	0.000826	0.00115	0.00144
0.0033	0.0055	0.0033	0.0018	0.0033	0.0036	0.0027	0.0031	0.0031	0.0033	0.0033	0.0033	0.0062
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
11.9	12.1	12.3	10.9	12.7	12.5	12.8	13.4	13.3	14.1	12.8	14	16.2
11.6	13.5	13	11.4	13.5	13.3	12.8	13.8	13.6	13.9	13.5	14.4	16.7
L1437439	L1439655	L1442672	L1447300	L1451608	L1458340	L1465478	L1473827	L1481215	L1488886	L1495443	L1502292	**L1513418**

Baseline Data for Surface Water

PC10	PC10	PC10	PC10	PC10	PC10	PC10	PC10	PC10	PC10	PC10	PC10	PC10
13-Mar-14	21-Mar-14	28-Mar-14	3-Apr-14	9-Apr-14	24-Apr-14	7-May-14	23-May-14	4-Jun-14	18-Jun-14	3-Jul-14	16-Jul-14	30-Jul-14
439	499	524	557	540	491	446	413	310	451	527	495	486
60.1	63.4	59.6	61.6	90.2	79.9	88.2	104	76.3	78	74	62.5	79.5
8.66	8.8	7.91	8.33	11.5	9.52	9.39	11.8	8.46	8.32	7.51	6.2	8.16
7.83	7.77	7.73	7.85	8.14	8.07	8.17	8.27	8.06	8.13	7.81	8.18	8.36
30.3	71.5	1.2	-17.7	-48.7	105	59.9	63.4	171	93.1	88.4	145	118
0.4	0.4	0.44	0.48	0.43	0.36	0.29	0.29	0.21	0.29	0.32	0.29	0.3
827	897	890	971	880	733	585	577	427	596	657	601	606
0.42	1.75	3.44	2.7	4.8	7.72	12.5	10.2	10.7	12.3	14.7	15.8	14.6
537	583	579	631	572	479	380	375	278	387	427	391	394
286	338	344	342	287	215	206	243	254	259	285	286	286
286	338	344	342	287	213	206	243	254	250	278	278	277
<2	<1	<2	<2	<2	1.9	<2	<2	<1	8.8	6.2	7.6	9.5
						30.7						
359	429	426	429	401	314	231	262	293	274	306	310	302
<2	<1	<2	<2	<2	<1	<2	<2	<1	<1	<1	<1	<1
8	8.34	8.14	8.26	8.19	8.35	8.29	8.26	8.37	8.37	8.43	8.36	8.34
809	906	901	890	833	720	556	567	609	587	640	651	659
519	577	538	587	571	470	372	381	331	381	364	413	388
4.5	<3	<3	3.4	5.4	19.1	13.3	17.6	17.7	13.9	<3	7.8	4.8
1.54	0.98	1	0.66	3.04	7.42	6.83	7.26	8.64	5.85	1.34	3.62	1.76
<0.5	<0.5	<0.5	<0.5	<0.5	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	0.051	<0.05
51.6	70.9	64	69	84.5	79.1	47.2	36.9	38.2	33	38.6	36.6	40.7
0.31	<0.2	<0.2	<0.2	<0.2	0.14	0.191	0.235	0.216	0.24	0.251	0.268	0.242
84.7	75	80	80.5	66.7	48.5	30.2	27.2	27.6	20.2	25.9	26.5	27.7
0.44	0.0963	0.0436	0.033	0.0313	0.0127	0.0073	0.0186	0.0209	0.0166	0.0116	0.0235	0.0129
0.254	0.258	0.174	0.173	0.184	0.051	0.03	0.0332	0.0334	0.038	0.0586	0.0671	0.0665
0.014	<0.01	<0.01	<0.01	<0.01	<0.005	<0.001	<0.001	0.0011	0.0013	0.0014	0.0028	0.0017
1.77	0.603	0.504	0.508	0.417	0.572	0.463	0.792	0.767	0.629	0.451	0.613	0.496
0.309	0.0779	0.0666	0.0592	0.0608	0.0436	0.0342	0.135	0.155	0.0948	0.0903	0.0974	0.104
0.413	0.0991	0.0804	0.0763	0.0829	0.0884	0.0455	0.161	0.165	0.113	0.0972	0.116	0.119
0.451	0.138	0.086	0.0697	0.0676	0.0519	0.0691	0.178	0.212	0.146	0.113	0.146	0.127

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0023	<0.001	<0.001	0.0016	0.0016	0.0015	0.0029	0.0036	0.0095	0.0018	0.0017	0.0029	0.0023
0.00015	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00203	0.00149	0.00135	0.00129	0.0011	0.00097	0.00103	0.00179	0.00168	0.00165	0.00171	0.00177	0.00172
0.064	0.0781	0.0814	0.0765	0.0791	0.0711	0.058	0.0616	0.0662	0.061	0.0643	0.0631	0.0638
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.022	0.013	0.012	0.012	0.01	<0.01	<0.01	0.015	0.015	0.012	0.016	0.017	0.015
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
73.5	99.2	96.3	98.7	97.8	81.2	58.6	60.5	64.8	60.9	71.2	70.3	67.9
0.00012	0.00011	<0.0001	0.00011	0.00011	<0.0001	0.00011	0.00014	0.00015	0.00012	0.0001	<0.0001	
0.00027	0.00017	0.00015	0.00015	0.00011	0.0001	<0.0001	0.00017	0.00021	0.00014	0.00012	0.00011	0.00011
0.00591	0.00274	0.0027	0.00244	0.0018	0.0022	0.00294	0.00358	0.00324	0.00241	0.0023	0.00216	0.00216
0.07	0.027	0.026	0.032	0.017	0.02	0.022	0.042	0.056	0.045	0.037	0.036	0.044
0.00009	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00469	0.00449	0.00445	0.0048	0.00476	0.00421	0.00312	0.00303	0.00343	0.00327	0.00446	0.00418	0.00408
42.6	44	45.1	44.3	38.1	27	20.7	27	31.8	29.6	31.2	32.7	32.2
0.0403	0.0322	0.0263	0.0249	0.023	0.0132	0.0107	0.0212	0.055	0.0281	0.0198	0.0169	0.011
<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00358	0.0027	0.00261	0.00274	0.00233	0.00216	0.00201	0.00302	0.00268	0.00224	0.00218	0.00263	0.00241
0.0015	0.00129	0.00123	0.00122	0.00108	0.00089	0.00081	0.00133	0.00131	0.00113	0.00116	0.00126	0.00223
0.364	0.093	0.075	0.069	0.08	<0.05	<0.05	0.15	0.176	0.106	0.099	0.132	0.125
16.8	10.7	11	10.1	9.03	8.01	6.06	7.81	9.16	7.27	9.15	9.34	9.97
0.00142	0.00042	0.00028	0.00029	0.00035	0.00038	0.00032	0.00025	0.0002	0.00017	0.00016	0.00016	0.00018
8.2	9.43	9.5	9.02	8.38	7.72	7.29	10.4	10.1	9.49	10.3	11	10
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
34.6	36.5	36.1	38.2	35.8	33.1	24.7	24.1	26.6	23.7	29	29.8	29
0.477	0.471	0.482	0.486	0.461	0.357	0.273	0.321	0.344	0.298	0.319	0.379	0.345
28.5	24.2	26.9	26.9	22.3	17	10.6	9.72	9.98	6.65	8.87	8.96	9.29
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00201	0.0019	0.00188	0.00195	0.00172	0.00138	0.000897	0.000884	0.000884	0.000831	0.000785	0.000757	0.00081
0.0039	0.0027	0.0026	0.0024	0.0026	0.0025	0.003	0.0034	0.0028	0.0029	0.003	0.0029	0.0033
0.0021	<0.001	0.002	<0.001	0.001	<0.001	<0.001	0.0011	0.0012	<0.001	<0.001	<0.001	0.0014
0.103	0.0651	0.0065	0.0088	0.129	0.379	0.256	0.352	0.699	0.399	0.0284	0.252	0.105
0.00015	<0.0001	<0.0001	0.00011	<0.0001	<0.0001	<0.0001	0.00013	0.00012	<0.0001	<0.0001	<0.0001	<0.0001
0.00197	0.00142	0.00135	0.00128	0.00114	0.00103	0.00101	0.00188	0.00183	0.00172	0.00166	0.00182	0.00168
0.0645	0.0771	0.0804	0.0774	0.0806	0.0754	0.0565	0.0633	0.077	0.0654	0.0641	0.0649	0.0623

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.022	0.015	0.013	0.012	0.013	<0.01	<0.01	0.016	0.017	0.016	0.014	0.019	0.016
0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
71	95.6	94.6	94.2	95.9	78.6	58.4	58.1	62.9	59.2	66.4	68	64.9
0.00037	0.00032	0.00013	0.00016	0.00043	0.00096	0.00071	0.00102	0.00186	0.00117	0.00019	0.00074	0.00049
0.00037	0.00022	0.00015	0.00016	0.00021	0.00037	0.00025	0.00044	0.00077	0.00043	0.00014	0.0003	0.00017
0.00691	0.0036	0.00308	0.00277	0.00277	0.00489	0.00434	0.00572	0.00765	0.0049	0.00257	0.00404	0.00293
0.226	0.139	0.042	0.045	0.215	0.59	0.393	0.572	1.14	0.656	0.082	0.451	0.199
<0.00005	<0.00005	0.000543	<0.00005	<0.00005	0.000087	<0.00005	0.000097	0.000155	0.000081	<0.00005	0.000073	<0.00005
0.0045	0.00424	0.0046	0.00486	0.00469	0.00397	0.0031	0.00293	0.00368	0.00337	0.00364	0.00422	0.00405
38.4	41.8	43.2	43.6	37.2	26.7	20.9	26.2	30.3	28.4	29.3	31.9	31.1
0.0465	0.0397	0.0263	0.0258	0.0311	0.0356	0.0226	0.0444	0.11	0.0589	0.0224	0.0335	0.0179
<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0038	0.00287	0.0029	0.00283	0.00249	0.00223	0.0019	0.00306	0.0028	0.00228	0.00209	0.00266	0.00242
0.00175	0.00146	0.00127	0.00131	0.00144	0.00171	0.00123	0.00204	0.00332	0.00201	0.00124	0.00177	0.00142
0.387	0.108	0.077	0.082	0.097	0.076	0.058	0.174	0.236	0.143	0.105	0.148	0.133
15.9	10.3	10.9	9.57	8.8	7.88	6.11	7.77	8.93	6.99	8.62	9.19	9.48
0.00128	0.00038	0.00031	0.00032	0.00037	0.00039	0.0003	0.00026	0.00024	0.00021	0.00016	0.00017	0.00017
7.89	9.21	9.34	8.66	8.68	8.33	7.77	11	11.5	10.1	9.78	11.5	9.88
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
34.5	35.9	36.9	39	35.8	33.7	23.1	23	26.5	24.4	27.4	29.1	28.4
0.465	0.446	0.512	0.478	0.463	0.34	0.236	0.317	0.35	0.31	0.301	0.385	0.335
27.4	24.5	27.5	27.3	22.5	16.9	10.7	9.48	9.71	6.71	8.64	8.91	9.13
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	0.015	0.025	0.014	<0.01	<0.01	<0.01
0.00199	0.00198	0.002	0.00203	0.00176	0.00145	0.000823	0.000919	0.000905	0.000875	0.000719	0.000858	0.000827
0.0044	0.003	0.0027	0.0027	0.0031	0.0037	0.0037	0.0044	0.0049	0.0044	0.0031	0.0038	0.0037
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0041	<0.003	<0.003	<0.003	<0.003
16.4	9.01	9.02	10.3	7.96	10.5	11.4	13.2	12.9	11.3	10	10.8	11.2
17.1	8.87	9.1	10.1	7.99	10.8	11.8	14	13.7	12.2	10.1	10.8	11.7
L1435532	**L1435186**	**L1437642**	**L1439655**	**L1441961**	**L1447300**	**L1452368**	**L1459728**	**L1465478**	**L1473827**	**L1481215**	**L1488886**	**L1495443**

Baseline Data for Surface Water

ANDR15	ANDR15	ANDR15	ANDR15	ANDR15	ANDR15	ANDR15	ANDR15	ANDR15	ANDR15	ANDR15	ANDR15	ANDR15
5-Feb-14	13-Mar-14	19-Mar-14	27-Mar-14	3-Apr-14	9-Apr-14	24-Apr-14	7-May-14	23-May-14	4-Jun-14	17-Jun-14	3-Jul-14	15-Jul-14
421	408	474	517	576	470	295	358	443	485	535	569	502
43.5	77.2	82.9	87.1	67.7	80.7	81.1	101	93.8	89.7	84.1	82.3	84.9
6.33	11	12.1	12.5	9.64	11.7	10.9	13	10.5	10.1	8.88	8.6	8.96
8.65	8.1	8.02	8.06	8.2	8.29	8.24	8.44	8.45	8.41	8.49	8.43	8.5
-76	45.4	172	86.2	-1.3	-69.5	87.8	203	35.6	154	92.5	45.7	40.4
0.39	0.36	0.44	0.47	0.52	0.43	0.24	0.26	0.3	0.33	0.34	0.36	0.32
811	756	908	968	1070	896	510	592	614	683	699	734	653
-0.25	0.92	0.02	0.6	0.82	0.14	2.89	4.3	10.4	9.84	12.7	13.2	12.9
528	490	590	629	695	582	332	384	399	444	454	477	424
266	258	255	275	251	235	175	207	216	231	230	255	253
266	258	255	262	243	235	169	207	209	227	215	247	238
<2	<2	<2	13.4	8	<2	6	<2	7.5	4.4	15.1	8.3	14.9
							33.7					
369	351	338	371	385	322	215	237	260	274	272	294	297
<2	<2	<2	<1	<1	<2	<1	<2	<1	<1	<1	<1	<1
8.06	8.2	8.26	8.32	8.31	8.24	8.37	8.26	8.35	8.45	8.46	8.48	8.39
809	785	909	987	976	846	507	562	592	663	686	714	718
528	489	495	606	637	561	331	384	382	368	426	418	442
<3	<3	4.1	4.3	3.1	108	36.7	16.7	7	6.1	33.8	7.9	15.9
0.61	0.42	1.15	0.8	0.54	15.8	7.04	2.63	1.45	2.76	4.76	2.48	3.48
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.5
114	90.8	131	148	155	134	48.2	53.9	58.9	71.9	81.8	80	77.1
<0.2	0.39	<0.2	<0.2	0.2	<0.2	0.158	0.192	0.21	0.218	0.221	0.24	0.232
34.5	29.8	36.2	37.4	36.3	32	19	21.6	17.9	17.7	18.2	17.2	16.6
0.0101	0.012	0.0109	0.0076	0.0093	0.0153	0.0084	0.0051	0.0077	0.0063	0.0101	0.0125	0.0206
0.137	0.142	0.107	0.113	0.103	<0.05	0.0327	0.0203	0.0103	0.011	<0.025	0.0205	0.064
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.01
0.359	0.329	0.565	0.448	0.506	1.26	0.709	0.492	0.579	0.555	0.978	0.77	0.59
0.0176	0.0232	0.0207	0.0171	0.018	0.0149	0.0174	0.013	0.0156	0.0191	0.0171	0.0272	0.0313
0.019	0.0231	0.0268	0.0226	0.0257	0.222	0.154	0.0206	0.0262	0.0263	0.0263	0.0308	0.0398
0.0291	0.025	0.0378	0.0256	0.0196	0.019	0.0305	0.0398	0.0346	0.0604	0.0762	0.14	0.0589

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.001	0.0017	0.0015	0.0019	0.0012	0.002	0.0067	0.0032	0.0025	0.0043	0.0033	0.0023	0.0024
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00054	0.00048	0.00047	0.00045	0.00046	0.00042	0.00042	0.00045	0.00056	0.00056	0.00055	0.00064	0.00068
0.0857	0.0841	0.0711	0.0741	0.0759	0.0673	0.045	0.0479	0.0576	0.0629	0.0635	0.0685	0.0747
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000027	<0.00001	<0.00001	<0.00001
98.2	93.9	92.9	98.6	105	88.7	59.4	67	72.8	75.6	76.9	81.1	80.6
<0.0001	0.00019	<0.0001	<0.0001	<0.0001	<0.0001	0.00012	0.00012	0.0001	0.0001	0.00011	0.00015	0.00011
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00113	0.00105	0.00104	0.00102	0.00103	0.00105	0.00149	0.00137	0.00131	0.00145	0.00127	0.00135	0.00127
0.02	0.022	0.029	0.016	0.015	0.041	0.032	0.027	0.038	0.051	0.043	0.018	0.039
<0.00005	0.000061	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00881	0.00706	0.00775	0.00817	0.00739	0.00659	0.00442	0.00453	0.00612	0.00718	0.00682	0.00842	0.00811
30.1	28.2	25.6	30.4	29.9	24.5	16.2	16.8	18.9	20.8	19.4	22.2	23.1
0.014	0.0135	0.00834	0.00633	0.00603	0.0186	0.00323	0.00339	0.00597	0.00895	0.00663	0.018	0.0489
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00335	0.00283	0.00309	0.00327	0.00313	0.00308	0.00205	0.00213	0.00255	0.00251	0.00236	0.00311	0.00359
0.0005	<0.0005	0.00055	<0.0005	0.00052	0.00068	0.0008	0.00074	0.0007	0.00108	0.0007	0.00065	0.00062
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9.41	8.4	10.7	10.1	9.81	9.01	6.6	6.97	7.87	8.66	9.13	9.72	9.13
0.00038	0.00038	0.00031	0.00028	0.00031	0.00028	0.00022	0.00023	0.00018	0.00019	0.00021	0.00019	0.00017
9.34	9.21	8	8.48	8.49	8.37	8.53	8.81	8.77	8.07	7.55	9.2	10.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
43.8	36.1	54.4	58.4	58.9	55.6	25.2	28.4	30	37.6	41.4	38.9	38.7
0.41	0.377	0.396	0.422	0.412	0.355	0.229	0.245	0.292	0.322	0.318	0.331	0.37
12	10	12.5	12.4	12.5	11.1	6.74	8	6.31	6.54	6.59	6.04	6.19
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00464	0.00396	0.0049	0.00558	0.00548	0.0044	0.00233	0.0024	0.00246	0.00251	0.00242	0.00296	0.00339
0.0018	0.002	0.0014	0.0015	0.0016	0.0015	0.0021	0.0019	0.0023	0.0019	0.0019	0.0022	0.0025
<0.001	<0.001	<0.001	<0.001	<0.001	0.0012	<0.001	<0.001	0.0013		0.0034	0.0019	<0.001
0.0854	0.0074	0.0896	0.0241	0.0182	1.85	0.733	0.178	0.142	0.124	0.463	0.0833	0.282
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.0005	0.00047	0.00049	0.00047	0.00047	0.00084	0.00058	0.00046	0.00058	0.00061	0.00067	0.00067	0.00077
0.0828	0.0761	0.0698	0.0753	0.0762	0.0989	0.0561	0.0451	0.0567	0.0626	0.0711	0.0727	0.0766

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000055	0.000022	<0.00001	0.000011	0.000012	0.000023	<0.00001	0.000012
91	89.8	90.9	96.1	102	85.9	58.7	63.9	68.7	71.8	74.2	80	79.9
0.0004	0.00025	0.00028	0.00021	0.00015	0.00401	0.00152	0.00045	0.00041	0.00038	0.00104	0.00027	0.00073
0.00012	<0.0001	0.00012	<0.0001	<0.0001	0.00146	0.00056	0.00018	0.00017	0.00017	0.00047	0.00015	0.00024
0.00153	0.00123	0.00145	0.00122	0.00136	0.00881	0.00499	0.00225	0.00203	0.00195	0.00332	0.00194	0.00265
0.152	0.035	0.16	0.053	0.045	3.07	1.14	0.341	0.287	0.268	0.894	0.162	0.478
<0.00005	<0.00005	0.00007	<0.00005	<0.00005	0.00101	0.00036	0.000111	0.00011	0.000087	0.000318	0.000079	0.000144
0.00807	0.00694	0.0073	0.00808	0.00776	0.00799	0.00491	0.00501	0.00576	0.00657	0.00667	0.00756	0.00902
28.7	26.4	24.9	28.6	29.2	24.1	16.2	15.9	17.9	20.1	18.9	22.2	22.9
0.0239	0.0139	0.0164	0.00874	0.00781	0.253	0.0634	0.0217	0.0263	0.0309	0.0852	0.0367	0.0626
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00341	0.00306	0.00322	0.0035	0.00339	0.00327	0.00207	0.00231	0.00245	0.00246	0.00241	0.00301	0.0038
0.00074	<0.0005	0.00075	0.00053	0.0006	0.00381	0.00205	0.00092	0.00099	0.00092	0.0015	0.00089	0.0011
0.059	<0.05	<0.05	<0.05	<0.05	0.212	0.097	<0.05	<0.05	0.051	0.09	<0.05	0.064
8.7	8.04	10.1	9.91	9.56	8.95	6.66	6.56	7.58	8.45	8.77	9.67	9.21
0.00033	0.00038	0.0003	0.00032	0.0003	0.00043	0.00028	0.00026	0.00019	0.00021	0.00029	0.00022	0.00019
9.02	8.9	7.85	8.33	8.41	11.9	9.71	8.52	8.58	8.06	8.28	9.4	10.7
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000038	0.000012	<0.00001	<0.00001	<0.00001	0.000014	<0.00001	<0.00001
41.9	33.5	54.3	57.8	58.4	56.2	24.6	24.4	29.5	37.7	39.6	41.7	39.4
0.41	0.383	0.401	0.421	0.419	0.377	0.224	0.254	0.277	0.305	0.311	0.336	0.384
12.1	9.79	12.7	12.6	12.8	10.9	6.86	7.81	6.07	6.39	6.57	6.2	6.3
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000019	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	0.103	0.038	<0.01	<0.01	<0.01	0.025	<0.01	0.014
0.00461	0.00418	0.00509	0.00579	0.00578	0.00485	0.00239	0.00241	0.00246	0.00255	0.00247	0.00297	0.00348
0.0022	0.002	0.0018	0.0017	0.0018	0.0085	0.0047	0.0025	0.0028	0.0025	0.0036	0.0028	0.0035
<0.003	<0.003	<0.003	<0.003	<0.003	0.0082	0.0032	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
9.12	8.42	12.3	10.6	11.8	11.1	13.8	13.2	13	12.8	14.4	11.3	10
8.9	8.48	12.9	10.5	11.5	13	14.6	14.1	13.3	13.4	16.9	12.9	11.6
L1419486	**L1432163**	**L1434695**	**L1437439**	**L1439655**	**L1441961**	**L1447300**	**L1452368**	**L1459728**	**L1465478**	**L1472862**	**L1481215**	**L1488139**

Baseline Data for Surface Water

ANDR15	ANDR15	ANDR15	ANDR15	ANDER-10	ANDER-10	ANDER-10	ANDER-10	ANDER-10	ANDER-10	ANDER-10	ANDER-10	ANDER-10
29-Jul-14	11-Aug-14	3-Sep-14	17-Sep-14	12-Mar-14	19-Mar-14	26-Mar-14	2-Apr-14	9-Apr-14	23-Apr-14	6-May-14	21-May-14	3-Jun-14
485	598		549	430	392	402	424	390	377	367	524	602
85.9	82.3		92.9	77.9	85.6	77.8	83.1	82.4	84.7	107	97.6	84.8
9.32	8.66		10.8	11.3	12.4	11.3	12	11.7	11.3	12.5	10.1	7.99
8.53	8.27	8.38	8.26	7.84	8.12	7.9	8.11	8.01	8.25	8.36	8.27	8.31
66.7	23		107	37.9	24.8	182	168	153	127	206	60.6	136
0.32	0.38		0.39	0.4	0.36	0.37	0.39	0.29	0.31	0.26	0.33	0.34
650	778		794	821	748	767	805	612	641	533	665	691
17.7	12.9	10.1	8.84	0.05	0.1	0.05	0.22	0.79	3.43	8	13.9	18.3
423	506		516	533	486	499	523	398	417	349	433	449
265	279	266	295	349	321	337	298	254	249	258	266	286
257	269	254	282	349	321	337	289	254	237	258	266	278
8.1	10.4	11.3	13.8	<1	<2	<2	8.6	<2	11.2	<2	<1	7.8
310	317	330	340	385	343	355	346	281	281	278	320	306
<1	<1	<1	<1	<1	<2	<2	<1	<2	<1	<2	<1	<1
8.37	8.44	8.43	8.47	8.38	8.26	8.26	8.3	8.22	8.37	8.26	8.32	8.49
793	778	850	821	809	728	775	714	585	630	595	655	668
476	490	519	563	488	443	435	461	382	388	367	410	415
8.5	3.7	<3	5.6	4	4.3	6.3	14.6	8.8	<3	6	11.4	21.8
1.35	0.4	0.49	0.57	2.31	1.43	1.25	2.94	2.21	0.98	1.33	3.1	6.33
<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05
92.7	85.4	113	97	52.3	45.1	57.4	60.5	40.9	50.4	50.7	46.2	47.5
0.223	0.42	0.217	0.21	0.31	0.19	<0.2	0.17	0.162	0.183	0.195	0.218	0.23
21.7	20.3	25.4	23.7	23.9	20	21.6	22.8	21.5	21	20.2	16.7	13.3
0.0083	0.0146	0.0072	0.0077	0.0619	0.0389	0.0353	0.0234	0.0215	0.0076	0.0075	0.0154	0.0192
<0.05	0.063	<0.05	<0.05	0.142	0.102	0.102	0.064	0.0496	0.0134	0.0054	0.0105	0.022
<0.01	<0.01	<0.01	<0.01	<0.01	0.0028	<0.01	<0.005	0.0017	<0.001	<0.001	<0.001	0.0012
											0.715	
0.447	0.518	0.46	0.565	0.668	0.635	0.605	0.586	0.504	0.619	0.715	0.74	0.922
0.026	0.0307	0.0251	0.0286	0.0777	0.0578	0.0396	0.0355	0.0342	0.0227	0.0194	0.0376	0.0562
0.0303		0.0284	0.0296	0.0858	0.0761	0.0512	0.0467	0.0696	0.0337	0.0278	0.0501	0.0672
0.0365	0.0544	0.0257	0.068	0.0967	0.089	0.0604	0.0761	0.0449	0.0451	0.0384	0.072	0.103

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0018	0.0019	0.0016	0.0016	0.0022	0.0016	0.0012	0.0011	0.0023	0.0022	0.0017	0.0016	0.0019
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00059	0.00068	0.00059	0.00065	0.00121	0.00108	0.00097	0.00093	0.00109	0.00108	0.00112	0.00148	0.00157
0.0736	0.0787	0.0757	0.0802	0.079	0.0691	0.0728	0.0692	0.0593	0.0573	0.0615	0.0707	0.0757
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
85.3	85.9	90.6	91.9	87.2	77.4	79.9	78.9	63.8	65	68.1	74.9	72.7
<0.0001	0.00011	<0.0001	0.00015	0.00016	0.00014	0.00013	0.00012	<0.0001	0.00012	0.00012	0.00014	0.00012
<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.00012	0.00015
0.00126	0.00126	0.00119	0.00126	0.00183	0.0014	0.00115	0.00115	0.00116	0.00141	0.00149	0.00147	0.00145
0.02	0.029	0.025	0.027	0.049	0.052	0.043	0.031	0.037	0.026	0.024	0.037	0.039
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0077	0.00809	0.00874	0.00871	0.00919	0.00795	0.00802	0.00744	0.00739	0.00716	0.00707	0.00834	0.008
23.6	25	25.1	26.7	40.6	36.3	37.7	36.1	29.6	28.9	26.3	32.3	30.2
0.0203	0.0219	0.0134	0.012	0.0695	0.0338	0.0233	0.0271	0.0441	0.0115	0.0161	0.052	0.102
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00345	0.00333	0.00326	0.00327	0.00189	0.00185	0.00186	0.00187	0.00294	0.00269	0.00277	0.00262	0.00229
0.00067	0.00063	0.00063	0.00065	0.00155	0.00125	0.00108	0.00108	0.00094	0.00101	0.00111	0.00125	0.00152
<0.05	<0.05	<0.05	<0.05	0.092	0.081	<0.05	<0.05	0.05	<0.05	<0.05	0.051	0.069
10.1	9.71	11	10.1	9.2	8.98	8.55	8.16	7.2	7.61	7.67	8.57	8.39
0.00016	0.00016	0.00018	0.00017	0.00033	0.00026	0.00022	0.00023	0.00028	0.00027	0.00024	0.00026	0.00023
9.49	10.3	9.1	10.1	11.8	11.5	11.6	11	8.8	9.41	9.28	9.79	8.74
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
44.9	43	51.1	46.9	36.4	31.2	32.2	33	26	28.7	30.8	32.6	31.2
0.367	0.379	0.36	0.398	0.405	0.376	0.369	0.347	0.296	0.281	0.295	0.322	0.33
7.63	7.34	9.01	8.26	8.29	7	7.58	8.11	7.36	7.51	7	6.53	5.25
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00332	0.00352	0.00323	0.00392	0.00258	0.00228	0.00273	0.00271	0.00273	0.00269	0.00241	0.00216	0.00186
0.0019	0.002	0.0017	0.0019	0.0024	0.0023	0.0025	0.0024	0.0026	0.0027	0.003	0.0034	0.0036
<0.001	0.0012	<0.001	<0.001	<0.001	0.0023	0.0013	<0.001	<0.001	0.0011	0.0012	0.0017	<0.001
0.0605	0.12	0.0323	0.115	0.0727	0.0854	0.0508	0.332	0.155	0.0539	0.0866	0.152	0.361
0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00012	<0.0001	<0.0001
0.00071	0.00079	0.00059	0.00066	0.00122	0.00107	0.00097	0.00106	0.00109	0.00102	0.00113	0.00147	0.00161
0.0787	0.086	0.0747	0.0841	0.0783	0.0692	0.0699	0.0743	0.0588	0.0579	0.062	0.0706	0.0812

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
86.4	85.2	86.3	93.3	84.8	75.3	78.3	75.5	60.1	65.4	66.1	71.8	68.7
0.00027	0.00039	0.00021	0.00054	0.00038	0.00034	0.00028	0.00112	0.00059	0.00027	0.00038	<0.0006	0.00107
0.0001	0.00015	<0.0001	0.00014	0.00016	0.00016	0.00013	0.0004	0.00026	0.00011	0.00015	0.00025	0.00047
0.00169	0.00182	0.00144	0.00202	0.00231	0.00196	0.00151	0.00327	0.00255	0.00196	0.00212	0.00242	0.00367
0.113	0.224	0.079	0.211	0.161	0.184	0.129	0.512	0.287	0.103	0.151	0.275	0.618
<0.00005	<0.00005	<0.00005	0.000058	<0.00005	<0.00005	<0.00005	0.000084	0.000131	<0.00005	<0.00005	<0.00005	0.000094
0.00847	0.00838	0.00878	0.00897	0.00923	0.00718	0.00753	0.00759	0.00695	0.00741	0.00695	0.00816	0.00787
24.3	25.2	24.2	26.9	40	34.2	34.4	33.8	28.2	28.3	26.1	31.2	29.5
0.0269	0.0481	0.0207	0.038	0.0814	0.0526	0.035	0.0815	0.0835	0.0215	0.0356	0.0975	0.214
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00376	0.00308	0.00343	0.00378	0.00201	0.00197	0.00194	0.00189	0.003	0.00296	0.0028	0.00274	0.00234
0.00078	0.00083	0.00068	0.00107	0.00188	0.00154	0.00132	0.00274	0.00167	0.00125	0.00143	0.00199	0.00283
<0.05	0.069	<0.05	0.056	0.084	0.09	<0.05	0.087	0.067	0.052	<0.05	0.071	0.118
10.4	9.82	10.6	10.1	9.06	8.62	8.28	7.77	6.75	7.64	7.34	8.28	8.05
0.0002	0.00018	0.00016	0.00017	0.0003	0.00026	0.00023	0.00025	0.00028	0.00025	0.00025	0.00025	0.00027
9.96	10.5	8.86	10.4	11.8	11.2	11.3	11.3	8.79	9.53	9.18	9.79	9.34
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
48.7	45.5	51.1	47.8	36.5	29.4	32.2	32.5	25	28.5	29.9	31.3	30.6
0.397	0.345	0.378	0.429	0.399	0.393	0.359	0.338	0.287	0.293	0.284	0.325	0.328
8.08	7.55	8.97	8.69	8.35	7.16	7.63	8.14	7.29	7.56	6.98	6.39	5.11
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00081	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	0.013
0.00381	0.00316	0.00332	0.00421	0.00261	0.00234	0.00274	0.00266	0.00276	0.00284	0.00251	0.00228	0.0019
0.0023	0.0028	0.0019	0.0026	0.0027	0.0027	0.0026	0.0035	0.0033	0.0029	0.0033	0.004	0.0045
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10.3	9.09	12.2	9	12.8	12.3	11.2	11	9.75	12.8	13.7	14.4	14.9
9.8	10.4	12.1	11.6	12.9	12.1	11.6	11.4	10.1	13	14.1	15	16
L1494491	**L1500711**	**L1513418**	**L1519657**	**L1432163**	**L1434695**	**L1437439**	**L1439467**	**L1441961**	**L1446462**	**L1451608**	**L1458340**	**L1465108**

Baseline Data for Surface Water

ANDER-10	ANDER-10	ANDER-10	ANDER-10	ANDER-10	ANDER-10	ANDER-10	HUMPH02	HUMPH02	HUMPH02	HUMPH02	HUMPH02	HUMPH02
17-Jun-14	3-Jul-14	15-Jul-14	29-Jul-14	11-Aug-14	3-Sep-14	17-Sep-14	13-Mar-14	21-Mar-14	26-Mar-14	3-Apr-14	10-Apr-14	24-Apr-14
543	602	499	554	627		554	904	840	814	919	854	859
84.5	79.3	88.3	85	79.8		9.14	83.9	82.4	79.5	70.7	88.6	83.9
8.58	7.86	8.74	8.57	8.49		7.82	11.6	11	10.2	8.91	11.3	10.5
8.41	8.36	8.73	8.47	7.94	8.23		8.33	8.14	8.24	8.28	8.27	8.3
81.5	79.6	161	121	192		0	64.5	52.3	117	-0.9	-70.4	87.8
0.33	0.36	0.3	0.34	0.41		76.5	0.81	0.72	0.66	0.74	0.69	0.68
677	733	603	685	824		832	1619	1443	1330	1470	1384	1354
14.6	15.6	15.8	15	12.4	11	7.53	1.87	3.11	4.72	5.37	4.98	5.85
441	476	396	446	536		541	1052	937	863	955	900	880
282	310	323	334	385	401	404	469	484	289	473	495	481
262	295	306	325	385	384	399	469	476	188	443	450	439
19.2	14.2	17.4	9.2	<2	16.3	4.7	<2	8.5	101	30.1	45.2	42.1
306	326	360	347	379	418	400	850	782	760	733	721	675
<1	<1	<1	<1	<2	<1	<1	<2	<1	<1	<1	<1	<1
8.46	8.47	8.38	8.36	8.29	8.4	8.31	8.28	8.44	8.39	8.39	8.36	8.49
665	710	770	774	840	867	860	1540	1450	1420	1380	1370	1310
410	441	471	479	527	529	556	1000	1050	1010	988	963	946
13.7	10.1	13.6	3.6	124	<3	3.2	17.7	19.3	28.3	14.5	13	11.6
4.99	3.87	2.14	1.44	15.9	1.31	1	7.22	5.55	4.9	3.24	2.14	1.89
<0.25	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
52.4	59	61.4	60.7	58.3	58.8	59.5	25.4	30.6	28.4	29.1	30.4	32.1
0.219	0.241	0.229	0.244	0.37	0.199	<0.2	0.36	0.25	0.25	0.26	0.28	0.26
11.9	11.9	12.4	11.8	18.1	23	26.4	478	386	369	342	329	313
0.0117	0.0244	0.0307	0.0167	0.0164	0.0103	0.0074	0.0237	0.018	0.012	0.0105	0.0077	0.0062
<0.025	0.0541	<0.05	<0.05	<0.05	<0.05	<0.05	0.053	0.18	0.129	0.088	0.055	<0.05
<0.005	0.002	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.934	0.873	1.89	0.807	0.693	0.658	0.535	0.92	0.678	0.679	0.605	0.646	0.552
0.034	0.0659	0.0787	0.0803	0.0926	0.0843	0.0706	0.0866	0.0817	0.0771	0.0753	0.0744	0.0767
0.0456	0.0747	0.096	0.0916		0.0894	0.0713	0.0893	0.0901	0.0879	0.114	0.0777	0.094
0.0772	0.0985	0.486	0.115	0.137	0.0808	0.0626	0.144	0.152	0.16	0.0811	0.092	0.0813

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0019	0.0019	0.0176	0.0021	0.0013	0.0011	0.0028	0.0019	<0.001	0.0014	<0.001	<0.001	<0.001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.00026	0.00021	0.00023	0.00023	0.00021
0.00124	0.00166	0.00208	0.00203	0.00166	0.00173	0.00117	0.0028	0.00352	0.00331	0.00325	0.00356	0.00345
0.0695	0.0771	0.0805	0.0785	0.0826	0.0768	0.0849	0.069	0.0635	0.0586	0.0547	0.0552	0.0554
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.039	0.029	0.029	0.027	0.026	0.028
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
73.3	75.5	81.2	79.1	84.6	92.5	89.4	132	121	113	114	113	106
0.00012	0.00014	0.00018	0.00016	0.00012	0.00014	0.00012	0.00044	0.00013	0.00012	0.00014	0.00012	0.00016
0.00012	0.00016	0.00018	0.00017	0.00026	0.00021	0.00015	<0.0001	0.00011	<0.0001	<0.0001	<0.0001	<0.0001
0.00123	0.00159	0.00199	0.00177	0.00114	0.00152	0.00109	0.004	0.00632	0.00608	0.00629	0.00681	0.00635
0.034	0.046	0.094	0.054	0.055	0.083	0.036	0.028	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000186	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00811	0.00827	0.00976	0.00897	0.00966	0.0102	0.0106	0.00715	0.00699	0.00717	0.00643	0.00673	0.00646
29.9	33.5	38.3	36.3	40.6	45.5	42.9	126	117	116	109	107	99.5
0.0555	0.159	0.243	0.196	0.962	0.283	0.289	0.0248	0.0153	0.0126	0.00971	0.00772	0.00923
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00175	0.00196	0.00232	0.00207	0.00192	0.00192	0.0021	0.0199	0.0248	0.0245	0.0242	0.0239	0.0235
0.00122	0.00197	0.00224	0.00233	0.00248	0.00234	0.00211	0.00134	0.00135	0.00113	0.00114	0.00123	0.00115
0.053	0.079	0.102	0.11	0.119	0.105	0.069	0.096	0.101	0.071	0.095	0.074	0.078
8.86	9.77	10.7	10.4	9.37	10.2	9.61	14.5	15.2	14.2	13.8	13.7	13.2
0.00022	0.00023	0.00026	0.00026	0.0002	0.00025	0.00017	0.00211	0.00618	0.00486	0.00505	0.00477	0.00448
6.63	7.21	9.09	9.33	13.5	12.1	12.1	9.5	8.79	8.64	8.29	8.4	8.04
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
31.8	36	38.6	39	40.7	41.2	40.6	68.5	65.6	63.7	62.5	63.7	63.8
0.315	0.367	0.426	0.407	0.469	0.461	0.46	1.19	1.01	0.985	0.959	0.955	0.972
4.67	4.43	4.81	4.51	6.64	8.51	9.35	150	123	113	110	109	100
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00166	0.00134	0.00125	0.00114	0.000958	0.00133	0.00156	0.0038	0.00471	0.00455	0.0045	0.00435	0.004
0.0029	0.0028	0.0025	0.0021	0.0015	0.0018	0.0013	0.0042	0.0049	0.0052	0.0051	0.0053	0.0051
0.0068	<0.001	<0.001	<0.001	0.0016	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
0.331	0.104	<0.003	0.0339	0.117	0.0524	0.0172	0.19	0.345	0.36	0.205	0.18	0.156
<0.0001	<0.0001	<0.0001	0.00011	<0.0001	0.0001	<0.0001	0.0002	0.00028	0.00023	0.00026	0.00021	0.00022
0.00137	0.0018	0.00199	0.00196	0.00178	0.0018	0.00123	0.00275	0.00338	0.00326	0.00332	0.00333	0.00329
0.0749	0.0787	0.0789	0.0788	0.0829	0.078	0.089	0.0717	0.0687	0.0637	0.0605	0.0585	0.0595

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	0.011	<0.01	0.013	0.012	0.017	0.04	0.032	0.032	0.03	0.029	0.028
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000012	0.000016	0.000012	0.000012	0.000012	0.000011
70.9	74.1	79.3	77.7	80.9	90.9	89.5	129	116	107	111	109	108
0.00098	0.00047	0.00017	0.00025	0.0005	0.00035	0.0003	0.00055	0.00086	0.00093	0.00057	0.00055	0.00047
0.00041	0.00028	0.00018	0.0002	0.00036	0.00027	0.00018	0.00027	0.00049	0.00047	0.0003	0.00031	0.0003
0.00283	0.00265	0.00192	0.00202	0.00183	0.00195	0.00119	0.00741	0.0134	0.0143	0.0111	0.0112	0.0111
0.513	0.2	0.051	0.102	0.299	0.2	0.112	0.282	0.518	0.571	0.327	0.32	0.243
0.000077	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00007	0.000132	0.000131	0.000074	0.000088	0.000071
0.00858	0.00819	0.0083	0.00858	0.00958	0.00978	0.0105	0.00696	0.00734	0.00651	0.00691	0.00659	0.00635
29.4	33	37.2	36.1	39.4	45.6	44.1	122	110	103	107	103	101
0.137	0.185	0.231	0.207	1	0.301	0.32	0.065	0.0848	0.0739	0.0458	0.0537	0.0454
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00211	0.00201	0.00239	0.00214	0.00202	0.00212	0.00236	0.0199	0.0251	0.024	0.0253	0.0239	0.0238
0.00257	0.00244	0.00228	0.00248	0.00302	0.00289	0.00228	0.00186	0.00252	0.00242	0.00185	0.0019	0.00179
0.08	0.102	0.099	0.108	0.127	0.108	0.091	0.122	0.13	0.126	0.116	0.105	0.106
8.82	9.66	10	10.3	9.08	10	9.89	14.1	14.1	13.3	13.3	12.9	13.6
0.00023	0.00025	0.00023	0.00024	0.00022	0.00024	0.00019	0.00196	0.0051	0.00477	0.00492	0.00443	0.00384
7.45	7.46	8.92	9.25	13.3	12	12.6	9.67	9.13	9.02	8.64	8.48	8.44
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000017	<0.00001	<0.00001	<0.00001	<0.00001
32.3	36.5	36	39.3	39.3	41.5	37.7	67.2	64.9	59.8	63	62.9	63.1
0.357	0.369	0.41	0.41	0.462	0.473	0.478	1.16	1.04	0.967	0.985	0.982	0.969
4.78	4.55	5.03	4.6	6.59	8.69	9.95	147	122	110	111	109	102
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	<0.0001
0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	0.015	<0.01	<0.01	<0.01
0.00185	0.00138	0.00132	0.00118	0.00101	0.00138	0.00172	0.00386	0.00476	0.0044	0.00462	0.00431	0.00405
0.004	0.0033	0.0025	0.0023	0.0019	0.0021	0.0015	0.0049	0.0062	0.0064	0.0062	0.0061	0.0058
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
16.1	15	15.2	16.3	12.8	14.8	12.4	9.93	10.9	10.2	10.8	9.87	9.63
16.3	15.9	26.8	16.4	13.1	15.4	12.9	13.3	11.5	12.3	12.4	11.8	10.1
L1472862	**L1481215**	**L1488139**	**L1494491**	**L1500711**	**L1513418**	**L1519657**	**L1432163**	**L1435186**	**L1437439**	**L1439655**	**L1442672**	**L1447300**

Baseline Data for Surface Water

HUMPH02	HUMPH02	HUMPH02	HUMPH02	HUMPH02	HUMPH02	HUMPH02	HUMPH02	HUMPH02	HUMPH02	HUMPH-08	HUMPH-08	HUMPH-08
7-May-14	22-May-14	4-Jun-14	17-Jun-14	3-Jul-14	15-Jul-14	29-Jul-14	11-Aug-14	3-Sep-14	17-Sep-14	22-May-14	5-Jun-14	17-Jun-14
814	861	772	600	828	767	828	920		882	750	709	714
106	87	104	899	88.1	96.7	88.3	89.8		89.4	76.4	73.2	90.9
13.3	9.82	12.2	9.89	9.01	9.67	9.1	9.43		10	8.05	8.15	9.98
8.37	8.39	8.35	8.5	8.41	8.54	8.68	8.4	8.5	8.36	8.23	8.35	8.47
217	58.9	151	80.9	68.4	118	48.9	54		109	45.9	56.8	72.4
0.64	0.61	0.57	0.41	0.52	0.417	0.52	0.6		0.62	0.48	0.49	0.48
12850	1215	1141	825	1044	942	1051	1187		1231	975	981	972
5.8	9.79	8.07	10.7	14.7	15.3	13.9	13	11.5	10.1	12.9	10.5	11.2
832	789	742	542	679	612	683	780		800	630	638	632
475	465	443	482	453	442	473	489	494	508	413	433	431
442	444	425	429	434	409	440	460	452	464	405	397	385
32.8	21.4	17.3	53.3	19.4	33.1	32.9	28.3	41.3	44.1	7.7	36.2	45.3
17.7												
651	597	639	632	489	483	562	583	635	642	458	447	451
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
8.43	8.48	8.51	8.53	8.54	8.45	8.49	8.49	8.52	8.56	8.48	8.4	8.54
1240	1210	1200	1230	1000	1030	1150	1230	1260	1270	973	934	949
851	800	801	826	493	664	728	804	858	934	566	586	572
19.7	5.8	22.7	9.4	4.3	3.9	9.3	4.6	10.5	9.1	49.7	26.5	22.1
3.39	0.47	7.59	1.95	1.12	0.98	3.52	1.4	2.56	1.88	12.9	10	9.05
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
34	32.4	35.2	32.2	47.7	48.9	45.3	43.1	38.2	40.9	37	39.3	44.4
0.23	0.28	0.26	0.285	0.27	0.293	0.282	0.4	0.257	0.25	0.23	0.22	0.24
248	230	224	231	95.5	84.9	158	200	217	238	91.7	80.2	76.2
0.0063	0.0083	0.0071	0.0073	0.0186	0.019	0.0112	0.012	0.0107	0.0098	0.0207	0.0166	0.0115
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.055	<0.05	<0.05	<0.05	0.066	0.063
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.591	0.597	0.916	0.611	0.97	1.05	0.86	0.805	0.598	0.637	0.905	0.653	0.819
0.0864	0.0819	0.0856	0.0834	0.123	0.133	0.0934	0.0961	0.102	0.103	0.13	0.114	0.107
0.0921	0.0875	0.0891	0.0878	0.146	0.16	0.0995		0.138	0.12	0.153	0.115	0.118
0.142	0.0914	0.114	0.116	0.141	0.166	0.114	0.132	0.153	0.166	0.222	0.155	0.187

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0013	0.0016	<0.001	0.0018	0.0018	0.0019	0.0018	0.0026	0.0017	0.0021	0.0014	<0.001	0.002
0.00019	0.00021	0.00021	0.00021	0.00019	0.00018	0.00021	0.00018	0.00013	0.00014	0.00021	0.00019	0.00017
0.00327	0.00383	0.00361	0.00358	0.00306	0.00327	0.00346	0.00318	0.00319	0.00291	0.00384	0.00389	0.00406
0.0567	0.0567	0.0528	0.0576	0.0672	0.067	0.065	0.0675	0.0648	0.0651	0.0689	0.0648	0.065
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.023	0.029	0.029	0.032	0.029	0.033	0.033	0.037	0.034	0.034	0.031	0.028	0.029
<0.00001	<0.00002	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
99.2	92.7	96.8	99.6	69.8	68.8	86.7	90.6	101	101	66.1	64.5	66
0.00016	0.00021	0.00015	0.00014	<0.0001	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	0.00023	0.00027	0.00027
<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.00013	<0.0001	<0.0001	<0.0001	<0.0001	0.00019	0.00015	0.00012
0.00724	0.00741	0.00671	0.00641	0.00732	0.00722	0.00679	0.00631	0.00547	0.00512	0.00534	0.00523	0.00515
	<0.00002		<0.00002									
<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.012	0.012	0.012	0.023	0.017	0.011
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00643	0.00702	0.0066	0.00672	0.00783	0.00804	0.00766	0.00753	0.00759	0.00775	0.00668	0.00614	0.00595
98.1	88.9	96.6	93	76.5	75.6	83.8	86.5	92.9	94.7	71.1	69.5	69.6
0.00531	0.00697	0.0103	0.0128	0.00358	0.00583	0.00923	0.0204	0.0241	0.0216	0.0434	0.0348	0.0308
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0205	0.0226	0.0233	0.0228	0.0126	0.0135	0.0212	0.0191	0.0172	0.017	0.0119	0.0124	0.0126
0.00121	0.00128	0.0012	0.00122	0.00152	0.00166	0.00142	0.00138	0.00128	0.00145	0.00224	0.00174	0.00165
0.099	0.078	0.081	0.093	0.138	0.145	0.109	0.115	0.113	0.118	0.144	0.133	0.126
13.8	13.2	13.9	14.5	18	17	15.7	15.5	15.4	15.1	15.4	15.3	16.3
0.00333	0.0027	0.0021	0.00178	0.00072	0.00064	0.0008	0.00056	0.00073	0.00075	0.0013	0.00101	0.00085
8.51	8.64	8.96	9.15	7.98	8.45	9.75	9.96	10.4	10.3	8.31	8.21	8.32
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
57.3	62.5	58.8	60.3	54.4	57.8	60	63	59.4	63.6	50	50.9	51
0.83	0.888	0.815	0.839	0.593	0.621	0.81	0.892	0.875	0.962	0.595	0.536	0.509
84.7	72.5	76.9	75.6	31.1	28.4	52.2	64.3	73	76.2	29.7	26.7	25.3
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00377	0.00363	0.0036	0.00326	0.00258	0.0024	0.00277	0.0026	0.00243	0.00251	0.00315	0.00321	0.00334
0.0052	0.0059	0.0055	0.0054	0.0056	0.0044	0.0048	0.0039	0.0034	0.0033	0.0076	0.0074	0.0074
<0.001	0.0011	<0.001	<0.001	<0.001	<0.001	0.0011	<0.001	0.0018	<0.001	<0.001	<0.001	0.0018
0.192	0.186	0.0788	0.129	0.0484	0.0604	0.07	0.054	0.182	0.211	1.18	0.604	0.518
0.00024	0.00021	0.00021	0.00019	0.0002	0.00019	0.00021	0.00018	0.00018	0.00016	0.00024	0.00023	0.00019
0.00317	0.00341	0.00331	0.00332	0.00312	0.00305	0.00327	0.00322	0.00297	0.00311	0.00403	0.00397	0.00414
0.0604	0.06	0.0515	0.0554	0.0684	0.0659	0.0628	0.0673	0.0685	0.0713	0.0794	0.0707	0.0701

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.024	0.028	0.032	0.035	0.032	0.032	0.032	0.043	0.038	0.041	0.032	0.029	0.031
0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	0.000018	0.000013	0.000015
99.5	93.2	90.1	95.1	68.7	67.9	81.3	90.5	102	102	62.7	62.5	62.5
0.00064	0.00059	0.00033	0.00046	0.00027	0.00025	0.00023	0.00021	0.0005	0.00058	0.00317	0.00171	0.00162
0.00035	0.00027	0.00014	0.0002	0.00016	0.00017	0.00016	0.00015	0.0003	0.00028	0.00105	0.00054	0.0005
0.0143	0.0117	0.00864	0.0101	0.00892	0.00871	0.00909	0.00821	0.00967	0.00956	0.0171	0.0123	0.0124
0.341	0.294	0.114	0.197	0.072	0.095	0.096	0.087	0.29	0.285	1.65	0.811	0.727
0.000092	0.000065	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000109	0.000065	0.000294	0.000118	0.000116
0.00675	0.00681	0.00634	0.0065	0.00794	0.00676	0.00694	0.00774	0.00758	0.00802	0.00744	0.00602	0.00581
89.9	89.3	91.4	87.9	75.8	72.9	78.5	86.9	94.8	96	69.2	68.1	66.9
0.0399	0.0317	0.0189	0.0308	0.00848	0.0125	0.0227	0.0282	0.0587	0.0552	0.0656	0.0472	0.0421
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0219	0.0234	0.0229	0.0228	0.0136	0.014	0.02	0.0206	0.0183	0.0188	0.0127	0.0126	0.0128
0.00202	0.00197	0.00139	0.00162	0.00178	0.00184	0.00166	0.0015	0.00193	0.00209	0.00575	0.00345	0.00333
0.122	0.106	0.1	0.105	0.137	0.158	0.108	0.095	0.127	0.14	0.208	0.161	0.153
13.3	13.2	12.9	13.6	17.4	16.5	14.8	15.5	15.4	15.3	14.8	14.9	15.6
0.00292	0.00245	0.00173	0.00162	0.00057	0.00059	0.00077	0.0007	0.00071	0.00077	0.00133	0.00091	0.00082
8.76	9.12	8.64	9.24	8.04	8.43	9.29	10.1	11	11	10.8	9.63	9.39
0.00003	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000103	<0.00001	0.000013
56.3	60.6	55.7	57.1	56	51.4	56.2	60.8	59.8	64.9	49.3	49	50.2
0.846	0.855	0.794	0.833	0.617	0.599	0.775	0.906	0.919	0.99	0.62	0.515	0.503
85.4	74.3	74.5	75	32.5	28.8	49.7	66.6	76	80.3	29.1	26.6	25.6
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.047	0.027	0.02
			<0.00002									
0.00399	0.00384	0.0035	0.00327	0.0027	0.00249	0.00263	0.00272	0.00257	0.00271	0.00326	0.00341	0.00343
0.0063	0.0067	0.0057	0.0058	0.0062	0.0045	0.005	0.0041	0.004	0.0044	0.0112	0.0092	0.0088
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0031	0.0033	<0.003	<0.003
10.4	9.83	9.31	9.8	17.2	17.1	12.8	11.9	11.5	11.1	11.1	9.14	9.48
10.6	10.3	20.6	10.8	16.4	17	13.2	12.1	12.4	12.6	14.4	10.5	12
L1452368	**L1459064**	**L1465478**	**L1472862**	**L1481215**	**L1488139**	**L1494491**	**L1500711**	**L1513418**	**L1519657**	**L1459064**	**L1466627**	**L1472862**

Baseline Data for Surface Water

HUMPH-08	HUMPH-08	HUMPH-08	HUMPH-08	HUMPH-08	HUMPH-08	HUMPH-10	HUMPH-10	HUMPH-10	HUMPH-10	HUMPH-10	HUMPH-10	HUMPH-10
3-Jul-14	15-Jul-14	30-Jul-14	11-Aug-14	3-Sep-14	18-Sep-14	12-Mar-14	19-Mar-14	26-Mar-14	2-Apr-14	9-Apr-14	23-Apr-14	6-May-14
855	792	686	836		723	386	588	539	672	511	638	364
81.2	86.4	83.3	76.1		73.4	56.9	73.6	66.6	67.9	52.9	82.8	114
7.32	7.63	8.68	7.21		7.74	7.57	9.61	8.89	7.79	6.81	9.41	12
8.41	8.53	8.59	8.46	8.57	8.28	7.75	7.86	7.75	7.78	7.76	7.92	8.72
76.8	93	171	72.3		134	-24.3	-9	30.7	54.3	-22.8	49	175
0.47	0.42	0.44	0.48		0.47	0.32	0.48	0.45	0.48	0.41	0.45	0.45
942	850	884	964		942	658	982	926	963	837	906	908
20.1	21.4	13.1	18.1	13.8	12.8	3.48	3.95	3.09	9.16	4.61	9.53	12.3
612	553	575	627		613	427	638	602	626	544	588	591
427	415	462	465	472	463	280	451	452	438	382	407	411
410	385	433	433	430	463	280	451	452	438	382	407	379
16.7	29.8	29.3	31.5	42.1	<1	<1	<2	<2	<2	<2	<2	31.9
418	407	432	429	461	447	292	437	437	418	369	394	401
<1	<1	<1	<1	<1	<1	<1	<2	<2	<2	<2	<2	<1
8.55	8.44	8.43	8.56	8.59	8.63	8.33	8.22	8.24	8.2	8.1	8.28	8.59
898	920	973	974	990	970	671	959	926	877	820	887	874
487	578	577	605	593	616	372	546	537	541	497	469	490
40.5	66.8	42.8	12.8	17.2	24.9	6.4	8.3	7.1	4.5	14.1	<3	84.5
13	15.1	14.7	6.47	9.27	17.4	3.51	0.78	0.84	2.14	1.45	0.92	0.98
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
49	50.3	47.6	45	41.4	39.6	31.1	52.5	49.5	47.4	41	41.2	50.5
0.24	0.255	0.24	0.43	0.236	0.235	0.177	0.23	0.24	0.25	0.25	0.24	0.23
41.7	38.8	47.3	53.5	68.1	75.7	32.4	39.2	37.9	37.8	37	52.6	42.9
0.0433	0.0654	0.0328	0.024	0.0183	0.0273	0.386	0.088	0.0571	0.0769	0.0869	0.0782	0.0199
<0.05	0.078	0.064	0.071	0.118	0.165	0.0779	0.068	<0.05	<0.05	<0.05	<0.05	<0.05
<0.01	0.014	0.012	<0.01	<0.01	<0.01	0.0058	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.83	1.73	1.28	1.02	0.709	0.9	2.13	1.16	1.21	1.01	1.32	1.11	1.53
0.153	0.183	0.158	0.137	0.135	0.137	0.401	0.0493	0.0423	0.0363	0.0434	0.0543	0.0098
0.192	0.242	0.167		0.169	0.179	0.479	0.0697	0.058	0.0529	0.107	0.0636	0.0316
0.294	0.332	0.298	0.176	0.201	0.245	0.574	0.113	0.14	0.11	0.0595	0.103	0.0528

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0045	0.0101	0.0023	0.0026	0.0015	0.0017	0.0027	0.0016	<0.001	0.0017	<0.001	<0.001	0.0028
0.00014	0.00014	0.00019	0.0002	0.0002	0.00022	<0.0001	<0.0001	<0.0001	0.00011	<0.0001	0.00011	0.00013
0.00245	0.00264	0.0048	0.00497	0.00521	0.00492	0.00133	0.00149	0.00137	0.00158	0.00143	0.00153	0.00158
0.0618	0.0582	0.0695	0.0772	0.0733	0.0748	0.0658	0.0903	0.0879	0.093	0.0805	0.0828	0.0576
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.019	0.022	0.027	0.033	0.029	0.032	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	0.015
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
48.4	46	61.3	62.5	67.5	66.4	33.3	47.5	45.5	45.2	41.2	42.1	42.4
<0.0001	0.00014	0.00015	0.00016	0.00023	0.00021	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00029	0.00029	0.00017	0.00013	0.00012	0.00015	0.00055	0.00053	0.00049	0.00062	0.00072	0.00077	0.00023
0.00292	0.00314	0.00494	0.00589	0.0055	0.00463	0.00399	0.00329	0.00308	0.00269	0.00296	0.00331	0.00142
0.026	0.041	0.015	0.011	<0.01	<0.01	0.086	0.074	0.076	0.055	0.095	0.097	0.024
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00989	0.011	0.00698	0.00702	0.00705	0.00687	0.00424	0.00601	0.00513	0.00596	0.00508	0.00506	0.0107
72.2	71	67.8	66.3	71.1	68.2	50.6	77.4	78.6	74	64.7	70.2	71.8
0.03	0.0365	0.0556	0.0233	0.0181	0.0275	0.221	0.262	0.232	0.283	0.385	0.428	0.0717
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000013	0.000012	0.00001	<0.00001
0.00387	0.00422	0.0127	0.0147	0.0156	0.0155	0.00455	0.00442	0.00379	0.00498	0.00435	0.00463	0.00285
0.00175	0.00174	0.00204	0.00184	0.00155	0.00148	0.00366	0.00457	0.00426	0.00477	0.00473	0.00463	0.00127
0.182	0.221	0.167	0.164	0.145	0.161	0.504	0.059	0.066	0.063	0.074	0.089	<0.05
20.5	18.7	18.9	18	18.2	18.1	13	13.4	13	13.5	12.4	12.9	17.1
0.00019	0.00018	0.00064	0.00081	0.00114	0.00132	0.0001	0.00012	0.00011	0.00013	0.00012	0.00021	0.00013
3.23	3.65	9.16	8.98	8.99	8.71	3.64	4.14	4.05	4.22	4.2	4.59	0.761
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
54.2	57.2	52.9	58.3	53.3	50.6	36.4	60.2	58	58.2	53.6	51.1	53.3
0.354	0.371	0.513	0.555	0.561	0.537	0.27	0.402	0.37	0.379	0.345	0.353	0.299
14.6	13.7	15.6	18.1	22.7	24.8	10.8	13.7	12.9	13.2	12.5	18	14.4
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00183	0.00172	0.00262	0.00302	0.00352	0.00338	0.00144	0.00216	0.0021	0.00216	0.00178	0.00169	0.00193
0.0043	0.004	0.0076	0.0099	0.0099	0.0103	0.002	0.0013	0.0012	0.0018	0.0015	0.0019	0.0026
<0.001	0.0028	<0.001	0.0014	<0.001	<0.001	0.0015	<0.001	<0.001	<0.001	0.0017	<0.001	<0.001
0.276	3.42	1.37	0.302	0.455	1.05	0.0857	0.0187	0.0329	0.121	0.47	0.0161	0.0376
0.00016	0.00024	0.00023	0.00023	0.00023	0.00023	<0.0001	<0.0001	<0.0001	0.00012	0.00013	0.00012	0.00017
0.00253	0.00353	0.00482	0.00437	0.00517	0.0049	0.00146	0.00147	0.00142	0.00161	0.00179	0.0016	0.00148
0.0661	0.0992	0.0829	0.069	0.0781	0.0793	0.0654	0.09	0.0918	0.0935	0.112	0.0889	0.0563

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.021	0.026	0.029	0.037	0.033	0.037	0.014	<0.01	<0.01	0.014	0.014	<0.01	0.015
<0.00001	0.000028	0.000017	<0.00001	0.00001	<0.00001	0.000013	<0.00001	<0.00001	<0.00001	0.000018	<0.00001	<0.00001
47.2	47.2	60.3	60.6	67.2	60.8	32.7	46.9	44.9	42.5	40.3	43.1	40.3
0.00084	0.00744	0.00352	0.00088	0.00144	0.00282	0.00024	0.00013	0.00013	0.00031	0.00088	0.00012	0.00015
0.00068	0.00253	0.00112	0.00032	0.00043	0.00088	0.00066	0.00058	0.00066	0.00073	0.00184	0.00085	0.00028
0.00935	0.0295	0.0192	0.00933	0.0113	0.0154	0.00601	0.00529	0.00559	0.00611	0.00916	0.00646	0.00203
0.374	3.88	1.89	0.451	0.614	1.46	0.206	0.147	0.174	0.337	0.836	0.207	0.073
0.00015	0.000626	0.000272	0.000067	0.000101	0.000197	<0.00005	<0.00005	<0.00005	<0.00005	0.000121	<0.00005	<0.00005
0.0094	0.0125	0.00732	0.00704	0.00727	0.00721	0.00407	0.00534	0.00544	0.00562	0.00504	0.00528	0.00972
69.8	70.5	68.1	64.5	71.6	64.2	49.9	72.8	73.5	68	62.7	67.7	65.8
0.0521	0.16	0.0866	0.0288	0.0315	0.0491	0.254	0.273	0.309	0.278	1.04	0.454	0.081
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000014	0.000015	0.000017	0.000025	0.000027	0.000023	<0.00001
0.00367	0.00433	0.0129	0.015	0.0167	0.0154	0.00505	0.00474	0.00413	0.00512	0.0041	0.00512	0.00273
0.00332	0.0102	0.00611	0.00253	0.00312	0.0048	0.00384	0.00459	0.00474	0.00502	0.00666	0.00504	0.00149
0.216	0.425	0.246	0.177	0.188	0.198	0.63	0.087	0.084	0.107	0.179	0.141	0.051
18.5	18.4	18.7	17.5	18.2	16.8	12.9	12.9	12.6	12.7	12.2	13.2	16
0.0002	0.00048	0.00066	0.00078	0.0011	0.00126	0.00013	0.00011	0.00011	0.00012	0.00017	0.00021	0.00012
3.61	11.2	12.7	9.59	10.1	11	3.85	4.06	4.02	4.28	5.13	4.67	0.79
<0.00001	0.000032	0.000024	0.000011	<0.00001	0.000017	0.000016	0.000016	0.000016	0.000019	0.000061	0.000019	<0.00001
53.7	54.3	51.8	47.9	53.7	47.1	36.2	57.8	57.2	56.4	52.5	52.9	54.2
0.359	0.412	0.506	0.544	0.577	0.53	0.266	0.425	0.379	0.357	0.352	0.373	0.279
14.8	13.8	16.1	18.1	23.3	23.7	10.9	13.9	13.4	13.2	12.7	18.9	14.4
<0.00001	0.000016	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	0.13	0.053	0.013	0.019	0.04	<0.01	<0.01	<0.01	<0.01	0.016	<0.01	<0.01
0.00188	0.0019	0.00283	0.00316	0.0037	0.00333	0.00156	0.00225	0.00222	0.00221	0.00187	0.00182	0.00189
0.0054	0.0133	0.0116	0.0096	0.0115	0.013	0.0024	0.0016	0.0015	0.0023	0.0034	0.0022	0.0028
0.0031	0.0087	0.0041	0.0034	<0.003	0.0043	<0.003	<0.003	<0.003	<0.003	0.0055	<0.003	<0.003
19.7	20.2	13.8	11.6	10.7	10.6	16.9	16.4	16.2	15.8	14.3	15.3	17.7
19.7	21.1	20.1	11.9	12.2	12.6	18	16.8	16.1	16.3	15.4	15.6	18.3
L1481215	**L1488139**	**L1495443**	**L1500711**	**L1513418**	**L1520952**	**L1432163**	**L1434695**	**L1437439**	**L1439467**	**L1441961**	**L1446462**	**L1451608**

Baseline Data for Surface Water

HUMPH-10	HUMPH-10	HUMPH-10	HUMPH-10	HUMPH-10	HUMPH-10	HUMPH-10	HUMPH-10	MAKAOO-01	MAKAOO-01	MAKAOO-01	MAKAOO-01	MAKAOO-01
21-May-14	3-Jun-14	17-Jun-14	3-Jul-14	15-Jul-14	29-Jul-14	11-Aug-14	3-Sep-14	5-Jun-14	18-Jun-14	4-Jul-14	15-Jul-14	28-Jul-14
797	831	930	812	727	895	898		1217	1356	5259	1595	1758
95.6	55.4	65.1	87.1	85.7	49.7	79.4		123	186	84.9	129	108
9.08	5.38	5.78	7.86	7.38	3.75	6.88		11.1	12.1	6.92	11	9.53
8.49	7.81	7.96	8.91	9.11	7.99	7.77	8.25	8.56	9.24	9.57	9.67	9.89
35.4	39.6	82.7	31.2	53.1	55.2	35.8		132	58.6	-63.7	-61.7	67.8
0.46	0.49	0.5	0.44	0.4	0.42	0.47		0.67	0.77	2.87	0.84	0.96
932	992	1007	892	813	865	951		1342	1528	5272	1657	1891
17.8	16.5	20.9	20.3	22.7	26.9	22	17.5	20.1	19.1	24.6	23.1	21.3
600	645	655	580	529	591	618		872	993	3459	1077	1229
								1.7				
								1.1				
406	419	474	414	396	487	474	462	160	179	208	205	204
397	419	436	361	340	487	474	438	160	167	162	105	85
8.7	<1	37.9	52.7	55.4	<2	<1	24.6	<2	12.6	45.7	99.4	119
421	424	436	403	397	411	397	415	566	675	746	806	866
<1	<1	<1	<1	<1	<2	<1	<1	<2	<1	<1	<1	<1
8.48	8.4	8.46	8.79	8.78	8.2	8.3	8.47	8.23	8.53	8.97	9.53	9.68
895	960	959	862	884	978	955	936	1330	1530	1690	1770	1930
532	539	592	527	526	572	567	552	979	1150	1250	982	1520
<3	30.7	5.9	17	11.5	51.9	68.6	7.6	14	3.3	3.1	8	5.4
1.04	5.54	2.9	5.67	2	10.9	10.1	2.53	1.98	1.52	1.14	1.48	1.5
<0.5	<0.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<1
48.9	48.7	50.2	52.7	50.5	50.4	50.8	51	8.4	11	10	12	13
0.23	0.3	0.34	0.24	0.265	0.317	0.46	0.288	0.039	0.043	0.053	0.036	0.053
40.3	30.6	26.3	40	42.3	19.8	15.4	21.6	616	739	818	917	972
0.0282	0.0883	0.0563	0.0648	0.0857	0.535	0.227	0.0886	0.0566	0.0985	0.0222	0.0357	0.029
<0.05	<0.025	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1
<0.01	0.0052	<0.01	0.01	<0.01	<0.01	0.017	0.025	<0.01	<0.01	<0.01	<0.02	<0.02
1.25												
1.34	1.37	1.37	1.59	1.65	2.35	2.12	1.29	1.79	1.76	1.93	1.63	1.76
0.0351	0.077	0.0613	<0.001	0.0055	0.0969	0.0448	0.0349	1.28	1.41	1.5	0.447	0.394
0.0624	0.0913	0.0723	0.0241	0.03	0.131		0.0487	1.52	1.77	1.48	0.567	0.44
0.0747	0.176	0.126	0.0609	0.0533	0.248	0.165	0.0618	1.56	1.76	1.53	0.692	0.558

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0027	0.0015	0.0026	0.0045	0.0051	0.0032	0.0026	0.002	0.0108	0.0055	0.0024	0.0016	0.0029
0.00013	0.00013	0.00015	0.00014	0.00014	0.00018	0.00019	0.00016	0.00028	0.00027	0.00028	0.00027	0.00033
0.00192	0.00243	0.00256	0.00163	0.00171	0.00379	0.00312	0.00275	0.00292	0.00282	0.00296	0.00286	0.00368
0.0646	0.107	0.129	0.0484	0.0471	0.138	0.145	0.118	0.0198	0.0208	0.0221	0.0181	0.0177
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.017	0.019	0.021	0.014	0.018	0.025	0.023	0.021	0.064	0.074	0.086	0.086	0.067
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
44.3	47.1	50.5	41.1	39.6	47.6	45.5	48.4	76.8	90	104	106	113
<0.0001	0.00012	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	0.00016	<0.0001	0.00011	<0.0001	<0.0001	<0.0001
0.0004	0.00098	0.00118	0.00017	0.00016	0.00146	0.00139	0.0008	0.00024	0.00024	0.00021	0.0002	0.00019
0.00226	0.00286	0.00271	0.00118	0.00118	0.00309	0.00417	0.00376	0.00183	0.00121	0.00097	0.0009	0.00091
0.033	0.151	0.082	0.011	<0.01	0.095	0.097	0.044	0.08	0.076	0.034	0.014	0.011
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0104	0.0076	0.00744	0.0112	0.0121	0.00884	0.00907	0.00932	0.00099	0.00149	0.00124	0.00151	0.00215
75.4	74.5	75.2	72.9	72.3	70.9	68.8	71.5	90.9	109	118	131	141
0.118	0.577	0.666	0.015	0.0146	0.694	0.561	0.203	0.0786	0.0395	0.0333	0.0118	0.0219
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000013	0.000015	0.000012	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00369	0.00736	0.00846	0.00195	0.00217	0.00484	0.00457	0.00431	0.00375	0.00304	0.00347	0.00317	0.00379
0.00218	0.00568	0.00648	0.00075	0.00069	0.0068	0.00743	0.007	0.00137	0.00135	0.00141	0.0012	0.00134
0.062	0.112	0.093	<0.05	<0.05	0.14	0.071	<0.05	1.39	1.69	1.51	0.544	0.527
17.8	16.2	19.2	19.8	18.8	21.8	20.7	20.3	29.3	32.8	41.2	40.5	50.1
0.00013	0.00015	0.00017	0.00011	<0.0001	0.00018	0.00016	0.00016	0.00021	0.00022	0.00022	0.00023	0.00027
1.71	5.54	6.53	0.576	0.611	6.13	5.86	6.78	4.45	1.25	0.16	0.525	0.448
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
58.6	59.5	61.4	54.9	57.4	60.7	55.9	55.7	88.6	102	115	116	134
0.328	0.444	0.45	0.272	0.289	0.408	0.391	0.383	1.04	1.02	1.4	1.32	1.53
15.3	11.7	9.17	14.3	14.8	7.25	5.81	8.02	199	220	267	285	309
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00178	0.00199	0.00191	0.00162	0.0017	0.00145	0.00133	0.00112	0.000473	0.000402	0.00052	0.000525	0.000675
0.0026	0.0024	0.0031	0.0031	0.0034	0.0055	0.0045	0.0032	0.0028	0.0021	0.0023	0.0025	0.003
0.0017	<0.001	<0.001	<0.001	<0.001	0.0022	<0.001	0.0013	0.001	0.0026	<0.001	<0.001	<0.001
0.0308	0.171	0.129	0.099	0.233	0.376	0.711	0.136	0.0579	0.021	0.0108	0.0046	0.0089
0.00013	0.00014	0.00016	0.00012	0.00014	0.00021	0.00021	0.00017	0.00031	0.00034	0.00029	0.00028	0.00031
0.00182	0.00257	0.00276	0.00167	0.00173	0.00384	0.00347	0.00297	0.00298	0.00298	0.00305	0.003	0.00347
0.0622	0.117	0.133	0.0509	0.0502	0.146	0.149	0.123	0.0204	0.0209	0.0221	0.0181	0.0168

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.017	0.019	0.024	0.015	0.019	0.026	0.03	0.023	0.067	0.087	0.098	0.083	0.068
<0.00001	0.000014	0.000012	<0.00001	<0.00001	0.000013	0.000018	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
43.5	46.7	47.6	40.3	38.6	46.8	45.1	47.7	76.2	89	98.7	104	104
0.00017	0.00037	0.00037	0.00022	0.00048	0.00068	0.00125	0.00035	0.00028	0.00026	0.00021	0.00013	0.00013
0.00041	0.00136	0.00133	0.00028	0.00033	0.00179	0.00204	0.00096	0.00029	0.00025	0.00022	0.0002	0.00019
0.00308	0.00697	0.00702	0.00243	0.00273	0.00885	0.0133	0.00821	0.00241	0.00147	0.00112	0.001	0.00101
0.092	0.516	0.491	0.135	0.266	0.836	1.1	0.374	0.161	0.111	0.048	0.022	0.019
<0.00005	0.000053	0.000054	0.000058	0.000059	0.000139	0.000215	0.000055	0.000066	0.000091	<0.00005	<0.00005	<0.00005
0.00936	0.00695	0.00699	0.00973	0.0123	0.00838	0.00958	0.00917	0.00115	0.00152	0.00128	0.00145	0.00184
73.8	73.1	70.5	71.5	69.6	69.1	68.5	71.8	91.8	105	116	127	130
0.129	0.678	0.675	0.0335	0.0299	0.708	0.576	0.22	0.0906	0.046	0.044	0.0184	0.0287
<0.00001	0.000021	0.000019	<0.00001	<0.00001	0.000029	0.000038	0.000027	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00374	0.00689	0.00887	0.00171	0.00233	0.00482	0.00475	0.00473	0.00407	0.0037	0.00361	0.00324	0.00364
0.00222	0.00628	0.00696	0.00113	0.00125	0.00796	0.00995	0.00776	0.00151	0.00147	0.00144	0.00132	0.00138
0.079	0.151	0.14	<0.05	0.064	0.216	0.16	0.079	1.54	1.69	1.52	0.653	0.553
17.7	15.9	17.8	18.8	18.1	20.9	20.3	20.5	29.1	31.7	38.4	39.2	43.7
0.00012	0.00016	0.00018	0.00011	0.00011	0.00018	0.00011	0.00014	0.00024	0.00023	0.00025	0.00021	0.00025
1.76	5.84	6.55	0.724	1.08	6.77	7.22	7.07	4.62	1.32	0.198	0.551	0.421
<0.00001	0.000019	0.00004	<0.00001	<0.00001	0.00002	0.000023	0.000015	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
55.5	56.7	59.1	54.6	55.4	59.2	55.4	56.9	91.7	105	116	113	129
0.33	0.41	0.432	0.257	0.303	0.404	0.426	0.401	1.08	1.12	1.39	1.29	1.44
15.1	11.5	9.4	14.6	14.6	7.32	5.98	8.12	199	222	264	282	283
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	0.014	0.026	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0019	0.00199	0.00207	0.00145	0.00178	0.00148	0.00138	0.00119	0.000501	0.000474	0.000548	0.000554	0.000658
0.003	0.0031	0.004	0.0036	0.0039	0.0067	0.0068	0.0037	0.0029	0.0023	0.0025	0.0026	0.0031
<0.003	<0.003	<0.003	<0.003	<0.003	0.005	0.0062	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
18.1	18	18.9	19.1	19.6	19.6	19.5	19	14.8	16.3	21.3	18.4	20.8
18.3	18.9	19.9	20.5	21.9	20.1	20.4	19.3	15.7	16.2	19.9	17.9	20.9
L1458340	**L1465108**	**L1472862**	**L1481215**	**L1488139**	**L1494491**	**L1500711**	**L1513418**	**L1466704**	**L1473820**	**L1481825**	**L1488139**	**L1494516**

Baseline Data for Surface Water

MAKAOO-01	MAKAOO-01	AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02
13-Aug-14	2-Sep-14	1-May-07	18-Jul-07	17-Sep-07	29-Apr-08	7-Jul-08	4-Sep-08	31-May-11	10-May-12	16-May-12	24-May-12	12-Jul-12
2025		395		697	806	648	655	390	409	481	571	374
137					95.6	70.7	58.2	87.4	91.5	80.4	90	64.5
11.2		11	5.98	9.14	10.6	6.5	6.27	9.12	10.4	8.91	9.04	6.14
9.78	9.94	8.24	8.02	8.1	8.65	7.91	7.82	7.35	8.3	8.21	8.17	8.22
-10.1		-69.3				-94.4	-72	246	47.5	91.6	107	75.9
1.02								0.24	0.28	0.32	0.35	
2013		551	1018	934	1114	727	876	502	581	661	704	434
25.3	15.6	10.1	17.2	11.7	10.5	19.3	11.8	13.3	9.5	10.7	15.1	17.7
1310								326	378	430	458	
								0.3	1.3	1.3	1.7	1.9
					<1							
181	197	227	355	370	390	351	389	220	273	302	327	320
55.1	73.6				378				273	300	309	320
126	124				12.5				<1	2.6	17.4	<2
		35.7	34.7	29.4	16.6	34.7	31.1	58.6	39.1	36.4	33.7	32.6
891	891	257	387	385	567	345	381	243	278	317	331	310
<1	<1				<1				<1	<1	<1	<2
9.81	9.62	8.38	8.32	8.39	8.31	8.41	8.3	8.29	8.43	8.43	8.4	8.27
1980	2040	522	877	933	1160	711	886	536	581	667	685	629
1770	1680	345	594	613	752	465	573	358	378	449	455	449
6	9.7	<3	33.6	42.2	<3	3.5	92.3	<3	<3	<3	<3	5.3
1.8	2.3				1.49	1.91	28.7	0.82	1.2	1.43	1.67	3.32
<1	<1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05
15	14	8.92	11.5	11.2	26.7	5.87	7.6	16	7.56	10.5	9.94	6.38
0.051	0.054	0.216		0.174	0.17	0.231	0.21	0.23	0.219	0.237	0.234	0.244
1030	1100	47.5	117	144	230	64.4	113	46.8	53.1	74.1	76.8	47.9
0.0284	0.0314	0.021	0.045	0.064	0.025	0.039	0.052	0.0213	0.0115	0.0209	0.0281	0.0414
<0.1	<0.1	0.0115	0.0491	0.1	<0.005	<0.005	0.0684	<0.025	<0.005	<0.005	0.0096	0.0088
<0.02	<0.02	0.0012	0.0012	0.0045	<0.001	<0.001	0.0042	0.0069	<0.001	<0.001	0.0012	0.001
								0.79	0.51	0.57	0.52	0.24
								0.76	0.498	0.619	0.667	
2.21	1.92	0.529	1.3	1.3	0.644	0.775	1.19	0.753	0.498	0.619	0.656	0.876
0.199	0.258	0.144	0.45	0.175	0.0639	0.21	0.13	0.157				
0.306	0.368								0.147	0.168	0.155	0.194
0.304	0.368	0.164	0.63	0.235	0.0983	0.22	0.302	0.179	0.153	0.176	0.177	0.216

Baseline Data for Surface Water

<0.005	<0.005				<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	0.0093	0.0188	0.0105	<0.005	0.0091		0.0099	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0014	<0.001	<0.005	<0.01	<0.005	<0.01	<0.005	<0.01	<0.005	<0.003	<0.003	0.0017	0.002
0.00034	0.00037	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	0.00012	0.00013	0.00012	0.0001
0.00365	0.00338	0.00284	0.0043	0.00285	0.0028	0.00413	0.0034	0.0025	0.00281	0.00321	0.00354	0.00347
0.00809	0.00281	0.041	0.028	0.043	0.06	0.026	0.045	0.042	0.0432	0.048	0.0463	0.0406
<0.0001	<0.0001	<0.001	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005							<0.2	<0.0005	<0.0005	<0.0005	<0.0005
0.067	0.063	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.034	0.049	0.048	0.05
<0.00001	<0.00001	<0.000017	<0.000034	<0.000017	<0.000034	<0.000017	<0.000034	<0.000017	<0.00001	<0.00001	<0.00001	<0.00001
120	114	53.6	56.8	53.8	103	64.1	55.1	49.6	55.8	62.3	64.4	61.7
<0.0001	<0.0001	<0.001	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	0.00014	<0.0001	0.00013	0.00011
0.00018	0.00015	<0.0003	<0.0006	<0.0003	<0.0006	<0.0003	<0.0006	<0.0003	0.00011	0.00011	0.00012	0.00013
0.00117	0.00071	0.0041	<0.002	<0.001	0.0026	0.0023	<0.002	0.0042	0.00413	0.0039	0.00366	0.00204
<0.01	<0.01	<0.03	<0.03	<0.03	<0.03	0.034	<0.03	0.064	<0.03	<0.03	0.022	0.028
<0.00005	<0.00005	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005
0.00241	0.0021	<0.005	0.012	0.0108	<0.01	0.0095	0.011	<0.005	0.00444	0.00661	0.00538	0.00673
144	147	29.9	59.5	60.8	75.2	44.8	59.2	29	33.7	39.2	41.4	37.8
0.0212	0.0153	0.0189	0.116	0.0778	0.043	0.25	0.0816	0.0107	0.018	0.0355	0.0432	0.173
<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00413	0.00437	0.0021	<0.002	0.0019	0.0028	0.0025	<0.002	0.0019	0.0025	0.003	0.00279	0.00217
0.00125	0.00126	0.0012	<0.002	<0.001	<0.002	0.0013	<0.002	0.0012	0.00132	0.00141	0.00146	0.0015
0.321	0.328							<0.3	<0.3	<0.3	<0.3	<0.3
45.9	51.2	8.6	13.1	11.9	12.1	11.3	11.2	8.1	8.03	9.55	9.39	8.84
0.00027	0.00027	<0.001	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	0.00016	0.00015	0.00016	0.00015
1.65	2.99							10.4	11.1	11.5	11.5	11.7
<0.00001	<0.00001	<0.00002	<0.00004	<0.00002	<0.00004	<0.00002	<0.00004	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
161	162	25.5	58.5	64.8	57.7	38.7	51.5	27.2	23.8	31.1	33.3	30.6
1.59	1.65							0.382	0.356	0.509	0.459	0.442
319	349											
<0.00001	<0.00001	<0.0002	<0.0004	<0.0002	<0.0004	<0.0002	<0.0004	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000719	0.000711	0.00078	0.00071	0.00093	0.00239	0.00087	0.00077	0.00054	0.000831	0.00103	0.000899	0.000639
0.0033	0.0024	<0.03	<0.03	<0.03	0.0057	0.0045	0.0029	0.0044	0.0055	0.0054	0.0054	0.004
0.0011	0.0013	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	0.0059	0.0021
0.0148	0.0628	0.0625	0.107	0.318	0.012	0.024	0.196	0.0285	0.044	0.0536	0.0478	0.159
0.00035	0.00037	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	0.00014	0.00015	0.00013	0.00013
0.00364	0.00325	0.00291	0.0037	0.00293	0.0028	0.00411	0.0032	0.00225	0.00274	0.00342	0.00336	0.00349
0.00892	0.00369	0.042	0.036	0.073	0.06	0.028	0.06	0.04	0.0424	0.0492	0.0457	0.0431

Baseline Data for Surface Water

<0.0001	<0.0001	<0.001	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005							<0.2	<0.0005	<0.0005	<0.0005	<0.0005
0.074	0.067	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.039	0.058	0.051	0.057
<0.00001	<0.00001	<0.000017	<0.000034	<0.000017	<0.000034	<0.000017	<0.000034	<0.000017	<0.00001	<0.00001	<0.00001	<0.00001
119	109	53.4	54.5	53	104	66.1	56.8	46.5	55.2	63.3	62.8	64.1
0.00013	0.00022	<0.001	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	<0.0004	0.00027	0.00025	0.00047
0.00022	0.00019	<0.0003	<0.0006	0.00039	<0.0006	<0.0003	<0.0006	<0.0003	0.00013	0.00013	0.00014	0.00026
0.00142	0.00117	0.0044	<0.002	0.0032	0.003	0.0026	<0.002	0.0047	0.00459	0.00495	0.00413	0.00328
0.026	0.078	0.108	0.179	0.572	0.034	0.069	0.311	0.089	0.082	0.086	0.088	0.252
<0.00005	0.000051	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.00005	<0.00005	<0.00005	0.000057
0.00242	0.00208	<0.005	0.012	0.0114	<0.01	0.0093	0.012	<0.005	0.00438	0.0069	0.00518	0.00664
146	140	29.6	56.2	60.7	75.6	45	60.2	27.2	33.1	40	38.8	38.8
0.032	0.02	0.0254	0.743	1.03	0.0514	0.271	0.434	0.017	0.0227	0.0441	0.0555	0.236
<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	0.000041	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00462	0.00439	0.0021	<0.002	0.0021	0.0028	0.0024	<0.002	0.0022	0.00271	0.00327	0.00299	0.0025
0.00135	0.00138	0.0013	<0.002	<0.002	<0.002	0.0015	<0.002	0.0012	0.00135	0.00155	0.00151	0.00177
0.41	0.36							<0.3	<0.3	<0.3	<0.3	<0.3
45.9	48.6	8.6	12	11.7	12.3	11.1	12.2	7.7	7.73	9.81	9.21	8.94
0.00029	0.00027	<0.001	<0.002	<0.001	<0.002	<0.001	<0.002	<0.001	0.00016	0.00017	0.00017	0.0002
1.74	3.05							9.84	11	11.7	11.1	12.4
<0.00001	<0.00001	<0.00002	<0.00004	<0.00002	<0.00004	<0.00002	<0.00004	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
163	156	25.4	51.9	63.5	58.2	38.2	57.8	25.6	23.4	32.5	32.6	31.5
1.64	1.61							0.365	0.359	0.523	0.462	0.463
330	333											
<0.00001	<0.00001	<0.0002	<0.0004	<0.0002	<0.0004	<0.0002	<0.0004	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	0.011
0.000807	0.000742	0.00076	0.00072	0.00105	0.00221	0.00081	0.0008	0.00058	0.000862	0.00109	0.000949	0.000723
0.0034	0.0025	<0.03	<0.03	<0.03	0.0058	0.0046	0.0039	0.0048	0.0056	0.0058	0.0054	0.0049
<0.003	<0.003	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	0.0035
22.3	21.9		18.2	17.9	12.3	17.2	16.6	19.1	13.2	14.9	15.8	14.7
22.7	22.3	16.3						19.6	13.6	14.9	15.5	15.4
								0.762	0.499	0.549	0.481	0.189
								0.732	0.486	0.598	0.628	0.835
L1502299	**L1511699**	**L501128**	**L532402**	**L555226**	**L624228**	**L652819**	**L678833**	**L1011500**	**L1146570**	**L1148880**	**L1152500**	**L1178283**

Baseline Data for Surface Water

AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02	AC02
8-Aug-12	8-Jan-13	5-Feb-13	5-Mar-13	2-Apr-13	6-May-13	4-Jun-13	2-Jul-13	7-Aug-13	3-Sep-13	8-Oct-13	6-Nov-13	4-Dec-13
756	517	519	598	821	397	566	640	628		700	320	550
42.2	70.5	71.2	84.5		86.5	108	109	58.2	67.9	77.2	83.1	85.5
3.33	10.3	10.3	11.6		8.64	10.5	9.56	5.7	6.33	8.85	11.2	12.4
7.94	8.48	8.09	8.19	8.37	8.02	8.29	8.34	8.09	8.18	8.33	8.27	8.2
25.5	133	171	122	123	180	116	74.8	275	213	129	163	110
0.35	0.48	0.48	0.52	0.58	0.24	0.33	0.33	0.37	0.38	0.394	0.27	0.52
726	992	986	1058	1165	486	676	686	753	769	489	557	1067
27.2	0.07	0.18	2.19	9.54	15.4	16.4	21.5	16.3	18.6	9.18	2.76	0.01
472	645	642	688	757	316	439	445	490	500	455	362	693
4.2	2.1	2.5	2.7	6.9	9.6	3.5	6.3	12.7		2.8	9.5	3.6
											<1	
373	474	446	394	377	217	291	308	328	359	387	416	431
357	474	446	367	369	217	283	290	328	349		405	431
15.9	<2	<2	27.3	7.9	<1	7.5	18	<1	9.7		10.9	<2
34.6	14.6	13.8	24.1	17.6	63.8	46.8	51.3	28.9	31.8	24	21.9	14.9
336	468	466	553	561	215	299	306	348	337	397	406	487
<1	<2	<2	<1	<1	<1	<1	<1	<1	<1		<1	<2
8.45	8.26	8.27	8.39	8.29	8.43	8.43	8.49	8.35	8.46	8.51	8.38	8.17
704	916	927	1130	1130	450	644	657	712	738	772	865	990
453	570	584	754	778	309	415	458	458	469	482	457	686
6.3	3.7	19.3	5.3	8	3.3	4.4	6.3	5.8	16.3	14.8	9.9	5.3
4.28	3.02	5.55	3.35	7.71	10.4	2.84	2.93	1.27	9.14	8.08	9.49	3.66
<0.25	<0.5	<0.5	<0.5	<0.5	<0.05	<0.25	<0.05	<0.5	<0.25	<0.5	<0.5	<0.5
10.8	9.8	10.6	40.3	<5	4.85	13.4	13.7	13	12.3	24.5	10.9	37.2
0.24	0.35	<0.2	0.26	<0.2	0.225	0.27	0.244	0.27	0.24	0.32	0.2	<0.2
60.5	124	121	215		33.1	64	46.9	61	61.5	122	81	127
0.0844	0.134	0.264	0.119	0.0363	0.0134	0.0175	0.0084	0.02	0.0763	0.0861	0.0656	0.19
0.067	0.106	0.131	0.219	<0.05	0.0057	<0.025	0.0051	<0.05	0.031	0.116	<0.05	<0.05
0.0438	0.013	<0.01	<0.01	<0.01	0.0012	<0.005	<0.001	<0.01	<0.005	0.027	0.012	<0.01
0.76	0.662	0.99	0.871	0.619				0.609	0.897			
0.992	0.716	0.922	1.03	0.674	0.842	0.674	0.847	0.736	1.04	0.939	0.949	
0.881	0.671	0.822	0.883	0.674	0.86	0.745	0.842	0.673	0.958	0.952	0.97	0.699
										0.0644	0.0883	0.132
0.208	0.168	0.141	0.163	0.0946	0.231	0.241	0.247	0.128	0.133		0.122	0.144
0.264		0.221	0.185	0.137	0.292	0.259	0.223	0.148	0.172	0.158	0.176	0.165

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0029	0.0012	0.0013	0.0013	0.0012	0.0047	0.0021	0.0034	0.0015	0.0026	0.0025	<0.001	0.001
0.00013	<0.0001	<0.0001	0.00012	0.00012	0.00011	0.00011	0.00012	0.00013	0.00011	0.00011	<0.0001	<0.0001
0.00434	0.00261	0.00231	0.00278	0.00302	0.00318	0.00281	0.00326	0.00332	0.00347	0.00297	0.00308	0.00271
0.0525	0.059	0.0583	0.0631	0.0714	0.0365	0.0419	0.045	0.0455	0.0362	0.0388	0.0567	0.0738
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.073	0.058	0.058	0.041	0.054	0.042	0.046	0.047	0.066	0.069	0.065	0.065	0.055
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
53.3	81.5	83.1	98.1	102	44.8	58.3	62.2	57.9	46.4	58.2	69.2	87.7
0.00011	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.00016	0.00016	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00016	0.00012	0.00011	0.00017	0.00014	0.00014	0.00016	0.00016	0.00011	0.00015	0.00013	0.00014	<0.0001
0.00097	0.00132	0.00116	0.00315	0.0019	0.00572	0.00368	0.00295	0.00168	0.00115	0.0011	0.00147	0.00107
0.061	0.046	0.025	0.038	0.012	0.076	0.064	0.069	0.019	0.024	0.018	0.024	0.018
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00998	0.00985	0.00994	0.00876	0.00823	0.00416	0.00439	0.00498	0.00881	0.00948	0.00972	0.00985	0.01
49.3	64.1	62.8	74.7	74.3	25.1	37.2	36.5	49.5	53.7	61.1	56.5	65
0.339	0.439	0.258	0.117	0.108	0.0255	0.0441	0.0498	0.0768	0.11	0.0283	0.128	0.371
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00251	0.00268	0.00242	0.00339	0.00323	0.00195	0.0018	0.00188	0.00293	0.00268	0.00327	0.00305	0.00275
0.00128	0.00102	0.00107	0.00136	0.00106	0.00151	0.00165	0.00178	0.00138	0.00127	0.00134	0.00135	0.0015
<0.3	0.156	0.16	0.174	0.099	0.238	0.218	0.241	0.135	0.138	0.096	0.109	0.141
10.8	12	10.7	14.7	12.5	9.06	8.92	10.4	11.1	12.2	11.6	12.9	11.3
0.00018	<0.0001	<0.0001	0.00038	0.00016	0.00019	0.00019	0.00018	0.00015	0.00015	0.00011	0.00013	0.00012
8.25	11.4	11	10.4	9.61	11.8	11.7	12.3	11.1	9.42	9.34	11.9	12.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
41.8	46.6	51.2	59.2	56.2	19.9	32.3	35.1	39.5	44.3	44.5	43.6	45.8
0.476	0.707	0.738	0.756	0.774	0.305	0.4	0.426	0.487	0.425	0.52	0.616	0.728
	41.1	38.7	69.3	79.9	11.2	20.4	15.2	20.3	20.3	23	27.2	39.5
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000867	0.00153	0.00155	0.00253	0.0019	0.000462	0.000748	0.000645	0.000968	0.000938	0.00107	0.00126	0.00132
0.0045	0.0027	0.0025	0.0055	0.0059	0.0063	0.0038	0.0043	0.0033	0.0036	0.0035	0.0033	0.0029
0.0028	0.0012	0.0012	<0.001	<0.001	0.0016	<0.001	0.0028	0.0011	<0.001	0.0016	0.001	<0.001
0.151	0.0554	0.0435	0.0683	0.268	0.536	0.172	0.142	0.121	0.429	0.255	0.275	0.149
0.00015	0.0001	0.00011	0.00013	0.00013	0.00013	0.00014	0.00016	0.00018	0.00014	0.00014	0.00016	<0.0001
0.00401	0.00271	0.0024	0.00279	0.00299	0.00322	0.00285	0.00322	0.00333	0.00336	0.00292	0.00306	0.00275
0.0531	0.0604	0.0607	0.0661	0.0732	0.0411	0.0441	0.0475	0.0493	0.04	0.043	0.0644	0.074

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.073	0.064	0.065	0.044	0.057	0.043	0.051	0.05	0.071	0.074	0.076	0.075	0.056
<0.00001	<0.00001	0.000014	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
52.6	82.7	86.7	98.8	102	44.3	59.4	60.2	60	46.9	59.5	72.1	89.6
0.00038	0.0002	0.00025	0.00018	0.00045	0.00102	0.00047	0.00038	0.00033	0.00087	0.00048	0.00044	0.0003
0.00025	0.00017	0.00015	0.00022	0.00028	0.0005	0.00028	0.00026	0.0002	0.00044	0.0003	0.00031	0.00018
0.00236	0.00259	0.00222	0.00416	0.00369	0.009	0.00491	0.00382	0.00263	0.00507	0.00253	0.00293	0.00204
0.273	0.117	0.105	0.135	0.411	0.768	0.299	0.315	0.194	0.655	0.361	0.368	0.22
<0.00005	<0.00005	<0.00005	<0.00005	0.000059	0.000121	0.00005	<0.00005	<0.00005	0.000114	0.000066	0.000077	<0.00005
0.00927	0.0103	0.00995	0.00902	0.00817	0.00439	0.0048	0.00517	0.00888	0.0111	0.00962	0.0108	0.00983
48.8	63.8	63.1	72.5	73.5	24.7	37	35.6	49.4	50.1	60.1	58.4	62.3
0.377	0.469	0.271	0.125	0.127	0.0692	0.0704	0.0783	0.107	0.2	0.0777	0.172	0.389
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00268	0.00288	0.00261	0.00369	0.00327	0.002	0.0021	0.00204	0.00317	0.00305	0.0035	0.00348	0.00298
0.00159	0.00115	0.00128	0.00146	0.00145	0.00215	0.00209	0.00195	0.00163	0.00191	0.00172	0.00177	0.00169
<0.3	0.168	0.178	0.195	0.142	0.281	0.248	0.251	0.154	0.34	0.13	0.163	0.152
11.1	12.2	11.2	14.4	12.2	8.88	9.2	10.5	11.7	12.1	11.5	15	12
0.00016	<0.0001	<0.0001	0.00037	0.00016	0.00019	0.00019	0.00018	0.00015	0.00017	0.00013	0.00012	0.0001
8.7	11.8	11.7	10.6	10.7	12.8	12.6	12.6	11.7	10.2	10.5	13.3	12.9
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000014	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
42.1	48.4	52	57.1	54	18.8	33.7	34.9	41.5	44.7	46.5	45.9	46.5
0.463	0.742	0.74	0.78	0.772	0.32	0.46	0.443	0.503	0.46	0.531	0.661	0.72
	43	41.3	71.8	85.8	11.3	21.4	15.4	21.5	20.6	24.1	30.3	41.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	0.016	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01
0.00094	0.0016	0.00161	0.00269	0.00192	0.000472	0.000802	0.000691	0.00102	0.000994	0.00121	0.00143	0.00137
0.0052	0.0033	0.0029	0.006	0.0067	0.0079	0.0045	0.0047	0.0038	0.0052	0.0044	0.0049	0.0035
<0.003	<0.003	<0.003	<0.003	<0.003	0.0032	<0.003	<0.003	<0.003	0.0034	<0.003	<0.003	<0.003
14.6	8.93	8.76	11.8	11	18.1	17.7	19.3	14.7	16.2	12.5	11.9	11.9
15.1	9.19	8.99	11.9	11.2	17.6	19.5	19.1	17.3	16.5	13.5	12.9	12.6
0.565				0.583								
0.797	0.537	0.557	0.765	0.638								
L1191600	**L1256678**	**l1265809**	**L1275746**	**L1285503**	**L1298960**	**L1311741**	**L1326032**	**L1344180**	**L1357647**	**L1376311**	**L1388680**	**L1399806**

Baseline Data for Surface Water

AC02	AC02	. CATCHMEN	. CATCHMEN	. CATCHMEN	. CATCHMEN	KC03	KC03	KC03	KC03	KC03	KC03	AJWW-S
15-Apr-14	10-Sep-14	10-Oct-13	14-Apr-14	2-Jul-14	2-Sep-14	21-Mar-14	10-Apr-14	24-Apr-14	7-May-14	23-May-14	4-Jun-14	3-May-07
	793		1756	3114		829	939	828	963	997	993	2285
	84.5			188		52.3	58.5	70.8	78.4	61.5	35.6	
	8.84			16.3		7.02	7.4	9.27	9.8	7.44	4.37	9.09
	8.3		9.12	9.69	8.89	7.91	7.94	8.03	8.12	7.99	7.87	8.28
	93.8		12.3	52.6		75.2	-38	150	216	74.5	214	
			1.33	1.72		0.71	0.76	0.69	0.77	0.77	0.78	
	1023		2559	3282		1434	1511	1386	1537	1534	1542	3334
	13.2		8.56	22.4	17.5	2.93	5.18	3.92	5.5	6.68	6.34	8.5
	510		1662	2136		932	982	901	1001	997	1003	
			4.9									
385	430	1180	812	1080	1080	533	610	501	553	565	576	165
385	407	823	543	536	672	533	610	473	525	565	576	
<2	23.2	354	268	546	404	<1	<20	27.2	28	<20	<1	
		16.7							32.6			
594	494	1860	1350	1750	1740	684	706	628	694	713	739	1670
<2	<1	<1	<1	<1	<1	<1	<20	<1	<1	<20	<1	
8.29	8.46	9.01	9.02	9.34	9.05	8.43	8.24	8.43	8.31	8.25	8.33	8.13
1210	1060	3470	2490	3130	3290	1460	1500	1370	1490	1490	1480	3150
844	704	3120	2150	2760	2810	979	1010	963	1060	1010	988	2870
8.7	3.2	8	12.5	45.7	23.9	<3	<3	3.8	<3	<3	15.1	<3
4.11	1.37	2.12	2.83	47.1	6.97	0.6	0.44	0.43	0.42	0.37	3.76	
<0.5	<0.5	<1	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
56.8	53.3	27	25	34	26	17.1	16.1	17.8	19.1	17.2	21	35.7
<0.2	0.197	<0.4	<0.4	0.088	0.088	0.3	0.3	0.26	0.27	0.29	0.26	0.4
299	131	1400	1010	1320	1380	351	344	308	348	336	320	1640
0.0412	0.0452	0.262	0.0244	0.0428	0.115	0.01	0.0059	0.0104	0.0078	0.0092	0.0073	0.032
<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	0.092	0.198	0.162	0.113	0.067	<0.05	71.5
<0.01	0.023	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.077
		3.1										
0.96	0.923	3.1	2.73	3.38	2.42	0.726	0.691	0.874	0.678	0.689	0.588	<0.05
0.0849	0.0992	0.0098	<0.001	0.0013	0.0021	0.129	0.0912	0.19	0.134	0.106	0.0956	<0.001
0.129		0.0499	0.104	0.0369	0.0334	0.163	0.0963	0.223	0.16	0.124	0.097	
0.103	0.206	0.0645	0.0381	0.127	0.073	0.18	0.0967	0.209	0.164	0.124	0.145	0.0036

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
0.002	0.001	0.003	<0.002	0.0024	<0.002	0.0012	<0.001	0.0019	0.0012	0.0012	<0.001	<0.05
0.00012	0.00012	0.00095	0.00048	0.00066	0.00079	0.00017	0.00016	0.00019	0.0002	0.0002	0.00018	0.0157
0.00275	0.00324	0.0148	0.00951	0.0118	0.0149	0.00676	0.00618	0.0054	0.00573	0.00547	0.00542	0.025
0.0761	0.0508	0.0109	0.012	0.00402	0.00891	0.0724	0.0764	0.0659	0.0738	0.0752	0.079	<0.02
<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01
<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
0.055	0.068	0.594	0.368	0.482	0.557	0.104	0.105	0.1	0.116	0.133	0.119	<0.1
<0.00001	<0.00001	<0.00002	<0.00003	<0.00005	<0.00002	<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00001	0.00151
105	86.8	12	15.8	11.1	9.76	70.8	74.3	65.9	72.1	71.9	74.4	219
<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	0.00052	0.00044	0.00044	0.00049	0.00046	0.00041	<0.01
0.00012	0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.003
0.00173	0.00126	<0.0004	0.00051	0.001	<0.0004	0.0068	0.0057	0.00606	0.00574	0.00537	0.0049	0.03
			<0.00002	<0.00002								
0.018	0.016	0.021	0.016	<0.01	0.018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.03
<0.00005	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.005
0.0084	0.00992	0.0095	0.0069	0.0091	0.0097	0.0125	0.0121	0.0123	0.0136	0.0143	0.0132	<0.05
80.3	67.3	445	319	418	417	123	126	113	125	129	134	273
0.131	0.0482	0.0121	0.00997	0.00295	0.015	0.000301	0.000188	0.00059	0.00017	0.000208	0.000217	0.008
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
0.00292	0.00347	0.0777	0.0517	0.0593	0.0597	0.0138	0.0112	0.0131	0.0138	0.0136	0.012	3.41
0.00144	0.00159	0.0014	0.0012	0.0014	0.0011	0.00168	0.00145	0.00171	0.0015	0.00146	0.00147	0.012
0.108	0.125	<0.05	<0.05	<0.05	0.053	0.142	0.1	0.188	0.152	0.102	0.11	
12.4	12.9	81.2	56.4	78.3	75	21.8	22	21.6	21.8	22.7	22.9	23.8
0.00015	0.00014	0.00087	0.00059	0.0008	0.00066	0.00767	0.00833	0.00563	0.00649	0.0058	0.00437	0.031
8.93	11.4	5.89	4.68	2.38	4.6	9.58	9.82	9.03	9.29	9.79	9.65	
<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002
57.8	57	300	189	274	275	97.3	101	91.6	98.7	98.5	98.9	194
0.908	0.713	0.159	0.25	0.121	0.113	1.18	1.18	1.13	1.26	1.26	1.26	
92.5	43.4	435	302	427	410	109	114	99.1	116	111	110	
<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.002
<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005
<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00176	0.00148	0.00437	0.00272	0.00331	0.00346	0.00544	0.00518	0.00488	0.00581	0.0056	0.00525	0.0111
0.0048	0.0042	0.005	0.0033	0.0048	0.0041	0.0074	0.0075	0.0065	0.0073	0.0071	0.0066	<0.03
0.0011	<0.001	<0.002	0.003	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	0.0011	<0.001	<0.05
0.149	0.151	0.0315	0.0797	1.21	0.349	0.0044	0.0073	0.0047	0.0034	0.0043	0.0356	<0.05
0.00012	0.00016	0.00101	0.00046	0.0008	0.00081	0.0002	0.00017	0.00021	0.00019	0.0002	0.00019	0.0156
0.00272	0.00316	0.0151	0.00865	0.0264	0.0135	0.00612	0.00557	0.00512	0.00499	0.00533	0.00483	0.0237
0.0761	0.0532	0.0121	0.0141	0.046	0.0115	0.0708	0.0772	0.0673	0.0695	0.0743	0.0759	<0.02

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01
<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
0.057	0.072	0.6	0.354	0.505	0.557	0.104	0.11	0.1	0.099	0.129	0.122	<0.1
<0.00001	<0.00001	<0.00002	<0.00003	<0.00005	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00113
105	83.6	11.9	15.7	22.8	9.99	69.8	72.8	65.8	69.3	70.9	70.5	217
0.00031	0.00031	0.00026	0.00031	0.00255	0.00075	0.0006	0.0006	0.00042	0.0005	0.0005	0.00056	<0.01
0.00021	0.00021	<0.0002	<0.0002	0.00087	0.00025	<0.0001	<0.0001	<0.0001	<0.0001	0.00026	<0.0001	<0.003
0.00316	0.0022	<0.001	0.0013	0.0053	0.0015	0.0074	0.00589	0.00652	0.00568	0.00546	0.0055	0.031
0.243	0.211	0.048	0.099	1.32	0.317	0.012	0.01	<0.01	<0.01	<0.01	0.045	<0.03
<0.00005	<0.00005	<0.0001	<0.0001	0.00039	<0.0001	0.00012	0.000059	<0.00005	<0.00005	<0.00005	<0.00005	<0.005
0.00823	0.00942	0.009	0.0065	0.0107	0.0103	0.0119	0.012	0.0125	0.012	0.0132	0.0135	<0.05
75.6	65.4	438	296	407	412	118	123	111	114	128	129	273
0.151	0.0889	0.0143	0.0213	0.0866	0.0242	0.000509	0.000675	0.00101	0.00024	0.000376	0.00388	0.0099
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
0.00296	0.00347	0.0842	0.0533	0.0818	0.0607	0.0141	0.0127	0.0143	0.0129	0.0138	0.0124	3.23
0.00153	0.0018	0.0015	0.0016	0.004	0.0017	0.0018	0.00154	0.00178	0.00145	0.00154	0.00164	0.012
0.135	0.144	0.062	0.096	0.426	0.054	0.147	0.092	0.201	0.136	0.114	0.13	
12.5	12.4	77.4	53.9	77	73	21.4	21.3	21.6	20.6	22.6	21.7	24
0.00015	0.00013	0.00083	0.00058	0.0011	0.00065	0.00859	0.00687	0.00469	0.00538	0.00495	0.00366	0.027
9.2	11.4	6.01	4.65	6.17	5.3	9.52	9.8	9.04	8.82	9.78	9.42	
<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002
57	56.6	312	187	238	261	99.4	100	94	95.3	95.9	95	196
0.871	0.713	0.177	0.255	0.489	0.125	1.15	1.23	1.17	1.11	1.23	1.25	
93.9	43.7	448	304	427	425	113	116	103	117	113	108	
<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.002
<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.005
<0.01	<0.01	<0.02	<0.02	0.044	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			<0.00002	<0.00002								
0.00176	0.00151	0.00469	0.00291	0.00416	0.00357	0.00557	0.0052	0.00517	0.00533	0.00606	0.00531	0.0109
0.0055	0.0048	0.0055	0.0041	0.0065	0.0046	0.0077	0.0078	0.0068	0.0072	0.0073	0.0067	<0.03
<0.003	<0.003	<0.006	<0.006	<0.006	<0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.05
11.3	15	32.9	25.2	32.7	33.3	14.2	12.6	17.5	13.8	12.3	11.6	2.67
14	15.4	32.2	26.9	36.1	33.9	14.2	12.9	18.2	14.7	12.1	11.7	
L1443519	**L1516193**	**L1376790**	**L1443519**	**L1481215**	**L1511703**	**L1435186**	**L1442672**	**L1447300**	**L1452368**	**L1459728**	**L1465478**	**L502198**

Baseline Data for Surface Water

AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-S	AJWW-D	AJWW-D	AJWW-D	AJWW-D	AJWW-D	AJWW-D
19-Jul-07	18-Sep-07	29-Apr-08	7-Jul-08	5-Sep-08	1-May-14	25-Sep-14	19-Jul-07	18-Sep-07	29-Apr-08	7-Jul-08	5-Sep-08	1-May-14
2575	2579	2283	2748	2643	2321	2725	2174	2202		2139	2150	2321
			57.9	83.3	65.7	85.9				12.2	17.5	65.7
4.84	8.39		5.6	8.62	7.37	8.75	2.08	1.82		1.54	2.14	7.37
7.9	8.3		7.28	8.08	8	8.19	7.9	8.04		7.59	7.71	8
			-57.9	-86	110	113				-73.8	-65	110
					1.71	1.83						1.71
3352	3399	3439	3465	3406	3254	3470	3367	3428		3477	3406	3254
12.9	12.4	7.41	14.2	13.3	10.1	13.8	6.46	6.3		4.85	5.67	10.1
					2110	2256						2100
					-3.1	0.1						-3.1
4.6		6.4					5.8		7.8			
152	155	156	157	154	157	161	154	161	170	163	165	162
		156		154	157	161			170		165	162
		<2		<2	<2	<2			<2		<2	<2
<5	<5	<5	<5	<5			<5	<5	<5	<5	<5	
1760	1630	1710	1690	1750	1900	1820	1770	1590	1750	1700	1710	1930
		<2		<2	<2	<2			<2		<2	<2
8.05	8.21	8.09	8.14	8.22	8.16	8.27	7.97	8.1	7.95	8.1	8.14	8.07
3290	3360	3430	3370	3420	3410	3510	3300	3370	3450	3380	3410	3520
2900	2880	1030	2880	3110	3260	3250	2970	3010	741	2930	3140	3390
5.5	<3	<3	<3	<3	5.7	<3	4.2	<3	4.1	<3	<3	6
		0.28	0.22	0.32	0.32	0.18			0.65	0.5	0.39	0.29
<0.5	<0.5	<2.5	<0.5	<0.5	<1	<1	<0.5	<0.5	<2.5	<0.5	<2.5	<1
35	33.6	35	35.5	34.5	36	33	35.8	38.4	33	36	39	38
	0.22	<1	0.27	<0.2	<0.4	0.209		0.24	1.3	0.38	<1	<0.4
1660	1640	1670	1690	1690	1910	1960	1650	1800	1650	1700	1770	1980
0.029	0.0326	<0.02	0.048	0.063	<0.005	0.0059	0.024	0.0107	<0.02	0.045	0.028	<0.005
72.2	71.5	74.3	72.8	72.6	68.2	68.9	72.9	79.9	74.1	74.3	79	71.4
0.127	0.137	0.112	0.093	0.134	0.137	0.138	0.138	0.187	0.074	0.049	0.138	0.036
<0.05	<0.05	0.064	<0.36	0.169	<0.05	<0.05	<0.05	0.27	0.152	0.39	0.239	<0.05
0.0013	0.002	0.0013	0.001		0.001	0.0017	0.0012	0.0021	0.0011	<0.001		0.0011
					<0.002	<0.002						<0.002
0.0026	0.0036	0.0027	0.0041		0.0021	0.0032	0.0032	0.0066	0.0034	0.005		<0.002

Baseline Data for Surface Water

		<0.005	<0.005		<0.005	<0.005			<0.005	<0.005		<0.005
<0.005	<0.005	0.0207	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
		<0.005	<0.005		<0.005	<0.005			<0.005	<0.005		<0.005
<0.025	<0.05	<0.05	<0.05	<0.05	0.0065	<0.001	<0.025	<0.05	<0.05	<0.05	<0.025	<0.002
0.0166	0.0165	0.0198	0.0166	0.0179	0.0167	0.0174	0.0151	0.0142	0.0167	0.0143	0.0157	0.0171
0.0226	0.0214	0.0264	0.0207	0.0204	0.0177	0.0164	0.02	0.0183	0.0212	0.018	0.0193	0.0178
<0.02	<0.02	<0.02	<0.02	<0.02	0.0157	0.0157	<0.02	<0.02	<0.02	<0.02	<0.02	0.0137
<0.005	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.005	<0.01	<0.01	<0.01	<0.005	<0.0002
					<0.0005	<0.0005						<0.001
<0.1	<0.1	<0.1	<0.1	<0.1	0.065	0.073	<0.1	<0.1	<0.1	<0.1	<0.1	0.066
<0.005	<0.002	<0.002	0.00054	0.00093		<0.0002	<0.005	<0.002	<0.0007	0.00066	0.000914	
228	213	218	219	228	250	239	228	212	221	218	225	255
<0.005	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.005	<0.01	<0.01	<0.01	<0.005	<0.0002
<0.0015	<0.003	<0.003	<0.003	<0.003	0.0007	0.00071	<0.0015	<0.003	<0.003	<0.003	<0.0015	0.00089
0.0311	0.028	0.035	0.031	0.032	0.0334	0.0338	0.0281	0.028	0.034	0.031	0.0265	0.0384
					<0.00008	<0.0001						<0.00008
<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01
<0.0025	<0.005	<0.005	<0.005	<0.005	<0.00005	<0.00005	<0.0025	<0.005	<0.005	<0.005	<0.0025	<0.0001
0.048	0.051	0.061	<0.05	<0.05	0.0485	0.0534	0.047	<0.05	0.054	0.05	0.045	0.0505
289	267	284	278	287	310	298	292	258	292	280	279	314
0.0111	0.0074	0.0073	0.0081	0.0066	0.00237	0.00308	0.0269	0.0341	0.0213	0.0234	0.0278	0.00317
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001
3.28	3.23	4.09	3.21	3.48	4.56	4.15	3.3	3.29	3.4	3.15	3.37	4.84
0.0115	0.012	0.017	0.012	0.013	0.013	0.0138	0.0118	0.012	0.015	0.014	0.0135	0.0149
					<0.05	<0.05						<0.05
26.1	25.3	24.9	26.1	26.8	31.2	29.5	25.4	24.5	24.7	25.5	25.1	31.9
0.0293	0.029	0.042	0.029	0.032	0.0505	0.0485	0.0291	0.028	0.035	0.028	0.0321	0.0522
					7.1	7.16						7.19
<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001	<0.00001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.00002
200	190	195	198	201	206	211	200	193	197	198	183	214
					4.35	3.9						4.46
					608	594						616
<0.001	<0.002	<0.002	<0.002	<0.002	<0.00001	0.000012	<0.001	<0.002	<0.002	<0.002	<0.001	<0.00002
<0.0025	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0001	<0.0025	<0.005	<0.005	<0.005	<0.0025	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.012	<0.02
0.0102	0.0107	0.0118	0.0108	0.0114	0.0107	0.0101	0.0103	0.0111	0.0111	0.0111	0.0109	0.0109
<0.03	<0.03	<0.01	<0.01	<0.01	0.0054	0.005	<0.03	<0.03	<0.01	<0.01	0.005	0.0046
<0.025	<0.05	<0.005	<0.005	<0.005	<0.001	0.0037	<0.025	<0.05	<0.005	<0.005	<0.005	<0.002
<0.025	<0.05	<0.05	<0.05	<0.05	<0.003	<0.009	<0.025	<0.05	<0.05	<0.05	<0.025	0.0088
0.016	0.0163	0.0194	0.016	0.0174	0.0164	0.0184	0.0143	0.0152	0.017	0.0142	0.0156	0.017
0.0218	0.0209	0.0258	0.0231	0.0199	0.0174	0.0167	0.0192	0.0186	0.0211	0.0176	0.0196	0.0177
<0.02	<0.02	<0.02	<0.02	<0.02	0.0153	0.0163	<0.02	<0.02	<0.02	<0.02	<0.02	0.0136

Baseline Data for Surface Water

<0.005	<0.01	<0.01	<0.01	<0.01	<0.0001	<0.0001	<0.005	<0.01	<0.01	<0.01	<0.005	<0.0002
					<0.0005	<0.0005						<0.001
<0.1	<0.1	<0.1	<0.1	<0.1	0.07	0.082	<0.1	<0.1	<0.1	<0.1	<0.1	0.071
<0.005	<0.002	<0.002	0.00066	0.00069		<0.0002	<0.005	<0.002	<0.0008	0.00057	0.000887	
230	213	219	217	227	241	245	230	212	222	221	222	245
<0.005	<0.01	<0.01	<0.01	<0.01	<0.0001	0.00019	<0.005	<0.01	<0.01	<0.01	<0.005	<0.0002
<0.0015	<0.003	<0.003	<0.003	<0.003	0.00065	0.00082	<0.0015	<0.003	<0.003	<0.003	<0.0015	0.00093
0.0309	0.028	0.036	0.031	0.031	0.0331	0.0358	0.0275	0.029	0.036	0.032	0.0274	0.0438
<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.01
<0.0025	<0.005	<0.005	<0.005	<0.005	<0.00005	<0.00005	<0.0025	<0.005	<0.005	<0.005	<0.0025	<0.0001
0.044	<0.05	0.066	<0.05	<0.05	0.0489	0.0561	0.045	0.05	0.057	0.051	0.046	0.0516
291	261	287	279	286	304	295	287	261	292	281	277	310
0.0107	0.0076	0.0102	0.0092	0.0073	0.00129	0.0037	0.026	0.0357	0.0225	0.0235	0.0278	0.00326
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001
3.16	3.16	3.99	3.1	3.48	4.75	4.47	3.16	3.43	3.54	3.15	3.4	4.97
0.011	0.011	0.016	0.012	0.012	0.0135	0.0144	0.0113	0.013	0.015	0.014	0.0135	0.0153
					<0.05	<0.05						<0.05
26	26	24.9	26.3	26.6	29.6	30.3	25	24.4	24.6	25.7	24.3	30.3
0.0294	0.028	0.041	0.029	0.032	0.048	0.0502	0.0284	0.029	0.033	0.028	0.031	0.05
					7.02	7.37						7.08
<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001	<0.00001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.00002
200	196	196	199	199	206	215	198	191	195	199	183	217
					4.32	4.1						4.49
					614	594						624
<0.001	<0.002	<0.002	<0.002	<0.002	<0.00001	0.000012	<0.001	<0.002	<0.002	<0.002	<0.001	<0.00002
<0.0025	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0001	<0.0025	<0.005	<0.005	<0.005	<0.0025	<0.0002
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.02
					<0.00008	<0.0001						<0.00008
0.0101	0.0101	0.0116	0.0105	0.0114	0.0106	0.0117	0.0101	0.0118	0.0115	0.0107	0.0111	0.0111
<0.03	<0.03	<0.01	<0.01	<0.01	0.0054	0.0052	<0.03	<0.03	<0.01	<0.01	0.0051	0.0048
<0.025	<0.05	<0.005	<0.005	<0.005	<0.003	<0.003	<0.025	<0.05	<0.005	<0.005	<0.005	<0.006
2.5	2.38	2.43	2.16	1.56	1.43	1.32	2.59	2.51	2.45	2.29	2.4	1.45
					1.41	1.39						1.57
L532652	**L556006**	**L624576**	**L653575**	**L679128**	**L1450350**	**L1523985**	**L532652**	**L556006**	**L624576**	**L653575**	**L679128**	**L1450350**

Baseline Data for Surface Water

AJWW-D	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-S	AJWE-M
25-Sep-14	3-May-07	17-Jul-07	18-Sep-07	29-Apr-08	7-Jul-08	6-Sep-08	9-May-12	11-Jul-12	6-Nov-12	1-May-14	24-Sep-14	24-Sep-14
2445	1535	2406	2204	1692	2718	2264	1883	2553	1938	1300		2194
20.2				92.7	81.1	106	91.3	91.5	139	90.4		120
2.26	10.7	8.79	9.22	11.3	7.5	10.5	10.4	8.16	15.4	10.3		12.5
7.76	8.4	7.89	8.26	8.11	8.01	8.39	8.49	8.3	8.37	8.01		8.42
137		-68.8			-99.4		218	191	90.9	82.2		115
1.81		1.36					1.4		1.45	0.01		1.48
3437	2254	2623	2703	2620	2887	2753	2689	2826	2777	1800		2250
9.9	8.29	20.7	15.3	6.48	18.7	15.7	9.31	19.9	9.17	9.81		13.4
2233		1701					1748		1805	12		1837
0							0.2		0.2	-2.4		-0.1
				2.8					<1			
158	170	165	162	191	157	154	144	149	146	151	149	149
158				191			144	149	146	151	149	149
<2				<2			<1	<1	<1	<2	<1	<1
		<5	<5	<5	<5	<5	<5	<5	<5			
1830	1170	1250	1130	1160	1180	1290	1250	1290	1340	1060	1270	1240
<2				<2			<1	<1	<1	<2	<1	<1
8.22	8.21	8.27	8.36	8.17	8.39	8.39	8.31	8.33	8.3	8.24	8.35	8.33
3530	2530	2630	2680	2620	2670	2770	2650	2650	2780	2240	2720	2720
3230	2210	2220	2250	2100	2200	2310	2270	2480	2260	1910	2350	2380
3.6	<3	<3	<3	4.2	<3	<3	<3	<3	<3	<3	8.2	5.1
0.16				0.31	0.31	0.19	0.22	0.25	0.17	0.45	0.13	0.16
<1	<0.25	<5	<0.5	<2.5	<0.05	<2.5	<1	<1	<1	<1	<1	<1
32	25.3	<50	24.6	<25	24.6	30	25	30	29	20	26	26
0.206	0.38		0.21	1.4	0.154	<1	<0.4	<0.4	<0.4	<0.4	0.184	0.185
1850	1340	1300	1380	1280	1400	1500	1450	1520	1560	1200	1550	1540
0.0115	0.023	0.03	<0.005	<0.02	0.039	0.023	0.0064	<0.005	0.0051	<0.005	0.0102	0.0094
65.4	23.2	21.8	23.1	20.8	20.3	22.4	19.8	19.2	21.2	13.7	17.7	17.5
0.149	0.0456	0.22	0.09	0.127	0.143	0.242	0.101	0.162	0.028	0.116	0.127	0.121
							25	29.7	22.6			
							19.9	19.4	21.2			
<0.05	<0.05	0.212	<0.05	0.153	0.33	0.34	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
0.0018	0.0014	0.0027	0.0028	0.0028	0.0024				0.0015	0.0017	0.003	0.0022
<0.002							0.002	<0.002	<0.002	<0.002	<0.002	<0.002
<0.002	0.0024	<0.002	0.0069	0.0024	0.0039		<0.002	0.0023	<0.002	<0.002	<0.002	<0.002

Baseline Data for Surface Water

<0.005				<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005				<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.001	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.003	<0.002	0.0012	0.001	<0.001	<0.001
0.0172	0.0209	0.0187	0.0207	0.0225	0.0183	0.0186	0.0184	0.0196	0.0194	0.0135	0.0185	0.0186
0.0154	0.0727	0.0614	0.0657	0.0763	0.0599	0.0613	0.0549	0.0547	0.0561	0.0381	0.0473	0.0468
0.0155	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0158	0.0174	0.0196	0.0149	0.0192	0.0187
<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005							<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
0.073	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	0.108	0.095	0.088	0.076	0.101	0.103
<0.0002	0.000342	<0.003	<0.001	<0.0006	0.000467	0.00048	<0.0004	<0.002	<0.00053		<0.0001	<0.0001
243	152	162	153	150	153	170	160	169	171	140	169	166
<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
0.00097	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.00122	0.00115	0.00116	0.00097	0.00097	0.001
0.0399	0.0213	0.0172	0.0163	0.0276	0.0193	0.0169	0.0197	0.0177	0.0178	0.0206	0.0162	0.0166
<0.00012										<0.00004	<0.00006	<0.00006
<0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.02	<0.01	<0.01	<0.01	<0.01
<0.00005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005
0.0545	0.04	0.045	0.041	0.054	0.039	0.04	0.0426	0.04	0.038	0.0313	0.0428	0.0445
297	192	205	181	191	193	211	205	212	223	173	207	200
0.00506	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.000648	0.0008	0.00116	0.000841	0.000598	0.000629
<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
4.11	2.21	2.03	2.26	2.47	1.93	1.99	2.16	2.33	2.17	1.98	2.2	2.26
0.0147	<0.005	<0.005	<0.005	0.0051	<0.005	<0.005	0.00344	0.0038	0.00324	0.00345	0.00359	0.0035
<0.05							<0.3	<0.3	<0.05	<0.05	<0.05	<0.05
30.4	19.1	17.5	19	17.6	19.7	21.6	19.3	20.1	21.8	17.3	20.5	19.7
0.0485	0.0165	0.0165	0.0177	0.0221	0.0159	0.0153	0.0174	0.0163	0.0178	0.0158	0.018	0.0182
7.33							8.05	8.86	8.6	7.22	8.67	8.5
<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
205	198	192	191	190	200	211	211	199	206	164	200	201
3.75							2.65	2.83	2.67	2.52	2.68	2.8
597									0.483	379	465	452
0.00001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00001	<0.00002	<0.00001	<0.00001	0.00001	0.000011
<0.0001	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0106	0.0097	0.0104	0.0101	0.0121	0.0099	0.0098	0.00962	0.0105	0.00979	0.00784	0.00916	0.00918
0.0046	<0.03	<0.03	<0.03	0.0109	0.01	0.0089	0.0076	0.008	0.008	0.008	0.0081	0.0081
0.0014	<0.025	<0.025	<0.025	<0.005	<0.005	<0.005	<0.003	0.0048	<0.001	<0.001	<0.001	0.0013
<0.006	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.007	<0.006	0.0033	0.0089	<0.006	<0.006
0.0175	0.0204	0.0193	0.0208	0.0173	0.0179	0.0187	0.0184	0.0205	0.0198	0.0134	0.0189	0.0192
0.0148	0.0715	0.0628	0.0654	0.0597	0.0588	0.0608	0.0545	0.0517	0.0567	0.0363	0.0482	0.0484
0.0146	<0.02	<0.02	<0.02	<0.02	<0.02	0.021	0.016	0.0173	0.0199	0.0145	0.0184	0.0183

Baseline Data for Surface Water

<0.0001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005							<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
0.08	<0.1	<0.1	<0.1	<0.1	<0.1	0.11	0.117	0.086	0.094	0.08	0.114	0.12
<0.0002	0.000135	<0.003	<0.001	<0.0005	0.000449	0.000439	<0.0004	<0.0005	<0.00056		<0.0001	<0.0001
237	158	160	151	148	153	175	163	163	171	135	169	169
0.0002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00012	<0.0002	<0.0001	0.00011	0.00015	0.00025
0.00094	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	0.00131	0.00111	0.00122	0.00098	0.00102	0.00105
0.0412	0.0218	0.0187	0.0173	0.0221	0.02	0.0172	0.0206	0.0178	0.0186	0.0216	0.0169	0.0179
<0.01	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.02	<0.01	<0.01	<0.01	<0.01
<0.00005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.00005	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005
0.0544	0.04	0.048	0.042	0.04	0.038	0.04	0.0433	0.043	0.0396	0.0314	0.0441	0.0495
291	201	202	179	193	195	222	212	206	225	169	211	208
0.0052	<0.0015	<0.0015	0.0016	<0.0015	<0.0015	<0.0015	0.000913	0.00076	0.00136	0.00099	0.00064	0.000781
<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
4.11	2.18	2.08	2.27	1.89	1.88	1.96	2.21	2.51	2.33	2	2.48	2.34
0.0147	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.00358	0.0036	0.00332	0.00347	0.00363	0.00379
<0.05							<0.3	<0.3	<0.05	<0.05	<0.05	<0.05
30.3	19.1	17.3	18.7	17.8	19.8	23.9	19.5	18.6	21.9	16.6	20.8	20.5
0.0477	0.0168	0.0167	0.0168	0.0165	0.0154	0.0154	0.0168	0.0149	0.018	0.0147	0.018	0.0183
7.27							8.3	8.67	8.75	7.15	8.78	8.7
<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00001	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001
199	197	193	187	192	202	229	211	192	211	165	202	208
3.84							2.68	3.1	2.86	2.49	3	2.86
583									501	385	471	467
0.000012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00001	<0.00002	<0.00001	<0.00001	0.000011	0.000011
<0.0001	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00012										<0.00004	<0.00006	<0.00006
0.0104	0.0094	0.0101	0.0102	0.0094	0.0097	0.0097	0.00983	0.011	0.0102	0.00785	0.00979	0.00967
0.0045	<0.03	<0.03	<0.03	0.0085	0.0101	0.0088	0.0079	0.008	0.0083	0.0081	0.0083	0.0085
<0.003	<0.025	<0.025	<0.025	<0.005	<0.005	<0.005	<0.003	<0.006	<0.003	<0.003	<0.003	<0.003
1.35	1.57	1.57	1.48	1.88	2.08	1.47	1.1	1.31	1.73	1.31	1.08	1.17
1.42							1.14	1.16	1.67	1.5	1.07	1.03
							5.1	10.3	<4.5			
							<0.06	<0.06	<0.06			
L1523985	**L502198**	**L532007**	**L556006**	**L624576**	**L653575**	**L679672**	**L1145681**	**L1177597**	**l1234688**	**L1450350**	**L1523985**	**L1523985**

Baseline Data for Surface Water

AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	AJWE-D	NSP	NSP
3-May-07	17-Jul-07	18-Sep-07	29-Apr-08	7-Jul-08	6-Sep-08	9-May-12	11-Jul-12	6-Nov-12	1-May-14	24-Sep-14	31-Aug-10	28-Sep-11
1871	1989	2037	1715	1820	1906	1837	2000	1939	1300	2050	4343	
			79.9	66.3	77.8	85.8	93.8	125	90.1	120	96	151
11.2	11.5	9.29	10.2	7.94	8.85	10.7	10.9	14.4	10.3	12.5	9.77	15.1
8.01	8.05	8.25	8.19	8.19	8.11	8.51	8.38	8.37	8.01	8.42	8.97	9.21
	-75.8			-107		247	237	130	82.2	115	-6.4	-112
	1.43					1.52		1.45	0.01	1.48	0.00301	
2669	2748	2771	2798	2763	2720	2927	2929	2779	1800	2806	5533	4082
9.34	10.4	11.2	4.73	7.13	9.35	5.5	8.38	9.18	9.81	10.9	13.7	14.8
	1788					1903		1806	12	1837	3597	
						0.1		0.2	-2.4	-0.1		2.4
			3.1					<1				<1
168	165	167	177	161	152	163	163	150	166	146	1310	1240
			177			163	163	150	166	146		775
			<2			<2	<2	<1	<2	<1		465
	<5	<5	<5	<5	<5	<5	<5	<5			47.7	36.8
1280	1290	1160	1240	1190	1230	1380	1330	1340	1360	1300	2550	2480
			<2			<2	<2	<1	<2	<1		<1
8.21	8.21	8.27	8.16	8.32	8.31	8.29	8.3	8.32	8.22	8.33	8.93	9.11
2620	2740	2720	2780	2730	2750	2850	2740	2790	2800	2790	5280	5430
2240	2270	2260	2250	2270	2270	2510	2650	2440	2600	2420	4760	4460
<3	<3	<3	<3	<3	<3	<3	4	<3	5.2	5.2	24.5	6.7
			0.23	0.19	0.14	0.18	0.36	1.29	0.45	0.24	8.81	
<0.25	<5	<0.5	<2.5	<0.05	<2.5	<1	<1	<1	<1	<1	<2.5	<2.5
26.6	<50	25.3	<25	24.1	34	30	31	30	31	27	43	48
0.37		0.22	1.2	0.144	<1	<0.4	<0.4	<0.4	<0.4	0.177	<1	<1
1390	1350	1400	1360	1410	1480	1590	1600	1560	1600	1580	2530	2700
0.027	0.041	0.0073	<0.02	<0.02	<0.02	<0.005	<0.005	0.0051	<0.005	<0.005	0.084	0.178
24.4	24	23.8	22.5	20.8	22.7	22	20.6	21.1	18.8	18.5	<0.25	<0.25
0.0128	0.16	0.022	0.091	0.0079	0.134	0.029	0.025	0.046	0.031	0.031	<0.05	<0.05
						28.5	31.4	23.9				4.82
						22.2	20.8	21.2			4.97	4.92
<0.05	0.258	0.209	0.176	0.17	0.222	0.177	0.126	<0.5	<0.05	<0.05	4.67	4.92
<0.001	<0.001	0.0027	0.0025	0.0014				0.0019	0.0021	0.0012	0.904	0.305
						<0.002	0.0034	<0.002	<0.002	<0.002	0.975	0.438
0.003	0.0032	0.0043	<0.002	0.0022		0.0021	0.0029	<0.002	0.0102	<0.002	1.1	0.441

Baseline Data for Surface Water

			<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	0.014	0.0174
			<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.006	<0.002	0.0021	0.0012	<0.001	<0.05	<0.05
0.0225	0.0247	0.0237	0.0209	0.0206	0.021	0.0211	0.0222	0.02	0.0194	0.0189	<0.005	<0.005
0.0793	0.0829	0.0757	0.0714	0.0691	0.0725	0.0633	0.0612	0.0572	0.0533	0.0512	0.0103	0.0106
<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0167	0.0162	0.0201	0.0185	0.0187	0.208	0.098
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01
						<0.001	<0.001	<0.0005	<0.0005	<0.0005		<0.2
<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.114	0.097	0.091	0.098	0.105	<0.1	<0.1
0.00111	<0.003	<0.001	0.000479	0.000355	0.00059	<0.0004	<0.0022	<0.00055		<0.0001	<0.00017	0.00036
164	169	154	157	157	160	175	174	172	177	172	54.1	26.6
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01
<0.0015	0.0017	0.0016	<0.0015	<0.0015	0.0017	0.00162	0.00191	0.00119	0.00124	0.00134	<0.003	<0.003
0.0292	0.0414	0.0365	<0.03	0.0296	0.0364	0.0249	0.03	0.0175	0.0203	0.0182	<0.01	<0.01
									<0.00006	<0.00006		
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.02	<0.01	<0.01	<0.01	<0.03	<0.03
<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.005	<0.005
0.045	0.053	0.042	0.052	0.042	0.04	0.0462	0.0412	0.0397	0.0439	0.0457	<0.05	<0.05
212	212	188	207	194	203	229	218	222	222	211	586	586
0.0019	0.0018	0.002	<0.0015	<0.0015	<0.0015	0.00105	0.00136	0.00118	0.000689	0.000787	0.0654	0.0665
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
2.25	2.24	2.17	2.18	1.95	1.99	2.35	2.34	2.19	2.67	2.2	0.021	0.025
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0036	0.0039	0.00334	0.00415	0.00356	<0.01	<0.01
						<0.3	<0.3	<0.05	<0.05	<0.05		0.4
20.1	17.8	19.9	19.2	19.7	18.2	21.3	20.4	21.9	21.6	20	105	106
0.0175	0.017	0.0164	0.0189	0.0155	0.0156	0.0195	0.0162	0.0182	0.0205	0.0184	<0.01	<0.01
						8.77	9.01	8.65	8.64	8.67		0.383
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002
210	212	206	208	207	188	235	206	205	218	210	578	630
						2.87	2.89	2.77	3.34	2.77		3.63
								0.488	496	474		
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00002	<0.00002	0.000016	<0.00001	<0.00001	<0.002	<0.002
<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.005	<0.005
<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0102	0.0107	0.0095	0.0103	0.0098	0.0094	0.0105	0.0109	0.00979	0.00988	0.00944	0.0068	0.0067
<0.03	<0.03	<0.03	0.0086	0.0081	0.0069	0.008	0.007	0.008	0.0078	0.0076	<0.01	<0.01
<0.025	<0.025	<0.025	<0.005	<0.005	<0.005	<0.006	0.0025	<0.001	0.0015	0.0016	<0.005	<0.005
<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.0097	0.0063	0.0699	0.0076	<0.003	0.067	<0.05
0.0217	0.0241	0.0234	0.0206	0.021	0.0199	0.0215	0.0223	0.02	0.0191	0.0203	<0.005	<0.005
0.0745	0.0811	0.0758	0.0702	0.0726	0.0693	0.064	0.0641	0.0572	0.0518	0.0525	0.0107	0.0103
<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0172	0.0171	0.0205	0.0184	0.0191	0.184	0.088

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.01	<0.01
						<0.001	<0.001	<0.0005	<0.0005	<0.0005		<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.13	0.105	0.095	0.104	0.126	<0.1	<0.1
0.000645	<0.003	<0.001	0.000472	0.000614	0.000493	<0.0004	<0.0022	<0.00057		<0.0001	<0.00017	0.0003
157	170	155	157	155	161	182	175	169	173	176	55.3	26.4
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0002	<0.0002	0.00046	0.00013	0.00012	<0.01	<0.01
<0.0015	0.0016	0.0017	<0.0015	<0.0015	0.0015	0.00168	0.00198	0.00134	0.00129	0.00137	<0.003	<0.003
0.0311	0.0407	0.0372	<0.03	0.0313	0.0349	0.0262	0.0327	0.023	0.0221	0.0201	<0.01	<0.01
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.02	0.087	<0.01	<0.01	0.063	<0.03
0.0027	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0001	<0.0001	0.000057	<0.00005	<0.00005	<0.005	<0.005
0.041	0.049	0.041	0.049	0.04	0.041	0.0486	0.0419	0.0398	0.0441	0.0508	<0.05	<0.05
201	215	188	207	195	191	239	222	224	217	217	590	580
0.0024	0.0018	0.002	<0.0015	<0.0015	<0.0015	0.00122	0.00147	0.00304	0.000896	0.000848	0.0914	0.0689
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
2.16	2.2	2.14	2.11	2.01	1.89	2.48	2.45	2.32	2.73	2.47	0.022	0.025
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0037	0.0039	0.00386	0.0038	0.00362	<0.01	<0.01
						<0.3	<0.3	<0.05	<0.05	<0.05		0.41
19.5	17.8	20	18.6	19.3	18.3	21.9	21.2	21.8	21.1	21.1	105	105
0.0162	0.0165	0.016	0.0178	0.0176	0.0153	0.02	0.0172	0.0183	0.0191	0.0191	<0.01	<0.01
						9.28	9.19	8.88	8.72	8.88		0.417
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002
205	215	205	202	201	189	244	213	213	216	220	580	624
						3.03	3	2.89	3.36	3		3.59
								497	499	492		
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.00002	<0.00002	0.000011	<0.00001	0.00001	<0.002	<0.002
<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.005	<0.005
<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
									<0.00006	<0.00006		
0.0098	0.0105	0.0095	0.0101	0.01	0.0092	0.0111	0.011	0.0103	0.0102	0.0103	0.0071	0.0067
<0.03	<0.03	<0.03	0.0084	0.0085	0.0066	0.0083	0.0079	0.0087	0.008	0.0077	<0.01	<0.01
<0.025	<0.025	<0.025	<0.005	<0.005	<0.005	<0.006	<0.006	<0.003	<0.003	<0.003	<0.005	0.0062
1.74	1.71	1.58	1.55	1.46	1.1	1.49	1.2	1.29	0.92	1.2	57.4	12.2
						1.4	1.15	1.16	0.99	1.2		12.1
						6.5	10.8	<4.8				4.64
						0.177	0.126	<0.5				4.74
L502198	**L532007**	**L556006**	**L624576**	**L653575**	**L679672**	**L1145681**	**L1177597**	**l1234688**	**L1450350**	**L1523985**	**L927439**	**L1066047**

Baseline Data for Surface Water

NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP
25-Apr-12	2-May-12	10-Jul-12	7-Aug-12	12-Oct-12	6-Nov-12	5-Jun-13	3-Jul-13	7-Aug-13	5-Sep-13	9-Oct-13	7-Nov-13	8-Jan-14
4458	3914		5200	4123	618	5210	5496	5732		4360	2375	3969
94.9	73.3		178	77.6	165		140	131	125	66	60	8
8.71	7.51		14.8	8.77	20.4		12	11.1	11.5	7.42	8.07	1.07
8.84	9.03		9.22	9.36	9.43	9.16	9.3	9.3	9.15	9.23	9.16	9.05
142	146		58.9	-276	-94.1	94.2	39.7	130	64	-67.5	126	-195
2.73	2.71		2.35	3.22	0.48	3.09	3.14	3.26	3.53	2.33	2.18	4.09
5065	5021		5297	5906	974	5687	5780	5989	6441	3040	4165	7629
18.6	13.4		24	9.2	6.2	20.7	22.4	22.8	18.4	9.8	2.49	-0.1
3292	3262		3443	3839	628	3697	3758	3893	4186	2835	2708	4956
23.5	3.5		1.6	6.8	8.4	2.9	0	0.3		9.8	3.7	3.7
				<1	<1				<1			
1080	1110	1210	1220	1260	1300	1210	1210	1210	1400	1390	1310	1510
727	777	749	617	642	714	661	617	603	723	890	864	1040
357	330	456	601	615	588	550	591	610	676	503	447	477
50.1	47.4	35.8	34.6	35.4	35.6	35.2	31.2	29.6	29.1	33.9		35.4
2350	2310	2540	2490	2790	2710	2580	2590	2720	3000	3030	2970	3480
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
9.01	8.94	9.11	9.28	9.22	9.2	9.16	9.28	9.29	9.28	9.09	8.94	8.85
4920	4970	5130	5160	5640	5770	5630	5600	5770	6160	6510	6320	7170
4570	4740	4990	4860	5160	5590	5250	5180	5330	6090	5890	5970	7200
19.3	7.7	6.2	8.5	4.8	91	18.9	9	11	12.6	15.3	4.7	<3
3.71	1.28	1.07	1.35	1.84	21.7	3.53	0.78	0.67	0.99	6.1	2.88	2.78
<1	<1	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	1.5	<2.5	<2.5	<2.5
49	50	49	49	54	55	50	59	54	72	61	61	89
<0.4	<0.4	<1	<1	<1	<1	1.2	<1	<1	<0.4	1	<1	<1
2460	2490	2640	2690	3010	3060	2970	2910	3200	3310	3500	3280	3970
0.348	0.75	0.0849	0.0734	0.136	0.049	0.12	0.0883	0.101	0.114	0.843	2.17	2.72
0.12	<0.1	<0.25	<0.25	<0.25	0.33	<0.25	<0.25	<0.25	0.12	<0.25	<0.25	<0.25
<0.02	0.034	<0.05	<0.05	<0.05	0.052	<0.05	<0.05	<0.05	0.036	<0.05	0.06	<0.05
4.55	4.84	5.07	6.04	5.25	4.25			4.78				
5.63	5.47	4.28	4.39	5.26	6.56	4.82	0.95	4.92	20.8	7.05	7.57	
5.51	5.43	4.28	4.39	5.26	6.18	1.01	0.947	5.27	5.36	7.13	8.98	8.95
0.49				0.0376	0.0148	0.322	0.183		0.0952	0.381	0.551	0.701
0.611	0.689	0.827	0.551	0.141	0.13	0.515	0.317	0.276	0.276	0.572	0.716	0.827
0.662	0.911	0.838	0.572	0.175	0.319	0.502	0.345	0.298	0.273	0.606	0.732	0.883

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005
<0.015	<0.015	<0.005	<0.005	<0.005	<0.005	0.0069	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.0005	<0.0005	0.00057	0.00084	0.00073	0.00074	0.0008	0.00085	0.00124	0.00136	0.00136	0.00125	0.001
0.00775	0.00798	0.0087	0.0109	0.0113	0.0125	0.0115	0.0126	0.0156	0.016	0.0186	0.0161	0.0168
0.0503	0.0574	0.0282	0.0183	0.0138	0.019	0.0404	0.0181	0.0272	0.0203	0.0325	0.0334	0.0399
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
22.2	23.5	33.3	31.1	21.4	19.1	24.4	28.3	25.6	24.5	25.4	24.7	29.8
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0025	<0.0025	0.001	<0.001	<0.001	<0.001	0.0013	<0.001	0.001	<0.001	<0.001	<0.001	<0.001
<0.03	0.031	<0.05	<0.05	<0.05	0.014	0.014	<0.01	<0.02	<0.02	0.024	0.019	<0.02
<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025
<0.0025	0.003	0.0032	0.0028	0.004	0.003	0.0036	<0.0025	0.0026	0.0038	0.004	0.0027	0.0059
557	546	596	586	664	648	611	613	646	715	719	707	827
0.138	0.165	0.0113	0.0446	0.0879	0.0935	0.0872	0.0101	0.0299	0.0627	0.0878	0.0896	0.112
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.022	0.022	0.0239	0.0226	0.0233	0.0223	0.017	0.0179	0.0175	0.0166	0.0209	0.0195	0.0177
<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
0.63	0.69	0.71	0.57	<0.3	0.153	0.481	0.325	0.3	0.24	0.511	0.677	0.79
92.1	89.3	101	113	121	122	115	110	117	131	137	127	143
0.00089	0.00088	0.00083	0.00095	0.00057	0.0009	0.00106	0.0009	0.001	0.00086	0.00106	0.00099	0.00077
2.3	2.74	0.556	1.06	2.57	3.06	4.42	5.16	4.77	4.94	6.3	6.36	7.25
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
549	530	586	635	696	747	613	631	754	744	752	689	846
3.07	3.06	3.41	3.76	3.93	3.69	3.54	3.45	3.92	3.99	4.23	4.03	4.86
					0.913	844	839	982	1050	1030	961	1220
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
0.00582	0.00579	0.00606	0.00576	0.00568	0.00533	0.00512	0.005	0.00509	0.00496	0.00561	0.00573	0.00629
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.015	<0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.078	0.066	0.016	0.022	0.068	0.115	0.08	<0.015	0.133	<0.015	0.218	0.075	<0.015
<0.0005	<0.0005	0.00058	0.00107	0.00081	0.00076	0.00084	0.00101	0.00132	0.00141	0.00142	0.0012	0.00109
0.00801	0.00796	0.00869	0.011	0.0112	0.0124	0.0118	0.0138	0.016	0.0159	0.0175	0.0161	0.0172
0.0535	0.0617	0.028	0.0196	0.0154	0.0215	0.0421	0.0194	0.0291	0.0238	0.0355	0.0353	0.0402

Baseline Data for Surface Water

<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
<0.05	0.057	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
22.5	23.3	33.6	30.9	22	19.3	24.3	28.6	27.5	25.6	24.8	24.2	30.8
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0025	<0.0025	<0.0025	<0.0025	0.0036	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
0.089	0.082	<0.05	<0.05	0.078	0.095	0.077	0.014	0.103	<0.02	0.212	0.081	0.031
<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025
<0.0025	0.0029	0.0035	0.0028	0.004	0.0032	0.0044	0.0027	0.0028	0.0046	0.0041	0.0028	0.0048
561	528	590	584	668	654	604	624	675	741	694	669	866
0.146	0.179	0.0203	0.0516	0.096	0.105	0.0984	0.0158	0.0372	0.0683	0.105	0.0987	0.114
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0229	0.0232	0.0234	0.0228	0.0244	0.0267	0.0177	0.019	0.0181	0.0172	0.0212	0.0196	0.0178
<0.0025	<0.0025	<0.0025	<0.0025	0.0026	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
0.65	0.72	0.7	0.57	<0.3	0.208	0.479	0.34	0.35	0.26	0.527	0.672	0.86
92.9	90.9	98.4	110	120	120	109	110	126	135	128	120	148
0.00099	0.00092	0.0008	0.00095	0.00068	0.00098	0.001	0.0009	0.00098	0.00086	0.00097	0.00108	0.00091
2.57	2.78	0.572	1.1	2.81	3.37	4.67	5.36	5.43	5.24	6.64	6.4	7.5
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
555	540	583	645	689	760	617	691	761	782	759	688	857
3.19	3.18	3.36	3.83	4.05	3.83	3.58	3.87	4.16	4.09	4.37	4.07	4.75
					941	873	885	1050	1120	1050	982	1280
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
0.00612	0.00612	0.00573	0.0058	0.00587	0.00588	0.00531	0.00529	0.00523	0.00523	0.00593	0.00574	0.00647
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
53.4	54.4	54.6	54.9	64	59.9	64.8	64.8	27.2	62.8	48.7	65.8	74.5
53.1	54.7	53.8	55	65	59.8	62.1	64.5	28.1	63.7	55	67.9	75.2
4.08	4.06	4.99	5.97	5.11	3.82							
5.16	4.69	4.19	4.32	5.13	6.13							
L1140194	**L1142492**	**L1176520**	**L1190914**	**L1223406**	**l1234688**	**L1312719**	**L1327102**	**L1344180**	**L1358626**	**L1375698**	**L1389979**	**L1410216**

Baseline Data for Surface Water

NSP	NSP	NSP	NSP	NSP	NSP	NSP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP
4-Feb-14	10-Apr-14	8-May-14	5-Jun-14	2-Jul-14	28-Jul-14	2-Sep-14	28-Mar-11	10-Apr-12	25-Apr-12	24-May-12	11-Jul-12	7-Aug-12
4485	2058	2932	3693	4504	4654		1674	1113	1480	1930		1250
18.4	165	27.6	86.4	8.92	107		13.9	95.3	39	76.2		84.2
2.63	18.4	2.83	8.28	7.72	9.29		1.56	10.1	3.86	7.75		7.04
8.98	9.42	9.48	9.5	9.43	9.3	9.16	7.26	8.38	7.6	8.24		7.73
-47.6	-42.2	83.4	55.6	57.9	125		8	84.7	116	114		167
3.67	1.5	2.01	2.36	2.57	2.69			0.74	0.92	1.26		0.63
6904	2878	3785	400	4796	5008		2363	1460	1804	2420		1270
-0.44	10.9	13.2	16.6	21.8	21.3	16.9	9.73	12.6	15.6	14.3		24.2
4481	1871	2457	2860	3117	3255		1540	949	1173	1579		825
									1.9	2.8		3.3
1520	546	708	883	989	1060	1120		206	247	386	228	204
1210	322	353	444	518	578	721		199	247	366	152	204
306	224	355	439	471	483	398		7.7	<2	20.4	76.4	<1
							566	29.3	32.4	30.1	36.5	27.2
3610	1230	1590	1910	2130	2220	2210	522	715	900	1230		609
<1	<1	<1	<1	<1	<1	<1		<1	<2	<1	<1	<1
8.87	9.32	9.21	9.25	9.27	9.22	8.99	7.52	8.42	8.22	8.37	8.96	8.15
7400	2830	3740	4190	4610	5060	5150	2380	1460	1760	2380	2430	1260
7290	2540	3390	3940	4160	4590	4750	2100	1130	1460	2060	2160	1020
8.7	17	9.1	3.4	9	9.2	10.5	18.7	11.3	<3	<3	10	3.9
24.8	7.45	1.22	0.68	3.1	1.18	4.2		3.15	1.87	3.48	16	3.59
<2.5	<1	<1	1.1	1.2	1.6	<2.5		<0.5	<0.5	<1	<1	<0.5
95	30	34	38	41	50	47		9.9	13.1	17	22	8.4
<1	<0.4	<0.4	0.056	0.058	0.065	0.07		<0.2	<0.2	<0.4	<0.4	<0.2
4010	1360	1870	2160	2390	2680	2710		635	844	1200	1380	557
3.68	0.0382	0.0913	0.0985	0.0814	0.0994	0.064		0.0375	0.102	0.128	0.0735	0.0649
0.34	<0.1	<0.1	<0.1	<0.1	4.32	<0.25		4.13	1.39	0.18	<0.1	0.394
<0.05	<0.02	<0.02	<0.02	<0.02	0.027	<0.05		0.062	0.071	<0.02	<0.02	0.034
								5.13	2.72	1.8		1.28
								5.27	3.07	2	2.62	1.44
12.5	15.3	3.25	3.5	4.25	4.3	5.15		1.08	1.6	1.83	2.62	1.01
0.751	0.24	0.257	0.218	0.208	0.301	0.382	2.47					
1	0.331	0.401	0.332	0.332	0.408	0.602		0.0187	0.0245	0.0336	0.0321	0.012
1.06	0.613	0.43	0.347	0.35	0.422	0.602	3.16	0.0472	0.0377	0.0489	0.066	0.037

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0215	0.0077	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	0.0172	<0.002	<0.002	0.0023	<0.002	0.0034	<0.01	<0.003	0.0031	0.0035		0.0016
0.00117	0.00048	0.00064	0.0008	0.00102	0.00124	0.00133	<0.001	0.00143	0.00147	0.00108		0.00121
0.0169	0.00697	0.00966	0.0108	0.013	0.0164	0.0151	<0.001	0.00285	0.00369	0.00483		0.00325
0.0422	0.0271	0.037	0.0398	0.0438	0.0521	0.0563	0.053	0.0211	0.0256	0.0315		0.0684
<0.0005	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.0001	<0.0001	<0.0001		<0.0001
<0.0025	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.2	<0.0005	<0.0005	<0.0005		<0.0005
<0.05	0.029	0.032	0.021	0.021	0.021	0.048	0.17	0.155	0.214	0.35		0.223
<0.00005	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.0005	<0.0003	<0.0011	<0.00038		<0.00075
31.1	23.5	32.5	33.8	34	34.7	35.3	43.8	92.8	113	134		82.9
<0.0005	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.0001	<0.0001	<0.0001		<0.0001
<0.0005	0.00016	0.00021	0.00023	0.00025	<0.0002	<0.0002	<0.0006	0.0001	0.00021	0.00045		0.00015
<0.001	0.00226	0.00278	0.00208	0.00153	0.00109	0.00074	0.0086	0.0135	0.0189	0.0127		0.0137
		<0.00002	<0.00002	<0.00002	<0.00002							
<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.03	0.035	0.162		0.014
<0.00025	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.001	<0.00005	<0.00005	<0.00005		<0.00005
0.0041	0.00246	0.0024	0.0028	0.0037	0.0029	0.0033	<0.01	0.00796	0.00975	0.0139		0.00734
858	284	366	442	498	517	514	100	117	150	218		97.6
0.113	0.0452	0.0365	0.00885	0.0247	0.0416	0.106	0.923	0.00404	0.02	0.0337		0.0145
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001		<0.00001
0.0156	0.00973	0.0126	0.0131	0.014	0.0143	0.0122	0.14	0.981	1.35	2.03		0.952
<0.0025	0.0009	<0.001	0.0011	0.0011	0.001	<0.001	0.0022	0.00202	0.00355	0.00696		0.00268
0.84	0.337	0.452	0.343	0.341	0.435	0.453	2.12	<0.3	<0.3	<0.3		<0.3
147	52.4	68.3	79.6	90.8	96.4	97.1	86.3	24.9	31.1	41.6		21.2
0.00163	0.00144	0.0019	0.00154	0.00147	0.00186	0.00135	<0.002	0.0272	0.0264	0.0149		0.0194
7.5	4.48	4.66	4.1	3.33	5.53	7.01	12.3	6.71	4.09	2.21		3.54
<0.00005	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004	<0.00001	<0.00001	<0.00001		<0.00001
876	295	395	445	527	588	586	113	73.7	93.3	145		56.1
5.1	1.82	2.36	2.72	3.02	3.43	3.29	0.877	1.19	1.48	2.02		1.32
1370	443	553	658	723	751	799						
<0.00005	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.0004	<0.00001	<0.00001	<0.00001		<0.00001
<0.0005	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0001	<0.0001	<0.0001		<0.0001
<0.05	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01		<0.01
0.00662	0.00264	0.0035	0.00398	0.00431	0.00437	0.00379	0.00094	0.00535	0.00711	0.0111		0.00353
<0.005	0.0031	0.0036	0.0036	0.0035	0.0024	<0.002	<0.002	0.0035	0.0037	0.0056		0.0037
<0.005	0.0012	<0.002	<0.002	<0.002	<0.002	<0.002	<0.005	0.0144	<0.003	0.0035		0.0017
<0.015	0.0534	0.0247	0.02	0.0476	0.0202	0.0163	<0.01	0.121	0.0355	0.0402	0.268	0.0479
0.00131	0.00047	0.00066	0.00085	0.00108	0.00127	0.00135	<0.001	0.00146	0.00143	0.00105	0.00145	0.00121
0.0181	0.00684	0.00889	0.0109	0.0128	0.0142	0.0164	0.001	0.00281	0.00364	0.00481	0.00813	0.0034
0.0414	0.0273	0.0369	0.0418	0.0443	0.0499	0.059	0.053	0.0219	0.0266	0.0308	0.0267	0.0685

Baseline Data for Surface Water

<0.0005	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.002	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
<0.0025	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.2	<0.0005	<0.0005	<0.0005	<0.001	<0.0005
0.055	0.033	0.035	0.024	0.026	0.021	0.05	0.18	0.166	0.214	0.369	0.279	0.229
<0.00005	0.000012	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.0003	<0.0003	<0.0012	<0.00038	<0.0003	<0.00075
32.4	22.5	32.5	34.1	34	34.7	38	43.4	92.5	112	130	42.8	79.9
<0.0005	0.00023	<0.0002	<0.0002	0.00021	<0.0002	<0.0002	<0.002	0.00066	0.00039	0.00037	0.00155	0.00031
<0.0005	0.00025	0.00024	0.00026	0.00026	<0.0002	<0.0002	<0.0006	0.00022	0.00024	0.00047	0.00073	0.00024
<0.0025	0.0034	0.003	0.0026	0.0021	0.0015	<0.001	0.0123	0.0164	0.0209	0.0145	0.0312	0.0161
0.041	0.062	0.023	0.043	0.046	0.024	0.016	0.032	0.166	0.083	0.264	0.468	0.1
<0.00025	<0.00005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.00005	<0.00005	<0.00005	<0.0001	<0.00005
0.0045	0.00236	0.0026	0.0027	0.0039	0.0027	0.0042	<0.01	0.00777	0.00938	0.0145	0.0156	0.00725
883	259	367	445	500	518	553	103	117	151	205	252	95.3
0.119	0.0722	0.0408	0.0156	0.0289	0.0443	0.119	0.908	0.0175	0.0242	0.0346	0.0264	0.0512
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000015	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0186	0.00915	0.0131	0.0139	0.0145	0.0137	0.0131	0.153	1.08	1.33	2.01	1.49	0.936
<0.0025	0.00113	0.001	0.0011	0.0011	0.0011	<0.001	0.003	0.00255	0.00374	0.00696	0.0078	0.00287
0.9	0.502	0.417	0.343	0.326	0.42	0.56	2.55	<0.3	<0.3	<0.3	<0.3	<0.3
155	49.5	67.6	79.8	86.4	94.7	103	90.9	24.7	31.8	39.2	38.1	21.1
0.00077	0.00153	0.0017	0.00162	0.00164	0.00168	0.00164	<0.002	0.0245	0.0256	0.0146	0.0181	0.0186
7.88	4.43	4.67	4.15	3.5	5.59	7.62	12.7	6.89	4.13	2.2	4.25	3.55
<0.00005	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001
905	285	393	473	524	541	586	119	72.6	96.4	138	172	55.2
5.51	1.73	2.4	2.86	3.08	3.22	3.75	0.882	1.29	1.46	1.98	0.704	1.32
1340	412	560	665	767	796	858						
<0.00005	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.0004	<0.00001	<0.00001	<0.00001	<0.00002	<0.00001
<0.0005	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001
<0.05	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	0.013	<0.01	<0.01	0.014	0.011
		<0.00002	<0.00002	<0.00002	<0.00002							
0.00699	0.00214	0.00354	0.00432	0.00438	0.00429	0.0042	0.00102	0.00596	0.00717	0.0113	0.00477	0.00351
<0.005	0.0035	0.0037	0.0039	0.0036	0.0023	<0.002	<0.002	0.004	0.0041	0.0061	0.0139	0.0044
<0.015	<0.003	<0.006	<0.006	<0.006	<0.006	<0.006	<0.005	0.0128	0.0043	0.0033	<0.006	0.0037
85.4	31.8	38.6	47.2	47.5	54	55.4		10.4	13.2	18.3		9.81
79.9	32.8	42.9	48.2	47.6	53.3	54.7		11.4	13.9	17.9	24.1	10.1
								<1	1.15	1.49		0.79
								1.04	1.5	1.7	2.54	0.949
L1418933	**L1442672**	**L1453031**	**L1466627**	**L1481215**	**L1494516**	**L1511703**	**L990458**	**L1133342**	**L1140194**	**L1152500**	**L1177597**	**L1190914**

Baseline Data for Surface Water

WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	WR-SEEP	CC02	CC02	CC02	CC02
7-May-13	5-Jun-13	3-Jul-13	7-Nov-13	10-Apr-14	8-May-14	4-Jun-14	3-Jul-14	28-Jul-14	1-May-07	18-Jul-07	14-Sep-07	28-Apr-08
2898	11220	3426		853	1180	1548	2812	3539	223		408	548
99.3		89.2		95.3	68.1	102	105	90.6				95
9.35		7.87		9.9	7.12	9.15	7.85	7.07	15	11.8	11.7	11.4
8.16	8.83	8.36		8.4	8.46	8.52	8.52	8.64	8.03	7.9	8.29	7.87
168	191	72.7		-60	58.7	85.7	79.6	89.7	-56.7			
1.77	7.18	1.96		0.54	0.77	0.84	1.33	1.75				
3336	12500	3709		1092	1520	1669	2603	3366	352	582	534	828
17.2	19.6	21		13.6	13.3	21.8	29.9	27.7	5.78	12.1	12.6	7.97
2186	8120	2411		709	988	1085	1693	2188				
19.1	4.6	3.3										
182	123	135	97.7	105	143	99.3	144	98.2	150	232	240	334
182	123	128	97.7	105	143	94.9	133	89.8				
<2	<2	7.1	<2	<2	<2	4.4	10.6	8.4				
12.7	11.3	17.2							16.4	9.4	8.4	7.1
1730	1970	2090	2400	516	705	840	1190	1560	187	270	246	404
<2	<2	<1	<2	<2	<2	<1	<1	<1				
8.25	8.17	8.39	7.86	8.26	8.21	8.33	8.48	8.75	8.33	8.37	8.44	7.91
3410	3990	4270	3860	1090	1470	1750	2410	3310	336	541	538	807
3020	3770	2960	3570	862	1220	1450	2030	2990	222	338	340	528
15.3	11.6	13.7	7.7	5.4	4.5	<3	6.1	10.2	9	6.6	6.2	<3
17.7	2.12	1.56	1.96	5.51	2.35	2.17	2.71	3.36				0.91
<1	1.2	1	<1	<0.5	<0.5	<0.5	<1	<1	<0.05	<0.05	<0.05	<0.05
165	202	219	174	29.9	43.8	62.1	102	155	1.41	2.48	2.45	7.02
<0.4	0.42	<0.4	<0.4	<0.2	<0.2	0.18	0.21	0.217	0.093		0.116	0.094
2010	2340	2390	2240	475	669	839	1280	1860	30.3	66.5	61.4	134
0.0181	0.016	0.0219	0.63	0.0083	0.0144	0.0097	0.019	0.0184	0.023	0.031	0.024	0.031
<0.1	<0.1	<0.1	1.92	<0.05	<0.05	<0.05	<0.1	0.1	0.033	0.0389	0.0322	0.224
<0.02	<0.02	<0.02	0.091	<0.01	<0.01	<0.01	<0.02	<0.02	<0.001	0.0022	<0.001	0.0029
1.35	1.37	1.61	5.29									
1.4	1.38	1.61	2.85	0.505	0.802	1.05	1.99	1.92	0.247	0.335	0.177	0.299
	<0.001	<0.001	0.0029	<0.001	0.0019	<0.001	<0.001	<0.001	0.0088	0.0192	0.015	0.0104
0.0177	0.0152	0.0127	0.0157	0.0091	0.0146	0.0108	0.0175	0.0144			0.0169	
0.0644	0.0264	0.0211	0.032	0.0237	0.0193	0.017	0.0312	0.0425	0.025	0.0315	0.0258	0.0257

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0055	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005
0.0043	0.0029	0.0024		0.0027	0.006	0.0058	0.0071	0.0032	0.006	<0.005	<0.005	<0.01
0.00067	0.0006	0.00046	0.00162	0.00048	0.0006	0.00062	0.00054	0.00047	<0.0005	<0.0005	<0.0005	<0.001
0.00178	0.00172	0.00236	0.00295	0.00112	0.00127	0.00151	0.0033	0.00334	0.00057	0.00095	0.00075	<0.001
0.0665	0.0488	0.0483	0.0258	0.0357	0.0425	0.0378	0.0426	0.0449	0.051	0.06	0.07	0.114
<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.002
<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				
0.317	0.338	0.375	0.165	0.082	0.153	0.183	0.313	0.302	<0.1	<0.1	<0.1	<0.1
<0.00005	<0.00004	<0.00005	<0.00025	<0.00002	<0.00003	<0.00004	<0.00005	<0.00005	<0.000017	<0.000017	<0.000017	<0.000034
285	290	265	331	116	148	133	173	183	50.1	66.6	60.2	100
<0.0001	<0.0002	<0.0002	0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.002
0.00021	<0.0002	<0.0002	0.00051	<0.0001	<0.0001	<0.0001	0.00011	0.00015	<0.0003	<0.0003	<0.0003	<0.0006
0.0141	0.0124	0.0175	0.0637	0.0126	0.0133	0.0126	0.0194	0.0176	0.0026	0.0019	0.0017	<0.002
				<0.00002	<0.00002	<0.00002	<0.00002	<0.00002				
0.028	0.017	0.024		<0.01	0.013	0.023	0.027	0.016	<0.03	<0.03	<0.03	0.031
<0.00005	<0.0001	<0.0001	<0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0005	<0.0005	<0.0005	<0.001
0.0669	0.0787	0.0955	0.0779	0.0136	0.0235	0.03	0.0577	0.0903	<0.005	<0.005	<0.005	<0.01
248	302	347	383	54.9	81.7	123	185	268	15	25.1	23.3	37.1
0.076	0.0173	0.0182	0.131	0.00137	0.00518	0.00393	0.00742	0.0119	0.00466	0.0279	0.0208	0.0542
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002
0.195	0.166	0.12	0.525	0.0554	0.102	0.13	0.131	0.114	0.0122	0.0106	0.0103	0.0085
0.00289	0.0025	0.0029	0.0058	0.00107	0.00142	0.00161	0.0023	0.00231	<0.001	<0.001	<0.001	<0.002
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05				
56.2	58.1	69	64.6	17.1	23.4	31.8	48.9	63.5	2	2.3	3.3	4.6
0.00231	0.00152	0.00145	0.0381	0.00197	0.0023	0.00158	0.0015	0.00154	<0.001	<0.001	<0.001	<0.002
0.248	0.237	1.01	3.6	3.62	3.89	4.71	3.32	0.474				
<0.00001	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00004
212	263	276	293	39	61.3	89.1	139	208	8.9	20.3	22.5	36.5
4.95	5.58	5.12	6.56	1.69	2.23	2.58	3.54	4.56				
580	725	725	821	160	207	281	425	575				
0.000014	<0.00002	<0.00002	0.000031	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0004
<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.001
<0.01	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0121	0.0071	0.00511	0.0237	0.00461	0.00657	0.00582	0.00605	0.00461	0.00046	0.00063	0.00056	0.00089
<0.001	<0.002	<0.002	<0.002	0.001	0.0011	0.0025	0.0017	0.0013	<0.03	<0.03	<0.03	<0.002
0.0016	<0.002	<0.002	<0.002	<0.001	<0.001	0.0019	<0.001	0.0011	<0.005	<0.005	<0.005	<0.005
0.471	0.0408	0.0167	<0.006	0.171	0.0981	0.0458	0.0465	0.0913	0.107	0.0894	0.0249	<0.01
0.00066	0.0006	0.00048	0.00131	0.00049	0.00061	0.00061	0.00049	0.0005	<0.0005	<0.0005	<0.0005	<0.001
0.00203	0.00176	0.00223	0.00249	0.0012	0.00137	0.00157	0.0033	0.00343	0.00059	0.00074	0.00073	<0.001
0.07	0.0476	0.0483	0.023	0.0359	0.0434	0.0376	0.0413	0.0455	0.052	0.063	0.073	0.116

Baseline Data for Surface Water

<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.002
<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				
0.31	0.331	0.403	0.147	0.086	0.169	0.191	0.291	0.308	<0.1	<0.1	<0.1	<0.1
<0.00005	<0.00004	<0.00005	<0.00025	<0.00003	<0.00004	<0.00004	<0.0001	<0.00005	<0.000017	<0.000017	<0.000017	<0.000034
274	291	261	302	111	146	132	160	177	47.7	67.8	59.3	100
0.00102	<0.0002	0.00022	0.00036	0.00041	0.00027	0.00016	0.00029	0.00031	<0.001	<0.001	<0.001	<0.002
0.00056	<0.0002	<0.0002	0.00039	0.00018	0.00013	0.00011	0.00016	0.00023	<0.0003	<0.0003	<0.0003	<0.0006
0.0202	0.0137	0.0182	0.0503	0.0152	0.0152	0.0136	0.0203	0.0195	0.0035	0.0032	0.0022	<0.002
0.666	0.071	0.051	<0.01	0.225	0.123	0.083	0.081	0.118	0.131	0.169	0.069	0.068
0.000107	<0.0001	<0.0001	<0.0001	0.000056	<0.00005	<0.00005	<0.00005	<0.00005	<0.0005	<0.0005	<0.0005	<0.001
0.0645	0.0798	0.1	0.0612	0.0135	0.0241	0.0305	0.0495	0.0888	<0.005	<0.005	<0.005	<0.01
246	303	349	321	52.3	81.3	123	176	265	14.9	25.6	22.7	37.1
0.104	0.0193	0.0303	0.12	0.00801	0.0113	0.0169	0.0236	0.0196	0.0125	0.0459	0.0333	0.0683
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002
0.194	0.167	0.119	0.434	0.057	0.102	0.134	0.116	0.112	0.0121	0.0111	0.0103	0.0084
0.00408	0.0029	0.0031	0.0045	0.0024	0.0017	0.00166	0.00237	0.00266	<0.001	<0.001	<0.001	<0.002
0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05				
53	57.7	68.1	57	15.8	23.6	30.7	45	62.7	<2	2.4	3.2	4.6
0.00214	0.00153	0.00152	0.0327	0.00193	0.00192	0.00143	0.00138	0.00164	<0.001	<0.001	<0.001	<0.002
1.29	0.32	1.04	3.03	3.84	4.05	4.76	3.29	0.636				
0.000011	<0.00002	<0.00002	<0.00002	0.000012	<0.00001	0.00007	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00004
206	268	282	242	37.7	63.1	92	137	214	8.8	20.8	21.9	37
4.97	5.49	5.02	5.85	1.69	2.21	2.64	2.99	4.48				
606	707	727	731	155	206	279	405	571				
0.000017	<0.00002	<0.00002	0.000026	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0004
<0.0001	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.001
0.023	<0.02	<0.02	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
				<0.00002	<0.00002	<0.00002	<0.00002	<0.00002				
0.0116	0.0072	0.00513	0.0186	0.00457	0.00661	0.00593	0.00549	0.00456	0.00046	0.00068	0.00054	0.00087
0.0028	<0.002	<0.002	<0.002	0.0017	0.0015	0.0027	0.0022	0.0019	<0.03	<0.03	<0.03	<0.002
<0.003	<0.006	<0.006	<0.006	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005
16.1	17.4	26.3	14.6	10.2	10.6	13.9	23.6	27.6		6.11	5.35	5.12
16.5	17.7	27.5	22.6	10.4	10.7	14.1	23.4	28.4	8.76			
L1298960	**L1312719**	**L1327102**	**L1389979**	**L1442672**	**L1453031**	**L1465478**	**L1481215**	**L1494516**	**L501128**	**L532402**	**L554763**	**L623545**

Baseline Data for Surface Water

CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02
7-Jul-08	4-Sep-08	02/Sep/2010	22-Nov-10	28-Mar-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11	12-May-11	30-May-11	28-Jun-11	28-Jul-11
460	461	455	403	522	578	537	469	256	165	207	394	422
99	96.8	91.6	76.7	97	111	98.2	80.3	96.6	93.3	78.6	94.7	90.8
10.7	10.4	10.1	11.3	12.3	13.6	14.1	10.7	12.3	12	9.08	10.3	10.2
8.02	8.25	7.9	7.65	8.39	8.5	8.15	8.11	8.13	7.91	5.8	7.97	8.07
-103	-75.6	11.6	268	117	20.2	165	114	119	97.9	511	184	80
						0.49	0.39	0.2	0.13	0.14	0.26	0.29
615	614	622	773	840	892	1025	802	413	270	297	531	585
11.9	12	10.9	-0.05	5.14	6.61	-0.02	3.39	5.08	4.66	8.99	11.6	10.4
		405	503	547	580	660	520	269	175	193	345	380
										57.4		1
												3
260	262	255	309	325	343	315	322	170	122	134	214	239
			309			305						
			<1			10.2						
9.5	7.3	10.7	7.1	9.2	10.6	7	6.9	21.1	54.3	48.7	16	11.7
281	295	284	365	391	427	414	432	213	142	145	244	274
			<1			<1						
8.38	8.46	8.29	8.32	8.27	8.46	8.35	8.31	8.31		8.26	8.36	8.22
602	624	591	749	802	825	835	813	396	271	275	491	562
390	386	374	476	536	560	548	547	261	196	186	328	351
<3	<3	<3	<3	<3	<3	<3	<3	65.5	542	195	<3	<3
1.25	1.01	0.77	1.41	0.79	1.03	1.22	0.61	26.3	192		0.84	1.06
<0.05	<0.05	<0.05	<0.05	<0.69	<0.76	<0.5	<0.25	<0.05	<0.05	<0.25	<0.05	<0.05
3.71	3.23	2.8	3.77	8.1	9	8.6	6.6	2	1.42	2.5	3.02	3.19
0.116	0.113	0.106	0.101	<0.2	<0.2	<0.2	<0.1	0.078	0.072	<0.1	0.109	0.125
85.3	86.2	74.5	111	137	151	156	157	45.4	23.8	19.3	65	71.6
<0.02	0.024	<0.005	0.0319	0.0269	0.0168	0.0144	0.0193	0.0122	0.0214	0.0185	0.0116	0.0109
0.14	0.0677	0.0905	0.29	0.448	0.32	0.417	0.357	0.161	0.0491	<0.025	0.0886	0.0815
0.0026	0.0015	<0.001	0.002	<0.01	<0.01	<0.01	<0.005	<0.001	<0.001	<0.005	<0.001	<0.001
							0.74	0.4	0.56	0.48	0.44	0.37
		0.618	0.491	0.779	0.599	0.748	0.628	0.47	2.17	0.47	0.44	0.39
0.277	0.221	0.527	0.199	0.331	0.279	0.331	0.271	0.309	1.75	0.47	0.351	0.308
0.0172	0.0279	0.0169	0.0155	0.0286						0.0257	0.0218	0.0239
		0.019			0.0196	0.0128	0.0217	0.0242	0.0517	0.0317	0.0258	0.0283
0.0222	0.0335	0.0233	0.0208	0.0402	0.029	0.0198	0.0207	0.206	0.87	0.249	0.0314	0.0333

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005		<0.005	<0.005	<0.005		<0.005	<0.005	0.008	0.0217	0.0124	0.0051	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.01	<0.005	<0.005	0.0199	0.0118	<0.005	<0.005
<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00076	0.00075	0.00069	<0.001	0.00051	<0.001	<0.001	0.00052	0.00059	0.0007	0.00078	0.00073	0.00071
0.085	0.08	0.077	0.104	0.104	0.109	0.108	0.111	0.055	0.036	0.039	0.072	0.076
<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.000017	0.000031	0.00003	<0.000034	0.000025	<0.000034	<0.000034	0.000021	0.000029	0.000043	0.000028	0.000036	0.000042
70.8	72.9	69.7	90.5	98	106	103	107	57.1	38.1	38.5	60.7	68.2
<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.0003	<0.0003	<0.0003	<0.0006	<0.0003	<0.0006	<0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
0.002	0.0015	0.0019	<0.002	0.0013	<0.002	<0.002	0.0014	0.0023	0.0045	0.0043	0.0028	0.0022
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.084	0.045	<0.03	<0.03
<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
25.3	27.5	26.8	33.8	35.7	39.3	38.2	40	17.1	11.3	11.8	22.5	25.2
0.0283	0.0207	0.0264	0.0388	0.0353	0.0345	0.0355	0.0336	0.00883	0.00513	0.00491	0.0131	0.0171
<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.01	0.0099	0.0099	0.0081	0.0083	0.008	0.0082	0.0079	0.0088	0.0078	0.0081	0.0088	0.0096
<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
				<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
3.5	3.8	3.9	4.2	5.1	5.7	4.5	4.8	2.4	2.7	2.4	3.4	3.7
<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	0.0018	<0.001	<0.001	<0.001	<0.001	<0.001
				6.65	6.12	6.17	6.46	6.86	6.21	7.48	7.76	7.96
<0.00002	<0.00002	<0.00002	<0.00004	<0.00002	<0.00004	<0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
27.2	28.3	28	36.6	37.4	41.8	40.3	40.9	11.2	7.3	7.8	23.1	26.3
				0.408	0.447	0.446	0.464	0.223	0.148	0.156	0.29	0.314
<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00062	0.00063	0.00067	0.0008	0.00097	0.00108	0.0011	0.00102	0.00049	0.00025	0.00022	0.00047	0.00055
0.0019	0.002	0.0018	<0.002	0.0019	0.0021	<0.002	0.0018	0.0015	0.0018	0.0018	0.0018	0.0017
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0186	0.0117	0.0202	0.022	0.0213	0.018	0.025	0.0237	1.32	11.5	3.3	0.058	0.0551
<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00078	0.00073	0.00073	<0.001	<0.0005	<0.001	<0.001	<0.0005	0.00087	0.00409	0.00183	0.00074	0.00072
0.089	0.079	0.081	0.099	0.106	0.112	0.111	0.106	0.072	0.183	0.081	0.071	0.08

Baseline Data for Surface Water

<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
0.000031	0.000027	<0.000017	<0.000034	0.000036	<0.000034	<0.000034	0.000021	0.000039	0.000116	0.000051	<0.000017	<0.000017
72.7	71.6	70.8	89.7	98.7	105	102	101	56.5	52.6	41.6	59.6	70.1
<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.001	0.0025	0.0211	0.0059	<0.001	<0.001
<0.0003	<0.0003	<0.0003	<0.0006	<0.0003	<0.0006	<0.0006	<0.0003	0.00116	0.0106	0.00292	<0.0003	<0.0003
0.0023	0.0016	0.0022	<0.002	0.0014	<0.002	<0.002	0.0016	0.0098	0.0658	0.0209	0.0034	0.0028
0.06	0.041	0.055	0.067	0.086	0.071	0.076	0.073	1.9	17	4.32	0.101	0.102
<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.0005	0.00183	0.00056	<0.0005	<0.0005
<0.005	<0.005	<0.005	<0.01	<0.005	<0.01	<0.01	<0.005	<0.005	0.0073	<0.005	<0.005	<0.005
26.4	27.5	28.7	33.2	36.6	41.6	38.5	38.9	17.5	21.1	14	22.2	26
0.0352	0.0255	0.035	0.0463	0.047	0.0394	0.0433	0.0413	0.0735	0.631	0.14	0.0193	0.0256
<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000033	<0.00001	<0.00001	<0.00001
0.0099	0.0096	0.011	0.0084	0.0089	0.0086	0.0091	0.0086	0.0095	0.0084	0.009	0.0103	0.0112
<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	<0.001	0.0023	0.017	0.0049	<0.001	<0.001
				<0.3	<0.3	<0.3	<0.3	<0.3	1.19	0.4	<0.3	<0.3
3.6	3.8	4	4.2	5.2	6.4	4.6	4.5	2.6	4.8	2.9	3.4	3.9
<0.001	<0.001	<0.001	<0.002	<0.001	<0.002	<0.002	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001
				6.74	6.21	6.28	6.21	9.67	30.7	14.5	7.78	8.29
<0.00002	<0.00002	0.000046	0.000057	<0.00002	<0.00004	<0.00004	<0.00002	<0.00002	0.000076	<0.00002	<0.00002	<0.00002
28.4	28	28.9	36.8	37.5	45.3	41.2	38.4	11	8.2	8.1	23.2	27.5
				0.411	0.462	0.459	0.439	0.225	0.221	0.175	0.289	0.327
<0.0002	<0.0002	<0.0002	<0.0004	<0.0002	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.06	0.518	0.156	<0.01	<0.01
0.00061	0.00063	0.00072	0.0008	0.001	0.00117	0.00117	0.0011	0.00051	0.00055	0.00035	0.00056	0.0006
0.002	0.002	0.0022	<0.002	0.0021	0.0024	0.002	0.0018	0.0069	0.0504	0.0161	0.0023	0.0021
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0335	0.0097	<0.005	<0.005
6.03	5.39	5.87	5.33	5.86	5.35	4.75	4.22	10.5	16.5	17.4	9.35	7.2
					4.96	4.7	4.26	10.6	33.3	17.7	9.4	7.43
							0.36	0.227	0.49	0.461	0.34	0.278
					0.262		0.252	0.297	1.73	0.451	0.34	0.298
L652819	**L678833**	**L927930**	**L956921**	**L990458**	**L995583**	**L997645**	**L999654**	**L1002049**	**L1005044**	**L1011001**	**L1025075**	**L1038168**

Baseline Data for Surface Water

CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02
1-Sep-11	27-Sep-11	26-Oct-11	5-Dec-11	10-Jan-12	13-Feb-12	7-Mar-12	10-Apr-12	26-Apr-12	4-May-12	10-May-12	16-May-12	24-May-12
383		436	414	384	428	422	479	127	200	223	254	319
104	93.2	94.3	91.4	88.4	92.3	93.3		96.3	90.8	94.7	90.7	95
12.4	10	12.4	12.7	12.8	12.8	12.9	15.7	12.9	11.5	11.3	10.6	10.6
8.1	8.26	8.26	8.23	8.25	8.08	8.09	8.36	7.85	8.4	8.25	8.25	8.31
112	217	163	73.5	103	144	66	106	130	91.2	136	155	130
0.28		0.36	0.36	0.35	0.37	0.37	0.37	0.1	0.15	0.16	0.18	0.21
573	630	730	747	727	766	755	762	219	320	333	370	442
7.65	12.1	3.93	1.69	0.31	1.88	1.93	5.51	3.14	5.4	7.68	8.61	10.4
373		474	485	473	498	491	495	142	208	216	240	287
0.95			8.2	1	0	0.8		167	9.6	3.4	2.4	1.8
234	273	291	316	256	288	290	314	97.9	128	136	150	182
				256	288	280	287	97.9	128	136	150	182
				<1	<2	10.3	26.8	<2	<2	<1	<1	<1
10.2	10.8	8.3	6.7	5.7	5.4	8.7	7.1	55.9	41.2	33.4	28.4	19.7
260	290	330	339	349	371	379	387	115	164	164	177	209
				<1	<2	<1	<1	<2	<2	<1	<1	<1
8.34	8.36	8.37	8.34	8.34	8.28	8.34	8.54	7.97	8.19	8.33	8.31	8.18
538	612	686	723	714	730	753	759	215	312	337	362	432
333	389	429	449	472	482	510	509	162	221	218	244	291
4.4	<3	<3	3.3	<3	<3	<3	3.3	611	23.3	10.7	6.8	3.3
0.92	0.54	1.43	2.02	1.12	1.05	1.07	0.81	184	7.81	2.4	1.76	1.12
<0.05	<0.05	<0.25	<0.25	<0.25	<0.25	<0.5	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05
2.82	3.49	4.5	3.9	4.3	4.8	5.1	5.9	1.32	2.29	2.06	2.16	2.68
0.128	0.135	0.12	0.11	0.11	0.1	<0.2	<0.1	0.079	0.096	0.09	0.093	0.102
67.9	84.1	100	111	126	128	141	135	19.1	39.9	45	52.8	69
0.009	0.0077	0.0228	0.0405	0.0232	0.053	0.0831	0.0099	0.0095	0.0062	<0.005	0.0069	<0.005
0.109	0.107	0.265	0.287	0.37	0.469	0.635	0.331	0.0341	0.0495	0.0213	0.0624	0.0496
<0.001	0.0015	0.0068	0.0052	0.006	0.0065	<0.01	<0.005	0.0045	<0.001	<0.001	0.001	<0.001
0.36	0.29	0.26		0.45	0.84	0.96	0.55	0.61	0.38	0.32	0.32	0.25
0.38	0.372		0.49	0.593	0.73	0.972	0.502	0.593	0.508	0.345	0.368	0.331
0.215	0.263	0.266	0.27	0.217	0.25	0.337	0.171	0.555	0.459	0.324	0.305	0.281
		0.0224										
0.0306	0.0419	0.0263	0.0372	0.0279	0.0272	0.0829	0.0111	0.0567	0.0312	0.0186	0.0172	0.0145
0.0341	0.0467	0.0321	0.045	0.033	0.0327	0.0921	0.0202	0.742	0.0916	0.0415	0.0296	0.02

Baseline Data for Surface Water

	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0119	<0.005	<0.005	<0.005
	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0165	0.0079	0.007	0.0044	0.0029
<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.00012
0.00069	0.0007	0.00057	0.0005	0.00048	0.00047	0.00063	0.0005	0.00052	0.00064	0.00057	0.00052	0.00061
0.07	0.082	0.0834	0.0902	0.0941	0.107	0.101	0.108	0.0309	0.0417	0.048	0.0513	0.0589
<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	<0.1	0.037	0.039	0.04	0.034	0.036	0.036	<0.01	0.013	0.014	0.015	0.019
<0.000017	<0.000017	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
64.2	72.2	82.5	82.7	86.5	93.2	92.9	93.8	32.3	42.9	42.5	45.7	53.6
<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00015	0.00014	0.0002	0.00015	0.00012
<0.0003	<0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.0019	0.0018	0.00139	0.00098	0.00106	0.00118	0.00151	0.00122	0.0042	0.00403	0.00376	0.0035	0.00301
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.116	0.04	<0.03	<0.03	0.011
<0.0005	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
<0.005	<0.005	0.00248	0.00321	0.00285	0.00245	0.00242	0.00267	<0.0005	0.00125	0.00118	0.00132	0.00143
24.2	26.6	30	32.2	32.3	33.7	35.7	37.1	8.38	13.9	14.2	15.3	18.3
0.0139	0.0169	0.0233	0.0308	0.0305	0.0308	0.0311	0.0347	0.00626	0.00305	0.00391	0.00465	0.00655
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0102	0.0101	0.00958	0.00941	0.00898	0.00931	0.00931	0.0086	0.00803	0.0099	0.00957	0.00935	0.00885
<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00054	0.00055	<0.0005	<0.0005	<0.0005
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
3.5	4.2	4.14	4.31	4.07	4.63	6.24	4.13	2.19	2.57	2.3	2.24	2.6
<0.001	<0.001	0.00029	0.00039	0.00047	0.00054	0.00064	0.00062	0.00035	0.0004	0.00039	0.00038	0.00053
8.19	8.62	8.05	8.19	7.6	7.3	7.19	6.31	5.44	6.49	6.32	6.47	6.57
<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
25	31.9	31.4	35.2	32.8	30.1	30.1	30.9	4.5	9.22	10.2	11.5	15.3
0.297	0.331	0.326	0.401	0.386	0.376	0.377	0.403	0.108	0.175	0.176	0.2	0.231
<0.0002	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00053	0.00059	0.000668	0.000749	0.000768	0.000894	0.000989	0.000979	0.000167	0.00031	0.000298	0.000318	0.000407
0.0018	0.0021	0.0016	0.0016	0.0015	0.0018	0.0023	0.002	0.0014	0.0016	0.0016	0.0015	0.0017
<0.005	<0.005	0.0043	<0.003	0.0032	0.0256	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0049
0.0315	<0.025	0.0302	0.0583	0.0648	0.0209	0.0224	0.01	8.32	0.425	0.219	0.107	0.0575
<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.00021	0.00011	<0.0001	0.00011	<0.0001
0.0007	0.00061	0.00054	0.00048	0.00049	0.00051	0.00059	0.00051	0.00304	0.00084	0.0006	0.00059	0.00064
0.075	0.082	0.083	0.088	0.0953	0.111	0.103	0.104	0.142	0.0469	0.0482	0.0546	0.0566

Baseline Data for Surface Water

<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00018	<0.0001	<0.0001	<0.0001	<0.0001
<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.1	<0.1	0.042	0.04	0.044	0.044	0.044	0.04	0.017	0.017	0.018	0.021	0.023
<0.000017	<0.000017	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	0.000065	0.000012	<0.00001	<0.00001	<0.00001
65	71.3	81.4	82.6	87.7	96.4	92.9	93.8	39.2	42.3	41.6	46.8	50.3
<0.001	<0.001	0.00017	0.0002	0.00036	0.00253	0.00026	0.00019	0.015	0.00101	<0.0006	0.00041	0.00027
<0.0003	<0.0003	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.00773	0.00045	0.00021	0.00014	<0.0001
0.0023	0.0019	0.00165	0.00151	0.00154	0.00154	0.00185	0.00145	0.0528	0.0067	0.00462	0.00469	0.00344
0.067	0.059	0.076	0.117	0.132	0.076	0.071	0.046	12.2	0.686	0.27	0.17	0.09
<0.0005	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00142	0.000089	<0.00005	<0.00005	<0.00005
<0.005	<0.005	0.00287	0.00303	0.0029	0.00264	0.00275	0.00252	0.00495	0.00149	0.00121	0.00154	0.00147
25.2	26.9	30	31.5	32.9	35.2	36	37.1	14.7	14	14	15.9	17.7
0.0201	0.0213	0.0284	0.0399	0.0462	0.0393	0.0367	0.0364	0.426	0.0221	0.0115	0.00985	0.0102
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000035	<0.00001	<0.00001	<0.00001	<0.00001
0.0109	0.0103	0.00994	0.00941	0.0095	0.0107	0.00996	0.00854	0.0106	0.00952	0.00967	0.0101	0.00911
<0.001	<0.001	<0.0005	<0.0005	<0.0005	0.00225	<0.0005	<0.0005	0.0133	0.00125	0.00071	0.00057	<0.0005
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.83	<0.3	<0.3	<0.3	<0.3
3.8	4.2	4.13	4.26	4.21	4.77	6.48	4.1	3.48	2.54	2.23	2.34	2.52
<0.001	<0.001	0.00026	0.00033	0.00039	0.00056	0.0006	0.00061	0.0006	0.00035	0.00038	0.00043	0.00052
8.46	8.49	8.08	8.16	7.84	7.62	7.29	6.33	23.1	7.31	6.54	6.87	6.21
<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000048	<0.00001	<0.00001	<0.00001	<0.00001
26.8	31.2	31.2	34.2	34	31.5	31	30	4.79	9.01	9.83	12	14.9
0.312	0.329	0.33	0.393	0.39	0.399	0.387	0.393	0.152	0.166	0.173	0.208	0.229
<0.0002	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000034	<0.00001	<0.00001	<0.00001	<0.00001
<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.013	<0.01	0.015	<0.01	0.012	<0.01	<0.01	<0.01	0.375	0.023	0.01	<0.01	<0.01
0.00058	0.00061	0.00067	0.000744	0.000792	0.000956	0.00104	0.000929	0.000394	0.000311	0.000311	0.000343	0.00044
0.002	0.0021	0.0017	0.0019	0.0019	0.0022	0.0024	0.002	0.0359	0.0034	0.0022	0.0021	0.0021
<0.005	<0.005	<0.003	<0.003	0.0084	0.0033	0.0033	<0.003	0.0238	<0.003	<0.003	<0.003	<0.003
6.9	6.76	5.6	5.1	4.6	4.61	5.22	5.05	16.2	13.5	10.3	10.4	9.33
6.92	6.76	6.45	5.02	4.61	4.76	5.27	5.13	26.6	13.6	10.8	10.6	9.47
0.242	0.174	<0.052		<0.09	0.31	0.24	0.21	0.562	0.324	0.294	0.25	0.196
0.262	0.164	0.095	0.158	0.194	<0.3	0.254	0.161	0.545	0.453	0.324	0.298	0.281
L1053400	**L1065234**	**L1077732**	**L1092368**	**L1103104**	**L1114029**	**L1122039**	**L1133342**	**L1140194**	**L1143149**	**L1146570**	**L1148880**	**L1152500**

Baseline Data for Surface Water

CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC02
12-Jul-12	8-Aug-12	5-Sep-12	11-Oct-12	5-Nov-12	4-Dec-12	10-Jan-13	5-Feb-13	5-Mar-13	2-Apr-13	6-May-13	4-Jun-13	2-Jul-13
368	454	440	425	293	433	384	397	422	555	178	264	349
95.7	95.3	103	96.1	100	85.7	90.3	90.4	107		89.4	91.6	95.7
10.4	9.51	11.4	11.8	11.9	11	12.9	12.6	14.2		9.9	9.58	9.27
8.14	8.17	8.29	8.14	8.14	8.26	8.65	8.08	8.46	8.18	7.95	8.22	8.19
132	91.1	85.9	-233	97.4	176	109	153	80.4	144	214	110	104
	0.27	0.29	0.32	0.21	0.34	0.34	0.34	0.35	0.42	0.12	0.16	0.2
496	557	603	661	434	708	716	713	714	850	245	339	414
11.5	15.3	10.8	6.32	7.89	4.66	0.73	1.79	3.6	6.83	10.8	13.3	16.9
	362	392	430	282	460	465	463	464	552	159	220	269
0.2	2.6	1.1	0.9	1	0	0.5	0.7	0.6	0.8	134	17.5	3
		<1										
199	248	259	283	284	290	298	283	290	313	110	152	170
199	238	251	283	284	284	298	283	273	300	110	152	164
<1	10.8	7.9	<2	<1	6	<2	<1	17	13	<2	<1	6.4
15	13	9.5	8	8.6	6.8	5.4	6.4	9	7.7	41.3	34.1	25.4
235	261	285	323	316	331	335	347	374	387	116	162	194
<1	<1	<1	<2	<1	<1	<2	<1	<1	<1	<2	<1	<1
8.38	8.45	8.46	8.27	8.41	8.33	8.3	8.31	8.41	8.36	8.25	8.38	8.37
480	556	593	618	668	670	660	695	741	797	229	328	391
336	368	389	425	460	449	426	444	492	533	151	222	272
5.3	3.1	<3	<3	<3	<3	<3	<3	4	<3	346	41.7	10.9
1.37	1.5	0.92	0.59	0.83	0.47	1.01	0.66	0.66	1.13	123	14.2	1.56
<0.05	<0.05	<0.05	<0.05	<0.5	<0.25	<0.25	<0.5	<0.05	<0.5	<0.05	<0.05	<0.05
2.46	2.83	2.92	3.23	<5	4.1	3.9	<5	5.44	5.4	1.24	2.14	2.38
0.118	0.134	0.135	0.13	0.27	0.1	0.17	<0.2	0.117	0.27	0.101	0.113	0.126
63	78.5	80.7	94.5	96.7	105	110	120	131	153	18.3	24.8	31
0.0072	0.008	0.0082	0.0089	0.0183	0.0272	0.0151	0.03	0.0151	0.021	0.0148	0.0061	0.0087
0.103	0.0938	0.108	0.0689	0.236	0.277	0.326	0.41	0.385	0.518	0.0199	0.042	0.0625
<0.001	<0.001	0.0018	0.007	0.012	0.0101	0.0073	<0.01	0.0047	0.016	<0.001	<0.001	<0.001
0.18	0.42	0.36	0.37	0.56	0.588	0.527	0.671	0.616	0.758			
	0.336		0.318	0.497	0.526	0.502	0.669	0.655	0.834	1.37	0.364	0.453
0.274	0.242	0.232	0.242	0.249	0.24	0.208	0.291	0.337	0.3	1.62	0.426	0.391
			0.0224									
0.03	0.0411	0.0353	0.0261	0.0325	0.0269	0.0397	0.0345	0.0544	0.0367	0.0335	0.0288	0.058
0.0384	0.0495	0.0374	0.031	0.0364	0.0301		0.0375	0.0587	0.0449	0.844	0.116	0.0343

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0019	0.0049	0.0015	<0.001	<0.001	<0.001	0.0012	0.0012	0.001	<0.001	0.0156	0.0066	0.0035
0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00072	0.00078	0.00072	0.00053	0.0005	0.00048	0.00049	0.00048	0.0005	0.00056	0.00061	0.00072	0.00091
0.0638	0.0703	0.0756	0.0815	0.0866	0.0913	0.0901	0.0965	0.0929	0.108	0.031	0.0451	0.0564
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.027	0.039	0.042	0.039	0.041	0.042	0.037	0.04	0.035	0.044	<0.01	0.014	0.02
0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
60.1	63.6	71.7	79.4	79	84.2	82.7	85.3	90.4	96.6	31.6	43.1	49.9
<0.0001	<0.0001	0.00011	<0.0001	<0.0001	0.00014	<0.0001	<0.0001	<0.0001	<0.0001	0.00015	0.00015	0.0001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00274	0.00214	0.00137	0.00136	0.00113	0.00112	0.00105	0.00123	0.0016	0.00126	0.00391	0.00357	0.00297
0.014	0.017	0.02	0.019	0.017	0.021	0.016	0.017	0.022	0.015	0.048	0.02	0.017
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00178	0.00255	0.003	0.00229	0.00251	0.00289	0.0022	0.00306	0.00285	0.00198	0.00093	0.00102	0.00133
20.6	24.9	25.8	30.4	28.8	29.3	31.2	32.6	36	35.3	8.93	13.3	16.7
0.0132	0.0159	0.0181	0.0212	0.0223	0.0236	0.0249	0.0236	0.0239	0.0302	0.00501	0.00363	0.00726
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00935	0.00989	0.0101	0.00945	0.00839	0.00923	0.0088	0.00945	0.00884	0.00866	0.00982	0.00954	0.01
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00053	0.00052
<0.3	<0.3	<0.05	<0.3	<0.3	<0.05	<0.05	<0.05	0.056	<0.05	<0.05	<0.05	<0.05
2.94	3.72	4.04	3.71	4.04	4.17	4.16	4.69	6.53	4.92	2.1	2.35	3.05
0.00037	0.00034	0.00025	0.00023	0.00022	0.00028	0.00038	0.0005	0.00057	0.00133	0.00024	0.00023	0.00023
7.84	8.12	7.86	8.2	8.06	7.77	7.49	7.25	7.03	6.76	6.38	7.2	7.77
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
19.7	27.5	30.3	31	30.4	36.2	31	33.3	32.2	34.4	5.45	8.7	12.8
0.254	0.281	0.307	0.328	0.33	0.356	0.364	0.386	0.391	0.407	0.124	0.175	0.221
					34.5	36.4	38.3	42.2	47.6	6.07	8.01	10.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000434	0.000597	0.000578	0.000672	0.000659	0.000714	0.000771	0.000817	0.000877	0.00101	0.000169	0.000278	0.000363
0.002	0.0021	0.0019	0.0016	0.0015	0.0015	0.0017	0.0017	0.0019	0.0021	0.0017	0.0019	0.0022
0.0029	0.0016	0.0019	<0.001	<0.001	<0.001	0.002	0.0011	<0.001	0.0019	<0.001	0.0015	0.0017
0.0987	0.0829	0.0382	0.0172	0.0231	0.0146	0.0093	0.0168	0.0062	0.0159	7.23	0.581	0.283
0.0001	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.00011	<0.0001	<0.0001	0.0002	0.00013	0.00014
0.00073	0.00075	0.00074	0.00054	0.00055	0.00046	0.0005	0.00049	0.00057	0.00053	0.00301	0.00096	0.00101
0.0648	0.0748	0.0773	0.0779	0.0913	0.0859	0.087	0.0965	0.0948	0.105	0.13	0.0558	0.0605

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00017	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.03	0.047	0.048	0.039	0.046	0.043	0.04	0.045	0.038	0.048	0.011	0.017	0.023
0.000016	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000015	0.000012	0.000064	<0.00001	<0.00001
61.8	63.3	71.9	75.9	79.4	80.4	82.5	88	94.5	93.3	39.2	43.1	50.2
0.00034	0.0003	0.00033	0.00016	0.00014	0.00019	0.00016	0.00018	0.00011	0.00015	0.0135	0.0012	0.0006
0.00015	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00731	0.00058	0.00031
0.0035	0.00313	0.00229	0.00158	0.00154	0.00334	0.00142	0.00174	0.00175	0.00162	0.0483	0.00679	0.00491
0.149	0.121	0.082	0.049	0.062	0.053	0.035	0.055	0.042	0.053	11	0.838	0.425
<0.00005	<0.00005	0.000051	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00132	0.000118	0.000057
0.00176	0.00283	0.00298	0.00192	0.00281	0.00294	0.00241	0.00314	0.00315	0.00202	0.00472	0.00168	0.00166
21	25	26.3	27	28.1	27.8	31.4	32.7	35.3	33.9	14.7	13.6	17.3
0.0202	0.0249	0.0245	0.0251	0.0295	0.0272	0.0274	0.0277	0.0256	0.0336	0.381	0.0296	0.0231
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000029	<0.00001	<0.00001
0.0102	0.0107	0.0107	0.00932	0.00914	0.00889	0.00939	0.0101	0.00968	0.0087	0.00835	0.0112	0.011
0.00059	0.00057	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0122	0.00156	0.00096
<0.3	<0.3	<0.05	<0.3	<0.3	<0.05	<0.05	<0.05	0.064	<0.05	0.816	0.081	0.053
3	3.75	4.28	3.72	4.1	3.94	4.26	4.85	6.78	4.97	3.27	2.44	3.22
0.00037	0.00029	0.00022	0.00023	0.00024	0.00027	0.00052	0.00052	0.00057	0.00118	0.00042	0.00026	0.00025
8.25	8.35	8.13	7.8	8.16	7.47	7.57	7.34	7.16	6.67	21.1	8.41	8.63
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000043	0.000011	<0.00001
20.2	27.2	31.7	30.2	30.9	29.9	31.6	34.2	32.6	33.4	5.73	9.14	13.3
0.262	0.303	0.319	0.319	0.345	0.329	0.357	0.39	0.417	0.404	0.156	0.184	0.236
					34.3	37.4	40.4	44.8	47.2	6.16	8.29	10.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000028	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.245	0.024	0.012
0.000473	0.000652	0.00061	0.00064	0.000684	0.000684	0.000809	0.000872	0.000957	0.001	0.000353	0.000306	0.00039
0.0024	0.0026	0.0023	0.0017	0.0017	0.0017	0.0018	0.002	0.0022	0.0022	0.0319	0.0044	0.0034
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0218	<0.003	<0.003
7.97	6.7	5.81	5.77	5.49	4.79	4.56	4.45	5.32	5.42	11.9	12	11
8.06	6.91	5.82	5.75	5.51	4.88	4.41	4.53	5.25	5.48	13.2	12.9	11.4
0.07	0.318	0.242	0.285	0.29	0.27				0.2			
0.266	0.234	0.223	0.233	0.231	0.212	0.193	0.261	0.322	0.279			
L1178283	**L1191600**	**L1205273**	**L1222966**	**L1233797**	**L1245799**	**L1256678**	**l1265809**	**L1275746**	**L1285503**	**L1298960**	**L1311741**	**L1326032**

Baseline Data for Surface Water

CC02	CC02	CC02	CC02	CC02	CC02	CC02	CC08	CC08	CC08	CC08	CC08	CC08
6-Aug-13	3-Sep-13	8-Oct-13	6-Nov-13	4-Dec-13	10-Apr-14	10-Sep-14	1-May-07	18-Jul-07	14-Sep-07	28-Apr-08	7-Jul-08	4-Sep-08
425		633	404	365	462	387	158	233	166	107	220	212
104	85.9	91.6	94.5	98	102	90.1				94.1	96.6	89.4
10.4	9.1	10.3	12.2	14.3	12.9	10.3	11.8	10.2	12.9	13	10.6	9.85
8.13	8.17	8.24	8.38	8.06	8.41	8.25	8.34	7.82	8.6	8.2	8.16	8.21
222	233	82.2	74.5	110	129	170	-72.6	-60.4			-106	-92.9
0.25	0.3	0.31	0.32	0.33	0.36	0.27						
521	616	451	662	697	740	552	252	300	228	333	299	290
15.3	12.7	9.96	4.65	0.04	5.28	9.36	5.46	13.3	10.3	2.02	11.3	11
339	400	412	430	453	481	359						
1.2		0	1.2	0.6	0.6							
			<1									
209	267	276	287	291	312	267	108	135	130	158	143	149
202	263		283	291	290	263						
7.5	3.6		3.8	<2	21.3	4.3						
12.2	9.8	9.3	7.9	6.2			20.7	18.4	15.1	7.7	15.1	9.7
233	263	301	298	312	379	275	133	158	118	182	153	153
<1	<1		<1	<2	<1	<1						
8.41	8.41	8.46	8.37	8.18	8.42	8.32	8.31	8.29	8.32	8.11	8.36	8.34
505	580	611	666	623	762	567	230	280	232	333	290	292
334	380	391	431	428	513	381	161	186	149	195	197	179
<3	<3	<3	<3	<3	<3	<3	3	3.1	4.7	10.4	<3	<3
0.66	1.13	0.75	1.31	0.67	1.69	0.7				3.08	0.22	0.51
<0.05	<0.05	<0.05	<0.25	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2.86	3.25	3.75	5	3.95	6.5	2.76	0.54	<0.5	0.55	0.95	0.66	0.62
0.13	0.13	0.136	0.12	0.132	0.11	0.142	0.067		0.069	0.094	0.083	0.076
56	66.1	73.8	85.2	85.9	125	67.3	14.6	13.4	3.4	25.3	11.3	8.4
0.0103	0.0106	0.006	0.0102	0.0279	0.0109	0.0073	<0.02	0.03	0.031	<0.02	<0.02	0.036
0.0719	0.166	0.16	0.311	0.402	0.552	0.145	0.0082	0.0634	0.0379	0.167	0.0085	<0.005
<0.001	<0.001	0.0018	0.0056	0.0032	0.0058	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
0.361	0.375											
0.377	0.394	0.36	0.499									
0.277	0.332	0.237	0.285	0.27	0.331	0.24	0.232	0.307	0.18	0.243	0.215	0.14
		0.0185	0.0195	0.0408	0.0336	0.038	0.0039	0.0109	0.0094	0.0076	0.0108	0.0117
0.0206	0.0326		0.0216	0.0454	0.0381				0.0122			
0.0343	0.0368	0.0276	0.0278	0.049	0.0498	0.0508	0.0105	0.0198	0.0194	0.0213	0.0226	0.0155

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0061	0.0065	0.006	<0.005	0.0061	
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	<0.005	<0.005
0.0015	0.0015	0.0019	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00079	0.00073	0.00066	0.00057	0.00047	0.00054	0.00066	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.07	0.0791	0.0846	0.0921	0.0863	0.0937	0.0773	0.04	0.043	0.04	0.055	0.055	0.052
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005						
0.036	0.044	0.042	0.043	0.039	0.038	0.041	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	0.000027
58.3	64.7	76.5	75.6	75.9	94.2	68.1	41.1	47.4	35.2	54.1	45.7	45.9
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
0.00223	0.00177	0.00139	0.00115	0.00101	0.00152	0.00126	0.0025	0.0026	0.0024	0.0016	0.0029	0.0025
0.018	0.018	0.017	0.015	0.013	0.017	0.022	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00212	0.00353	0.00161	0.00296	0.00268	0.00261	0.00211	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
21.3	24.8	26.6	26.6	29.7	34.8	25.4	7.48	9.68	7.31	11.3	9.54	9.28
0.0129	0.0148	0.0154	0.0213	0.0194	0.0275	0.0223	<0.0003	0.00144	0.0007	0.00033	0.00159	0.00074
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
0.0105	0.0104	0.00958	0.00861	0.0098	0.00908	0.0093	0.0122	0.0111	0.0057	0.0103	0.0106	0.0087
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						
3.56	4.02	4.15	4.38	4.24	4.91	3.57	<2	<2	<2	<2	<2	<2
0.00027	0.00027	0.00026	0.00026	0.00038	0.00098	0.00034	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
7.9	8.36	7.98	8.29	7.89	6.54	7.97						
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
24.4	30.7	30.6	31.3	28.7	32.5	26.2	3.1	3.2	3.4	4.5	4.2	4
0.27	0.297	0.322	0.325	0.33	0.377	0.293						
18.1	21.4	24.1	29	28	42.4	22						
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000537	0.000618	0.000586	0.000638	0.000716	0.000979	0.000545	<0.0002	<0.0002	<0.0002	0.00051	<0.0002	<0.0002
0.0023	0.0022	0.002	0.0016	0.0016	0.0023	0.0018	<0.03	<0.03	<0.03	<0.001	0.0013	0.0013
0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0505	0.0372	0.0268	0.0429	0.0263	0.0383	0.0305	0.0391	0.0549	0.0339	0.0737	0.0106	<0.005
<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.00011	0.00012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00079	0.00069	0.00068	0.00068	0.00051	0.00059	0.00065	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.0734	0.076	0.0886	0.0946	0.0886	0.0958	0.074	0.039	0.04	0.041	0.051	0.056	0.052

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005						
0.043	0.047	0.046	0.043	0.042	0.042	0.045	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.000017	<0.000017	0.00002	0.000034	<0.000017	0.000027
61.9	65.8	76.5	78	78	93.5	64.7	39.4	45	34.5	51.7	45.8	45.6
0.00033	0.00019	0.00017	0.00023	0.00015	0.00019	0.00016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	<0.0001	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
0.00288	0.00212	0.00176	0.00165	0.00136	0.0018	0.00153	0.0028	0.003	0.0027	0.0027	0.003	0.0025
0.097	0.093	0.068	0.098	0.062	0.085	0.084	0.068	0.092	0.06	0.121	<0.03	<0.03
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00222	0.00375	0.00162	0.00257	0.00278	0.00281	0.00191	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
22.5	25.2	26.7	28.8	29	34.8	24.5	7.32	9.17	7.21	10.9	9.56	9.44
0.0209	0.0221	0.0212	0.0318	0.0247	0.0312	0.0283	0.00225	0.00458	0.00375	0.00515	0.00194	0.00103
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	0.000494	<0.00002	<0.00002
0.0114	0.0108	0.0102	0.00933	0.0102	0.0103	0.00905	0.0125	0.0109	0.0057	0.0099	0.0105	0.0087
0.00052	<0.0005	<0.0005	0.00052	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.056						
3.84	4.06	4.13	5.31	4.53	4.91	3.49	<2	<2	<2	<2	<2	<2
0.00026	0.00025	0.00025	0.00023	0.00037	0.00088	0.0003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
8.32	8.41	8.17	8.56	8.06	6.7	7.88						
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
25.6	31.2	31.7	31.7	29.5	33.4	25	3.1	3	3.3	4.2	4.1	4.1
0.292	0.304	0.334	0.336	0.333	0.409	0.284						
19.5	22.3	25.1	30.6	29.1	44	22.1						
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000582	0.000639	0.000616	0.000676	0.000789	0.00109	0.00053	<0.0002	<0.0002	<0.0002	0.00053	<0.0002	<0.0002
0.0026	0.0024	0.0023	0.0023	0.0018	0.0027	0.002	<0.03	<0.03	<0.03	0.0014	0.0013	0.0013
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
7.57	6.48	5.37	5.46	4.86	5.41	5.07		8.52	8.21	5.8	7.89	6.81
7.62	6.29	5.79	5.72	5	5.37	5.24	9.52					
L1344180	**L1357647**	**L1376311**	**L1388680**	**L1399806**	**L1442672**	**L1516193**	**L501128**	**L532402**	**L554763**	**L623545**	**L652819**	**L678833**

Baseline Data for Surface Water

CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08
02/Sep/2010	22-Nov-10	28-Mar-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11	12-May-11	30-May-11	28-Jun-11	28-Jul-11	1-Sep-11	27-Sep-11
201	171	196	194	201	185	163	106	129	219	215	167	
88.3	75.2	88.4	90.4	91.9	79.1	91.8	89.5	76.4	92.6	89.9	92.7	84.4
10.3	10.9	12.2	12.5	15.9	11.5	12.5	12.1	9.12	10.3	10.1	11.1	10.1
7.91	7.48	8.85	8.18	8.14	8.05	8.26	7.85	7.3	7.97	8.04	7.93	7.98
26	251	95.4	66.2	150	109	97.4	171	436	194	76.5	100	157
0.14				0.19	0.17	0.13	0.09	0.09	0.14	0.14	0.12	
293	327	348	347	388	351	284	184	193	301	301	250	256
8.65	0.07	2.13	1.9	-0.13	0.17	2.66	2.76	7.65	10.7	10.1	7.65	9.79
190	212	226	225	254	228	185	119	126	195	195	162	
								9.6		0.2	2.6	
										2.9		
138	161	167	170	171	166	134	90.6	97.4	143	153	124	138
	161			171								
	<2			<2								
15.7	7.4	5.1	8.1	5.7	7.1	30.7	57.3	55.8	25.9	19.9	22.9	17.7
143	179	181	186	184	187	157	102	104	151	162	130	136
	<2			<2								
8.22	8.2	8.2	8.31	8.21	8.24	8.22		8.09	8.3	8.25	8.23	8.2
266	322	329	320	328	316	269	186	183	267	296	232	253
175	196	196	194	204	209	190	152	141	198	170	160	163
<3	<3	<3	<3	<3	<3	6	179	18.1	<3	<3	<3	<3
0.37	0.32	0.17	0.18	0.38	0.26	1.82	54		0.32	0.41	0.37	0.33
<0.05	<0.05	<0.073	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05
0.58	0.83	0.99	1.04	1.15	0.98	1.1	0.6	<2.5	0.51	0.55	0.54	0.62
0.066	0.066	0.067	0.074	0.084	0.072	0.055	0.057	<0.1	0.086	0.097	0.081	0.087
7.4	15.6	14.6	15	15.3	15.5	13.9	9.16	8.1	8.83	8.84	6.45	4.56
<0.005	<0.005	<0.005	0.0064	<0.005	0.0074	<0.005	0.0082	0.0159	<0.005	<0.005	0.0052	<0.005
0.006	<0.005	0.176	0.0936	0.0754	0.0613	0.0845	0.0352	<0.025	0.0068	0.0163	0.0114	<0.005
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.001
					0.37	0.33	0.43	0.41	0.35	0.31	0.32	0.17
0.351	0.112	0.3	0.222	0.19	0.219	0.42	0.95	0.64	0.35	0.32	0.33	0.231
0.345	0.112	0.124	0.128	0.115	0.157	0.336	0.854	0.64	0.343	0.304	0.281	0.231
0.0095	0.0104	0.0081						0.0084	0.0132	0.0139		
0.0121			0.007	0.0051	0.0095	0.0149	0.0336	0.0147	0.0157	0.0166	0.0112	0.0144
0.0121	0.0126	0.0104	0.0075	0.0072	0.0081	0.0266	0.241	0.0416	0.0171	0.0183	0.0127	0.0148

Baseline Data for Surface Water

<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
0.0061	<0.005	<0.005		<0.005	<0.005	0.0069	0.0205	0.0132	0.0078	<0.005		0.0054
<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0052	0.0317	0.0218	<0.005	<0.005	<0.005	<0.005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.052	0.058	0.052	0.052	0.051	0.05	0.042	0.029	0.032	0.05	0.051	0.042	0.047
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
0.000024	0.000023	0.000037	0.000036	0.00003	0.000024	0.000029	0.000028	0.00003	0.000042	0.000036	<0.000017	<0.000017
42.9	53.7	53.5	54.9	54.5	55.5	47.4	30.5	31.2	44.8	48.1	39	40.5
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
0.0029	0.0018	0.0016	0.0016	0.0017	0.0016	0.0027	0.004	0.0043	0.0031	0.0028	0.003	0.0031
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.098	0.06	<0.03	<0.03	<0.03	<0.03
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
8.75	11	11.4	11.8	11.6	11.7	9.45	6.39	6.4	9.5	10.2	7.9	8.55
0.00071	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00047	0.00206	0.00094	0.00068	0.00047	0.00053	0.00077
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0079	0.0086	0.0095	0.0096	0.0096	0.0099	0.0086	0.0072	0.0083	0.0088	0.0088	0.0079	0.0076
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		5.9	5.8	5.75	5.86	6.85	6.01	7.04	7.75	7.55	7.71	7.51
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
3.8	4.5	5.1	5.3	5.1	5.1	3.8	2.9	3	4.2	4.3	3.3	3.8
		0.159	0.158	0.157	0.156	0.132	0.0865	0.0911	0.133	0.143	0.117	0.125
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.0002	0.00026	0.00049	0.0005	0.00052	0.00052	0.00028	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0011	0.0013	0.0012	0.001	0.0011
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0076	<0.005	<0.005	<0.005	<0.005	<0.005
0.0083	<0.005	<0.005	<0.005	0.0135	0.0073	0.127	4.96	0.492	0.0184	0.0161	0.018	<0.01
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00161	<0.0015	<0.0005	<0.0005	<0.0005	<0.0005
0.051	0.054	0.051	0.052	0.053	0.052	0.045	0.096	0.038	0.049	0.053	0.044	0.048

Baseline Data for Surface Water

<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
0.000031	0.000027	<0.000017	<0.000017	<0.000017	<0.000017	0.000034	0.000064	0.000033	0.000021	0.000039	<0.000017	<0.000017
43.9	52.3	52.3	54	53.4	54.4	47.4	36.3	31.2	43.7	48.2	39.2	41.4
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0085	0.0012	<0.001	<0.001	<0.001	<0.001
<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00419	0.00041	<0.0003	<0.0003	<0.0003	<0.0003
0.0032	0.0019	0.0017	0.0017	0.0019	0.0018	0.0033	0.0285	0.0064	0.0034	0.0027	0.0032	0.0033
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.208	6.71	0.67	<0.03	0.03	0.031	<0.03
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00068	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
8.98	10.6	11.2	11.8	11.7	11.6	9.56	10.2	6.6	9.34	10.3	8.14	8.67
0.00126	0.00058	<0.0003	<0.0003	<0.0009	0.00042	0.00528	0.248	0.0223	0.00151	0.00125	0.00137	0.00126
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0092	0.0092	0.0103	0.0111	0.0109	0.0109	0.0096	0.0081	0.0093	0.01	0.0096	0.0087	0.0078
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0059	<0.001	<0.001	<0.001	<0.001	<0.001
		<0.3	<0.3	<0.3	<0.3	<0.3	0.66	<0.3	<0.3	<0.3	<0.3	<0.3
<2	<2	<2	2.1	<2	<2	<2	2.5	<2	<2	<2	<2	<2
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.004	<0.001	<0.001	<0.001	<0.001
		5.73	5.72	5.77	5.84	7.12	15.4	7.92	7.64	7.57	7.9	7.66
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	0.000028	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
3.8	4.4	5	5.6	5.2	5.2	3.9	3.1	2.9	4.2	4.5	3.5	3.8
		0.158	0.159	0.161	0.158	0.136	0.11	0.0929	0.134	0.148	0.123	0.13
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	0.242	0.034	<0.01	<0.01	<0.01	<0.01
<0.0002	0.00028	0.00053	0.00056	0.00054	0.00056	0.00031	0.00024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
0.0014	0.001	0.001	0.0011	<0.001	<0.001	0.0014	0.0213	0.0039	0.0015	0.0014	0.0011	0.0012
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0145	<0.005	<0.005	<0.005	<0.005	<0.005
7.06	5.31	4.83	4.87	4.61	4.57	13.4	17.4	18.3	12	9.86	10.8	9.65
			4.62	4.8	4.66	13.5	22.4	19.2	12.2	9.96	10.9	9.51
					0.301	0.242	0.387	0.394	0.34	0.289	0.303	0.166
			0.122		0.15	0.332	0.846	0.624	0.34	0.299	0.313	0.186
L927930	**L956921**	**L990458**	**L995583**	**L997645**	**L999654**	**L1002049**	**L1005044**	**L1011001**	**L1025075**	**L1038168**	**L1053400**	**L1065234**

Baseline Data for Surface Water

CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08
26-Apr-12	4-May-12	10-May-12	16-May-12	24-May-12	12-Jul-12	8-Aug-12	5-Sep-12	8-Jan-13	5-Feb-13	5-Mar-13	2-Apr-13	6-May-13
97	109	116	120	122	203	212	176	179	177	279	205	121
95.8	88.9	92.4	88.4	90.1	92	88.2	98	85.6	85.4	93.2		85.7
13.2	11.6	11.8	10.4	10.7	9.85	8.97	10.9	12.2	12	12.8		9.74
7.88	8.08	8.18	8.11	8.02	8.18	8.1	8.12	8.41	8.16	8.29	8.05	8.1
124	120	164	152	141	114	109	96	84.1	216	116	186	192
0.08	0.09	0.09	0.08	0.09		0.13	0.12	0.16	0.15	0.13	0.17	0.08
172	181	189	177	182	268	265	243	330	321	158	348	170
2.08	4.21	4.92	8.2	4.81	12.3	14.6	10.6	1.01	1.53	2.26	3.44	9.69
112	118	123	115	118		172	158	214	209	181	226	111
49.8	2.9	1.6	1.2	0.6	-2	0.6	0.3	0.1	0.1	1.3	0	33.2
							<1					
82.4	81	90.6	94.2	103	131	144	125	156	156	157	152	79.5
82.4	81	90.6	94.2	103	131	142	125	156	156	150	152	79.5
<2	<2	<2	<1	<1	<1	2	<1	<2	<2	7.3	<1	<2
58.6	49.3	42.8	42	33.6	25.2	21.6	20.4	5.7	5.3	5.1	6.6	46.1
89.4	100	100	98.4	106	143	148	136	164	163	165	168	83.9
<2	<2	<2	<1	<1	<1	<1	<1	<2	<2	<1	<1	<2
8.15	8.1	8.26	8.17	7.58	8.35	8.33	8.38	8.23	8.2	8.37	8.15	8.14
172	178	191	186	196	260	263	237	281	295	307	306	161
139	140	142	138	140	186	181	163	184	181	185	195	119
120	3.3	<3	3.5	<3	<3	<3	<3	<3	<3	<3	<3	76.7
34	1.66	1.05	0.68	0.39	0.41	0.49	0.42	0.24	0.4	0.2	0.19	22.2
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1.07	0.93	0.86	0.85	0.79	0.55	0.56	0.63	0.96	1.02	1.06	1.03	0.64
0.066	0.07	0.068	0.07	0.073	0.091	0.094	0.084	0.083	0.077	0.088	0.09	0.068
9.9	13.2	12.4	10.3	10.2	8.97	10.5	5.94	10.7	11.6	13.5	15.9	9.12
0.0138	<0.005	0.0058	<0.005	<0.005	<0.005	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	0.0053
0.0461	0.02	<0.005	<0.005	<0.005	0.0561	0.0264	0.0142	0.0075	0.0239	0.014	0.302	<0.005
0.0032	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0011	<0.001
0.57	0.3	0.29	0.29	0.2	0.13	0.34	0.29	0.14	0.155	0.16	0.429	
0.921	0.44	0.351	0.328	0.323		0.283		0.181	0.141	0.122	0.47	0.683
0.871	0.42	0.351	0.328	0.323	0.28	0.256	0.23	0.132	0.158	0.146	0.167	0.622
0.0369	0.018	0.0142	0.0134	0.01	0.0166	0.0126	0.0104	0.0131	0.0101	0.0088	0.009	0.0149
0.224	0.0278	0.0209	0.0169	0.012	0.0168	0.0145	0.0112		0.0098	0.0097	0.0102	0.219

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	0.0104	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0219	0.0129	0.0118	0.0074	0.0059	0.0033	0.0023	0.0023	0.0012	0.0011	<0.001	<0.001	0.0191
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00038	0.00032	0.00031	0.00031	0.00031	0.00041	0.00043	0.00037	0.00037	0.00036	0.00035	0.00035	0.0003
0.0287	0.03	0.0315	0.0323	0.033	0.045	0.0485	0.043	0.0464	0.047	0.0449	0.0475	0.0267
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000013	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
26.3	30.4	29.9	29.5	32.1	43.1	44.2	41.4	48.5	48.2	49.1	49.7	25.3
0.00013	0.00018	0.00026	0.00016	0.00016	0.00011	<0.0001	0.00013	<0.0001	<0.0001	<0.0001	<0.0001	0.00017
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00372	0.00413	0.0037	0.00376	0.0035	0.00329	0.00295	0.00254	0.00154	0.00143	0.00146	0.00148	0.00373
0.125	0.061	0.054	0.04	0.023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.055
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
<0.0005	<0.0005	0.00064	0.00051	0.00055	0.00089	0.00088	0.00096	<0.0005	0.00082	0.00077	0.00053	<0.0005
5.74	5.94	6.26	6.03	6.3	8.6	9.09	7.94	10.4	10.2	10.4	10.8	5.05
0.00571	0.00038	0.000329	0.000228	0.000224	0.000754	0.000728	0.000565	0.000102	0.000078	<0.00005	0.000197	0.000822
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00728	0.0116	0.0104	0.00907	0.0084	0.00958	0.011	0.00794	0.00825	0.00911	0.00934	0.00991	0.00972
0.00062	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1.75	1.31	1.2	1.25	1.2	1.52	1.58	1.62	1.61	1.45	1.55	1.91	1.16
0.00019	0.00022	0.00013	0.00011	0.00011	0.00012	0.00013	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00013
5.18	5.82	5.82	5.95	6.14	7.78	7.86	6.7	6.08	5.84	5.83	5.58	5.87
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
2.52	2.59	2.53	2.73	2.85	3.73	3.85	3.38	4.06	4.25	4.08	4.3	2.44
0.0757	0.0887	0.0837	0.0878	0.0883	0.129	0.128	0.115	0.149	0.149	0.147	0.139	0.076
								3.73	4.06	4.46	5.32	3.1
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000093	0.000075	0.000076	0.000062	0.000065	0.000113	0.000128	0.000102	0.000308	0.000345	0.000372	0.000391	0.000049
<0.001	<0.001	<0.001	<0.001	<0.001	0.0014	0.0013	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001
<0.003	<0.003	<0.003	<0.003	0.0014		<0.001	0.0016	<0.001	0.0022	<0.001	<0.001	0.0023
2.27	0.1	0.0638	0.0633	0.0221	0.0482	0.0185	0.0124	<0.003	<0.003	<0.003	0.0041	1.76
0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011
0.00093	0.00031	0.00031	0.00035	0.00033	0.00046	0.00045	0.00042	0.00045	0.00035	0.00039	0.00035	0.00087
0.0627	0.03	0.0315	0.0336	0.0316	0.0453	0.0477	0.0427	0.0486	0.047	0.0471	0.0471	0.0569

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000021	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002
28.8	29.9	29.2	29.8	30.4	44.2	42.3	41.1	48.9	49.6	51.2	48.8	27.8
0.0044	0.00039	<0.0004	0.00057	0.00024	0.00033	0.00016	0.00029	0.00013	0.00017	<0.0001	0.00013	0.00348
0.00224	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00186
0.0165	0.00466	0.0155	0.00458	0.00354	0.00357	0.00343	0.00362	0.00207	0.00195	0.0016	0.00177	0.0144
3.5	0.181	0.124	0.106	0.045	0.039	0.033	0.025	<0.01	<0.01	<0.01	<0.01	2.95
0.00037	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0003
0.00157	<0.0005	0.00061	0.00061	<0.0005	0.00078	0.00099	0.0009	<0.0005	0.00097	0.00087	0.0006	0.00162
7.35	5.91	6.19	6.24	6.04	8.82	8.88	7.91	10.5	10.6	10.8	10.7	6.53
0.134	0.00345	0.00236	0.00237	0.00105	0.00181	0.0018	0.00143	0.00011	0.000169	<0.00005	0.000423	0.112
0.000012	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00759	0.0111	0.0107	0.00961	0.00875	0.0102	0.0119	0.00845	0.0087	0.00963	0.00993	0.0105	0.00932
0.00365	0.0006	0.0137	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00297
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05	<0.05	0.262
2.05	1.28	1.18	1.3	1.15	1.52	1.56	1.67	1.63	1.5	1.6	1.94	1.51
0.00027	0.00016	0.00014	0.00012	0.00012	0.00014	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00017
9.73	5.89	5.8	6.19	5.79	7.94	7.82	6.75	6.06	5.97	5.88	5.61	9.36
0.000023	0.000012	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000019
2.5	2.53	2.51	2.85	2.75	3.86	3.71	3.48	4.12	4.38	4.33	4.52	2.45
0.0833	0.0818	0.0839	0.0897	0.0872	0.127	0.131	0.122	0.153	0.162	0.155	0.147	0.0824
								3.9	4.18	4.71	5.45	3.1
0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.112	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.079
0.000171	0.000075	0.000079	0.000067	0.000072	0.000121	0.000138	0.000106	0.000318	0.000342	0.000402	0.000411	0.000099
0.0107	0.0011	0.0011	0.0012	0.0011	0.0016	0.0015	0.0013	0.001	0.001	0.0012	<0.001	0.0089
0.0087	<0.003	0.0044	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0055	<0.003	<0.003	0.0075
16.6	14.8	11.8	13.4	12.2	10.2	9.13	8.97	4.21	3.8	4.09	4.47	12.4
16.8	14.7	11.8	13.6	12.6	10.4	9.36	8.83	4.26	3.67	4.12	4.26	12.2
0.507	0.275	0.284	0.285	0.197	0.07	0.31	0.27				0.122	
0.857	0.42	0.345	0.328	0.323	0.28	0.256	0.224	0.132	0.158	0.146	0.167	
L1140194	**L1143149**	**L1146570**	**L1148880**	**L1152500**	**L1178283**	**L1191600**	**L1205273**	**L1256678**	**l1265809**	**L1275746**	**L1285503**	**L1298960**

Baseline Data for Surface Water

CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	CC08	JC03
4-Jun-13	2-Jul-13	6-Aug-13	3-Sep-13	8-Oct-13	6-Nov-13	10-Apr-14	8-May-14	5-Jun-14	2-Jul-14	28-Jul-14	2-Sep-14	28-Apr-08
168	241	195		305	192	172	133	149	201	185		598
91.8	93.2	111	80.3	87	87	7.97	95.1	76.3	83.1	68.5		82.2
10.1	9.24	11.3	8.62	10.3	11.5	116	11.9	8.63	9.02	7.47		9.18
8.21	8.1	8.08	7.82	8.03	8.14		8.62	8.28	8.26	8.23	8.16	
149	142	238	225	151	102	91.2	63.4	190	141	64.4		
0.11	0.12	0.12	0.14	0.15	0.16	0.15	0.1	0.1	0.13	0.12		
228	260	245	300	207	327	307	210	209	270	249		830
11.2	15.7	14.3	12.1	8.12	3.35	2.06	5.8	9.91	11.6	11.5	11.1	10.4
148	169	159	195	198	213	199	1365	136	175	162		
2.7	0	0.7		0	-0.1	12.6						
					<1							
109	121	126	137	165	173	161	79.2	1770	143	129	143	306
109	118	126	137		173	161	79.2	948	143	129	142	
<2	2.9	<2	<1		<2	<2	<2	825	<1	<2	<1	
40	34	26.7	16.1	9.2	9.7							20
112	135	128	141	179	163	170	95.3	948	148	141	146	383
<2	<1	<2	<1		<2	<2	<2	<1	<1	<2	<1	
8.29	8.32	8.27	8.3	8.38	8.29	8.24	8	9.41	8.35	8.24	8.31	8.2
214	243	232	266	304	319	312	173	4880	262	252	263	842
156	184	166	187	195	209	208	147	3940	154	166	180	516
<3	<3	5.1	<3	<3	<3	<3	7.5	7.6	<3	<3	<3	89.8
1.57	0.85	0.43	0.3	0.18	0.19	0.18	2.92	0.97	0.37	0.49	0.29	66.7
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	1.4	<0.05	<0.05	<0.05	<0.05
0.53	<0.5	0.53	0.6	0.71	0.84	1.03	0.76	107	0.59	<0.5	0.53	71.4
0.089	0.093	0.085	0.081	0.09	0.101	0.092	0.064	0.046	0.093	0.094	0.091	0.167
8.75	7.09	6.07	5.31	7.56	9.4	20.4	11	1390	8.4	6.43	7.08	47.8
<0.005	0.0066	0.0065	0.0059	<0.005	<0.005	<0.005	0.0069	0.101	0.0063	<0.005	0.0058	0.079
0.0059	0.0405	0.0224	0.0459	<0.005	<0.005	0.207	0.0214	<0.1	0.0253	0.0408	0.0351	0.0717
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.02	<0.001	<0.001	<0.001	0.0042
		0.279	0.241									
0.288	0.378	0.29	0.246	0.15	0.141							
0.362	0.338	0.258	0.217	0.182	0.18	0.136	0.508	7.54	0.305	0.241	0.226	2.24
				0.0133	0.034	0.0065	0.0046	0.0097	0.0127	0.009	0.0096	0.0645
0.0145	0.0188	0.0112	0.0127		0.0371	0.0083	0.0158	0.0661	0.0152	0.0125	0.0129	
0.0194	0.0138	0.0146	0.0137	0.017	0.0381	0.0086	0.0353	0.0721	0.0194	0.0128	0.0091	0.435

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0134
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0076	0.0049	0.0035	0.002	0.0015	<0.001	<0.001	0.0247	<0.005	0.0036	0.0029	0.0019	0.0064
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00201	<0.0001	<0.0001	<0.0001	<0.0005
0.00034	0.00039	0.00041	0.00042	0.00046	0.00046	0.00036	0.00032	0.0195	0.00043	0.0004	0.00043	0.00108
0.036	0.0447	0.0435	0.0508	0.0537	0.0595	0.0474	0.029	0.017	0.047	0.0443	0.0493	0.089
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.248	<0.01	<0.01	<0.01	<0.1
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.000017
33.7	41	38.6	42	54.1	48	50.9	29.7	7.41	44.5	42.3	43.6	95.2
0.00017	<0.0001	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	0.00019	<0.0005	<0.0001	<0.0001	<0.0001	0.0011
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0003
0.00354	0.00323	0.0032	0.00281	0.00215	0.00167	0.00148	0.00426	<0.001	0.00326	0.0029	0.00266	0.002
								<0.00002				
0.027	0.02	0.013	<0.01	<0.01	<0.01	<0.01	0.068	<0.01	<0.01	<0.01	<0.01	0.04
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00025	<0.00005	<0.00005	<0.00005	<0.0005
<0.0005	<0.0005	<0.0005	0.001	<0.0005	0.00104	<0.0005	<0.0005	0.0668	0.00072	0.00078	0.00089	<0.005
6.79	7.87	7.54	8.68	10.7	10.4	10.4	5.13	226	9.05	8.45	8.93	35.4
0.000382	0.000913	0.000756	0.000882	0.000631	0.00181	0.000132	0.000739	0.00095	0.000668	0.000536	0.000572	0.0748
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
0.00974	0.0111	0.00902	0.00839	0.00808	0.00738	0.00928	0.01	0.00426	0.0096	0.00961	0.00897	0.0017
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	<0.001
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.053	<0.05	<0.05	<0.05	
1.25	1.54	1.56	1.81	1.86	1.92	1.68	1.3	170	1.75	1.81	1.75	9.3
0.00012	0.00011	0.00012	0.00011	<0.0001	<0.0001	0.0001	0.00017	<0.0005	0.00011	0.0001	<0.0001	<0.001
6.81	7.57	7.4	7.45	7.43	7.28	5.78	5.99	0.185	7.22	7.23	7.35	
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.00002
2.9	3.24	3.25	3.84	4.22	4.31	4.27	2.59	932	3.76	3.54	3.56	33
0.0983	0.124	0.112	0.126	0.148	0.154	0.139	0.0792	0.52	0.126	0.124	0.133	
2.98	2.46	2.26	1.94	2.64	3.34	7.21	3.74	395	3	2.35	2.6	
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01
0.000078	0.000107	0.000091	0.000122	0.000202	0.000252	0.000423	0.000065	0.00423	0.000136	0.000119	0.000124	0.00135
0.0012	0.0012	0.0012	0.0012	0.0013	<0.001	<0.001	<0.001	<0.005	0.0012	0.0011	0.0011	0.003
0.0014	0.0012	0.001	<0.001	<0.001	<0.001	0.0012	<0.001	<0.005	0.0026	<0.001	<0.001	<0.005
0.103	0.0742	0.0578	0.0089	0.0134	0.007	<0.003	0.273	<0.015	0.013	0.018	0.022	1.7
0.00011	0.00012	<0.0001	<0.0001	<0.0001	0.00011	<0.0001	0.00011	0.00191	<0.0001	<0.0001	<0.0001	<0.0005
0.00039	0.00043	0.00042	0.00041	0.00052	0.00055	0.00035	0.00042	0.0191	0.00049	0.00041	0.0004	0.00153
0.0369	0.0459	0.0446	0.0489	0.0546	0.0607	0.0474	0.0298	0.018	0.0479	0.0418	0.0489	0.115

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0001	<0.0001	<0.0001	<0.001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0025	<0.0005	<0.0005	<0.0005	
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.242	<0.01	<0.01	<0.01	<0.1
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	0.000027
34.8	40.2	40.6	42.6	51.8	50.5	50	28.8	7.58	44.8	38.5	42.9	99.4
0.00037	0.00028	0.00029	0.00014	0.00016	0.00013	0.00011	0.00058	<0.0005	0.00014	0.00018	0.00022	0.0047
0.00013	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00025	<0.0005	<0.0001	<0.0001	<0.0001	0.0017
0.00439	0.00383	0.00376	0.00303	0.00271	0.00199	0.00179	0.00559	<0.0025	0.00336	0.003	0.00297	0.0151
0.165	0.125	0.102	0.017	0.016	0.011	<0.01	0.408	0.025	0.021	0.024	0.038	2.89
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000053	<0.00025	<0.00005	<0.00005	<0.00005	<0.0005
0.00052	<0.0005	<0.0005	0.00184	<0.0005	0.00093	0.00076	<0.0005	0.0695	0.00074	0.00071	0.00082	0.0058
6.98	7.9	7.98	8.88	10.3	11.2	10.1	5.17	228	9.41	7.82	8.81	35.7
0.00518	0.00472	0.00368	0.00164	0.00161	0.00243	0.000191	0.0111	0.00116	0.00129	0.00125	0.00221	0.179
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002
0.0108	0.0116	0.00969	0.009	0.009	0.00833	0.0102	0.0103	0.00437	0.0105	0.00877	0.00972	0.0016
0.00068	0.00052	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00079	<0.0025	<0.0005	0.00054	<0.0005	0.0055
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.074	<0.05	<0.05	<0.05	
1.27	1.59	1.71	1.87	1.78	2.24	1.62	1.34	176	1.77	1.74	1.76	9.5
0.00013	0.00013	0.00012	0.00012	<0.0001	<0.0001	<0.0001	0.00017	<0.0005	0.00013	0.00011	<0.0001	<0.001
7.17	7.72	7.73	7.38	7.18	7.48	5.69	6.29	0.217	7.44	6.68	7.28	
0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00005	<0.00001	<0.00001	<0.00001	<0.00002
3.03	3.25	3.33	3.89	4.42	4.43	4.32	2.49	983	3.9	3.29	3.63	31.7
0.106	0.128	0.119	0.131	0.155	0.169	0.148	0.0792	0.53	0.13	0.111	0.14	
3.1	2.49	2.36	1.99	2.71	3.57	7.09	3.72	430	3.17	2.17	2.64	
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00001	<0.00001	<0.00001	<0.0002
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	<0.0005	<0.0001	<0.0001	<0.0001	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.05	<0.01	<0.01	<0.01	0.072
								<0.00002				
0.000086	0.000109	0.000097	0.00013	0.000216	0.000275	0.000428	0.000075	0.00436	0.00015	0.000111	0.000131	0.00149
0.0016	0.0016	0.0016	0.0014	0.0014	0.0015	<0.001	0.0017	<0.005	0.0015	0.0012	0.0013	0.0089
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.015	<0.003	<0.003	<0.003	0.0076
12.9	12.6	10.9	8.34	5.69	6.08	5.1	14.4	122	8.76	8.73	8.03	9.19
14.2	12.9	11.1	8.34	5.7	6.39	5.14	14.5	128	9.85	8.66	7.61	
L1311741	**L1326032**	**L1344180**	**L1357647**	**L1376311**	**L1388680**	**L1442672**	**L1453031**	**L1466627**	**L1481215**	**L1494516**	**L1511703**	**L623545**

Baseline Data for Surface Water

JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03
7-Jul-08	3-Jun-10	29-Mar-11	14-Apr-11	21-Apr-11	28-Apr-11	5-May-11	12-May-11	1-Jun-11	28-Jun-11	28-Jul-11	1-Sep-11	27-Sep-11
519	500	482	511	574	600	675	345	351	430	525	522	
81.5	75.3	75.5	80.8	80.7	71.4	83.4	85.8	77.7	85.2	81.1	96.2	58.2
8.56	7.99	10.5	11.3	13.1	9.48	9.71	10.3	8.56	8.88	8.74	12.3	6.67
7.8	8.17	8.11	7.92	7.95	8.08	8.21	7.88	8.27	8.17	8.13	8	7.89
-86.1	-305	113	175	88.4	126	110	149	-144	149	96.3	93.3	218
				0.59	0.5	0.49	0.25	0.23	0.27	0.34	0.42	
675	652	872	930	1320	1024	984	519	480	551	699	855	850
13	12.8	1.62	1.56	4.76	3.32	8.55	7.39	11	13.4	11.9	4.64	9.27
		507	604	859	666	639	338	312	359	455	556	
									6.7	5.1	2.6	0.1
										<1		
295	261	308	306	333	295	272	205	215	228	292	351	370
	261			333								
	<2			<2								
27.4	69	40.2	18.5	16.2	14.8	18.2	37.5	48.9	28.7	26.4	16.1	24.1
306	302	385	421	438	446	421	236	234	245	317	385	384
	<2			<2								
8.4	8.24	8.16	8.26	8.24	8.29	8.37		8.28	8.35	8.3	8.24	8.22
665	655	831	881	954	955	946	527	504	512	673	794	811
397	419	524	536	584	609	588	334	315	325	404	497	497
12.5	35.8	35	19.4	6.5	47.4	80.5	116	39.2	21.1	12.1	10.4	<3
8.04	10.3	7.61	10.1	4.06	19.8	40.1	45.8	11.6	7.95	4.99	2.72	1.53
<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.25	<0.05	<0.05	<0.5	<0.5
31.7	40.1	64	97.3	99.3	123	122	40.9	27.4	29.6	40.4	45.5	46.5
0.22	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.142	0.19	0.168	0.217	<0.2	0.21
24	30.9	52	47	54.7	50.2	53.3	26.7	20.6	17.8	22	36	35.4
0.075	0.026	0.119	0.0279	0.0212	0.0248	0.021	0.0261	0.0231	0.0135	0.0182	0.0383	0.0183
0.056	<0.05	0.134	0.14	0.172	0.098	<0.05	0.04	0.029	0.0311	0.0688	<0.05	<0.05
0.0036	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.005	<0.001	<0.001	<0.01	<0.01
					0.51	0.51	0.57	0.74	0.48	0.52	0.59	0.41
	0.99	1.38	0.601	0.32	1.07	0.39	1.09	1.1	0.54	0.57	0.59	0.531
0.516	0.994	1.25	0.461	0.148	0.975	0.39	1.15	1.07	0.509	0.501	0.461	0.531
0.119	0.196	0.126						0.12	0.0578	0.0806		
			0.0539	0.0555	0.192	0.0508	0.0759	0.122	0.0643	0.0909	0.0681	0.099
0.161	0.261	0.254	0.0865	0.0715	0.181	0.23	0.259	0.197	0.092	0.11	0.0872	0.119

Baseline Data for Surface Water

<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
0.0081	0.0127	0.0055		<0.005	0.0051	0.0077	0.0136	0.0082	0.0079	0.0065		0.0057
<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01
<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001
0.00164	0.00226	0.00139	<0.001	0.0011	<0.001	<0.001	0.00084	0.00143	0.0011	0.00145	0.00112	0.0012
0.075	0.074	0.065	0.085	0.087	0.098	0.096	0.056	0.059	0.069	0.073	0.09	0.084
<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002
		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.000017	<0.000017	<0.000017	<0.000034	<0.000034	<0.000034	<0.000034	<0.000017	0.000021	<0.000017	<0.000017	<0.000017	<0.000034
78.1	66.1	89	109	109	117	114	62.3	57.9	65	80.9	93.4	93.2
<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002
<0.0003	<0.0003	0.00032	<0.0006	<0.0006	<0.0006	<0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0006
0.0017	0.0045	0.0016	<0.002	<0.002	<0.002	<0.002	0.0024	0.003	0.0018	0.0015	0.0011	<0.002
0.119	0.038	0.109	0.043	0.049	<0.03	<0.03	0.039	0.059	0.049	0.066	0.053	0.114
<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001
<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	0.0054	<0.01
26.9	33.3	39.6	36	40.3	37.2	33.4	19.5	21.7	20.1	27.9	36.8	36.7
0.0581	0.0256	0.104	0.0283	0.0404	0.0323	0.0257	0.0343	0.0206	0.0233	0.0329	0.144	0.115
<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0018	0.0038	0.0022	<0.002	<0.002	<0.002	<0.002	0.0017	0.0018	0.0014	0.0017	0.0021	<0.002
0.0012	0.0019	0.0015	<0.002	<0.002	<0.002	<0.002	<0.001	0.001	<0.001	<0.001	0.0022	<0.002
		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
9.2	11.7	11.6	8.6	9.2	8.7	8.5	7.1	7.2	6.4	8.1	11.7	12
<0.001	<0.001	0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002
		8.85	8.57	8.75	8.3	7.73	7.35	9.1	8.57	9.48	10.8	11.4
<0.00002	<0.00002	<0.00002	<0.00004	<0.00004	<0.00004	<0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004
25.9	31.6	36	37.5	40.6	43.8	43.9	23.4	21.6	21.7	28.8	33.6	34.5
		0.391	0.41	0.441	0.444	0.42	0.235	0.264	0.259	0.338	0.412	0.437
<0.0002	<0.0002	<0.0002	<0.0004	<0.0004	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004
<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01
0.00093	0.00142	0.00229	0.00186	0.00167	0.00158	0.00168	0.00088	0.00072	0.00056	0.00071	0.00109	0.00094
0.0027	0.0044	0.0025	0.0024	0.0023	0.0023	0.0024	0.0024	0.0028	0.0019	0.0018	0.0016	<0.002
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.157	0.599	0.455	0.228	0.123	1.1	1.17	2.22	0.328	0.369	0.175	0.418	<0.03
<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001
0.00163	0.00238	0.00142	0.001	0.0011	0.001	0.0011	0.0013	0.0013	0.00112	0.00136	0.00121	0.0012
0.075	0.08	0.072	0.085	0.086	0.119	0.112	0.087	0.061	0.068	0.078	0.101	0.086

Baseline Data for Surface Water

<0.001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002
		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.000017	0.000018	0.000028	<0.000034	<0.000034	<0.000034	<0.000034	0.000028	0.000075	<0.000017	<0.000017	<0.000017	<0.000034
74.2	66.5	87.9	103	103	121	111	65.8	55	64.1	81.9	96.2	93.6
<0.001	0.0019	0.0013	<0.002	<0.002	0.0024	0.0028	0.0056	0.0011	0.0012	<0.001	0.0012	<0.002
<0.0003	0.00077	0.00062	<0.0006	<0.0006	0.00079	0.00094	0.00167	0.00039	0.00041	<0.0003	0.00059	<0.0006
0.0032	0.0084	0.0046	0.0033	0.0025	0.0071	0.0079	0.014	0.005	0.0041	0.0026	0.0037	<0.002
0.382	0.849	0.851	0.37	0.244	1.63	1.78	3.27	0.517	0.58	0.347	0.698	0.246
<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001
<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.01	<0.005	<0.005	<0.005	0.0061	0.0058	<0.01
26.6	32.8	39.2	33.8	38.7	38.9	32.6	20.2	20.7	19.3	28.3	38	36.8
0.0723	0.0579	0.13	0.04	0.0455	0.086	0.0959	0.166	0.0412	0.0575	0.0561	0.203	0.127
<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0021	0.0043	0.0024	<0.002	<0.002	<0.002	<0.002	0.002	0.0021	0.0017	0.0019	0.0022	0.002
0.0018	0.0036	0.0023	<0.002	<0.002	0.0027	0.0035	0.005	0.0016	0.0016	<0.001	0.0032	0.0021
		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
8.7	11.1	11.5	8.3	8.8	9.3	8.4	7.4	6.8	6.2	8.3	12.2	12.2
<0.001	<0.001	0.001	<0.002	<0.002	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002
		9.99	8.53	8.51	11.8	10.5	12.9	9.42	9.04	9.9	12.1	11.5
<0.00002	<0.00002	<0.00002	<0.00004	<0.00004	<0.00004	<0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00004
24.3	30	35.5	35.6	38.8	45.6	42.3	23	20.5	20.8	29.1	34.9	34.9
		0.391	0.391	0.427	0.47	0.417	0.25	0.253	0.249	0.344	0.43	0.445
<0.0002	<0.0002	<0.0002	<0.0004	<0.0004	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0004
<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001
0.012	0.026	0.029	0.016	0.011	0.075	0.058	0.093	0.02	0.02	0.016	0.036	<0.01
0.00097	0.00158	0.00261	0.00193	0.00164	0.00172	0.00165	0.00104	0.00078	0.00064	0.00082	0.00116	0.00094
0.0035	0.0063	0.004	0.0031	0.0027	0.0053	0.0058	0.0088	0.0039	0.0032	0.0026	0.0029	<0.002
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0057	0.0077	<0.005	<0.005	<0.005	<0.005	<0.005
11.2	16.4	14.3	7.92	7.83	6.72	8.56	14.3	13.3	12.4	11.3	10.7	12.2
			8.05	7.8	6.68	9.09	14.7	13.5	12.9	11.9	10.6	12.3
					0.387	0.489	0.504	0.688	0.435	0.433	0.552	0.392
			0.433		0.95	0.369	1.13	1.05	0.495	0.483	0.552	0.432
L653575	**L894163**	**L990459**	**L995583**	**L997645**	**L999654**	**L1002049**	**L1005044**	**L1012627**	**L1025075**	**L1038168**	**L1053400**	**L1065234**

Baseline Data for Surface Water

JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03	JC03
10-Apr-12	25-Apr-12	2-May-12	10-May-12	16-May-12	24-May-12	10-Jul-12	6-Sep-12	7-Nov-12	9-Jan-13	6-Feb-13	5-Mar-13	4-Apr-13
643	645	248	257	293	393	480	198	558	596	585	498	576
64	84.8	85.2	88.8	83	80.1	87.8	91.3	69.4	61.9	57.1	67	
7.92	9.32	10.7	11.1	9.41	9.13	8.32	9.64	8.97	8.61	7.95	9.36	
7.5	8.16	8.5	8.1	8.21	8.01	8.06	7.92	7.83	7.91	7.59	7.85	8.38
91.8	82.6	91.8	140	144	134	202	38.5	21.5	102	67	76.9	103
0.5	0.44	0.19	0.2	0.2	0.27		0.12	0.45	0.52	0.52	0.44	0.47
1007	880	395	409	412	558	557	260	919	1068	1058	902	951
6.09	11	5.46	5.6	9.79	9.49	17.8	12.9	4.43	1.88	1.61	1.52	4.39
654	572	257	266	269	362		167	598	694	688	586	618
	66	10	10.2	58.9	21.8	8.2	3.8	2.8	0.6	0.7	6.1	36
417	254	151	168	177	335	231	373	410	427	439	379	252
417	254	151	168	177	326	223	365	410	427	439	379	
<1	<1	<1	<1	<1	8.1	8	7.6	<2	<2	<2	<2	
38.7	20.3	38.3	30	41.6	52.5	26.4	15.7	27.4	27.7	32.8	34.7	13.5
470	390	184	188	186	368	259	416	462	512	493	458	368
<1	<1	<1	<1	<1	<1	<1	<1	<2	<2	<2	<2	
8.4	8.4	8.19	8.41	8.33	8.29	8.37	8.35	8.19	8.06	7.97	8.28	8.4
997	862	388	415	399	767	528	816	905	1020	978	959	871
635	570	255	255	258	501	340	546		650	649	589	536
34	101	7.7	8	90.2	10.7	16.9	37.1	3.1	3.7	<3	10.7	58.3
13	47.3	6.98	4.13	37.1	5.53	6.11	7.98	1	1.21	1.32	8.36	27.2
<0.5	<0.5	<0.05	<0.05	<0.05	<0.25	<0.05	<0.5	<1	<0.5	<0.5	<0.5	<0.5
66	109	25.6	25.7	20.8	41.5	34	53.5	57	65.8	64.7	71.6	116
<0.2	<0.2	0.148	0.144	0.174	0.22	0.186	<0.2	<0.4	0.36	<0.2	0.31	<0.2
67.1	64.6	21.1	20.3	19.3	55.7	20.4	42.1	47	73.7	59.5	68.4	56.2
0.139	0.0228	<0.005	0.0068	0.0146	0.0329	0.0138	0.0209	0.0115	0.043	0.0346	0.0598	0.031
0.077	0.096	0.0123	<0.005	0.0412	1.04	0.0374	<0.05	<0.1	<0.05	<0.05	0.168	0.138
<0.01	<0.01	<0.001	<0.001	0.0012	0.0085	<0.001	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01
1.01	0.43	0.37	0.29	0.48	2.1	0.47	0.49	0.62	0.674	0.652	0.857	0.364
1.4	1.14	0.511	0.317	0.738	2.09	0.459	0.468	0.61	0.685	0.676	1.14	0.695
1.33	1.05	0.499	0.317	0.696	1.04	0.421	0.468	0.606	0.721	0.705	1.08	0.558
0.0507	0.0538	0.0432	0.0315	0.0716	0.206	0.07	0.0636	0.0618	0.0368	0.0311	0.138	0.0469
0.169	0.207	0.0615	0.0464	0.234	0.233	0.103	0.116	0.0696	0.0447	0.0387	0.178	0.169

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0113	<0.005	0.0097	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.003	<0.003	0.0057	0.004	0.0044	0.0028	0.008	0.0016	0.002	0.0014	0.0024	0.0018	0.0013
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00114	0.00098	0.00075	0.00067	0.00089	0.00221	0.00134	0.00125	0.00104	0.001	0.00106	0.00139	0.00073
0.104	0.0967	0.0468	0.0512	0.0517	0.0803	0.0732	0.0938	0.0936	0.103	0.089	0.078	0.0884
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.01	<0.01	<0.01	<0.01	<0.01	0.013	<0.01	0.016	0.011	<0.01	<0.01	<0.01	<0.01
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
104	107	51.6	53.5	52.6	80	71.8	104	107	118	113	102	97.4
0.00024	<0.0001	0.00017	0.00041	0.00014	0.00019	<0.0001	0.00011	0.00021	0.00017	0.00018	0.00015	<0.0001
0.00062	0.00015	<0.0001	<0.0001	0.00011	0.00029	0.00013	0.00022	0.00025	0.00051	0.00054	0.00036	0.00011
0.00213	0.0018	0.00299	0.00261	0.00333	0.0047	0.00205	0.00155	0.00116	0.00126	0.00111	0.00143	0.00125
0.242	<0.03	0.034	<0.03	<0.03	0.083	0.039	0.028	0.074	0.153	0.195	0.125	0.016
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.006	0.005	0.00231	0.00262	0.00295	0.00345	0.00386	0.00562	0.00512	0.00589	0.00551	0.00508	0.00463
50.9	29.8	13.4	13.2	13.3	40.9	19.3	38	47.2	52.9	51.3	49	30.4
0.235	0.0454	0.0124	0.0153	0.0161	0.0561	0.0321	0.124	0.0873	0.147	0.144	0.0975	0.0361
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00267	0.00215	0.00159	0.00158	0.00193	0.00364	0.00173	0.00249	0.0033	0.00381	0.0026	0.00261	0.00156
0.00261	0.00092	0.00075	0.00087	0.00099	0.00199	0.00113	0.0023	0.00225	0.0025	0.00246	0.00151	0.0008
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.068	<0.05	<0.05	0.153	<0.05
13.8	8.71	4.77	4.64	5.41	12.8	6.59	11.9	13.2	14.2	13.2	14.4	7.87
0.00022	0.00049	0.00044	0.0003	0.00027	0.00039	0.00018	0.00014	0.00016	0.00023	0.00023	0.00037	0.00037
11.3	7.37	6.56	6.66	7.88	11	8.26	11.1	11.7	11.4	12.1	10.5	7.35
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
41.5	35.2	14.2	14.6	13.6	34.7	19.5	30.9	34.4	42.3	42.6	38.8	35.6
0.5	0.379	0.164	0.176	0.201	0.379	0.265	0.422	0.416	0.507	0.459	0.467	0.374
								15.7	24.7	20.3	22.4	18.8
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00408	0.00157	0.000632	0.000633	0.000623	0.00151	0.000659	0.00111	0.00378	0.00752	0.00521	0.00296	0.00139
0.003	0.0031	0.0021	0.002	0.0028	0.004	0.0026	0.0021	0.0016	0.0017	0.0017	0.0027	0.0021
0.0082	<0.003	0.0088	0.0036	0.0031	0.004	0.0312	0.0023	0.0014	0.0013	0.0085	0.0018	<0.001
0.665	2.21	0.262	0.187	1.33	0.2	0.311	0.357	0.0607	0.0131	0.0113	0.51	1.08
<0.0001	0.00012	0.0001	<0.0001	0.00012	0.00016	<0.0001	0.00021	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.0015	0.00157	0.00079	0.00077	0.00126	0.00211	0.00136	0.00138	0.00121	0.00104	0.00107	0.00163	0.00112
0.112	0.124	0.048	0.0516	0.0683	0.079	0.0754	0.0983	0.0956	0.108	0.0917	0.0867	0.103

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.014	0.011	<0.01	<0.01	0.013	0.017	0.013	0.019	0.013	0.01	0.01	<0.01	<0.01
0.000011	0.00002	<0.00001	<0.00001	0.000015	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
104	111	51	52.4	54.4	78.5	70.8	100	108	117	113	106	98
0.00184	0.00571	0.00083	<0.0007	0.00332	0.00071	0.00102	0.00107	0.00036	0.00021	0.00022	0.00143	0.00265
0.00105	0.00176	0.00027	0.00021	0.00105	0.00041	0.00033	0.00051	0.00032	0.00056	0.00058	0.00076	0.00096
0.00635	0.0141	0.00538	0.00364	0.0116	0.00593	0.00407	0.00378	0.00183	0.0018	0.00156	0.00502	0.00857
1.47	3.09	0.406	0.283	1.98	0.38	0.424	0.621	0.218	0.198	0.234	0.939	1.59
0.000145	0.000469	0.000069	<0.00005	0.000332	0.000056	0.00007	0.000088	<0.00005	<0.00005	<0.00005	0.00012	0.000228
0.00527	0.00561	0.00246	0.00256	0.00376	0.00328	0.00392	0.00562	0.00538	0.0062	0.00548	0.00574	0.00496
50.4	30.6	12.9	13.2	13.6	38.2	19.4	36.7	47.3	53.1	50.5	48.4	28.9
0.24	0.143	0.0235	0.023	0.0886	0.067	0.0478	0.161	0.108	0.152	0.15	0.118	0.0919
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00285	0.00246	0.00169	0.0016	0.00202	0.00408	0.00174	0.00246	0.00346	0.00392	0.00259	0.00292	0.00165
0.00394	0.00588	0.00136	0.00114	0.00396	0.00235	0.00177	0.00314	0.00238	0.00272	0.00259	0.00274	0.00343
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.078	<0.05	<0.05	0.223	0.137
13.5	8.84	4.71	4.5	5.6	12.3	6.2	11.7	13.4	14.1	12.9	14.8	8.04
0.00027	0.00065	0.00042	0.00031	0.00034	0.0004	0.00019	0.00014	0.00018	0.00023	0.00018	0.00037	0.00037
12.7	12.9	7.04	7	10.8	10.9	8.83	11.4	12	11.4	11.9	12.1	9.64
<0.00001	0.000015	<0.00001	<0.00001	0.000016	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
40.1	34.5	14.2	14.3	13.6	33.2	18.9	30.1	36.1	45	44	39.6	35.9
0.442	0.388	0.174	0.175	0.211	0.372	0.263	0.421	0.429	0.517	0.429	0.489	0.372
								16.2	25.5	21	23.9	18.9
<0.00001	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.033	0.091	0.017	<0.01	0.055	0.012	0.018	0.021	<0.01	<0.01	<0.01	0.017	0.035
0.00364	0.00172	0.000663	0.000654	0.000693	0.00157	0.000669	0.00113	0.00383	0.00762	0.00535	0.00314	0.00148
0.0053	0.0094	0.0027	0.0025	0.0065	0.0046	0.0035	0.0031	0.0019	0.002	0.0019	0.0047	0.0052
0.005	0.0084	0.0048	<0.003	0.0067	0.0032	0.0032	<0.003	<0.003	<0.003	<0.003	0.0034	0.0048
15.4	8.86	13.6	9.1	13.1	16.5	10.1	9.45	12.6	12	11.7	12	6.8
16.8	15.1	14.2	9.46	16.3	17.9	9.99	9.29	12.6	12.4	12.1	12.2	7.5
0.794	0.311	0.353	0.283	0.423	1.02	0.419	0.469	0.609				0.196
1.19	1.02	0.499	0.31	0.681	1.01	0.407	0.447	0.594	0.678	0.67	1.02	0.527
L1133342	**L1140194**	**L1142492**	**L1146570**	**L1148880**	**L1152500**	**L1176520**	**L1206738**	**L1235306**	**L1256679**	**L1265999**	**L1275746**	**L1286585**

Baseline Data for Surface Water

JC03	JC03	INKS-S	INKS-S	INKS-S	INKS-S	INKS-S	INKS-S	INKS-S	INKS-S	INKS-S	INKS-S	INKS-S
7-May-13	3-Jul-13	05/Jun/2010	30-Aug-10	28-Mar-11	14-Apr-11	1-Jun-11	29-Jun-11	28-Jul-11	31-Aug-11	27-Sep-11	26-Oct-11	10-Jan-12
396	417	7072	9736	1355	4417	7138	8247	9936	8530		3719	6314
83.4	85.9	88.3	66.3	66.7	106	87.2	67.6	146	7.2	169	91.2	52.7
8.78	8.69	8.8	6.53	9.37	13.1	8.24	6.22	12.4	0.66	16.8	11.9	7.33
8.09	8.14	8.57	8.91	8.95	8.28	8.75	8.8	8.85	8.84	9.25	9.14	8.89
177	113		9.3	151	71.1	-176	-53.7	146	78.4	171	118	244
0.25	0.26		5.51			4.75	5.41	5.96	5.59		3.42	6.68
514	517	8935	7800	2493	792	8480	9586	10500	9906	804	6350	12040
13	14.8	14.1	14.6	1.09	5.23	16.7	17.7	22.1	17.7	14.4	3.37	0.5
335	336		6330	1620	4613	5500	6230	6833	6435		4150	7829
18	9.4							12.3	17	18.2	10.2	0.5
		<1						<1				
197	219	615	656	183	498	580	625	641	683	700	721	767
197	205	315										606
<1	14.5	300										161
40.5	44	19.5	26.1	17	17.3	17.1	17.4	19.4	22.8	23.7	21.6	20.6
219	223	3170	3480	741	2500	3170	3420	3500	3860	3990	4170	5280
<1	<1	<1										<1
8.39	8.48	9.18	8.86	8.82	8.94	8.87	8.76	8.87	9.01	8.84	8.74	8.66
478	498	8500	9350	2360	6920	9010	9380	10100	10600	10700	10900	11600
293	337	7900	9680	1810	6670	8550	8880	9000	9750	8310	10600	11400
15.3	23.7	55	13.3	6	14.5	5.9	8	14.1	283	8.4	18	6.9
21.4	6.28	41.5	1.92	3.98	8.78	0.73	0.99	10.5	16.4	2.37	6.63	4.32
<0.05	<0.05	<1	<2.5	<5.5	<20	<2.5	<2.5	<2.5	<2.5	<5	<5	<2.5
34	24.3	345	376	76	285	352	393	431	420	382	431	472
0.19	0.234	<0.4	<1	<0.4	<1	<1	1	<1	<1	<2	0.247	<1
22.4	12.8	4840	5390	1090	3990	5150	5530	6150	5990	5570	6360	6910
0.0126	0.0225	0.129	0.0748	0.0086	0.0271	0.102	0.148	0.0407	0.0469	0.0639	0.161	0.327
0.0198	0.0559	<0.1	<0.25	<0.1	<0.25	<0.25	<0.25	<0.25	<0.25	<0.5	<0.5	<0.25
0.0011	0.0012	<0.02	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	0.086
						2.83	3.4	3.44	4.32	3.19	3.68	3.75
0.636	0.568	2.94	3.24	0.078	2.19	2.52	3.25	3.55	4.36	3.42		3.42
0.6	0.511	2.94	3.5	0.078	2.19	2.52	3.25	3.55	3.23	3.42	3.38	3.33
		0.0553	0.0502	0.0178	<0.001	0.0226	0.0284	0.0019	0.008	0.0424	0.0649	0.0779
0.0721	0.127	0.116	0.104		0.0373	0.0835	0.088	0.0669	0.0785	0.105	0.112	0.142
0.144	0.177		0.121	0.105	0.0908	0.0845	0.0948	0.116	0.117	0.112	0.152	0.159

Baseline Data for Surface Water

<0.005	<0.005	<0.005		<0.005		<0.005	<0.005	<0.005		<0.005	<0.005	<0.005
<0.005	<0.005	0.0075	0.0084	0.0067		0.006	0.0094	0.0077		0.0078	0.0085	0.0076
<0.005	<0.005	<0.005		<0.005		<0.005	<0.005	<0.005		<0.005	<0.005	<0.005
0.0059	0.003	<0.05	<0.1	<0.025	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.03	<0.03
<0.0001	<0.0001	<0.005	<0.01	<0.0025	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001
0.00104	0.00182	0.0164	0.021	0.0068	0.013	0.016	<0.02	0.021	0.022	0.022	0.0204	0.0219
0.0483	0.0594	<0.04	<0.04	<0.02	<0.04	<0.04	<0.06	<0.06	0.054	<0.06	0.0331	0.0317
<0.0001	<0.0001	<0.01	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.001	<0.001
<0.0005	<0.0005			<0.2	<0.4	<0.4	<0.6	<0.6	<0.4	<0.6	<0.005	<0.005
<0.01	0.012	1.58	1.79	0.37	1.25	1.66	1.8	1.89	1.96	2.12	1.84	2.43
<0.00001	<0.00001	<0.00017	<0.00034	<0.000085	<0.00034	<0.00034	<0.00034	<0.00034	<0.00034	<0.00034	<0.0001	<0.0001
55.2	53	72.9	80.5	31.6	56.3	70.4	70.7	72.8	80.4	76.9	80.8	103
<0.0001	0.00016	<0.01	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.001	<0.001
0.00014	0.00015	<0.003	<0.006	<0.0015	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.001	<0.001
0.00287	0.00248	<0.02	<0.02	0.0066	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.005	<0.005
0.036	0.073	<0.06	<0.06	<0.03	<0.06	<0.06	<0.09	<0.09	<0.06	<0.09	<0.09	<0.09
<0.00005	<0.00005	<0.005	<0.01	<0.0025	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	<0.0005
0.00284	0.00191	<0.05	<0.1	<0.025	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.0238	0.0479
19.7	22	727	797	161	573	728	788	805	887	922	964	1220
0.0241	0.0341	0.0539	0.108	0.101	0.0706	0.0515	0.0435	0.101	0.0477	0.0494	0.0359	0.0451
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00211	0.00208	0.03	0.029	0.0073	0.02	0.027	0.029	0.03	0.032	0.032	0.0322	0.0353
0.00088	0.00106	<0.01	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.005	<0.005
0.074	0.136			<0.3	<0.6	<0.6	<0.9	<0.9	<0.6	<0.9	<0.9	<0.9
6.82	6.64	163	183	36.5	129	167	178	187	202	214	222	244
0.00034	0.00022	<0.01	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.001	<0.001
8.34	9.98			0.496	0.45	0.16	0.17	0.85	1.24	1.32	1.06	1.02
<0.00001	<0.00001	<0.0002	<0.0004	<0.0001	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0001	<0.0001
20.3	21.7	1220	1490	288	1000	1370	1450	1520	1660	1680	1550	1830
0.232	0.231			1.13	3.75	4.86	5.29	5.57	5.95	6.18	5.99	6.35
7.68	4.55											
<0.00001	<0.00001	<0.002	<0.004	<0.001	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.0001	<0.0001
<0.0001	<0.0001	<0.005	<0.01	<0.0025	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001
<0.01	<0.01	<0.02	<0.02	<0.01	<0.02	<0.02	<0.03	<0.03	<0.02	<0.03	<0.03	<0.03
0.000835	0.000579	0.003	<0.004	<0.001	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.00308	0.00354
0.003	0.0029	<0.01	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01
0.0018	0.0013	<0.01	<0.01	<0.005	<0.01	0.01	<0.015	<0.015	<0.01	<0.015	<0.03	0.129
1.02	0.514	<0.05	<0.1	0.138	0.17	<0.1	<0.1	<0.1	0.42	<0.1	0.911	<0.03
<0.0001	0.00011	<0.005	<0.01	<0.0025	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	0.001
0.00126	0.00191	0.017	0.021	0.0066	0.013	0.017	<0.03	0.022	0.021	0.021	0.0203	0.0227
0.0654	0.0653	<0.04	<0.04	<0.02	<0.04	<0.04	<0.06	<0.06	0.042	<0.06	0.0444	0.0335

Baseline Data for Surface Water

<0.0001	<0.0001	<0.01	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.001	<0.001
<0.0005	<0.0005			<0.2	<0.4	<0.4	<0.6	<0.6	<0.4	<0.6	<0.005	<0.005
0.013	0.015	1.59	1.74	0.36	1.29	1.76	1.89	2.03	2	2.05	2.03	2.68
0.000011	<0.00001	<0.00017	<0.00034	<0.000085	<0.00034	<0.00034	<0.00034	<0.00034	<0.00034	<0.00034	<0.0001	<0.0001
54.5	49.9	73.2	79	31.1	58.6	73.3	74.4	80.4	82.2	76.6	81.1	105
0.00258	0.00141	<0.01	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0028	<0.001
0.00082	0.00054	<0.003	<0.006	<0.0015	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.001	<0.001
0.00917	0.00546	<0.02	<0.02	0.011	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0097	<0.005
1.53	0.815	<0.06	<0.06	0.166	0.232	<0.06	0.097	<0.09	0.464	0.112	1.19	<0.09
0.000214	0.000128	<0.005	<0.01	<0.0025	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.0005	<0.0005
0.0034	0.0022	<0.05	<0.1	<0.025	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.0361	0.054
19.4	20.7	731	776	158	586	767	818	861	905	894	930	1240
0.0731	0.0725	0.0692	0.113	0.112	0.0908	0.0573	0.0474	0.139	0.0742	0.0514	0.08	0.0472
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00203	0.0021	0.032	0.027	0.0073	<0.02	0.029	0.03	0.031	0.033	0.031	0.0314	0.0374
0.00301	0.00215	<0.01	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0052	<0.005
0.154	0.164			<0.3	<0.6	<0.6	<0.9	<0.9	<0.6	<0.9	<0.9	<0.9
6.56	6.23	161	178	35.6	122	175	186	209	205	211	214	251
0.00031	0.00028	<0.01	<0.02	<0.005	<0.02	<0.02	<0.03	<0.02	<0.02	<0.02	<0.001	<0.001
10.5	10.5			0.848	0.81	0.2	0.3	0.95	2.1	1.5	3.31	1.07
<0.00001	<0.00001	<0.0002	<0.0004	<0.0001	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0001	<0.0001
20.9	20.3	1210	1460	280	964	1450	1520	1680	1680	1650	1530	1910
0.22	0.227			1.12	3.61	5.08	5.56	6.09	6.02	5.99	5.85	6.76
7.53	4.41											
<0.00001	<0.00001	<0.002	<0.004	<0.001	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.0001	<0.0001
<0.0001	<0.0001	<0.005	<0.01	<0.0025	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001	<0.001
0.038	0.018	<0.02	<0.02	<0.01	<0.02	<0.02	<0.03	<0.03	<0.02	<0.03	0.052	<0.03
0.000796	0.000587	0.0032	<0.004	<0.001	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.00312	0.0038
0.006	0.0043	<0.01	<0.02	<0.005	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.01
0.0054	<0.003	<0.01	<0.01	<0.005	<0.01	<0.01	<0.015	<0.015	<0.01	<0.015	<0.03	<0.03
12.4	16.2	33.9	39.9	12.2	29.2	36	41.8	38.2	46.1	46.2	46.4	45.6
12.4	17				27.8	35.9	38.8	37.5	44.5	47.4	46.4	42.5
						2.73	3.25	3.4	4.27	3.13	3.52	3.34
					2.17	2.42	3.1	3.51	4.31	3.24	3.91	3.01
L1298960	**L1327102**	**L894378**	**L927439**	**L990458**	**L995583**	**L1012627**	**L1025917**	**L1038168**	**L1052924**	**L1065234**	**L1077732**	**L1103104**

Baseline Data for Surface Water

INKS-S 14-Feb-12	INKS-S 6-Mar-12	INKS-S 25-Apr-12	INKS-S 2-May-12	INKS-S 10-Jul-12	INKS-S 7-Aug-12	INKS-S 12-Oct-12	INKS-S 7-Nov-12	INKS-S 9-Jan-13	INKS-S 7-Feb-13	INKS-S 3-Apr-13	INKS-S 7-May-13	INKS-S 5-Jun-13
6675	4054	7949	8222	1082	1137	8469	7570	6717	7024	6975	10470	11220
78.8				149	39.8	81.3	72.7	63.3	47.7		129	
11	30.5	11	11.1	12.5	3.13	8.69	8.84	8.84	6.61		11.5	
8.81	9.25	8.68	8.94	8.84	8.63	8.68	8.72	9.15	8.78	9.15	9.03	8.83
-295	143	155	131	-40.6	-121	-254	54.8	154	240	106	94.7	191
7.1	4.19	5.6	5.99		6.43	6.69	6.94	7.21	7.5	5.23	6.99	7.18
12750	7802	9907	10533	1143	1131	11700	12230	12950	13430	9295	12170	12500
0.02	-0.14	14.7	13.5	22.3	25.2	10.5	5.08	-0.21	0.01	11.8	17.7	19.6
8298	5068	6432	6846		7357	7608	7950	8420	8731	6038	7910	8120
	6.6	3	4.5	1.4	14.2	8.7	25.7	2.9	1.3	23.1	5.8	4.6
						<1						
830	518	671	680	720	760	793	828	855	867	619	771	782
	293	493	495	551	573	667	728	784	790		513	534
	225	178	185	169	187	126	100	70.4	77.1		258	247
21.5	28.6	20.1	20.7	19.9	21.6	25	22.4	21.7	22.1	15.8	19.3	19.3
4660	3080	3790	3690	4200	4080	4570	4800	4990	4670	3280	4480	4620
	<1	<1	<1	<1	<1	<1	<1	<1	<1		<1	<1
8.67	9.13	8.78	8.78	8.73	8.72	8.59	8.53	8.51	8.5	8.78	8.89	8.83
12000	8120	10300	10300	10900	11100	12000	12000	12600	12400	9000	11700	12200
11300	7370	9660	10300	11900	12400	11400		12600	13000	9300	11300	12200
16.5	17.3	5.3	13.1	6.2	10.1	28.8	31.8	7	9.5	33.8	32.1	17.8
2.45	8.74	2.56	3.84	0.94	0.98	14.2	18.6	3.37	2.88	14.2	3.54	1.92
<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
504	343	453	426	459	466	505	524	523	529	391	486	502
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.1
7260	4530	6390	6130	6620	6830	7480	7650	7870	7930	5540	7220	7540
0.208	0.0394	0.0348	0.0355	0.14	0.221	0.803	1.52	1.67	1.68	0.07	0.044	0.0289
<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
0.052	0.051	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
3.51	2.67	3.11	2.85	0.407	5.06	4.7	4.35	5.49	5.07	2.38		
3.35	3.61	3.36	2.89	3.28	3.71	5.15	1.28	5.51	5.18	4.71	3.74	3.54
3.3	3.56	3.36	2.89	3.28	3.71	5.15	1.28	5.72	6.19	4.71	3.74	3.63
0.0474	<0.001	0.0039	0.0164	0.0929	0.127	0.162	0.178	0.161	0.204	<0.001		0.133
0.111	0.0564	0.0764	0.0938	0.178	0.196	0.235	0.233	0.245	0.275	0.0601	0.0956	0.226
0.188	0.394	0.122	0.135	0.173	0.216	0.3	0.29	0.28	0.308	0.354	0.146	0.241

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0076	0.0082	<0.005	0.0093	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.03	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01
<0.001	<0.001	<0.001	<0.001	0.0011	<0.001	0.0011	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
0.0218	0.016	0.0169	0.0171	0.0207	0.0235	0.021	0.0161	0.0133	0.0153	0.0094	0.0146	0.0173
0.0336	0.0391	0.0266	0.0278	0.0345	0.035	0.0338	0.0292	0.0258	0.0302	0.0207	0.0268	0.0315
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
2.63	1.68	1.88	2.21	2.18	1.83	2.68	2.26	2.11	2.59	1.61	1.99	2.15
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
94.1	66.5	75.1	72.9	79.2	79.7	90	96.2	96.5	97.2	68.1	92.2	90.2
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
<0.005	0.0124	<0.005	<0.005	0.0029	<0.002	<0.002	<0.002	<0.004	0.0022	0.0056	0.003	0.0025
<0.09	<0.06	<0.06	<0.09	<0.1	<0.1	<0.1	0.057	0.055	0.052	0.023	<0.03	<0.05
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
0.0603	0.0393	0.042	0.0479	0.0483	0.0427	0.0627	0.0497	0.043	0.0524	0.0298	0.0545	0.0461
1070	708	876	852	973	943	1060	1110	1150	1070	755	963	1070
0.0821	0.0702	0.138	0.138	0.175	0.205	0.1	0.0982	0.0534	0.0659	0.0423	0.132	0.108
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0359	0.0278	0.0305	0.0315	0.0321	0.0252	0.0376	0.038	0.0351	0.0387	0.027	0.0411	0.0347
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	0.0082	<0.005	<0.005
<0.9	<0.6	<0.6	<0.9	<0.9	<0.9	<1.5	0.26	<0.25	0.24	<0.1	<0.15	<0.25
291	175	202	200	231	249	272	252	258	258	164	239	245
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	0.0017	<0.001	<0.001
0.99	1.07	0.88	1.12	0.64	1.51	2.15	2.7	2.96	3.25	1.83	2.96	1.02
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
2000	1370	1610	1600	1790	1890	2120	1950	1910	2030	1290	1870	1950
6.82	4.58	5.56	5.55	6.33	5.69	7.3	6.83	6.59	7.11	4.78	6.63	6.3
							2430	2570	2470	1690	2310	2380
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
<0.03	<0.02	<0.02	<0.03	<0.03	<0.03	<0.05	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
0.00355	0.00266	0.00328	0.00331	0.00346	0.00276	0.00387	0.00392	0.00377	0.00426	0.00286	0.00408	0.00374
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	0.012	<0.01
0.043	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.02	0.01	0.013	<0.01	<0.01
<0.03	1.33	0.044	0.805	<0.03	<0.03	0.353	0.704	<0.06	<0.03	0.174	0.074	0.065
<0.001	<0.001	<0.001	<0.001	<0.001	0.0011	0.0011	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
0.0229	0.0157	0.018	0.0175	0.0194	0.0236	0.0215	0.0166	0.0133	0.015	0.01	0.0145	0.0173
0.0362	0.0418	0.0279	0.0296	0.0323	0.0351	0.0379	0.0392	0.0269	0.0299	0.0228	0.0276	0.0328

Baseline Data for Surface Water

<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
2.77	1.7	1.94	2.21	1.89	2.14	2.71	2.22	2.21	2.48	1.65	2.04	2.16
<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
95.8	69.2	76.8	72	77.3	84.8	96	102	103	100	71.9	92.9	91.1
<0.001	0.0012	<0.001	<0.001	<0.001	<0.001	0.0015	0.0018	<0.002	<0.001	<0.001	<0.001	<0.001
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
<0.005	0.0183	<0.005	<0.005	<0.005	<0.005	<0.005	0.0074	<0.01	<0.005	<0.005	0.0052	<0.005
<0.09	0.226	<0.06	0.161	<0.1	<0.1	0.48	0.966	0.136	0.117	0.254	0.116	0.131
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
0.0631	0.0423	0.0441	0.0485	0.0459	0.0504	0.0648	0.048	0.047	0.0512	0.032	0.0553	0.0486
1100	742	888	825	941	984	1090	1140	1220	1130	793	959	1090
0.0875	0.0794	0.15	0.148	0.173	0.195	0.129	0.141	0.0638	0.0717	0.0733	0.141	0.123
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0373	0.0286	0.0319	0.031	0.0299	0.0296	0.0388	0.0379	0.0373	0.0378	0.0285	0.0437	0.036
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005
<0.9	<0.6	<0.6	<0.9	<0.9	<0.9	<1.5	0.36	0.31	0.31	0.36	<0.15	0.27
296	177	205	196	214	240	270	260	275	263	171	237	250
<0.001	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	0.0019	<0.001	<0.001
1.01	1.5	0.99	1.32	0.61	1.62	3.43	4.75	3.22	3.39	2.35	3.1	1.24
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
2060	1400	1620	1560	1650	1840	2100	1940	1860	2010	1310	1870	1920
6.91	4.77	5.76	5.6	5.88	6.61	7.51	6.85	6.95	6.94	4.83	6.66	6.47
							2500	2740	2620	1780	2330	2430
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001
<0.03	<0.02	<0.02	<0.03	<0.03	<0.03	<0.05	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1
0.00345	0.00242	0.00337	0.00324	0.00324	0.00323	0.00402	0.00399	0.00388	0.00416	0.00287	0.00414	0.00411
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	0.013	0.011
0.063	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.06	<0.03	0.031	<0.03	<0.03
45.5	37.5	40.2	41.8	42.9	42.8	49.7	47.4	51.1	46.9	34.9	45	48.1
50.9	38.5	40.8	42.1	40.6	43.5	51.1	54.9	49.4	46.3	38	48	47.9
3.25	2.58	3.08	2.81	0.267	4.84	3.9	2.83		3.39	2.31		
3.09	3.52	3.33	2.85	3.14	3.49	4.35	<0.08	4.05	4.51	4.64		
L1114498	**L1122039**	**L1140194**	**L1142492**	**L1176520**	**L1190914**	**L1223406**	**L1235306**	**L1256679**	**L1266846**	**L1286585**	**L1298960**	**L1312719**

Baseline Data for Surface Water

INKS-S	INKS-S	INKS-S	INKS-S	INKS-S	PP01	PP01	PP01	PP01	PP01	PP01	JACL-S	JACL-S
3-Jul-13	7-Aug-13	5-Sep-13	9-Oct-13	7-Nov-13	2-May-07	18-Jul-07	17-Sep-07	29-Apr-08	7-Jul-08	6-Sep-08	3-May-07	19-Jul-07
11600	12760		13620	7735	14466		23104		16536	27240	518	692
133	59.4	139	152	27.8				94.4	144	107		
11.2	4.75	12.2		3.45	8.68		6.89	9.47	11.7	9.23	14.7	9.67
8.87	8.84	8.83	9.06	9.01	8.42		8.43	7.82	8.58	8.63	8.73	8.62
8.1	196	158	40.5	119					-133	-115		
7.04	7.4	7.94	7.88	7.32								
12270	12890	13687	9790	12890	19018		27261	24329	17411	32588	749	745
22.1	24.5	19	10.5	4.05	12.4		17.1	11	22.4	16.4	8.81	21.3
7980	8377	8898	8847	8380								
182	17.3		3.8	17.1								
		<1						7.7				<1
814	815	876	818	760	274	295	391	415	475	283	246	229
556	563	553	542	550				415				
258	252	324	276	210				<2				
19.9	24.3	20.8	23		9.5	9.9	16.1	8.4	10.4	11.2		13.9
4270	4640	5110	5150	5050	9510	14500	17300	14100	16800	19400	322	323
<1	<1	<1	<1	<1				<2				
8.87	8.88	8.96	8.91	8.78	8.2	8.36	8.39	8.23	8.65	8.53	8.55	8.58
12100	12400	12900	13300	12800	17800	26000	28000	25100	29300	33000	725	732
11900	12600	13700	12600	12500	23300	30300	37100	33300	40900	42400	450	453
24.3	25.7	34.7	13.1	35.7	22	10.8	19.6	51.6	32.7	41.3	<3	5.6
0.92	24.9	6.51	8.41	12.8				3.81	1.41	3.09		
2.7	<2.5	2.6	<2.5	<2.5	<5	<25	<25	<5	<5	<25	<0.05	<0.05
497	529	574	561	535	1500	2040	2300	1970	2450	2850	60.3	59.6
<1	<1	<0.4	<1	<1	6.5		<10	2.1	<2	15	0.19	
7190	7900	8070	8390	7870	13000	18500	21800	17900	22700	27200	84.5	81.7
0.069	0.053	0.0426	0.0466	0.132	0.063	0.026	0.009	0.063	<0.02	0.025	0.028	0.035
<0.25	<0.25	<0.1	<0.25	<0.25	1.81	3	<2.5	<0.5	<0.5	<2.5	<0.005	<0.005
<0.05	<0.05	<0.02	<0.05	<0.05	<0.1	1.33	<0.5	0.4	<0.1	1.17	<0.001	<0.001
	3.63											
3.68	4.27	17.5	4.46	4.54								
3.68	4.03	4.58	5.21	4.83	0.902	2.83	2.73	1.58	1.84	2.8	0.895	1.1
0.096		0.0026	0.0029	0.0019	<0.001	<0.001	0.0014	<0.001	<0.001		<0.001	<0.001
0.176	0.202	0.0926	0.0819	0.0667								
0.188	0.324	0.312	0.256	2.77	0.0553	0.065	0.065	0.0707	0.0515		0.0343	0.0279

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	<0.005	<0.005		
<0.005	<0.005	<0.005	<0.005	<0.005	0.0055	0.0102	0.0123	0.0088	0.0077		0.0062	0.0056
<0.005	<0.005	<0.005	<0.005	<0.005				<0.005	<0.005	<0.005		
<0.01	<0.01	<0.01	<0.01	<0.01	<0.25	<0.25	<0.5	<0.5	<0.5	<0.5	<0.01	<0.005
<0.001	0.0012	0.0012	0.001	<0.001	<0.025	<0.025	<0.05	<0.05	<0.05	<0.05	<0.001	<0.0005
0.0197	0.0229	0.023	0.0199	0.0161	<0.025	<0.025	<0.05	<0.05	<0.05	<0.05	0.0012	0.00141
0.026	0.0186	0.0215	0.0215	0.0198	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	0.057	0.056
<0.001	<0.001	<0.001	<0.001	<0.001	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	<0.001
<0.005	<0.005	<0.005	<0.005	<0.005								
2.05	2.44	2.63	2.68	2.32	1.43	2.2	2.5	2.1	2.7	3	<0.1	<0.1
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00085	<0.00085	<0.0017	<0.0017	<0.0017	<0.0017	<0.000034	<0.000017
89.4	89	88.4	83.2	75.6	469	568	613	513	583	638	58.8	54
<0.001	<0.001	<0.001	<0.001	<0.001	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	<0.001
<0.001	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015	<0.03	<0.03	<0.03	<0.03	<0.0006	<0.0003
0.003	0.0032	<0.002	<0.002	0.0031	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	<0.001
<0.03	<0.05	<0.05	<0.05	<0.05	<0.15	<0.3	<0.3	<0.3	<0.3	<0.3	<0.03	<0.03
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.025	<0.025	<0.05	<0.05	<0.05	<0.05	<0.001	<0.0005
0.0398	0.0499	0.0601	0.0598	0.0537	<0.25	<0.25	<0.5	<0.5	<0.5	<0.5	<0.01	0.0068
983	1070	1190	1200	1180	2020	3170	3830	3110	3710	4310	42.6	45.7
0.0416	0.096	0.0328	0.0182	0.069	0.051	0.015	0.045	0.089	<0.03	<0.03	0.00088	0.001
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
0.0351	0.0368	0.0382	0.0387	0.0379	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.004	0.0029
<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	<0.001
0.18	<0.25	<0.25	<0.25	<0.25								
224	253	271	281	263	196	310	340	283	342	394	11.8	12.4
<0.001	<0.001	<0.001	<0.001	0.0011	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	<0.001
0.32	2.01	3.74	3.64	3.5								
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.00004	<0.00002
1830	2170	2260	2140	1860	2700	4280	4880	4200	5000	5850	39	41.9
6.3	7.2	7.56	7.57	6.89								
2240	2520	2700	2630	2590								
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.0004	<0.0002
<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.025	<0.05	<0.05	<0.05	<0.05	<0.001	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.01
0.00378	0.0039	0.00403	0.004	0.00421	0.01	0.012	<0.02	<0.02	<0.02	<0.02	0.00129	0.0012
<0.01	<0.01	<0.01	<0.01	<0.01	<0.15	<0.3	<0.3	<0.1	<0.1	<0.1	<0.03	<0.03
<0.01	<0.01	<0.01	<0.01	<0.01	<0.25	<0.25	<0.5	<0.05	<0.05	<0.1	<0.01	<0.005
<0.03	0.036	<0.03	0.059	0.123	<0.25	<0.25	<0.5	<0.5	0.7	<0.5	<0.01	0.0051
0.0032	0.0012	0.0013	<0.001	<0.001	<0.025	<0.025	<0.05	<0.05	<0.05	<0.05	<0.001	<0.0005
0.0199	0.0228	0.0234	0.0199	0.0149	<0.025	<0.025	<0.05	<0.05	<0.05	<0.05	0.0012	0.00143
0.0267	0.0201	0.0221	0.0226	0.0197	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	0.058	0.056

Baseline Data for Surface Water

<0.001	<0.001	<0.001	<0.001	<0.001	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	<0.001
<0.005	<0.005	<0.005	<0.005	<0.005								
2.06	2.49	2.58	2.58	2.06	1.46	2.1	2.5	2.1	2.7	2.9	<0.1	<0.1
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.00085	<0.00085	<0.0017	<0.0017	<0.0017	<0.0017	<0.000034	<0.000017
91.8	95.2	90.5	81.1	71.9	464	574	626	494	609	628	59.3	54.9
<0.001	<0.001	<0.001	<0.001	<0.001	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	<0.001
<0.001	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015	<0.03	<0.03	<0.03	<0.03	<0.0006	<0.0003
<0.005	<0.005	<0.005	<0.005	0.0053	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	0.0011
0.052	0.051	<0.05	0.111	0.188	<0.15	<0.3	<0.3	<0.3	<0.3	<0.3	<0.03	<0.03
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.025	<0.025	<0.05	<0.05	<0.05	<0.05	<0.001	<0.0005
0.0414	0.0516	0.0587	0.0633	0.0474	<0.25	<0.25	<0.5	<0.5	<0.5	<0.5	<0.01	0.0069
1010	1120	1210	1200	1080	1970	3220	3900	3000	3660	4170	43	45.8
0.0511	0.122	0.048	0.0702	0.0851	0.094	0.054	0.083	0.087	<0.03	0.043	0.00622	0.0029
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
0.0393	0.0376	0.0387	0.0378	0.0339	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.004	0.0028
<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	<0.001
0.21	0.33	0.3	0.31	0.3								
236	267	279	271	243	191	309	344	274	341	383	12	12.3
<0.001	0.001	0.0011	<0.001	0.0012	<0.05	<0.05	<0.1	<0.1	<0.1	<0.1	<0.002	<0.001
0.39	2.22	3.86	3.71	3.71								
<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.001	<0.001	<0.002	<0.002	<0.002	<0.002	<0.00004	<0.00002
1880	2180	2260	2050	1730	2620	4260	4910	3980	4960	5680	39.1	41
6.29	7.31	7.54	7.23	6.16								
2320	2660	2770	2630	2380								
0.00024	<0.0001	<0.0001	<0.0001	<0.0001	<0.01	<0.01	<0.02	<0.02	<0.02	<0.02	<0.0004	<0.0002
<0.001	<0.001	<0.001	<0.001	<0.001	<0.025	<0.025	<0.05	<0.05	<0.05	<0.05	<0.001	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.01
0.00401	0.00396	0.00416	0.00405	0.00379	0.01	0.012	<0.02	<0.02	<0.02	<0.02	0.00121	0.00099
<0.01	<0.01	<0.01	<0.01	<0.01	<0.15	<0.3	<0.3	<0.1	<0.1	<0.1	<0.03	<0.03
<0.03	<0.03	<0.03	<0.03	<0.03	<0.25	<0.25	<0.5	<0.05	<0.05	<0.1	<0.01	<0.005
50.6	53.2	47.2	49.7	43.4		30.1	30.3	26	33.2	35.8	14.5	15.1
51.2	56.3	51.8	55.1	48.9	21.5							
L1327102	**L1344180**	**L1358626**	**L1375698**	**L1389979**	**L501627**	**L532402**	**L555226**	**L624228**	**L652819**	**L679672**	**L502198**	**L532652**

Baseline Data for Surface Water

JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S
20-Sep-07	29-Apr-08	10-Jul-08	7-Sep-08	2-Jun-10	1-Sep-10	28-Mar-11	1-Jun-11	29-Jun-11	28-Jul-11	31-Aug-11	28-Sep-11	26-Oct-11
608	490	612	264	563	662	420	531	547	586	547		486
	94.2	92	106	94.2	8.36	74.9	96.9	115	111	82.9	86.6	67.5
8.2	11.9	8.43	10.5	9.78	8.36	9.78	9.46	11.2	10.2	8.34	9.1	8.32
8.87	8.21	8.29	8.39	8.66	8.66	8.03	8.15	8.82	8.6	8.23	8.27	8.31
		-116				115	27.5	136	155	136	105	12.7
							0.31	0.32	0.32	0.33		
762	778	684	275	720	771	694	637	647	657		748	756
14.5	5.61	19.5	15.7	13.6	14.9	4.37	16.3	16.9	19.4	15.2	13	6.12
						452	414	421	427	437		493
								20.4	8	1.5		
	<1								<1		<1	
231	252	218	230		222	113	230	206	222	227	227	247
	252		218								221	
	<2		12.7								6.4	
12.7	12.4	19.4	16.3	22.8	20.4	11.9	20.4	24.5	21.1	19.3	17.2	17
309	335	273	291	308	302	165	283	267	268	273	280	301
	<2		<1								<1	
8.36	8.1	8.44	8.35	8.69	8.47	8.06	8.5	8.53	8.68	8.42	8.35	8.35
736	777	678	717	681	698	367	670	582	627	659	693	722
461	465	416	431	420	455	213	418	362	398	394	404	426
<3	5.8	4.3	<3	<3	<3	<3	7.2	11.3	6.1	<3	<3	10
	2.31	8.57	1.09	0.75	1.02	4.08	1.83	15.9	7.32	1.33		6.66
<0.05	<0.05	<0.05	<0.05	<0.05		<0.19	<0.05	<0.05	<0.05	<0.25	<0.05	<0.25
61.6	60.5	53.4	59.1	54		25.2	52.6	47.8	48.9	50	53.7	56.3
0.2	0.174	0.174	0.199	0.161		0.088	0.169	0.216	0.209	0.18	0.222	0.2
83.9	83.5	66.2	74.6	70.2		37	57.4	50.3	50.1	49.9	57.9	62.8
0.055	<0.02	0.037	0.098	0.044	0.0425	0.0078	0.0288	0.0291	0.0327	0.121	0.0827	0.206
0.0118	<0.005	<0.005	0.0293	<0.005		0.0253	<0.005	<0.005	<0.005	0.035	0.0633	0.121
0.0034	<0.001	<0.001	0.0136	<0.001		<0.001	<0.001	<0.001	0.001	0.0175	0.0243	0.0235
							0.88	1.07	1.12	1.4	1.03	0.82
				0.909	1.34	0.716	0.99	1.99	1.35	1.46	1.06	
0.943	1.62	1.38	1.26	0.909	1.34	0.691	0.99	1.99	1.35	0.94	0.972	1.33
0.0016	0.0074	<0.001	0.0021		<0.001	0.0125	0.0013	<0.001	<0.001	<0.001	0.0017	0.0197
					0.036		0.017	0.0131	0.0123	0.0122	0.013	0.0324
0.0203	0.124	0.0307	0.0227	0.0253	0.0167	0.0498	0.0365	0.0375	0.0274	0.0236	0.0232	0.0513

Baseline Data for Surface Water

	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005
0.0099	<0.005	0.0082		0.0083	0.0106	0.0061	<0.005	0.0103	0.0077		0.0069	0.0061
	<0.005	<0.005		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.003
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00011
0.00131	0.00118	0.00138	0.00168	0.00136	0.00147	0.00081	0.00125	0.00132	0.00123	0.00133	0.00131	0.00132
0.057	0.058	0.051	0.06	0.027	0.05	0.031	0.055	0.054	0.056	0.063	0.066	0.0646
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001
						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.02
<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.00001
50.8	57.3	45.1	48.6	52.6	49.2	28.9	54.1	51.7	50.9	50.3	50.8	53.9
<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.0015	<0.001	<0.0015	<0.001	<0.001	<0.001	<0.0001
<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0001
<0.001	<0.001	0.0013	0.0016	0.0013	0.0011	0.0014	0.0012	0.0013	<0.001	<0.001	<0.001	0.00067
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.00005
0.0069	0.0063	<0.007	0.0066	0.0056	0.006	<0.005	0.0053	<0.005	0.0053	0.0059	0.0059	0.00539
44.3	46.7	38.9	41.2	42.9	43.6	22.6	36	33.5	34.1	35.8	37.3	40.4
0.00129	0.00111	0.00446	0.00216	0.00261	0.00122	0.016	0.00551	0.00396	0.00264	0.001	0.00725	0.0186
<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0031	0.0025	0.0027	0.003	0.003	0.003	0.0035	0.0024	0.0023	0.002	0.0025	0.0025	0.00263
<0.001	<0.001	<0.001	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0007
						<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
12.4	12.1	11.8	13.3	13.5	13.2	7.3	10.6	10	10.5	10.7	11.4	11.5
<0.001	<0.001	<0.001	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00013
						1.11	2.44	3.58	3.87	3.93	3.45	3.08
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001
44.2	40.7	36.5	37.3	39.3	41	21.4	35.6	33.1	33.5	34.2	36	36.3
						0.232	0.365	0.345	0.345	0.351	0.37	0.358
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00117	0.00116	0.00111	0.00118	0.00141	0.00133	0.00058	0.00112	0.001	0.00094	0.00101	0.00116	0.00117
<0.03	0.0016	0.0019	0.0023	0.0028	0.0026	0.0011	0.0026	0.0021	0.0021	0.0023	0.0024	0.0023
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	0.0103	<0.003

0.0079	<0.005	0.0105	0.0065	<0.005	0.007	0.0709	0.0074	0.007	0.0101	0.0111	0.0081	0.191
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00011
0.00128	0.00116	0.00144	0.00177	0.00142	0.00159	0.00079	0.00114	0.00115	0.00114	0.00132	0.00122	0.00133
0.058	0.06	0.051	0.059	0.026	0.048	0.033	0.057	0.056	0.059	0.061	0.062	0.0672

Baseline Data for Surface Water

<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0001
						<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.0005
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.025
<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	0.00002	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.00001
50.3	57.8	44.2	48.4	51.4	49.5	28.9	55.5	52.7	51.9	48.7	49.1	55.4
<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00049
<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0002
0.0011	<0.001	0.0014	0.001	0.0015	0.0012	0.0023	0.0014	0.0015	0.001	<0.001	0.0011	0.00181
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.096	<0.03	<0.03	<0.03	<0.03	<0.03	0.244
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.000053
0.0075	0.0062	<0.008	0.0069	0.0064	0.0062	<0.005	0.006	<0.005	0.0056	0.0054	0.0055	0.00595
44	46.9	37.9	40.9	41.4	43.7	22.6	36.7	32.9	34.6	35.7	35.7	41
0.0027	0.0101	0.0102	0.00411	0.00341	0.003	0.0253	0.00666	0.0068	0.00463	0.00359	0.0101	0.0235
<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0029	0.0023	0.0029	0.0031	0.0035	0.0035	0.004	0.0027	0.0024	0.0022	0.0026	0.0026	0.00278
<0.001	<0.001	<0.001	<0.001	0.0012	<0.001	0.0011	<0.001	<0.001	<0.001	<0.001	<0.001	0.00108
						<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
12.5	12.3	11.5	13.2	12.7	12.9	7.3	10.9	9.9	11.1	10.7	10.9	11.6
<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00014
						1.28	2.52	3.51	3.96	3.85	3.31	3.68
0.000033	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001
44.5	41.5	35.4	38.4	37.2	40	21.5	36.7	32.7	35.1	34.2	35.5	37
						0.235	0.378	0.349	0.361	0.352	0.359	0.366
<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.017
0.00107	0.00079	0.00131	0.00113	0.00159	0.00152	0.00067	0.00132	0.00109	0.00116	0.00108	0.00117	0.00127
<0.03	0.0015	0.0021	0.0023	0.003	0.0028	0.0015	0.0029	0.0022	0.0025	0.0023	0.0023	0.0028
<0.005	<0.005	0.032	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	0.0037
15.3	14.4	16.7	15	13.6	14.6	9.13	13.9	15.3	16	16.8	14.7	15.2
							14.2	17.5	17.7	16.9	15.3	15.2
							0.851	1.04	1.09	1.23	0.86	0.47
							0.961	1.96	1.32	1.29	0.89	0.5
L557583	**L624228**	**L654416**	**L679955**	**L893847**	**L927896**	**L990458**	**L1012627**	**L1025917**	**L1038168**	**L1052924**	**L1066047**	**L1077732**

Baseline Data for Surface Water

JACL-S 10-Jan-12	JACL-S 13-Feb-12	JACL-S 7-Mar-12	JACL-S 26-Apr-12	JACL-S 3-May-12	JACL-S 11-Jul-12	JACL-S 8-Aug-12	JACL-S 6-Sep-12	JACL-S 6-Nov-12	JACL-S 9-Jan-13	JACL-S 7-Feb-13	JACL-S 8-May-13	JACL-S 4-Sep-13
113	403	337	502	496	278	600	555	440	407	410	563	
52.1	67.9	63.3	97.5	85.9	72.4	97.3	87.9	70.1	63.8	56.9	109	85.9
7.57	9.8	8.94	10.8	9.66	6.82	8.38	8.5	8.6	8.71	8.05	11	8.16
7.59	7.91	7.89	8.13	8.45	9.21	8.62	8.48	8.14	8.46	7.76	7.77	8.14
232	226	51.2	142	115	33.6	130		134	91.7	223	277	223
0.12	0.37	0.3	0.34	0.34		0.3		0.34	0.35	0.36	0.34	0.34
211	760	620	690	694	263	628	657	687	725	756	696	687
0.51	0.38	1.38	10.7	10.1	17.9	22.7	16.8	6.44	2.28	1.02	15.1	17.7
165	494	402	449	451		408	427	447	469	491	452	446
0.2	0.2	2	0.8	0.6	17.9	1.5	0.7	0.9	0.3	-1.1	0	
								<1				
191	250	184	244	237	229	228	236	239	250	253	246	235
191	250	184	244	237	205	211	225	239	250	253	235	235
<2	<2	<2	<1	<2	23.8	16.7	10.9	<1	<2	<1	11.2	<1
11.4	15.3	15.9	15.8	17.1	16.8	16.9	14.4	14.8	14.5	14.4	16.1	18.5
230	309	242	300	306	282	266	282	296	300	301	287	265
<2	<2	<2	<1	<2	<1	<1	<1	<1	<2	<1	<1	<1
8.22	8.17	8.19	8.5	8.12	8.61	8.58	8.41	8.37	8.25	8.35	8.38	8.41
555	721	556	681	677	623	619	634	695	687	717	679	643
325	454	335	413	433	423	409	402	416	414	427	431	394
<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
0.7	1.04	10.5	0.87	0.71	0.84	1.45	0.77	0.73	0.3	0.31	0.59	1.86
<0.05	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.25	<0.25	<0.5	<0.05	<0.05
43.6	58.1	43.5	54.5	54.4	49	49.4	51.7	56.1	56.5	58.1	55.3	51
0.176	0.2	0.176	0.216	0.208	0.201	0.209	0.208	0.19	0.3	0.21	0.211	0.221
49.2	65.9	50.6	62.3	61.7	51.6	54.8	54.3	59	60.1	61.8	54.8	44.2
0.2	<0.05	0.0108	0.0334	0.0655	0.012	0.0183	0.0591	0.247	0.361	0.306	0.0553	0.0631
0.2	0.546	0.265	0.0382	0.0326	<0.005	<0.005	0.0056	0.037	0.07	0.172	0.0381	0.0576
0.0058	<0.005	0.0028	0.0026	0.0027	<0.001	<0.001	0.003	0.0105	0.0064	0.018	0.0036	0.0133
0.82	1.48	0.99	0.89	0.78	0.58	0.88	0.97	0.88	1.28	1.27		2.1
0.976	1.44	1.11	0.767	0.876	0.831	0.85	0.866	1.12	1.33	1.27	0.909	1.1
0.771	0.9	0.844	0.726	0.841	0.831	0.85	0.857	1.07	1.22	1.19	0.868	1.03
0.0355	0.0641	0.0391	0.0038	0.0079	<0.001	<0.001	<0.001	0.0465	0.0718	0.0737	0.0125	0.0013
0.0489	0.0839	0.0595	0.0227	0.026	0.014	0.0113	0.0106	0.0565	0.092	0.086	0.0291	0.0279
0.0521	0.0925	0.0887	0.0449	0.034	0.021	0.0172	0.0153	0.0644	0.093	0.0902	0.0411	

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0054	0.0054	0.0061	<0.005	0.0061	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.003	<0.003	<0.003	<0.003	0.0034	0.0012	0.0011	0.0013	0.0016	<0.001	<0.001	0.0015	<0.001
<0.0001	0.00011	<0.0001	<0.0001	0.0001	0.00011	0.0001	0.00013	0.00012	<0.0001	0.00011	<0.0001	0.00011
0.00098	0.00131	0.00102	0.00122	0.00114	0.0012	0.0013	0.00134	0.00134	0.00138	0.00144	0.00124	0.00139
0.0493	0.0712	0.0519	0.0602	0.0595	0.0443	0.0462	0.0456	0.0454	0.0477	0.0487	0.0488	0.0714
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.018	0.02	0.019	0.018	0.021	0.017	0.02	0.021	0.019	0.019	0.025	0.018	0.023
<0.00001	0.000034	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000011	<0.00001	<0.00001
40.8	54.8	42.6	52.8	55.8	55.6	47.8	52.9	52.2	53.5	52.5	54.7	47.7
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	0.00055	0.0009	<0.0005	0.00071	0.00072	0.00069	0.00072	0.00046	0.00042	0.00152	0.001	0.00082
<0.03	<0.03	<0.03	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00469	0.00602	0.00457	0.00565	0.00582	0.00568	0.00537	0.00542	0.00566	0.00576	0.00579	0.00543	0.00539
31	41.8	32.8	40.8	40.5	34.9	35.7	36.3	40.2	40.4	41.2	36.5	35.6
0.0167	0.0138	0.0141	0.00179	0.00361	0.00213	0.000889	0.0017	0.0273	0.0206	0.0158	0.00494	0.00307
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00175	0.00233	0.00212	0.00219	0.00235	0.00232	0.00195	0.00229	0.00195	0.00218	0.00226	0.00223	0.00242
0.00054	0.00073	0.00064	0.00062	0.00068	0.00074	0.00063	0.0006	0.00068	0.00065	0.00073	0.00069	0.00066
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.059	0.095	0.089	<0.05	<0.05
10.4	12.6	9.75	11.4	11.3	10.4	10	11	12.2	13.1	12.1	10.6	11.2
0.0001	0.00012	0.00011	0.00011	0.00016	0.00013	0.00014	0.00014	0.00012	0.00013	0.00015	0.00016	0.00014
2.35	3.4	2.61	1.87	2.16	0.929	1.4	2.11	3.23	3.56	3.63	3.96	6.35
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
31.6	37.1	29.7	35.8	35.8	32.8	32.8	34.9	37	35.3	39.7	34.7	34.4
0.306	0.395	0.291	0.355	0.379	0.375	0.313	0.339	0.35	0.362	0.385	0.357	0.352
								0.0197	20.1	20.9	19.2	14.7
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000862	0.00114	0.000913	0.0011	0.00119	0.00108	0.000988	0.000966	0.00106	0.00115	0.00112	0.00106	0.000891
0.0015	0.002	0.0016	0.002	0.0021	0.0019	0.0018	0.0021	0.0019	0.0019	0.002	0.0022	0.0026
	0.0497	0.015	0.0039	0.007	0.0046	0.0013	0.0122	0.0018	0.0012	0.0152	<0.001	0.0012
0.004	0.0126	0.0816	0.0069	0.0086	0.0059	0.0062	0.0081	0.0068	<0.003	0.0037	0.0082	0.0064
<0.0001	0.00012	0.0001	<0.0001	0.00011	0.00011	0.00012	0.00026	0.00011	0.00012	0.00011	0.00013	0.00012
0.00096	0.0013	0.00106	0.00118	0.00123	0.00122	0.00131	0.00128	0.00131	0.00133	0.00143	0.00127	0.00137
0.0473	0.0702	0.0528	0.0606	0.06	0.0443	0.0474	0.0454	0.0463	0.0476	0.0488	0.051	0.0698

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.022	0.026	0.025	0.021	0.022	0.023	0.024	0.026	0.02	0.02	0.03	0.021	0.026
<0.00001	0.000043	0.000011	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000019	<0.00001	<0.00001
39.8	52	42.2	53	55.2	54.4	47.3	52.6	51.8	54.6	53.3	54.2	49.1
0.00017	0.0003	0.00039	<0.0001	0.00011	0.00023	0.00015	0.00027	<0.0001	<0.0001	0.00016	0.00016	<0.0001
<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00019	0.0001
<0.0005	0.00086	0.00154	0.00062	0.00115	0.00118	0.0014	0.00106	0.00052	0.00058	0.00374	0.00126	0.00105
<0.03	0.036	0.075	<0.03	<0.03	0.012	0.01	0.011	0.017	<0.01	0.011	0.019	0.016
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00423	0.00588	0.00484	0.00543	0.00537	0.00505	0.00546	0.00538	0.00543	0.00591	0.00595	0.00544	0.0052
30.4	41.2	32.9	41.6	40.7	34.5	35.9	36.1	39.8	40.5	40.7	36.3	34.8
0.0173	0.0172	0.0184	0.00356	0.00503	0.00452	0.00334	0.00374	0.0306	0.0222	0.0185	0.00572	0.00517
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00199	0.00238	0.00235	0.00246	0.00248	0.00228	0.0022	0.00238	0.00212	0.00229	0.00241	0.00239	0.00248
0.00057	0.00085	0.00084	0.0007	0.00078	0.00086	0.00069	0.00068	0.00068	0.00069	0.00082	0.00076	0.00073
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.062	0.09	0.091	<0.05	<0.05
10.1	12.7	10	11.5	11.4	10.3	10.3	10.9	12	13.4	12.2	10.7	11.2
<0.0001	0.00013	0.00013	0.00012	0.00016	0.00019	0.00013	0.00016	0.00014	0.00013	0.00014	0.00016	0.00014
2.3	3.33	2.72	1.94	2.17	0.938	1.41	2.14	3.24	3.69	3.59	3.99	6.38
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
31.2	37.2	30.2	36.6	36.1	32	32.8	34.6	36.7	34.9	39.9	35.3	34.6
0.312	0.391	0.303	0.373	0.383	0.345	0.34	0.339	0.36	0.385	0.384	0.367	0.358
								19.8	21.2	21.6	19.6	15.4
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000932	0.0012	0.001	0.00127	0.00127	0.0011	0.00108	0.0011	0.00114	0.00124	0.00116	0.00113	0.001
0.0015	0.002	0.0018	0.002	0.0022	0.0023	0.0021	0.0022	0.002	0.0021	0.0025	0.0025	0.0028
0.0295	0.059	0.0261	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0133	<0.003	0.0035
10.4	15.6	13.2	15	14.3	13.8	13.8	14.7	11.6	13.5	13.2	13.4	15.1
10.7	15.8	13.7	14.8	14.4	14.2	14	14.4	12.3	13.9	13.3	12.7	15.1
0.41	0.92	0.711	0.816	0.679	0.568	0.862	0.902	0.59		0.77		1.97
0.571	0.9	0.834	0.693	0.775	0.819	0.832	0.798	0.822	0.863	0.888		0.964
L1103104	**L1114029**	**L1122039**	**L1140194**	**L1143149**	**L1177597**	**L1191600**	**L1206738**	**l1234688**	**L1256679**	**L1266846**	**L1299444**	**L1358222**

Baseline Data for Surface Water

JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S	JACL-S
7-Nov-13	9-Jan-14	28-Apr-14	13-May-14	26-May-14	10-Jun-14	27-Jun-14	8-Jul-14	22-Jul-14	7-Aug-14	20-Aug-14	14/Sep/2014	30-Sep-14
454	406	426	542	542	558	588	641	600	620	622	556	934
51	42.7	12.4	69.2	69.2	129	114	95.1	86.6	64.4	79.5	90.7	67.9
4.63	5.95	13.2	7.15	7.15	12.1	10.4	8.17	7.78	5.58	6.88	9.12	6.99
8.26	7.91	8.55	8.55	8.55	8.8	8.84	8.65	8.66	8.41	8.99	8.58	8.42
149	149	102	112	112	-21.3	-37.4	18.4	-23.3	71.7	-34.3	72.5	161
0.36	0.36	0.3	0.34	0.34	0.31	0.32	0.32	0.32	0.32	0.32	0.34	0.6
731	726	624	690	690	644	656	667	657	661	660	687	1182
5.13	1.97	8.37	13.8	13.8	18	19.6	23	20.5	22.5	21.9	15	14
475	480	405	449	449	418	426	434	427	430	429	446	778
1	0.1	2.1	-0.4	-0.4	2.9	11.7	1.1	1.2	1	0.5	1.3	-11.4
251	253	230	230	220	234	236	237	230	235	229	242	215
251	253	221	218	212	207	213	219	212	217	213	229	206
<2	<2	8.5	12	8.3	27.4	23.1	17.5	18.1	17.7	15.7	12.6	8.8
	15.8											
299	314	287	289	284	283	282	292	281	283	281	289	285
<2	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
8.26	8.18	8.44	8.63	8.39	8.71	8.64	8.58	8.54	8.58	8.56	8.55	8.43
689	718	645	663	652	651	636	645	632	655	652	664	665
413	449	344	350	387	402	398	407	419	407	406	420	403
<3	<3	3	<3	4.4	3.2	7.9	<3	<3	3.4	<3	<3	<3
0.84	0.31	1.17	0.54	2.56	1.46	13.3	1.62	1.78	0.7	1.73	0.95	1.73
<0.25	<0.25	<0.05	<0.05	<0.05	<0.05	<0.25	<0.05	<0.25	<0.05	<0.05	<0.05	<0.05
54.6	59	53.8	54.5	51.7	52.1	52.7	52.9	53.1	54.6	54	55.7	55.9
0.2	0.2	0.201	0.217	0.217	0.211	0.199	0.222	0.223	0.22	0.225	0.235	0.232
52.1	55.1	51.9	50.4	45.9	45.6	43.8	44.8	44.6	46.3	45.5	47.8	48
0.252	<0.005	0.0064	0.0591	0.0143	0.0181	0.0106	0.0478	0.0207	0.0259	0.0283	0.0147	0.0174
0.129	0.48	<0.005	<0.005	<0.005	<0.005	<0.025	0.0178	<0.025	0.0092	<0.005	0.0109	<0.005
0.0313	<0.005	<0.001	<0.001	<0.001	<0.001	<0.005	0.0064	0.0064	0.0023	0.0011	0.0028	0.0021
1.17		0.831										
1.12	0.852	0.955	0.93	1.01	0.983	1.32	0.861	0.909	0.921	0.961	0.89	0.881
0.0958	0.0981	0.0132	0.0122	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.0011	0.0013	<0.001
0.135	0.115	0.0542	0.0293	0.0139	0.0146	0.0149	0.0155	0.015	0.0125	0.0141	0.0135	0.0131
0.14	0.116	0.0329	0.0353	0.0379	0.0294	0.033	0.0232	0.0211	0.0165	0.0195	0.0184	0.0156

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0013	<0.001	<0.001	0.0011	0.0011	0.0014	0.0093	<0.001	0.0015	0.0017	0.0018	0.0013	0.0013
<0.0001	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.00011	<0.0001	0.00011	0.0001	<0.0001	<0.0001
0.00136	0.0014	0.00118	0.0012	0.00121	0.00128	0.00121	0.00131	0.00135	0.0014	0.00137	0.00139	0.00131
0.0636	0.0642	0.0619	0.0595	0.0545	0.0515	0.0547	0.0566	0.0556	0.0463	0.0415	0.054	0.0591
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.021	0.023	0.021	0.019	0.019	0.02	0.02	0.021	0.021	0.021	0.02	0.021	0.021
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
53.7	58.3	56	59	58.1	57.3	58.1	57.1	55	55.1	53	53.7	53.3
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00027	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00044	0.00048	0.00059	0.00132	0.00136	0.00159	0.00106	0.00099	0.00092	0.00091	0.00094	0.00092	0.00073
0.011	<0.01	<0.01	<0.01	0.013	0.023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00548	0.00591	0.00559	0.00536	0.00482	0.00508	0.00462	0.00486	0.00517	0.0053	0.00541	0.00556	0.00498
40	40.8	35.8	34.4	33.7	33.9	33.4	36.2	34.8	35.4	36.2	37.7	36.9
0.02	0.00152	0.00083	0.00363	0.0061	0.00413	0.00332	0.00301	0.00165	0.00113	0.00138	0.00111	0.000736
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00222	0.00234	0.00226	0.0024	0.00239	0.00246	0.00232	0.00241	0.00246	0.00254	0.00241	0.0024	0.00251
0.00062	0.00094	0.00064	0.00118	0.00072	0.00077	0.00064	0.00065	0.0007	0.00066	0.00064	0.00061	0.00062
0.111	0.119	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
12.3	11.4	10.8	10.8	9.23	9.95	9.9	10.4	9.95	11.8	11.4	11	10.9
0.00018	0.00015	0.00012	0.00016	0.00017	0.00014	0.00015	0.00014	0.00015	0.00015	0.00016	0.00015	0.00011
5.76	6.06	3.98	4.74	4.8	5.46	5.84	6.16	6.13	6.59	6.77	6.48	6.23
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
34	36.6	33.7	32.5	31.6	31.3	31.9	32.4	33.8	34.2	34.1	35.6	34.8
0.358	0.386	0.37	0.365	0.35	0.364	0.355	0.362	0.365	0.357	0.349	0.349	0.363
17.1	18.8	17.1	16.2	15.5	15.6	14.6	15.9	15.3	15.8	15.6	16.3	16.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00104	0.00109	0.00111	0.00116	0.00104	0.00104	0.00105	0.00102	0.001	0.00107	0.00101	0.00107	0.00111
0.0023	0.0023	0.0022	0.0025	0.0025	0.0026	0.0025	0.0026	0.0027	0.0029	0.0028	0.0028	0.0028
<0.001	0.0015	<0.001	<0.001	0.001	0.0012	<0.001	<0.001	<0.001	<0.001	0.0011	<0.001	0.001
0.0071	0.0034	0.0079	0.0048	0.0057	0.0067	0.0069	0.0033	0.0069	0.0047	0.0061	0.0053	0.0058
0.00011	0.00012	0.0001	<0.0001	0.00013	0.00011	0.00012	0.00013	0.00014	0.00013	0.0001	0.00011	0.0001
0.00135	0.00146	0.00119	0.00117	0.00118	0.00134	0.00128	0.00135	0.00143	0.00136	0.00137	0.0014	0.00135
0.0661	0.0645	0.0617	0.0583	0.0528	0.0522	0.0536	0.0583	0.059	0.0443	0.0425	0.0534	0.0551

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.023	0.028	0.022	0.02	0.021	0.022	0.023	0.027	0.025	0.022	0.02	0.026	0.025
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
55.1	58.7	56.3	57.1	56.7	56.3	57.5	55.2	57.1	52	52.3	52.2	50.2
0.00014	0.0001	<0.0001	<0.0001	0.00011	0.00072	0.00012	0.0001	0.00012	<0.0001	0.00014	<0.0003	0.00015
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00069	0.00074	0.00097	0.00096	0.00127	0.0013	0.00156	0.00226	0.0011	0.00104	0.0011	0.00101	0.00089
0.017	<0.01	0.017	0.014	0.024	0.027	0.018	0.013	0.014	0.011	0.011	0.012	0.012
0.00006	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00537	0.006	0.0055	0.00475	0.00396	0.00482	0.00467	0.0045	0.00564	0.00484	0.0051	0.00587	0.00483
38.7	40.6	35.2	33.2	32.6	33.4	32.5	34.1	36.6	34	36.1	34.6	34.7
0.0338	0.00335	0.00446	0.00432	0.00781	0.00792	0.00684	0.0048	0.00364	0.00265	0.00311	0.00196	0.0017
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00231	0.00253	0.00245	0.00255	0.0025	0.00252	0.00248	0.00253	0.00271	0.00255	0.00241	0.0025	0.00267
0.00069	0.00097	0.00073	0.00072	0.00078	0.00106	0.0007	0.00071	0.0008	0.00071	0.00073	0.00073	0.00066
0.133	0.118	0.073	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
12.4	11.8	10.9	10.3	9.45	9.75	9.71	10.5	10.2	11.5	11.3	10.4	10.2
0.00023	0.00016	0.00013	0.00016	0.00016	0.00014	0.00016	0.00013	0.00015	0.00014	0.00016	0.00014	0.0001
5.8	6.2	4.07	4.56	4.79	5.48	5.73	5.92	6.4	6.31	6.74	6.28	5.94
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
33.9	38.7	33.7	31.6	30.6	31.8	31.3	32.3	35.2	33.3	35.7	34.4	32.6
0.357	0.407	0.398	0.368	0.346	0.363	0.359	0.373	0.389	0.352	0.338	0.356	0.368
17.9	19.2	17.1	16	15.8	15.8	14.4	15.4	16.5	15.2	16	16	15.5
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00118	0.00121	0.00116	0.00121	0.00117	0.00118	0.00117	0.0011	0.00117	0.00111	0.00105	0.00109	0.00118
0.0025	0.0026	0.0023	0.0026	0.0026	0.0028	0.0027	0.0028	0.0031	0.003	0.0031	0.0032	0.0028
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0047	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
13.8	14.1	13	12.7	12.2	12.6	13.7	14.1	14.3	13.7	14.2	14.4	13.8
13.4	13.9	14.4	12.3	12.6	12.8	14.4	14.3	14.8	13.8	15.5	14.9	14.5
L1389979	**L1410216**	**L1448657**	**L1454705**	**L1461081**	**L1469099**	**L1478913**	**L1483419**	**L1490937**	**L1499202**	**L1506521**	**L1518246**	**L1526071**

Baseline Data for Surface Water

JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D
3-May-07	19-Jul-07	20-Sep-07	29-Apr-08	10-Jul-08	7-Sep-08	3-Jun-10	1-Sep-10	1-Jun-11	29-Jun-11	28-Jul-11	31-Aug-11	28-Sep-11
492	499	511	484	503	503	483	531	432	484	503	466	
			62.3	1.3	1.5	9.4	0.4	1.3	-0.4	0	0.8	0.1
0.47	0.01	0.21	7.99	0.16	0.19	1.22	0.05	0.18	-0.06	0	0.11	0.01
7.76	7.54	8	8.1	7.42	7.29	7.84	7.71	6.52	7.36	7.55		7.45
				-64.4				-57.9	-178		-124	-224
								0.35	0.4	0.41	0.41	
754	787	792	790	801	803	802	869	729	814	840	847	843
5.44	5.85	6.42	4.72	5.47	5.43	4.18	4.62	3.69	3.77	3.99	1.46	4.2
	512							474	529	547	550	
									300	1.6	1.5	
	5.2		4.2							7.7		4.9
248	247	280	257	250	255	236	244	255	259	280	256	272
			257		255	236						272
			<2		<2	<2						<2
	13.9	15.3	21.3	12.6	14.2	13.7	14.3	15.6	14.7	17.1	16.4	16
321	337	329	341	322	320	318	336	324	321	331	333	325
			<2		<2	<2						<2
8.24	7.99	7.9	8.12	8.2	7.85	8.3	7.97	8.11	8.09	8	8.04	8.04
749	774	779	790	793	801	758	769	785	751	811	800	809
461	471	465	447	492	470	454	480	469	458	507	472	482
<3	3.6	<3	3.2	<3	<3	<3	<3	5.2	3.3	<3	<3	4
			2.43	2.15	9.9	0.78	2.2	2.07	1.67	13	1.61	
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.25	<0.25	<0.5	<0.5	<0.25
61.4	60	59.8	60.6	61.9	62.5	60.5	60.6	61	62.6	65	61.7	60.8
0.191		0.207	0.172	0.175	0.198	0.172	<0.2	0.21	0.32	0.34	<0.2	0.21
86.4	83.7	82.5	83.7	85.2	73.9	79.5	70.7	74.5	77.3	64.8	73.7	73.3
0.131	0.932	1.57	0.076	0.448	1.94	0.19	0.939	0.499	0.513	1.19	0.93	1.59
0.161	<0.005	<0.005	0.0299	<0.005	<0.005	<0.005	<0.05	<0.025	<0.025	<0.05	<0.05	<0.025
0.0106	<0.001	<0.001	0.0045	<0.001	<0.001	<0.001	<0.01	<0.005	<0.005	<0.01	<0.01	<0.005
								1.59	1.61	2.28	2.25	2.45
						1.06	2.01	1.56	1.68	2.3	2.55	2.5
1.02	1.95	2.94	1.13	1.34	3.17	1.06	2.01	1.56	1.68	2.3	1.97	2.5
0.0523	0.216	0.336	0.0281	0.116	0.343	0.0261	0.168	0.109	0.0991	0.278	0.178	0.277
							0.179	0.118	0.106	0.279	0.178	0.278
0.0788	0.257	0.362	0.0816	0.16	0.383	0.0498	0.193	0.138	0.127	0.317	0.198	0.336

Baseline Data for Surface Water

			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005
0.006	0.0051	0.0117	<0.005	0.006		<0.005	0.0064	0.0052	0.0063	0.0055		<0.005
			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0063	<0.005		<0.005
<0.01	<0.005	0.009	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.0014	0.00138	0.00123	0.00126	0.0013	0.0016	0.00144	0.00131	0.00143	0.00145	0.00143	0.00136	0.00135
0.059	0.065	0.067	0.059	0.067	0.069	0.056	0.07	0.067	0.066	0.07	0.071	0.074
<0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
								<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.000034	<0.000017	<0.000017	<0.000017	<0.000034	<0.000034	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017
57.5	60.2	61.1	57.9	56.4	58.5	50.1	53.5	56.3	54.7	59	57.4	57.1
<0.002	<0.002	<0.001	<0.001	<0.002	<0.004	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001
<0.0006	<0.0003	<0.0003	<0.0003	<0.0006	<0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
<0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	0.0072	0.0063	0.0062	<0.01	<0.01	0.0055	0.0067	0.0062	<0.005	<0.005	0.0082	0.0072
43	45.3	43	46.7	44	42.3	46.8	49.2	44.6	44.9	44.7	46	44.3
0.0297	0.0995	0.107	0.00936	0.086	0.0982	0.00902	0.0578	0.122	0.103	0.1	0.101	0.108
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.004	0.0021	0.0011	0.0024	0.0025	<0.002	0.0023	0.0018	0.002	0.002	0.0012	0.0014	<0.001
<0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
								<0.3	<0.3	<0.3	<0.3	0.33
12.3	12.6	12.4	12.2	12.6	13	14.7	14.2	13.1	12.9	13.5	13.5	13.2
<0.002	0.0034	<0.001	<0.001	<0.002	0.0107	<0.001	<0.001	<0.001	<0.001	0.0019	<0.001	<0.001
								3.19	3.13	3.94	3.41	4.13
<0.00004	<0.00002	<0.00002	<0.00002	<0.00004	<0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
39.8	42	43.4	40.7	41.3	39.2	42.9	44.6	42.4	42.2	42.1	42.6	42
								0.429	0.419	0.427	0.428	0.428
<0.0004	<0.0002	<0.0002	<0.0002	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00129	0.00118	0.00098	0.00109	0.00121	0.00112	0.00118	0.00118	0.00111	0.00117	0.00106	0.00117	0.00116
<0.03	<0.03	<0.03	0.0016	<0.002	<0.002	0.0019	0.0018	0.0023	0.0018	0.0018	0.0018	0.0017
<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.01	0.0058	0.0092	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.0012	0.00137	0.0012	0.00127	0.0013	0.0016	0.00105	0.00132	0.00131	0.00137	0.00128	0.00139	0.00138
0.058	0.066	0.07	0.062	0.067	0.069	0.054	0.068	0.068	0.069	0.073	0.067	0.071

Baseline Data for Surface Water

<0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
								<0.2	<0.2	<0.2	<0.2	<0.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.000034	<0.000017	<0.000017	<0.000017	<0.000034	<0.000034	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017	<0.000017
58.8	60.9	62.1	58.6	56.9	58	48.8	53	55.4	56.2	59.5	55.2	56.2
<0.002	<0.002	<0.001	<0.001	<0.002	<0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.0006	<0.0003	<0.0003	<0.0003	<0.0006	<0.0006	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
<0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.038	<0.03	0.031
<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	0.0067	0.0063	0.0064	<0.01	<0.01	0.006	0.0077	0.0074	0.0059	0.0074	0.0077	0.0071
44	45.9	43.2	47.2	44.3	42.3	45.1	48.2	44.7	46	45.3	44.7	43.9
0.0479	0.0965	0.106	0.0359	0.0855	0.0982	0.0137	0.0642	0.13	0.11	0.109	0.102	0.108
<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.004	0.002	0.0014	0.0024	0.0024	<0.002	0.0025	0.0024	0.0025	0.0024	0.0019	0.0022	0.0018
<0.002	<0.001	<0.001	<0.001	<0.002	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
								<0.3	<0.3	0.31	<0.3	0.33
12.2	12.6	12.3	12.4	12.6	13	13.9	13.9	13.3	13.4	13.9	13.1	13.2
<0.002	0.0034	<0.001	<0.001	<0.002	0.0171	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
								3.23	3.18	3.98	3.29	4.08
<0.00004	<0.00002	<0.00002	<0.00002	<0.00004	<0.00004	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
39.6	41.4	43	41.4	41.2	39.3	41.8	43.9	42.9	43.8	44	41.7	41.8
								0.435	0.437	0.445	0.422	0.43
<0.0004	<0.0002	<0.0002	<0.0002	<0.0004	<0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
<0.001	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00126	0.00105	0.00083	0.00077	0.00115	0.00095	0.00129	0.00136	0.00131	0.0013	0.00127	0.00127	0.00126
<0.03	<0.03	<0.03	0.0017	<0.002	<0.002	0.002	0.002	0.0025	0.002	0.002	0.0018	0.0018
<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
14.2	14.7	14.1	14.7	14.9	13.2	13.7	13.3	14.5	14.7	15.4	16.8	15.9
								15.9	15.1	16	16.8	15.9
								1.09	1.1	1.09	1.32	0.86
								1.06	1.17	1.11	1.62	0.91
L502198	**L532652**	**L557583**	**L624228**	**L654416**	**L679955**	**L894163**	**L927896**	**L1012627**	**L1025917**	**L1038168**	**L1052924**	**L1066047**

Baseline Data for Surface Water

JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D
3-Nov-11	10-Jan-12	13-Feb-12	7-Mar-12	26-Apr-12	3-May-12	11-Jul-12	8-Aug-12	6-Sep-12	6-Nov-12	9-Jan-13	7-Feb-13	8-May-13
144	436	457	433	452	453	468	456	470	447	414	427	739
	33.2	24.4	5.2	2.5	3.5	15.8	1.9	0	57.2	39.1	20.1	39.7
12.2	4.44	3.25	0.7	0.33	0.46	2.12	0.25	0	6.8	5.31	2.72	5.08
7.74	7.77	7.64	7.62	7.48	7.74	7.48	7.5	7.46	7.94	8.23	7.8	7.87
258	219	183	75.1	41.3	123	-140	-264	-225	135	102	212	229
0.11	0.36	0.38	0.36	0.37	0.37		0.36	0.38	0.34	0.35	0.36	0.36
232	747	782	741	760	758	774	744	770	695	726	747	739
5.21	3.23	3.26	3.24	3.76	3.91	4.29	4.72	4.54	6.29	2.51	2.57	4.86
153	485	508	482	494	493		484	500	452	472	485	474
	0.6	0.1	0.6	2.6	1.2	0.8	1	0.6	1.2	2	0.4	0
									<1			
272	258	250	253	258	257	247	264	277	245	251	252	259
	258	250	253	258	257	247	264	277	245	251	252	252
	<2	<2	<2	<2	<2	<2	<1	<1	<1	<2	<1	6.6
16.6	16.2	16.1	16.7	17.6	16.4	16.4	16.2	16	14.9	15.4	15	13.1
323	308	316	316	321	323	319	315	326	296	304	297	300
	<2	<2	<2	<2	<2	<2	<1	<1	<1	<2	<1	<1
8.1	8.21	8.17	8.11	8.23	8.13	8.14	8.22	8.11	8.33	8.21	8.33	8.35
774	741	746	740	746	735	740	739	744	693	680	705	717
474	458	454	452	448	462	494	488	486	428	413	419	439
3	<3	7.3	3.3	<3	<3	<3	<3	<3	<3	<3	<3	<3
23.4	1.4	5.24	1.04	1.82	1.21	2.05	2.26	0.92	0.87	2.06	1.04	1.1
<0.5	<0.5	<0.25	<0.5	<0.05	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
63.8	59.6	60	58.9	59.3	59.7	59.6	60.4	57.4	55.6	56	55.9	56.5
0.22	0.21	0.21	0.2	0.229	0.21	0.21	0.22	0.2	0.19	0.28	0.21	0.23
71.3	67.2	67.9	65.9	66.9	67.6	65.9	67.5	63.6	59.4	60	60	58.8
0.294	0.283	<0.05	0.0396	0.39	0.144	0.673	0.564	0.962	0.29	0.447	0.472	0.0716
0.062	0.297	0.557	0.562	<0.005	0.225	<0.025	<0.025	<0.025	<0.025	0.08	0.115	0.357
<0.01	0.018	<0.005	<0.01	0.0042	0.0295	<0.005	<0.005	<0.005	0.0067	0.0086	0.0232	0.0363
2.83	1.24	1.49	1.52	1.23	1.14	1.41	1.51	1.95	0.92	1.43	1.44	
2.77	1.39	1.59	1.44	1.01	1.26	1.52	1.45	1.77	1.16	1.45	1.41	1.36
2.38	1.07	1.03	0.876	1.01	1	1.52	1.45	1.77	1.15	1.32	1.48	0.969
0.273	0.0676	0.0708	0.079	0.115	0.0641	0.182	0.162	0.22	0.0575	0.0836	0.096	0.0936
0.276	0.0863	0.0879	0.0986	0.122	0.0798	0.193	0.159	0.217	0.0685	0.0998	0.108	0.105
0.284	0.0885	0.092	0.099	0.14	0.0921	0.208	0.186	0.253	0.0771	0.092	0.108	0.111

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.001	<0.001	<0.001	0.0011	<0.001	0.0012	<0.001
<0.0001	0.00011	0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.00012	<0.0001	0.00011	0.00012	<0.0001
0.00137	0.00142	0.00141	0.00139	0.00132	0.00137	0.00132	0.00133	0.00131	0.00124	0.00132	0.00142	0.00133
0.07	0.0632	0.0751	0.07	0.0724	0.0674	0.0733	0.0681	0.0737	0.0452	0.0478	0.05	0.0547
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.02	0.022	0.021	0.022	0.02	0.022	0.02	0.023	0.024	0.019	0.02	0.024	0.02
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
56.2	54.4	55.8	55.6	56.8	57.3	57.7	55.2	60.4	51.6	54.7	52.3	53.9
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0002	<0.0002	<0.0002	0.00055	0.0012	0.00159	0.0006
<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.017	0.018	0.019	<0.01	0.01	0.01	<0.01
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.000066	<0.00005	<0.00005	<0.00005
0.00646	0.0061	0.00627	0.00607	0.00615	0.00633	0.00698	0.00651	0.00606	0.00574	0.00572	0.00577	0.00579
44.3	41.9	42.9	43.1	43.5	43.6	42.5	43.1	42.6	40.5	40.6	40.4	40.1
0.102	0.0151	0.0173	0.031	0.147	0.0423	0.102	0.0937	0.104	0.0319	0.02	0.0278	0.0311
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00066	0.00243	0.00238	0.00223	0.00184	0.00212	0.00181	0.00183	0.00109	0.00189	0.00325	0.00276	0.00227
0.00078	0.00071	0.00077	0.00072	0.00065	0.00071	0.00075	0.0007	0.0007	0.00062	0.0007	0.00071	0.00067
0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.075	0.104	0.109	0.11
13.2	12.6	13.1	12.1	12.4	12.5	12.2	11.5	12.3	12.5	13.1	11.9	11.8
0.00021	0.00015	0.00014	0.00015	0.00014	0.00015	0.00059	0.00068	0.00042	0.00012	0.00015	0.00015	0.00014
3.95	3.42	3.57	3.79	4.2	3.73	4.62	4.41	4.87	3.33	3.98	4.04	4.28
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
47	38.4	38.6	39	39.3	39.2	38.8	39.4	39	35.3	34.2	39.2	37.4
0.446	0.418	0.412	0.383	0.39	0.389	0.443	0.385	0.398	0.356	0.369	0.374	0.373
									0.0196	20.5	20.5	20.9
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000948	0.00122	0.00121	0.00118	0.00111	0.00113	0.00119	0.00113	0.00103	0.00104	0.0012	0.00116	0.00114
0.0017	0.002	0.002	0.0017	0.0019	0.0018	0.0017	0.0017	0.0017	0.0018	0.0022	0.0022	0.0019
<0.003	<0.003	<0.003	<0.003	<0.003	0.0034	0.0011	<0.001	0.0012	0.0014	0.0043	0.0029	0.0038
0.0033	0.0261	0.0841	0.0138	0.0049	0.0072	0.0035	0.0125	<0.003	0.0158	0.0175	0.008	0.0066
<0.0001	0.00011	0.00011	0.00011	0.00011	0.0001	0.0002	0.00013	0.00028	0.00011	0.00012	0.00012	0.00012
0.00125	0.00126	0.00119	0.00135	0.00133	0.00139	0.00141	0.00136	0.0014	0.00137	0.00138	0.00143	0.00132
0.065	0.0635	0.0669	0.0707	0.071	0.0655	0.0746	0.0691	0.0742	0.0495	0.0486	0.0511	0.0553

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.024	0.025	0.026	0.028	0.025	0.025	0.024	0.028	0.029	0.02	0.02	0.03	0.023
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001
53.6	53.5	56.1	55.4	56.6	56.1	56.8	54.1	61	52.2	53.4	52.9	53.9
0.00029	0.00022	0.00043	0.00019	0.00018	0.00012	0.00018	0.00019	0.00022	0.00014	0.00014	0.00022	0.00027
<0.0001	<0.0001	0.00013	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00087	0.00053	0.00113	<0.0005	<0.0005	0.00071	0.00061	0.00079	0.00051	0.00073	0.00101	0.00282	0.00068
0.064	<0.03	0.144	<0.03	<0.03	<0.03	0.022	0.035	0.026	0.032	0.038	0.024	0.017
<0.00005	<0.00005	0.00006	<0.00005	<0.00005	<0.00005	<0.00005	0.000083	<0.00005	<0.00005	0.000179	0.000588	0.000585
0.00576	0.00586	0.00634	0.0059	0.00616	0.00571	0.00668	0.00628	0.0063	0.00556	0.00596	0.00566	0.00594
41.7	41.7	43.5	43.1	43.8	42.7	42.6	43.1	42.9	40.1	39.3	39.7	40.5
0.0995	0.023	0.0264	0.0421	0.149	0.0471	0.104	0.0952	0.11	0.0378	0.028	0.0342	0.0541
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00138	0.00258	0.00262	0.00239	0.00226	0.00212	0.00223	0.00214	0.00169	0.0021	0.0031	0.00293	0.00244
0.00164	0.00073	0.00092	0.00078	0.00077	0.00083	0.00081	0.00076	0.00079	0.00077	0.00073	0.00082	0.00075
<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.077	0.101	0.11	0.122
12.6	12.9	11.4	12.3	12.2	12.1	12.3	11.6	12.7	12.2	12.6	12.3	11.8
0.0001	0.00012	0.00015	0.00015	0.00014	0.00015	0.00013	0.00012	0.00013	0.00013	0.00015	0.00017	0.00014
3.73	3.39	3.96	3.77	4.21	3.6	4.66	4.45	4.98	3.41	3.96	4.11	4.38
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
44.8	39.6	33.5	40	38.8	38.1	39.3	39.9	41.7	37.9	35.3	41	38.8
0.42	0.426	0.418	0.389	0.412	0.366	0.461	0.376	0.409	0.365	0.376	0.385	0.399
									20.1	20.3	21.2	21.7
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000938	0.0013	0.00135	0.00128	0.00127	0.00114	0.00133	0.00118	0.0011	0.00115	0.00125	0.00121	0.00117
0.0016	0.002	0.0022	0.0018	0.0019	0.0019	0.0019	0.002	0.0019	0.0021	0.0024	0.0026	0.0021
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
14.5	14.1	15.8	15.8	16	15.3	15	14.6	14.8	12.3	13.7	13	14.4
15.6	14.3	18	15.7	16.1	15.4	15	15	14.9	12.4	14.2	13.3	13
2.47	0.64	0.92	0.92	0.835	0.74	0.74	0.95	0.99	0.623		0.83	
2.41	0.791	1.03	0.837	0.62	0.859	0.844	0.888	0.81	0.86	0.875	1	
L1081228	**L1103104**	**L1114029**	**L1122039**	**L1140194**	**L1143149**	**L1177597**	**L1191600**	**L1206738**	**l1234688**	**L1256679**	**L1266846**	**L1299444**

Baseline Data for Surface Water

JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D	JACL-D
4-Sep-13	7-Nov-13	9-Jan-14	28-Apr-14	13-May-14	26-May-14	10-Jun-14	27-Jun-14	8-Jul-14	22-Jul-14	7-Aug-14	20-Aug-14	14/Sep/2014
	446	429	426	542	542	558	588	447	600	439	440	465
2.4	45.8	19.1	12.4	69.2	69.2	129	114	2.1	86.6	2.6	1.3	4.1
0.31	5.82	2.55	13.2	7.15	7.15	12.1	10.4	0.27	7.78	0.28	0.16	0.51
7.44	8.08	7.68	8.55	8.55	8.55	8.8	8.84	7.74	8.66	7.62	7.76	7.35
-41.3	136	154	102	112	112	-21.3	-37.4	21.4	-23.3	-88.9	-158	-276
0.37	0.35	0.36	0.3	0.34	0.34	0.31	0.32	0.35	0.32	0.34	0.35	0.37
762	721	733	624	690	690	644	656	714	657	704	714	750
5.03	5.04	3.25	8.37	13.8	13.8	18	19.6	5.41	20.5	5.31	4.89	5.1
495	468	477	405	449	449	418	426	464	427	457	464	487
	0.9	1.4	2.1	-0.4		2.9	11.7		1.2	0.5	0.3	0.5
252	251	246	244	244	219	244	236	249	252	238	264	264
252	251	246	244	244	219	244	214	249	252	238	264	264
<2	<2	<2	<2	<2	<1	<1	22.6	<1	<2	<2	<2	<1
15.2		16.3										
308	298	321	294	299	291	296	281	300	308	295	310	315
<2	<2	<2	<2	<2	<1	<1	<1	<1	<2	<2	<2	<1
8.08	8.19	8.15	8.21	8.15	8.21	8.18	8.64	8.1	8.15	8.23	8.03	8.32
742	686	711	659	698	695	709	637	691	678	699	720	717
448	430	445	427	362	370	424	399	436	399	429	430	454
<3	<3	<3	4.7	<3	<3	<3	6.8	<3	<3	<3	<3	<3
7.14	1.21	1.64	2.33	0.72	0.46	1.2	11	2.22	1.96	0.76	3.12	3.49
<0.5	<0.25	<0.25	<0.25	<0.05	<0.05	<0.05	<0.25	<0.25	<0.25	<0.05	<0.05	<0.25
60.5	53.8	58.3	56	56	54.2	55.7	55.3	57.3	54.6	55.2	55.6	56.9
0.26	0.19	0.2	0.19	0.224	0.212	0.214	0.21	0.3	0.217	0.213	0.227	0.207
55.4	51.4	53.4	51.5	54.1	51.3	53.3	45.2	54	52	52.7	52.2	51.7
0.863	0.251	0.0207	0.0068	0.0438	0.0906	0.194	0.0112	0.241	0.161	0.0344	0.917	0.768
<0.05	0.121	0.503	0.107	0.149	0.0535	0.011	<0.025	<0.025	0.05	0.245	<0.005	<0.025
<0.01	0.0312	<0.005	0.0056	0.0054	0.0027	0.004	<0.005	0.0078	0.0214	0.0128	0.005	0.0066
3.5												
1.67	1.14		1.05									
1.9	1.14	0.852	1.08	0.899	0.888	0.981	1.29	0.985	0.981	0.925	1.88	1.59
0.337	0.0938	0.113	0.0423	0.0781	0.0704	0.142	<0.001	0.155	0.114	<0.001	0.302	0.299
0.392	0.135	0.119	0.113	0.0969	0.088	0.183	0.0148	0.175	0.141	0.0106	0.351	0.352
	0.141	0.125	0.0558	0.113	0.0907	0.188	0.0368	0.18	0.145	0.0187	0.355	0.353

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0021	<0.001	<0.001	0.0011	<0.001	0.0011
<0.0001	0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00128	0.00133	0.00132	0.00126	0.00123	0.00126	0.00131	0.00126	0.00124	0.00126	0.00122	0.00115	0.00123
0.0715	0.0625	0.0641	0.0649	0.0654	0.0643	0.0723	0.0539	0.0687	0.0702	0.0661	0.0751	0.0793
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.021	0.02	0.025	0.023	0.022	0.022	0.023	0.02	0.024	0.023	0.021	0.024	0.026
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
56.8	53.8	59.7	56.6	58.3	55.8	56.2	57.9	57	60	57.8	59.7	61.3
0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00023	0.00043	0.00046	0.00141	0.00126	0.00219	0.00149	0.00143	0.00075	0.00115	0.00117	0.00037	0.00032
0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	0.012	0.015
<0.00005	<0.00005	<0.00005	0.000056	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00593	0.00498	0.0059	0.00576	0.00585	0.00525	0.00541	0.00466	0.00566	0.00556	0.00494	0.00568	0.00628
40.4	39.7	41.8	37.1	37.2	36.7	37.9	33.2	38.2	38.3	36.5	39.1	39.3
0.168	0.0198	0.00371	0.00146	0.00107	0.00116	0.0383	0.00329	0.0596	0.0383	0.00182	0.112	0.111
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.0015	0.00207	0.00233	0.0021	0.00324	0.00233	0.00205	0.00236	0.00208	0.00204	0.00202	0.00139	0.00143
0.0007	0.00062	0.00069	0.00072	0.00109	0.00079	0.0007	0.00069	0.00067	0.00094	0.00064	0.00073	0.0007
0.364	0.111	0.131	0.065	0.094	0.089	0.151	<0.05	0.154	0.127	<0.05	0.34	0.315
11.9	11.8	11.6	11	11.5	10.1	11	9.79	11.4	11.2	12.2	12.7	12.1
0.00043	0.00017	0.00013	0.00014	0.00017	0.00014	0.00012	0.00015	0.00012	0.00012	0.00014	0.00043	0.00017
5.76	5.78	6.49	5.34	5.85	4.85	6.43	5.76	6.18	6.04	5.19	7.15	7.11
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
37.5	32.9	36	37.3	33.5	34.6	34.8	31.7	33.6	35.3	34.8	35.5	36.4
0.398	0.332	0.391	0.374	0.385	0.364	0.385	0.354	0.385	0.385	0.343	0.384	0.397
29.9	17.1	18.8	17.4	17.4	17.5	17.9	14.5	18.7	18.1	17.7	18	16.4
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.000957	0.00105	0.00112	0.00103	0.00108	0.00102	0.000979	0.00106	0.00104	0.00101	0.00103	0.000965	0.000961
0.0015	0.0023	0.0022	0.002	0.0019	0.002	0.0018	0.0026	0.0017	0.0018	0.002	0.0018	0.0018
0.0012	<0.001	0.0016	0.0033	<0.001	0.0014	<0.001	<0.001	0.0012	0.0013	0.0039	<0.001	<0.001
0.004	0.0081	0.0149	0.0081	0.0049	<0.003	0.0032	0.0089	0.0031	0.0058	0.005	0.0044	0.0038
<0.0001	0.00011	0.0001	<0.0001	0.00011	0.00013	0.00011	0.0001	0.00013	0.00011	0.00012	<0.0001	<0.0001
0.00126	0.00139	0.00127	0.00124	0.00128	0.00117	0.0013	0.00131	0.00123	0.00132	0.00127	0.00128	0.00129
0.0705	0.0605	0.0651	0.0661	0.0723	0.0645	0.068	0.0539	0.0693	0.0718	0.0661	0.0749	0.077

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.025	0.023	0.025	0.024	0.023	0.023	0.026	0.022	0.026	0.026	0.025	0.025	0.03
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.000012	<0.00001	<0.00001
57.6	55.2	58	56.1	56.9	56.1	54.1	56.3	57.8	59.4	57.5	60.5	56.4
0.00013	0.00012	0.00017	<0.0001	0.00013	<0.0001	<0.0001	0.00011	0.00013	0.0001	<0.0001	0.00014	<0.0003
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
0.00054	0.00073	0.00069	0.00155	0.00589	0.00166	0.00161	0.00179	0.00147	0.00245	0.00202	0.00116	0.00115
0.019	0.017	0.023	0.019	0.013	<0.01	<0.01	0.021	<0.01	0.01	0.01	0.021	0.023
0.000081	<0.00005	<0.00005	0.00012	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00602	0.00513	0.00549	0.00576	0.00531	0.00433	0.0052	0.00449	0.00515	0.00548	0.0051	0.00551	0.00613
39.3	38.7	39.2	36.6	36.9	35.9	36.5	32	38.7	38.1	36.7	39.8	38.1
0.172	0.0333	0.00974	0.0165	0.0191	0.0048	0.046	0.00731	0.0638	0.0403	0.00447	0.12	0.11
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00179	0.00228	0.00245	0.00228	0.0033	0.0022	0.0021	0.00249	0.00211	0.00215	0.00232	0.0017	0.00169
0.00077	0.00068	0.00076	0.00073	0.0012	0.00072	0.00072	0.00073	0.00073	0.00081	0.00071	0.00085	0.00081
0.37	0.116	0.139	0.105	0.096	0.082	0.152	<0.05	0.169	0.135	<0.05	0.356	0.305
12.2	12.6	11.4	11.1	11.4	10.1	10.8	9.66	11.5	11.2	12.4	13	11.2
0.00013	0.00021	0.00013	0.00014	0.00013	0.00012	0.00015	0.00016	0.00012	0.00014	0.00015	0.00013	0.00012
5.75	5.79	6.42	5.47	5.73	4.88	6.27	5.67	6.23	6.01	5.18	7.31	6.69
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
38.5	33.6	35.8	36.4	37.3	34	33.3	31.4	34.2	36.2	35.1	37.3	35.2
0.404	0.348	0.392	0.394	0.402	0.35	0.381	0.355	0.386	0.394	0.384	0.379	0.388
18.3	17.8	18.3	17.5	17.5	17.9	17.9	14.3	18.5	18.6	17.9	18	16.4
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00101	0.00113	0.0012	0.00112	0.00114	0.00118	0.00108	0.0011	0.00108	0.00109	0.00116	0.000996	0.000999
0.0016	0.0025	0.0023	0.0022	0.0023	0.0021	0.002	0.0027	0.0019	0.0019	0.0021	0.002	0.0022
<0.003	<0.003	<0.003	0.004	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
13.6	13.1	14.5	13.6	13.1	12.4	12.8	13.8	14.1	14.7	13.2	14.6	14.3
14.3	13.3	14.9	14.7	13	13	13	14.3	14.1	15	13.2	15.1	14.8
2.64												
1.04												
L1358222	**L1389979**	**L1410216**	**L1448657**	**L1454705**	**L1461081**	**L1469099**	**L1478913**	**L1483419**	**L1490937**	**L1499202**	**L1506521**	**L1518246**

Baseline Data for Surface Water

JACL-D	JACL-M	JACL-M	JACL-M	JACL-M	JACL-M	EDITH-01S	EDITH-01S	EDITH-01S	EDITH-01S	EDITH-01S	EDITH-01S	EDITH-01S
30-Sep-14	1-Jun-11	29-Jun-11	20-Aug-14	14/Sep/2014	30-Sep-14	30-Apr-14	13-May-14	27-May-14	10/Jun/2014	27-Jun-14	8-Jul-14	22-Jul-14
804	453	553	530	525	934	527	677	712	720	765	782	792
3.3	23.5	45.8	53.8	17.6	67.6	118	76.5	87.8	92.3	112	12.9	81.4
0.42	2.95	4.94	5.47	1.94	6.99	14.2	8.13	9	8.99	10.7	1.21	7.38
7.16	6.97	8.33	8.39	7.7	8.42	8.14	8.81	8.75	8.76	8.81	8.69	7.88
-253	-143	-44.9	34.9	96.5	161	0.8	71.1	49.9	27.8	-52.6	-196	-49.2
0.65	35	0.36	0.33	0.35	0.6	0.39	0.44	0.44	0.42	0.44	0.44	0.43
1302	721	734	678	718	1195	798	885	897	859	883	894	875
4.98	5.52	7.93	13.5	11.1	13.6	7.23	12.7	14.3	16.6	17.6	18.5	20
846	469	478	440	465	778	518	575	584	559	574	581	569
-10.9		1.4	3.1	0.7	-11.4	-0.9	-0.3	-0.4	0.8	3.7	1.9	1.5
285	248	237	234	247	213	384	355	394	393	404	403	400
285			230	244	205	344	304	346	343	355	345	339
<2			3.7	3.8	7.7	39.9	51.1	47.8	50.3	49.5	58.3	60.7
	14.5	10.6										
304	308	310	293	296	285	393	394	387	382	382	391	396
<2			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
8.21	8.21	8.24	8.36	8.45	8.47	8.7	8.84	8.68	8.73	8.71	8.8	8.77
718	758	716	661	684	664	842	864	867	861	858	860	846
428	448	447	419	427	419	501	527	528	457	481	525	494
<3	<3	<3	4.1	<3	<3	7.4	<3	<3	<3	5	<3	<3
1.82	0.46	1.81	7.29	0.69	1.67	1.69	0.69	0.52	1.48	6.47	1.98	1.95
<0.25	<0.25	<0.05	<0.05	<0.25	<0.05	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5
56.6	59.8	59.7	53.6	55.8	55.8	47.3	48.1	46.6	49.8	50	48.8	49.2
0.206	0.24	0.216	0.218	0.203	0.231	0.22	0.21	0.25	0.23	0.23	0.35	0.257
46.2	73.7	72.3	49.1	50.3	48.3	38.9	40.5	41.1	41.6	40.7	41.1	42
0.906	0.0869	0.0884	0.0097	0.0993	0.0242	0.0183	0.0293	0.0922	0.0238	0.0161	0.0319	0.0238
<0.025	0.042	0.0847	<0.005	0.064	0.0109	<0.05	<0.05	0.0063	<0.05	<0.05	<0.05	<0.05
<0.005	<0.005	0.0105	<0.001	0.0222	0.0029	<0.01	<0.01	<0.001	<0.01	<0.01	<0.01	<0.01
	1.06	1.22										
	1.1	1.16										
1.68	1.06	1.06	1.11	0.925	0.892	1.58	1.39	1.36	1.32	1.64	1.26	1.42
0.304	0.022	0.0209	<0.001	0.0016	<0.001	0.0024	0.004	0.0078	<0.001	<0.001	<0.001	0.0012
0.356	0.0364	0.0337	0.0121	0.0132	0.0129	0.0251	0.0263	0.0314	0.0217	0.0216	0.0221	0.0214
0.43	0.0405	0.0415	0.0181	0.0157	0.0157	0.0698	0.0313	0.0371	0.034	0.0395	0.0308	0.0328

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0019	0.0075	<0.005	0.0019	0.0013	<0.001	<0.001	0.0012	0.0021	0.0019	0.0041	0.0049	0.0042
<0.0001	<0.0005	<0.0005	<0.0001	<0.0001	0.0001	0.0001	0.00012	0.00011	0.00013	0.00013	0.00013	0.00012
0.00134	0.00136	0.00134	0.00125	0.00132	0.00135	0.00141	0.00141	0.00141	0.00149	0.00149	0.00158	0.00162
0.0778	0.06	0.06	0.059	0.0625	0.0583	0.0494	0.0488	0.0455	0.0418	0.0469	0.0467	0.0476
<0.0001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.026	<0.1	<0.1	0.021	0.023	0.022	0.014	0.015	0.015	0.016	0.015	0.016	0.015
<0.00001	<0.000017	<0.000017	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
58.1	54	53.5	57.1	56.1	53.6	40.4	42	40.7	39.2	40.5	39.1	39.4
<0.0001	<0.001	<0.002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0001	<0.0003	<0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	0.00011	0.00012	0.00012	0.00014
<0.0002	<0.001	<0.001	0.00149	0.00275	0.00099	0.00074	0.00079	0.00102	0.00103	0.00114	0.0011	0.00115
<0.01	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.00005	<0.0005	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0057	0.0062	0.0055	0.00514	0.00583	0.00541	0.0106	0.0118	0.0108	0.0119	0.0104	0.012	0.0112
38.5	42.1	42.7	36.5	37.8	36.6	70.9	70.3	69.2	69	68.2	71.1	72.2
0.0977	0.0034	0.00385	0.00185	0.000537	0.000814	0.00106	0.00238	0.00483	0.00375	0.00249	0.00176	0.00172
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00227	0.0024	0.0025	0.00232	0.0023	0.00317	0.00185	0.00201	0.00186	0.002	0.00186	0.00188	0.00203
0.00066	<0.001	<0.001	0.00055	0.00064	0.00059	0.00061	0.00063	0.00074	0.00069	0.00062	0.00058	0.00065
0.174	<0.3	<0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
11.2	12.5	12.3	11.2	11.1	11	17.6	16.9	16.8	17.2	17.4	18.2	17.8
	<0.001	<0.001	0.00011	0.00014	0.00012	0.00013	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	0.0001
6.3	1.57	1.76	5.36	5.7	6.25	<0.05	<0.05	0.16	0.282	0.32	0.511	0.174
<0.00001	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
36.8	40.6	40.7	34	35.3	34.5	52.2	53	53.7	52.6	54.5	53.7	57.2
0.416	0.409	0.403	0.374	0.363	0.375	0.282	0.271	0.267	0.287	0.272	0.267	0.282
38.9			16.8	17	16.1	13.7	14.8	14.2	15.7	13.8	14.7	14.6
<0.00001	<0.0002	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00108	0.00119	0.0012	0.0011	0.00104	0.0011	0.00156	0.00143	0.00162	0.00162	0.00168	0.0016	0.00169
0.0017	0.0023	0.0017	0.0023	0.0023	0.0028	0.0021	0.0022	0.0023	0.0023	0.0026	0.0028	0.0032
0.0015	<0.005	<0.005	0.004	<0.001	<0.001	<0.001	0.0012	0.0034	<0.001	<0.001	<0.001	<0.001
0.0034	0.0086	<0.005	0.0099	0.0077	0.0083	0.0088	0.0037	0.006	0.0056	0.0149	0.0137	0.017
<0.0001	<0.0005	<0.0005	<0.0001	0.0001	<0.0001	0.00013	0.00013	0.00015	0.00014	0.00012	0.00015	0.00014
0.00129	0.00121	0.00119	0.00128	0.00131	0.0013	0.00136	0.00133	0.00129	0.00148	0.00153	0.00156	0.00169
0.0758	0.061	0.062	0.0619	0.061	0.0551	0.0483	0.0463	0.0423	0.0408	0.0461	0.0467	0.0495

Baseline Data for Surface Water

<0.0001	<0.001	<0.001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.2	<0.2	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.03	<0.1	<0.1	0.024	0.027	0.025	0.014	0.015	0.015	0.017	0.017	0.019	0.018
<0.00001	0.000018	<0.000017	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
56	54	54.1	57.5	54.6	49.8	38.5	40.7	39.3	37.8	39.9	39.5	39.4
0.0002	<0.001	<0.001	0.00013	<0.0003	0.00018	0.00011	<0.0001	<0.0001	<0.0001	0.00015	<0.0001	<0.0001
<0.0001	<0.0003	<0.0003	<0.0001	<0.0001	<0.0001	0.00011	<0.0001	0.00011	0.00011	0.00016	0.00013	0.00016
0.00153	<0.001	<0.001	0.00122	0.00213	0.00119	0.00099	0.00095	0.00106	0.00111	0.00128	0.00123	0.00144
0.02	<0.03	<0.03	0.016	0.013	0.014	0.016	0.049	0.012	0.011	0.021	0.014	0.02
<0.00005	<0.0005	<0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.00518	0.0068	<0.005	0.00538	0.00594	0.00489	0.00996	0.0112	0.00936	0.0112	0.0101	0.0114	0.0111
37.2	43.3	42.5	37.2	35.2	34.8	64.7	68.8	68.7	68.5	67.4	71.2	73.4
0.111	0.007	0.00762	0.00457	0.00361	0.00185	0.0107	0.00389	0.00573	0.00649	0.00691	0.00395	0.00419
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00329	0.0028	0.0027	0.00252	0.00231	0.00286	0.00195	0.00202	0.00191	0.00206	0.00206	0.00208	0.00213
0.0008	<0.001	<0.001	0.0007	0.00077	0.00064	0.00071	0.00072	0.00072	0.00073	0.00072	0.00065	0.00074
0.338	<0.3	<0.3	<0.05	<0.05	<0.05	0.078	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10.6	12.7	12.5	11.8	10.7	10.3	16.7	16.3	16.5	17	17.5	18.4	18.1
<0.0001	<0.001	<0.001	0.00014	0.00015	0.00011	0.00012	<0.0001	0.00011	<0.0001	0.0001	<0.0001	<0.0001
6.8	1.63	1.75	5.51	5.6	5.93	0.071	0.057	0.168	0.292	0.36	0.54	0.232
<0.00001	<0.00002	<0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
34.6	41.1	41.2	35.6	34.6	32.3	50.9	53.4	52.8	53.7	53.9	55.8	56.6
0.41	0.415	0.412	0.381	0.369	0.369	0.28	0.27	0.261	0.288	0.278	0.295	0.291
16.5			17.4	16.9	15.5	13.6	14.5	14.3	14.7	14	15.1	15.5
<0.00001	<0.0002	<0.0002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0005	<0.0005	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00106	0.0014	0.00134	0.00118	0.00109	0.00119	0.00168	0.00176	0.00181	0.00182	0.0018	0.00178	0.00187
0.0017	0.0025	0.0019	0.0026	0.0027	0.0027	0.0023	0.0023	0.0023	0.0026	0.0026	0.003	0.0034
<0.003	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
13.4	14.2	14.3	14	15.1	13.8	18.4	19.5	18.6	19.1	18.8	9.75	19.2
14.6	14.4	14.3	15.1	15.1	14.4	20.4	19.3	18.9	19.8	20	9.96	19.9
	0.931	1.04										
	0.971	0.976										
L1526071	**L1012627**	**L1025917**	**L1506521**	**L1518246**	**L1526071**	**L1449318**	**L1455480**	**L1461081**	**L1469099**	**L1478913**	**L1483419**	**L1490937**

Baseline Data for Surface Water

EDITH-01S	EDITH-01S	EDITH-01S	EDITH-01S	EDITH-01D	EDITH-01D	EDITH-01D	EDITH-01D	EDITH-01D	EDITH-01D	EDITH-01D	EDITH-01D	EDITH-01D
7-Aug-14	20-Aug-14	14-Sep-14	30-Sep-14	30-Apr-14	14-May-14	27-May-14	10-Jun-14	27-Jun-14	8-Jul-14	22-Jul-14	7-Aug-14	20-Aug-14
833	794	794	1236	527	677	712	720	765	642	875	614	614
52.2	88.1	85.1	84.1	118	76.5	87.8	92.3	112	1.6	81.4	5.1	2.7
4.6	7.92	8.75	8.75	14.2	8.13	9	8.99	10.7	0.17	7.38	0.61	0.33
8.82	8.75	8.78	8.72	8.14	8.81	8.75	8.76	8.81	8.12	7.88	8.03	7.65
58.7	123	168	81.9	0.8	71.3	49.9	27.8	-52.6	88.5	-49.2	-105	-161
0.44	0.43	0.46	0.81	0.39	0.44	0.44	0.42	0.44	0.46	0.43	0.46	0.47
888	872	929	1597	798	885	897	859	883	921	792	926	956
21.8	20.4	14	13.2	7.23	12.7	14.3	16.6	17.9	9.12	20	7.51	6.27
577	566	603	1037	518	575	584	559	574	600	569	603	622
0.7	1.2	1.6	-9.9	-0.9	-0.3	-0.4	0.8	3.7	3.2	1.5	2.5	2.2
416	402	421	408	400	394	390	401	413	418	409	419	442
358	345	382	364	368	356	370	383	404	410	379	406	442
58.1	56.6	39.3	43.5	31.9	38.1	20.4	18.3	9.4	8.3	29.8	12.7	<2
387	390	408	394	393	383	401	402	389	397	397	388	422
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2
8.79	8.77	8.76	8.63	8.61	8.77	8.46	8.45	8.34	8.34	8.36	8.37	8.17
891	883	898	901	871	880	880	900	900	912	872	916	969
545	541	547	538	371	533	527	518	533	526	527	540	568
3.8	5.5	<3	3.1	6.9	<3	<3	<3	<3	<3	<3	5.8	4.5
1.1	3.41	1.18	2.22	1.56	1.2	0.5	0.5	1.11	3.9	3.73	2.81	4.62
<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
50.8	50	50.3	51	52	48.4	51.6	50.3	50.8	48.6	47.9	49.4	49.4
0.46	0.235	0.244	0.25	0.21	0.21	0.25	0.23	0.24	0.33	0.242	0.42	0.228
42.4	42	42.1	42.4	39.7	40.6	42.7	42.6	41.3	41.2	40.5	41.9	27.5
0.0288	0.0125	0.0172	0.052	0.0169	0.0163	0.147	0.238	0.32	0.402	0.322	0.152	2.42
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1.66	1.5	1.43	1.4	1.58	1.58	1.44	1.5	1.72	1.61	1.99	1.7	3.64
<0.001	<0.001	<0.001	<0.001	0.0023	0.0019	0.0236	0.0532	0.0772	0.0367	<0.001	<0.001	0.434
0.0212	0.0214	0.0179	0.0183	0.0254	0.0245	0.0467	0.0746	0.117	0.0607	0.021	0.0198	0.502
0.0281	0.0314	0.0298	0.029	0.0732	0.0535	0.0495	0.0806	0.12	0.12	0.0528	0.054	0.504

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0116	0.0059	0.0044	0.0105	<0.001	<0.001	0.0011	0.001	0.0016	0.0011	0.0041	0.0023	0.0014
0.00014	0.00012	0.00013	0.00013	0.00011	0.00012	0.00011	0.00012	0.0001	0.00011	0.00014	0.00012	<0.0001
0.00176	0.00173	0.00175	0.0017	0.00151	0.00145	0.0015	0.00151	0.0014	0.00149	0.00166	0.00158	0.00154
0.0502	0.0489	0.054	0.0543	0.0537	0.0486	0.0496	0.0508	0.0541	0.0549	0.0488	0.0572	0.066
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.018	0.016	0.016	0.02	0.015	0.018	0.019	0.018	0.017	0.019	0.016	0.018	0.017
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
38.9	37.7	40.5	39.8	40.2	41.1	41.7	41.5	41.7	42	39	42	45.8
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00011	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00012
0.00014	0.00014	0.00013	0.00013	0.0001	<0.0001	0.00011	0.00011	0.0001	0.00012	0.00014	0.0001	0.00011
0.00123	0.0014	0.00105	0.00108	0.00124	0.00099	0.00172	0.0047	0.00081	0.00104	0.0016	0.0014	0.00027
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.016
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
0.0125	0.0113	0.0102	0.0129	0.0111	0.0117	0.0115	0.0123	0.0108	0.0127	0.0113	0.012	0.0117
70.4	71.8	74.5	71.5	71.1	68.1	72.1	72.4	69.1	70.9	72.7	68.8	74.6
0.00185	0.00104	0.00487	0.00936	0.00189	0.0015	0.00858	0.0375	0.0908	0.127	0.00217	0.166	0.173
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00208	0.00204	0.00189	0.00217	0.00184	0.00246	0.0018	0.00195	0.00169	0.00168	0.00198	0.00167	0.000476
0.00067	0.00064	0.00067	0.00066	0.00088	0.00079	0.00089	0.00075	0.00063	0.00075	0.0007	0.00065	0.00069
<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.074	0.1	0.09	<0.05	<0.05	0.474
20.9	19.3	19.1	18.7	17.7	17	17.1	20	17.8	19.9	17.5	20.4	21.3
<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.00012	0.00011	0.00027	0.00035	<0.0001	<0.0001	0.00052
0.202	0.324	0.899	1.03	0.054	0.124	0.424	1.08	1.46	1.58	0.178	1.58	3.81
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
57.4	56.5	59.8	60.8	56.4	53.7	55.6	50.8	53	54.1	55.7	55.5	57.4
0.277	0.289	0.273	0.331	0.274	0.262	0.269	0.287	0.283	0.293	0.278	0.292	0.317
14.7	14.3	14.2	14.5	13.6	14.7	14.6	14.1	15.2	19.9	14.8	14	13.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00177	0.00155	0.00166	0.00177	0.00146	0.0013	0.00141	0.00154	0.00161	0.00161	0.00167	0.00163	0.00143
0.0033	0.0033	0.0033	0.0033	0.0022	0.0022	0.0022	0.002	0.0019	0.002	0.0032	0.0021	0.002
0.0011	0.0017	<0.001	0.0013	0.0011	<0.001	<0.001	0.0013	<0.001	<0.001	<0.001	0.0022	<0.001
0.0224	0.0232	0.0144	0.0141	0.0104	0.0072	0.0058	0.0056	0.0092	0.009	0.0124	0.0169	0.0078
0.00017	0.00016	0.00014	0.00013	0.00011	0.00015	0.00017	0.00013	0.00012	0.00015	0.00013	0.00014	0.00011
0.00162	0.00172	0.00167	0.00159	0.00136	0.00137	0.00131	0.00153	0.0015	0.00156	0.00158	0.00148	0.00163
0.0478	0.0451	0.052	0.0505	0.0492	0.0486	0.0495	0.0496	0.0539	0.0554	0.0574	0.0539	0.0635

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.018	0.018	0.02	0.022	0.015	0.016	0.016	0.018	0.019	0.021	0.018	0.017	0.02
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
37.1	37.9	38.3	37.2	38.2	41.5	40.9	39.5	41.1	41.1	42.2	39.3	46.8
0.00012	0.00015	<0.0003	0.00018	0.00014	0.00014	0.0001	<0.0001	0.00018	0.0001	0.00012	0.0001	0.00016
0.00016	0.00017	0.00015	0.00014	0.00012	0.00012	0.00012	0.00012	0.00012	0.00013	0.00014	0.00013	0.00014
0.00142	0.00277	0.0013	0.00212	0.00404	0.00226	0.00234	0.00472	0.00284	0.00319	0.00242	0.00152	0.00672
0.027	0.03	0.023	0.02	0.019	0.013	0.01	0.012	0.018	0.019	0.021	0.023	0.045
<0.00005	0.000077	<0.00005	<0.00005	<0.00005	<0.00005	0.000054	<0.00005	<0.00005	0.000206	<0.00005	<0.00005	0.000157
0.0112	0.0118	0.0102	0.011	0.0105	0.0114	0.00979	0.0109	0.0105	0.0123	0.0111	0.0104	0.012
68.6	72.6	72.2	67.6	65.1	67.7	69.3	69.7	68.3	68.8	71.4	65.5	76.2
0.00523	0.00506	0.0205	0.0232	0.0157	0.0103	0.0103	0.041	0.0918	0.132	0.146	0.163	0.188
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00212	0.00218	0.00211	0.00207	0.00188	0.00237	0.00186	0.00189	0.00179	0.00174	0.00178	0.00166	0.0015
0.00079	0.00074	0.00083	0.00076	0.00082	0.00093	0.00091	0.00078	0.00073	0.00076	0.00078	0.00069	0.00081
<0.05	<0.05	<0.05	<0.05	0.076	0.058	0.076	0.072	0.114	0.104	0.062	0.055	0.518
20.2	19.5	18.4	17.5	16.5	17.1	16.8	17.5	17.5	18.8	17.5	19	21.6
<0.0001	<0.0001	0.00011	0.0001	<0.0001	0.00013	<0.0001	0.00011	0.0001	<0.0001	<0.0001	<0.0001	0.0001
0.24	0.378	0.911	1.01	0.106	0.144	0.428	1.1	1.45	1.58	1.55	1.55	3.93
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
55.2	58.1	57.7	54.4	50.3	56.3	52.7	53.6	53.4	54	56.3	53	60.3
0.277	0.295	0.289	0.293	0.272	0.273	0.261	0.284	0.284	0.299	0.294	0.282	0.347
14.6	14.8	14.6	14	13.7	14.4	14.5	15.1	14.2	14.5	14.7	13.8	13.2
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.00183	0.00188	0.00183	0.00187	0.00175	0.00179	0.00178	0.00175	0.00172	0.00171	0.00166	0.0016	0.00158
0.0035	0.0036	0.0035	0.0031	0.0022	0.0024	0.0022	0.0023	0.0022	0.0022	0.0022	0.0022	0.0022
<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0041
19.9	19	20.2	19.7	19.1	20.1	18.4	18	19.4	9.78	19.4	19.6	20.8
20.1	20.1	20.4	20.3	20.1	19.4	18.7	18.1	19.3	9.89	19.7	20	21.5
L1499202	**L1506521**	**L1518246**	**L1526071**	**L1449318**	**L1455480**	**L1461081**	**L1469099**	**L1478913**	**L1483419**	**L1490937**	**L1499202**	**L1506521**

Baseline Data for Surface Water

EDITH-01D	EDITH-01D	EDITH-01M	EDITH-01M	EDITH-01M	GOOSE LAKE	GOOSE LAKE	GOOSE LAKE	GOOSE LAKE	GOOSE LAKE	GOOSE LAKE	GOOSE LAKE	GOOSE LAKE
14-Sep-14	30-Sep-14	20-Aug-14	14-Sep-14	30-Sep-14	9-Apr-14	24-Apr-14	8-May-14	23-May-14	5-Jun-14	18-Jun-14	3-Jul-14	15-Jul-14
660	1148	723	699	1227	2631	2923	3284	4046	4884	5436	5259	5310
3.4	4.4	25.4	5.4	18.8	12.6	90.3	60.3	91.8	30.8	87	84.9	75.6
0.41	0.53	2.3	0.59	2	1.4	10.5	6.28	8.73	6.94	6.97	6.92	5.92
7.26	7.41	8.5	7.93	8.31	9.49	9.53	9.58	9.59	9.59	9.58	9.57	9.36
272	-279	130	-233	109	-241	67.4	-6.2	-21.4	34.9	43	-63.7	-349
0.51	0.89	0.44	0.48	0.83	1.96	2.29	2.29	2.57	2.79	2.89	2.87	2.74
1021	1765	893	978	1640	3703	4284	4281	4776	5172	5374	5272	5117
6.49	6.7	15.1	10	11.8	9.84	8.33	12.8	16.9	22.1	25.6	24.6	27
664	1461	581	634	1066	2407	2787	2782	3105	3362	3492	3459	3326
2.6	-8.7	1.1	9.6	-10.1								
426	552	418	448	407	1310	1370	1540	1640	1770	1800	2040	2100
377	552	418	447	374	732	790	863	902	955	994	1070	1170
49.3	<20	<1	<1	32.8	576	584	677	736	816	808	966	939
407	407	400	414	397	676	752	850	918	955	1040	1130	1170
<1	<20	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
8.75	8.25	8.37	8.36	8.58	9.42	9.45	9.34	9.4	9.4	9.39	9.42	9.45
898	954	917	942	906	3730	4190	4630	4620	4850	5200	5660	6330
546	565	549	562	534	2980	3470	3850	3870	4240	4470	4940	6150
<3	<3	5.8	<3	<3	26.7	15.6	5.1	<3	13.8	4.5	17.5	41
1.09	43.3	5.22	23.8	1.02	50.2	3.78	1.21	0.76	1	1.48	3.5	5.67
<0.5	<0.5	<0.5	<0.5	<0.5	1.1	1.1	1.5	<2.5	1.3	1.4	<2.5	<2.5
50.2	50.4	48.7	49.7	50.8	86	100	103	103	106	114	147	143
0.248	0.246	0.232	0.247	0.252	<0.4	<0.4	<0.4	<1	0.045	0.039	0.033	0.031
41.9	25.6	40.5	26.5	42.1	997	1120	1250	1280	1370	1480	1620	1850
0.0186	1.87	0.36	1.56	0.243	0.341	0.0633	0.0818	0.124	0.127	0.148	0.137	0.186
0.051	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1	<0.25	<0.1	<0.1	<0.25	<0.25
<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.05	<0.05
1.44	3.2	2.09	3.18	1.51	10.8	7.22	8.67	7.73	7.57	9.71	10.6	12.5
0.0011	0.32	0.0011	0.325	0.0114	0.0027	0.0013	0.0018	0.0092	0.0196	0.0017	0.0011	0.0022
0.0197	0.375	0.0217	0.377	0.0297	0.196	0.127	0.0415	0.0613	0.0766	0.06	0.0311	0.0858
0.038	0.34	0.0699	0.407	0.044	0.0516	0.0423	0.0611	0.113	0.0801	0.0817	0.0746	0.165

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0037	0.002	0.0021	0.0015	0.0033	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005
0.00013	<0.0001	0.00012	<0.0001	0.00013	0.00153	0.00165	0.00191	0.00198	0.00206	0.00177	0.00229	0.00234
0.00161	0.00159	0.00156	0.00164	0.00158	0.0193	0.0201	0.0204	0.0198	0.0192	0.0181	0.0193	0.0198
0.0506	0.0679	0.0592	0.0673	0.0525	0.011	0.0148	0.0158	0.0182	0.017	0.0168	0.0186	0.0164
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
0.016	0.019	0.017	0.018	0.018	0.161	0.17	0.224	0.242	0.228	0.229	0.325	0.341
<0.00001	<0.00001	0.000011	<0.00001	<0.00001	<0.00005		<0.00005	<0.00005	0.000058	<0.00005	<0.00005	<0.00005
39.8	43.7	42.1	44.9	40.2	5.67	6.01	7.35	8.98	7.42	7.4	6.91	6.52
<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00012	0.00011	0.0001	0.00011	0.00012	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00152	<0.0002	0.00122	0.00026	0.00099	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
						<0.00002	<0.00002	<0.00002		<0.00002	<0.00002	<0.00002
<0.01	0.012	<0.01	0.015	<0.01	0.027	0.016	<0.01	0.029	<0.01	<0.02	<0.02	<0.02
<0.00005	<0.00005	0.000051	<0.00005	<0.00005	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025
0.0109	0.0123	0.0108	0.011	0.0123	0.0503	0.0511	0.0623	0.0653	0.0611	0.0611	0.0832	0.0881
74.6	72.3	71.6	73.4	72	161	179	202	218	227	249	270	280
0.00507	0.254	0.215	0.204	0.107	0.00247	0.00167	0.00079	0.00077	0.00112	0.00109	0.00158	0.00073
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00193	0.000589	0.00141	0.000298	0.00237	0.00323	0.00377	0.00424	0.00435	0.0043	0.00449	0.00512	0.0051
0.00065	0.00071	0.00063	0.00071	0.00064	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
<0.05	0.375	<0.05	0.343	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.1
18.8	18.1	19.4	19.4	18.7	138	146	157	160	173	177	214	237
<0.0001		<0.0001	0.00018	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.897	3.55	1.97	3.4	1.36	3.67	1.8	0.336	0.698	0.184	0.58	0.58	0.62
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
56.5	59.5	56.3	59.1	55	719	792	852	860	884	891	1110	1230
0.278	0.331	0.29	0.292	0.305	0.375	0.377	0.46	0.54	0.518	0.523	0.555	0.583
14.8	11	13.8	11.4	14.6	319	339	366	372	399	450	524	548
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
0.00167	0.00155	0.00153	0.00147	0.00171	0.00342	0.00367	0.00418	0.00447	0.00442	0.00431	0.00499	0.00507
0.0032	0.0021	0.0021	0.0021	0.0029	<0.005	0.005	0.0058	<0.005	<0.005	<0.005	<0.005	<0.005
<0.001	<0.001	0.0032	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
0.0218	0.011	0.0136	0.0056	0.0165	0.465	<0.015	<0.015	0.027	<0.015	0.02	<0.015	0.016
0.00013	0.00011	0.00012	0.00011	0.00013	0.00153	0.00175	0.00212	0.00204	0.00207	0.00181	0.00245	0.00233
0.00185	0.00158	0.00158	0.00165	0.00164	0.0189	0.0202	0.0222	0.0191	0.0195	0.018	0.0187	0.0192
0.0556	0.0619	0.0583	0.0643	0.0546	0.0247	0.0137	0.0177	0.0184	0.0184	0.0175	0.0185	0.0177

Baseline Data for Surface Water

<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
0.021	0.024	0.019	0.022	0.024	0.153	0.168	0.224	0.245	0.232	0.229	0.32	0.356
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005		<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
38.8	41.4	42.1	42.6	38.8	9.82	5.93	7.46	8.38	7.6	7.63	6.93	6.78
<0.0003	0.00031	0.00015	<0.0003	0.00016	0.00165	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00017	0.00014	0.00014	0.00014	0.00014	0.00059	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.00163	0.00093	0.00155	0.00173	0.00149	0.003	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
0.026	0.053	0.024	0.046	0.023	0.814	0.031	0.016	0.021	0.022	0.041	<0.02	0.03
<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025	<0.00025
0.0112	0.0105	0.0114	0.0112	0.0117	0.0453	0.051	0.0625	0.0642	0.0658	0.0608	0.0806	0.095
72.8	68.8	71.9	72	69.8	155	178	195	222	232	258	272	293
0.0234	0.235	0.225	0.198	0.121	0.0271	0.00175	0.00113	0.00129	0.0011	0.00183	0.00179	0.00131
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00198	0.000903	0.00163	0.00096	0.00241	0.0032	0.00424	0.00444	0.0045	0.00437	0.00452	0.00536	0.00542
0.00088	0.00081	0.00076	0.00085	0.00071	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
<0.05	0.376	0.075	0.328	<0.05	0.308	0.107	0.07	0.059	0.058	<0.1	<0.1	0.12
18.6	17.3	19.2	18.1	17.9	129	144	154	161	179	181	211	241
0.00019	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
0.942	3.41	2	3.21	1.35	5.58	1.89	0.345	0.737	0.219	0.65	0.59	0.7
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
61.3	53.7	56.5	56.4	55.8	691	784	908	845	992	896	1090	1240
0.281	0.285	0.312	0.304	0.299	0.442	0.395	0.486	0.563	0.529	0.532	0.556	0.622
15	11	14.4	11.4	14.5	313	357	375	409	429	477	541	598
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
						<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
0.00176	0.00143	0.00158	0.00151	0.00183	0.00336	0.0037	0.00464	0.00447	0.00433	0.00449	0.00486	0.005
0.0039	0.0022	0.0023	0.0025	0.0031	0.0051	0.005	0.0063	0.0052	<0.005	<0.005	<0.005	<0.005
0.0031	<0.003	<0.003	<0.003	<0.003	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
20.5	20	19.1	20.8	19.7	102	119	109	111	120	123	144	159
19.8	20.2	20.3	20.9	19.7	111	112	107	117	137	123	147	168
L1518246	**L1526071**	**L1506521**	**L1518246**	**L1526071**	**L1441961**	**L1447300**	**L1453031**	**L1459728**	**L1466627**	**L1473827**	**L1481215**	**L1488139**

Baseline Data for Surface Water

GOOSE LAKE	GOOSE LAKE	GOOSE LAKE	GOOSE LAKE	PC-EF-04	PC-EF-04	PC-EF-04	PC-EF-04	WALL	WALL	WALL	WALL
29-Jul-14	11-Aug-14	3-Sep-14	18-Sep-14	5-Jun-10	2-Sep-10	30-Aug-11	25-Oct-11	14-Apr-11	3-Apr-13	5-Jun-13	7-Nov-13
5357	6755		5332		1917	987	1268	25765	44890	71500	
61.6	33.1		36.9		67.2	127	164	134		68.2	
5.15	2.78		3.42		7.39	13.7	20.2	13.4		4.05	
9.77	9.35	9.35	9.33		8.1	8.42	8.27	8.92	9.34	8.94	
-296	-280		-237		7.8	117	56.8	-50.4	78.6	-175	
2.97	3.85		3.49		0.98		1.01		34.1	44.3	
5504	7000		6361		1399	1309	1992	37682	51800	65390	
23.6	23.2	17.9	16.5		10.9	12.1	6.02	8.42	17.9	29.8	
3578	4550		4134				1295	2450	33660	42570	
									14.2	31.6	
				<1			<1				
2220	2420	2200	2450	<1	398	363	409	555	1420	832	171
1120	1230	1290	1360	<1			397			501	171
1100	1180	911	1090	<1			11.8			331	<2
				32.6	15.4	34.9	12.9	36	42.1	52.8	
1160	1160	1030	1230	658	825	567	868	14800	21400	27700	3380
<1	<1	<1	<1	<1			<1			<1	<2
9.52	9.47	9.34	9.43	8.54	8.3	8.57	8.37	9.24	8.91	8.79	7.92
6510	7290	6620	7140	1400	1860	1310	1970	35800	49400	63000	12300
5920	6260	5680	6040	1000	1270	837	1350	47900	74200	111000	11500
50.1	36.6	218	19.9	11.5	<5	40	4.4	57.9	30.7	203	46.2
10.7	12	161	19.3	2.71	0.43	18.7	0.97	15.5	8.37	72.7	13.2
<2.5	<2.5	<2.5	<2.5	<0.5	<0.5	<0.5	<1	<150	<5	5.7	<2.5
145	169	148	162	97.1	142	88.3	157	1850	2490	2900	725
<0.03	<1	<0.03	<0.03	<0.2	<0.2	0.24	<0.4	0.061	<0.3	<0.3	<1
1870	2170	1880	2130	338	456	247	508	30500	45300	63600	6950
0.0913	0.147	0.167	0.149	0.015	<0.005	0.0138	0.0112	0.0881	0.2	0.138	1.25
<0.25	<0.25	<0.25	<0.25	0.141	0.425	0.266	0.85	<0.5	<0.5	<0.5	<0.25
<0.05	<0.05	0.065	<0.05	<0.01	<0.01	<0.01	0.028	<0.1	<0.1	<0.1	0.132
						1.35	1.06		16.9		
				0.8	1.12	1.7	1.37	14.7	19	23.8	5.48
16.5	17.2	14.4	14.3	0.656	0.691	0.796	0.497	14.7	19	24.6	5.5
0.0042	0.0041	0.0216	0.0043	0.0554	0.0673			0.191		0.557	0.324
0.0939		0.178	0.135	0.0837	0.0694	0.105	0.0693	0.733	1.16	1.92	0.411
0.295	0.4	0.38	0.301		0.0695	0.174	0.0739	1.54	1.66	2.65	0.509

Baseline Data for Surface Water

<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005		<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	0.0213	<0.005		0.0053		<0.005	<0.005	<0.005
<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005		<0.005	<0.005	<0.005
<0.005	<0.01	<0.005	<0.005	<0.01	<0.01	<0.005	<0.003	<0.5	<0.05	<0.1	<0.01
0.0027	0.0028	0.00306	0.00319	<0.001	<0.001	<0.0005	0.00014	<0.05	<0.005	<0.01	<0.001
0.0226	0.0283	0.0302	0.0325	0.0022	<0.004	0.00322	0.00296	<0.05	0.0203	0.034	0.0071
0.007	0.00662	0.00584	0.00472	0.052	0.076	0.048	0.0692	<0.4	0.0161	0.0265	0.00249
<0.0005	<0.001	<0.0005	<0.0005	<0.002	<0.002	<0.001	<0.0001	<0.1	<0.005	<0.01	<0.001
<0.0025	<0.005	<0.0025	<0.0025			<0.2	<0.0005	<4	<0.025	<0.05	<0.005
0.308	0.32	0.314	0.326	<0.1	<0.1	<0.1	0.066	2.5	3.73	4.7	0.54
<0.00005	<0.0001	<0.00005	<0.00005	0.000049	0.000045	<0.000017	<0.00001	<0.0017	<0.0005	<0.001	<0.0001
6.06	5.92	5.55	5.64	100	120	91.3	132	374	436	375	58
<0.0005	<0.001	<0.0005	<0.0005	<0.002	<0.006	<0.001	0.00023	<0.1	<0.005	<0.01	<0.001
<0.0005	<0.001	<0.0005	<0.0005	<0.0006	<0.0006	<0.0003	0.0001	<0.03	<0.005	<0.01	<0.001
<0.001	<0.002	<0.001	0.0014	0.0032	0.0023	0.0037	0.00227	<0.15	0.017	<0.02	<0.002
<0.00002	<0.00002	<0.00002									
<0.02	<0.02	0.058	<0.02	<0.03	<0.03	<0.03	<0.03	<0.6	<0.2	<0.2	<0.05
<0.00025	<0.0005	<0.00025	<0.00025	<0.001	<0.001	<0.0005	<0.00005	<0.05	<0.0025	<0.005	<0.0005
0.0938	0.0927	0.0892	0.0829	<0.01	0.013	0.0089	0.0106	<0.5	<0.025	<0.05	<0.005
278	279	247	294	99	128	82.4	131	3360	4930	6490	786
0.00107	0.00087	0.00146	0.00076	0.00517	0.0394	0.0121	0.0247	0.053	0.0686	0.149	0.00791
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00507	0.00495	0.00456	0.00439	0.0183	0.0122	0.0149	0.0126	<0.1	0.0672	0.027	0.00288
<0.0025	<0.005	<0.0025	<0.0025	0.0032	0.003	0.0034	0.00262	<0.1	<0.025	<0.05	<0.005
0.14	0.11	<0.1	<0.1			<0.3	<0.3	<6	1.3	1.8	0.54
236	287	250	269	21.6	22.8	20.3	21.8	436	572	744	160
<0.0005	<0.001	<0.0005	<0.0005	<0.002	<0.005	<0.001	0.00218	<0.1	0.01	<0.01	<0.001
0.78	1.82	3.82	4.17			8.73	8.38	<1	<1	<1	<0.25
<0.00005	<0.0001	<0.00005	<0.00005	<0.00004	<0.00004	<0.00002	<0.00001	<0.002	<0.0005	<0.001	<0.0001
1320	1440	1280	1370	86.2	112	77.9	111	8990	13600	18500	2530
0.546	0.449	0.467	0.483			0.88	1.37	10.5	13.1	14.2	1.73
575	689	610	684						15200	19900	2620
<0.00005	<0.0001	<0.00005	<0.00005	<0.0004	<0.0004	<0.0002	<0.00001	<0.02	<0.0005	<0.001	<0.0001
<0.0005	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0001	<0.05	<0.005	<0.01	<0.001
<0.05	<0.1	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.2	<0.5	<1	<0.1
0.00526	0.00525	0.00433	0.00473	0.00261	0.00337	0.00214	0.00387	<0.02	0.0093	0.0087	0.00067
<0.005	<0.01	<0.005	<0.005	0.0042	0.0038	0.0046	0.0031	<0.1	<0.05	<0.1	<0.01
<0.005	<0.01	0.0055	<0.005	<0.005	<0.005	0.0051	0.0037	<0.1	0.069	<0.1	<0.01
0.056	<0.03	0.031	<0.015	0.191	0.014	0.903	0.0154	<0.5	<0.15	<0.3	0.074
0.00262	0.0025	0.00293	0.00323	<0.001	<0.001	<0.0005	0.00013	<0.05	<0.005	<0.01	<0.001
0.0211	0.0271	0.0294	0.0309	0.0023	<0.004	0.00342	0.00272	<0.05	0.0211	0.034	0.0072
0.0093	0.00839	0.00702	0.00542	0.054	0.068	0.06	0.0682	<0.4	0.0177	0.024	0.0034

Baseline Data for Surface Water

<0.0005	<0.001	<0.0005	<0.0005	<0.002	<0.002	<0.001	<0.0001	<0.1	<0.005	<0.01	<0.001
<0.0025	<0.005	<0.0025	<0.0025			<0.2	<0.0005	<4	<0.025	<0.05	<0.005
0.289	0.3	0.298	0.341	<0.1	<0.1	<0.1	0.075	2.6	3.52	4.2	0.53
<0.00005	<0.0001	<0.00005	<0.00005	0.000056	0.000045	0.000019	<0.00001	<0.0017	<0.0005	<0.001	<0.0001
6.61	6.15	5.23	5.7	99.4	123	89.9	132	380	434	357	57.6
<0.0005	<0.001	<0.0005	<0.0005	<0.002	<0.002	0.0033	0.00057	<0.1	<0.005	<0.01	<0.001
<0.0005	<0.001	<0.0005	<0.0005	<0.0006	<0.0006	0.001	0.00012	<0.03	<0.005	<0.01	<0.001
<0.0025	<0.005	<0.0025	<0.0025	0.0043	0.0024	0.0074	0.00234	<0.15	<0.025	<0.05	<0.005
0.107	0.062	0.065	0.034	0.27	0.037	1.32	0.038	<0.6	<0.2	0.37	0.119
<0.00025	<0.0005	<0.00025	<0.00025	<0.001	<0.001	<0.0005	<0.00005	<0.05	<0.0025	<0.005	<0.0005
0.0871	0.0808	0.0831	0.0869	<0.01	0.014	0.0092	0.012	<0.5	<0.025	<0.05	<0.005
279	275	233	289	97.8	130	81.7	130	3410	4930	6170	781
0.00413	0.00383	0.00331	0.00174	0.0199	0.0452	0.0896	0.0254	0.063	0.0796	0.183	0.0157
<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
0.00481	0.00464	0.00432	0.00438	0.0191	0.0136	0.0158	0.0131	<0.1	0.0767	0.0241	0.00333
<0.0025	<0.005	<0.0025	<0.0025	0.0045	0.0034	0.0073	0.00265	<0.1	<0.025	<0.05	<0.005
0.29	0.37	0.33	0.21			<0.3	<0.3	<6	1.4	2.1	0.64
234	278	229	262	20.6	23.3	20.5	22.1	442	574	706	156
<0.0005	<0.001	<0.0005	<0.0005	<0.002	<0.005	<0.001	0.00194	<0.1	<0.005	<0.01	<0.001
1.01	1.93	3.69	4.18			11.3	8.38	<1	<1	<1	0.52
<0.00005	<0.0001	<0.00005	<0.00005	<0.00004	<0.00004	<0.00002	<0.00001	<0.002	<0.0005	<0.001	<0.0001
1270	1350	1200	1300	82.8	114	77.2	114	9120	15200	16800	2420
0.555	0.433	0.46	0.48			0.885	1.39	10.9	15.6	13	1.76
600	690	579	671						15200	18900	2590
<0.00005	<0.0001	<0.00005	<0.00005	<0.0004	<0.0004	<0.0002	<0.00001	<0.02	<0.0005	<0.001	<0.0001
<0.0005	<0.001	<0.0005	<0.0005	<0.001	<0.001	<0.0005	<0.0001	<0.05	<0.005	<0.01	<0.001
<0.05	<0.1	<0.05	<0.05	<0.01	<0.01	0.053	<0.01	<0.2	<0.5	<1	<0.1
<0.00002	<0.00002	<0.00002									
0.00512	0.00499	0.00506	0.00484	0.00276	0.00371	0.00222	0.00408	<0.02	0.00958	0.0084	0.00075
<0.005	<0.01	<0.005	<0.005	0.0049	0.004	0.0075	0.0032	<0.1	<0.05	<0.1	<0.01
<0.015	<0.03	<0.015	<0.015	<0.005	<0.005	0.0061	<0.003	<0.1	<0.15	<0.3	<0.03
169	184	170	199	12.3	7.78	16.6	8.66	98.9	176	253	21.7
176	187	181	196			16.7	8.69	104	177	271	25.6
						1.07	<0.21		16.7		
						1.42	<0.21	14.7	18.8		
L1494491	**L1500711**	**L1513418**	**L1520952**	**L894378**	**L927930**	**L1052387**	**L1076994**	**L995583**	**L1286585**	**L1312719**	**L1389979**

Baseline Data for Garden Produce

Sample ID	AJX12-GAR-SAH-ROO	AJX12-GAR-SAH-FRU	AJX12-GAR-SAH-LEA	AJX12-GAR-RIV-ROO	AJX12-GAR-RIV-FRU	AJX12-GAR-RIV-LEA	AJX12-GAR-CRE-ROO	AJX12-GAR-CRE-FRU	AJX12-GAR-CRE-LEA	AJX12-GAR-MCD-ROO
Date Sampled	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12
Time Sampled	09:00	09:00	09:00	10:30	10:30	10:30	13:00	13:00	13:00	12:30
ALS Sample ID	L1194738-14	L1194738-15	L1194738-16	L1194738-17	L1194738-18	L1194738-19	L1194738-20	L1194738-21	L1194738-22	L1194738-23
Matrix	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests										
% Moisture	84.5	93.6	91.7	88.2	93.3	92.0	85.2	92.6	88.7	90.2
pH (1:2 soil:water)	-	-	-	-	-	-	-	-	-	-
Particle Size										
% Gravel (>2mm)	-	-	-	-	-	-	-	-	-	-
0.063mm)	-	-	-	-	-	-	-	-	-	-
% Silt (0.063mm - 4um)	-	-	-	-	-	-	-	-	-	-
% Clay (<4um)	-	-	-	-	-	-	-	-	-	-
Texture	-	-	-	-	-	-	-	-	-	-
Metals	1658.064516	63.125	304.8192771	258.4745763	#VALUE!	115.375	77.02702703	#VALUE!	165.4867257	197.9591837
Aluminum (Al)	-	-	-	-	-	-	-	-	-	-
Aluminum (Al)-Total	1650	63.3	306	259	4.2	115	77.2	3.9	166	197
Aluminum (Al)-Total	257	4.04	25.3	30.5	<0.40	9.23	11.4	<0.40	18.7	19.4
Antimony (Sb)	-	-	-	-	-	-	-	-	-	-
Antimony (Sb)-Total	0.039	<0.010	0.012	0.010	<0.010	0.013	<0.010	<0.010	<0.010	<0.010
Antimony (Sb)-Total	0.0061	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic (As)	-	-	-	-	-	-	-	-	-	-
Arsenic (As)-Total	0.398	<0.020	0.132	0.099	<0.020	0.083	0.026	<0.020	0.048	0.112
Arsenic (As)-Total	0.0619	<0.0040	0.0109	0.0116	<0.0040	0.0067	<0.0040	<0.0040	0.0055	0.0110
Barium (Ba)	-	-	-	-	-	-	-	-	-	-
Barium (Ba)-Total	50.2	2.37	15.2	18.9	0.423	10.9	24.8	0.711	13.2	16.3
Barium (Ba)-Total	7.81	0.152	1.26	2.24	0.028	0.874	3.66	0.053	1.50	1.60
Beryllium (Be)	-	-	-	-	-	-	-	-	-	-
Beryllium (Be)-Total	0.038	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)-Total	0.0059	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)	-	-	-	-	-	-	-	-	-	-
Bismuth (Bi)-Total	0.021	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total	0.0033	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Boron (B)-Total	22.4	14.5	25.7	23.0	7.4	57.7	16.5	10.2	44.5	23.7
Boron (B)-Total	3.48	0.93	2.13	2.72	0.49	4.63	2.43	0.75	5.04	2.34
Cadmium (Cd)	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)-Total	0.111	0.043	0.137	0.074	0.026	0.170	0.050	0.064	0.178	0.483
Cadmium (Cd)-Total	0.0172	0.0027	0.0113	0.0088	<0.0020	0.0136	0.0074	0.0048	0.0201	0.0476

Baseline Data for Garden Produce

Calcium (Ca)	-	-	-	-	-	-	-	-	-	-
Calcium (Ca)-Total	4140	1220	11900	1820	808	8240	1440	1730	10500	488
Calcium (Ca)-Total	644	78.1	988	215	54.2	661	213	129	1180	48.1
Cesium (Cs)-Total	0.0933	<0.0050	0.0197	0.0204	<0.0050	0.0117	0.0108	0.0137	0.0290	0.0147
Cesium (Cs)-Total	0.0145	<0.0010	0.0016	0.0024	<0.0010	<0.0010	0.0016	0.0010	0.0033	0.0014
Chromium (Cr)	-	-	-	-	-	-	-	-	-	-
Chromium (Cr)-Total	5.72	0.318	1.32	0.708	<0.050	0.568	0.246	<0.050	0.546	0.905
Chromium (Cr)-Total	0.890	0.020	0.110	0.084	<0.010	0.046	0.036	<0.010	0.062	0.089
Cobalt (Co)	-	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Total	1.19	0.065	0.239	0.164	<0.020	0.107	0.078	0.071	0.160	0.270
Cobalt (Co)-Total	0.184	0.0041	0.0198	0.0193	<0.0040	0.0086	0.0116	0.0053	0.0181	0.0266
Copper (Cu)	-	-	-	-	-	-	-	-	-	-
Copper (Cu)-Total	11.7	5.59	11.6	10.6	3.53	14.3	6.68	6.74	9.37	12.3
Copper (Cu)-Total	1.82	0.357	0.956	1.25	0.237	1.15	0.986	0.501	1.06	1.22
Gallium (Ga)-Total	0.540	<0.020	0.098	0.070	<0.020	0.033	0.022	<0.020	0.054	0.056
Gallium (Ga)-Total	0.0840	<0.0040	0.0081	0.0082	<0.0040	<0.0040	<0.0040	<0.0040	0.0061	0.0055
Iron (Fe)	-	-	-	-	-	-	-	-	-	-
Iron (Fe)-Total	2380	77.3	466	329	17.4	224	111	40.5	272	325
Iron (Fe)-Total	369	4.94	38.6	38.8	1.17	18.0	16.4	3.01	30.8	32.0
Lead (Pb)	-	-	-	-	-	-	-	-	-	-
Lead (Pb)-Total	0.679	0.021	0.212	0.286	<0.020	0.157	0.072	<0.020	0.126	0.123
Lead (Pb)-Total	0.106	<0.0040	0.0176	0.0338	<0.0040	0.0126	0.0106	<0.0040	0.0143	0.0121
Lithium (Li)	-	-	-	-	-	-	-	-	-	-
Lithium (Li)-Total	1.09	<0.10	0.21	0.64	<0.10	4.96	<0.10	<0.10	0.90	0.17
Lithium (Li)-Total	0.169	<0.020	<0.020	0.075	<0.020	0.398	<0.020	<0.020	0.102	<0.020
Magnesium (Mg)	-	-	-	-	-	-	-	-	-	-
Magnesium (Mg)-Total	3710	1480	2940	2400	781	12500	1530	1370	5540	3640
Magnesium (Mg)-Total	577	94.3	243	283	52.3	1010	226	102	627	359
Manganese (Mn)	-	-	-	-	-	-	-	-	-	-
Manganese (Mn)-Total	83.9	8.96	47.0	22.4	4.42	57.4	20.4	6.83	121	30.0
Manganese (Mn)-Total	13.0	0.572	3.89	2.64	0.296	4.60	3.01	0.508	13.7	2.95
Mercury (Hg)	-	-	-	-	-	-	-	-	-	-
Mercury (Hg)-Total	0.0058	<0.0050	<0.0050	<0.0050	<0.0050	0.0081	<0.0050	<0.0050	<0.0050	<0.0050
Mercury (Hg)-Total	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)-Total	0.489	1.53	11.4	1.45	0.938	10.1	0.332	0.963	6.53	0.429
Molybdenum (Mo)-Total	0.0761	0.0980	0.940	0.171	0.0628	0.810	0.0489	0.0716	0.739	0.0423
Nickel (Ni)	-	-	-	-	-	-	-	-	-	-
Nickel (Ni)-Total	4.75	0.352	1.29	0.533	<0.050	0.436	0.211	0.308	0.479	1.01
Nickel (Ni)-Total	0.739	0.023	0.106	0.063	<0.010	0.035	0.031	0.023	0.054	0.099
Phosphorus (P)	-	-	-	-	-	-	-	-	-	-
Phosphorus (P)-Total	3080	3830	7950	4190	1910	4850	2790	2920	4010	5280
Phosphorus (P)-Total	479	244	658	494	128	389	412	217	454	520
Potassium (K)	-	-	-	-	-	-	-	-	-	-
Potassium (K)-Total	28200	32300	81600	38400	17600	75600	21600	35700	76400	41100
Potassium (K)-Total	4390	2070	6750	4530	1180	6070	3200	2650	8650	4050
Rhenium (Re)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	0.183	<0.010	<0.010	0.025	<0.010

Baseline Data for Garden Produce

Rhenium (Re)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0147	<0.0020	<0.0020	0.0028	<0.0020
Rubidium (Rb)-Total	5.36	3.92	12.3	5.75	2.97	12.7	3.24	16.8	6.01	4.83
Rubidium (Rb)-Total	0.833	0.250	1.02	0.679	0.199	1.02	0.479	1.25	0.681	0.476
Selenium (Se)	-	-	-	-	-	-	-	-	-	-
Selenium (Se)-Total	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	0.31	<0.10
Selenium (Se)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.036	<0.020
Silver (Ag)	-	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-	-
Sodium (Na)-Total	3540	160	690	4810	110	17700	2100	290	16200	17300
Sodium (Na)-Total	551	<20	57	568	<20	1420	310	21	1830	1710
Strontium (Sr)	-	-	-	-	-	-	-	-	-	-
Strontium (Sr)-Total	34.4	6.14	62.0	19.5	3.07	29.0	15.0	4.81	35.7	14.2
Strontium (Sr)-Total	5.35	0.392	5.13	2.30	0.206	2.33	2.21	0.357	4.04	1.40
Tellurium (Te)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tellurium (Te)-Total	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)	-	-	-	-	-	-	-	-	-	-
Thallium (Tl)-Total	0.0146	<0.0020	0.0025	0.0041	<0.0020	0.0030	<0.0020	<0.0020	0.0045	0.0107
Thallium (Tl)-Total	0.00227	<0.00040	<0.00040	0.00049	<0.00040	<0.00040	<0.00040	<0.00040	0.00051	0.00105
Thorium (Th)-Total	0.231	<0.010	0.031	0.070	<0.010	0.031	0.029	<0.010	0.060	<0.010
Thorium (Th)-Total	0.0359	<0.0020	0.0026	0.0082	<0.0020	0.0025	0.0043	<0.0020	0.0068	<0.0020
Tin (Sn)	-	-	-	-	-	-	-	-	-	-
Tin (Sn)-Total	0.060	0.149	<0.020	<0.020	<0.020	0.032	<0.020	0.093	<0.020	<0.020
Tin (Sn)-Total	0.0093	0.0095	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0069	<0.0040	<0.0040
Titanium (Ti)	-	-	-	-	-	-	-	-	-	-
Titanium (Ti)-Total	136	3.34	21.5	19.3	0.231	9.42	5.24	0.267	14.2	6.76
Titanium (Ti)-Total	21.2	0.214	1.78	2.28	0.015	0.756	0.773	0.020	1.61	0.666
Uranium (U)	-	-	-	-	-	-	-	-	-	-
Uranium (U)-Total	0.0859	0.0025	0.0232	0.0220	<0.0020	0.0120	0.0090	<0.0020	0.0198	0.0070
Uranium (U)-Total	0.0134	<0.00040	0.00192	0.00260	<0.00040	0.00096	0.00133	<0.00040	0.00224	0.00069
Vanadium (V)	-	-	-	-	-	-	-	-	-	-
Vanadium (V)-Total	6.74	0.156	1.25	0.696	<0.020	0.415	0.171	<0.020	0.463	0.738
Vanadium (V)-Total	1.05	0.0099	0.103	0.0821	<0.0040	0.0333	0.0253	<0.0040	0.0524	0.0727
Yttrium (Y)-Total	0.887	0.022	0.180	0.128	<0.010	0.067	0.044	<0.010	0.097	0.015
Yttrium (Y)-Total	0.138	<0.0020	0.0149	0.0151	<0.0020	0.0053	0.0066	<0.0020	0.0110	<0.0020
Zinc (Zn)	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)-Total	28.2	11.8	83.0	40.6	10.1	52.2	17.8	15.0	22.8	35.8
Zinc (Zn)-Total	4.39	0.75	6.87	4.80	0.68	4.19	2.62	1.11	2.59	3.52
Zirconium (Zr)-Total	1.11	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.26
Zirconium (Zr)-Total	0.172	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Baseline Data for Garden Produce

Sample ID	AJX12-GAR-MCD-FRU	AJX12-GAR-MCD-LEA	AJX12-GAR-GLE-ROO	AJX12-GAR-GLE-FRU	AJX12-GAR-GLE-LEA	AJX12-GAR-SAH-FRU2	AJX12-GAR-CRE-FRU-2	AJX12-GAR-COOP-ROO	AJX12-GAR-MCD-ROO-2
Date Sampled	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12
Time Sampled	12:30	12:30	09:30	09:30	09:30	09:00	13:00	17:00	12:30
ALS Sample ID	L1194738-24	L1194738-25	L1194738-26	L1194738-27	L1194738-28	L1194738-29	L1194738-30	L1194738-31	L1194738-32
Matrix	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests									
% Moisture	92.3	90.2	86.7	93.1	93.1	83.0	79.9	87.4	94.5
pH (1:2 soil:water)	-	-	-	-	-	-	-	-	-
Particle Size									
% Gravel (>2mm)	-	-	-	-	-	-	-	-	-
0.063mm)	-	-	-	-	-	-	-	-	-
% Silt (0.063mm - 4um)	-	-	-	-	-	-	-	-	-
% Clay (<4um)	-	-	-	-	-	-	-	-	-
Texture	-	-	-	-	-	-	-	-	-
Metals	5.584415584	177.5510204	175.9398496	#VALUE!	80.14492754	13.88235294	2.487562189	23.57142857	280
Aluminum (Al)	-	-	-	-	-	-	-	-	-
Aluminum (Al)-Total	5.6	178	177	4.4	80.3	13.9	2.5	23.6	279
Aluminum (Al)-Total	0.43	17.4	23.4	<0.40	5.53	2.36	0.50	2.97	15.4
Antimony (Sb)	-	-	-	-	-	-	-	-	-
Antimony (Sb)-Total	<0.010	0.012	<0.010	<0.010	0.020	<0.010	<0.010	<0.010	<0.010
Antimony (Sb)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic (As)	-	-	-	-	-	-	-	-	-
Arsenic (As)-Total	<0.020	0.064	0.070	<0.020	0.145	<0.020	<0.020	0.022	0.379
Arsenic (As)-Total	<0.0040	0.0062	0.0093	<0.0040	0.0100	<0.0040	<0.0040	<0.0040	0.0209
Barium (Ba)	-	-	-	-	-	-	-	-	-
Barium (Ba)-Total	1.65	5.31	8.47	0.570	7.21	2.70	6.16	2.39	20.8
Barium (Ba)-Total	0.128	0.520	1.12	0.040	0.497	0.459	1.23	0.300	1.15
Beryllium (Be)	-	-	-	-	-	-	-	-	-
Beryllium (Be)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium (Be)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)	-	-	-	-	-	-	-	-	-
Bismuth (Bi)-Total	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Boron (B)-Total	12.4	53.1	21.9	15.6	41.6	21.1	3.8	19.5	31.1
Boron (B)-Total	0.96	5.20	2.91	1.08	2.87	3.58	0.75	2.45	1.71
Cadmium (Cd)	-	-	-	-	-	-	-	-	-
Cadmium (Cd)-Total	0.054	0.359	0.023	0.012	0.146	<0.010	0.032	0.387	0.254
Cadmium (Cd)-Total	0.0042	0.0351	0.0031	<0.0020	0.0101	<0.0020	0.0065	0.0487	0.0140

Baseline Data for Garden Produce

Calcium (Ca)	-	-	-	-	-	-	-	-	-
Calcium (Ca)-Total	1610	8380	1570	1300	13300	796	1490	1440	5220
Calcium (Ca)-Total	125	820	208	89.8	913	135	298	181	288
Cesium (Cs)-Total	<0.0050	0.0161	0.0119	<0.0050	0.0104	<0.0050	<0.0050	0.0442	0.0162
Cesium (Cs)-Total	<0.0010	0.0016	0.0016	<0.0010	<0.0010	<0.0010	<0.0010	0.0056	<0.0010
Chromium (Cr)	-	-	-	-	-	-	-	-	-
Chromium (Cr)-Total	0.369	0.455	0.722	0.206	0.394	0.064	0.107	0.163	1.09
Chromium (Cr)-Total	0.029	0.045	0.096	0.014	0.027	0.011	0.022	0.021	0.060
Cobalt (Co)	-	-	-	-	-	-	-	-	-
Cobalt (Co)-Total	0.071	0.176	0.124	0.050	0.084	<0.020	0.142	0.209	0.442
Cobalt (Co)-Total	0.0055	0.0172	0.0165	<0.0040	0.0058	<0.0040	0.0285	0.0262	0.0244
Copper (Cu)	-	-	-	-	-	-	-	-	-
Copper (Cu)-Total	8.08	11.2	8.24	11.1	16.5	3.94	9.15	8.96	4.94
Copper (Cu)-Total	0.626	1.10	1.09	0.771	1.14	0.669	1.84	1.13	0.272
Gallium (Ga)-Total	<0.020	0.052	0.050	<0.020	0.023	<0.020	<0.020	<0.020	0.072
Gallium (Ga)-Total	<0.0040	0.0051	0.0066	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Iron (Fe)	-	-	-	-	-	-	-	-	-
Iron (Fe)-Total	37.5	184	237	41.1	180	21.4	13.2	55.6	317
Iron (Fe)-Total	2.90	18.0	31.4	2.85	12.4	3.64	2.64	6.99	17.5
Lead (Pb)	-	-	-	-	-	-	-	-	-
Lead (Pb)-Total	<0.020	0.165	0.092	<0.020	0.115	<0.020	<0.020	0.021	0.138
Lead (Pb)-Total	<0.0040	0.0161	0.0122	<0.0040	0.0079	<0.0040	<0.0040	<0.0040	0.0076
Lithium (Li)	-	-	-	-	-	-	-	-	-
Lithium (Li)-Total	<0.10	0.48	0.17	<0.10	0.32	<0.10	<0.10	<0.10	0.13
Lithium (Li)-Total	<0.020	0.047	0.023	<0.020	0.022	<0.020	<0.020	<0.020	<0.020
Magnesium (Mg)	-	-	-	-	-	-	-	-	-
Magnesium (Mg)-Total	1180	10600	3800	1950	6340	738	549	1360	1520
Magnesium (Mg)-Total	91.8	1040	504	135	437	125	110	171	83.9
Manganese (Mn)	-	-	-	-	-	-	-	-	-
Manganese (Mn)-Total	7.07	58.6	19.0	9.04	34.3	4.18	4.14	13.5	28.2
Manganese (Mn)-Total	0.548	5.74	2.52	0.626	2.37	0.711	0.830	1.70	1.55
Mercury (Hg)	-	-	-	-	-	-	-	-	-
Mercury (Hg)-Total	<0.0050	0.0124	<0.0050	<0.0050	0.0090	<0.0050	<0.0050	<0.0050	<0.0050
Mercury (Hg)-Total	<0.0010	0.0012	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Molybdenum (Mo)	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)-Total	0.928	5.07	0.380	1.74	11.4	0.620	0.058	0.808	6.55
Molybdenum (Mo)-Total	0.0719	0.496	0.0504	0.121	0.782	0.105	0.0116	0.102	0.361
Nickel (Ni)	-	-	-	-	-	-	-	-	-
Nickel (Ni)-Total	0.422	0.668	0.562	0.119	0.457	0.087	0.620	0.836	1.12
Nickel (Ni)-Total	0.033	0.065	0.074	<0.010	0.031	0.015	0.124	0.105	0.062
Phosphorus (P)	-	-	-	-	-	-	-	-	-
Phosphorus (P)-Total	4000	9080	3970	5220	10400	1390	1090	2900	4040
Phosphorus (P)-Total	310	889	526	362	713	236	218	364	223
Potassium (K)	-	-	-	-	-	-	-	-	-
Potassium (K)-Total	27400	65600	36900	42800	113000	12000	9840	29400	59500
Potassium (K)-Total	2130	6420	4890	2960	7810	2030	1970	3700	3280
Rhenium (Re)-Total	<0.010	0.135	0.053	<0.010	0.020	<0.010	<0.010	<0.010	0.019

Baseline Data for Garden Produce

Rhenium (Re)-Total	<0.0020	0.0132	0.0071	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Rubidium (Rb)-Total	4.68	7.05	8.84	10.5	33.8	1.72	1.35	44.5	6.17
Rubidium (Rb)-Total	0.362	0.690	1.17	0.725	2.33	0.292	0.270	5.60	0.340
Selenium (Se)	-	-	-	-	-	-	-	-	-
Selenium (Se)-Total	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.29
Selenium (Se)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Silver (Ag)	-	-	-	-	-	-	-	-	-
Sodium (Na)	-	-	-	-	-	-	-	-	-
Sodium (Na)-Total	200	16500	8680	210	5140	<100	<100	4520	9330
Sodium (Na)-Total	<20	1620	1150	<20	354	<20	<20	568	514
Strontium (Sr)	-	-	-	-	-	-	-	-	-
Strontium (Sr)-Total	8.27	18.1	11.9	4.17	52.9	5.25	6.03	9.21	59.7
Strontium (Sr)-Total	0.641	1.77	1.58	0.289	3.65	0.892	1.21	1.16	3.29
Tellurium (Te)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tellurium (Te)-Total	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)	-	-	-	-	-	-	-	-	-
Thallium (Tl)-Total	<0.0020	0.0048	0.0069	<0.0020	0.0034	<0.0020	<0.0020	0.0850	0.0147
Thallium (Tl)-Total	<0.00040	0.00047	0.00091	<0.00040	<0.00040	<0.00040	<0.00040	0.0107	0.00081
Thorium (Th)-Total	<0.010	0.029	0.033	<0.010	0.028	<0.010	<0.010	<0.010	0.034
Thorium (Th)-Total	<0.0020	0.0029	0.0043	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Tin (Sn)	-	-	-	-	-	-	-	-	-
Tin (Sn)-Total	0.422	0.045	0.037	0.132	0.064	0.124	0.067	<0.020	0.259
Tin (Sn)-Total	0.0327	0.0044	0.0049	0.0091	0.0044	0.0211	0.0134	<0.0040	0.0143
Titanium (Ti)	-	-	-	-	-	-	-	-	-
Titanium (Ti)-Total	0.273	7.58	12.3	0.230	8.03	0.719	0.148	1.35	14.9
Titanium (Ti)-Total	0.021	0.742	1.63	0.016	0.553	0.122	0.030	0.170	0.823
Uranium (U)	-	-	-	-	-	-	-	-	-
Uranium (U)-Total	0.0024	0.0188	0.0138	<0.0020	0.0057	<0.0020	<0.0020	0.0183	0.0155
Uranium (U)-Total	<0.00040	0.00184	0.00182	<0.00040	<0.00040	<0.00040	<0.00040	0.00230	0.00085
Vanadium (V)	-	-	-	-	-	-	-	-	-
Vanadium (V)-Total	<0.020	0.381	0.669	<0.020	0.410	0.037	<0.020	0.074	0.946
Vanadium (V)-Total	<0.0040	0.0374	0.0887	<0.0040	0.0282	0.0063	<0.0040	0.0093	0.0521
Yttrium (Y)-Total	<0.010	0.049	0.083	<0.010	0.049	<0.010	<0.010	0.029	0.170
Yttrium (Y)-Total	<0.0020	0.0048	0.0110	<0.0020	0.0034	<0.0020	<0.0020	0.0036	0.0094
Zinc (Zn)	-	-	-	-	-	-	-	-	-
Zinc (Zn)-Total	20.4	79.8	29.7	26.0	114	2.82	7.28	24.4	42.7
Zinc (Zn)-Total	1.58	7.82	3.94	1.81	7.88	0.48	1.46	3.07	2.35
Zirconium (Zr)-Total	<0.20	<0.20	0.85	<0.20	<0.20	<0.20	<0.20	<0.20	0.38
Zirconium (Zr)-Total	<0.040	<0.040	0.113	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Baseline Data for Vegetation - Dry Weight

Sample ID	AJX12-MIN-KS01-FOR	AJX12-MIN-KS02-FOR	AJX12-MIN-KS03-FOR	AJX12-MIN-KS04-FOR	AJX12-MIN-KS05-BRO	AJX12-MIN-KS06-FOR	AJX12-MIN-KS07-FOR
Date Sampled	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	15-AUG-12
Time Sampled	08:00	10:00	12:30	14:30	15:30	16:30	00:00
ALS Sample ID	L1194731-13	L1194731-12	L1194731-14	L1194731-16	L1194731-17	L1194731-15	L1195275-1
Matrix	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests							
% Moisture	63.7	63.0	53.8	46.3	51.5	75.9	47.6
Metals							
Aluminum (Al)-Total	37.0	278	162	7.9	12.7	27.3	85.9
Antimony (Sb)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Arsenic (As)-Total	0.043	0.102	0.056	<0.020	<0.020	0.063	0.079
Barium (Ba)-Total	113	61.8	25.3	32.5	10.1	24.2	86.8
Beryllium (Be)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth (Bi)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Boron (B)-Total	111	75.2	19.3	13.1	29.6	47.1	24.2
Cadmium (Cd)-Total	0.019	0.058	<0.010	<0.010	<0.010	<0.010	<0.010
Calcium (Ca)-Total	26600	18600	5370	2450	4880	6000	8840
Cesium (Cs)-Total	<0.0050	0.0439	0.0084	<0.0050	<0.0050	<0.0050	0.0144
Chromium (Cr)-Total	0.127	0.925	0.552	0.062	0.088	0.165	0.468
Cobalt (Co)-Total	0.058	0.245	0.119	<0.020	<0.020	0.041	0.067
Copper (Cu)-Total	4.60	12.9	6.10	2.45	5.42	9.29	3.72
Gallium (Ga)-Total	<0.020	0.082	0.050	<0.020	<0.020	<0.020	0.024
Iron (Fe)-Total	78.8	391	239	30.7	37.1	65.8	134
Lead (Pb)-Total	0.056	0.078	0.042	<0.020	<0.020	0.048	0.070
Lithium (Li)-Total	0.22	0.24	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium (Mg)-Total	5490	3490	1730	1600	3510	4890	2070
Manganese (Mn)-Total	60.9	117	48.8	16.0	29.1	66.5	49.7
Mercury (Hg)-Total	0.0129	0.0098	0.0117	0.0066	<0.0050	0.0101	0.0106
Molybdenum (Mo)-Total	2.07	15.7	27.5	11.5	1.17	8.22	6.89
Nickel (Ni)-Total	0.836	1.19	0.892	0.644	0.544	0.614	1.08
Phosphorus (P)-Total	2300	2260	3180	1490	2400	3350	1650
Potassium (K)-Total	26400	28200	14200	10800	11400	23600	9660
Rhenium (Re)-Total	0.202	0.099	0.060	0.043	<0.010	0.038	0.016
Rubidium (Rb)-Total	1.61	4.07	0.729	0.516	2.01	2.94	2.39
Selenium (Se)-Total	0.29	0.16	<0.10	<0.10	0.56	0.51	<0.10
Silver							
Sodium (Na)-Total	<100	<100	<100	<100	<100	<100	<100
Strontium (Sr)-Total	387	110	23.5	17.5	141	221	55.5
Tellurium (Te)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Thallium (Tl)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Thorium (Th)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Tin (Sn)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	<0.020
Titanium (Ti)-Total	1.82	8.81	9.11	0.645	0.201	1.69	5.68
Uranium (U)-Total	0.0036	0.0064	0.0047	<0.0020	<0.0020	0.0023	0.0029
Vanadium (V)-Total	0.191	1.45	0.797	0.041	0.053	0.122	0.346
Yttrium (Y)-Total	0.022	0.122	0.075	<0.010	<0.010	0.017	0.048
Zinc (Zn)-Total	6.54	18.5	18.4	8.68	9.55	15.9	18.3
Zirconium (Zr)-Total	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Baseline Data for Vegetation - Dry Weight

Sample ID	AJX12-PR1-KS09-FOR	AJX12-PR1-KS10-FOR-1	AJX12-PR1-KS10-FOR-2	AJX12-PR1-KS11-FOR-1	AJX12-PR1-KS11-FOR-2	AJX12-MIN-KS05-BRO	AJX12-MIN-KS05-BRO
Date Sampled	17-AUG-12	17-AUG-12	17-AUG-12	17-AUG-12	16-AUG-12	14-AUG-12	14-AUG-12
Time Sampled	00:00	00:00	00:00	00:00	00:00	15:30	15:30
ALS Sample ID	L1198506-1	L1198506-2	L1198506-3	L1198506-4	L1198506-5	L1194731-17	L1194731-17
Matrix	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests							
% Moisture	34.2	78.8	52.7	63.1	47.8	51.5	51.5
Metals							
Aluminum (Al)-Total	44.1	22.1	5.7	23.4	32.4	12.7	6.14
Antimony (Sb)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0020
Arsenic (As)-Total	0.040	0.048	<0.020	0.031	0.047	<0.020	0.0075
Barium (Ba)-Total	26.1	19.5	7.24	28.4	41.7	10.1	4.89
Beryllium (Be)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0020
Bismuth (Bi)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0020
Boron (B)-Total	<8.0	<44	<7.0	<13	<7.0	29.6	14.3
Cadmium (Cd)-Total	<0.010	0.028	<0.010	<0.010	<0.010	<0.010	<0.0020
Calcium (Ca)-Total	2430	13000	1770	2920	3780	4880	2360
Cesium (Cs)-Total	<0.0050	0.0227	<0.0050	<0.0050	<0.0050	<0.0050	0.0010
Chromium (Cr)-Total	0.189	0.103	0.054	0.126	0.191	0.088	0.043
Cobalt (Co)-Total	0.028	1.77	<0.020	0.033	0.020	<0.020	0.0092
Copper (Cu)-Total	2.23	9.72	3.87	5.28	3.49	5.42	2.63
Gallium (Ga)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0040
Iron (Fe)-Total	64.9	88.0	20.3	59.5	63.8	37.1	18.0
Lead (Pb)-Total	0.036	<0.020	<0.020	<0.020	<0.020	<0.020	0.0092
Lithium (Li)-Total	<0.10	<0.10	<0.10	1.76	<0.10	<0.10	<0.020
Magnesium (Mg)-Total	1230	3970	1560	2940	1640	3510	1700
Manganese (Mn)-Total	68.5	42.2	29.0	63.9	41.3	29.1	14.1
Mercury (Hg)-Total	0.0073	<0.0050	<0.0050	0.0076	0.0079	<0.0050	0.0010
Molybdenum (Mo)-Total	2.14	2.03	0.263	1.49	2.04	1.17	0.569
Nickel (Ni)-Total	0.383	5.86	0.197	0.486	0.250	0.544	0.264
Phosphorus (P)-Total	2190	3920	1610	2860	1980	2400	1160
Potassium (K)-Total	11500	26900	11900	22600	17000	11400	5540
Rhenium (Re)-Total	<0.010	<0.010	<0.010	<0.010	0.016	<0.010	<0.0020
Rubidium (Rb)-Total	0.452	7.62	0.803	0.950	0.420	2.01	0.975
Selenium (Se)-Total	0.11	<0.10	<0.10	<0.10	<0.10	0.56	0.270
Silver							
Sodium (Na)-Total	<1000	<1000	<1000	<1000	<1000	<100	<20
Strontium (Sr)-Total	20.8	50.8	12.8	39.1	18.6	141	68.1
Tellurium (Te)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0040
Thallium (Tl)-Total	<0.0020	<0.0030	<0.0020	<0.0020	<0.0020	<0.0020	<0.00040
Thorium (Th)-Total	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.0020
Tin (Sn)-Total	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0040
Titanium (Ti)-Total	3.41	2.13	0.469	1.79	2.41	0.201	0.097
Uranium (U)-Total	<0.0020	<0.0020	<0.0020	0.0126	<0.0020	<0.0020	0.00087
Vanadium (V)-Total	0.176	0.115	0.027	0.115	0.175	0.053	0.0257
Yttrium (Y)-Total	0.023	0.014	<0.010	0.013	0.023	<0.010	0.0032
Zinc (Zn)-Total	12.4	25.7	13.3	14.4	11.3	9.55	4.63
Zirconium (Zr)-Total	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.040

Baseline Data for Vegetation - Wet Weight

Sample ID	AJX12-MIN-KS01-FOR	AJX12-MIN-KS02-FOR	AJX12-MIN-KS03-FOR	AJX12-MIN-KS04-FOR	AJX12-MIN-KS05-BRO	AJX12-MIN-KS06-FOR	AJX12-MIN-KS07-FOR	AJX12-PRI-KS08-FOR	AJX12-PR1-KS09-FOR	AJX12-PR1-KS10-FOR-1	AJX12-PR1-KS10-FOR-2
Date Sampled	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	14-AUG-12	15-AUG-12	16-AUG-12	17-AUG-12	17-AUG-12	17-AUG-12
Time Sampled	08:00	10:00	12:30	14:30	15:30	16:30	00:00	09:00	00:00	00:00	00:00
ALS Sample ID	L1194731-13	L1194731-12	L1194731-14	L1194731-16	L1194731-17	L1194731-15	L1195275-1	L1195275-2	L1198506-1	L1198506-2	L1198506-3
Matrix	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue	Tissue
Physical Tests											
% Moisture	63.7	63.0	53.8	46.3	51.5	75.9	47.6	44.5	34.2	78.8	52.7
Metals											
Aluminum (Al)-Total	13.4	103	74.6	4.23	6.14	6.60	45.1	99.8	29.0	4.69	2.68
Antimony (Sb)-Total	<0.0020	0.0027	0.0024	<0.0020	<0.0020	<0.0020	0.0044	0.0043	<0.0020	<0.0020	<0.0020
Arsenic (As)-Total	0.0156	0.0377	0.0258	0.0057	0.0075	0.0152	0.0416	0.0635	0.0262	0.0101	0.0075
Barium (Ba)-Total	41.1	22.9	11.7	17.4	4.89	5.85	45.5	30.0	17.2	4.13	3.42
Beryllium (Be)-Total	<0.0020	0.0021	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Boron (B)-Total	40.1	27.8	8.90	7.06	14.3	11.4	12.7	8.58	<4.8	<10	<3.0
Cadmium (Cd)-Total	0.0070	0.0215	<0.0020	<0.0020	<0.0020	<0.0020	<0.0030	<0.0020	0.0044	0.0059	<0.0020
Calcium (Ca)-Total	9660	6870	2480	1310	2360	1450	4640	4170	1600	2750	836
Cesium (Cs)-Total	0.0013	0.0163	0.0039	<0.0010	0.0010	<0.0010	0.0076	0.0067	0.0018	0.0048	<0.0010
Chromium (Cr)-Total	0.046	0.343	0.255	0.033	0.043	0.040	0.245	0.364	0.125	0.022	0.025
Cobalt (Co)-Total	0.0211	0.0908	0.0550	0.0050	0.0092	0.0098	0.0353	0.0651	0.0181	0.376	0.0075
Copper (Cu)-Total	1.67	4.78	2.82	1.32	2.63	2.24	1.95	2.42	1.47	2.06	1.83
Gallium (Ga)-Total	<0.0040	0.0305	0.0233	<0.0040	<0.0040	<0.0040	0.0124	0.0298	0.0086	<0.0040	<0.0040
Iron (Fe)-Total	28.6	145	110	16.5	18.0	15.9	70.3	150	42.7	18.7	9.60
Lead (Pb)-Total	0.0203	0.0289	0.0196	0.0062	0.0092	0.0116	0.0365	0.0403	0.0235	<0.0040	0.0043
Lithium (Li)-Total	0.080	0.090	<0.020	<0.020	<0.020	<0.020	0.043	0.076	<0.020	<0.020	<0.020
Magnesium (Mg)-Total	1990	1290	799	861	1700	1180	1090	912	807	842	736
Manganese (Mn)-Total	22.1	43.3	22.5	8.58	14.1	16.1	26.0	51.0	45.1	8.94	13.7
Mercury (Hg)-Total	0.0047	0.0036	0.0054	0.0036	0.0010	0.0024	0.0055	0.0061	0.0048	<0.0010	0.0013
Molybdenum (Mo)-Total	0.752	5.82	12.7	6.15	0.569	1.99	3.61	4.32	1.41	0.429	0.124
Nickel (Ni)-Total	0.303	0.439	0.412	0.346	0.264	0.148	0.564	0.246	0.252	1.24	0.093
Phosphorus (P)-Total	833	836	1470	799	1160	810	864	1020	1440	830	761
Potassium (K)-Total	9580	10500	6540	5820	5540	5690	5070	5090	7590	5690	5630
Rhenium (Re)-Total	0.0732	0.0369	0.0277	0.0230	<0.0020	0.0091	0.0085	0.0115	0.0038	<0.0020	<0.0020
Rubidium (Rb)-Total	0.583	1.51	0.337	0.277	0.975	0.711	1.25	0.551	0.297	1.61	0.379
Selenium (Se)-Total	0.105	0.058	0.023	<0.020	0.270	0.122	0.025	0.020	0.073	0.021	<0.020
Silver (Ag)											
Sodium (Na)-Total	<20	<20	<20	<20	<20	<20	<20	<20	<200	<200	<200
Strontium (Sr)-Total	140	40.6	10.8	9.37	68.1	53.3	29.1	25.0	13.7	10.8	6.04
Tellurium (Te)-Total	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00100	0.00080	<0.00070	<0.00070	<0.00040

Baseline Data for Vegetation - Wet Weight

Thorium (Th)-Total	<0.0020	<0.0020	0.0043	<0.0020	<0.0020	<0.0020	0.0046	0.0099	0.0025	<0.0020	<0.0020
Tin (Sn)-Total	<0.0040	<0.0040	<0.0040	0.0064	<0.0040	0.0049	0.0061	0.0046	<0.0040	<0.0040	<0.0040
Titanium (Ti)-Total	0.660	3.26	4.21	0.347	0.097	0.407	2.98	7.35	2.24	0.451	0.222
Uranium (U)-Total	0.00130	0.00236	0.00219	<0.00040	0.00087	0.00055	0.00150	0.00255	0.00067	<0.00040	<0.00040
Vanadium (V)-Total	0.0694	0.539	0.368	0.0218	0.0257	0.0295	0.182	0.546	0.116	0.0243	0.0126
Yttrium (Y)-Total	0.0080	0.0452	0.0348	0.0035	0.0032	0.0041	0.0253	0.0458	0.0149	0.0029	0.0024
Zinc (Zn)-Total	2.37	6.84	8.48	4.66	4.63	3.83	9.62	10.3	8.15	5.44	6.30
Zirconium (Zr)-Total	<0.040	<0.040	0.042	<0.040	<0.040	<0.040	<0.040	0.071	0.070	<0.040	<0.040

Baseline Data for Vegetation - Wet Weight

Sample ID	AJX12-PR1-KS11-FOR-1	AJX12-PR1-KS11-FOR-2	AJX12-MIN-KS05-BRO	CC02 - COTTONWOOD	PC02 - WILLOW	PC02.5 - WILLOW	PC02.5 - DOGWOOD	PC03 - WILLOW	PC03 - DOGWOOD	PC08 - WILLOW	JC03 - WILLOW
Date Sampled	17-AUG-12	16-AUG-12	14-AUG-12	29-SEP-11	29-SEP-11	29-SEP-11	29-SEP-11	29-SEP-11	29-SEP-11	29-SEP-11	29-SEP-11
Time Sampled	00:00	00:00	15:30	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00
ALS Sample ID	L1198506-4	L1198506-5	L1194731-17	L1067368-2	L1067368-4	L1067368-6	L1067368-7	L1067368-9	L1067368-10	L1067368-12	L1067368-14
Matrix	Tissue	Tissue	Tissue								
Physical Tests											
% Moisture	63.1	47.8	51.5	21.8	51.3	56.1	18.3	38.2	50.5	19.1	36.3
Metals											
Aluminum (Al)-Total	8.65	16.9	6.14	60.2	47.5	58.1	56.3	109	56.1	47.4	38.7
Antimony (Sb)-Total	<0.0020	<0.0020	<0.0020	0.0086	0.0090	0.0047	0.0059	0.0060	0.0034	0.0054	0.0047
Arsenic (As)-Total	0.0116	0.0247	0.0075	0.0950	0.129	0.0674	0.0512	0.431	0.121	0.0671	0.0904
Barium (Ba)-Total	10.5	21.8	4.89	12.9	3.62	3.45	17.7	7.04	7.68	17.9	7.19
Beryllium (Be)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Boron (B)-Total	<4.8	<3.8	14.3	62.6	46.6	34.9	16.2	53.4	10.2	50.7	59.7
Cadmium (Cd)-Total	<0.0020	<0.0020	<0.0020	0.0749	0.145	0.133	0.0031	0.182	0.0139	0.409	0.127
Calcium (Ca)-Total	1080	1970	2360	13100	8470	4830	25000	6270	9330	8320	8120
Cesium (Cs)-Total	<0.0010	0.0014	0.0010	0.0102	0.0030	0.0028	0.0036	0.0050	0.0030	0.0029	0.0029
Chromium (Cr)-Total	0.047	0.100	0.043	0.795	0.375	0.705	0.436	1.73	0.485	0.416	0.369
Cobalt (Co)-Total	0.0123	0.0106	0.0092	0.536	1.05	0.996	0.0625	1.50	0.138	0.822	1.21
Copper (Cu)-Total	1.95	1.82	2.63	2.87	1.91	2.02	2.35	3.09	1.24	5.63	3.81
Gallium (Ga)-Total	<0.0040	0.0053	<0.0040	0.0171	0.0137	0.0167	0.0163	0.0289	0.0155	0.0132	0.0104
Iron (Fe)-Total	21.9	33.3	18.0	103	87.8	91.8	107	172	98.8	76.9	75.1
Lead (Pb)-Total	0.0059	0.0079	0.0092	0.0830	0.0473	0.0376	0.0478	0.0415	0.0277	0.0420	0.0686
Lithium (Li)-Total	0.649	0.023	<0.020	1.01	<0.020	0.086	0.108	<0.020	0.123	0.060	0.502
Magnesium (Mg)-Total	1090	853	1700	2980	4380	2180	4660	2310	1920	4880	2150
Manganese (Mn)-Total	23.6	21.6	14.1	34.3	58.7	49.8	19.2	44.8	13.7	33.8	93.1
Mercury (Hg)-Total	0.0028	0.0041	0.0010	0.0074	0.0085	0.0069	0.0095	0.0060	0.0053	0.0083	0.0096
Molybdenum (Mo)-Total	0.551	1.07	0.569	0.158	0.0974	0.108	0.433	0.285	0.308	0.302	0.120
Nickel (Ni)-Total	0.180	0.130	0.264	0.638	0.892	0.811	1.08	2.38	0.647	1.76	1.01
Phosphorus (P)-Total	1060	1030	1160	1070	719	929	2790	965	758	1200	2730
Potassium (K)-Total	8330	8870	5540	7280	2680	5470	9120	6400	2960	4220	17500
Rhenium (Re)-Total	<0.0020	0.0082	<0.0020	0.0076	0.0299	0.0144	0.0958	0.0367	0.0584	0.0812	<0.0020
Rubidium (Rb)-Total	0.351	0.219	0.975	1.72	0.140	0.211	0.259	0.442	0.176	0.124	1.08
Selenium (Se)-Total	<0.020	0.026	0.270	0.052	0.062	0.160	0.201	0.061	0.033	0.045	0.089
Silver (Ag)											
Sodium (Na)-Total	<200	<200	<20	<800	<20	<20	<200	<20	<20	<20	100
Strontium (Sr)-Total	14.4	9.71	68.1	59.3	86.1	42.2	182	59.8	67.6	137	87.6
Tellurium (Te)-Total	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	<0.00040	<0.00060	<0.00040	0.00046	0.00075	0.00071	0.00121	0.00095	0.00057	0.00084	0.00055

Baseline Data for Vegetation - Wet Weight

Thorium (Th)-Total	<0.0020	<0.0020	<0.0020	<0.0020	0.0035	0.0036	0.0036	<0.0020	0.0030	0.0024	<0.0020
Tin (Sn)-Total	<0.0040	<0.0040	<0.0040	<0.0040	0.0075	0.0044	0.0054	<0.0040	<0.0040	0.0045	0.0054
Titanium (Ti)-Total	0.661	1.26	0.097	2.87	3.12	3.59	3.15	5.06	3.41	2.41	1.92
Uranium (U)-Total	0.00467	0.00053	0.00087	0.00328	0.00516	0.00494	0.00508	0.00274	0.00174	0.00371	0.00303
Vanadium (V)-Total	0.0423	0.0916	0.0257	0.293	0.220	0.279	0.307	0.540	0.291	0.192	0.152
Yttrium (Y)-Total	0.0049	0.0120	0.0032	0.0262	0.0208	0.0238	0.0272	0.0368	0.0233	0.0175	0.0154
Zinc (Zn)-Total	5.33	5.88	4.63	39.3	18.5	18.9	11.9	52.7	7.51	102	39.1
Zirconium (Zr)-Total	<0.040	0.057	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040

Baseline Data for Vegetation - Wet Weight

Sample ID	JC03 - DOGWOOD	CC08 - ALDER	CC08 - DOGWOOD
Date Sampled	29-SEP-11	29-SEP-11	29-SEP-11
Time Sampled	12:00	12:00	12:00
ALS Sample ID	L1067368-15	L1067368-17	L1067368-18
Matrix			
Physical Tests			
% Moisture	52.0	48.7	35.7
Metals			
Aluminum (Al)-Total	13.9	57.0	38.7
Antimony (Sb)-Total	0.0033	0.0047	0.0050
Arsenic (As)-Total	0.0154	0.0349	0.0282
Barium (Ba)-Total	10.4	13.3	21.4
Beryllium (Be)-Total	<0.0020	<0.0020	<0.0020
Bismuth (Bi)-Total	<0.0020	<0.0020	<0.0020
Boron (B)-Total	10.1	25.1	13.8
Cadmium (Cd)-Total	<0.0020	<0.0020	<0.0020
Calcium (Ca)-Total	12200	7650	18200
Cesium (Cs)-Total	0.0014	0.0182	0.0040
Chromium (Cr)-Total	0.240	0.508	0.375
Cobalt (Co)-Total	0.0239	0.162	0.0397
Copper (Cu)-Total	1.60	4.44	3.27
Gallium (Ga)-Total	<0.0040	0.0154	0.0108
Iron (Fe)-Total	36.4	105	75.1
Lead (Pb)-Total	0.0266	0.0411	0.0499
Lithium (Li)-Total	0.351	<0.020	<0.020
Magnesium (Mg)-Total	2120	1620	1840
Manganese (Mn)-Total	13.9	45.5	12.7
Mercury (Hg)-Total	0.0058	0.0102	0.0079
Molybdenum (Mo)-Total	0.152	0.326	1.33
Nickel (Ni)-Total	0.221	0.628	0.676
Phosphorus (P)-Total	1230	1390	1920
Potassium (K)-Total	7200	7090	5380
Rhenium (Re)-Total	<0.0020	<0.0020	<0.0020
Rubidium (Rb)-Total	0.435	4.03	1.66
Selenium (Se)-Total	0.022	<0.020	<0.020
Silver (Ag)			
Sodium (Na)-Total	317	<20	<40
Strontium (Sr)-Total	51.9	22.4	46.7
Tellurium (Te)-Total	<0.0040	<0.0040	<0.0040
Thallium (Tl)-Total	<0.00040	0.00064	0.00058

Baseline Data for Vegetation - Wet Weight

Thorium (Th)-Total	<0.0020	0.0029	0.0022
Tin (Sn)-Total	0.0041	0.0048	0.0057
Titanium (Ti)-Total	0.980	3.09	2.18
Uranium (U)-Total	0.00098	0.00171	0.00129
Vanadium (V)-Total	0.0622	0.269	0.184
Yttrium (Y)-Total	0.0071	0.0218	0.0160
Zinc (Zn)-Total	6.51	4.47	3.71
Zirconium (Zr)-Total	<0.040	<0.040	<0.040

Receptor Code	Receptor Type	Receptor Name	UTM	
			mE	mN
Max-0	**Max**	**Maximum on Project Boundary (U**	**685,000**	**5,611,250**
Discrete-1	Noise	Residence	677,081	5,611,958
Discrete-2	Noise	Residence	679,209	5,613,105
Discrete-3	Noise	Residence	688,538	5,611,542
Discrete-4	Noise	Residences	688,824	5,609,618
Discrete-5	Noise	Residence	681,197	5,607,480
Discrete-6	Noise	Residences	687,390	5,606,458
Discrete-7	Noise	Residence	689,692	5,605,170
Discrete-8	Noise	Residence	684,290	5,604,072
Discrete-9	Noise	Aberdeen Development	686,283	5,612,471
Discrete-10	Noise	CDB1	683,168	5,614,516
Discrete-11	Noise	CDB2	683,582	5,613,613
Discrete-12	Noise	CDB3	684,006	5,612,930
Discrete-13	Noise	CDB4	685,402	5,612,041
Discrete-14	Noise	CDB5	686,880	5,611,578
Discrete-15	Noise	New Noise21 Residence	680,734	5,608,935
Discrete-16	Noise	New Noise22 Residence	688,644	5,610,893
Discrete-17	Noise	New Noise23 Residences	689,454	5,610,713
Discrete-18	Noise	New Noise24 Residence	690,170	5,612,247
Discrete-19	Noise	New Noise25 Residence	690,834	5,610,838
Discrete-20	Noise	New Noise26 Residence	692,479	5,611,289
Discrete-21	Noise	New Noise27 Residences	680,747	5,614,653
Discrete-22	Health	Royal Inland Hospital	688,351	5,616,533
Discrete-23	Elementary	Henry Grube Education Centre	687,359	5,617,899
Discrete-24	Elementary	Twin River Education Centre	684,491	5,619,646
Discrete-25	Elementary	AE Perry Elementary	685,173	5,620,290
Discrete-26	Elementary	Aberdeen Elementary	686,751	5,613,271
Discrete-27	Elementary	Arthur Hatton Elementary	687,029	5,619,289
Discrete-28	Elementary	Beattie School of Arts, McGill Road	687,090	5,616,521
Discrete-29	Elementary	Beattie School of Arts, 9 Ave.	689,372	5,615,999
Discrete-30	Elementary	Bert Edward Science and tech Scho	686,278	5,620,691
Discrete-31	Elementary	Dufferin Elementary	683,939	5,615,505
Discrete-32	Elementary	George Hilliard Elementary	684,423	5,620,563
Discrete-33	Elementary	Juniper Ridge Elementary	694,765	5,615,690
Discrete-34	Elementary	Kay Bingham Elementary	683,689	5,620,195
Discrete-35	Elementary	Lloyd George Elementary	689,335	5,616,554
Discrete-36	Elementary	Marion Schilling Elementary	693,910	5,617,421
Discrete-37	Elementary	McGowan Park Elementary	687,900	5,613,647
Discrete-38	Elementary	Pacific Way Elementary	685,839	5,612,841
Discrete-39	Elementary	Parkcrest Elementary	683,055	5,620,626
Discrete-40	Elementary	South Sa-hali Elementary	688,072	5,614,905
Discrete-41	Elementary	Stuart wood Elementary	688,259	5,616,916
Discrete-42	Elementary	Summit Elementary	687,462	5,614,576
Discrete-43	Elementary	Westmount Elementary	686,463	5,621,826
Discrete-44	Secondary	Brocklehurst Secondary	683,476	5,620,225

Discrete-45	Secondary	Norkam Secondary	685,679	5,619,650
Discrete-46	Secondary	Sa-Hali Secondary	687,639	5,615,818
Discrete-47	Secondary	South Kamloops Secondary	689,348	5,616,129
Discrete-48	Secondary	Valleyview Secondary	692,522	5,617,423
Discrete-49	Secondary	Kamloops Christian School	685,848	5,619,446
Discrete-50	Day Care	Between Friends Out of School Car	688,140	5,615,190
Discrete-51	Day Care	Kiddies Korner & Fun & Learning	693,769	5,617,479
Discrete-52	Day Care	Sixth Avenue Childcare	688,834	5,616,855
Discrete-53	Day Care	Summit Childcare	688,183	5,615,068
Discrete-54	Day Care	TLC Family Daycare	685,697	5,620,127
Discrete-55	Day Care	R.M.S. Horticultural Program	685,350	5,620,587
Discrete-56	Day Care	Children's Circle Daycare Society	688,297	5,616,626
Discrete-57	Day Care	Big Adventures After School Care	686,797	5,618,537
Discrete-58	Day Care	Sandy's Family Daycare	687,530	5,614,088
Discrete-59	Day Care	Young Care	688,963	5,615,794
Discrete-60	Day Care	T.J.'S Day Care	686,383	5,621,218
Discrete-61	Day Care	Caroline's Kids Daycare	682,839	5,620,273
Discrete-62	Day Care	Little Munchkins Family Daycare	685,842	5,613,145
Discrete-63	Day Care	Play And Learn Child Care	687,129	5,613,771
Discrete-64	Day Care	Cactus Kidz Play Care	687,442	5,614,624
Discrete-65	Day Care	Chris Rose Therapy Centre for Autis	685,707	5,619,776
Discrete-66	Day Care	Playtime Daycare	692,864	5,617,413
Discrete-67	Day Care	Kamloops Child Development Centr	686,269	5,618,725
Discrete-68	Day Care	Tots & Teddies	683,549	5,614,551
Discrete-69	Day Care	Treasure Island Family Child Care	687,575	5,614,253
Discrete-70	Day Care	Giggles & Grins Family Daycare	686,741	5,613,531
Discrete-71	Day Care	The Treasure Chest Family Childcar	686,645	5,613,712
Discrete-72	Day Care	Juniper Joyce's Home Away From H	694,289	5,615,655
Discrete-73	Day Care	Kids Time Childcare Ltd	688,032	5,616,631
Discrete-74	Day Care	Magpie Corners Family Daycare	687,477	5,614,134
Discrete-75	Day Care	Building Blocks Childcare	686,263	5,620,438
Discrete-76	Day Care	Magical Moments Family Daycare	686,490	5,614,124
Discrete-77	Day Care	Brock Kids Care	683,953	5,620,492
Discrete-78	Day Care	Sheila's Family Daycare	690,232	5,616,521
Discrete-79	Day Care	Kamloops Christian School Associat	685,811	5,619,197
Discrete-80	Day Care	Janet's Home Daycare	689,251	5,616,643
Discrete-81	Day Care	Small Steps Family Daycare	687,591	5,618,304
Discrete-82	Day Care	Hollyburn Early Learning Centre	687,799	5,614,191
Discrete-83	Day Care	Tender Care Family Daycare	686,468	5,613,888
Discrete-84	Day Care	Aberdeen Adventure Club	686,980	5,612,953
Discrete-85	Day Care	Brock Licensed Family Daycare Play	683,283	5,620,408
Discrete-86	Day Care	Laugh And Learn Childcare	693,597	5,615,446
Discrete-87	Day Care	Small Blessings Family Childcare Ltd	686,516	5,621,335
Discrete-88	Day Care	Karen's Family Daycare	685,352	5,620,442
Discrete-89	Day Care	Over The Raynebow Family Daycar	686,488	5,620,805
Discrete-90	Day Care	Just Horsin Around Daycare	686,435	5,621,670
Discrete-91	Day Care	Kidz R Us Daycare	689,919	5,616,604

Discrete-92	Day Care	Enriched Daycare	686,380	5,612,508
Discrete-93	Day Care	Little Acorn Childcare	684,636	5,619,891
Discrete-94	Day Care	Everyday Adventures Dayhome	686,876	5,614,287
Discrete-95	Day Care	The Courtyard Child Care	687,998	5,615,113
Discrete-96	Day Care	Cradles To Crayons Licensed Family	687,795	5,614,044
Discrete-97	Day Care	Lil' Foot Childcare	686,651	5,615,247
Discrete-98	Day Care	Mr. Miller's Learning Adventures	687,605	5,614,212
Discrete-99	Day Care	Little Peeps Daycare	684,676	5,615,071
Discrete-100	Day Care	G's Daycare	682,883	5,620,443
Discrete-101	Day Care	Pitter Patter Daycare	686,410	5,620,813
Discrete-102	Day Care	M & M Family Child Care	683,040	5,620,520
Discrete-103	Day Care	Little Lions Family Child Care	684,746	5,619,880
Discrete-104	Day Care	Cuddlebear Family Daycare	684,000	5,620,473
Discrete-105	Day Care	Happy Faces Family Childcare	683,499	5,620,299
Discrete-106	Day Care	Enriched Daycare Inc.	686,980	5,616,290
Discrete-107	Day Care	Leandra's Lil' Explorers Daycare	685,629	5,621,901
Discrete-108	Day Care	Desert Palms	686,357	5,612,779
Discrete-109	Day Care	Kamloops Village Garden Montesso	686,933	5,613,807
Discrete-110	Day Care	Happy Honeybees Child Care	684,350	5,620,562
Discrete-111	Day Care	Le Jardin D'olivia Rose	686,519	5,613,655
Discrete-112	Day Care	Crackerjacks Family Daycare	684,743	5,620,209
Discrete-113	Day Care	Little Lamb Daycare	687,314	5,614,180
Discrete-114	Day Care	Moving Mountains Childcare	687,463	5,614,935
Discrete-115	Day Care	Sunnyside Daycare	683,509	5,614,706
Discrete-116	Day Care	Kamloops Kids Early Learning Cente	688,034	5,615,026
Discrete-117	Day Care	Kid Zone Dayhome	693,782	5,615,637
Discrete-118	Day Care	Destiny's Child	685,949	5,613,109
Discrete-119	Day Care	My World of Discovery Daycare and	686,058	5,613,559
Discrete-120	Day Care	Creative Beginnings Daycare and Pr	685,202	5,614,383
Discrete-121	Day Care	TRU daycare	686,089	5,616,598
Discrete-122	Day Care	Children's Circle Childcare and deve	688,897	5,617,005
Discrete-123	Day Care	Kamloops Montessori Academy	686,362	5,613,437
Discrete-124	Day Care	Sahali Montessori Preschool And Ki	687,975	5,613,600
Discrete-125	Day Care	Fun Learning Out Of School / Kamlo	691,597	5,617,281
Discrete-126	Day Care	Kamloops Community YMCA-YWCA	688,571	5,616,900
Discrete-127	Day Care	Kamloops Kidz Early Learning Cente	683,857	5,614,593
Discrete-128	Day Care	Kamloops United Church Preschool	688,523	5,616,955
Discrete-129	Day Care	Kim Care	682,872	5,620,597
Discrete-130	Day Care	Aberdeen Hills Montessori Prescho	686,710	5,613,174
Discrete-131	Day Care	Association Francophone De Kamlo	687,174	5,618,670
Discrete-132	Day Care	Bonnie's Daycare	686,824	5,618,866
Discrete-133	Day Care	Boys And Girls Club Of Kamloops - I	685,485	5,619,219
Discrete-134	Day Care	Cariboo Child Care Society	686,252	5,616,180
Discrete-135	Day Care	Chris Child Care	683,672	5,620,583
Discrete-136	Day Care	Dolphin Preschool	686,351	5,619,191
Discrete-137	Day Care	Enriched Daycare Phase 2	686,362	5,612,512
Discrete-138	Day Care	Fun And Fancy Free Family Daycare	682,822	5,619,725

Discrete-139	Day Care	Little Ducklings Childcare	689,460	5,616,937
Discrete-140	Day Care	Little Fawn Daycare	690,956	5,617,745
Discrete-141	Day Care	Little League Family Child Care	686,104	5,613,156
Discrete-142	Day Care	Little Learners Preschool	689,882	5,616,836
Discrete-143	Day Care	Little Lions Family Childcare	686,826	5,619,163
Discrete-144	Day Care	Maple Tree Family Daycare	689,162	5,616,581
Discrete-145	Day Care	Mcdonald Avenue Early Childhood	686,267	5,618,696
Discrete-146	Day Care	Parkcrest Family Daycare	682,856	5,620,593
Discrete-147	Day Care	Play to Learn Licensed Childcare	693,180	5,615,613
Discrete-148	Day Care	Puddles and Mud Childcare	687,629	5,614,592
Discrete-149	Day Care	Puss N' Boots	687,612	5,619,677
Discrete-150	Day Care	Seed To Apple Tree Learning Centre	687,084	5,613,063
Discrete-151	Day Care	Silly Billies	686,509	5,613,424
Discrete-152	Day Care	St Paul's Early Learning Centre	688,896	5,616,992
Discrete-153	Day Care	Sunhill Montessori Casa	687,905	5,614,100
Discrete-154	Day Care	Sunshine Early Learning Cantre	681,940	5,620,668
Discrete-155	Day Care	The Children's Garden	681,978	5,620,393
Discrete-156	Day Care	Tiny Treasures Family Child Care	686,222	5,613,720
Discrete-157	Day Care	Together We’re Better Childmindin	686,532	5,618,852
Discrete-158	Day Care	Wee Care Daycare	687,094	5,612,802
Discrete-159	Day Care	YM-YWCA Southwest School Age C	688,913	5,614,529
Discrete-160	Retirement Homes	Berwick on the Park Retirement Re	688,279	5,615,201
Discrete-161	Retirement Homes	Chartwell Select Renaissance Retire	686,438	5,619,270
Discrete-162	Retirement Homes	Cottonwood Manor Retirement Ho	686,060	5,619,434
Discrete-163	Retirement Homes	Kamloops Senior Village	685,722	5,614,250
Discrete-164	Retirement Homes	Ridgepointe at Pineview Retiremen	684,190	5,614,503
Discrete-165	Retirement Homes	Riverbend Manor Retirement Hom	683,708	5,619,618
Discrete-166	Retirement Homes	The Shores Retirement Residence	686,130	5,619,902
Discrete-167	Retirement Homes	Dufferin Group Home	684,898	5,615,185
Discrete-168	Retirement Homes	Garden Manor Rest Home	687,854	5,616,880
Discrete-169	Retirement Homes	Gaumont Residence	684,785	5,620,647
Discrete-170	Retirement Homes	Hilltop House	686,705	5,618,649
Discrete-171	Retirement Homes	Marjorie Willoughby Snowden Mer	688,213	5,615,280
Discrete-172	Retirement Homes	McBride Place	682,832	5,619,990
Discrete-173	Retirement Homes	Ord Road Group Home	679,181	5,621,262
Discrete-174	Retirement Homes	Phoenix Centre	688,194	5,616,450
Discrete-175	Retirement Homes	Pine Grove Lodge	687,105	5,618,430
Discrete-176	Retirement Homes	Ponderosa Lodge	688,514	5,616,611
Discrete-177	Retirement Homes	Ridgeview Lodge	684,078	5,620,088
Discrete-178	Retirement Homes	Riverside Retirement Centre	683,705	5,619,725
Discrete-179	Retirement Homes	Sage Health Centre	687,832	5,616,667
Discrete-180	Retirement Homes	Selkirk Family Care Home	685,632	5,620,163
Discrete-181	Retirement Homes	Springridge Group Home	686,597	5,615,114
Discrete-182	Retirement Homes	Waddington Group Home	688,151	5,614,710
Discrete-183	Miscellaneous	Stake Lake Trailhead	678,565	5,599,166
Discrete-184	Miscellaneous	McConnell Lake Provincial Park	679,980	5,600,118
Discrete-185	Miscellaneous	Hal Rogers Activity Centre	687,507	5,613,787

Discrete-186	Monitoring Stations	Kamloops Brocklehurst	683,826	5,619,425
Discrete-187	Monitoring Stations	Kamloops Federal Building	688,358	5,617,046
Discrete-188	Monitoring Stations	Kamloops Dalhousie Drive	686,337	5,615,995
Discrete-189	Monitoring Stations	Kamloops Fire Station #2	684,743	5,620,038
Discrete-190	Monitoring Stations	Kamloops Wildlife Park	706,554	5,615,521
Discrete-191	Monitoring Stations	Kamloops Dunes	687,591	5,628,598
Discrete-192	Monitoring Stations	Kamloops Mission Flats	686,757	5,617,742
Discrete-193	Monitoring Stations	Kamloops New Gold	676,719	5,615,114
Discrete-194	Monitoring Stations	Kamloops Pacific Way	685,753	5,613,792
Discrete-195	Monitoring Stations	Kamloops Strande Ranch	675,045	5,612,544
Discrete-196	Monitoring Stations	Kamloops Goose Lake	683,968	5,607,271
Discrete-197	Dust fall Stations	DFS 10-01	680,329	5,609,293
Discrete-198	Dust fall Stations	DFS 10-02	678,602	5,611,559
Discrete-199	Dust fall Stations	DFS 10-03	679,755	5,612,767
Discrete-200	Dust fall Stations	DFS 10-04	682,410	5,612,677
Discrete-201	Dust fall Stations	DFS 10-06	683,904	5,610,252
Discrete-202	Dust fall Stations	DFS 10-07	687,504	5,610,854
Discrete-203	Dust fall Stations	DFS 3 EAST	680,922	5,610,345
Discrete-204	Dust fall Stations	DFS 3 WEST	680,683	5,610,459
Discrete-205	Dust fall Stations	DFS 4 EAST	682,677	5,610,244
Discrete-206	Dust fall Stations	DFS 4 WEST	682,468	5,610,173
Discrete-207	Dust fall Stations	DFS 5 EAST	683,813	5,609,303
Discrete-208	Dust fall Stations	DFS 5 WEST	683,512	5,609,523
Discrete-209	Dust fall Stations	DFS 6 WEST	683,551	5,608,855
HHERA-1	HHERA		669,000	5,594,250
HHERA-2	HHERA		670,000	5,594,250
HHERA-3	HHERA		671,000	5,594,250
HHERA-4	HHERA		672,000	5,594,250
HHERA-5	HHERA		673,000	5,594,250
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HHERA-7	HHERA		675,000	5,594,250
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HHERA-357	HHERA	677,000	5,606,250
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HHERA-403	HHERA	694,000	5,607,250
HHERA-404	HHERA	695,000	5,607,250
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HHERA-592	HHERA	680,000	5,614,250
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HHERA-639	HHERA	669,000	5,616,250
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HHERA-724	HHERA	696,000	5,618,250
HHERA-725	HHERA	697,000	5,618,250
HHERA-726	HHERA	669,000	5,619,250
HHERA-727	HHERA	670,000	5,619,250
HHERA-728	HHERA	671,000	5,619,250

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HHERA-730	HHERA	673,000	5,619,250
HHERA-731	HHERA	674,000	5,619,250
HHERA-732	HHERA	675,000	5,619,250
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HHERA-736	HHERA	679,000	5,619,250
HHERA-737	HHERA	680,000	5,619,250
HHERA-738	HHERA	681,000	5,619,250
HHERA-739	HHERA	682,000	5,619,250
HHERA-740	HHERA	683,000	5,619,250
HHERA-741	HHERA	684,000	5,619,250
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HHERA-744	HHERA	687,000	5,619,250
HHERA-745	HHERA	688,000	5,619,250
HHERA-746	HHERA	689,000	5,619,250
HHERA-747	HHERA	690,000	5,619,250
HHERA-748	HHERA	691,000	5,619,250
HHERA-749	HHERA	692,000	5,619,250
HHERA-750	HHERA	693,000	5,619,250
HHERA-751	HHERA	694,000	5,619,250
HHERA-752	HHERA	695,000	5,619,250
HHERA-753	HHERA	696,000	5,619,250
HHERA-754	HHERA	697,000	5,619,250
HHERA-755	HHERA	669,000	5,620,250
HHERA-756	HHERA	670,000	5,620,250
HHERA-757	HHERA	671,000	5,620,250
HHERA-758	HHERA	672,000	5,620,250
HHERA-759	HHERA	673,000	5,620,250
HHERA-760	HHERA	674,000	5,620,250
HHERA-761	HHERA	675,000	5,620,250
HHERA-762	HHERA	676,000	5,620,250
HHERA-763	HHERA	677,000	5,620,250
HHERA-764	HHERA	678,000	5,620,250
HHERA-765	HHERA	679,000	5,620,250
HHERA-766	HHERA	680,000	5,620,250
HHERA-767	HHERA	681,000	5,620,250
HHERA-768	HHERA	682,000	5,620,250
HHERA-769	HHERA	683,000	5,620,250
HHERA-770	HHERA	684,000	5,620,250
HHERA-771	HHERA	685,000	5,620,250
HHERA-772	HHERA	686,000	5,620,250
HHERA-773	HHERA	687,000	5,620,250
HHERA-774	HHERA	688,000	5,620,250
HHERA-775	HHERA	689,000	5,620,250

HHERA-776	HHERA	690,000	5,620,250
HHERA-777	HHERA	691,000	5,620,250
HHERA-778	HHERA	692,000	5,620,250
HHERA-779	HHERA	693,000	5,620,250
HHERA-780	HHERA	694,000	5,620,250
HHERA-781	HHERA	695,000	5,620,250
HHERA-782	HHERA	696,000	5,620,250
HHERA-783	HHERA	697,000	5,620,250
HHERA-784	HHERA	669,000	5,621,250
HHERA-785	HHERA	670,000	5,621,250
HHERA-786	HHERA	671,000	5,621,250
HHERA-787	HHERA	672,000	5,621,250
HHERA-788	HHERA	673,000	5,621,250
HHERA-789	HHERA	674,000	5,621,250
HHERA-790	HHERA	675,000	5,621,250
HHERA-791	HHERA	676,000	5,621,250
HHERA-792	HHERA	677,000	5,621,250
HHERA-793	HHERA	678,000	5,621,250
HHERA-794	HHERA	679,000	5,621,250
HHERA-795	HHERA	680,000	5,621,250
HHERA-796	HHERA	681,000	5,621,250
HHERA-797	HHERA	682,000	5,621,250
HHERA-798	HHERA	683,000	5,621,250
HHERA-799	HHERA	684,000	5,621,250
HHERA-800	HHERA	685,000	5,621,250
HHERA-801	HHERA	686,000	5,621,250
HHERA-802	HHERA	687,000	5,621,250
HHERA-803	HHERA	688,000	5,621,250
HHERA-804	HHERA	689,000	5,621,250
HHERA-805	HHERA	690,000	5,621,250
HHERA-806	HHERA	691,000	5,621,250
HHERA-807	HHERA	692,000	5,621,250
HHERA-808	HHERA	693,000	5,621,250
HHERA-809	HHERA	694,000	5,621,250
HHERA-810	HHERA	695,000	5,621,250
HHERA-811	HHERA	696,000	5,621,250
HHERA-812	HHERA	697,000	5,621,250
HHERA-813	HHERA	669,000	5,622,250
HHERA-814	HHERA	670,000	5,622,250
HHERA-815	HHERA	671,000	5,622,250
HHERA-816	HHERA	672,000	5,622,250
HHERA-817	HHERA	673,000	5,622,250
HHERA-818	HHERA	674,000	5,622,250
HHERA-819	HHERA	675,000	5,622,250
HHERA-820	HHERA	676,000	5,622,250
HHERA-821	HHERA	677,000	5,622,250
HHERA-822	HHERA	678,000	5,622,250

HHERA-823	HHERA	679,000	5,622,250
HHERA-824	HHERA	680,000	5,622,250
HHERA-825	HHERA	681,000	5,622,250
HHERA-826	HHERA	682,000	5,622,250
HHERA-827	HHERA	683,000	5,622,250
HHERA-828	HHERA	684,000	5,622,250
HHERA-829	HHERA	685,000	5,622,250
HHERA-830	HHERA	686,000	5,622,250
HHERA-831	HHERA	687,000	5,622,250
HHERA-832	HHERA	688,000	5,622,250
HHERA-833	HHERA	689,000	5,622,250
HHERA-834	HHERA	690,000	5,622,250
HHERA-835	HHERA	691,000	5,622,250
HHERA-836	HHERA	692,000	5,622,250
HHERA-837	HHERA	693,000	5,622,250
HHERA-838	HHERA	694,000	5,622,250
HHERA-839	HHERA	695,000	5,622,250
HHERA-840	HHERA	696,000	5,622,250
HHERA-841	HHERA	697,000	5,622,250

APPENDIX C
PROUCL OUTPUTS FOR SOIL, WATER, VEGETATION, ORE AND TISSUE

ProUCL Output for Soil

1	**UCL Statistics for Data Sets with Non-Detects**												
2													
3	User Selected Options												
4	Date/Time of Computation			4/17/2015 11:37:25 AM									
5	From File			dat_proucl_all_soils_g.xls									
6	Full Precision			OFF									
7	Confidence Coefficient			95%									
8	mber of Bootstrap Operations			2000									
9													
10													
11	**Aluminum (mg/kg)**												
12													
13	**General Statistics**												
14	Total Number of Observations					55			Number of Distinct Observations			49	
15									Number of Missing Observations			0	
16	Minimum					10100			Mean			17241	
17	Maximum					26000			Median			17500	
18	SD					3663			Std. Error of Mean			493.9	
19	Coefficient of Variation					0.212			Skewness			-0.0636	
20													
21	**Normal GOF Test**												
22	Shapiro Wilk Test Statistic					0.962			**Shapiro Wilk GOF Test**				
23	5% Shapiro Wilk P Value					0.156			Data appear Normal at 5% Significance Level				
24	Lilliefors Test Statistic					0.114			**Lilliefors GOF Test**				
25	5% Lilliefors Critical Value					0.119			Data appear Normal at 5% Significance Level				
26	**Data appear Normal at 5% Significance Level**												
27													
28	**Assuming Normal Distribution**												
29	**95% Normal UCL**								**95% UCLs (Adjusted for Skewness)**				
30	95% Student's-t UCL					18068			95% Adjusted-CLT UCL (Chen-1995)			18049	
31									95% Modified-t UCL (Johnson-1978)			18067	
32													
33	**Gamma GOF Test**												
34	A-D Test Statistic					1.049			**Anderson-Darling Gamma GOF Test**				
35	5% A-D Critical Value					0.749			Data Not Gamma Distributed at 5% Significance Level				
36	K-S Test Statistic					0.143			**Kolmogrov-Smirnoff Gamma GOF Test**				
37	5% K-S Critical Value					0.12			Data Not Gamma Distributed at 5% Significance Level				
38	**Data Not Gamma Distributed at 5% Significance Level**												
39													
40	**Gamma Statistics**												
41	k hat (MLE)					21.25			k star (bias corrected MLE)			20.1	
42	Theta hat (MLE)					811.3			Theta star (bias corrected MLE)			857.6	
43	nu hat (MLE)					2338			nu star (bias corrected)			2211	
44	MLE Mean (bias corrected)					17241			MLE Sd (bias corrected)			3845	
45									Approximate Chi Square Value (0.05)			2103	
46	Adjusted Level of Significance					0.0456			Adjusted Chi Square Value			2100	
47													
48	**Assuming Gamma Distribution**												
49	95% Approximate Gamma UCL (use when n>=50))					18129			95% Adjusted Gamma UCL (use when n<50)			18153	
50													
51	**Lognormal GOF Test**												
52	Shapiro Wilk Test Statistic					0.94			**Shapiro Wilk Lognormal GOF Test**				
53	5% Shapiro Wilk P Value					0.0131			Data Not Lognormal at 5% Significance Level				
54	Lilliefors Test Statistic					0.156			**Lilliefors Lognormal GOF Test**				
55	5% Lilliefors Critical Value					0.119			Data Not Lognormal at 5% Significance Level				
56	**Data Not Lognormal at 5% Significance Level**												
57													
58	**Lognormal Statistics**												
59	Minimum of Logged Data					9.22			Mean of logged Data			9.731	
60	Maximum of Logged Data					10.17			SD of logged Data			0.224	
61													
62	**Assuming Lognormal Distribution**												

63					95% H-UCL	18198				90% Chebyshev (MVUE) UCL		18842	
64					95% Chebyshev (MVUE) UCL	19559				97.5% Chebyshev (MVUE) UCL		20554	
65					99% Chebyshev (MVUE) UCL	22509							
66													
67					**Nonparametric Distribution Free UCL Statistics**								
68					**Data appear to follow a Discernible Distribution at 5% Significance Level**								
69													
70					**Nonparametric Distribution Free UCLs**								
71					95% CLT UCL	18054				95% Jackknife UCL		18068	
72					95% Standard Bootstrap UCL	18047				95% Bootstrap-t UCL		18083	
73					95% Hall's Bootstrap UCL	18095				95% Percentile Bootstrap UCL		18031	
74					95% BCA Bootstrap UCL	18094							
75					90% Chebyshev(Mean, Sd) UCL	18723				95% Chebyshev(Mean, Sd) UCL		19394	
76					97.5% Chebyshev(Mean, Sd) UCL	20326				99% Chebyshev(Mean, Sd) UCL		22156	
77													
78					**Suggested UCL to Use**								
79					95% Student's-t UCL	18068							
80													
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
84	For additional insight the user may want to consult a statistician.												
85													
86	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**												
87	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**												
88													
89													
90	**Antimony (mg/kg)**												
91													
92					**General Statistics**								
93					Total Number of Observations	55				Number of Distinct Observations		35	
94										Number of Missing Observations		0	
95					Minimum	0.14				Mean		0.431	
96					Maximum	1.11				Median		0.42	
97					SD	0.143				Std. Error of Mean		0.0193	
98					Coefficient of Variation	0.333				Skewness		1.897	
99													
100					**Normal GOF Test**								
101					Shapiro Wilk Test Statistic	0.881				**Shapiro Wilk GOF Test**			
102					5% Shapiro Wilk P Value	1.1021E-5				Data Not Normal at 5% Significance Level			
103					Lilliefors Test Statistic	0.101				**Lilliefors GOF Test**			
104					5% Lilliefors Critical Value	0.119				Data appear Normal at 5% Significance Level			
105					**Data appear Approximate Normal at 5% Significance Level**								
106													
107					**Assuming Normal Distribution**								
108					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**			
109					95% Student's-t UCL	0.463				95% Adjusted-CLT UCL (Chen-1995)		0.468	
110										95% Modified-t UCL (Johnson-1978)		0.464	
111													
112					**Gamma GOF Test**								
113					A-D Test Statistic	0.481				**Anderson-Darling Gamma GOF Test**			
114					5% A-D Critical Value	0.75				etected data appear Gamma Distributed at 5% Significance Lev			
115					K-S Test Statistic	0.0658				**Kolmogrov-Smirnoff Gamma GOF Test**			
116					5% K-S Critical Value	0.12				etected data appear Gamma Distributed at 5% Significance Lev			
117					**Detected data appear Gamma Distributed at 5% Significance Level**								
118													
119					**Gamma Statistics**								
120					k hat (MLE)	10.43				k star (bias corrected MLE)		9.875	
121					Theta hat (MLE)	0.0413				Theta star (bias corrected MLE)		0.0436	
122					nu hat (MLE)	1148				nu star (bias corrected)		1086	
123					MLE Mean (bias corrected)	0.431				MLE Sd (bias corrected)		0.137	
124										Approximate Chi Square Value (0.05)		1011	

125	Adjusted Level of Significance					0.0456	Adjusted Chi Square Value					1009	
126													
127	**Assuming Gamma Distribution**												
128	95% Approximate Gamma UCL (use when n>=50))					0.463	95% Adjusted Gamma UCL (use when n<50)					0.464	
129													
130	**Lognormal GOF Test**												
131	Shapiro Wilk Test Statistic					0.97	**Shapiro Wilk Lognormal GOF Test**						
132	5% Shapiro Wilk P Value					0.331	Data appear Lognormal at 5% Significance Level						
133	Lilliefors Test Statistic					0.0751	**Lilliefors Lognormal GOF Test**						
134	5% Lilliefors Critical Value					0.119	Data appear Lognormal at 5% Significance Level						
135	**Data appear Lognormal at 5% Significance Level**												
136													
137	**Lognormal Statistics**												
138	Minimum of Logged Data					-1.966	Mean of logged Data					-0.891	
139	Maximum of Logged Data					0.104	SD of logged Data					0.315	
140													
141	**Assuming Lognormal Distribution**												
142	95% H-UCL					0.464	90% Chebyshev (MVUE) UCL					0.487	
143	95% Chebyshev (MVUE) UCL					0.512	97.5% Chebyshev (MVUE) UCL					0.548	
144	99% Chebyshev (MVUE) UCL					0.617							
145													
146	**Nonparametric Distribution Free UCL Statistics**												
147	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
148													
149	**Nonparametric Distribution Free UCLs**												
150	95% CLT UCL					0.463	95% Jackknife UCL					0.463	
151	95% Standard Bootstrap UCL					0.463	95% Bootstrap-t UCL					0.471	
152	95% Hall's Bootstrap UCL					0.481	95% Percentile Bootstrap UCL					0.464	
153	95% BCA Bootstrap UCL					0.466							
154	90% Chebyshev(Mean, Sd) UCL					0.489	95% Chebyshev(Mean, Sd) UCL					0.515	
155	97.5% Chebyshev(Mean, Sd) UCL					0.551	99% Chebyshev(Mean, Sd) UCL					0.623	
156													
157	**Suggested UCL to Use**												
158	95% Student's-t UCL					0.463							
159													
160	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
161	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
162	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
163	For additional insight the user may want to consult a statistician.												
164													
165													
166	**Arsenic (mg/kg)**												
167													
168	**General Statistics**												
169	Total Number of Observations					55	Number of Distinct Observations					54	
170							Number of Missing Observations					0	
171	Minimum					2.58	Mean					5.346	
172	Maximum					12.9	Median					4.92	
173	SD					1.817	Std. Error of Mean					0.245	
174	Coefficient of Variation					0.34	Skewness					1.58	
175													
176	**Normal GOF Test**												
177	Shapiro Wilk Test Statistic					0.903	**Shapiro Wilk GOF Test**						
178	5% Shapiro Wilk P Value					1.4432E-4	Data Not Normal at 5% Significance Level						
179	Lilliefors Test Statistic					0.102	**Lilliefors GOF Test**						
180	5% Lilliefors Critical Value					0.119	Data appear Normal at 5% Significance Level						
181	**Data appear Approximate Normal at 5% Significance Level**												
182													
183	**Assuming Normal Distribution**												
184	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
185	95% Student's-t UCL					5.756	95% Adjusted-CLT UCL (Chen-1995)					5.805	
186							95% Modified-t UCL (Johnson-1978)					5.765	

187													
188	**Gamma GOF Test**												
189	A-D Test Statistic					0.357	**Anderson-Darling Gamma GOF Test**						
190	5% A-D Critical Value					0.75	etected data appear Gamma Distributed at 5% Significance Lev						
191	K-S Test Statistic					0.0743	**Kolmogrov-Smirnoff Gamma GOF Test**						
192	5% K-S Critical Value					0.12	etected data appear Gamma Distributed at 5% Significance Lev						
193	**Detected data appear Gamma Distributed at 5% Significance Level**												
194													
195	**Gamma Statistics**												
196	k hat (MLE)					10.16	k star (bias corrected MLE)					9.622	
197	Theta hat (MLE)					0.526	Theta star (bias corrected MLE)					0.556	
198	nu hat (MLE)					1118	nu star (bias corrected)					1058	
199	MLE Mean (bias corrected)					5.346	MLE Sd (bias corrected)					1.724	
200							Approximate Chi Square Value (0.05)					983.9	
201	Adjusted Level of Significance					0.0456	Adjusted Chi Square Value					981.9	
202													
203	**Assuming Gamma Distribution**												
204	95% Approximate Gamma UCL (use when n>=50))					5.751	95% Adjusted Gamma UCL (use when n<50)					5.762	
205													
206	**Lognormal GOF Test**												
207	Shapiro Wilk Test Statistic					0.985	**Shapiro Wilk Lognormal GOF Test**						
208	5% Shapiro Wilk P Value					0.888	Data appear Lognormal at 5% Significance Level						
209	Lilliefors Test Statistic					0.0561	**Lilliefors Lognormal GOF Test**						
210	5% Lilliefors Critical Value					0.119	Data appear Lognormal at 5% Significance Level						
211	**Data appear Lognormal at 5% Significance Level**												
212													
213	**Lognormal Statistics**												
214	Minimum of Logged Data					0.948	Mean of logged Data					1.626	
215	Maximum of Logged Data					2.557	SD of logged Data					0.314	
216													
217	**Assuming Lognormal Distribution**												
218	95% H-UCL					5.749	90% Chebyshev (MVUE) UCL					6.031	
219	95% Chebyshev (MVUE) UCL					6.345	97.5% Chebyshev (MVUE) UCL					6.781	
220	99% Chebyshev (MVUE) UCL					7.637							
221													
222	**Nonparametric Distribution Free UCL Statistics**												
223	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
224													
225	**Nonparametric Distribution Free UCLs**												
226	95% CLT UCL					5.749	95% Jackknife UCL					5.756	
227	95% Standard Bootstrap UCL					5.747	95% Bootstrap-t UCL					5.818	
228	95% Hall's Bootstrap UCL					5.851	95% Percentile Bootstrap UCL					5.77	
229	95% BCA Bootstrap UCL					5.797							
230	90% Chebyshev(Mean, Sd) UCL					6.081	95% Chebyshev(Mean, Sd) UCL					6.414	
231	97.5% Chebyshev(Mean, Sd) UCL					6.876	99% Chebyshev(Mean, Sd) UCL					7.784	
232													
233	**Suggested UCL to Use**												
234	95% Student's-t UCL					5.756							
235													
236	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
237	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
238	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
239	For additional insight the user may want to consult a statistician.												
240													
241													
242	**Barium (mg/kg)**												
243													
244	**General Statistics**												
245	Total Number of Observations					55	Number of Distinct Observations					39	
246							Number of Missing Observations					0	
247	Minimum					113	Mean					179.9	
248	Maximum					263	Median					170	

249					SD	40.56					Std. Error of Mean	5.469	
250					Coefficient of Variation	0.225					Skewness	0.281	
251													
252					**Normal GOF Test**								
253					Shapiro Wilk Test Statistic	0.945			**Shapiro Wilk GOF Test**				
254					5% Shapiro Wilk P Value	0.0236			Data Not Normal at 5% Significance Level				
255					Lilliefors Test Statistic	0.119			**Lilliefors GOF Test**				
256					5% Lilliefors Critical Value	0.119			Data appear Normal at 5% Significance Level				
257					**Data appear Approximate Normal at 5% Significance Level**								
258													
259					**Assuming Normal Distribution**								
260					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**				
261					95% Student's-t UCL	189			95% Adjusted-CLT UCL (Chen-1995)	189.1			
262									95% Modified-t UCL (Johnson-1978)	189.1			
263													
264					**Gamma GOF Test**								
265					A-D Test Statistic	0.615			**Anderson-Darling Gamma GOF Test**				
266					5% A-D Critical Value	0.749			etected data appear Gamma Distributed at 5% Significance Lev				
267					K-S Test Statistic	0.115			**Kolmogrov-Smirnoff Gamma GOF Test**				
268					5% K-S Critical Value	0.12			etected data appear Gamma Distributed at 5% Significance Lev				
269					**Detected data appear Gamma Distributed at 5% Significance Level**								
270													
271					**Gamma Statistics**								
272					k hat (MLE)	20.05			k star (bias corrected MLE)	18.97			
273					Theta hat (MLE)	8.972			Theta star (bias corrected MLE)	9.483			
274					nu hat (MLE)	2205			nu star (bias corrected)	2086			
275					MLE Mean (bias corrected)	179.9			MLE Sd (bias corrected)	41.3			
276									Approximate Chi Square Value (0.05)	1981			
277					Adjusted Level of Significance	0.0456			Adjusted Chi Square Value	1979			
278													
279					**Assuming Gamma Distribution**								
280					95% Approximate Gamma UCL (use when n>=50))	189.4			95% Adjusted Gamma UCL (use when n<50)	189.7			
281													
282					**Lognormal GOF Test**								
283					Shapiro Wilk Test Statistic	0.953			**Shapiro Wilk Lognormal GOF Test**				
284					5% Shapiro Wilk P Value	0.0567			Data appear Lognormal at 5% Significance Level				
285					Lilliefors Test Statistic	0.109			**Lilliefors Lognormal GOF Test**				
286					5% Lilliefors Critical Value	0.119			Data appear Lognormal at 5% Significance Level				
287					**Data appear Lognormal at 5% Significance Level**								
288													
289					**Lognormal Statistics**								
290					Minimum of Logged Data	4.727			Mean of logged Data	5.167			
291					Maximum of Logged Data	5.572			SD of logged Data	0.227			
292													
293					**Assuming Lognormal Distribution**								
294					95% H-UCL	189.8			90% Chebyshev (MVUE) UCL	196.6			
295					95% Chebyshev (MVUE) UCL	204.2			97.5% Chebyshev (MVUE) UCL	214.7			
296					99% Chebyshev (MVUE) UCL	235.3							
297													
298					**Nonparametric Distribution Free UCL Statistics**								
299					**Data appear to follow a Discernible Distribution at 5% Significance Level**								
300													
301					**Nonparametric Distribution Free UCLs**								
302					95% CLT UCL	188.9			95% Jackknife UCL	189			
303					95% Standard Bootstrap UCL	188.7			95% Bootstrap-t UCL	189.6			
304					95% Hall's Bootstrap UCL	188.8			95% Percentile Bootstrap UCL	189.1			
305					95% BCA Bootstrap UCL	189							
306					90% Chebyshev(Mean, Sd) UCL	196.3			95% Chebyshev(Mean, Sd) UCL	203.7			
307					97.5% Chebyshev(Mean, Sd) UCL	214			99% Chebyshev(Mean, Sd) UCL	234.3			
308													
309					**Suggested UCL to Use**								
310					95% Student's-t UCL	189							

	A	B	C	D	E	F	G	H	I	J	K	L	M
311													
312	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
313	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
314	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
315	For additional insight the user may want to consult a statistician.												
316													
317													
318	**Beryllium (mg/kg)**												
319													
320	**General Statistics**												
321	Total Number of Observations					55	Number of Distinct Observations					28	
322							Number of Missing Observations					0	
323	Minimum					0.21	Mean					0.376	
324	Maximum					0.61	Median					0.37	
325	SD					0.0787	Std. Error of Mean					0.0106	
326	Coefficient of Variation					0.209	Skewness					0.502	
327													
328	**Normal GOF Test**												
329	Shapiro Wilk Test Statistic					0.971	**Shapiro Wilk GOF Test**						
330	5% Shapiro Wilk P Value					0.384	Data appear Normal at 5% Significance Level						
331	Lilliefors Test Statistic					0.133	**Lilliefors GOF Test**						
332	5% Lilliefors Critical Value					0.119	Data Not Normal at 5% Significance Level						
333	**Data appear Approximate Normal at 5% Significance Level**												
334													
335	**Assuming Normal Distribution**												
336	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
337	95% Student's-t UCL					0.394	95% Adjusted-CLT UCL (Chen-1995)					0.394	
338							95% Modified-t UCL (Johnson-1978)					0.394	
339													
340	**Gamma GOF Test**												
341	A-D Test Statistic					0.443	**Anderson-Darling Gamma GOF Test**						
342	5% A-D Critical Value					0.748	etected data appear Gamma Distributed at 5% Significance Lev						
343	K-S Test Statistic					0.111	**Kolmogrov-Smirnoff Gamma GOF Test**						
344	5% K-S Critical Value					0.12	etected data appear Gamma Distributed at 5% Significance Lev						
345	**Detected data appear Gamma Distributed at 5% Significance Level**												
346													
347	**Gamma Statistics**												
348	k hat (MLE)					23.35	k star (bias corrected MLE)					22.09	
349	Theta hat (MLE)					0.0161	Theta star (bias corrected MLE)					0.017	
350	nu hat (MLE)					2569	nu star (bias corrected)					2430	
351	MLE Mean (bias corrected)					0.376	MLE Sd (bias corrected)					0.08	
352							Approximate Chi Square Value (0.05)					2316	
353	Adjusted Level of Significance					0.0456	Adjusted Chi Square Value					2313	
354													
355	**Assuming Gamma Distribution**												
356	95% Approximate Gamma UCL (use when n>=50))					0.395	95% Adjusted Gamma UCL (use when n<50)					0.395	
357													
358	**Lognormal GOF Test**												
359	Shapiro Wilk Test Statistic					0.98	**Shapiro Wilk Lognormal GOF Test**						
360	5% Shapiro Wilk P Value					0.714	Data appear Lognormal at 5% Significance Level						
361	Lilliefors Test Statistic					0.105	**Lilliefors Lognormal GOF Test**						
362	5% Lilliefors Critical Value					0.119	Data appear Lognormal at 5% Significance Level						
363	**Data appear Lognormal at 5% Significance Level**												
364													
365	**Lognormal Statistics**												
366	Minimum of Logged Data					-1.561	Mean of logged Data					-0.999	
367	Maximum of Logged Data					-0.494	SD of logged Data					0.211	
368													
369	**Assuming Lognormal Distribution**												
370	95% H-UCL					0.395	90% Chebyshev (MVUE) UCL					0.409	
371	95% Chebyshev (MVUE) UCL					0.423	97.5% Chebyshev (MVUE) UCL					0.444	
372	99% Chebyshev (MVUE) UCL					0.484							

373													
374	**Nonparametric Distribution Free UCL Statistics**												
375	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
376													
377	**Nonparametric Distribution Free UCLs**												
378					95% CLT UCL	0.394				95% Jackknife UCL	0.394		
379					95% Standard Bootstrap UCL	0.393				95% Bootstrap-t UCL	0.394		
380					95% Hall's Bootstrap UCL	0.394				95% Percentile Bootstrap UCL	0.393		
381					95% BCA Bootstrap UCL	0.393							
382					90% Chebyshev(Mean, Sd) UCL	0.408				95% Chebyshev(Mean, Sd) UCL	0.422		
383					97.5% Chebyshev(Mean, Sd) UCL	0.442				99% Chebyshev(Mean, Sd) UCL	0.482		
384													
385	**Suggested UCL to Use**												
386					95% Student's-t UCL	0.394							
387													
388	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
389	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
390	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
391	For additional insight the user may want to consult a statistician.												
392													
393	**Bismuth (mg/kg)**												
394													
395	**General Statistics**												
396					Total Number of Observations	55				Number of Distinct Observations	5		
397					Number of Detects	12				Number of Non-Detects	43		
398					Number of Distinct Detects	4				Number of Distinct Non-Detects	2		
399					Minimum Detect	0.2				Minimum Non-Detect	0.1		
400					Maximum Detect	0.36				Maximum Non-Detect	0.2		
401					Variance Detects	0.00211				Percent Non-Detects	78.18%		
402					Mean Detects	0.221				SD Detects	0.0459		
403					Median Detects	0.2				CV Detects	0.208		
404					Skewness Detects	2.925				Kurtosis Detects	9.148		
405					Mean of Logged Detects	-1.524				SD of Logged Detects	0.171		
406													
407	**Normal GOF Test on Detects Only**												
408					Shapiro Wilk Test Statistic	0.531				**Shapiro Wilk GOF Test**			
409					5% Shapiro Wilk Critical Value	0.859				Detected Data Not Normal at 5% Significance Level			
410					Lilliefors Test Statistic	0.345				**Lilliefors GOF Test**			
411					5% Lilliefors Critical Value	0.256				Detected Data Not Normal at 5% Significance Level			
412	**Detected Data Not Normal at 5% Significance Level**												
413													
414	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**												
415					Mean	0.126				Standard Error of Mean	0.00762		
416					SD	0.0541				95% KM (BCA) UCL	N/A		
417					95% KM (t) UCL	0.139				95% KM (Percentile Bootstrap) UCL	N/A		
418					95% KM (z) UCL	0.139				95% KM Bootstrap t UCL	N/A		
419					90% KM Chebyshev UCL	0.149				95% KM Chebyshev UCL	0.16		
420					97.5% KM Chebyshev UCL	0.174				99% KM Chebyshev UCL	0.202		
421													
422	**Gamma GOF Tests on Detected Observations Only**												
423					A-D Test Statistic	2.216				**Anderson-Darling GOF Test**			
424					5% A-D Critical Value	0.731				Detected Data Not Gamma Distributed at 5% Significance Level			
425					K-S Test Statistic	0.362				**Kolmogrov-Smirnoff GOF**			
426					5% K-S Critical Value	0.245				Detected Data Not Gamma Distributed at 5% Significance Level			
427	**Detected Data Not Gamma Distributed at 5% Significance Level**												
428													
429	**Gamma Statistics on Detected Data Only**												
430					k hat (MLE)	32.93				k star (bias corrected MLE)	24.75		
431					Theta hat (MLE)	0.00672				Theta star (bias corrected MLE)	0.00894		
432					nu hat (MLE)	790.3				nu star (bias corrected)	594.1		
433					MLE Mean (bias corrected)	0.221				MLE Sd (bias corrected)	0.0445		
434													

435	**Gamma Kaplan-Meier (KM) Statistics**												
436	k hat (KM)					5.458	nu hat (KM)					600.4	
437	Approximate Chi Square Value (600.40, α)					544.6	Adjusted Chi Square Value (600.40, β)					543.1	
438	5% Gamma Approximate KM-UCL (use when n>=50)					0.139	95% Gamma Adjusted KM-UCL (use when n<50)					0.14	
439													
440	**Gamma ROS Statistics using Imputed Non-Detects**												
441	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
442	GROS may not be used when kstar of detected data is small such as < 0.1												
443	For such situations, GROS method tends to yield inflated values of UCLs and BTVs												
444	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
445	Minimum					0.01	Mean					0.112	
446	Maximum					0.36	Median					0.103	
447	SD					0.0748	CV					0.665	
448	k hat (MLE)					1.705	k star (bias corrected MLE)					1.624	
449	Theta hat (MLE)					0.0659	Theta star (bias corrected MLE)					0.0692	
450	nu hat (MLE)					187.6	nu star (bias corrected)					178.7	
451	MLE Mean (bias corrected)					0.112	MLE Sd (bias corrected)					0.0882	
452							Adjusted Level of Significance (β)					0.0456	
453	Approximate Chi Square Value (178.67, α)					148.8	Adjusted Chi Square Value (178.67, β)					148	
454	95% Gamma Approximate UCL (use when n>=50)					0.135	95% Gamma Adjusted UCL (use when n<50)					0.136	
455													
456	**Lognormal GOF Test on Detected Observations Only**												
457	Shapiro Wilk Test Statistic					0.575	**Shapiro Wilk GOF Test**						
458	5% Shapiro Wilk Critical Value					0.859	Detected Data Not Lognormal at 5% Significance Level						
459	Lilliefors Test Statistic					0.358	**Lilliefors GOF Test**						
460	5% Lilliefors Critical Value					0.256	Detected Data Not Lognormal at 5% Significance Level						
461	**Detected Data Not Lognormal at 5% Significance Level**												
462													
463	**Lognormal ROS Statistics Using Imputed Non-Detects**												
464	Mean in Original Scale					0.144	Mean in Log Scale					-1.999	
465	SD in Original Scale					0.0528	SD in Log Scale					0.344	
466	95% t UCL (assumes normality of ROS data)					0.156	95% Percentile Bootstrap UCL					0.156	
467	95% BCA Bootstrap UCL					0.157	95% Bootstrap t UCL					0.158	
468	95% H-UCL (Log ROS)					0.156							
469													
470	**DL/2 Statistics**												
471	**DL/2 Normal**						**DL/2 Log-Transformed**						
472	Mean in Original Scale					0.12	Mean in Log Scale					-2.221	
473	SD in Original Scale					0.0601	SD in Log Scale					0.443	
474	95% t UCL (Assumes normality)					0.134	95% H-Stat UCL					0.134	
475	**DL/2 is not a recommended method, provided for comparisons and historical reasons**												
476													
477	**Nonparametric Distribution Free UCL Statistics**												
478	**Data do not follow a Discernible Distribution at 5% Significance Level**												
479													
480	**Suggested UCL to Use**												
481	95% KM (t) UCL					0.139	95% KM (% Bootstrap) UCL					N/A	
482	**Warning: One or more Recommended UCL(s) not available!**												
483													
484	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
485	Recommendations are based upon data size, data distribution, and skewness.												
486	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
487	owever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticia												
488													
489													
490	**Cadmium (mg/kg)**												
491													
492	**General Statistics**												
493	Total Number of Observations					55	Number of Distinct Observations					46	
494							Number of Missing Observations					0	
495	Minimum					0.088	Mean					0.182	
496	Maximum					0.581	Median					0.161	

497					SD	0.0869					Std. Error of Mean	0.0117	
498					Coefficient of Variation	0.478					Skewness	2.554	
499													
500					**Normal GOF Test**								
501					Shapiro Wilk Test Statistic	0.765			**Shapiro Wilk GOF Test**				
502					5% Shapiro Wilk P Value	2.776E-11			Data Not Normal at 5% Significance Level				
503					Lilliefors Test Statistic	0.169			**Lilliefors GOF Test**				
504					5% Lilliefors Critical Value	0.119			Data Not Normal at 5% Significance Level				
505					**Data Not Normal at 5% Significance Level**								
506													
507					**Assuming Normal Distribution**								
508					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**				
509					95% Student's-t UCL	0.201			95% Adjusted-CLT UCL (Chen-1995)	0.205			
510									95% Modified-t UCL (Johnson-1978)	0.202			
511													
512					**Gamma GOF Test**								
513					A-D Test Statistic	1.379			**Anderson-Darling Gamma GOF Test**				
514					5% A-D Critical Value	0.753			Data Not Gamma Distributed at 5% Significance Level				
515					K-S Test Statistic	0.104			**Kolmogrov-Smirnoff Gamma GOF Test**				
516					5% K-S Critical Value	0.12			etected data appear Gamma Distributed at 5% Significance Lev				
517					**Detected data follow Appr. Gamma Distribution at 5% Significance Level**								
518													
519					**Gamma Statistics**								
520					k hat (MLE)	6.441			k star (bias corrected MLE)	6.102			
521					Theta hat (MLE)	0.0282			Theta star (bias corrected MLE)	0.0298			
522					nu hat (MLE)	708.5			nu star (bias corrected)	671.2			
523					MLE Mean (bias corrected)	0.182			MLE Sd (bias corrected)	0.0736			
524									Approximate Chi Square Value (0.05)	612.1			
525					Adjusted Level of Significance	0.0456			Adjusted Chi Square Value	610.6			
526													
527					**Assuming Gamma Distribution**								
528					95% Approximate Gamma UCL (use when n>=50)	0.199			95% Adjusted Gamma UCL (use when n<50)	0.2			
529													
530					**Lognormal GOF Test**								
531					Shapiro Wilk Test Statistic	0.944			**Shapiro Wilk Lognormal GOF Test**				
532					5% Shapiro Wilk P Value	0.0212			Data Not Lognormal at 5% Significance Level				
533					Lilliefors Test Statistic	0.0916			**Lilliefors Lognormal GOF Test**				
534					5% Lilliefors Critical Value	0.119			Data appear Lognormal at 5% Significance Level				
535					**Data appear Approximate Lognormal at 5% Significance Level**								
536													
537					**Lognormal Statistics**								
538					Minimum of Logged Data	-2.43			Mean of logged Data	-1.784			
539					Maximum of Logged Data	-0.543			SD of logged Data	0.378			
540													
541					**Assuming Lognormal Distribution**								
542					95% H-UCL	0.198			90% Chebyshev (MVUE) UCL	0.209			
543					95% Chebyshev (MVUE) UCL	0.221			97.5% Chebyshev (MVUE) UCL	0.239			
544					99% Chebyshev (MVUE) UCL	0.274							
545													
546					**Nonparametric Distribution Free UCL Statistics**								
547					**Data appear to follow a Discernible Distribution at 5% Significance Level**								
548													
549					**Nonparametric Distribution Free UCLs**								
550					95% CLT UCL	0.201			95% Jackknife UCL	0.201			
551					95% Standard Bootstrap UCL	0.201			95% Bootstrap-t UCL	0.21			
552					95% Hall's Bootstrap UCL	0.211			95% Percentile Bootstrap UCL	0.201			
553					95% BCA Bootstrap UCL	0.207							
554					90% Chebyshev(Mean, Sd) UCL	0.217			95% Chebyshev(Mean, Sd) UCL	0.233			
555					97.5% Chebyshev(Mean, Sd) UCL	0.255			99% Chebyshev(Mean, Sd) UCL	0.298			
556													
557					**Suggested UCL to Use**								
558					95% Approximate Gamma UCL	0.199							

559													
560	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
561	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
562	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
563	For additional insight the user may want to consult a statistician.												
564													
565													
566	**Calcium (mg/kg)**												
567													
568	**General Statistics**												
569	Total Number of Observations					55	Number of Distinct Observations					53	
570							Number of Missing Observations					0	
571	Minimum					5670	Mean					13686	
572	Maximum					54500	Median					10600	
573	SD					8769	Std. Error of Mean					1182	
574	Coefficient of Variation					0.641	Skewness					2.799	
575													
576	**Normal GOF Test**												
577	Shapiro Wilk Test Statistic					0.682	**Shapiro Wilk GOF Test**						
578	5% Shapiro Wilk P Value					7.661E-15	Data Not Normal at 5% Significance Level						
579	Lilliefors Test Statistic					0.249	**Lilliefors GOF Test**						
580	5% Lilliefors Critical Value					0.119	Data Not Normal at 5% Significance Level						
581	**Data Not Normal at 5% Significance Level**												
582													
583	**Assuming Normal Distribution**												
584	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
585	95% Student's-t UCL					15665	95% Adjusted-CLT UCL (Chen-1995)					16108	
586							95% Modified-t UCL (Johnson-1978)					15739	
587													
588	**Gamma GOF Test**												
589	A-D Test Statistic					3.3	**Anderson-Darling Gamma GOF Test**						
590	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level						
591	K-S Test Statistic					0.197	**Kolmogrov-Smirnoff Gamma GOF Test**						
592	5% K-S Critical Value					0.12	Data Not Gamma Distributed at 5% Significance Level						
593	**Data Not Gamma Distributed at 5% Significance Level**												
594													
595	**Gamma Statistics**												
596	k hat (MLE)					4.158	k star (bias corrected MLE)					3.943	
597	Theta hat (MLE)					3292	Theta star (bias corrected MLE)					3471	
598	nu hat (MLE)					457.4	nu star (bias corrected)					433.7	
599	MLE Mean (bias corrected)					13686	MLE Sd (bias corrected)					6892	
600							Approximate Chi Square Value (0.05)					386.5	
601	Adjusted Level of Significance					0.0456	Adjusted Chi Square Value					385.3	
602													
603	**Assuming Gamma Distribution**												
604	95% Approximate Gamma UCL (use when n>=50))					15361	95% Adjusted Gamma UCL (use when n<50)					15408	
605													
606	**Lognormal GOF Test**												
607	Shapiro Wilk Test Statistic					0.884	**Shapiro Wilk Lognormal GOF Test**						
608	5% Shapiro Wilk P Value					1.5874E-5	Data Not Lognormal at 5% Significance Level						
609	Lilliefors Test Statistic					0.168	**Lilliefors Lognormal GOF Test**						
610	5% Lilliefors Critical Value					0.119	Data Not Lognormal at 5% Significance Level						
611	**Data Not Lognormal at 5% Significance Level**												
612													
613	**Lognormal Statistics**												
614	Minimum of Logged Data					8.643	Mean of logged Data					9.399	
615	Maximum of Logged Data					10.91	SD of logged Data					0.457	
616													
617	**Assuming Lognormal Distribution**												
618	95% H-UCL					15055	90% Chebyshev (MVUE) UCL					15964	
619	95% Chebyshev (MVUE) UCL					17133	97.5% Chebyshev (MVUE) UCL					18757	
620	99% Chebyshev (MVUE) UCL					21947							

	Nonparametric Distribution Free UCL Statistics		
	Data do not follow a Discernible Distribution (0.05)		
	Nonparametric Distribution Free UCLs		
95% CLT UCL	15631	95% Jackknife UCL	15665
95% Standard Bootstrap UCL	15598	95% Bootstrap-t UCL	16781
95% Hall's Bootstrap UCL	16657	95% Percentile Bootstrap UCL	15782
95% BCA Bootstrap UCL	16170		
90% Chebyshev(Mean, Sd) UCL	17233	95% Chebyshev(Mean, Sd) UCL	18840
97.5% Chebyshev(Mean, Sd) UCL	21070	99% Chebyshev(Mean, Sd) UCL	25451
	Suggested UCL to Use		
95% Student's-t UCL	15665	or 95% Modified-t UCL	15739

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Chromium (mg/kg)

	General Statistics		
Total Number of Observations	55	Number of Distinct Observations	55
		Number of Missing Observations	0
Minimum	33.15	Mean	58.52
Maximum	110	Median	54.8
SD	17.47	Std. Error of Mean	2.356
Coefficient of Variation	0.299	Skewness	1.212
	Normal GOF Test		
Shapiro Wilk Test Statistic	0.894	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk P Value	4.9512E-5	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.162	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.119	Data Not Normal at 5% Significance Level	
	Data Not Normal at 5% Significance Level		
	Assuming Normal Distribution		
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	62.46	95% Adjusted-CLT UCL (Chen-1995)	62.8
		95% Modified-t UCL (Johnson-1978)	62.52
	Gamma GOF Test		
A-D Test Statistic	0.852	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.75	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.123	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.12	Data Not Gamma Distributed at 5% Significance Level	
	Data Not Gamma Distributed at 5% Significance Level		
	Gamma Statistics		
k hat (MLE)	12.93	k star (bias corrected MLE)	12.23
Theta hat (MLE)	4.526	Theta star (bias corrected MLE)	4.783
nu hat (MLE)	1422	nu star (bias corrected)	1346
MLE Mean (bias corrected)	58.52	MLE Sd (bias corrected)	16.73
		Approximate Chi Square Value (0.05)	1262
Adjusted Level of Significance	0.0456	Adjusted Chi Square Value	1259
	Assuming Gamma Distribution		
95% Approximate Gamma UCL (use when n>=50))	62.42	95% Adjusted Gamma UCL (use when n<50)	62.53
	Lognormal GOF Test		

683				Shapiro Wilk Test Statistic		0.962		**Shapiro Wilk Lognormal GOF Test**					
684				5% Shapiro Wilk P Value		0.15		Data appear Lognormal at 5% Significance Level					
685				Lilliefors Test Statistic		0.107		**Lilliefors Lognormal GOF Test**					
686				5% Lilliefors Critical Value		0.119		Data appear Lognormal at 5% Significance Level					
687				**Data appear Lognormal at 5% Significance Level**									
688													
689				**Lognormal Statistics**									
690				Minimum of Logged Data		3.501		Mean of logged Data				4.03	
691				Maximum of Logged Data		4.7		SD of logged Data				0.277	
692													
693				**Assuming Lognormal Distribution**									
694				95% H-UCL		62.36		90% Chebyshev (MVUE) UCL				65.08	
695				95% Chebyshev (MVUE) UCL		68.09		97.5% Chebyshev (MVUE) UCL				72.27	
696				99% Chebyshev (MVUE) UCL		80.48							
697													
698				**Nonparametric Distribution Free UCL Statistics**									
699				**Data appear to follow a Discernible Distribution at 5% Significance Level**									
700													
701				**Nonparametric Distribution Free UCLs**									
702				95% CLT UCL		62.39		95% Jackknife UCL				62.46	
703				95% Standard Bootstrap UCL		62.38		95% Bootstrap-t UCL				63.27	
704				95% Hall's Bootstrap UCL		62.74		95% Percentile Bootstrap UCL				62.45	
705				95% BCA Bootstrap UCL		63.07							
706				90% Chebyshev(Mean, Sd) UCL		65.58		95% Chebyshev(Mean, Sd) UCL				68.78	
707				97.5% Chebyshev(Mean, Sd) UCL		73.23		99% Chebyshev(Mean, Sd) UCL				81.95	
708													
709				**Suggested UCL to Use**									
710				95% Student's-t UCL		62.46		or 95% Modified-t UCL				62.52	
711				or 95% H-UCL		62.36							
712													
713	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
714	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
715	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
716	For additional insight the user may want to consult a statistician.												
717													
718	**ProUCL computes and outputs H-statistic based UCLs for historical reasons only.**												
719	**H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.**												
720	**It is therefore recommended to avoid the use of H-statistic based 95% UCLs.**												
721	**se of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distributio**												
722													
723													
724	**Cobalt (mg/kg)**												
725													
726				**General Statistics**									
727				Total Number of Observations		55		Number of Distinct Observations				42	
728								Number of Missing Observations				0	
729				Minimum		8.16		Mean				14.45	
730				Maximum		22.3		Median				14.3	
731				SD		2.916		Std. Error of Mean				0.393	
732				Coefficient of Variation		0.202		Skewness				0.287	
733													
734				**Normal GOF Test**									
735				Shapiro Wilk Test Statistic		0.98		**Shapiro Wilk GOF Test**					
736				5% Shapiro Wilk P Value		0.697		Data appear Normal at 5% Significance Level					
737				Lilliefors Test Statistic		0.0818		**Lilliefors GOF Test**					
738				5% Lilliefors Critical Value		0.119		Data appear Normal at 5% Significance Level					
739				**Data appear Normal at 5% Significance Level**									
740													
741				**Assuming Normal Distribution**									
742				**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**					
743				95% Student's-t UCL		15.11		95% Adjusted-CLT UCL (Chen-1995)				15.11	
744								95% Modified-t UCL (Johnson-1978)				15.11	

745													
746	**Gamma GOF Test**												
747	A-D Test Statistic					0.332	**Anderson-Darling Gamma GOF Test**						
748	5% A-D Critical Value					0.748	etected data appear Gamma Distributed at 5% Significance Lev						
749	K-S Test Statistic					0.105	**Kolmogrov-Smirnoff Gamma GOF Test**						
750	5% K-S Critical Value					0.12	etected data appear Gamma Distributed at 5% Significance Lev						
751	**Detected data appear Gamma Distributed at 5% Significance Level**												
752													
753	**Gamma Statistics**												
754	k hat (MLE)					24.5	k star (bias corrected MLE)					23.18	
755	Theta hat (MLE)					0.59	Theta star (bias corrected MLE)					0.623	
756	nu hat (MLE)					2695	nu star (bias corrected)					2550	
757	MLE Mean (bias corrected)					14.45	MLE Sd (bias corrected)					3.001	
758							Approximate Chi Square Value (0.05)					2433	
759	Adjusted Level of Significance					0.0456	Adjusted Chi Square Value					2430	
760													
761	**Assuming Gamma Distribution**												
762	95% Approximate Gamma UCL (use when n>=50))					15.14	95% Adjusted Gamma UCL (use when n<50)					15.16	
763													
764	**Lognormal GOF Test**												
765	Shapiro Wilk Test Statistic					0.977	**Shapiro Wilk Lognormal GOF Test**						
766	5% Shapiro Wilk P Value					0.574	Data appear Lognormal at 5% Significance Level						
767	Lilliefors Test Statistic					0.119	**Lilliefors Lognormal GOF Test**						
768	5% Lilliefors Critical Value					0.119	Data appear Lognormal at 5% Significance Level						
769	**Data appear Lognormal at 5% Significance Level**												
770													
771	**Lognormal Statistics**												
772	Minimum of Logged Data					2.099	Mean of logged Data					2.65	
773	Maximum of Logged Data					3.105	SD of logged Data					0.207	
774													
775	**Assuming Lognormal Distribution**												
776	95% H-UCL					15.18	90% Chebyshev (MVUE) UCL					15.68	
777	95% Chebyshev (MVUE) UCL					16.23	97.5% Chebyshev (MVUE) UCL					17	
778	99% Chebyshev (MVUE) UCL					18.51							
779													
780	**Nonparametric Distribution Free UCL Statistics**												
781	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
782													
783	**Nonparametric Distribution Free UCLs**												
784	95% CLT UCL					15.1	95% Jackknife UCL					15.11	
785	95% Standard Bootstrap UCL					15.08	95% Bootstrap-t UCL					15.09	
786	95% Hall's Bootstrap UCL					15.14	95% Percentile Bootstrap UCL					15.08	
787	95% BCA Bootstrap UCL					15.09							
788	90% Chebyshev(Mean, Sd) UCL					15.63	95% Chebyshev(Mean, Sd) UCL					16.16	
789	97.5% Chebyshev(Mean, Sd) UCL					16.9	99% Chebyshev(Mean, Sd) UCL					18.36	
790													
791	**Suggested UCL to Use**												
792	95% Student's-t UCL					15.11							
793													
794	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
795	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
796	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
797	For additional insight the user may want to consult a statistician.												
798													
799													
800	**Copper (mg/kg)**												
801													
802	**General Statistics**												
803	Total Number of Observations					55	Number of Distinct Observations					54	
804							Number of Missing Observations					0	
805	Minimum					25.5	Mean					77.99	
806	Maximum					181	Median					74.5	

807					SD	32.8					Std. Error of Mean	4.423	
808					Coefficient of Variation	0.421					Skewness	1.176	
809													
810	**Normal GOF Test**												
811					Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk GOF Test**						
812					5% Shapiro Wilk P Value	3.1946E-4	Data Not Normal at 5% Significance Level						
813					Lilliefors Test Statistic	0.152	**Lilliefors GOF Test**						
814					5% Lilliefors Critical Value	0.119	Data Not Normal at 5% Significance Level						
815	**Data Not Normal at 5% Significance Level**												
816													
817	**Assuming Normal Distribution**												
818	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
819					95% Student's-t UCL	85.39	95% Adjusted-CLT UCL (Chen-1995)	86.01					
820							95% Modified-t UCL (Johnson-1978)	85.51					
821													
822	**Gamma GOF Test**												
823					A-D Test Statistic	0.547	**Anderson-Darling Gamma GOF Test**						
824					5% A-D Critical Value	0.753	etected data appear Gamma Distributed at 5% Significance Lev						
825					K-S Test Statistic	0.112	**Kolmogrov-Smirnoff Gamma GOF Test**						
826					5% K-S Critical Value	0.12	etected data appear Gamma Distributed at 5% Significance Lev						
827	**Detected data appear Gamma Distributed at 5% Significance Level**												
828													
829	**Gamma Statistics**												
830					k hat (MLE)	6.151	k star (bias corrected MLE)	5.827					
831					Theta hat (MLE)	12.68	Theta star (bias corrected MLE)	13.38					
832					nu hat (MLE)	676.6	nu star (bias corrected)	641					
833					MLE Mean (bias corrected)	77.99	MLE Sd (bias corrected)	32.31					
834							Approximate Chi Square Value (0.05)	583.3					
835					Adjusted Level of Significance	0.0456	Adjusted Chi Square Value	581.8					
836													
837	**Assuming Gamma Distribution**												
838	95% Approximate Gamma UCL (use when n>=50)					85.71	95% Adjusted Gamma UCL (use when n<50)	85.93					
839													
840	**Lognormal GOF Test**												
841					Shapiro Wilk Test Statistic	0.967	**Shapiro Wilk Lognormal GOF Test**						
842					5% Shapiro Wilk P Value	0.256	Data appear Lognormal at 5% Significance Level						
843					Lilliefors Test Statistic	0.121	**Lilliefors Lognormal GOF Test**						
844					5% Lilliefors Critical Value	0.119	Data Not Lognormal at 5% Significance Level						
845	**Data appear Approximate Lognormal at 5% Significance Level**												
846													
847	**Lognormal Statistics**												
848					Minimum of Logged Data	3.239	Mean of logged Data	4.273					
849					Maximum of Logged Data	5.198	SD of logged Data	0.419					
850													
851	**Assuming Lognormal Distribution**												
852					95% H-UCL	86.94	90% Chebyshev (MVUE) UCL	91.9					
853					95% Chebyshev (MVUE) UCL	98.12	97.5% Chebyshev (MVUE) UCL	106.7					
854					99% Chebyshev (MVUE) UCL	123.7							
855													
856	**Nonparametric Distribution Free UCL Statistics**												
857	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
858													
859	**Nonparametric Distribution Free UCLs**												
860					95% CLT UCL	85.26	95% Jackknife UCL	85.39					
861					95% Standard Bootstrap UCL	85.32	95% Bootstrap-t UCL	86.13					
862					95% Hall's Bootstrap UCL	86.38	95% Percentile Bootstrap UCL	85.2					
863					95% BCA Bootstrap UCL	85.98							
864					90% Chebyshev(Mean, Sd) UCL	91.26	95% Chebyshev(Mean, Sd) UCL	97.27					
865					97.5% Chebyshev(Mean, Sd) UCL	105.6	99% Chebyshev(Mean, Sd) UCL	122					
866													
867	**Suggested UCL to Use**												
868					95% Approximate Gamma UCL	85.71							

869													
870	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
871	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
872	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
873	For additional insight the user may want to consult a statistician.												
874													
875													
876	**Iron (mg/kg)**												
877													
878	**General Statistics**												
879	Total Number of Observations					55	Number of Distinct Observations					52	
880							Number of Missing Observations					0	
881	Minimum					17050	Mean					30996	
882	Maximum					43900	Median					32800	
883	SD					6060	Std. Error of Mean					817.1	
884	Coefficient of Variation					0.195	Skewness					-0.473	
885													
886	**Normal GOF Test**												
887	Shapiro Wilk Test Statistic					0.948	**Shapiro Wilk GOF Test**						
888	5% Shapiro Wilk P Value					0.032	Data Not Normal at 5% Significance Level						
889	Lilliefors Test Statistic					0.14	**Lilliefors GOF Test**						
890	5% Lilliefors Critical Value					0.119	Data Not Normal at 5% Significance Level						
891	**Data Not Normal at 5% Significance Level**												
892													
893	**Assuming Normal Distribution**												
894	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
895	95% Student's-t UCL					32364	95% Adjusted-CLT UCL (Chen-1995)					32285	
896							95% Modified-t UCL (Johnson-1978)					32355	
897													
898	**Gamma GOF Test**												
899	A-D Test Statistic					1.63	**Anderson-Darling Gamma GOF Test**						
900	5% A-D Critical Value					0.748	Data Not Gamma Distributed at 5% Significance Level						
901	K-S Test Statistic					0.165	**Kolmogrov-Smirnoff Gamma GOF Test**						
902	5% K-S Critical Value					0.12	Data Not Gamma Distributed at 5% Significance Level						
903	**Data Not Gamma Distributed at 5% Significance Level**												
904													
905	**Gamma Statistics**												
906	k hat (MLE)					24.04	k star (bias corrected MLE)					22.74	
907	Theta hat (MLE)					1289	Theta star (bias corrected MLE)					1363	
908	nu hat (MLE)					2644	nu star (bias corrected)					2502	
909	MLE Mean (bias corrected)					30996	MLE Sd (bias corrected)					6500	
910							Approximate Chi Square Value (0.05)					2386	
911	Adjusted Level of Significance					0.0456	Adjusted Chi Square Value					2383	
912													
913	**Assuming Gamma Distribution**												
914	95% Approximate Gamma UCL (use when n>=50))					32493	95% Adjusted Gamma UCL (use when n<50)					32534	
915													
916	**Lognormal GOF Test**												
917	Shapiro Wilk Test Statistic					0.915	**Shapiro Wilk Lognormal GOF Test**						
918	5% Shapiro Wilk P Value					6.1230E-4	Data Not Lognormal at 5% Significance Level						
919	Lilliefors Test Statistic					0.175	**Lilliefors Lognormal GOF Test**						
920	5% Lilliefors Critical Value					0.119	Data Not Lognormal at 5% Significance Level						
921	**Data Not Lognormal at 5% Significance Level**												
922													
923	**Lognormal Statistics**												
924	Minimum of Logged Data					9.744	Mean of logged Data					10.32	
925	Maximum of Logged Data					10.69	SD of logged Data					0.213	
926													
927	**Assuming Lognormal Distribution**												
928	95% H-UCL					32637	90% Chebyshev (MVUE) UCL					33735	
929	95% Chebyshev (MVUE) UCL					34957	97.5% Chebyshev (MVUE) UCL					36654	
930	99% Chebyshev (MVUE) UCL					39986							

931													
932	**Nonparametric Distribution Free UCL Statistics**												
933	**Data do not follow a Discernible Distribution (0.05)**												
934													
935	**Nonparametric Distribution Free UCLs**												
936	95% CLT UCL	32340				95% Jackknife UCL	32364						
937	95% Standard Bootstrap UCL	32350				95% Bootstrap-t UCL	32335						
938	95% Hall's Bootstrap UCL	32399				95% Percentile Bootstrap UCL	32322						
939	95% BCA Bootstrap UCL	32268											
940	90% Chebyshev(Mean, Sd) UCL	33448				95% Chebyshev(Mean, Sd) UCL	34558						
941	97.5% Chebyshev(Mean, Sd) UCL	36099				99% Chebyshev(Mean, Sd) UCL	39126						
942													
943	**Suggested UCL to Use**												
944	95% Student's-t UCL	32364				or 95% Modified-t UCL	32355						
945													
946	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
947	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
948	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
949	For additional insight the user may want to consult a statistician.												
950													
951	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**												
952	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**												
953													
954													
955	**Lead (mg/kg)**												
956													
957	**General Statistics**												
958	Total Number of Observations	55				Number of Distinct Observations	52						
959						Number of Missing Observations	0						
960	Minimum	3.15				Mean	6.701						
961	Maximum	81				Median	4.48						
962	SD	10.49				Std. Error of Mean	1.414						
963	Coefficient of Variation	1.565				Skewness	6.844						
964													
965	**Normal GOF Test**												
966	Shapiro Wilk Test Statistic	0.285				**Shapiro Wilk GOF Test**							
967	5% Shapiro Wilk P Value	0				Data Not Normal at 5% Significance Level							
968	Lilliefors Test Statistic	0.367				**Lilliefors GOF Test**							
969	5% Lilliefors Critical Value	0.119				Data Not Normal at 5% Significance Level							
970	**Data Not Normal at 5% Significance Level**												
971													
972	**Assuming Normal Distribution**												
973	**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**							
974	95% Student's-t UCL	9.067				95% Adjusted-CLT UCL (Chen-1995)	10.42						
975						95% Modified-t UCL (Johnson-1978)	9.285						
976													
977	**Gamma GOF Test**												
978	A-D Test Statistic	6.827				**Anderson-Darling Gamma GOF Test**							
979	5% A-D Critical Value	0.762				Data Not Gamma Distributed at 5% Significance Level							
980	K-S Test Statistic	0.266				**Kolmogrov-Smirnoff Gamma GOF Test**							
981	5% K-S Critical Value	0.121				Data Not Gamma Distributed at 5% Significance Level							
982	**Data Not Gamma Distributed at 5% Significance Level**												
983													
984	**Gamma Statistics**												
985	k hat (MLE)	2.147				k star (bias corrected MLE)	2.042						
986	Theta hat (MLE)	3.122				Theta star (bias corrected MLE)	3.282						
987	nu hat (MLE)	236.1				nu star (bias corrected)	224.6						
988	MLE Mean (bias corrected)	6.701				MLE Sd (bias corrected)	4.69						
989						Approximate Chi Square Value (0.05)	190.9						
990	Adjusted Level of Significance	0.0456				Adjusted Chi Square Value	190.1						
991													
992	**Assuming Gamma Distribution**												

993	95% Approximate Gamma UCL (use when n>=50))					7.884	95% Adjusted Gamma UCL (use when n<50)					7.918	
994													
995	**Lognormal GOF Test**												
996	Shapiro Wilk Test Statistic					0.727	**Shapiro Wilk Lognormal GOF Test**						
997	5% Shapiro Wilk P Value					6.095E-13	Data Not Lognormal at 5% Significance Level						
998	Lilliefors Test Statistic					0.188	**Lilliefors Lognormal GOF Test**						
999	5% Lilliefors Critical Value					0.119	Data Not Lognormal at 5% Significance Level						
1000	**Data Not Lognormal at 5% Significance Level**												
1001													
1002	**Lognormal Statistics**												
1003	Minimum of Logged Data					1.147	Mean of logged Data					1.652	
1004	Maximum of Logged Data					4.394	SD of logged Data					0.515	
1005													
1006	**Assuming Lognormal Distribution**												
1007	95% H-UCL					6.799	90% Chebyshev (MVUE) UCL					7.243	
1008	95% Chebyshev (MVUE) UCL					7.833	97.5% Chebyshev (MVUE) UCL					8.653	
1009	99% Chebyshev (MVUE) UCL					10.26							
1010													
1011	**Nonparametric Distribution Free UCL Statistics**												
1012	**Data do not follow a Discernible Distribution (0.05)**												
1013													
1014	**Nonparametric Distribution Free UCLs**												
1015	95% CLT UCL					9.027	95% Jackknife UCL					9.067	
1016	95% Standard Bootstrap UCL					9.026	95% Bootstrap-t UCL					16.57	
1017	95% Hall's Bootstrap UCL					17.49	95% Percentile Bootstrap UCL					9.324	
1018	95% BCA Bootstrap UCL					11.06							
1019	90% Chebyshev(Mean, Sd) UCL					10.94	95% Chebyshev(Mean, Sd) UCL					12.86	
1020	97.5% Chebyshev(Mean, Sd) UCL					15.53	99% Chebyshev(Mean, Sd) UCL					20.77	
1021													
1022	**Suggested UCL to Use**												
1023	95% Chebyshev (Mean, Sd) UCL					12.86							
1024													
1025	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1026	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1027	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1028	For additional insight the user may want to consult a statistician.												
1029													
1030													
1031	**Lithium (mg/kg)**												
1032													
1033	**General Statistics**												
1034	Total Number of Observations					48	Number of Distinct Observations					37	
1035							Number of Missing Observations					7	
1036	Minimum					6.5	Mean					9.366	
1037	Maximum					20.5	Median					9	
1038	SD					2.169	Std. Error of Mean					0.313	
1039	Coefficient of Variation					0.232	Skewness					2.992	
1040													
1041	**Normal GOF Test**												
1042	Shapiro Wilk Test Statistic					0.773	**Shapiro Wilk GOF Test**						
1043	5% Shapiro Wilk Critical Value					0.947	Data Not Normal at 5% Significance Level						
1044	Lilliefors Test Statistic					0.147	**Lilliefors GOF Test**						
1045	5% Lilliefors Critical Value					0.128	Data Not Normal at 5% Significance Level						
1046	**Data Not Normal at 5% Significance Level**												
1047													
1048	**Assuming Normal Distribution**												
1049	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
1050	95% Student's-t UCL					9.891	95% Adjusted-CLT UCL (Chen-1995)					10.03	
1051							95% Modified-t UCL (Johnson-1978)					9.914	
1052													
1053	**Gamma GOF Test**												
1054	A-D Test Statistic					0.941	**Anderson-Darling Gamma GOF Test**						

1055					5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level						
1056					K-S Test Statistic	0.105	**Kolmogrov-Smirnoff Gamma GOF Test**						
1057					5% K-S Critical Value	0.128	etected data appear Gamma Distributed at 5% Significance Lev						
1058	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**												
1059													
1060	**Gamma Statistics**												
1061					k hat (MLE)	24.7	k star (bias corrected MLE)					23.17	
1062					Theta hat (MLE)	0.379	Theta star (bias corrected MLE)					0.404	
1063					nu hat (MLE)	2372	nu star (bias corrected)					2225	
1064					MLE Mean (bias corrected)	9.366	MLE Sd (bias corrected)					1.946	
1065							Approximate Chi Square Value (0.05)					2116	
1066					Adjusted Level of Significance	0.045	Adjusted Chi Square Value					2113	
1067													
1068	**Assuming Gamma Distribution**												
1069	95% Approximate Gamma UCL (use when n>=50)					9.846	95% Adjusted Gamma UCL (use when n<50)					9.861	
1070													
1071	**Lognormal GOF Test**												
1072					Shapiro Wilk Test Statistic	0.917	**Shapiro Wilk Lognormal GOF Test**						
1073					5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level						
1074					Lilliefors Test Statistic	0.0903	**Lilliefors Lognormal GOF Test**						
1075					5% Lilliefors Critical Value	0.128	Data appear Lognormal at 5% Significance Level						
1076	**Data appear Approximate Lognormal at 5% Significance Level**												
1077													
1078	**Lognormal Statistics**												
1079					Minimum of Logged Data	1.872	Mean of logged Data					2.217	
1080					Maximum of Logged Data	3.02	SD of logged Data					0.194	
1081													
1082	**Assuming Lognormal Distribution**												
1083					95% H-UCL	9.837	90% Chebyshev (MVUE) UCL					10.14	
1084					95% Chebyshev (MVUE) UCL	10.5	97.5% Chebyshev (MVUE) UCL					10.99	
1085					99% Chebyshev (MVUE) UCL	11.97							
1086													
1087	**Nonparametric Distribution Free UCL Statistics**												
1088	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
1089													
1090	**Nonparametric Distribution Free UCLs**												
1091					95% CLT UCL	9.881	95% Jackknife UCL					9.891	
1092					95% Standard Bootstrap UCL	9.885	95% Bootstrap-t UCL					10.07	
1093					95% Hall's Bootstrap UCL	11.03	95% Percentile Bootstrap UCL					9.934	
1094					95% BCA Bootstrap UCL	10.01							
1095					90% Chebyshev(Mean, Sd) UCL	10.31	95% Chebyshev(Mean, Sd) UCL					10.73	
1096					97.5% Chebyshev(Mean, Sd) UCL	11.32	99% Chebyshev(Mean, Sd) UCL					12.48	
1097													
1098	**Suggested UCL to Use**												
1099					95% Adjusted Gamma UCL	9.861							
1100													
1101	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1102	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1103	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1104	For additional insight the user may want to consult a statistician.												
1105													
1106													
1107	**Magnesium (mg/kg)**												
1108													
1109	**General Statistics**												
1110					Total Number of Observations	55	Number of Distinct Observations					50	
1111							Number of Missing Observations					0	
1112					Minimum	7070	Mean					11519	
1113					Maximum	41400	Median					9940	
1114					SD	5750	Std. Error of Mean					775.3	
1115					Coefficient of Variation	0.499	Skewness					3.612	
1116													

1117	**Normal GOF Test**												
1118				Shapiro Wilk Test Statistic		0.595	**Shapiro Wilk GOF Test**						
1119				5% Shapiro Wilk P Value		0	Data Not Normal at 5% Significance Level						
1120				Lilliefors Test Statistic		0.256	**Lilliefors GOF Test**						
1121				5% Lilliefors Critical Value		0.119	Data Not Normal at 5% Significance Level						
1122	**Data Not Normal at 5% Significance Level**												
1123													
1124	**Assuming Normal Distribution**												
1125				**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**				
1126				95% Student's-t UCL		12816			95% Adjusted-CLT UCL (Chen-1995)			13198	
1127									95% Modified-t UCL (Johnson-1978)			12879	
1128													
1129	**Gamma GOF Test**												
1130				A-D Test Statistic		4.324	**Anderson-Darling Gamma GOF Test**						
1131				5% A-D Critical Value		0.752	Data Not Gamma Distributed at 5% Significance Level						
1132				K-S Test Statistic		0.231	**Kolmogrov-Smirnoff Gamma GOF Test**						
1133				5% K-S Critical Value		0.12	Data Not Gamma Distributed at 5% Significance Level						
1134	**Data Not Gamma Distributed at 5% Significance Level**												
1135													
1136	**Gamma Statistics**												
1137				k hat (MLE)		7.318			k star (bias corrected MLE)			6.931	
1138				Theta hat (MLE)		1574			Theta star (bias corrected MLE)			1662	
1139				nu hat (MLE)		805			nu star (bias corrected)			762.4	
1140				MLE Mean (bias corrected)		11519			MLE Sd (bias corrected)			4375	
1141									Approximate Chi Square Value (0.05)			699.4	
1142				Adjusted Level of Significance		0.0456			Adjusted Chi Square Value			697.8	
1143													
1144	**Assuming Gamma Distribution**												
1145				95% Approximate Gamma UCL (use when n>=50))		12558			95% Adjusted Gamma UCL (use when n<50)			12587	
1146													
1147	**Lognormal GOF Test**												
1148				Shapiro Wilk Test Statistic		0.807	**Shapiro Wilk Lognormal GOF Test**						
1149				5% Shapiro Wilk P Value		2.4623E-9	Data Not Lognormal at 5% Significance Level						
1150				Lilliefors Test Statistic		0.211	**Lilliefors Lognormal GOF Test**						
1151				5% Lilliefors Critical Value		0.119	Data Not Lognormal at 5% Significance Level						
1152	**Data Not Lognormal at 5% Significance Level**												
1153													
1154	**Lognormal Statistics**												
1155				Minimum of Logged Data		8.864			Mean of logged Data			9.282	
1156				Maximum of Logged Data		10.63			SD of logged Data			0.334	
1157													
1158	**Assuming Lognormal Distribution**												
1159				95% H-UCL		12285			90% Chebyshev (MVUE) UCL			12915	
1160				95% Chebyshev (MVUE) UCL		13626			97.5% Chebyshev (MVUE) UCL			14612	
1161				99% Chebyshev (MVUE) UCL		16550							
1162													
1163	**Nonparametric Distribution Free UCL Statistics**												
1164	**Data do not follow a Discernible Distribution (0.05)**												
1165													
1166	**Nonparametric Distribution Free UCLs**												
1167				95% CLT UCL		12794			95% Jackknife UCL			12816	
1168				95% Standard Bootstrap UCL		12752			95% Bootstrap-t UCL			13706	
1169				95% Hall's Bootstrap UCL		18113			95% Percentile Bootstrap UCL			12906	
1170				95% BCA Bootstrap UCL		13419							
1171				90% Chebyshev(Mean, Sd) UCL		13845			95% Chebyshev(Mean, Sd) UCL			14898	
1172				97.5% Chebyshev(Mean, Sd) UCL		16361			99% Chebyshev(Mean, Sd) UCL			19233	
1173													
1174	**Suggested UCL to Use**												
1175				95% Student's-t UCL		12816			or 95% Modified-t UCL			12879	
1176													
1177	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1178	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												

	A	B	C	D	E	F	G	H	I	J	K	L	M
1179	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1180	For additional insight the user may want to consult a statistician.												
1181													
1182													
1183	**Manganese (mg/kg)**												
1184													
1185	**General Statistics**												
1186	Total Number of Observations					55	Number of Distinct Observations					52	
1187							Number of Missing Observations					0	
1188	Minimum					357.5	Mean					715.9	
1189	Maximum					1160	Median					715	
1190	SD					162.4	Std. Error of Mean					21.9	
1191	Coefficient of Variation					0.227	Skewness					0.0116	
1192													
1193	**Normal GOF Test**												
1194	Shapiro Wilk Test Statistic					0.976	**Shapiro Wilk GOF Test**						
1195	5% Shapiro Wilk P Value					0.55	Data appear Normal at 5% Significance Level						
1196	Lilliefors Test Statistic					0.104	**Lilliefors GOF Test**						
1197	5% Lilliefors Critical Value					0.119	Data appear Normal at 5% Significance Level						
1198	**Data appear Normal at 5% Significance Level**												
1199													
1200	**Assuming Normal Distribution**												
1201	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
1202	95% Student's-t UCL					752.5	95% Adjusted-CLT UCL (Chen-1995)					751.9	
1203							95% Modified-t UCL (Johnson-1978)					752.5	
1204													
1205	**Gamma GOF Test**												
1206	A-D Test Statistic					0.876	**Anderson-Darling Gamma GOF Test**						
1207	5% A-D Critical Value					0.749	Data Not Gamma Distributed at 5% Significance Level						
1208	K-S Test Statistic					0.131	**Kolmogrov-Smirnoff Gamma GOF Test**						
1209	5% K-S Critical Value					0.12	Data Not Gamma Distributed at 5% Significance Level						
1210	**Data Not Gamma Distributed at 5% Significance Level**												
1211													
1212	**Gamma Statistics**												
1213	k hat (MLE)					18.42	k star (bias corrected MLE)					17.43	
1214	Theta hat (MLE)					38.87	Theta star (bias corrected MLE)					41.08	
1215	nu hat (MLE)					2026	nu star (bias corrected)					1917	
1216	MLE Mean (bias corrected)					715.9	MLE Sd (bias corrected)					171.5	
1217							Approximate Chi Square Value (0.05)					1816	
1218	Adjusted Level of Significance					0.0456	Adjusted Chi Square Value					1813	
1219													
1220	**Assuming Gamma Distribution**												
1221	95% Approximate Gamma UCL (use when n>=50))					755.5	95% Adjusted Gamma UCL (use when n<50)					756.6	
1222													
1223	**Lognormal GOF Test**												
1224	Shapiro Wilk Test Statistic					0.948	**Shapiro Wilk Lognormal GOF Test**						
1225	5% Shapiro Wilk P Value					0.0321	Data Not Lognormal at 5% Significance Level						
1226	Lilliefors Test Statistic					0.148	**Lilliefors Lognormal GOF Test**						
1227	5% Lilliefors Critical Value					0.119	Data Not Lognormal at 5% Significance Level						
1228	**Data Not Lognormal at 5% Significance Level**												
1229													
1230	**Lognormal Statistics**												
1231	Minimum of Logged Data					5.879	Mean of logged Data					6.546	
1232	Maximum of Logged Data					7.056	SD of logged Data					0.243	
1233													
1234	**Assuming Lognormal Distribution**												
1235	95% H-UCL					759.2	90% Chebyshev (MVUE) UCL					788.2	
1236	95% Chebyshev (MVUE) UCL					820.5	97.5% Chebyshev (MVUE) UCL					865.3	
1237	99% Chebyshev (MVUE) UCL					953.3							
1238													
1239	**Nonparametric Distribution Free UCL Statistics**												
1240	**Data appear to follow a Discernible Distribution at 5% Significance Level**												

1241													
1242	**Nonparametric Distribution Free UCLs**												
1243	95% CLT UCL					751.9	95% Jackknife UCL					752.5	
1244	95% Standard Bootstrap UCL					751.9	95% Bootstrap-t UCL					752.5	
1245	95% Hall's Bootstrap UCL					753	95% Percentile Bootstrap UCL					750.8	
1246	95% BCA Bootstrap UCL					749.6							
1247	90% Chebyshev(Mean, Sd) UCL					781.6	95% Chebyshev(Mean, Sd) UCL					811.3	
1248	97.5% Chebyshev(Mean, Sd) UCL					852.6	99% Chebyshev(Mean, Sd) UCL					933.7	
1249													
1250	**Suggested UCL to Use**												
1251	95% Student's-t UCL					752.5							
1252													
1253	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1254	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1255	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1256	For additional insight the user may want to consult a statistician.												
1257													
1258													
1259	**Mercury (mg/kg)**												
1260													
1261	**General Statistics**												
1262	Total Number of Observations					55	Number of Distinct Observations					52	
1263							Number of Missing Observations					0	
1264	Minimum					0.0095	Mean					0.0416	
1265	Maximum					0.163	Median					0.0349	
1266	SD					0.0226	Std. Error of Mean					0.00305	
1267	Coefficient of Variation					0.544	Skewness					3.21	
1268													
1269	**Normal GOF Test**												
1270	Shapiro Wilk Test Statistic					0.724	**Shapiro Wilk GOF Test**						
1271	5% Shapiro Wilk P Value					4.582E-13	Data Not Normal at 5% Significance Level						
1272	Lilliefors Test Statistic					0.187	**Lilliefors GOF Test**						
1273	5% Lilliefors Critical Value					0.119	Data Not Normal at 5% Significance Level						
1274	**Data Not Normal at 5% Significance Level**												
1275													
1276	**Assuming Normal Distribution**												
1277	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
1278	95% Student's-t UCL					0.0467	95% Adjusted-CLT UCL (Chen-1995)					0.0481	
1279							95% Modified-t UCL (Johnson-1978)					0.0469	
1280													
1281	**Gamma GOF Test**												
1282	A-D Test Statistic					1.862	**Anderson-Darling Gamma GOF Test**						
1283	5% A-D Critical Value					0.753	Data Not Gamma Distributed at 5% Significance Level						
1284	K-S Test Statistic					0.139	**Kolmogrov-Smirnoff Gamma GOF Test**						
1285	5% K-S Critical Value					0.12	Data Not Gamma Distributed at 5% Significance Level						
1286	**Data Not Gamma Distributed at 5% Significance Level**												
1287													
1288	**Gamma Statistics**												
1289	k hat (MLE)					5.251	k star (bias corrected MLE)					4.977	
1290	Theta hat (MLE)					0.00793	Theta star (bias corrected MLE)					0.00836	
1291	nu hat (MLE)					577.6	nu star (bias corrected)					547.5	
1292	MLE Mean (bias corrected)					0.0416	MLE Sd (bias corrected)					0.0187	
1293							Approximate Chi Square Value (0.05)					494.2	
1294	Adjusted Level of Significance					0.0456	Adjusted Chi Square Value					492.8	
1295													
1296	**Assuming Gamma Distribution**												
1297	95% Approximate Gamma UCL (use when n>=50))					0.0461	95% Adjusted Gamma UCL (use when n<50)					0.0462	
1298													
1299	**Lognormal GOF Test**												
1300	Shapiro Wilk Test Statistic					0.943	**Shapiro Wilk Lognormal GOF Test**						
1301	5% Shapiro Wilk P Value					0.0178	Data Not Lognormal at 5% Significance Level						
1302	Lilliefors Test Statistic					0.115	**Lilliefors Lognormal GOF Test**						

1303					5% Lilliefors Critical Value	0.119	Data appear Lognormal at 5% Significance Level						
1304	**Data appear Approximate Lognormal at 5% Significance Level**												
1305													
1306	**Lognormal Statistics**												
1307					Minimum of Logged Data	-4.656				Mean of logged Data		-3.277	
1308					Maximum of Logged Data	-1.814				SD of logged Data		0.426	
1309													
1310	**Assuming Lognormal Distribution**												
1311					95% H-UCL	0.046				90% Chebyshev (MVUE) UCL		0.0486	
1312					95% Chebyshev (MVUE) UCL	0.052				97.5% Chebyshev (MVUE) UCL		0.0566	
1313					99% Chebyshev (MVUE) UCL	0.0657							
1314													
1315	**Nonparametric Distribution Free UCL Statistics**												
1316	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
1317													
1318	**Nonparametric Distribution Free UCLs**												
1319					95% CLT UCL	0.0466				95% Jackknife UCL		0.0467	
1320					95% Standard Bootstrap UCL	0.0466				95% Bootstrap-t UCL		0.0489	
1321					95% Hall's Bootstrap UCL	0.0536				95% Percentile Bootstrap UCL		0.0471	
1322					95% BCA Bootstrap UCL	0.0485							
1323					90% Chebyshev(Mean, Sd) UCL	0.0508				95% Chebyshev(Mean, Sd) UCL		0.0549	
1324					97.5% Chebyshev(Mean, Sd) UCL	0.0607				99% Chebyshev(Mean, Sd) UCL		0.072	
1325													
1326	**Suggested UCL to Use**												
1327					95% Student's-t UCL	0.0467				or 95% Modified-t UCL		0.0469	
1328													
1329	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1330	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1331	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1332	For additional insight the user may want to consult a statistician.												
1333													
1334	**Molybdenum (mg/kg)**												
1335													
1336	**General Statistics**												
1337					Total Number of Observations	55				Number of Distinct Observations		50	
1338					Number of Detects	54				Number of Non-Detects		1	
1339					Number of Distinct Detects	49				Number of Distinct Non-Detects		1	
1340					Minimum Detect	0.5				Minimum Non-Detect		0.05	
1341					Maximum Detect	2.38				Maximum Non-Detect		0.05	
1342					Variance Detects	0.173				Percent Non-Detects		1.818%	
1343					Mean Detects	1.08				SD Detects		0.416	
1344					Median Detects	1.06				CV Detects		0.385	
1345					Skewness Detects	0.805				Kurtosis Detects		0.679	
1346					Mean of Logged Detects	0.00561				SD of Logged Detects		0.383	
1347													
1348	**Normal GOF Test on Detects Only**												
1349					Shapiro Wilk Test Statistic	0.932	**Normal GOF Test on Detected Observations Only**						
1350					5% Shapiro Wilk P Value	0.00562	Detected Data Not Normal at 5% Significance Level						
1351					Lilliefors Test Statistic	0.12	**Lilliefors GOF Test**						
1352					5% Lilliefors Critical Value	0.121	Detected Data appear Normal at 5% Significance Level						
1353	**Detected Data appear Approximate Normal at 5% Significance Level**												
1354													
1355	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**												
1356					Mean	1.061				Standard Error of Mean		0.0587	
1357					SD	0.431				95% KM (BCA) UCL		1.15	
1358					95% KM (t) UCL	1.159				95% KM (Percentile Bootstrap) UCL		1.161	
1359					95% KM (z) UCL	1.158				95% KM Bootstrap t UCL		1.161	
1360					90% KM Chebyshev UCL	1.237				95% KM Chebyshev UCL		1.317	
1361					97.5% KM Chebyshev UCL	1.428				99% KM Chebyshev UCL		1.645	
1362													
1363	**Gamma GOF Tests on Detected Observations Only**												
1364					A-D Test Statistic	0.638	**Anderson-Darling GOF Test**						

1365				5% A-D Critical Value	0.752	etected data appear Gamma Distributed at 5% Significance Lev							
1366				K-S Test Statistic	0.109	**Kolmogrov-Smirnoff GOF**							
1367				5% K-S Critical Value	0.121	etected data appear Gamma Distributed at 5% Significance Lev							
1368	**Detected data appear Gamma Distributed at 5% Significance Level**												
1369													
1370	**Gamma Statistics on Detected Data Only**												
1371				k hat (MLE)	7.17	k star (bias corrected MLE)					6.784		
1372				Theta hat (MLE)	0.151	Theta star (bias corrected MLE)					0.159		
1373				nu hat (MLE)	774.3	nu star (bias corrected)					732.7		
1374				MLE Mean (bias corrected)	1.08	MLE Sd (bias corrected)					0.415		
1375													
1376	**Gamma Kaplan-Meier (KM) Statistics**												
1377				k hat (KM)	6.065	nu hat (KM)					667.1		
1378			Approximate Chi Square Value (667.14, α)		608.2	Adjusted Chi Square Value (667.14, β)					606.7		
1379	5% Gamma Approximate KM-UCL (use when n>=50)				1.164	95% Gamma Adjusted KM-UCL (use when n<50)					1.167		
1380													
1381	**Gamma ROS Statistics using Imputed Non-Detects**												
1382	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
1383	GROS may not be used when kstar of detected data is small such as < 0.1												
1384	For such situations, GROS method tends to yield inflated values of UCLs and BTVs												
1385	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
1386				Minimum	0.272	Mean					1.065		
1387				Maximum	2.38	Median					1.02		
1388				SD	0.426	CV					0.4		
1389				k hat (MLE)	6.303	k star (bias corrected MLE)					5.972		
1390				Theta hat (MLE)	0.169	Theta star (bias corrected MLE)					0.178		
1391				nu hat (MLE)	693.4	nu star (bias corrected)					656.9		
1392				MLE Mean (bias corrected)	1.065	MLE Sd (bias corrected)					0.436		
1393						Adjusted Level of Significance (β)					0.0456		
1394			Approximate Chi Square Value (656.88, α)		598.4	Adjusted Chi Square Value (656.88, β)					596.9		
1395	95% Gamma Approximate UCL (use when n>=50)				1.169	95% Gamma Adjusted UCL (use when n<50)					1.172		
1396													
1397	**Lognormal GOF Test on Detected Observations Only**												
1398				Lilliefors Test Statistic	0.111	**Lilliefors GOF Test**							
1399				5% Lilliefors Critical Value	0.121	Detected Data appear Lognormal at 5% Significance Level							
1400	**Detected Data appear Lognormal at 5% Significance Level**												
1401													
1402	**Lognormal ROS Statistics Using Imputed Non-Detects**												
1403				Mean in Original Scale	1.067	Mean in Log Scale					-0.0126		
1404				SD in Original Scale	0.423	SD in Log Scale					0.403		
1405			95% t UCL (assumes normality of ROS data)		1.163	95% Percentile Bootstrap UCL					1.159		
1406				95% BCA Bootstrap UCL	1.166	95% Bootstrap t UCL					1.171		
1407				95% H-UCL (Log ROS)	1.183								
1408													
1409	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**												
1410				KM Mean (logged)	-0.049	95% H-UCL (KM -Log)					1.278		
1411				KM SD (logged)	0.55	95% Critical H Value (KM-Log)					1.916		
1412				KM Standard Error of Mean (logged)	0.0748								
1413													
1414	**DL/2 Statistics**												
1415	**DL/2 Normal**					**DL/2 Log-Transformed**							
1416				Mean in Original Scale	1.061	Mean in Log Scale					-0.0616		
1417				SD in Original Scale	0.436	SD in Log Scale					0.626		
1418				95% t UCL (Assumes normality)	1.159	95% H-Stat UCL					1.353		
1419	**DL/2 is not a recommended method, provided for comparisons and historical reasons**												
1420													
1421	**Nonparametric Distribution Free UCL Statistics**												
1422	**Detected Data appear Approximate Normal Distributed at 5% Significance Level**												
1423													
1424	**Suggested UCL to Use**												
1425				95% KM (t) UCL	1.159	95% KM (Percentile Bootstrap) UCL					1.161		
1426													

1427	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1428	Recommendations are based upon data size, data distribution, and skewness.												
1429	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
1430	owever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticia												
1431													
1432													
1433	**Nickel (mg/kg)**												
1434													
1435	**General Statistics**												
1436					Total Number of Observations	55			Number of Distinct Observations	52			
1437									Number of Missing Observations	0			
1438					Minimum	23.5			Mean	49.56			
1439					Maximum	151			Median	42			
1440					SD	24.94			Std. Error of Mean	3.363			
1441					Coefficient of Variation	0.503			Skewness	2.042			
1442													
1443	**Normal GOF Test**												
1444					Shapiro Wilk Test Statistic	0.795			**Shapiro Wilk GOF Test**				
1445					5% Shapiro Wilk P Value	6.452E-10			Data Not Normal at 5% Significance Level				
1446					Lilliefors Test Statistic	0.212			**Lilliefors GOF Test**				
1447					5% Lilliefors Critical Value	0.119			Data Not Normal at 5% Significance Level				
1448	**Data Not Normal at 5% Significance Level**												
1449													
1450	**Assuming Normal Distribution**												
1451					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**				
1452					95% Student's-t UCL	55.18			95% Adjusted-CLT UCL (Chen-1995)	56.08			
1453									95% Modified-t UCL (Johnson-1978)	55.34			
1454													
1455	**Gamma GOF Test**												
1456					A-D Test Statistic	1.684			**Anderson-Darling Gamma GOF Test**				
1457					5% A-D Critical Value	0.753			Data Not Gamma Distributed at 5% Significance Level				
1458					K-S Test Statistic	0.172			**Kolmogrov-Smirnoff Gamma GOF Test**				
1459					5% K-S Critical Value	0.12			Data Not Gamma Distributed at 5% Significance Level				
1460	**Data Not Gamma Distributed at 5% Significance Level**												
1461													
1462	**Gamma Statistics**												
1463					k hat (MLE)	5.526			k star (bias corrected MLE)	5.237			
1464					Theta hat (MLE)	8.967			Theta star (bias corrected MLE)	9.463			
1465					nu hat (MLE)	607.9			nu star (bias corrected)	576.1			
1466					MLE Mean (bias corrected)	49.56			MLE Sd (bias corrected)	21.65			
1467									Approximate Chi Square Value (0.05)	521.4			
1468					Adjusted Level of Significance	0.0456			Adjusted Chi Square Value	520			
1469													
1470	**Assuming Gamma Distribution**												
1471					95% Approximate Gamma UCL (use when n>=50))	54.75			95% Adjusted Gamma UCL (use when n<50)	54.9			
1472													
1473	**Lognormal GOF Test**												
1474					Shapiro Wilk Test Statistic	0.937			**Shapiro Wilk Lognormal GOF Test**				
1475					5% Shapiro Wilk P Value	0.00927			Data Not Lognormal at 5% Significance Level				
1476					Lilliefors Test Statistic	0.144			**Lilliefors Lognormal GOF Test**				
1477					5% Lilliefors Critical Value	0.119			Data Not Lognormal at 5% Significance Level				
1478	**Data Not Lognormal at 5% Significance Level**												
1479													
1480	**Lognormal Statistics**												
1481					Minimum of Logged Data	3.157			Mean of logged Data	3.81			
1482					Maximum of Logged Data	5.017			SD of logged Data	0.412			
1483													
1484	**Assuming Lognormal Distribution**												
1485					95% H-UCL	54.44			90% Chebyshev (MVUE) UCL	57.52			
1486					95% Chebyshev (MVUE) UCL	61.35			97.5% Chebyshev (MVUE) UCL	66.67			
1487					99% Chebyshev (MVUE) UCL	77.12							
1488													

1489	**Nonparametric Distribution Free UCL Statistics**												
1490	**Data do not follow a Discernible Distribution (0.05)**												
1491													
1492	**Nonparametric Distribution Free UCLs**												
1493					95% CLT UCL	55.09				95% Jackknife UCL	55.18		
1494				95% Standard Bootstrap UCL		55.07				95% Bootstrap-t UCL	56.35		
1495				95% Hall's Bootstrap UCL		56.43				95% Percentile Bootstrap UCL	55.53		
1496				95% BCA Bootstrap UCL		56.08							
1497				90% Chebyshev(Mean, Sd) UCL		59.64				95% Chebyshev(Mean, Sd) UCL	64.21		
1498				97.5% Chebyshev(Mean, Sd) UCL		70.56				99% Chebyshev(Mean, Sd) UCL	83.01		
1499													
1500	**Suggested UCL to Use**												
1501					95% Student's-t UCL	55.18				or 95% Modified-t UCL	55.34		
1502													
1503	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1504	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1505	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1506	For additional insight the user may want to consult a statistician.												
1507													
1508													
1509	**Phosphorus (mg/kg)**												
1510													
1511	**General Statistics**												
1512					Total Number of Observations	55				Number of Distinct Observations	46		
1513										Number of Missing Observations	0		
1514					Minimum	527.5				Mean	1265		
1515					Maximum	4720				Median	1050		
1516					SD	741.2				Std. Error of Mean	99.94		
1517					Coefficient of Variation	0.586				Skewness	2.881		
1518													
1519	**Normal GOF Test**												
1520					Shapiro Wilk Test Statistic	0.655				**Shapiro Wilk GOF Test**			
1521					5% Shapiro Wilk P Value	6.661E-16				Data Not Normal at 5% Significance Level			
1522					Lilliefors Test Statistic	0.294				**Lilliefors GOF Test**			
1523					5% Lilliefors Critical Value	0.119				Data Not Normal at 5% Significance Level			
1524	**Data Not Normal at 5% Significance Level**												
1525													
1526	**Assuming Normal Distribution**												
1527					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**			
1528					95% Student's-t UCL	1432				95% Adjusted-CLT UCL (Chen-1995)	1471		
1529										95% Modified-t UCL (Johnson-1978)	1439		
1530													
1531	**Gamma GOF Test**												
1532					A-D Test Statistic	4.24				**Anderson-Darling Gamma GOF Test**			
1533					5% A-D Critical Value	0.753				Data Not Gamma Distributed at 5% Significance Level			
1534					K-S Test Statistic	0.259				**Kolmogrov-Smirnoff Gamma GOF Test**			
1535					5% K-S Critical Value	0.12				Data Not Gamma Distributed at 5% Significance Level			
1536	**Data Not Gamma Distributed at 5% Significance Level**												
1537													
1538	**Gamma Statistics**												
1539					k hat (MLE)	5.01				k star (bias corrected MLE)	4.749		
1540					Theta hat (MLE)	252.5				Theta star (bias corrected MLE)	266.4		
1541					nu hat (MLE)	551.1				nu star (bias corrected)	522.4		
1542					MLE Mean (bias corrected)	1265				MLE Sd (bias corrected)	580.6		
1543										Approximate Chi Square Value (0.05)	470.4		
1544					Adjusted Level of Significance	0.0456				Adjusted Chi Square Value	469.1		
1545													
1546	**Assuming Gamma Distribution**												
1547					95% Approximate Gamma UCL (use when n>=50))	1405				95% Adjusted Gamma UCL (use when n<50)	1409		
1548													
1549	**Lognormal GOF Test**												
1550					Shapiro Wilk Test Statistic	0.859				**Shapiro Wilk Lognormal GOF Test**			

1551				5% Shapiro Wilk P Value	8.0137E-7	Data Not Lognormal at 5% Significance Level							
1552				Lilliefors Test Statistic	0.228	**Lilliefors Lognormal GOF Test**							
1553				5% Lilliefors Critical Value	0.119	Data Not Lognormal at 5% Significance Level							
1554	**Data Not Lognormal at 5% Significance Level**												
1555													
1556	**Lognormal Statistics**												
1557				Minimum of Logged Data	6.268	Mean of logged Data	7.04						
1558				Maximum of Logged Data	8.46	SD of logged Data	0.413						
1559													
1560	**Assuming Lognormal Distribution**												
1561				95% H-UCL	1377	90% Chebyshev (MVUE) UCL	1455						
1562				95% Chebyshev (MVUE) UCL	1552	97.5% Chebyshev (MVUE) UCL	1687						
1563				99% Chebyshev (MVUE) UCL	1952								
1564													
1565	**Nonparametric Distribution Free UCL Statistics**												
1566	**Data do not follow a Discernible Distribution (0.05)**												
1567													
1568	**Nonparametric Distribution Free UCLs**												
1569				95% CLT UCL	1430	95% Jackknife UCL	1432						
1570				95% Standard Bootstrap UCL	1427	95% Bootstrap-t UCL	1511						
1571				95% Hall's Bootstrap UCL	1506	95% Percentile Bootstrap UCL	1430						
1572				95% BCA Bootstrap UCL	1474								
1573				90% Chebyshev(Mean, Sd) UCL	1565	95% Chebyshev(Mean, Sd) UCL	1701						
1574				97.5% Chebyshev(Mean, Sd) UCL	1889	99% Chebyshev(Mean, Sd) UCL	2260						
1575													
1576	**Suggested UCL to Use**												
1577				95% Student's-t UCL	1432	or 95% Modified-t UCL	1439						
1578													
1579	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1580	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1581	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1582	For additional insight the user may want to consult a statistician.												
1583													
1584													
1585	**Potassium (mg/kg)**												
1586													
1587	**General Statistics**												
1588				Total Number of Observations	55	Number of Distinct Observations	51						
1589						Number of Missing Observations	0						
1590				Minimum	1930	Mean	3093						
1591				Maximum	6070	Median	3040						
1592				SD	804.6	Std. Error of Mean	108.5						
1593				Coefficient of Variation	0.26	Skewness	1.2						
1594													
1595	**Normal GOF Test**												
1596				Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk GOF Test**							
1597				5% Shapiro Wilk P Value	0.00239	Data Not Normal at 5% Significance Level							
1598				Lilliefors Test Statistic	0.0918	**Lilliefors GOF Test**							
1599				5% Lilliefors Critical Value	0.119	Data appear Normal at 5% Significance Level							
1600	**Data appear Approximate Normal at 5% Significance Level**												
1601													
1602	**Assuming Normal Distribution**												
1603	**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**							
1604				95% Student's-t UCL	3275	95% Adjusted-CLT UCL (Chen-1995)	3290						
1605						95% Modified-t UCL (Johnson-1978)	3278						
1606													
1607	**Gamma GOF Test**												
1608				A-D Test Statistic	0.308	**Anderson-Darling Gamma GOF Test**							
1609				5% A-D Critical Value	0.749	etected data appear Gamma Distributed at 5% Significance Lev							
1610				K-S Test Statistic	0.0722	**Kolmogrov-Smirnoff Gamma GOF Test**							
1611				5% K-S Critical Value	0.12	etected data appear Gamma Distributed at 5% Significance Lev							
1612	**Detected data appear Gamma Distributed at 5% Significance Level**												

1613													
1614	**Gamma Statistics**												
1615					k hat (MLE)	16.55			k star (bias corrected MLE)			15.65	
1616					Theta hat (MLE)	186.9			Theta star (bias corrected MLE)			197.6	
1617					nu hat (MLE)	1820			nu star (bias corrected)			1722	
1618					MLE Mean (bias corrected)	3093			MLE Sd (bias corrected)			781.8	
1619									Approximate Chi Square Value (0.05)			1627	
1620					Adjusted Level of Significance	0.0456			Adjusted Chi Square Value			1624	
1621													
1622	**Assuming Gamma Distribution**												
1623	95% Approximate Gamma UCL (use when n>=50))					3274			95% Adjusted Gamma UCL (use when n<50)			3279	
1624													
1625	**Lognormal GOF Test**												
1626					Shapiro Wilk Test Statistic	0.975			**Shapiro Wilk Lognormal GOF Test**				
1627					5% Shapiro Wilk P Value	0.495			Data appear Lognormal at 5% Significance Level				
1628					Lilliefors Test Statistic	0.0697			**Lilliefors Lognormal GOF Test**				
1629					5% Lilliefors Critical Value	0.119			Data appear Lognormal at 5% Significance Level				
1630	**Data appear Lognormal at 5% Significance Level**												
1631													
1632	**Lognormal Statistics**												
1633					Minimum of Logged Data	7.565			Mean of logged Data			8.006	
1634					Maximum of Logged Data	8.711			SD of logged Data			0.246	
1635													
1636	**Assuming Lognormal Distribution**												
1637					95% H-UCL	3276			90% Chebyshev (MVUE) UCL			3403	
1638					95% Chebyshev (MVUE) UCL	3544			97.5% Chebyshev (MVUE) UCL			3740	
1639					99% Chebyshev (MVUE) UCL	4125							
1640													
1641	**Nonparametric Distribution Free UCL Statistics**												
1642	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
1643													
1644	**Nonparametric Distribution Free UCLs**												
1645					95% CLT UCL	3272			95% Jackknife UCL			3275	
1646					95% Standard Bootstrap UCL	3272			95% Bootstrap-t UCL			3297	
1647					95% Hall's Bootstrap UCL	3296			95% Percentile Bootstrap UCL			3271	
1648					95% BCA Bootstrap UCL	3280							
1649					90% Chebyshev(Mean, Sd) UCL	3419			95% Chebyshev(Mean, Sd) UCL			3566	
1650					97.5% Chebyshev(Mean, Sd) UCL	3771			99% Chebyshev(Mean, Sd) UCL			4173	
1651													
1652	**Suggested UCL to Use**												
1653					95% Student's-t UCL	3275							
1654													
1655	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1656	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1657	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1658	For additional insight the user may want to consult a statistician.												
1659													
1660	**Selenium (mg/kg)**												
1661													
1662	**General Statistics**												
1663					Total Number of Observations	55			Number of Distinct Observations			27	
1664					Number of Detects	43			Number of Non-Detects			12	
1665					Number of Distinct Detects	27			Number of Distinct Non-Detects			1	
1666					Minimum Detect	0.2			Minimum Non-Detect			0.2	
1667					Maximum Detect	1.25			Maximum Non-Detect			0.2	
1668					Variance Detects	0.0451			Percent Non-Detects			21.82%	
1669					Mean Detects	0.391			SD Detects			0.212	
1670					Median Detects	0.33			CV Detects			0.543	
1671					Skewness Detects	1.933			Kurtosis Detects			5.166	
1672					Mean of Logged Detects	-1.053			SD of Logged Detects			0.461	
1673													
1674	**Normal GOF Test on Detects Only**												

1675				Shapiro Wilk Test Statistic		0.812			**Shapiro Wilk GOF Test**				
1676				5% Shapiro Wilk Critical Value		0.943			Detected Data Not Normal at 5% Significance Level				
1677				Lilliefors Test Statistic		0.184			**Lilliefors GOF Test**				
1678				5% Lilliefors Critical Value		0.135			Detected Data Not Normal at 5% Significance Level				
1679						**Detected Data Not Normal at 5% Significance Level**								
1680													
1681						**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**								
1682				Mean		0.349			Standard Error of Mean			0.0275	
1683				SD		0.202			95% KM (BCA) UCL			0.398	
1684				95% KM (t) UCL		0.395			95% KM (Percentile Bootstrap) UCL			0.394	
1685				95% KM (z) UCL		0.394			95% KM Bootstrap t UCL			0.406	
1686				90% KM Chebyshev UCL		0.432			95% KM Chebyshev UCL			0.469	
1687				97.5% KM Chebyshev UCL		0.521			99% KM Chebyshev UCL			0.623	
1688													
1689						**Gamma GOF Tests on Detected Observations Only**								
1690				A-D Test Statistic		1.14			**Anderson-Darling GOF Test**				
1691				5% A-D Critical Value		0.753			Detected Data Not Gamma Distributed at 5% Significance Level				
1692				K-S Test Statistic		0.13			**Kolmogrov-Smirnoff GOF**				
1693				5% K-S Critical Value		0.135			etected data appear Gamma Distributed at 5% Significance Lev				
1694						**Detected data follow Appr. Gamma Distribution at 5% Significance Level**								
1695													
1696						**Gamma Statistics on Detected Data Only**								
1697				k hat (MLE)		4.58			k star (bias corrected MLE)			4.276	
1698				Theta hat (MLE)		0.0853			Theta star (bias corrected MLE)			0.0914	
1699				nu hat (MLE)		393.8			nu star (bias corrected)			367.7	
1700				MLE Mean (bias corrected)		0.391			MLE Sd (bias corrected)			0.189	
1701													
1702						**Gamma Kaplan-Meier (KM) Statistics**								
1703				k hat (KM)		3.001			nu hat (KM)			330.1	
1704				Approximate Chi Square Value (330.09, α)		289			Adjusted Chi Square Value (330.09, β)			288	
1705	5% Gamma Approximate KM-UCL (use when n>=50)					0.399			95% Gamma Adjusted KM-UCL (use when n<50)			0.4	
1706													
1707						**Gamma ROS Statistics using Imputed Non-Detects**								
1708						GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs								
1709						GROS may not be used when kstar of detected data is small such as < 0.1								
1710						For such situations, GROS method tends to yield inflated values of UCLs and BTVs								
1711						For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates								
1712				Minimum		0.01			Mean			0.315	
1713				Maximum		1.25			Median			0.27	
1714				SD		0.237			CV			0.752	
1715				k hat (MLE)		1.297			k star (bias corrected MLE)			1.238	
1716				Theta hat (MLE)		0.243			Theta star (bias corrected MLE)			0.254	
1717				nu hat (MLE)		142.7			nu star (bias corrected)			136.2	
1718				MLE Mean (bias corrected)		0.315			MLE Sd (bias corrected)			0.283	
1719									Adjusted Level of Significance (β)			0.0456	
1720				Approximate Chi Square Value (136.20, α)		110.2			Adjusted Chi Square Value (136.20, β)			109.6	
1721	95% Gamma Approximate UCL (use when n>=50)					0.389			95% Gamma Adjusted UCL (use when n<50)			0.391	
1722													
1723						**Lognormal GOF Test on Detected Observations Only**								
1724				Shapiro Wilk Test Statistic		0.925			**Shapiro Wilk GOF Test**				
1725				5% Shapiro Wilk Critical Value		0.943			Detected Data Not Lognormal at 5% Significance Level				
1726				Lilliefors Test Statistic		0.117			**Lilliefors GOF Test**				
1727				5% Lilliefors Critical Value		0.135			Detected Data appear Lognormal at 5% Significance Level				
1728						**Detected Data appear Approximate Lognormal at 5% Significance Level**								
1729													
1730						**Lognormal ROS Statistics Using Imputed Non-Detects**								
1731				Mean in Original Scale		0.332			Mean in Log Scale			-1.288	
1732				SD in Original Scale		0.218			SD in Log Scale			0.616	
1733				95% t UCL (assumes normality of ROS data)		0.381			95% Percentile Bootstrap UCL			0.383	
1734				95% BCA Bootstrap UCL		0.39			95% Bootstrap t UCL			0.39	
1735				95% H-UCL (Log ROS)		0.393							
1736													

1737	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**												
1738					KM Mean (logged)	-1.174				95% H-UCL (KM -Log)		0.387	
1739					KM SD (logged)	0.464				95% Critical H Value (KM-Log)		1.864	
1740					KM Standard Error of Mean (logged)	0.0633							
1741													
1742	**DL/2 Statistics**												
1743				**DL/2 Normal**					**DL/2 Log-Transformed**				
1744					Mean in Original Scale	0.327				Mean in Log Scale		-1.326	
1745					SD in Original Scale	0.223				SD in Log Scale		0.661	
1746					95% t UCL (Assumes normality)	0.378				95% H-Stat UCL		0.396	
1747	**DL/2 is not a recommended method, provided for comparisons and historical reasons**												
1748													
1749	**Nonparametric Distribution Free UCL Statistics**												
1750	**Detected Data appear Approximate Gamma Distributed at 5% Significance Level**												
1751													
1752	**Suggested UCL to Use**												
1753					95% KM (Percentile Bootstrap) UCL	0.394				95% GROS Approximate Gamma UCL		0.389	
1754					95% Approximate Gamma KM-UCL	0.399							
1755													
1756	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1757	Recommendations are based upon data size, data distribution, and skewness.												
1758	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
1759	owever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticia												
1760													
1761	**Silver (mg/kg)**												
1762													
1763	**General Statistics**												
1764					Total Number of Observations	55				Number of Distinct Observations		17	
1765					Number of Detects	26				Number of Non-Detects		29	
1766					Number of Distinct Detects	17				Number of Distinct Non-Detects		1	
1767					Minimum Detect	0.059				Minimum Non-Detect		0.1	
1768					Maximum Detect	0.45				Maximum Non-Detect		0.1	
1769					Variance Detects	0.00938				Percent Non-Detects		52.73%	
1770					Mean Detects	0.147				SD Detects		0.0968	
1771					Median Detects	0.11				CV Detects		0.66	
1772					Skewness Detects	1.941				Kurtosis Detects		3.274	
1773					Mean of Logged Detects	-2.069				SD of Logged Detects		0.517	
1774													
1775	**Normal GOF Test on Detects Only**												
1776					Shapiro Wilk Test Statistic	0.73				**Shapiro Wilk GOF Test**			
1777					5% Shapiro Wilk Critical Value	0.92				Detected Data Not Normal at 5% Significance Level			
1778					Lilliefors Test Statistic	0.315				**Lilliefors GOF Test**			
1779					5% Lilliefors Critical Value	0.174				Detected Data Not Normal at 5% Significance Level			
1780	**Detected Data Not Normal at 5% Significance Level**												
1781													
1782	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**												
1783					Mean	0.109				Standard Error of Mean		0.0106	
1784					SD	0.0749				95% KM (BCA) UCL		0.128	
1785					95% KM (t) UCL	0.126				95% KM (Percentile Bootstrap) UCL		0.128	
1786					95% KM (z) UCL	0.126				95% KM Bootstrap t UCL		0.135	
1787					90% KM Chebyshev UCL	0.14				95% KM Chebyshev UCL		0.155	
1788					97.5% KM Chebyshev UCL	0.175				99% KM Chebyshev UCL		0.214	
1789													
1790	**Gamma GOF Tests on Detected Observations Only**												
1791					A-D Test Statistic	1.75				**Anderson-Darling GOF Test**			
1792					5% A-D Critical Value	0.749				Detected Data Not Gamma Distributed at 5% Significance Level			
1793					K-S Test Statistic	0.245				**Kolmogrov-Smirnoff GOF**			
1794					5% K-S Critical Value	0.172				Detected Data Not Gamma Distributed at 5% Significance Level			
1795	**Detected Data Not Gamma Distributed at 5% Significance Level**												
1796													
1797	**Gamma Statistics on Detected Data Only**												
1798					k hat (MLE)	3.503				k star (bias corrected MLE)		3.124	

1799					Theta hat (MLE)	0.0419				Theta star (bias corrected MLE)		0.0469	
1800					nu hat (MLE)	182.1				nu star (bias corrected)		162.5	
1801					MLE Mean (bias corrected)	0.147				MLE Sd (bias corrected)		0.083	
1802													
1803					**Gamma Kaplan-Meier (KM) Statistics**								
1804					k hat (KM)	2.107				nu hat (KM)		231.8	
1805					Approximate Chi Square Value (231.82, α)	197.6				Adjusted Chi Square Value (231.82, β)		196.7	
1806	5% Gamma Approximate KM-UCL (use when n>=50)					0.128				95% Gamma Adjusted KM-UCL (use when n<50)		0.128	
1807													
1808					**Gamma ROS Statistics using Imputed Non-Detects**								
1809					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs								
1810					GROS may not be used when kstar of detected data is small such as < 0.1								
1811					For such situations, GROS method tends to yield inflated values of UCLs and BTVs								
1812					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates								
1813					Minimum	0.01				Mean		0.0909	
1814					Maximum	0.45				Median		0.078	
1815					SD	0.0875				CV		0.963	
1816					k hat (MLE)	1.276				k star (bias corrected MLE)		1.219	
1817					Theta hat (MLE)	0.0712				Theta star (bias corrected MLE)		0.0746	
1818					nu hat (MLE)	140.4				nu star (bias corrected)		134.1	
1819					MLE Mean (bias corrected)	0.0909				MLE Sd (bias corrected)		0.0823	
1820										Adjusted Level of Significance (β)		0.0456	
1821					Approximate Chi Square Value (134.08, α)	108.3				Adjusted Chi Square Value (134.08, β)		107.7	
1822	95% Gamma Approximate UCL (use when n>=50)					0.113				95% Gamma Adjusted UCL (use when n<50)		0.113	
1823													
1824					**Lognormal GOF Test on Detected Observations Only**								
1825					Shapiro Wilk Test Statistic	0.89				**Shapiro Wilk GOF Test**			
1826					5% Shapiro Wilk Critical Value	0.92				Detected Data Not Lognormal at 5% Significance Level			
1827					Lilliefors Test Statistic	0.202				**Lilliefors GOF Test**			
1828					5% Lilliefors Critical Value	0.174				Detected Data Not Lognormal at 5% Significance Level			
1829					**Detected Data Not Lognormal at 5% Significance Level**								
1830													
1831					**Lognormal ROS Statistics Using Imputed Non-Detects**								
1832					Mean in Original Scale	0.104				Mean in Log Scale		-2.436	
1833					SD in Original Scale	0.0788				SD in Log Scale		0.557	
1834					95% t UCL (assumes normality of ROS data)	0.122				95% Percentile Bootstrap UCL		0.123	
1835					95% BCA Bootstrap UCL	0.128				95% Bootstrap t UCL		0.131	
1836					95% H-UCL (Log ROS)	0.118							
1837													
1838					**DL/2 Statistics**								
1839					**DL/2 Normal**					**DL/2 Log-Transformed**			
1840					Mean in Original Scale	0.0957				Mean in Log Scale		-2.558	
1841					SD in Original Scale	0.0819				SD in Log Scale		0.585	
1842					95% t UCL (Assumes normality)	0.114				95% H-Stat UCL		0.107	
1843					**DL/2 is not a recommended method, provided for comparisons and historical reasons**								
1844													
1845					**Nonparametric Distribution Free UCL Statistics**								
1846					**Data do not follow a Discernible Distribution at 5% Significance Level**								
1847													
1848					**Suggested UCL to Use**								
1849					95% KM (t) UCL	0.126				95% KM (% Bootstrap) UCL		0.128	
1850													
1851	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1852	Recommendations are based upon data size, data distribution, and skewness.												
1853	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
1854	owever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician												
1855													
1856													
1857	**Sodium (mg/kg)**												
1858													
1859					**General Statistics**								
1860					Total Number of Observations	55				Number of Distinct Observations		38	

1861							Number of Missing Observations					0	
1862					Minimum	160					Mean	515	
1863					Maximum	6610					Median	350	
1864					SD	873.3					Std. Error of Mean	117.8	
1865					Coefficient of Variation	1.696					Skewness	6.577	
1866													
1867	**Normal GOF Test**												
1868					Shapiro Wilk Test Statistic	0.31	**Shapiro Wilk GOF Test**						
1869					5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level						
1870					Lilliefors Test Statistic	0.357	**Lilliefors GOF Test**						
1871					5% Lilliefors Critical Value	0.119	Data Not Normal at 5% Significance Level						
1872	**Data Not Normal at 5% Significance Level**												
1873													
1874	**Assuming Normal Distribution**												
1875	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
1876					95% Student's-t UCL	712.1					95% Adjusted-CLT UCL (Chen-1995)	820.3	
1877											95% Modified-t UCL (Johnson-1978)	729.5	
1878													
1879	**Gamma GOF Test**												
1880					A-D Test Statistic	6.102	**Anderson-Darling Gamma GOF Test**						
1881					5% A-D Critical Value	0.765	Data Not Gamma Distributed at 5% Significance Level						
1882					K-S Test Statistic	0.268	**Kolmogrov-Smirnoff Gamma GOF Test**						
1883					5% K-S Critical Value	0.122	Data Not Gamma Distributed at 5% Significance Level						
1884	**Data Not Gamma Distributed at 5% Significance Level**												
1885													
1886	**Gamma Statistics**												
1887					k hat (MLE)	1.768					k star (bias corrected MLE)	1.684	
1888					Theta hat (MLE)	291.3					Theta star (bias corrected MLE)	305.9	
1889					nu hat (MLE)	194.5					nu star (bias corrected)	185.2	
1890					MLE Mean (bias corrected)	515					MLE Sd (bias corrected)	396.9	
1891											Approximate Chi Square Value (0.05)	154.7	
1892					Adjusted Level of Significance	0.0456					Adjusted Chi Square Value	154	
1893													
1894	**Assuming Gamma Distribution**												
1895	95% Approximate Gamma UCL (use when n>=50))					616.5					95% Adjusted Gamma UCL (use when n<50)	619.4	
1896													
1897	**Lognormal GOF Test**												
1898					Shapiro Wilk Test Statistic	0.803	**Shapiro Wilk Lognormal GOF Test**						
1899					5% Shapiro Wilk P Value	1.4597E-9	Data Not Lognormal at 5% Significance Level						
1900					Lilliefors Test Statistic	0.183	**Lilliefors Lognormal GOF Test**						
1901					5% Lilliefors Critical Value	0.119	Data Not Lognormal at 5% Significance Level						
1902	**Data Not Lognormal at 5% Significance Level**												
1903													
1904	**Lognormal Statistics**												
1905					Minimum of Logged Data	5.075					Mean of logged Data	5.935	
1906					Maximum of Logged Data	8.796					SD of logged Data	0.587	
1907													
1908	**Assuming Lognormal Distribution**												
1909					95% H-UCL	524.6					90% Chebyshev (MVUE) UCL	561.1	
1910					95% Chebyshev (MVUE) UCL	612.6					97.5% Chebyshev (MVUE) UCL	684	
1911					99% Chebyshev (MVUE) UCL	824.2							
1912													
1913	**Nonparametric Distribution Free UCL Statistics**												
1914	**Data do not follow a Discernible Distribution (0.05)**												
1915													
1916	**Nonparametric Distribution Free UCLs**												
1917					95% CLT UCL	708.7					95% Jackknife UCL	712.1	
1918					95% Standard Bootstrap UCL	701.2					95% Bootstrap-t UCL	1307	
1919					95% Hall's Bootstrap UCL	1432					95% Percentile Bootstrap UCL	729.6	
1920					95% BCA Bootstrap UCL	876.3							
1921					90% Chebyshev(Mean, Sd) UCL	868.3					95% Chebyshev(Mean, Sd) UCL	1028	
1922					97.5% Chebyshev(Mean, Sd) UCL	1250					99% Chebyshev(Mean, Sd) UCL	1687	

1923													
1924						**Suggested UCL to Use**							
1925					95% Chebyshev (Mean, Sd) UCL	1028							
1926													
1927	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1928	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1929	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1930	For additional insight the user may want to consult a statistician.												
1931													
1932													
1933	**Strontium (mg/kg)**												
1934													
1935						**General Statistics**							
1936					Total Number of Observations	55			Number of Distinct Observations	52			
1937									Number of Missing Observations	0			
1938					Minimum	46.7			Mean	109.5			
1939					Maximum	556			Median	88.2			
1940					SD	74.51			Std. Error of Mean	10.05			
1941					Coefficient of Variation	0.68			Skewness	4.311			
1942													
1943						**Normal GOF Test**							
1944					Shapiro Wilk Test Statistic	0.593			**Shapiro Wilk GOF Test**				
1945					5% Shapiro Wilk P Value	0			Data Not Normal at 5% Significance Level				
1946					Lilliefors Test Statistic	0.234			**Lilliefors GOF Test**				
1947					5% Lilliefors Critical Value	0.119			Data Not Normal at 5% Significance Level				
1948						**Data Not Normal at 5% Significance Level**							
1949													
1950						**Assuming Normal Distribution**							
1951					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**				
1952					95% Student's-t UCL	126.3			95% Adjusted-CLT UCL (Chen-1995)	132.3			
1953									95% Modified-t UCL (Johnson-1978)	127.3			
1954													
1955						**Gamma GOF Test**							
1956					A-D Test Statistic	2.844			**Anderson-Darling Gamma GOF Test**				
1957					5% A-D Critical Value	0.754			Data Not Gamma Distributed at 5% Significance Level				
1958					K-S Test Statistic	0.184			**Kolmogrov-Smirnoff Gamma GOF Test**				
1959					5% K-S Critical Value	0.12			Data Not Gamma Distributed at 5% Significance Level				
1960						**Data Not Gamma Distributed at 5% Significance Level**							
1961													
1962						**Gamma Statistics**							
1963					k hat (MLE)	4.425			k star (bias corrected MLE)	4.196			
1964					Theta hat (MLE)	24.74			Theta star (bias corrected MLE)	26.1			
1965					nu hat (MLE)	486.8			nu star (bias corrected)	461.5			
1966					MLE Mean (bias corrected)	109.5			MLE Sd (bias corrected)	53.45			
1967									Approximate Chi Square Value (0.05)	412.7			
1968					Adjusted Level of Significance	0.0456			Adjusted Chi Square Value	411.5			
1969													
1970						**Assuming Gamma Distribution**							
1971					95% Approximate Gamma UCL (use when n>=50))	122.4			95% Adjusted Gamma UCL (use when n<50)	122.8			
1972													
1973						**Lognormal GOF Test**							
1974					Shapiro Wilk Test Statistic	0.893			**Shapiro Wilk Lognormal GOF Test**				
1975					5% Shapiro Wilk P Value	4.4836E-5			Data Not Lognormal at 5% Significance Level				
1976					Lilliefors Test Statistic	0.157			**Lilliefors Lognormal GOF Test**				
1977					5% Lilliefors Critical Value	0.119			Data Not Lognormal at 5% Significance Level				
1978						**Data Not Lognormal at 5% Significance Level**							
1979													
1980						**Lognormal Statistics**							
1981					Minimum of Logged Data	3.844			Mean of logged Data	4.579			
1982					Maximum of Logged Data	6.321			SD of logged Data	0.433			
1983													
1984						**Assuming Lognormal Distribution**							

1985					95% H-UCL	119.2				90% Chebyshev (MVUE) UCL		126.2	
1986				95% Chebyshev (MVUE) UCL		135				97.5% Chebyshev (MVUE) UCL		147.2	
1987				99% Chebyshev (MVUE) UCL		171.1							
1988													
1989						**Nonparametric Distribution Free UCL Statistics**								
1990						**Data do not follow a Discernible Distribution (0.05)**								
1991													
1992						**Nonparametric Distribution Free UCLs**								
1993					95% CLT UCL	126				95% Jackknife UCL		126.3	
1994				95% Standard Bootstrap UCL		126.1				95% Bootstrap-t UCL		138.7	
1995				95% Hall's Bootstrap UCL		199				95% Percentile Bootstrap UCL		128.3	
1996				95% BCA Bootstrap UCL		132.8							
1997				90% Chebyshev(Mean, Sd) UCL		139.6				95% Chebyshev(Mean, Sd) UCL		153.3	
1998				97.5% Chebyshev(Mean, Sd) UCL		172.2				99% Chebyshev(Mean, Sd) UCL		209.5	
1999													
2000						**Suggested UCL to Use**								
2001					95% Student's-t UCL	126.3				or 95% Modified-t UCL		127.3	
2002													
2003	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
2004	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
2005	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
2006	For additional insight the user may want to consult a statistician.												
2007													
2008	**Thallium (mg/kg)**												
2009													
2010						**General Statistics**								
2011					Total Number of Observations	55				Number of Distinct Observations		38	
2012					Number of Detects	52				Number of Non-Detects		3	
2013					Number of Distinct Detects	38				Number of Distinct Non-Detects		1	
2014					Minimum Detect	0.05				Minimum Non-Detect		0.05	
2015					Maximum Detect	0.209				Maximum Non-Detect		0.05	
2016					Variance Detects	7.8189E-4				Percent Non-Detects		5.455%	
2017					Mean Detects	0.082				SD Detects		0.028	
2018					Median Detects	0.072				CV Detects		0.341	
2019					Skewness Detects	2.262				Kurtosis Detects		7.548	
2020					Mean of Logged Detects	-2.545				SD of Logged Detects		0.286	
2021													
2022						**Normal GOF Test on Detects Only**								
2023					Shapiro Wilk Test Statistic	0.814				**Normal GOF Test on Detected Observations Only**			
2024					5% Shapiro Wilk P Value	1.7484E-8				Detected Data Not Normal at 5% Significance Level			
2025					Lilliefors Test Statistic	0.159				**Lilliefors GOF Test**			
2026					5% Lilliefors Critical Value	0.123				Detected Data Not Normal at 5% Significance Level			
2027						**Detected Data Not Normal at 5% Significance Level**								
2028													
2029						**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**								
2030					Mean	0.0803				Standard Error of Mean		0.0038	
2031					SD	0.0279				95% KM (BCA) UCL		0.0864	
2032					95% KM (t) UCL	0.0866				95% KM (Percentile Bootstrap) UCL		0.0865	
2033					95% KM (z) UCL	0.0865				95% KM Bootstrap t UCL		0.0887	
2034					90% KM Chebyshev UCL	0.0917				95% KM Chebyshev UCL		0.0968	
2035					97.5% KM Chebyshev UCL	0.104				99% KM Chebyshev UCL		0.118	
2036													
2037						**Gamma GOF Tests on Detected Observations Only**								
2038					A-D Test Statistic	1.262				**Anderson-Darling GOF Test**			
2039					5% A-D Critical Value	0.75				Detected Data Not Gamma Distributed at 5% Significance Level			
2040					K-S Test Statistic	0.149				**Kolmogrov-Smirnoff GOF**			
2041					5% K-S Critical Value	0.123				Detected Data Not Gamma Distributed at 5% Significance Level			
2042						**Detected Data Not Gamma Distributed at 5% Significance Level**								
2043													
2044						**Gamma Statistics on Detected Data Only**								
2045					k hat (MLE)	11.43				k star (bias corrected MLE)		10.79	
2046					Theta hat (MLE)	0.00717				Theta star (bias corrected MLE)		0.0076	

2047					nu hat (MLE)	1189				nu star (bias corrected)		1122	
2048					MLE Mean (bias corrected)	0.082				MLE Sd (bias corrected)		0.025	
2049													
2050					**Gamma Kaplan-Meier (KM) Statistics**								
2051					k hat (KM)	8.283				nu hat (KM)		911.2	
2052					Approximate Chi Square Value (911.18, α)	842.1				Adjusted Chi Square Value (911.18, β)		840.3	
2053	5% Gamma Approximate KM-UCL (use when n>=50)					0.0869				95% Gamma Adjusted KM-UCL (use when n<50)		0.087	
2054													
2055					**Gamma ROS Statistics using Imputed Non-Detects**								
2056					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs								
2057					GROS may not be used when kstar of detected data is small such as < 0.1								
2058					For such situations, GROS method tends to yield inflated values of UCLs and BTVs								
2059					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates								
2060					Minimum	0.0259				Mean		0.0792	
2061					Maximum	0.209				Median		0.07	
2062					SD	0.0296				CV		0.374	
2063					k hat (MLE)	8.298				k star (bias corrected MLE)		7.857	
2064					Theta hat (MLE)	0.00955				Theta star (bias corrected MLE)		0.0101	
2065					nu hat (MLE)	912.8				nu star (bias corrected)		864.3	
2066					MLE Mean (bias corrected)	0.0792				MLE Sd (bias corrected)		0.0283	
2067										Adjusted Level of Significance (β)		0.0456	
2068					Approximate Chi Square Value (864.31, α)	797.1				Adjusted Chi Square Value (864.31, β)		795.3	
2069	95% Gamma Approximate UCL (use when n>=50)					0.0859				95% Gamma Adjusted UCL (use when n<50)		0.0861	
2070													
2071					**Lognormal GOF Test on Detected Observations Only**								
2072					Lilliefors Test Statistic	0.137				**Lilliefors GOF Test**			
2073					5% Lilliefors Critical Value	0.123				Detected Data Not Lognormal at 5% Significance Level			
2074					**Detected Data Not Lognormal at 5% Significance Level**								
2075													
2076					**Lognormal ROS Statistics Using Imputed Non-Detects**								
2077					Mean in Original Scale	0.0797				Mean in Log Scale		-2.582	
2078					SD in Original Scale	0.0288				SD in Log Scale		0.319	
2079					95% t UCL (assumes normality of ROS data)	0.0862				95% Percentile Bootstrap UCL		0.0862	
2080					95% BCA Bootstrap UCL	0.0878				95% Bootstrap t UCL		0.0878	
2081					95% H-UCL (Log ROS)	0.0857							
2082													
2083					**DL/2 Statistics**								
2084					**DL/2 Normal**					**DL/2 Log-Transformed**			
2085					Mean in Original Scale	0.0789				Mean in Log Scale		-2.608	
2086					SD in Original Scale	0.0302				SD in Log Scale		0.382	
2087					95% t UCL (Assumes normality)	0.0857				95% H-Stat UCL		0.087	
2088					**DL/2 is not a recommended method, provided for comparisons and historical reasons**								
2089													
2090					**Nonparametric Distribution Free UCL Statistics**								
2091					**Data do not follow a Discernible Distribution at 5% Significance Level**								
2092													
2093					**Suggested UCL to Use**								
2094					95% KM (Chebyshev) UCL	0.0968							
2095													
2096	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
2097	Recommendations are based upon data size, data distribution, and skewness.												
2098	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
2099	owever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticia												
2100													
2101	**Tin (mg/kg)**												
2102													
2103					**General Statistics**								
2104					Total Number of Observations	55				Number of Distinct Observations		9	
2105					Number of Detects	19				Number of Non-Detects		36	
2106					Number of Distinct Detects	9				Number of Distinct Non-Detects		1	
2107					Minimum Detect	0.27				Minimum Non-Detect		2	
2108					Maximum Detect	5.3				Maximum Non-Detect		2	

2109				Variance Detects	1.399					Percent Non-Detects	65.45%		
2110				Mean Detects	1.595					SD Detects	1.183		
2111				Median Detects	2					CV Detects	0.741		
2112				Skewness Detects	1.501					Kurtosis Detects	4.464		
2113				Mean of Logged Detects	0.16					SD of Logged Detects	0.875		
2114													
2115				**Normal GOF Test on Detects Only**									
2116				Shapiro Wilk Test Statistic	0.726			**Shapiro Wilk GOF Test**					
2117				5% Shapiro Wilk Critical Value	0.901			Detected Data Not Normal at 5% Significance Level					
2118				Lilliefors Test Statistic	0.313			**Lilliefors GOF Test**					
2119				5% Lilliefors Critical Value	0.203			Detected Data Not Normal at 5% Significance Level					
2120				**Detected Data Not Normal at 5% Significance Level**									
2121													
2122				**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**									
2123				Mean	0.833			Standard Error of Mean	0.129				
2124				SD	0.883			95% KM (BCA) UCL	1.056				
2125				95% KM (t) UCL	1.048			95% KM (Percentile Bootstrap) UCL	1.058				
2126				95% KM (z) UCL	1.045			95% KM Bootstrap t UCL	1.124				
2127				90% KM Chebyshev UCL	1.219			95% KM Chebyshev UCL	1.394				
2128				97.5% KM Chebyshev UCL	1.637			99% KM Chebyshev UCL	2.115				
2129													
2130				**Gamma GOF Tests on Detected Observations Only**									
2131				A-D Test Statistic	2.041			**Anderson-Darling GOF Test**					
2132				5% A-D Critical Value	0.754			Detected Data Not Gamma Distributed at 5% Significance Level					
2133				K-S Test Statistic	0.344			**Kolmogrov-Smirnoff GOF**					
2134				5% K-S Critical Value	0.201			Detected Data Not Gamma Distributed at 5% Significance Level					
2135				**Detected Data Not Gamma Distributed at 5% Significance Level**									
2136													
2137				**Gamma Statistics on Detected Data Only**									
2138				k hat (MLE)	1.778			k star (bias corrected MLE)	1.532				
2139				Theta hat (MLE)	0.897			Theta star (bias corrected MLE)	1.041				
2140				nu hat (MLE)	67.57			nu star (bias corrected)	58.23				
2141				MLE Mean (bias corrected)	1.595			MLE Sd (bias corrected)	1.289				
2142													
2143				**Gamma Kaplan-Meier (KM) Statistics**									
2144				k hat (KM)	0.89			nu hat (KM)	97.88				
2145				Approximate Chi Square Value (97.88, α)	76.06			Adjusted Chi Square Value (97.88, β)	75.54				
2146	5% Gamma Approximate KM-UCL (use when n>=50)				1.071			95% Gamma Adjusted KM-UCL (use when n<50)	1.079				
2147													
2148				**Gamma ROS Statistics using Imputed Non-Detects**									
2149				GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs									
2150				GROS may not be used when kstar of detected data is small such as < 0.1									
2151				For such situations, GROS method tends to yield inflated values of UCLs and BTVs									
2152				For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates									
2153				Minimum	0.01			Mean	0.887				
2154				Maximum	5.3			Median	0.591				
2155				SD	0.925			CV	1.043				
2156				k hat (MLE)	0.765			k star (bias corrected MLE)	0.736				
2157				Theta hat (MLE)	1.158			Theta star (bias corrected MLE)	1.205				
2158				nu hat (MLE)	84.19			nu star (bias corrected)	80.93				
2159				MLE Mean (bias corrected)	0.887			MLE Sd (bias corrected)	1.034				
2160								Adjusted Level of Significance (β)	0.0456				
2161				Approximate Chi Square Value (80.93, α)	61.2			Adjusted Chi Square Value (80.93, β)	60.74				
2162	95% Gamma Approximate UCL (use when n>=50)				1.172			95% Gamma Adjusted UCL (use when n<50)	1.181				
2163													
2164				**Lognormal GOF Test on Detected Observations Only**									
2165				Shapiro Wilk Test Statistic	0.795			**Shapiro Wilk GOF Test**					
2166				5% Shapiro Wilk Critical Value	0.901			Detected Data Not Lognormal at 5% Significance Level					
2167				Lilliefors Test Statistic	0.36			**Lilliefors GOF Test**					
2168				5% Lilliefors Critical Value	0.203			Detected Data Not Lognormal at 5% Significance Level					
2169				**Detected Data Not Lognormal at 5% Significance Level**									
2170													

2171	**Lognormal ROS Statistics Using Imputed Non-Detects**												
2172					Mean in Original Scale	0.906				Mean in Log Scale	-0.454		
2173					SD in Original Scale	0.882				SD in Log Scale	0.841		
2174				95% t UCL (assumes normality of ROS data)		1.105				95% Percentile Bootstrap UCL	1.105		
2175					95% BCA Bootstrap UCL	1.164				95% Bootstrap t UCL	1.158		
2176					95% H-UCL (Log ROS)	1.158							
2177													
2178	**DL/2 Statistics**												
2179				**DL/2 Normal**					**DL/2 Log-Transformed**				
2180					Mean in Original Scale	1.206				Mean in Log Scale	0.0553		
2181					SD in Original Scale	0.74				SD in Log Scale	0.511		
2182					95% t UCL (Assumes normality)	1.373				95% H-Stat UCL	1.374		
2183	**DL/2 is not a recommended method, provided for comparisons and historical reasons**												
2184													
2185	**Nonparametric Distribution Free UCL Statistics**												
2186	**Data do not follow a Discernible Distribution at 5% Significance Level**												
2187													
2188	**Suggested UCL to Use**												
2189					95% KM (t) UCL	1.048				95% KM (% Bootstrap) UCL	1.058		
2190													
2191	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
2192	Recommendations are based upon data size, data distribution, and skewness.												
2193	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
2194	owever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticia												
2195													
2196													
2197	**Titanium (mg/kg)**												
2198													
2199	**General Statistics**												
2200					Total Number of Observations	55				Number of Distinct Observations	47		
2201										Number of Missing Observations	0		
2202					Minimum	359				Mean	922.1		
2203					Maximum	1490				Median	910		
2204					SD	217.8				Std. Error of Mean	29.37		
2205					Coefficient of Variation	0.236				Skewness	0.0513		
2206													
2207	**Normal GOF Test**												
2208					Shapiro Wilk Test Statistic	0.989				**Shapiro Wilk GOF Test**			
2209					5% Shapiro Wilk P Value	0.958				Data appear Normal at 5% Significance Level			
2210					Lilliefors Test Statistic	0.0804				**Lilliefors GOF Test**			
2211					5% Lilliefors Critical Value	0.119				Data appear Normal at 5% Significance Level			
2212	**Data appear Normal at 5% Significance Level**												
2213													
2214	**Assuming Normal Distribution**												
2215				**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**				
2216					95% Student's-t UCL	971.3				95% Adjusted-CLT UCL (Chen-1995)	970.7		
2217										95% Modified-t UCL (Johnson-1978)	971.3		
2218													
2219	**Gamma GOF Test**												
2220					A-D Test Statistic	0.519				**Anderson-Darling Gamma GOF Test**			
2221					5% A-D Critical Value	0.749				etected data appear Gamma Distributed at 5% Significance Lev			
2222					K-S Test Statistic	0.109				**Kolmogrov-Smirnoff Gamma GOF Test**			
2223					5% K-S Critical Value	0.12				etected data appear Gamma Distributed at 5% Significance Lev			
2224	**Detected data appear Gamma Distributed at 5% Significance Level**												
2225													
2226	**Gamma Statistics**												
2227					k hat (MLE)	16.67				k star (bias corrected MLE)	15.78		
2228					Theta hat (MLE)	55.3				Theta star (bias corrected MLE)	58.45		
2229					nu hat (MLE)	1834				nu star (bias corrected)	1735		
2230					MLE Mean (bias corrected)	922.1				MLE Sd (bias corrected)	232.2		
2231										Approximate Chi Square Value (0.05)	1640		
2232					Adjusted Level of Significance	0.0456				Adjusted Chi Square Value	1637		

2233													
2234	**Assuming Gamma Distribution**												
2235	95% Approximate Gamma UCL (use when n>=50))					976	95% Adjusted Gamma UCL (use when n<50)					977.5	
2236													
2237	**Lognormal GOF Test**												
2238	Shapiro Wilk Test Statistic					0.952	**Shapiro Wilk Lognormal GOF Test**						
2239	5% Shapiro Wilk P Value					0.0513	Data appear Lognormal at 5% Significance Level						
2240	Lilliefors Test Statistic					0.127	**Lilliefors Lognormal GOF Test**						
2241	5% Lilliefors Critical Value					0.119	Data Not Lognormal at 5% Significance Level						
2242	**Data appear Approximate Lognormal at 5% Significance Level**												
2243													
2244	**Lognormal Statistics**												
2245	Minimum of Logged Data					5.883	Mean of logged Data					6.796	
2246	Maximum of Logged Data					7.307	SD of logged Data					0.258	
2247													
2248	**Assuming Lognormal Distribution**												
2249	95% H-UCL					982.2	90% Chebyshev (MVUE) UCL					1022	
2250	95% Chebyshev (MVUE) UCL					1066	97.5% Chebyshev (MVUE) UCL					1128	
2251	99% Chebyshev (MVUE) UCL					1248							
2252													
2253	**Nonparametric Distribution Free UCL Statistics**												
2254	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
2255													
2256	**Nonparametric Distribution Free UCLs**												
2257	95% CLT UCL					970.5	95% Jackknife UCL					971.3	
2258	95% Standard Bootstrap UCL					969.4	95% Bootstrap-t UCL					972.5	
2259	95% Hall's Bootstrap UCL					974.3	95% Percentile Bootstrap UCL					970.3	
2260	95% BCA Bootstrap UCL					966.9							
2261	90% Chebyshev(Mean, Sd) UCL					1010	95% Chebyshev(Mean, Sd) UCL					1050	
2262	97.5% Chebyshev(Mean, Sd) UCL					1106	99% Chebyshev(Mean, Sd) UCL					1214	
2263													
2264	**Suggested UCL to Use**												
2265	95% Student's-t UCL					971.3							
2266													
2267	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
2268	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
2269	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
2270	For additional insight the user may want to consult a statistician.												
2271													
2272													
2273	**Uranium (mg/kg)**												
2274													
2275	**General Statistics**												
2276	Total Number of Observations					55	Number of Distinct Observations					53	
2277							Number of Missing Observations					0	
2278	Minimum					0.272	Mean					0.542	
2279	Maximum					2.08	Median					0.418	
2280	SD					0.323	Std. Error of Mean					0.0435	
2281	Coefficient of Variation					0.595	Skewness					2.876	
2282													
2283	**Normal GOF Test**												
2284	Shapiro Wilk Test Statistic					0.689	**Shapiro Wilk GOF Test**						
2285	5% Shapiro Wilk P Value					1.565E-14	Data Not Normal at 5% Significance Level						
2286	Lilliefors Test Statistic					0.204	**Lilliefors GOF Test**						
2287	5% Lilliefors Critical Value					0.119	Data Not Normal at 5% Significance Level						
2288	**Data Not Normal at 5% Significance Level**												
2289													
2290	**Assuming Normal Distribution**												
2291	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
2292	95% Student's-t UCL					0.615	95% Adjusted-CLT UCL (Chen-1995)					0.632	
2293							95% Modified-t UCL (Johnson-1978)					0.618	
2294													

2295	**Gamma GOF Test**												
2296	A-D Test Statistic					2.734	**Anderson-Darling Gamma GOF Test**						
2297	5% A-D Critical Value					0.754	Data Not Gamma Distributed at 5% Significance Level						
2298	K-S Test Statistic					0.173	**Kolmogrov-Smirnoff Gamma GOF Test**						
2299	5% K-S Critical Value					0.12	Data Not Gamma Distributed at 5% Significance Level						
2300	**Data Not Gamma Distributed at 5% Significance Level**												
2301													
2302	**Gamma Statistics**												
2303	k hat (MLE)					4.734	k star (bias corrected MLE)					4.488	
2304	Theta hat (MLE)					0.115	Theta star (bias corrected MLE)					0.121	
2305	nu hat (MLE)					520.7	nu star (bias corrected)					493.7	
2306	MLE Mean (bias corrected)					0.542	MLE Sd (bias corrected)					0.256	
2307							Approximate Chi Square Value (0.05)					443.2	
2308	Adjusted Level of Significance					0.0456	Adjusted Chi Square Value					441.9	
2309													
2310	**Assuming Gamma Distribution**												
2311	95% Approximate Gamma UCL (use when n>=50))					0.604	95% Adjusted Gamma UCL (use when n<50)					0.606	
2312													
2313	**Lognormal GOF Test**												
2314	Shapiro Wilk Test Statistic					0.888	**Shapiro Wilk Lognormal GOF Test**						
2315	5% Shapiro Wilk P Value					2.5519E-5	Data Not Lognormal at 5% Significance Level						
2316	Lilliefors Test Statistic					0.148	**Lilliefors Lognormal GOF Test**						
2317	5% Lilliefors Critical Value					0.119	Data Not Lognormal at 5% Significance Level						
2318	**Data Not Lognormal at 5% Significance Level**												
2319													
2320	**Lognormal Statistics**												
2321	Minimum of Logged Data					-1.302	Mean of logged Data					-0.721	
2322	Maximum of Logged Data					0.732	SD of logged Data					0.429	
2323													
2324	**Assuming Lognormal Distribution**												
2325	95% H-UCL					0.594	90% Chebyshev (MVUE) UCL					0.628	
2326	95% Chebyshev (MVUE) UCL					0.671	97.5% Chebyshev (MVUE) UCL					0.732	
2327	99% Chebyshev (MVUE) UCL					0.85							
2328													
2329	**Nonparametric Distribution Free UCL Statistics**												
2330	**Data do not follow a Discernible Distribution (0.05)**												
2331													
2332	**Nonparametric Distribution Free UCLs**												
2333	95% CLT UCL					0.614	95% Jackknife UCL					0.615	
2334	95% Standard Bootstrap UCL					0.614	95% Bootstrap-t UCL					0.649	
2335	95% Hall's Bootstrap UCL					0.672	95% Percentile Bootstrap UCL					0.62	
2336	95% BCA Bootstrap UCL					0.635							
2337	90% Chebyshev(Mean, Sd) UCL					0.673	95% Chebyshev(Mean, Sd) UCL					0.732	
2338	97.5% Chebyshev(Mean, Sd) UCL					0.814	99% Chebyshev(Mean, Sd) UCL					0.975	
2339													
2340	**Suggested UCL to Use**												
2341	95% Student's-t UCL					0.615	or 95% Modified-t UCL					0.618	
2342													
2343	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
2344	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
2345	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
2346	For additional insight the user may want to consult a statistician.												
2347													
2348	**Vanadium (mg/kg)**												
2349													
2350	**General Statistics**												
2351	Total Number of Observations					55	Number of Distinct Observations					44	
2352	Number of Detects					39	Number of Non-Detects					16	
2353	Number of Distinct Detects					33	Number of Distinct Non-Detects					13	
2354	Minimum Detect					32.8	Minimum Non-Detect					64.3	
2355	Maximum Detect					179	Maximum Non-Detect					131	
2356	Variance Detects					1222	Percent Non-Detects					29.09%	

2357					Mean Detects	93.9					SD Detects	34.96	
2358					Median Detects	96.05					CV Detects	0.372	
2359					Skewness Detects	0.182					Kurtosis Detects	-0.602	
2360					Mean of Logged Detects	4.467					SD of Logged Detects	0.408	
2361													
2362					**Normal GOF Test on Detects Only**								
2363					Shapiro Wilk Test Statistic	0.955	**Shapiro Wilk GOF Test**						
2364					5% Shapiro Wilk Critical Value	0.939	Detected Data appear Normal at 5% Significance Level						
2365					Lilliefors Test Statistic	0.108	**Lilliefors GOF Test**						
2366					5% Lilliefors Critical Value	0.142	Detected Data appear Normal at 5% Significance Level						
2367					**Detected Data appear Normal at 5% Significance Level**								
2368													
2369					**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**								
2370					Mean	87.32	Standard Error of Mean	5.004					
2371					SD	33.58	95% KM (BCA) UCL	94.82					
2372					95% KM (t) UCL	95.7	95% KM (Percentile Bootstrap) UCL	95.03					
2373					95% KM (z) UCL	95.55	95% KM Bootstrap t UCL	95.32					
2374					90% KM Chebyshev UCL	102.3	95% KM Chebyshev UCL	109.1					
2375					97.5% KM Chebyshev UCL	118.6	99% KM Chebyshev UCL	137.1					
2376													
2377					**Gamma GOF Tests on Detected Observations Only**								
2378					A-D Test Statistic	0.826	**Anderson-Darling GOF Test**						
2379					5% A-D Critical Value	0.75	Detected Data Not Gamma Distributed at 5% Significance Level						
2380					K-S Test Statistic	0.144	**Kolmogrov-Smirnoff GOF**						
2381					5% K-S Critical Value	0.142	Detected Data Not Gamma Distributed at 5% Significance Level						
2382					**Detected Data Not Gamma Distributed at 5% Significance Level**								
2383													
2384					**Gamma Statistics on Detected Data Only**								
2385					k hat (MLE)	6.775	k star (bias corrected MLE)	6.271					
2386					Theta hat (MLE)	13.86	Theta star (bias corrected MLE)	14.97					
2387					nu hat (MLE)	528.5	nu star (bias corrected)	489.2					
2388					MLE Mean (bias corrected)	93.9	MLE Sd (bias corrected)	37.5					
2389													
2390					**Gamma Kaplan-Meier (KM) Statistics**								
2391					k hat (KM)	6.762	nu hat (KM)	743.8					
2392					Approximate Chi Square Value (743.79, α)	681.5	Adjusted Chi Square Value (743.79, β)	679.9					
2393					5% Gamma Approximate KM-UCL (use when n>=50)	95.3	95% Gamma Adjusted KM-UCL (use when n<50)	95.53					
2394													
2395					**Gamma ROS Statistics using Imputed Non-Detects**								
2396					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs								
2397					GROS may not be used when kstar of detected data is small such as < 0.1								
2398					For such situations, GROS method tends to yield inflated values of UCLs and BTVs								
2399					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates								
2400					Minimum	32.8	Mean	87.59					
2401					Maximum	179	Median	80.65					
2402					SD	31.4	CV	0.358					
2403					k hat (MLE)	8.099	k star (bias corrected MLE)	7.669					
2404					Theta hat (MLE)	10.82	Theta star (bias corrected MLE)	11.42					
2405					nu hat (MLE)	890.9	nu star (bias corrected)	843.6					
2406					MLE Mean (bias corrected)	87.59	MLE Sd (bias corrected)	31.63					
2407							Adjusted Level of Significance (β)	0.0456					
2408					Approximate Chi Square Value (843.60, α)	777.2	Adjusted Chi Square Value (843.60, β)	775.5					
2409					95% Gamma Approximate UCL (use when n>=50)	95.08	95% Gamma Adjusted UCL (use when n<50)	95.29					
2410													
2411					**Lognormal GOF Test on Detected Observations Only**								
2412					Shapiro Wilk Test Statistic	0.94	**Shapiro Wilk GOF Test**						
2413					5% Shapiro Wilk Critical Value	0.939	Detected Data appear Lognormal at 5% Significance Level						
2414					Lilliefors Test Statistic	0.155	**Lilliefors GOF Test**						
2415					5% Lilliefors Critical Value	0.142	Detected Data Not Lognormal at 5% Significance Level						
2416					**Detected Data appear Approximate Lognormal at 5% Significance Level**								
2417													
2418					**Lognormal ROS Statistics Using Imputed Non-Detects**								

2419					Mean in Original Scale	86.93					Mean in Log Scale	4.4	
2420					SD in Original Scale	31.71					SD in Log Scale	0.365	
2421				95% t UCL (assumes normality of ROS data)		94.09					95% Percentile Bootstrap UCL	94.05	
2422					95% BCA Bootstrap UCL	94.35					95% Bootstrap t UCL	94.36	
2423					95% H-UCL (Log ROS)	95.07							
2424													
2425	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**												
2426					KM Mean (logged)	4.391					95% H-UCL (KM -Log)	96.88	
2427					KM SD (logged)	0.405					95% Critical H Value (KM-Log)	1.822	
2428					KM Standard Error of Mean (logged)	0.0623							
2429													
2430	**DL/2 Statistics**												
2431	**DL/2 Normal**						**DL/2 Log-Transformed**						
2432					Mean in Original Scale	82.64					Mean in Log Scale	4.329	
2433					SD in Original Scale	34.64					SD in Log Scale	0.419	
2434					95% t UCL (Assumes normality)	90.46					95% H-Stat UCL	91.96	
2435	**DL/2 is not a recommended method, provided for comparisons and historical reasons**												
2436													
2437	**Nonparametric Distribution Free UCL Statistics**												
2438	**Detected Data appear Normal Distributed at 5% Significance Level**												
2439													
2440	**Suggested UCL to Use**												
2441					95% KM (t) UCL	95.7					95% KM (Percentile Bootstrap) UCL	95.03	
2442													
2443	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
2444	Recommendations are based upon data size, data distribution, and skewness.												
2445	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
2446	owever, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statisticia												
2447													
2448													
2449	**Zinc (mg/kg)**												
2450													
2451	**General Statistics**												
2452					Total Number of Observations	55					Number of Distinct Observations	50	
2453											Number of Missing Observations	0	
2454					Minimum	37.55					Mean	64.12	
2455					Maximum	133					Median	57.4	
2456					SD	21.18					Std. Error of Mean	2.856	
2457					Coefficient of Variation	0.33					Skewness	1.919	
2458													
2459	**Normal GOF Test**												
2460					Shapiro Wilk Test Statistic	0.749	**Shapiro Wilk GOF Test**						
2461					5% Shapiro Wilk P Value	5.253E-12	Data Not Normal at 5% Significance Level						
2462					Lilliefors Test Statistic	0.258	**Lilliefors GOF Test**						
2463					5% Lilliefors Critical Value	0.119	Data Not Normal at 5% Significance Level						
2464	**Data Not Normal at 5% Significance Level**												
2465													
2466	**Assuming Normal Distribution**												
2467	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
2468					95% Student's-t UCL	68.9					95% Adjusted-CLT UCL (Chen-1995)	69.61	
2469											95% Modified-t UCL (Johnson-1978)	69.02	
2470													
2471	**Gamma GOF Test**												
2472					A-D Test Statistic	3.696	**Anderson-Darling Gamma GOF Test**						
2473					5% A-D Critical Value	0.75	Data Not Gamma Distributed at 5% Significance Level						
2474					K-S Test Statistic	0.213	**Kolmogrov-Smirnoff Gamma GOF Test**						
2475					5% K-S Critical Value	0.12	Data Not Gamma Distributed at 5% Significance Level						
2476	**Data Not Gamma Distributed at 5% Significance Level**												
2477													
2478	**Gamma Statistics**												
2479					k hat (MLE)	12.19					k star (bias corrected MLE)	11.54	
2480					Theta hat (MLE)	5.259					Theta star (bias corrected MLE)	5.556	

2481					nu hat (MLE)	1341					nu star (bias corrected)	1269	
2482					MLE Mean (bias corrected)	64.12					MLE Sd (bias corrected)	18.87	
2483											Approximate Chi Square Value (0.05)	1188	
2484					Adjusted Level of Significance	0.0456					Adjusted Chi Square Value	1185	
2485													
2486					**Assuming Gamma Distribution**								
2487	95% Approximate Gamma UCL (use when n>=50))					68.53	95% Adjusted Gamma UCL (use when n<50)					68.65	
2488													
2489					**Lognormal GOF Test**								
2490					Shapiro Wilk Test Statistic	0.855	**Shapiro Wilk Lognormal GOF Test**						
2491					5% Shapiro Wilk P Value	5.1115E-7	Data Not Lognormal at 5% Significance Level						
2492					Lilliefors Test Statistic	0.19	**Lilliefors Lognormal GOF Test**						
2493					5% Lilliefors Critical Value	0.119	Data Not Lognormal at 5% Significance Level						
2494					**Data Not Lognormal at 5% Significance Level**								
2495													
2496					**Lognormal Statistics**								
2497					Minimum of Logged Data	3.626	Mean of logged Data	4.119					
2498					Maximum of Logged Data	4.89	SD of logged Data	0.274					
2499													
2500					**Assuming Lognormal Distribution**								
2501					95% H-UCL	68.08	90% Chebyshev (MVUE) UCL	71.02					
2502					95% Chebyshev (MVUE) UCL	74.28	97.5% Chebyshev (MVUE) UCL	78.8					
2503					99% Chebyshev (MVUE) UCL	87.69							
2504													
2505					**Nonparametric Distribution Free UCL Statistics**								
2506					**Data do not follow a Discernible Distribution (0.05)**								
2507													
2508					**Nonparametric Distribution Free UCLs**								
2509					95% CLT UCL	68.82	95% Jackknife UCL	68.9					
2510					95% Standard Bootstrap UCL	68.72	95% Bootstrap-t UCL	70.32					
2511					95% Hall's Bootstrap UCL	69.69	95% Percentile Bootstrap UCL	68.96					
2512					95% BCA Bootstrap UCL	69.52							
2513					90% Chebyshev(Mean, Sd) UCL	72.69	95% Chebyshev(Mean, Sd) UCL	76.57					
2514					97.5% Chebyshev(Mean, Sd) UCL	81.96	99% Chebyshev(Mean, Sd) UCL	92.54					
2515													
2516					**Suggested UCL to Use**								
2517					95% Student's-t UCL	68.9	or 95% Modified-t UCL	69.02					
2518													
2519	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
2520	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
2521	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
2522	For additional insight the user may want to consult a statistician.												
2523													

ProUCL Output for Groundwater

UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	4/17/2015 2:49:02 PM
From File	Ajax Groundwater Baseline ProUCL data only.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum_tot

General Statistics

Total Number of Observations	28	Number of Distinct Observations	28
		Number of Missing Observations	0
Minimum	0.00734	Mean	0.821
Maximum	7.42	Median	0.098
SD	1.907	Std. Error of Mean	0.36
Coefficient of Variation	2.323	Skewness	2.751

Normal GOF Test

Shapiro Wilk Test Statistic	0.469	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.924	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.379	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.167	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1.435	95% Adjusted-CLT UCL (Chen-1995)	1.614
		95% Modified-t UCL (Johnson-1978)	1.466

Gamma GOF Test

A-D Test Statistic	2.848	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.838	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.286	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.178	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.373	k star (bias corrected MLE)	0.357
Theta hat (MLE)	2.2	Theta star (bias corrected MLE)	2.3
nu hat (MLE)	20.89	nu star (bias corrected)	19.99
MLE Mean (bias corrected)	0.821	MLE Sd (bias corrected)	1.374
		Approximate Chi Square Value (0.05)	10.84
Adjusted Level of Significance	0.0404	Adjusted Chi Square Value	10.43

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.513	95% Adjusted Gamma UCL (use when n<50)	1.574

51	**Lognormal GOF Test**											
52					Shapiro Wilk Test Statistic	0.923	**Shapiro Wilk Lognormal GOF Test**					
53					5% Shapiro Wilk Critical Value	0.924	Data Not Lognormal at 5% Significance Level					
54					Lilliefors Test Statistic	0.181	**Lilliefors Lognormal GOF Test**					
55					5% Lilliefors Critical Value	0.167	Data Not Lognormal at 5% Significance Level					
56	**Data Not Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59					Minimum of Logged Data	-4.914	Mean of logged Data	-1.981				
60					Maximum of Logged Data	2.004	SD of logged Data	1.776				
61												
62	**Assuming Lognormal Distribution**											
63					95% H-UCL	2.238	90% Chebyshev (MVUE) UCL	1.356				
64					95% Chebyshev (MVUE) UCL	1.704	97.5% Chebyshev (MVUE) UCL	2.187				
65					99% Chebyshev (MVUE) UCL	3.136						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data do not follow a Discernible Distribution (0.05)**											
69												
70	**Nonparametric Distribution Free UCLs**											
71					95% CLT UCL	1.414	95% Jackknife UCL	1.435				
72					95% Standard Bootstrap UCL	1.409	95% Bootstrap-t UCL	1.874				
73					95% Hall's Bootstrap UCL	1.297	95% Percentile Bootstrap UCL	1.407				
74					95% BCA Bootstrap UCL	1.608						
75					90% Chebyshev(Mean, Sd) UCL	1.902	95% Chebyshev(Mean, Sd) UCL	2.392				
76					97.5% Chebyshev(Mean, Sd) UCL	3.072	99% Chebyshev(Mean, Sd) UCL	4.407				
77												
78	**Suggested UCL to Use**											
79					95% Chebyshev (Mean, Sd) UCL	2.392						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												
86												
87	**Antimony_tot**											
88												
89	**General Statistics**											
90					Total Number of Observations	28	Number of Distinct Observations	26				
91							Number of Missing Observations	0				
92					Minimum	1.1600E-4	Mean	6.4127E-4				
93					Maximum	0.0025	Median	2.9725E-4				
94					SD	7.8523E-4	Std. Error of Mean	1.4839E-4				
95					Coefficient of Variation	1.224	Skewness	1.918				
96												
97	**Normal GOF Test**											
98					Shapiro Wilk Test Statistic	0.607	**Shapiro Wilk GOF Test**					
99					5% Shapiro Wilk Critical Value	0.924	Data Not Normal at 5% Significance Level					
100					Lilliefors Test Statistic	0.351	**Lilliefors GOF Test**					

101	5% Lilliefors Critical Value					0.167	Data Not Normal at 5% Significance Level					
102	**Data Not Normal at 5% Significance Level**											
103												
104	**Assuming Normal Distribution**											
105	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
106	95% Student's-t UCL					8.9403E-4	95% Adjusted-CLT UCL (Chen-1995)					9.4284E-4
107							95% Modified-t UCL (Johnson-1978)					9.0300E-4
108												
109	**Gamma GOF Test**											
110	A-D Test Statistic					2.486	**Anderson-Darling Gamma GOF Test**					
111	5% A-D Critical Value					0.77	Data Not Gamma Distributed at 5% Significance Level					
112	K-S Test Statistic					0.252	**Kolmogrov-Smirnoff Gamma GOF Test**					
113	5% K-S Critical Value					0.17	Data Not Gamma Distributed at 5% Significance Level					
114	**Data Not Gamma Distributed at 5% Significance Level**											
115												
116	**Gamma Statistics**											
117	k hat (MLE)					1.164	k star (bias corrected MLE)					1.063
118	Theta hat (MLE)					5.5086E-4	Theta star (bias corrected MLE)					6.0315E-4
119	nu hat (MLE)					65.19	nu star (bias corrected)					59.54
120	MLE Mean (bias corrected)					6.4127E-4	MLE Sd (bias corrected)					6.2192E-4
121							Approximate Chi Square Value (0.05)					42.8
122	Adjusted Level of Significance					0.0404	Adjusted Chi Square Value					41.92
123												
124	**Assuming Gamma Distribution**											
125	95% Approximate Gamma UCL (use when n>=50))					8.9214E-4	95% Adjusted Gamma UCL (use when n<50)					9.1083E-4
126												
127	**Lognormal GOF Test**											
128	Shapiro Wilk Test Statistic					0.865	**Shapiro Wilk Lognormal GOF Test**					
129	5% Shapiro Wilk Critical Value					0.924	Data Not Lognormal at 5% Significance Level					
130	Lilliefors Test Statistic					0.172	**Lilliefors Lognormal GOF Test**					
131	5% Lilliefors Critical Value					0.167	Data Not Lognormal at 5% Significance Level					
132	**Data Not Lognormal at 5% Significance Level**											
133												
134	**Lognormal Statistics**											
135	Minimum of Logged Data					-9.062	Mean of logged Data					-7.84
136	Maximum of Logged Data					-5.991	SD of logged Data					0.91
137												
138	**Assuming Lognormal Distribution**											
139	95% H-UCL					8.9973E-4	90% Chebyshev (MVUE) UCL					9.2332E-4
140	95% Chebyshev (MVUE) UCL					0.00108	97.5% Chebyshev (MVUE) UCL					0.00129
141	99% Chebyshev (MVUE) UCL					0.00171						
142												
143	**Nonparametric Distribution Free UCL Statistics**											
144	**Data do not follow a Discernible Distribution (0.05)**											
145												
146	**Nonparametric Distribution Free UCLs**											
147	95% CLT UCL					8.8536E-4	95% Jackknife UCL					8.9403E-4
148	95% Standard Bootstrap UCL					8.7968E-4	95% Bootstrap-t UCL					0.00104
149	95% Hall's Bootstrap UCL					8.6139E-4	95% Percentile Bootstrap UCL					9.0760E-4
150	95% BCA Bootstrap UCL					9.3330E-4						

151					90% Chebyshev(Mean, Sd) UCL	0.00109					95% Chebyshev(Mean, Sd) UCL	0.00129
152					97.5% Chebyshev(Mean, Sd) UCL	0.00157					99% Chebyshev(Mean, Sd) UCL	0.00212
153												
154					**Suggested UCL to Use**							
155					95% Chebyshev (Mean, Sd) UCL	0.00129						
156												
157					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
158					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
159					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
160					For additional insight the user may want to consult a statistician.							
161												
162												
163	**Arsenic_tot**											
164												
165					**General Statistics**							
166					Total Number of Observations	28					Number of Distinct Observations	28
167											Number of Missing Observations	0
168					Minimum	6.0800E-4					Mean	0.00601
169					Maximum	0.0213					Median	0.00439
170					SD	0.00553					Std. Error of Mean	0.00104
171					Coefficient of Variation	0.919					Skewness	1.603
172												
173					**Normal GOF Test**							
174					Shapiro Wilk Test Statistic	0.805	**Shapiro Wilk GOF Test**					
175					5% Shapiro Wilk Critical Value	0.924	Data Not Normal at 5% Significance Level					
176					Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**					
177					5% Lilliefors Critical Value	0.167	Data Not Normal at 5% Significance Level					
178					**Data Not Normal at 5% Significance Level**							
179												
180					**Assuming Normal Distribution**							
181					**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**					
182					95% Student's-t UCL	0.00779	95% Adjusted-CLT UCL (Chen-1995)	0.00807				
183							95% Modified-t UCL (Johnson-1978)	0.00785				
184												
185					**Gamma GOF Test**							
186					A-D Test Statistic	0.355	**Anderson-Darling Gamma GOF Test**					
187					5% A-D Critical Value	0.764	Detected data appear Gamma Distributed at 5% Significance Level					
188					K-S Test Statistic	0.13	**Kolmogrov-Smirnoff Gamma GOF Test**					
189					5% K-S Critical Value	0.169	Detected data appear Gamma Distributed at 5% Significance Level					
190					**Detected data appear Gamma Distributed at 5% Significance Level**							
191												
192					**Gamma Statistics**							
193					k hat (MLE)	1.428	k star (bias corrected MLE)	1.299				
194					Theta hat (MLE)	0.00421	Theta star (bias corrected MLE)	0.00463				
195					nu hat (MLE)	79.95	nu star (bias corrected)	72.72				
196					MLE Mean (bias corrected)	0.00601	MLE Sd (bias corrected)	0.00528				
197							Approximate Chi Square Value (0.05)	54.08				
198					Adjusted Level of Significance	0.0404	Adjusted Chi Square Value	53.09				
199												
200					**Assuming Gamma Distribution**							

201	95% Approximate Gamma UCL (use when n>=50)					0.00809	95% Adjusted Gamma UCL (use when n<50)					0.00824
202												
203	**Lognormal GOF Test**											
204	Shapiro Wilk Test Statistic					0.974	**Shapiro Wilk Lognormal GOF Test**					
205	5% Shapiro Wilk Critical Value					0.924	Data appear Lognormal at 5% Significance Level					
206	Lilliefors Test Statistic					0.092	**Lilliefors Lognormal GOF Test**					
207	5% Lilliefors Critical Value					0.167	Data appear Lognormal at 5% Significance Level					
208	**Data appear Lognormal at 5% Significance Level**											
209												
210	**Lognormal Statistics**											
211	Minimum of Logged Data					-7.405	Mean of logged Data					-5.503
212	Maximum of Logged Data					-3.851	SD of logged Data					0.936
213												
214	**Assuming Lognormal Distribution**											
215	95% H-UCL					0.00968	90% Chebyshev (MVUE) UCL					0.00988
216	95% Chebyshev (MVUE) UCL					0.0116	97.5% Chebyshev (MVUE) UCL					0.0139
217	99% Chebyshev (MVUE) UCL					0.0185						
218												
219	**Nonparametric Distribution Free UCL Statistics**											
220	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
221												
222	**Nonparametric Distribution Free UCLs**											
223	95% CLT UCL					0.00773	95% Jackknife UCL					0.00779
224	95% Standard Bootstrap UCL					0.00769	95% Bootstrap-t UCL					0.00827
225	95% Hall's Bootstrap UCL					0.008	95% Percentile Bootstrap UCL					0.00779
226	95% BCA Bootstrap UCL					0.00792						
227	90% Chebyshev(Mean, Sd) UCL					0.00915	95% Chebyshev(Mean, Sd) UCL					0.0106
228	97.5% Chebyshev(Mean, Sd) UCL					0.0125	99% Chebyshev(Mean, Sd) UCL					0.0164
229												
230	**Suggested UCL to Use**											
231	95% Adjusted Gamma UCL					0.00824						
232												
233	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
234	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
235	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
236	For additional insight the user may want to consult a statistician.											
237												
238												
239	**Barium_tot**											
240												
241	**General Statistics**											
242	Total Number of Observations					28	Number of Distinct Observations					28
243							Number of Missing Observations					0
244	Minimum					0.00895	Mean					0.0614
245	Maximum					0.274	Median					0.032
246	SD					0.0684	Std. Error of Mean					0.0129
247	Coefficient of Variation					1.114	Skewness					2.191
248												
249	**Normal GOF Test**											
250	Shapiro Wilk Test Statistic					0.644	**Shapiro Wilk GOF Test**					

251				5% Shapiro Wilk Critical Value		0.924	Data Not Normal at 5% Significance Level					
252				Lilliefors Test Statistic		0.318	**Lilliefors GOF Test**					
253				5% Lilliefors Critical Value		0.167	Data Not Normal at 5% Significance Level					
254	**Data Not Normal at 5% Significance Level**											
255												
256	**Assuming Normal Distribution**											
257	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
258				95% Student's-t UCL		0.0834	95% Adjusted-CLT UCL (Chen-1995)					0.0883
259							95% Modified-t UCL (Johnson-1978)					0.0843
260												
261	**Gamma GOF Test**											
262				A-D Test Statistic		2.335	**Anderson-Darling Gamma GOF Test**					
263				5% A-D Critical Value		0.764	Data Not Gamma Distributed at 5% Significance Level					
264				K-S Test Statistic		0.257	**Kolmogrov-Smirnoff Gamma GOF Test**					
265				5% K-S Critical Value		0.169	Data Not Gamma Distributed at 5% Significance Level					
266	**Data Not Gamma Distributed at 5% Significance Level**											
267												
268	**Gamma Statistics**											
269				k hat (MLE)		1.445	k star (bias corrected MLE)					1.314
270				Theta hat (MLE)		0.0425	Theta star (bias corrected MLE)					0.0467
271				nu hat (MLE)		80.94	nu star (bias corrected)					73.6
272				MLE Mean (bias corrected)		0.0614	MLE Sd (bias corrected)					0.0535
273							Approximate Chi Square Value (0.05)					54.84
274				Adjusted Level of Significance		0.0404	Adjusted Chi Square Value					53.84
275												
276	**Assuming Gamma Distribution**											
277				95% Approximate Gamma UCL (use when n>=50))		0.0824	95% Adjusted Gamma UCL (use when n<50)					0.0839
278												
279	**Lognormal GOF Test**											
280				Shapiro Wilk Test Statistic		0.889	**Shapiro Wilk Lognormal GOF Test**					
281				5% Shapiro Wilk Critical Value		0.924	Data Not Lognormal at 5% Significance Level					
282				Lilliefors Test Statistic		0.203	**Lilliefors Lognormal GOF Test**					
283				5% Lilliefors Critical Value		0.167	Data Not Lognormal at 5% Significance Level					
284	**Data Not Lognormal at 5% Significance Level**											
285												
286	**Lognormal Statistics**											
287				Minimum of Logged Data		-4.717	Mean of logged Data					-3.175
288				Maximum of Logged Data		-1.296	SD of logged Data					0.812
289												
290	**Assuming Lognormal Distribution**											
291				95% H-UCL		0.0825	90% Chebyshev (MVUE) UCL					0.0863
292				95% Chebyshev (MVUE) UCL		0.0995	97.5% Chebyshev (MVUE) UCL					0.118
293				99% Chebyshev (MVUE) UCL		0.154						
294												
295	**Nonparametric Distribution Free UCL Statistics**											
296	**Data do not follow a Discernible Distribution (0.05)**											
297												
298	**Nonparametric Distribution Free UCLs**											
299				95% CLT UCL		0.0826	95% Jackknife UCL					0.0834
300				95% Standard Bootstrap UCL		0.0822	95% Bootstrap-t UCL					0.0983

301				95% Hall's Bootstrap UCL		0.0876				95% Percentile Bootstrap UCL		0.0838
302				95% BCA Bootstrap UCL		0.0885						
303				90% Chebyshev(Mean, Sd) UCL		0.1				95% Chebyshev(Mean, Sd) UCL		0.118
304				97.5% Chebyshev(Mean, Sd) UCL		0.142				99% Chebyshev(Mean, Sd) UCL		0.19
305												
306					**Suggested UCL to Use**							
307				95% Chebyshev (Mean, Sd) UCL		0.118						
308												
309					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
310					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
311					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
312					For additional insight the user may want to consult a statistician.							
313												
314												
315	**Beryllium_tot**											
316												
317					**General Statistics**							
318				Total Number of Observations		28				Number of Distinct Observations		15
319										Number of Missing Observations		0
320				Minimum		1.0000E-4				Mean		9.2748E-4
321				Maximum		0.005				Median		1.1429E-4
322				SD		0.00169				Std. Error of Mean		3.1923E-4
323				Coefficient of Variation		1.821				Skewness		2.054
324												
325					**Normal GOF Test**							
326				Shapiro Wilk Test Statistic		0.521				**Shapiro Wilk GOF Test**		
327				5% Shapiro Wilk Critical Value		0.924				Data Not Normal at 5% Significance Level		
328				Lilliefors Test Statistic		0.354				**Lilliefors GOF Test**		
329				5% Lilliefors Critical Value		0.167				Data Not Normal at 5% Significance Level		
330					**Data Not Normal at 5% Significance Level**							
331												
332					**Assuming Normal Distribution**							
333				**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**		
334				95% Student's-t UCL		0.00147				95% Adjusted-CLT UCL (Chen-1995)		0.00158
335										95% Modified-t UCL (Johnson-1978)		0.00149
336												
337					**Gamma GOF Test**							
338				A-D Test Statistic		4.268				**Anderson-Darling Gamma GOF Test**		
339				5% A-D Critical Value		0.809				Data Not Gamma Distributed at 5% Significance Level		
340				K-S Test Statistic		0.331				**Kolmogrov-Smirnoff Gamma GOF Test**		
341				5% K-S Critical Value		0.175				Data Not Gamma Distributed at 5% Significance Level		
342					**Data Not Gamma Distributed at 5% Significance Level**							
343												
344					**Gamma Statistics**							
345				k hat (MLE)		0.517				k star (bias corrected MLE)		0.485
346				Theta hat (MLE)		0.0018				Theta star (bias corrected MLE)		0.00191
347				nu hat (MLE)		28.93				nu star (bias corrected)		27.16
348				MLE Mean (bias corrected)		9.2748E-4				MLE Sd (bias corrected)		0.00133
349										Approximate Chi Square Value (0.05)		16.28
350				Adjusted Level of Significance		0.0404				Adjusted Chi Square Value		15.76

351												
352	**Assuming Gamma Distribution**											
353	95% Approximate Gamma UCL (use when n>=50))					0.00155	95% Adjusted Gamma UCL (use when n<50)					0.0016
354												
355	**Lognormal GOF Test**											
356	Shapiro Wilk Test Statistic					0.705	**Shapiro Wilk Lognormal GOF Test**					
357	5% Shapiro Wilk Critical Value					0.924	Data Not Lognormal at 5% Significance Level					
358	Lilliefors Test Statistic					0.318	**Lilliefors Lognormal GOF Test**					
359	5% Lilliefors Critical Value					0.167	Data Not Lognormal at 5% Significance Level					
360	**Data Not Lognormal at 5% Significance Level**											
361												
362	**Lognormal Statistics**											
363	Minimum of Logged Data					-9.21	Mean of logged Data					-8.206
364	Maximum of Logged Data					-5.298	SD of logged Data					1.434
365												
366	**Assuming Lognormal Distribution**											
367	95% H-UCL					0.00176	90% Chebyshev (MVUE) UCL					0.00143
368	95% Chebyshev (MVUE) UCL					0.00176	97.5% Chebyshev (MVUE) UCL					0.00221
369	99% Chebyshev (MVUE) UCL					0.00309						
370												
371	**Nonparametric Distribution Free UCL Statistics**											
372	**Data do not follow a Discernible Distribution (0.05)**											
373												
374	**Nonparametric Distribution Free UCLs**											
375	95% CLT UCL					0.00145	95% Jackknife UCL					0.00147
376	95% Standard Bootstrap UCL					0.00142	95% Bootstrap-t UCL					0.00183
377	95% Hall's Bootstrap UCL					0.00134	95% Percentile Bootstrap UCL					0.00151
378	95% BCA Bootstrap UCL					0.00157						
379	90% Chebyshev(Mean, Sd) UCL					0.00189	95% Chebyshev(Mean, Sd) UCL					0.00232
380	97.5% Chebyshev(Mean, Sd) UCL					0.00292	99% Chebyshev(Mean, Sd) UCL					0.0041
381												
382	**Suggested UCL to Use**											
383	95% Chebyshev (Mean, Sd) UCL					0.00232						
384												
385	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
386	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
387	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
388	For additional insight the user may want to consult a statistician.											
389												
390												
391	**Bismuth_tot**											
392												
393	**General Statistics**											
394	Total Number of Observations					24	Number of Distinct Observations					12
395							Number of Missing Observations					4
396	Minimum					5.0000E-4	Mean					0.0119
397	Maximum					0.067	Median					5.0000E-4
398	SD					0.0211	Std. Error of Mean					0.00432
399	Coefficient of Variation					1.774	Skewness					1.56
400												

401	**Normal GOF Test**											
402				Shapiro Wilk Test Statistic		0.596	**Shapiro Wilk GOF Test**					
403				5% Shapiro Wilk Critical Value		0.916	Data Not Normal at 5% Significance Level					
404				Lilliefors Test Statistic		0.447	**Lilliefors GOF Test**					
405				5% Lilliefors Critical Value		0.181	Data Not Normal at 5% Significance Level					
406	**Data Not Normal at 5% Significance Level**											
407												
408	**Assuming Normal Distribution**											
409	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
410				95% Student's-t UCL		0.0193	95% Adjusted-CLT UCL (Chen-1995)					0.0205
411							95% Modified-t UCL (Johnson-1978)					0.0195
412												
413	**Gamma GOF Test**											
414				A-D Test Statistic		4.879	**Anderson-Darling Gamma GOF Test**					
415				5% A-D Critical Value		0.843	Data Not Gamma Distributed at 5% Significance Level					
416				K-S Test Statistic		0.424	**Kolmogrov-Smirnoff Gamma GOF Test**					
417				5% K-S Critical Value		0.192	Data Not Gamma Distributed at 5% Significance Level					
418	**Data Not Gamma Distributed at 5% Significance Level**											
419												
420	**Gamma Statistics**											
421				k hat (MLE)		0.338	k star (bias corrected MLE)					0.323
422				Theta hat (MLE)		0.0353	Theta star (bias corrected MLE)					0.0369
423				nu hat (MLE)		16.22	nu star (bias corrected)					15.52
424				MLE Mean (bias corrected)		0.0119	MLE Sd (bias corrected)					0.021
425							Approximate Chi Square Value (0.05)					7.626
426				Adjusted Level of Significance		0.0392	Adjusted Chi Square Value					7.238
427												
428	**Assuming Gamma Distribution**											
429				95% Approximate Gamma UCL (use when n>=50))		0.0243	95% Adjusted Gamma UCL (use when n<50)					0.0256
430												
431	**Lognormal GOF Test**											
432				Shapiro Wilk Test Statistic		0.596	**Shapiro Wilk Lognormal GOF Test**					
433				5% Shapiro Wilk Critical Value		0.916	Data Not Lognormal at 5% Significance Level					
434				Lilliefors Test Statistic		0.396	**Lilliefors Lognormal GOF Test**					
435				5% Lilliefors Critical Value		0.181	Data Not Lognormal at 5% Significance Level					
436	**Data Not Lognormal at 5% Significance Level**											
437												
438	**Lognormal Statistics**											
439				Minimum of Logged Data		-7.601	Mean of logged Data					-6.432
440				Maximum of Logged Data		-2.703	SD of logged Data					1.964
441												
442	**Assuming Lognormal Distribution**											
443				95% H-UCL		0.0578	90% Chebyshev (MVUE) UCL					0.0231
444				95% Chebyshev (MVUE) UCL		0.0295	97.5% Chebyshev (MVUE) UCL					0.0383
445				99% Chebyshev (MVUE) UCL		0.0557						
446												
447	**Nonparametric Distribution Free UCL Statistics**											
448	**Data do not follow a Discernible Distribution (0.05)**											
449												
450	**Nonparametric Distribution Free UCLs**											

451					95% CLT UCL	0.019					95% Jackknife UCL	0.0193
452					95% Standard Bootstrap UCL	0.0189					95% Bootstrap-t UCL	0.0219
453					95% Hall's Bootstrap UCL	0.0188					95% Percentile Bootstrap UCL	0.0194
454					95% BCA Bootstrap UCL	0.02						
455					90% Chebyshev(Mean, Sd) UCL	0.0249					95% Chebyshev(Mean, Sd) UCL	0.0307
456					97.5% Chebyshev(Mean, Sd) UCL	0.0389					99% Chebyshev(Mean, Sd) UCL	0.0549
457												
458					**Suggested UCL to Use**							
459					95% Chebyshev (Mean, Sd) UCL	0.0307						
460												
461	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
462	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
463	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
464	For additional insight the user may want to consult a statistician.											
465												
466												
467	**Boron_tot**											
468												
469	**General Statistics**											
470					Total Number of Observations	28					Number of Distinct Observations	28
471											Number of Missing Observations	0
472					Minimum	0.0242					Mean	0.445
473					Maximum	3.374					Median	0.132
474					SD	0.8					Std. Error of Mean	0.151
475					Coefficient of Variation	1.799					Skewness	2.873
476												
477	**Normal GOF Test**											
478					Shapiro Wilk Test Statistic	0.539	**Shapiro Wilk GOF Test**					
479					5% Shapiro Wilk Critical Value	0.924	Data Not Normal at 5% Significance Level					
480					Lilliefors Test Statistic	0.322	**Lilliefors GOF Test**					
481					5% Lilliefors Critical Value	0.167	Data Not Normal at 5% Significance Level					
482	**Data Not Normal at 5% Significance Level**											
483												
484	**Assuming Normal Distribution**											
485	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
486					95% Student's-t UCL	0.702					95% Adjusted-CLT UCL (Chen-1995)	0.781
487											95% Modified-t UCL (Johnson-1978)	0.716
488												
489	**Gamma GOF Test**											
490					A-D Test Statistic	1.815	**Anderson-Darling Gamma GOF Test**					
491					5% A-D Critical Value	0.793	Data Not Gamma Distributed at 5% Significance Level					
492					K-S Test Statistic	0.204	**Kolmogrov-Smirnoff Gamma GOF Test**					
493					5% K-S Critical Value	0.173	Data Not Gamma Distributed at 5% Significance Level					
494	**Data Not Gamma Distributed at 5% Significance Level**											
495												
496	**Gamma Statistics**											
497					k hat (MLE)	0.665					k star (bias corrected MLE)	0.618
498					Theta hat (MLE)	0.668					Theta star (bias corrected MLE)	0.72
499					nu hat (MLE)	37.26					nu star (bias corrected)	34.6
500					MLE Mean (bias corrected)	0.445					MLE Sd (bias corrected)	0.566

501							Approximate Chi Square Value (0.05)					22.15
502					Adjusted Level of Significance	0.0404				Adjusted Chi Square Value		21.53
503												
504	**Assuming Gamma Distribution**											
505				95% Approximate Gamma UCL (use when n>=50))		0.695				95% Adjusted Gamma UCL (use when n<50)		0.715
506												
507	**Lognormal GOF Test**											
508					Shapiro Wilk Test Statistic	0.947	**Shapiro Wilk Lognormal GOF Test**					
509					5% Shapiro Wilk Critical Value	0.924	Data appear Lognormal at 5% Significance Level					
510					Lilliefors Test Statistic	0.131	**Lilliefors Lognormal GOF Test**					
511					5% Lilliefors Critical Value	0.167	Data appear Lognormal at 5% Significance Level					
512	**Data appear Lognormal at 5% Significance Level**											
513												
514	**Lognormal Statistics**											
515					Minimum of Logged Data	-3.721	Mean of logged Data					-1.725
516					Maximum of Logged Data	1.216	SD of logged Data					1.269
517												
518	**Assuming Lognormal Distribution**											
519					95% H-UCL	0.79	90% Chebyshev (MVUE) UCL					0.709
520					95% Chebyshev (MVUE) UCL	0.858	97.5% Chebyshev (MVUE) UCL					1.065
521					99% Chebyshev (MVUE) UCL	1.471						
522												
523	**Nonparametric Distribution Free UCL Statistics**											
524	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
525												
526	**Nonparametric Distribution Free UCLs**											
527					95% CLT UCL	0.693	95% Jackknife UCL					0.702
528					95% Standard Bootstrap UCL	0.695	95% Bootstrap-t UCL					1.027
529					95% Hall's Bootstrap UCL	0.801	95% Percentile Bootstrap UCL					0.702
530					95% BCA Bootstrap UCL	0.811						
531					90% Chebyshev(Mean, Sd) UCL	0.898	95% Chebyshev(Mean, Sd) UCL					1.104
532					97.5% Chebyshev(Mean, Sd) UCL	1.389	99% Chebyshev(Mean, Sd) UCL					1.949
533												
534	**Suggested UCL to Use**											
535					95% H-UCL	0.79						
536												
537	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
538	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
539	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
540	For additional insight the user may want to consult a statistician.											
541												
542	**ProUCL computes and outputs H-statistic based UCLs for historical reasons only.**											
543	**H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.**											
544	**It is therefore recommended to avoid the use of H-statistic based 95% UCLs.**											
545	**Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.**											
546												
547												
548	**Cadmium_tot**											
549												
550	**General Statistics**											

551					Total Number of Observations	28				Number of Distinct Observations		27
552										Number of Missing Observations		0
553					Minimum	1.0000E-5				Mean		1.1023E-4
554					Maximum	7.7250E-4				Median		3.8986E-5
555					SD	1.7325E-4				Std. Error of Mean		3.2740E-5
556					Coefficient of Variation	1.572				Skewness		2.824
557												
558	**Normal GOF Test**											
559					Shapiro Wilk Test Statistic	0.593	**Shapiro Wilk GOF Test**					
560					5% Shapiro Wilk Critical Value	0.924	Data Not Normal at 5% Significance Level					
561					Lilliefors Test Statistic	0.293	**Lilliefors GOF Test**					
562					5% Lilliefors Critical Value	0.167	Data Not Normal at 5% Significance Level					
563	**Data Not Normal at 5% Significance Level**											
564												
565	**Assuming Normal Distribution**											
566	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
567					95% Student's-t UCL	1.6600E-4				95% Adjusted-CLT UCL (Chen-1995)		1.8275E-4
568										95% Modified-t UCL (Johnson-1978)		1.6891E-4
569												
570	**Gamma GOF Test**											
571					A-D Test Statistic	1.445	**Anderson-Darling Gamma GOF Test**					
572					5% A-D Critical Value	0.782	Data Not Gamma Distributed at 5% Significance Level					
573					K-S Test Statistic	0.181	**Kolmogrov-Smirnoff Gamma GOF Test**					
574					5% K-S Critical Value	0.172	Data Not Gamma Distributed at 5% Significance Level					
575	**Data Not Gamma Distributed at 5% Significance Level**											
576												
577	**Gamma Statistics**											
578					k hat (MLE)	0.8				k star (bias corrected MLE)		0.738
579					Theta hat (MLE)	1.3773E-4				Theta star (bias corrected MLE)		1.4929E-4
580					nu hat (MLE)	44.82				nu star (bias corrected)		41.35
581					MLE Mean (bias corrected)	1.1023E-4				MLE Sd (bias corrected)		1.2828E-4
582										Approximate Chi Square Value (0.05)		27.61
583					Adjusted Level of Significance	0.0404				Adjusted Chi Square Value		26.92
584												
585	**Assuming Gamma Distribution**											
586					95% Approximate Gamma UCL (use when n>=50))	1.6508E-4				95% Adjusted Gamma UCL (use when n<50)		1.6934E-4
587												
588	**Lognormal GOF Test**											
589					Shapiro Wilk Test Statistic	0.945	**Shapiro Wilk Lognormal GOF Test**					
590					5% Shapiro Wilk Critical Value	0.924	Data appear Lognormal at 5% Significance Level					
591					Lilliefors Test Statistic	0.125	**Lilliefors Lognormal GOF Test**					
592					5% Lilliefors Critical Value	0.167	Data appear Lognormal at 5% Significance Level					
593	**Data appear Lognormal at 5% Significance Level**											
594												
595	**Lognormal Statistics**											
596					Minimum of Logged Data	-11.51				Mean of logged Data		-9.854
597					Maximum of Logged Data	-7.166				SD of logged Data		1.156
598												
599	**Assuming Lognormal Distribution**											
600					95% H-UCL	1.8493E-4				90% Chebyshev (MVUE) UCL		1.7501E-4

601				95% Chebyshev (MVUE) UCL	2.0958E-4					97.5% Chebyshev (MVUE) UCL	2.5755E-4	
602				99% Chebyshev (MVUE) UCL	3.5180E-4							
603												
604					**Nonparametric Distribution Free UCL Statistics**							
605					**Data appear to follow a Discernible Distribution at 5% Significance Level**							
606												
607					**Nonparametric Distribution Free UCLs**							
608				95% CLT UCL	1.6408E-4					95% Jackknife UCL	1.6600E-4	
609				95% Standard Bootstrap UCL	1.6145E-4					95% Bootstrap-t UCL	2.2608E-4	
610				95% Hall's Bootstrap UCL	2.1605E-4					95% Percentile Bootstrap UCL	1.6595E-4	
611				95% BCA Bootstrap UCL	1.8837E-4							
612				90% Chebyshev(Mean, Sd) UCL	2.0845E-4					95% Chebyshev(Mean, Sd) UCL	2.5294E-4	
613				97.5% Chebyshev(Mean, Sd) UCL	3.1470E-4					99% Chebyshev(Mean, Sd) UCL	4.3599E-4	
614												
615					**Suggested UCL to Use**							
616				95% H-UCL	1.8493E-4							
617												
618					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
619					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
620					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
621					For additional insight the user may want to consult a statistician.							
622												
623					**ProUCL computes and outputs H-statistic based UCLs for historical reasons only.**							
624					**H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.**							
625					**It is therefore recommended to avoid the use of H-statistic based 95% UCLs.**							
626					**Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.**							
627												
628												
629	**Calcium_tot**											
630												
631					**General Statistics**							
632				Total Number of Observations	28					Number of Distinct Observations	28	
633										Number of Missing Observations	0	
634				Minimum	9.959					Mean	103.8	
635				Maximum	463.8					Median	75.97	
636				SD	98					Std. Error of Mean	18.52	
637				Coefficient of Variation	0.944					Skewness	2.219	
638												
639					**Normal GOF Test**							
640				Shapiro Wilk Test Statistic	0.777					**Shapiro Wilk GOF Test**		
641				5% Shapiro Wilk Critical Value	0.924					Data Not Normal at 5% Significance Level		
642				Lilliefors Test Statistic	0.261					**Lilliefors GOF Test**		
643				5% Lilliefors Critical Value	0.167					Data Not Normal at 5% Significance Level		
644					**Data Not Normal at 5% Significance Level**							
645												
646					**Assuming Normal Distribution**							
647				**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**		
648				95% Student's-t UCL	135.4					95% Adjusted-CLT UCL (Chen-1995)	142.6	
649										95% Modified-t UCL (Johnson-1978)	136.7	
650												

	A	B	C	D	E	F	G	H	I	J	K	L
651	**Gamma GOF Test**											
652	A-D Test Statistic					0.327	**Anderson-Darling Gamma GOF Test**					
653	5% A-D Critical Value					0.763	Detected data appear Gamma Distributed at 5% Significance Level					
654	K-S Test Statistic					0.161	**Kolmogrov-Smirnoff Gamma GOF Test**					
655	5% K-S Critical Value					0.168	Detected data appear Gamma Distributed at 5% Significance Level					
656	**Detected data appear Gamma Distributed at 5% Significance Level**											
657												
658	**Gamma Statistics**											
659	k hat (MLE)					1.503	k star (bias corrected MLE)					1.365
660	Theta hat (MLE)					69.09	Theta star (bias corrected MLE)					76.03
661	nu hat (MLE)					84.15	nu star (bias corrected)					76.47
662	MLE Mean (bias corrected)					103.8	MLE Sd (bias corrected)					88.84
663							Approximate Chi Square Value (0.05)					57.32
664	Adjusted Level of Significance					0.0404	Adjusted Chi Square Value					56.3
665												
666	**Assuming Gamma Distribution**											
667	95% Approximate Gamma UCL (use when n>=50)					138.5	95% Adjusted Gamma UCL (use when n<50)					141
668												
669	**Lognormal GOF Test**											
670	Shapiro Wilk Test Statistic					0.98	**Shapiro Wilk Lognormal GOF Test**					
671	5% Shapiro Wilk Critical Value					0.924	Data appear Lognormal at 5% Significance Level					
672	Lilliefors Test Statistic					0.117	**Lilliefors Lognormal GOF Test**					
673	5% Lilliefors Critical Value					0.167	Data appear Lognormal at 5% Significance Level					
674	**Data appear Lognormal at 5% Significance Level**											
675												
676	**Lognormal Statistics**											
677	Minimum of Logged Data					2.298	Mean of logged Data					4.274
678	Maximum of Logged Data					6.139	SD of logged Data					0.907
679												
680	**Assuming Lognormal Distribution**											
681	95% H-UCL					163.3	90% Chebyshev (MVUE) UCL					167.7
682	95% Chebyshev (MVUE) UCL					195.6	97.5% Chebyshev (MVUE) UCL					234.2
683	99% Chebyshev (MVUE) UCL					310.1						
684												
685	**Nonparametric Distribution Free UCL Statistics**											
686	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
687												
688	**Nonparametric Distribution Free UCLs**											
689	95% CLT UCL					134.3	95% Jackknife UCL					135.4
690	95% Standard Bootstrap UCL					133.6	95% Bootstrap-t UCL					148.4
691	95% Hall's Bootstrap UCL					167.2	95% Percentile Bootstrap UCL					135.2
692	95% BCA Bootstrap UCL					140.3						
693	90% Chebyshev(Mean, Sd) UCL					159.4	95% Chebyshev(Mean, Sd) UCL					184.5
694	97.5% Chebyshev(Mean, Sd) UCL					219.5	99% Chebyshev(Mean, Sd) UCL					288.1
695												
696	**Suggested UCL to Use**											
697	95% Adjusted Gamma UCL					141						
698												
699	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
700	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											

and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.

For additional insight the user may want to consult a statistician.

Chromium_tot

General Statistics

Total Number of Observations	28	Number of Distinct Observations	28
		Number of Missing Observations	0
Minimum	1.8800E-4	Mean	0.00579
Maximum	0.0467	Median	8.2333E-4
SD	0.0124	Std. Error of Mean	0.00234
Coefficient of Variation	2.138	Skewness	2.532

Normal GOF Test

Shapiro Wilk Test Statistic	0.508	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.924	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.412	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.167	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.00978	95% Adjusted-CLT UCL (Chen-1995)	0.0108
		95% Modified-t UCL (Johnson-1978)	0.00997

Gamma GOF Test

A-D Test Statistic	3.034	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.831	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.264	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.177	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.408	k star (bias corrected MLE)	0.388
Theta hat (MLE)	0.0142	Theta star (bias corrected MLE)	0.0149
nu hat (MLE)	22.82	nu star (bias corrected)	21.71
MLE Mean (bias corrected)	0.00579	MLE Sd (bias corrected)	0.0093
		Approximate Chi Square Value (0.05)	12.12
Adjusted Level of Significance	0.0404	Adjusted Chi Square Value	11.68

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.0104	95% Adjusted Gamma UCL (use when n<50)	0.0108

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.86	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.924	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.144	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.167	Data appear Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

751												
752	**Lognormal Statistics**											
753					Minimum of Logged Data	-8.579				Mean of logged Data	-6.761	
754					Maximum of Logged Data	-3.064				SD of logged Data	1.665	
755												
756	**Assuming Lognormal Distribution**											
757					95% H-UCL	0.0136				90% Chebyshev (MVUE) UCL	0.00921	
758					95% Chebyshev (MVUE) UCL	0.0115				97.5% Chebyshev (MVUE) UCL	0.0147	
759					99% Chebyshev (MVUE) UCL	0.0209						
760												
761	**Nonparametric Distribution Free UCL Statistics**											
762	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
763												
764	**Nonparametric Distribution Free UCLs**											
765					95% CLT UCL	0.00964				95% Jackknife UCL	0.00978	
766					95% Standard Bootstrap UCL	0.00953				95% Bootstrap-t UCL	0.0138	
767					95% Hall's Bootstrap UCL	0.0102				95% Percentile Bootstrap UCL	0.00995	
768					95% BCA Bootstrap UCL	0.0112						
769					90% Chebyshev(Mean, Sd) UCL	0.0128				95% Chebyshev(Mean, Sd) UCL	0.016	
770					97.5% Chebyshev(Mean, Sd) UCL	0.0204				99% Chebyshev(Mean, Sd) UCL	0.0291	
771												
772	**Suggested UCL to Use**											
773					95% Chebyshev (Mean, Sd) UCL	0.016						
774												
775	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
776	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
777	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
778	For additional insight the user may want to consult a statistician.											
779												
780												
781	**Cobalt_tot**											
782												
783	**General Statistics**											
784					Total Number of Observations	28				Number of Distinct Observations	28	
785										Number of Missing Observations	0	
786					Minimum	1.7000E-4				Mean	0.00303	
787					Maximum	0.017				Median	0.00111	
788					SD	0.00486				Std. Error of Mean	9.1845E-4	
789					Coefficient of Variation	1.603				Skewness	2.409	
790												
791	**Normal GOF Test**											
792					Shapiro Wilk Test Statistic	0.554				**Shapiro Wilk GOF Test**		
793					5% Shapiro Wilk Critical Value	0.924				Data Not Normal at 5% Significance Level		
794					Lilliefors Test Statistic	0.351				**Lilliefors GOF Test**		
795					5% Lilliefors Critical Value	0.167				Data Not Normal at 5% Significance Level		
796	**Data Not Normal at 5% Significance Level**											
797												
798	**Assuming Normal Distribution**											
799	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
800					95% Student's-t UCL	0.0046				95% Adjusted-CLT UCL (Chen-1995)	0.00499	

801											95% Modified-t UCL (Johnson-1978)	0.00467
802												
803	**Gamma GOF Test**											
804					A-D Test Statistic	2.112	**Anderson-Darling Gamma GOF Test**					
805					5% A-D Critical Value	0.784	Data Not Gamma Distributed at 5% Significance Level					
806					K-S Test Statistic	0.212	**Kolmogrov-Smirnoff Gamma GOF Test**					
807					5% K-S Critical Value	0.172	Data Not Gamma Distributed at 5% Significance Level					
808	**Data Not Gamma Distributed at 5% Significance Level**											
809												
810	**Gamma Statistics**											
811					k hat (MLE)	0.774	k star (bias corrected MLE)					0.714
812					Theta hat (MLE)	0.00392	Theta star (bias corrected MLE)					0.00424
813					nu hat (MLE)	43.32	nu star (bias corrected)					40.01
814					MLE Mean (bias corrected)	0.00303	MLE Sd (bias corrected)					0.00359
815							Approximate Chi Square Value (0.05)					26.52
816					Adjusted Level of Significance	0.0404	Adjusted Chi Square Value					25.84
817												
818	**Assuming Gamma Distribution**											
819					95% Approximate Gamma UCL (use when n>=50))	0.00457	95% Adjusted Gamma UCL (use when n<50)					0.00469
820												
821	**Lognormal GOF Test**											
822					Shapiro Wilk Test Statistic	0.928	**Shapiro Wilk Lognormal GOF Test**					
823					5% Shapiro Wilk Critical Value	0.924	Data appear Lognormal at 5% Significance Level					
824					Lilliefors Test Statistic	0.112	**Lilliefors Lognormal GOF Test**					
825					5% Lilliefors Critical Value	0.167	Data appear Lognormal at 5% Significance Level					
826	**Data appear Lognormal at 5% Significance Level**											
827												
828	**Lognormal Statistics**											
829					Minimum of Logged Data	-8.68	Mean of logged Data					-6.57
830					Maximum of Logged Data	-4.075	SD of logged Data					1.156
831												
832	**Assuming Lognormal Distribution**											
833					95% H-UCL	0.00493	90% Chebyshev (MVUE) UCL					0.00467
834					95% Chebyshev (MVUE) UCL	0.00559	97.5% Chebyshev (MVUE) UCL					0.00687
835					99% Chebyshev (MVUE) UCL	0.00939						
836												
837	**Nonparametric Distribution Free UCL Statistics**											
838	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
839												
840	**Nonparametric Distribution Free UCLs**											
841					95% CLT UCL	0.00454	95% Jackknife UCL					0.0046
842					95% Standard Bootstrap UCL	0.00455	95% Bootstrap-t UCL					0.00533
843					95% Hall's Bootstrap UCL	0.00429	95% Percentile Bootstrap UCL					0.0046
844					95% BCA Bootstrap UCL	0.00508						
845					90% Chebyshev(Mean, Sd) UCL	0.00579	95% Chebyshev(Mean, Sd) UCL					0.00703
846					97.5% Chebyshev(Mean, Sd) UCL	0.00877	99% Chebyshev(Mean, Sd) UCL					0.0122
847												
848	**Suggested UCL to Use**											
849					95% H-UCL	0.00493						
850												

851	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
852	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
853	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
854	For additional insight the user may want to consult a statistician.											
855												
856	**ProUCL computes and outputs H-statistic based UCLs for historical reasons only.**											
857	**H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.**											
858	**It is therefore recommended to avoid the use of H-statistic based 95% UCLs.**											
859	**Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.**											
860												
861												
862	**Copper_tot**											
863												
864	**General Statistics**											
865	Total Number of Observations				28		Number of Distinct Observations				28	
866							Number of Missing Observations				0	
867	Minimum				5.0000E-4		Mean				0.0195	
868	Maximum				0.299		Median				0.00155	
869	SD				0.0592		Std. Error of Mean				0.0112	
870	Coefficient of Variation				3.045		Skewness				4.302	
871												
872	**Normal GOF Test**											
873	Shapiro Wilk Test Statistic				0.359		**Shapiro Wilk GOF Test**					
874	5% Shapiro Wilk Critical Value				0.924		Data Not Normal at 5% Significance Level					
875	Lilliefors Test Statistic				0.429		**Lilliefors GOF Test**					
876	5% Lilliefors Critical Value				0.167		Data Not Normal at 5% Significance Level					
877	**Data Not Normal at 5% Significance Level**											
878												
879	**Assuming Normal Distribution**											
880	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
881	95% Student's-t UCL				0.0385		95% Adjusted-CLT UCL (Chen-1995)				0.0476	
882							95% Modified-t UCL (Johnson-1978)				0.04	
883												
884	**Gamma GOF Test**											
885	A-D Test Statistic				4.152		**Anderson-Darling Gamma GOF Test**					
886	5% A-D Critical Value				0.844		Data Not Gamma Distributed at 5% Significance Level					
887	K-S Test Statistic				0.31		**Kolmogrov-Smirnoff Gamma GOF Test**					
888	5% K-S Critical Value				0.178		Data Not Gamma Distributed at 5% Significance Level					
889	**Data Not Gamma Distributed at 5% Significance Level**											
890												
891	**Gamma Statistics**											
892	k hat (MLE)				0.349		k star (bias corrected MLE)				0.335	
893	Theta hat (MLE)				0.0558		Theta star (bias corrected MLE)				0.058	
894	nu hat (MLE)				19.54		nu star (bias corrected)				18.78	
895	MLE Mean (bias corrected)				0.0195		MLE Sd (bias corrected)				0.0336	
896							Approximate Chi Square Value (0.05)				9.956	
897	Adjusted Level of Significance				0.0404		Adjusted Chi Square Value				9.559	
898												
899	**Assuming Gamma Distribution**											
900	95% Approximate Gamma UCL (use when n>=50))				0.0367		95% Adjusted Gamma UCL (use when n<50)				0.0382	

901												
902	**Lognormal GOF Test**											
903					Shapiro Wilk Test Statistic	0.831	**Shapiro Wilk Lognormal GOF Test**					
904					5% Shapiro Wilk Critical Value	0.924	Data Not Lognormal at 5% Significance Level					
905					Lilliefors Test Statistic	0.168	**Lilliefors Lognormal GOF Test**					
906					5% Lilliefors Critical Value	0.167	Data Not Lognormal at 5% Significance Level					
907	**Data Not Lognormal at 5% Significance Level**											
908												
909	**Lognormal Statistics**											
910					Minimum of Logged Data	-7.601	Mean of logged Data	-5.868				
911					Maximum of Logged Data	-1.206	SD of logged Data	1.622				
912												
913	**Assuming Lognormal Distribution**											
914					95% H-UCL	0.0296	90% Chebyshev (MVUE) UCL	0.0208				
915					95% Chebyshev (MVUE) UCL	0.0259	97.5% Chebyshev (MVUE) UCL	0.0329				
916					99% Chebyshev (MVUE) UCL	0.0468						
917												
918	**Nonparametric Distribution Free UCL Statistics**											
919	**Data do not follow a Discernible Distribution (0.05)**											
920												
921	**Nonparametric Distribution Free UCLs**											
922					95% CLT UCL	0.0379	95% Jackknife UCL	0.0385				
923					95% Standard Bootstrap UCL	0.0374	95% Bootstrap-t UCL	0.0749				
924					95% Hall's Bootstrap UCL	0.0852	95% Percentile Bootstrap UCL	0.0396				
925					95% BCA Bootstrap UCL	0.0533						
926					90% Chebyshev(Mean, Sd) UCL	0.053	95% Chebyshev(Mean, Sd) UCL	0.0683				
927					97.5% Chebyshev(Mean, Sd) UCL	0.0894	99% Chebyshev(Mean, Sd) UCL	0.131				
928												
929	**Suggested UCL to Use**											
930					95% Chebyshev (Mean, Sd) UCL	0.0683						
931												
932	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
933	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
934	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
935	For additional insight the user may want to consult a statistician.											
936												
937												
938	**Iron_tot**											
939												
940	**General Statistics**											
941					Total Number of Observations	28	Number of Distinct Observations	28				
942							Number of Missing Observations	0				
943					Minimum	0.047	Mean	1.632				
944					Maximum	12.05	Median	0.577				
945					SD	2.951	Std. Error of Mean	0.558				
946					Coefficient of Variation	1.808	Skewness	2.637				
947												
948	**Normal GOF Test**											
949					Shapiro Wilk Test Statistic	0.561	**Shapiro Wilk GOF Test**					
950					5% Shapiro Wilk Critical Value	0.924	Data Not Normal at 5% Significance Level					

951				Lilliefors Test Statistic		0.326	**Lilliefors GOF Test**					
952				5% Lilliefors Critical Value		0.167	Data Not Normal at 5% Significance Level					
953	**Data Not Normal at 5% Significance Level**											
954												
955	**Assuming Normal Distribution**											
956	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
957				95% Student's-t UCL		2.582				95% Adjusted-CLT UCL (Chen-1995)		2.846
958										95% Modified-t UCL (Johnson-1978)		2.628
959												
960	**Gamma GOF Test**											
961				A-D Test Statistic		1.505	**Anderson-Darling Gamma GOF Test**					
962				5% A-D Critical Value		0.803	Data Not Gamma Distributed at 5% Significance Level					
963				K-S Test Statistic		0.191	**Kolmogrov-Smirnoff Gamma GOF Test**					
964				5% K-S Critical Value		0.174	Data Not Gamma Distributed at 5% Significance Level					
965	**Data Not Gamma Distributed at 5% Significance Level**											
966												
967	**Gamma Statistics**											
968				k hat (MLE)		0.573				k star (bias corrected MLE)		0.535
969				Theta hat (MLE)		2.848				Theta star (bias corrected MLE)		3.048
970				nu hat (MLE)		32.09				nu star (bias corrected)		29.99
971				MLE Mean (bias corrected)		1.632				MLE Sd (bias corrected)		2.23
972										Approximate Chi Square Value (0.05)		18.48
973				Adjusted Level of Significance		0.0404				Adjusted Chi Square Value		17.92
974												
975	**Assuming Gamma Distribution**											
976				95% Approximate Gamma UCL (use when n>=50))		2.648				95% Adjusted Gamma UCL (use when n<50)		2.731
977												
978	**Lognormal GOF Test**											
979				Shapiro Wilk Test Statistic		0.962	**Shapiro Wilk Lognormal GOF Test**					
980				5% Shapiro Wilk Critical Value		0.924	Data appear Lognormal at 5% Significance Level					
981				Lilliefors Test Statistic		0.0917	**Lilliefors Lognormal GOF Test**					
982				5% Lilliefors Critical Value		0.167	Data appear Lognormal at 5% Significance Level					
983	**Data appear Lognormal at 5% Significance Level**											
984												
985	**Lognormal Statistics**											
986				Minimum of Logged Data		-3.058				Mean of logged Data		-0.596
987				Maximum of Logged Data		2.489				SD of logged Data		1.449
988												
989	**Assuming Lognormal Distribution**											
990				95% H-UCL		3.691				90% Chebyshev (MVUE) UCL		2.965
991				95% Chebyshev (MVUE) UCL		3.643				97.5% Chebyshev (MVUE) UCL		4.584
992				99% Chebyshev (MVUE) UCL		6.433						
993												
994	**Nonparametric Distribution Free UCL Statistics**											
995	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
996												
997	**Nonparametric Distribution Free UCLs**											
998				95% CLT UCL		2.549				95% Jackknife UCL		2.582
999				95% Standard Bootstrap UCL		2.519				95% Bootstrap-t UCL		3.284
1000				95% Hall's Bootstrap UCL		2.612				95% Percentile Bootstrap UCL		2.628

1001				95% BCA Bootstrap UCL		2.825						
1002				90% Chebyshev(Mean, Sd) UCL		3.305				95% Chebyshev(Mean, Sd) UCL		4.063
1003				97.5% Chebyshev(Mean, Sd) UCL		5.114				99% Chebyshev(Mean, Sd) UCL		7.18
1004												
1005					**Suggested UCL to Use**							
1006					95% H-UCL	3.691						
1007												
1008	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1009	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1010	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1011	For additional insight the user may want to consult a statistician.											
1012												
1013	**ProUCL computes and outputs H-statistic based UCLs for historical reasons only.**											
1014	**H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.**											
1015	**It is therefore recommended to avoid the use of H-statistic based 95% UCLs.**											
1016	**Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.**											
1017												
1018												
1019	**Lead_tot**											
1020												
1021					**General Statistics**							
1022				Total Number of Observations		28				Number of Distinct Observations		25
1023										Number of Missing Observations		0
1024				Minimum		5.0000E-5				Mean		5.8106E-4
1025				Maximum		0.00355				Median		1.2000E-4
1026				SD		0.00104				Std. Error of Mean		1.9614E-4
1027				Coefficient of Variation		1.786				Skewness		2.224
1028												
1029					**Normal GOF Test**							
1030				Shapiro Wilk Test Statistic		0.551				**Shapiro Wilk GOF Test**		
1031				5% Shapiro Wilk Critical Value		0.924				Data Not Normal at 5% Significance Level		
1032				Lilliefors Test Statistic		0.359				**Lilliefors GOF Test**		
1033				5% Lilliefors Critical Value		0.167				Data Not Normal at 5% Significance Level		
1034					**Data Not Normal at 5% Significance Level**							
1035												
1036					**Assuming Normal Distribution**							
1037				**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**		
1038				95% Student's-t UCL		9.1515E-4				95% Adjusted-CLT UCL (Chen-1995)		9.9176E-4
1039										95% Modified-t UCL (Johnson-1978)		9.2889E-4
1040												
1041					**Gamma GOF Test**							
1042				A-D Test Statistic		2.742				**Anderson-Darling Gamma GOF Test**		
1043				5% A-D Critical Value		0.803				Data Not Gamma Distributed at 5% Significance Level		
1044				K-S Test Statistic		0.209				**Kolmogrov-Smirnoff Gamma GOF Test**		
1045				5% K-S Critical Value		0.174				Data Not Gamma Distributed at 5% Significance Level		
1046					**Data Not Gamma Distributed at 5% Significance Level**							
1047												
1048					**Gamma Statistics**							
1049				k hat (MLE)		0.567				k star (bias corrected MLE)		0.53
1050				Theta hat (MLE)		0.00103				Theta star (bias corrected MLE)		0.0011

1051					nu hat (MLE)	31.74				nu star (bias corrected)		29.68
1052					MLE Mean (bias corrected)	5.8106E-4				MLE Sd (bias corrected)		7.9822E-4
1053										Approximate Chi Square Value (0.05)		18.24
1054					Adjusted Level of Significance	0.0404				Adjusted Chi Square Value		17.68
1055												
1056					**Assuming Gamma Distribution**							
1057					95% Approximate Gamma UCL (use when n>=50))	9.4547E-4				95% Adjusted Gamma UCL (use when n<50)		9.7514E-4
1058												
1059					**Lognormal GOF Test**							
1060					Shapiro Wilk Test Statistic	0.845				**Shapiro Wilk Lognormal GOF Test**		
1061					5% Shapiro Wilk Critical Value	0.924				Data Not Lognormal at 5% Significance Level		
1062					Lilliefors Test Statistic	0.17				**Lilliefors Lognormal GOF Test**		
1063					5% Lilliefors Critical Value	0.167				Data Not Lognormal at 5% Significance Level		
1064					**Data Not Lognormal at 5% Significance Level**							
1065												
1066					**Lognormal Statistics**							
1067					Minimum of Logged Data	-9.903				Mean of logged Data		-8.55
1068					Maximum of Logged Data	-5.641				SD of logged Data		1.379
1069												
1070					**Assuming Lognormal Distribution**							
1071					95% H-UCL	0.0011				90% Chebyshev (MVUE) UCL		9.2301E-4
1072					95% Chebyshev (MVUE) UCL	0.00113				97.5% Chebyshev (MVUE) UCL		0.00141
1073					99% Chebyshev (MVUE) UCL	0.00197						
1074												
1075					**Nonparametric Distribution Free UCL Statistics**							
1076					**Data do not follow a Discernible Distribution (0.05)**							
1077												
1078					**Nonparametric Distribution Free UCLs**							
1079					95% CLT UCL	9.0369E-4				95% Jackknife UCL		9.1515E-4
1080					95% Standard Bootstrap UCL	9.0083E-4				95% Bootstrap-t UCL		0.00107
1081					95% Hall's Bootstrap UCL	8.7707E-4				95% Percentile Bootstrap UCL		9.1757E-4
1082					95% BCA Bootstrap UCL	0.00103						
1083					90% Chebyshev(Mean, Sd) UCL	0.00117				95% Chebyshev(Mean, Sd) UCL		0.00144
1084					97.5% Chebyshev(Mean, Sd) UCL	0.00181				99% Chebyshev(Mean, Sd) UCL		0.00253
1085												
1086					**Suggested UCL to Use**							
1087					95% Chebyshev (Mean, Sd) UCL	0.00144						
1088												
1089	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1090	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1091	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1092	For additional insight the user may want to consult a statistician.											
1093												
1094												
1095	**Lithium_tot**											
1096												
1097					**General Statistics**							
1098					Total Number of Observations	28				Number of Distinct Observations		26
1099										Number of Missing Observations		0
1100					Minimum	0.00408				Mean		0.0151

1101					Maximum	0.0418					Median	0.0126
1102					SD	0.0101					Std. Error of Mean	0.0019
1103					Coefficient of Variation	0.668					Skewness	0.839
1104												
1105	**Normal GOF Test**											
1106					Shapiro Wilk Test Statistic	0.89	**Shapiro Wilk GOF Test**					
1107					5% Shapiro Wilk Critical Value	0.924	Data Not Normal at 5% Significance Level					
1108					Lilliefors Test Statistic	0.149	**Lilliefors GOF Test**					
1109					5% Lilliefors Critical Value	0.167	Data appear Normal at 5% Significance Level					
1110	**Data appear Approximate Normal at 5% Significance Level**											
1111												
1112	**Assuming Normal Distribution**											
1113	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1114					95% Student's-t UCL	0.0183					95% Adjusted-CLT UCL (Chen-1995)	0.0185
1115											95% Modified-t UCL (Johnson-1978)	0.0184
1116												
1117	**Gamma GOF Test**											
1118					A-D Test Statistic	0.731	**Anderson-Darling Gamma GOF Test**					
1119					5% A-D Critical Value	0.756	Detected data appear Gamma Distributed at 5% Significance Level					
1120					K-S Test Statistic	0.155	**Kolmogrov-Smirnoff Gamma GOF Test**					
1121					5% K-S Critical Value	0.167	Detected data appear Gamma Distributed at 5% Significance Level					
1122	**Detected data appear Gamma Distributed at 5% Significance Level**											
1123												
1124	**Gamma Statistics**											
1125					k hat (MLE)	2.349					k star (bias corrected MLE)	2.121
1126					Theta hat (MLE)	0.00642					Theta star (bias corrected MLE)	0.00711
1127					nu hat (MLE)	131.6					nu star (bias corrected)	118.8
1128					MLE Mean (bias corrected)	0.0151					MLE Sd (bias corrected)	0.0104
1129											Approximate Chi Square Value (0.05)	94.63
1130					Adjusted Level of Significance	0.0404					Adjusted Chi Square Value	93.3
1131												
1132	**Assuming Gamma Distribution**											
1133					95% Approximate Gamma UCL (use when n>=50))	0.0189					95% Adjusted Gamma UCL (use when n<50)	0.0192
1134												
1135	**Lognormal GOF Test**											
1136					Shapiro Wilk Test Statistic	0.931	**Shapiro Wilk Lognormal GOF Test**					
1137					5% Shapiro Wilk Critical Value	0.924	Data appear Lognormal at 5% Significance Level					
1138					Lilliefors Test Statistic	0.142	**Lilliefors Lognormal GOF Test**					
1139					5% Lilliefors Critical Value	0.167	Data appear Lognormal at 5% Significance Level					
1140	**Data appear Lognormal at 5% Significance Level**											
1141												
1142	**Lognormal Statistics**											
1143					Minimum of Logged Data	-5.501					Mean of logged Data	-4.422
1144					Maximum of Logged Data	-3.175					SD of logged Data	0.703
1145												
1146	**Assuming Lognormal Distribution**											
1147					95% H-UCL	0.0205					90% Chebyshev (MVUE) UCL	0.0218
1148					95% Chebyshev (MVUE) UCL	0.0247					97.5% Chebyshev (MVUE) UCL	0.0289
1149					99% Chebyshev (MVUE) UCL	0.0369						
1150												

1151	**Nonparametric Distribution Free UCL Statistics**											
1152	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1153												
1154	**Nonparametric Distribution Free UCLs**											
1155						95% CLT UCL	0.0182				95% Jackknife UCL	0.0183
1156						95% Standard Bootstrap UCL	0.0181				95% Bootstrap-t UCL	0.0188
1157						95% Hall's Bootstrap UCL	0.0186				95% Percentile Bootstrap UCL	0.0183
1158						95% BCA Bootstrap UCL	0.0185					
1159						90% Chebyshev(Mean, Sd) UCL	0.0208				95% Chebyshev(Mean, Sd) UCL	0.0234
1160						97.5% Chebyshev(Mean, Sd) UCL	0.027				99% Chebyshev(Mean, Sd) UCL	0.034
1161												
1162	**Suggested UCL to Use**											
1163						95% Student's-t UCL	0.0183					
1164												
1165	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1166	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1167	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1168	For additional insight the user may want to consult a statistician.											
1169												
1170												
1171	**Magnesium_tot**											
1172												
1173	**General Statistics**											
1174						Total Number of Observations	28				Number of Distinct Observations	28
1175											Number of Missing Observations	0
1176						Minimum	5.13				Mean	79.91
1177						Maximum	315				Median	55.29
1178						SD	72.08				Std. Error of Mean	13.62
1179						Coefficient of Variation	0.902				Skewness	1.556
1180												
1181	**Normal GOF Test**											
1182						Shapiro Wilk Test Statistic	0.858				**Shapiro Wilk GOF Test**	
1183						5% Shapiro Wilk Critical Value	0.924				Data Not Normal at 5% Significance Level	
1184						Lilliefors Test Statistic	0.17				**Lilliefors GOF Test**	
1185						5% Lilliefors Critical Value	0.167				Data Not Normal at 5% Significance Level	
1186	**Data Not Normal at 5% Significance Level**											
1187												
1188	**Assuming Normal Distribution**											
1189	**95% Normal UCL**										**95% UCLs (Adjusted for Skewness)**	
1190						95% Student's-t UCL	103.1				95% Adjusted-CLT UCL (Chen-1995)	106.6
1191											95% Modified-t UCL (Johnson-1978)	103.8
1192												
1193	**Gamma GOF Test**											
1194						A-D Test Statistic	0.156				**Anderson-Darling Gamma GOF Test**	
1195						5% A-D Critical Value	0.767				Detected data appear Gamma Distributed at 5% Significance Level	
1196						K-S Test Statistic	0.0869				**Kolmogrov-Smirnoff Gamma GOF Test**	
1197						5% K-S Critical Value	0.169				Detected data appear Gamma Distributed at 5% Significance Level	
1198	**Detected data appear Gamma Distributed at 5% Significance Level**											
1199												
1200	**Gamma Statistics**											

1201					k hat (MLE)	1.283				k star (bias corrected MLE)		1.169
1202					Theta hat (MLE)	62.3				Theta star (bias corrected MLE)		68.35
1203					nu hat (MLE)	71.83				nu star (bias corrected)		65.47
1204					MLE Mean (bias corrected)	79.91				MLE Sd (bias corrected)		73.9
1205										Approximate Chi Square Value (0.05)		47.85
1206					Adjusted Level of Significance	0.0404				Adjusted Chi Square Value		46.92
1207												
1208					**Assuming Gamma Distribution**							
1209				95% Approximate Gamma UCL (use when n>=50)		109.3				95% Adjusted Gamma UCL (use when n<50)		111.5
1210												
1211					**Lognormal GOF Test**							
1212					Shapiro Wilk Test Statistic	0.968				**Shapiro Wilk Lognormal GOF Test**		
1213					5% Shapiro Wilk Critical Value	0.924				Data appear Lognormal at 5% Significance Level		
1214					Lilliefors Test Statistic	0.11				**Lilliefors Lognormal GOF Test**		
1215					5% Lilliefors Critical Value	0.167				Data appear Lognormal at 5% Significance Level		
1216					**Data appear Lognormal at 5% Significance Level**							
1217												
1218					**Lognormal Statistics**							
1219					Minimum of Logged Data	1.635				Mean of logged Data		3.943
1220					Maximum of Logged Data	5.753				SD of logged Data		1.045
1221												
1222					**Assuming Lognormal Distribution**							
1223					95% H-UCL	147.6				90% Chebyshev (MVUE) UCL		145.8
1224					95% Chebyshev (MVUE) UCL	172.6				97.5% Chebyshev (MVUE) UCL		209.8
1225					99% Chebyshev (MVUE) UCL	283						
1226												
1227					**Nonparametric Distribution Free UCL Statistics**							
1228					**Data appear to follow a Discernible Distribution at 5% Significance Level**							
1229												
1230					**Nonparametric Distribution Free UCLs**							
1231					95% CLT UCL	102.3				95% Jackknife UCL		103.1
1232					95% Standard Bootstrap UCL	101.5				95% Bootstrap-t UCL		109.3
1233					95% Hall's Bootstrap UCL	113.6				95% Percentile Bootstrap UCL		103.3
1234					95% BCA Bootstrap UCL	106.4						
1235					90% Chebyshev(Mean, Sd) UCL	120.8				95% Chebyshev(Mean, Sd) UCL		139.3
1236					97.5% Chebyshev(Mean, Sd) UCL	165				99% Chebyshev(Mean, Sd) UCL		215.5
1237												
1238					**Suggested UCL to Use**							
1239					95% Adjusted Gamma UCL	111.5						
1240												
1241					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
1242					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
1243					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
1244					For additional insight the user may want to consult a statistician.							
1245												
1246												
1247	**Manganese_tot**											
1248												
1249					**General Statistics**							
1250					Total Number of Observations	28				Number of Distinct Observations		28

1251											Number of Missing Observations	0
1252					Minimum	0.0529					Mean	0.805
1253					Maximum	3.539					Median	0.426
1254					SD	0.914					Std. Error of Mean	0.173
1255					Coefficient of Variation	1.136					Skewness	1.948
1256												
1257	**Normal GOF Test**											
1258					Shapiro Wilk Test Statistic	0.742	**Shapiro Wilk GOF Test**					
1259					5% Shapiro Wilk Critical Value	0.924	Data Not Normal at 5% Significance Level					
1260					Lilliefors Test Statistic	0.222	**Lilliefors GOF Test**					
1261					5% Lilliefors Critical Value	0.167	Data Not Normal at 5% Significance Level					
1262	**Data Not Normal at 5% Significance Level**											
1263												
1264	**Assuming Normal Distribution**											
1265	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1266					95% Student's-t UCL	1.099					95% Adjusted-CLT UCL (Chen-1995)	1.157
1267											95% Modified-t UCL (Johnson-1978)	1.11
1268												
1269	**Gamma GOF Test**											
1270					A-D Test Statistic	0.477	**Anderson-Darling Gamma GOF Test**					
1271					5% A-D Critical Value	0.773	Detected data appear Gamma Distributed at 5% Significance Level					
1272					K-S Test Statistic	0.141	**Kolmogrov-Smirnoff Gamma GOF Test**					
1273					5% K-S Critical Value	0.17	Detected data appear Gamma Distributed at 5% Significance Level					
1274	**Detected data appear Gamma Distributed at 5% Significance Level**											
1275												
1276	**Gamma Statistics**											
1277					k hat (MLE)	1.046					k star (bias corrected MLE)	0.958
1278					Theta hat (MLE)	0.769					Theta star (bias corrected MLE)	0.84
1279					nu hat (MLE)	58.57					nu star (bias corrected)	53.62
1280					MLE Mean (bias corrected)	0.805					MLE Sd (bias corrected)	0.822
1281											Approximate Chi Square Value (0.05)	37.8
1282					Adjusted Level of Significance	0.0404					Adjusted Chi Square Value	36.98
1283												
1284	**Assuming Gamma Distribution**											
1285					95% Approximate Gamma UCL (use when n>=50)	1.142					95% Adjusted Gamma UCL (use when n<50)	1.167
1286												
1287	**Lognormal GOF Test**											
1288					Shapiro Wilk Test Statistic	0.982	**Shapiro Wilk Lognormal GOF Test**					
1289					5% Shapiro Wilk Critical Value	0.924	Data appear Lognormal at 5% Significance Level					
1290					Lilliefors Test Statistic	0.0828	**Lilliefors Lognormal GOF Test**					
1291					5% Lilliefors Critical Value	0.167	Data appear Lognormal at 5% Significance Level					
1292	**Data appear Lognormal at 5% Significance Level**											
1293												
1294	**Lognormal Statistics**											
1295					Minimum of Logged Data	-2.939					Mean of logged Data	-0.766
1296					Maximum of Logged Data	1.264					SD of logged Data	1.096
1297												
1298	**Assuming Lognormal Distribution**											
1299					95% H-UCL	1.459					90% Chebyshev (MVUE) UCL	1.415
1300					95% Chebyshev (MVUE) UCL	1.684					97.5% Chebyshev (MVUE) UCL	2.057

1301					99% Chebyshev (MVUE) UCL	2.791						
1302												
1303	**Nonparametric Distribution Free UCL Statistics**											
1304	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1305												
1306	**Nonparametric Distribution Free UCLs**											
1307					95% CLT UCL	1.089				95% Jackknife UCL	1.099	
1308					95% Standard Bootstrap UCL	1.082				95% Bootstrap-t UCL	1.233	
1309					95% Hall's Bootstrap UCL	1.274				95% Percentile Bootstrap UCL	1.092	
1310					95% BCA Bootstrap UCL	1.156						
1311					90% Chebyshev(Mean, Sd) UCL	1.323				95% Chebyshev(Mean, Sd) UCL	1.558	
1312					97.5% Chebyshev(Mean, Sd) UCL	1.884				99% Chebyshev(Mean, Sd) UCL	2.524	
1313												
1314	**Suggested UCL to Use**											
1315					95% Adjusted Gamma UCL	1.167						
1316												
1317	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1318	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1319	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1320	For additional insight the user may want to consult a statistician.											
1321												
1322												
1323	**Mercury_tot**											
1324												
1325	**General Statistics**											
1326					Total Number of Observations	28				Number of Distinct Observations	13	
1327										Number of Missing Observations	0	
1328					Minimum	1.0000E-5				Mean	1.9865E-5	
1329					Maximum	1.0000E-4				Median	1.0000E-5	
1330					SD	2.2722E-5				Std. Error of Mean	4.2941E-6	
1331					Coefficient of Variation	N/A				Skewness	2.983	
1332												
1333	**Normal GOF Test**											
1334					Shapiro Wilk Test Statistic	0.494				**Shapiro Wilk GOF Test**		
1335					5% Shapiro Wilk Critical Value	0.924				Data Not Normal at 5% Significance Level		
1336					Lilliefors Test Statistic	0.357				**Lilliefors GOF Test**		
1337					5% Lilliefors Critical Value	0.167				Data Not Normal at 5% Significance Level		
1338	**Data Not Normal at 5% Significance Level**											
1339												
1340	**Assuming Normal Distribution**											
1341	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
1342					95% Student's-t UCL	2.7179E-5				95% Adjusted-CLT UCL (Chen-1995)	2.9515E-5	
1343										95% Modified-t UCL (Johnson-1978)	2.7583E-5	
1344												
1345	**Gamma GOF Test**											
1346					A-D Test Statistic	4.61				**Anderson-Darling Gamma GOF Test**		
1347					5% A-D Critical Value	0.76				Data Not Gamma Distributed at 5% Significance Level		
1348					K-S Test Statistic	0.336				**Kolmogrov-Smirnoff Gamma GOF Test**		
1349					5% K-S Critical Value	0.168				Data Not Gamma Distributed at 5% Significance Level		
1350	**Data Not Gamma Distributed at 5% Significance Level**											

1351												
1352	**Gamma Statistics**											
1353					k hat (MLE)	1.809			k star (bias corrected MLE)			1.639
1354					Theta hat (MLE)	1.0983E-5			Theta star (bias corrected MLE)			1.2122E-5
1355					nu hat (MLE)	101.3			nu star (bias corrected)			91.77
1356					MLE Mean (bias corrected)	1.9865E-5			MLE Sd (bias corrected)			1.5518E-5
1357									Approximate Chi Square Value (0.05)			70.68
1358					Adjusted Level of Significance	0.0404			Adjusted Chi Square Value			69.54
1359												
1360	**Assuming Gamma Distribution**											
1361					95% Approximate Gamma UCL (use when n>=50))	2.5793E-5			95% Adjusted Gamma UCL (use when n<50)			2.6217E-5
1362												
1363	**Lognormal GOF Test**											
1364					Shapiro Wilk Test Statistic	0.652			**Shapiro Wilk Lognormal GOF Test**			
1365					5% Shapiro Wilk Critical Value	0.924			Data Not Lognormal at 5% Significance Level			
1366					Lilliefors Test Statistic	0.294			**Lilliefors Lognormal GOF Test**			
1367					5% Lilliefors Critical Value	0.167			Data Not Lognormal at 5% Significance Level			
1368	**Data Not Lognormal at 5% Significance Level**											
1369												
1370	**Lognormal Statistics**											
1371					Minimum of Logged Data	-11.51			Mean of logged Data			-11.13
1372					Maximum of Logged Data	-9.21			SD of logged Data			0.658
1373												
1374	**Assuming Lognormal Distribution**											
1375					95% H-UCL	2.3768E-5			90% Chebyshev (MVUE) UCL			2.5324E-5
1376					95% Chebyshev (MVUE) UCL	2.8601E-5			97.5% Chebyshev (MVUE) UCL			3.3149E-5
1377					99% Chebyshev (MVUE) UCL	4.2083E-5						
1378												
1379	**Nonparametric Distribution Free UCL Statistics**											
1380	**Data do not follow a Discernible Distribution (0.05)**											
1381												
1382	**Nonparametric Distribution Free UCLs**											
1383					95% CLT UCL	2.6928E-5			95% Jackknife UCL			2.7179E-5
1384					95% Standard Bootstrap UCL	2.6630E-5			95% Bootstrap-t UCL			4.0876E-5
1385					95% Hall's Bootstrap UCL	5.8014E-5			95% Percentile Bootstrap UCL			2.7819E-5
1386					95% BCA Bootstrap UCL	3.0019E-5						
1387					90% Chebyshev(Mean, Sd) UCL	3.2747E-5			95% Chebyshev(Mean, Sd) UCL			3.8583E-5
1388					97.5% Chebyshev(Mean, Sd) UCL	4.6682E-5			99% Chebyshev(Mean, Sd) UCL			6.2591E-5
1389												
1390	**Suggested UCL to Use**											
1391					95% Chebyshev (Mean, Sd) UCL	3.8583E-5						
1392												
1393	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1394	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1395	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1396	For additional insight the user may want to consult a statistician.											
1397												
1398												
1399	**Molybdenum_tot**											
1400												

	A	B	C	D	E	F	G	H	I	J	K	L
1401	**General Statistics**											
1402	Total Number of Observations					28	Number of Distinct Observations					28
1403							Number of Missing Observations					0
1404	Minimum					0.00335	Mean					0.0749
1405	Maximum					0.542	Median					0.0314
1406	SD					0.123	Std. Error of Mean					0.0232
1407	Coefficient of Variation					1.638	Skewness					2.768
1408												
1409	**Normal GOF Test**											
1410	Shapiro Wilk Test Statistic					0.605	**Shapiro Wilk GOF Test**					
1411	5% Shapiro Wilk Critical Value					0.924	Data Not Normal at 5% Significance Level					
1412	Lilliefors Test Statistic					0.298	**Lilliefors GOF Test**					
1413	5% Lilliefors Critical Value					0.167	Data Not Normal at 5% Significance Level					
1414	**Data Not Normal at 5% Significance Level**											
1415												
1416	**Assuming Normal Distribution**											
1417	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1418	95% Student's-t UCL					0.114	95% Adjusted-CLT UCL (Chen-1995)					0.126
1419							95% Modified-t UCL (Johnson-1978)					0.116
1420												
1421	**Gamma GOF Test**											
1422	A-D Test Statistic					0.964	**Anderson-Darling Gamma GOF Test**					
1423	5% A-D Critical Value					0.795	Data Not Gamma Distributed at 5% Significance Level					
1424	K-S Test Statistic					0.172	**Kolmogrov-Smirnoff Gamma GOF Test**					
1425	5% K-S Critical Value					0.173	Detected data appear Gamma Distributed at 5% Significance Level					
1426	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
1427												
1428	**Gamma Statistics**											
1429	k hat (MLE)					0.653	k star (bias corrected MLE)					0.606
1430	Theta hat (MLE)					0.115	Theta star (bias corrected MLE)					0.124
1431	nu hat (MLE)					36.54	nu star (bias corrected)					33.96
1432	MLE Mean (bias corrected)					0.0749	MLE Sd (bias corrected)					0.0962
1433							Approximate Chi Square Value (0.05)					21.63
1434	Adjusted Level of Significance					0.0404	Adjusted Chi Square Value					21.02
1435												
1436	**Assuming Gamma Distribution**											
1437	95% Approximate Gamma UCL (use when n>=50)					0.118	95% Adjusted Gamma UCL (use when n<50)					0.121
1438												
1439	**Lognormal GOF Test**											
1440	Shapiro Wilk Test Statistic					0.966	**Shapiro Wilk Lognormal GOF Test**					
1441	5% Shapiro Wilk Critical Value					0.924	Data appear Lognormal at 5% Significance Level					
1442	Lilliefors Test Statistic					0.0762	**Lilliefors Lognormal GOF Test**					
1443	5% Lilliefors Critical Value					0.167	Data appear Lognormal at 5% Significance Level					
1444	**Data appear Lognormal at 5% Significance Level**											
1445												
1446	**Lognormal Statistics**											
1447	Minimum of Logged Data					-5.699	Mean of logged Data					-3.526
1448	Maximum of Logged Data					-0.613	SD of logged Data					1.395
1449												
1450	**Assuming Lognormal Distribution**											

1451					95% H-UCL	0.173				90% Chebyshev (MVUE) UCL		0.144
1452					95% Chebyshev (MVUE) UCL	0.176				97.5% Chebyshev (MVUE) UCL		0.221
1453					99% Chebyshev (MVUE) UCL	0.309						
1454												
1455	**Nonparametric Distribution Free UCL Statistics**											
1456	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1457												
1458	**Nonparametric Distribution Free UCLs**											
1459					95% CLT UCL	0.113				95% Jackknife UCL		0.114
1460					95% Standard Bootstrap UCL	0.111				95% Bootstrap-t UCL		0.164
1461					95% Hall's Bootstrap UCL	0.161				95% Percentile Bootstrap UCL		0.116
1462					95% BCA Bootstrap UCL	0.128						
1463					90% Chebyshev(Mean, Sd) UCL	0.145				95% Chebyshev(Mean, Sd) UCL		0.176
1464					97.5% Chebyshev(Mean, Sd) UCL	0.22				99% Chebyshev(Mean, Sd) UCL		0.306
1465												
1466	**Suggested UCL to Use**											
1467					95% Adjusted Gamma UCL	0.121						
1468												
1469	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1470	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1471	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1472	For additional insight the user may want to consult a statistician.											
1473												
1474												
1475	**Nickel_tot**											
1476												
1477	**General Statistics**											
1478					Total Number of Observations	28				Number of Distinct Observations		28
1479										Number of Missing Observations		0
1480					Minimum	9.1200E-4				Mean		0.0129
1481					Maximum	0.134				Median		0.00355
1482					SD	0.0281				Std. Error of Mean		0.00532
1483					Coefficient of Variation	2.179				Skewness		3.547
1484												
1485	**Normal GOF Test**											
1486					Shapiro Wilk Test Statistic	0.459				**Shapiro Wilk GOF Test**		
1487					5% Shapiro Wilk Critical Value	0.924				Data Not Normal at 5% Significance Level		
1488					Lilliefors Test Statistic	0.388				**Lilliefors GOF Test**		
1489					5% Lilliefors Critical Value	0.167				Data Not Normal at 5% Significance Level		
1490	**Data Not Normal at 5% Significance Level**											
1491												
1492	**Assuming Normal Distribution**											
1493	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
1494					95% Student's-t UCL	0.022				95% Adjusted-CLT UCL (Chen-1995)		0.0255
1495										95% Modified-t UCL (Johnson-1978)		0.0226
1496												
1497	**Gamma GOF Test**											
1498					A-D Test Statistic	3.377				**Anderson-Darling Gamma GOF Test**		
1499					5% A-D Critical Value	0.801				Data Not Gamma Distributed at 5% Significance Level		
1500					K-S Test Statistic	0.31				**Kolmogrov-Smirnoff Gamma GOF Test**		

1501	5% K-S Critical Value					0.174	Data Not Gamma Distributed at 5% Significance Level					
1502	**Data Not Gamma Distributed at 5% Significance Level**											
1503												
1504	**Gamma Statistics**											
1505	k hat (MLE)					0.589	k star (bias corrected MLE)					0.55
1506	Theta hat (MLE)					0.0219	Theta star (bias corrected MLE)					0.0235
1507	nu hat (MLE)					32.97	nu star (bias corrected)					30.78
1508	MLE Mean (bias corrected)					0.0129	MLE Sd (bias corrected)					0.0174
1509							Approximate Chi Square Value (0.05)					19.1
1510	Adjusted Level of Significance					0.0404	Adjusted Chi Square Value					18.53
1511												
1512	**Assuming Gamma Distribution**											
1513	95% Approximate Gamma UCL (use when n>=50))					0.0208	95% Adjusted Gamma UCL (use when n<50)					0.0214
1514												
1515	**Lognormal GOF Test**											
1516	Shapiro Wilk Test Statistic					0.861	**Shapiro Wilk Lognormal GOF Test**					
1517	5% Shapiro Wilk Critical Value					0.924	Data Not Lognormal at 5% Significance Level					
1518	Lilliefors Test Statistic					0.227	**Lilliefors Lognormal GOF Test**					
1519	5% Lilliefors Critical Value					0.167	Data Not Lognormal at 5% Significance Level					
1520	**Data Not Lognormal at 5% Significance Level**											
1521												
1522	**Lognormal Statistics**											
1523	Minimum of Logged Data					-7	Mean of logged Data					-5.402
1524	Maximum of Logged Data					-2.008	SD of logged Data					1.232
1525												
1526	**Assuming Lognormal Distribution**											
1527	95% H-UCL					0.0185	90% Chebyshev (MVUE) UCL					0.0169
1528	95% Chebyshev (MVUE) UCL					0.0204	97.5% Chebyshev (MVUE) UCL					0.0252
1529	99% Chebyshev (MVUE) UCL					0.0347						
1530												
1531	**Nonparametric Distribution Free UCL Statistics**											
1532	**Data do not follow a Discernible Distribution (0.05)**											
1533												
1534	**Nonparametric Distribution Free UCLs**											
1535	95% CLT UCL					0.0217	95% Jackknife UCL					0.022
1536	95% Standard Bootstrap UCL					0.0213	95% Bootstrap-t UCL					0.0406
1537	95% Hall's Bootstrap UCL					0.0473	95% Percentile Bootstrap UCL					0.0221
1538	95% BCA Bootstrap UCL					0.0259						
1539	90% Chebyshev(Mean, Sd) UCL					0.0289	95% Chebyshev(Mean, Sd) UCL					0.0361
1540	97.5% Chebyshev(Mean, Sd) UCL					0.0461	99% Chebyshev(Mean, Sd) UCL					0.0658
1541												
1542	**Suggested UCL to Use**											
1543	95% Chebyshev (Mean, Sd) UCL					0.0361						
1544												
1545	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1546	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1547	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1548	For additional insight the user may want to consult a statistician.											
1549												
1550												

1551	**Phosphorus_tot**										
1552											
1553	**General Statistics**										
1554				Total Number of Observations	24			Number of Distinct Observations	20		
1555								Number of Missing Observations	4		
1556				Minimum	0.05			Mean	0.114		
1557				Maximum	0.276			Median	0.0918		
1558				SD	0.0672			Std. Error of Mean	0.0137		
1559				Coefficient of Variation	0.589			Skewness	1.032		
1560											
1561	**Normal GOF Test**										
1562				Shapiro Wilk Test Statistic	0.857			**Shapiro Wilk GOF Test**			
1563				5% Shapiro Wilk Critical Value	0.916			Data Not Normal at 5% Significance Level			
1564				Lilliefors Test Statistic	0.176			**Lilliefors GOF Test**			
1565				5% Lilliefors Critical Value	0.181			Data appear Normal at 5% Significance Level			
1566	**Data appear Approximate Normal at 5% Significance Level**										
1567											
1568	**Assuming Normal Distribution**										
1569				**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**			
1570				95% Student's-t UCL	0.138			95% Adjusted-CLT UCL (Chen-1995)	0.14		
1571								95% Modified-t UCL (Johnson-1978)	0.138		
1572											
1573	**Gamma GOF Test**										
1574				A-D Test Statistic	0.813			**Anderson-Darling Gamma GOF Test**			
1575				5% A-D Critical Value	0.75			Data Not Gamma Distributed at 5% Significance Level			
1576				K-S Test Statistic	0.142			**Kolmogrov-Smirnoff Gamma GOF Test**			
1577				5% K-S Critical Value	0.179			Detected data appear Gamma Distributed at 5% Significance Level			
1578	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**										
1579											
1580	**Gamma Statistics**										
1581				k hat (MLE)	3.38			k star (bias corrected MLE)	2.985		
1582				Theta hat (MLE)	0.0337			Theta star (bias corrected MLE)	0.0382		
1583				nu hat (MLE)	162.2			nu star (bias corrected)	143.3		
1584				MLE Mean (bias corrected)	0.114			MLE Sd (bias corrected)	0.066		
1585								Approximate Chi Square Value (0.05)	116.6		
1586				Adjusted Level of Significance	0.0392			Adjusted Chi Square Value	114.9		
1587											
1588	**Assuming Gamma Distribution**										
1589				95% Approximate Gamma UCL (use when n>=50))	0.14			95% Adjusted Gamma UCL (use when n<50)	0.142		
1590											
1591	**Lognormal GOF Test**										
1592				Shapiro Wilk Test Statistic	0.91			**Shapiro Wilk Lognormal GOF Test**			
1593				5% Shapiro Wilk Critical Value	0.916			Data Not Lognormal at 5% Significance Level			
1594				Lilliefors Test Statistic	0.141			**Lilliefors Lognormal GOF Test**			
1595				5% Lilliefors Critical Value	0.181			Data appear Lognormal at 5% Significance Level			
1596	**Data appear Approximate Lognormal at 5% Significance Level**										
1597											
1598	**Lognormal Statistics**										
1599				Minimum of Logged Data	-2.996			Mean of logged Data	-2.326		
1600				Maximum of Logged Data	-1.287			SD of logged Data	0.563		

1601												
1602	**Assuming Lognormal Distribution**											
1603				95% H-UCL	0.145			90% Chebyshev (MVUE) UCL	0.155			
1604				95% Chebyshev (MVUE) UCL	0.173			97.5% Chebyshev (MVUE) UCL	0.199			
1605				99% Chebyshev (MVUE) UCL	0.25							
1606												
1607	**Nonparametric Distribution Free UCL Statistics**											
1608	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1609												
1610	**Nonparametric Distribution Free UCLs**											
1611				95% CLT UCL	0.137			95% Jackknife UCL	0.138			
1612				95% Standard Bootstrap UCL	0.136			95% Bootstrap-t UCL	0.142			
1613				95% Hall's Bootstrap UCL	0.14			95% Percentile Bootstrap UCL	0.137			
1614				95% BCA Bootstrap UCL	0.138							
1615				90% Chebyshev(Mean, Sd) UCL	0.155			95% Chebyshev(Mean, Sd) UCL	0.174			
1616				97.5% Chebyshev(Mean, Sd) UCL	0.2			99% Chebyshev(Mean, Sd) UCL	0.25			
1617												
1618	**Suggested UCL to Use**											
1619				95% Student's-t UCL	0.138							
1620												
1621	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1622	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1623	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1624	For additional insight the user may want to consult a statistician.											
1625												
1626												
1627	**Potassium_tot**											
1628												
1629	**General Statistics**											
1630				Total Number of Observations	28			Number of Distinct Observations	28			
1631								Number of Missing Observations	0			
1632				Minimum	0.892			Mean	14.58			
1633				Maximum	48.25			Median	10.81			
1634				SD	12.87			Std. Error of Mean	2.433			
1635				Coefficient of Variation	0.883			Skewness	1.136			
1636												
1637	**Normal GOF Test**											
1638				Shapiro Wilk Test Statistic	0.867			**Shapiro Wilk GOF Test**				
1639				5% Shapiro Wilk Critical Value	0.924			Data Not Normal at 5% Significance Level				
1640				Lilliefors Test Statistic	0.205			**Lilliefors GOF Test**				
1641				5% Lilliefors Critical Value	0.167			Data Not Normal at 5% Significance Level				
1642	**Data Not Normal at 5% Significance Level**											
1643												
1644	**Assuming Normal Distribution**											
1645	**95% Normal UCL**							**95% UCLs (Adjusted for Skewness)**				
1646				95% Student's-t UCL	18.72			95% Adjusted-CLT UCL (Chen-1995)	19.14			
1647								95% Modified-t UCL (Johnson-1978)	18.81			
1648												
1649	**Gamma GOF Test**											
1650				A-D Test Statistic	0.219			**Anderson-Darling Gamma GOF Test**				

1651				5% A-D Critical Value	0.768	Detected data appear Gamma Distributed at 5% Significance Level						
1652				K-S Test Statistic	0.0852	**Kolmogrov-Smirnoff Gamma GOF Test**						
1653				5% K-S Critical Value	0.169	Detected data appear Gamma Distributed at 5% Significance Level						
1654	**Detected data appear Gamma Distributed at 5% Significance Level**											
1655												
1656	**Gamma Statistics**											
1657				k hat (MLE)	1.253	k star (bias corrected MLE)	1.143					
1658				Theta hat (MLE)	11.63	Theta star (bias corrected MLE)	12.76					
1659				nu hat (MLE)	70.18	nu star (bias corrected)	64					
1660				MLE Mean (bias corrected)	14.58	MLE Sd (bias corrected)	13.64					
1661						Approximate Chi Square Value (0.05)	46.59					
1662				Adjusted Level of Significance	0.0404	Adjusted Chi Square Value	45.67					
1663												
1664	**Assuming Gamma Distribution**											
1665			95% Approximate Gamma UCL (use when n>=50)		20.03	95% Adjusted Gamma UCL (use when n<50)	20.43					
1666												
1667	**Lognormal GOF Test**											
1668				Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk Lognormal GOF Test**						
1669				5% Shapiro Wilk Critical Value	0.924	Data appear Lognormal at 5% Significance Level						
1670				Lilliefors Test Statistic	0.0913	**Lilliefors Lognormal GOF Test**						
1671				5% Lilliefors Critical Value	0.167	Data appear Lognormal at 5% Significance Level						
1672	**Data appear Lognormal at 5% Significance Level**											
1673												
1674	**Lognormal Statistics**											
1675				Minimum of Logged Data	-0.114	Mean of logged Data	2.23					
1676				Maximum of Logged Data	3.876	SD of logged Data	1.066					
1677												
1678	**Assuming Lognormal Distribution**											
1679				95% H-UCL	27.62	90% Chebyshev (MVUE) UCL	27.08					
1680				95% Chebyshev (MVUE) UCL	32.14	97.5% Chebyshev (MVUE) UCL	39.15					
1681				99% Chebyshev (MVUE) UCL	52.92							
1682												
1683	**Nonparametric Distribution Free UCL Statistics**											
1684	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1685												
1686	**Nonparametric Distribution Free UCLs**											
1687				95% CLT UCL	18.58	95% Jackknife UCL	18.72					
1688				95% Standard Bootstrap UCL	18.42	95% Bootstrap-t UCL	19.39					
1689				95% Hall's Bootstrap UCL	18.99	95% Percentile Bootstrap UCL	18.82					
1690				95% BCA Bootstrap UCL	19.05							
1691				90% Chebyshev(Mean, Sd) UCL	21.88	95% Chebyshev(Mean, Sd) UCL	25.19					
1692				97.5% Chebyshev(Mean, Sd) UCL	29.77	99% Chebyshev(Mean, Sd) UCL	38.79					
1693												
1694	**Suggested UCL to Use**											
1695				95% Adjusted Gamma UCL	20.43							
1696												
1697	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1698	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1699	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1700	For additional insight the user may want to consult a statistician.											

1701												
1702												
1703	**Selenium_tot**											
1704												
1705	**General Statistics**											
1706					Total Number of Observations	28			Number of Distinct Observations	26		
1707									Number of Missing Observations	0		
1708					Minimum	1.0000E-4			Mean	0.00285		
1709					Maximum	0.0365			Median	4.5650E-4		
1710					SD	0.00738			Std. Error of Mean	0.0014		
1711					Coefficient of Variation	2.587			Skewness	4.01		
1712												
1713	**Normal GOF Test**											
1714					Shapiro Wilk Test Statistic	0.415			**Shapiro Wilk GOF Test**			
1715					5% Shapiro Wilk Critical Value	0.924			Data Not Normal at 5% Significance Level			
1716					Lilliefors Test Statistic	0.381			**Lilliefors GOF Test**			
1717					5% Lilliefors Critical Value	0.167			Data Not Normal at 5% Significance Level			
1718	**Data Not Normal at 5% Significance Level**											
1719												
1720	**Assuming Normal Distribution**											
1721					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**			
1722					95% Student's-t UCL	0.00523			95% Adjusted-CLT UCL (Chen-1995)	0.00628		
1723									95% Modified-t UCL (Johnson-1978)	0.00541		
1724												
1725	**Gamma GOF Test**											
1726					A-D Test Statistic	2.646			**Anderson-Darling Gamma GOF Test**			
1727					5% A-D Critical Value	0.828			Data Not Gamma Distributed at 5% Significance Level			
1728					K-S Test Statistic	0.289			**Kolmogrov-Smirnoff Gamma GOF Test**			
1729					5% K-S Critical Value	0.177			Data Not Gamma Distributed at 5% Significance Level			
1730	**Data Not Gamma Distributed at 5% Significance Level**											
1731												
1732	**Gamma Statistics**											
1733					k hat (MLE)	0.418			k star (bias corrected MLE)	0.397		
1734					Theta hat (MLE)	0.00682			Theta star (bias corrected MLE)	0.00718		
1735					nu hat (MLE)	23.42			nu star (bias corrected)	22.25		
1736					MLE Mean (bias corrected)	0.00285			MLE Sd (bias corrected)	0.00453		
1737									Approximate Chi Square Value (0.05)	12.52		
1738					Adjusted Level of Significance	0.0404			Adjusted Chi Square Value	12.07		
1739												
1740	**Assuming Gamma Distribution**											
1741					95% Approximate Gamma UCL (use when n>=50))	0.00507			95% Adjusted Gamma UCL (use when n<50)	0.00526		
1742												
1743	**Lognormal GOF Test**											
1744					Shapiro Wilk Test Statistic	0.896			**Shapiro Wilk Lognormal GOF Test**			
1745					5% Shapiro Wilk Critical Value	0.924			Data Not Lognormal at 5% Significance Level			
1746					Lilliefors Test Statistic	0.144			**Lilliefors Lognormal GOF Test**			
1747					5% Lilliefors Critical Value	0.167			Data appear Lognormal at 5% Significance Level			
1748	**Data appear Approximate Lognormal at 5% Significance Level**											
1749												
1750	**Lognormal Statistics**											

1751	Minimum of Logged Data					-9.21					Mean of logged Data	-7.421
1752	Maximum of Logged Data					-3.31					SD of logged Data	1.6
1753												
1754	**Assuming Lognormal Distribution**											
1755	95% H-UCL					0.00591	90% Chebyshev (MVUE) UCL					0.00422
1756	95% Chebyshev (MVUE) UCL					0.00525	97.5% Chebyshev (MVUE) UCL					0.00667
1757	99% Chebyshev (MVUE) UCL					0.00946						
1758												
1759	**Nonparametric Distribution Free UCL Statistics**											
1760	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1761												
1762	**Nonparametric Distribution Free UCLs**											
1763	95% CLT UCL					0.00515	95% Jackknife UCL					0.00523
1764	95% Standard Bootstrap UCL					0.00507	95% Bootstrap-t UCL					0.0127
1765	95% Hall's Bootstrap UCL					0.0142	95% Percentile Bootstrap UCL					0.0053
1766	95% BCA Bootstrap UCL					0.00686						
1767	90% Chebyshev(Mean, Sd) UCL					0.00704	95% Chebyshev(Mean, Sd) UCL					0.00894
1768	97.5% Chebyshev(Mean, Sd) UCL					0.0116	99% Chebyshev(Mean, Sd) UCL					0.0167
1769												
1770	**Suggested UCL to Use**											
1771	95% Chebyshev (Mean, Sd) UCL					0.00894						
1772												
1773	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1774	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1775	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1776	For additional insight the user may want to consult a statistician.											
1777												
1778												
1779	**Silicon_tot**											
1780												
1781	**General Statistics**											
1782	Total Number of Observations					24	Number of Distinct Observations					24
1783							Number of Missing Observations					4
1784	Minimum					3.431	Mean					8.493
1785	Maximum					24.2	Median					7.849
1786	SD					4.257	Std. Error of Mean					0.869
1787	Coefficient of Variation					0.501	Skewness					2.223
1788												
1789	**Normal GOF Test**											
1790	Shapiro Wilk Test Statistic					0.809	**Shapiro Wilk GOF Test**					
1791	5% Shapiro Wilk Critical Value					0.916	Data Not Normal at 5% Significance Level					
1792	Lilliefors Test Statistic					0.175	**Lilliefors GOF Test**					
1793	5% Lilliefors Critical Value					0.181	Data appear Normal at 5% Significance Level					
1794	**Data appear Approximate Normal at 5% Significance Level**											
1795												
1796	**Assuming Normal Distribution**											
1797	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1798	95% Student's-t UCL					9.983	95% Adjusted-CLT UCL (Chen-1995)					10.34
1799							95% Modified-t UCL (Johnson-1978)					10.05
1800												

	A	B	C	D	E	F	G	H	I	J	K	L
1801	**Gamma GOF Test**											
1802	A-D Test Statistic					0.321	**Anderson-Darling Gamma GOF Test**					
1803	5% A-D Critical Value					0.746	Detected data appear Gamma Distributed at 5% Significance Level					
1804	K-S Test Statistic					0.111	**Kolmogrov-Smirnoff Gamma GOF Test**					
1805	5% K-S Critical Value					0.178	Detected data appear Gamma Distributed at 5% Significance Level					
1806	**Detected data appear Gamma Distributed at 5% Significance Level**											
1807												
1808	**Gamma Statistics**											
1809	k hat (MLE)					5.357	k star (bias corrected MLE)					4.715
1810	Theta hat (MLE)					1.585	Theta star (bias corrected MLE)					1.801
1811	nu hat (MLE)					257.1	nu star (bias corrected)					226.3
1812	MLE Mean (bias corrected)					8.493	MLE Sd (bias corrected)					3.911
1813							Approximate Chi Square Value (0.05)					192.5
1814	Adjusted Level of Significance					0.0392	Adjusted Chi Square Value					190.3
1815												
1816	**Assuming Gamma Distribution**											
1817	95% Approximate Gamma UCL (use when n>=50))					9.985	95% Adjusted Gamma UCL (use when n<50)					10.1
1818												
1819	**Lognormal GOF Test**											
1820	Shapiro Wilk Test Statistic					0.972	**Shapiro Wilk Lognormal GOF Test**					
1821	5% Shapiro Wilk Critical Value					0.916	Data appear Lognormal at 5% Significance Level					
1822	Lilliefors Test Statistic					0.0892	**Lilliefors Lognormal GOF Test**					
1823	5% Lilliefors Critical Value					0.181	Data appear Lognormal at 5% Significance Level					
1824	**Data appear Lognormal at 5% Significance Level**											
1825												
1826	**Lognormal Statistics**											
1827	Minimum of Logged Data					1.233	Mean of logged Data					2.043
1828	Maximum of Logged Data					3.186	SD of logged Data					0.437
1829												
1830	**Assuming Lognormal Distribution**											
1831	95% H-UCL					10.12	90% Chebyshev (MVUE) UCL					10.78
1832	95% Chebyshev (MVUE) UCL					11.84	97.5% Chebyshev (MVUE) UCL					13.31
1833	99% Chebyshev (MVUE) UCL					16.19						
1834												
1835	**Nonparametric Distribution Free UCL Statistics**											
1836	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1837												
1838	**Nonparametric Distribution Free UCLs**											
1839	95% CLT UCL					9.923	95% Jackknife UCL					9.983
1840	95% Standard Bootstrap UCL					9.882	95% Bootstrap-t UCL					10.73
1841	95% Hall's Bootstrap UCL					17.05	95% Percentile Bootstrap UCL					9.919
1842	95% BCA Bootstrap UCL					10.35						
1843	90% Chebyshev(Mean, Sd) UCL					11.1	95% Chebyshev(Mean, Sd) UCL					12.28
1844	97.5% Chebyshev(Mean, Sd) UCL					13.92	99% Chebyshev(Mean, Sd) UCL					17.14
1845												
1846	**Suggested UCL to Use**											
1847	95% Student's-t UCL					9.983						
1848												
1849	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1850	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											

1851	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1852	For additional insight the user may want to consult a statistician.											
1853												
1854												
1855	**Silver_tot**											
1856												
1857	**General Statistics**											
1858						Total Number of Observations	28			Number of Distinct Observations	18	
1859										Number of Missing Observations	0	
1860						Minimum	1.0000E-5			Mean	3.3705E-5	
1861						Maximum	2.7500E-4			Median	1.2100E-5	
1862						SD	5.5380E-5			Std. Error of Mean	1.0466E-5	
1863						Coefficient of Variation	N/A			Skewness	3.501	
1864												
1865	**Normal GOF Test**											
1866						Shapiro Wilk Test Statistic	0.486			**Shapiro Wilk GOF Test**		
1867						5% Shapiro Wilk Critical Value	0.924			Data Not Normal at 5% Significance Level		
1868						Lilliefors Test Statistic	0.389			**Lilliefors GOF Test**		
1869						5% Lilliefors Critical Value	0.167			Data Not Normal at 5% Significance Level		
1870	**Data Not Normal at 5% Significance Level**											
1871												
1872	**Assuming Normal Distribution**											
1873						**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**		
1874						95% Student's-t UCL	5.1531E-5			95% Adjusted-CLT UCL (Chen-1995)	5.8319E-5	
1875										95% Modified-t UCL (Johnson-1978)	5.2686E-5	
1876												
1877	**Gamma GOF Test**											
1878						A-D Test Statistic	3.914			**Anderson-Darling Gamma GOF Test**		
1879						5% A-D Critical Value	0.774			Data Not Gamma Distributed at 5% Significance Level		
1880						K-S Test Statistic	0.277			**Kolmogrov-Smirnoff Gamma GOF Test**		
1881						5% K-S Critical Value	0.17			Data Not Gamma Distributed at 5% Significance Level		
1882	**Data Not Gamma Distributed at 5% Significance Level**											
1883												
1884	**Gamma Statistics**											
1885						k hat (MLE)	0.998			k star (bias corrected MLE)	0.915	
1886						Theta hat (MLE)	3.3756E-5			Theta star (bias corrected MLE)	3.6823E-5	
1887						nu hat (MLE)	55.92			nu star (bias corrected)	51.26	
1888						MLE Mean (bias corrected)	3.3705E-5			MLE Sd (bias corrected)	3.5230E-5	
1889										Approximate Chi Square Value (0.05)	35.82	
1890						Adjusted Level of Significance	0.0404			Adjusted Chi Square Value	35.02	
1891												
1892	**Assuming Gamma Distribution**											
1893						95% Approximate Gamma UCL (use when n>=50))	4.8237E-5			95% Adjusted Gamma UCL (use when n<50)	4.9338E-5	
1894												
1895	**Lognormal GOF Test**											
1896						Shapiro Wilk Test Statistic	0.735			**Shapiro Wilk Lognormal GOF Test**		
1897						5% Shapiro Wilk Critical Value	0.924			Data Not Lognormal at 5% Significance Level		
1898						Lilliefors Test Statistic	0.254			**Lilliefors Lognormal GOF Test**		
1899						5% Lilliefors Critical Value	0.167			Data Not Lognormal at 5% Significance Level		
1900	**Data Not Lognormal at 5% Significance Level**											

1901												
1902	**Lognormal Statistics**											
1903					Minimum of Logged Data	-11.51				Mean of logged Data	-10.88	
1904					Maximum of Logged Data	-8.199				SD of logged Data	0.904	
1905												
1906	**Assuming Lognormal Distribution**											
1907					95% H-UCL	4.2728E-5				90% Chebyshev (MVUE) UCL	4.3919E-5	
1908					95% Chebyshev (MVUE) UCL	5.1183E-5				97.5% Chebyshev (MVUE) UCL	6.1265E-5	
1909					99% Chebyshev (MVUE) UCL	8.1070E-5						
1910												
1911	**Nonparametric Distribution Free UCL Statistics**											
1912	**Data do not follow a Discernible Distribution (0.05)**											
1913												
1914	**Nonparametric Distribution Free UCLs**											
1915					95% CLT UCL	5.0920E-5				95% Jackknife UCL	5.1531E-5	
1916					95% Standard Bootstrap UCL	5.0107E-5				95% Bootstrap-t UCL	7.7518E-5	
1917					95% Hall's Bootstrap UCL	9.1976E-5				95% Percentile Bootstrap UCL	5.2345E-5	
1918					95% BCA Bootstrap UCL	5.9415E-5						
1919					90% Chebyshev(Mean, Sd) UCL	6.5102E-5				95% Chebyshev(Mean, Sd) UCL	7.9324E-5	
1920					97.5% Chebyshev(Mean, Sd) UCL	9.9064E-5				99% Chebyshev(Mean, Sd) UCL	1.3784E-4	
1921												
1922	**Suggested UCL to Use**											
1923					95% Chebyshev (Mean, Sd) UCL	7.9324E-5						
1924												
1925	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1926	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1927	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1928	For additional insight the user may want to consult a statistician.											
1929												
1930												
1931	**Sodium_tot**											
1932												
1933	**General Statistics**											
1934					Total Number of Observations	28				Number of Distinct Observations	28	
1935										Number of Missing Observations	0	
1936					Minimum	23.8				Mean	138.8	
1937					Maximum	350.5				Median	118.5	
1938					SD	84.08				Std. Error of Mean	15.89	
1939					Coefficient of Variation	0.606				Skewness	0.941	
1940												
1941	**Normal GOF Test**											
1942					Shapiro Wilk Test Statistic	0.921				**Shapiro Wilk GOF Test**		
1943					5% Shapiro Wilk Critical Value	0.924				Data Not Normal at 5% Significance Level		
1944					Lilliefors Test Statistic	0.137				**Lilliefors GOF Test**		
1945					5% Lilliefors Critical Value	0.167				Data appear Normal at 5% Significance Level		
1946	**Data appear Approximate Normal at 5% Significance Level**											
1947												
1948	**Assuming Normal Distribution**											
1949	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
1950					95% Student's-t UCL	165.9				95% Adjusted-CLT UCL (Chen-1995)	168	

1951							95% Modified-t UCL (Johnson-1978)					166.3
1952												
1953	**Gamma GOF Test**											
1954					A-D Test Statistic	0.152	**Anderson-Darling Gamma GOF Test**					
1955					5% A-D Critical Value	0.754	Detected data appear Gamma Distributed at 5% Significance Level					
1956					K-S Test Statistic	0.0795	**Kolmogrov-Smirnoff Gamma GOF Test**					
1957					5% K-S Critical Value	0.167	Detected data appear Gamma Distributed at 5% Significance Level					
1958	**Detected data appear Gamma Distributed at 5% Significance Level**											
1959												
1960	**Gamma Statistics**											
1961					k hat (MLE)	2.812	k star (bias corrected MLE)					2.535
1962					Theta hat (MLE)	49.36	Theta star (bias corrected MLE)					54.76
1963					nu hat (MLE)	157.5	nu star (bias corrected)					141.9
1964					MLE Mean (bias corrected)	138.8	MLE Sd (bias corrected)					87.19
1965							Approximate Chi Square Value (0.05)					115.4
1966					Adjusted Level of Significance	0.0404	Adjusted Chi Square Value					113.9
1967												
1968	**Assuming Gamma Distribution**											
1969					95% Approximate Gamma UCL (use when n>=50))	170.7	95% Adjusted Gamma UCL (use when n<50)					172.9
1970												
1971	**Lognormal GOF Test**											
1972					Shapiro Wilk Test Statistic	0.979	**Shapiro Wilk Lognormal GOF Test**					
1973					5% Shapiro Wilk Critical Value	0.924	Data appear Lognormal at 5% Significance Level					
1974					Lilliefors Test Statistic	0.0893	**Lilliefors Lognormal GOF Test**					
1975					5% Lilliefors Critical Value	0.167	Data appear Lognormal at 5% Significance Level					
1976	**Data appear Lognormal at 5% Significance Level**											
1977												
1978	**Lognormal Statistics**											
1979					Minimum of Logged Data	3.17	Mean of logged Data					4.745
1980					Maximum of Logged Data	5.859	SD of logged Data					0.653
1981												
1982	**Assuming Lognormal Distribution**											
1983					95% H-UCL	184.8	90% Chebyshev (MVUE) UCL					197
1984					95% Chebyshev (MVUE) UCL	222.3	97.5% Chebyshev (MVUE) UCL					257.5
1985					99% Chebyshev (MVUE) UCL	326.5						
1986												
1987	**Nonparametric Distribution Free UCL Statistics**											
1988	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1989												
1990	**Nonparametric Distribution Free UCLs**											
1991					95% CLT UCL	164.9	95% Jackknife UCL					165.9
1992					95% Standard Bootstrap UCL	164.1	95% Bootstrap-t UCL					169.4
1993					95% Hall's Bootstrap UCL	170.3	95% Percentile Bootstrap UCL					164.9
1994					95% BCA Bootstrap UCL	168.9						
1995					90% Chebyshev(Mean, Sd) UCL	186.5	95% Chebyshev(Mean, Sd) UCL					208.1
1996					97.5% Chebyshev(Mean, Sd) UCL	238	99% Chebyshev(Mean, Sd) UCL					296.9
1997												
1998	**Suggested UCL to Use**											
1999					95% Student's-t UCL	165.9						
2000												

2001	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2002	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2003	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2004	For additional insight the user may want to consult a statistician.											
2005												
2006												
2007	**Strontium_tot**											
2008												
2009	**General Statistics**											
2010						Total Number of Observations	24			Number of Distinct Observations	24	
2011										Number of Missing Observations	4	
2012						Minimum	0.124			Mean	1.96	
2013						Maximum	8.715			Median	1.238	
2014						SD	2.144			Std. Error of Mean	0.438	
2015						Coefficient of Variation	1.094			Skewness	2	
2016												
2017	**Normal GOF Test**											
2018						Shapiro Wilk Test Statistic	0.732			**Shapiro Wilk GOF Test**		
2019						5% Shapiro Wilk Critical Value	0.916			Data Not Normal at 5% Significance Level		
2020						Lilliefors Test Statistic	0.268			**Lilliefors GOF Test**		
2021						5% Lilliefors Critical Value	0.181			Data Not Normal at 5% Significance Level		
2022	**Data Not Normal at 5% Significance Level**											
2023												
2024	**Assuming Normal Distribution**											
2025	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
2026						95% Student's-t UCL	2.71			95% Adjusted-CLT UCL (Chen-1995)	2.871	
2027										95% Modified-t UCL (Johnson-1978)	2.74	
2028												
2029	**Gamma GOF Test**											
2030						A-D Test Statistic	0.664			**Anderson-Darling Gamma GOF Test**		
2031						5% A-D Critical Value	0.768			Detected data appear Gamma Distributed at 5% Significance Level		
2032						K-S Test Statistic	0.165			**Kolmogrov-Smirnoff Gamma GOF Test**		
2033						5% K-S Critical Value	0.182			Detected data appear Gamma Distributed at 5% Significance Level		
2034	**Detected data appear Gamma Distributed at 5% Significance Level**											
2035												
2036	**Gamma Statistics**											
2037						k hat (MLE)	1.204			k star (bias corrected MLE)	1.081	
2038						Theta hat (MLE)	1.629			Theta star (bias corrected MLE)	1.813	
2039						nu hat (MLE)	57.77			nu star (bias corrected)	51.88	
2040						MLE Mean (bias corrected)	1.96			MLE Sd (bias corrected)	1.885	
2041										Approximate Chi Square Value (0.05)	36.34	
2042						Adjusted Level of Significance	0.0392			Adjusted Chi Square Value	35.42	
2043												
2044	**Assuming Gamma Distribution**											
2045						95% Approximate Gamma UCL (use when n>=50)	2.798			95% Adjusted Gamma UCL (use when n<50)	2.871	
2046												
2047	**Lognormal GOF Test**											
2048						Shapiro Wilk Test Statistic	0.979			**Shapiro Wilk Lognormal GOF Test**		
2049						5% Shapiro Wilk Critical Value	0.916			Data appear Lognormal at 5% Significance Level		
2050						Lilliefors Test Statistic	0.0977			**Lilliefors Lognormal GOF Test**		

2051	5% Lilliefors Critical Value					0.181	Data appear Lognormal at 5% Significance Level					
2052	**Data appear Lognormal at 5% Significance Level**											
2053												
2054	**Lognormal Statistics**											
2055	Minimum of Logged Data					-2.086	Mean of logged Data					0.203
2056	Maximum of Logged Data					2.165	SD of logged Data					1.003
2057												
2058	**Assuming Lognormal Distribution**											
2059	95% H-UCL					3.451	90% Chebyshev (MVUE) UCL					3.337
2060	95% Chebyshev (MVUE) UCL					3.958	97.5% Chebyshev (MVUE) UCL					4.819
2061	99% Chebyshev (MVUE) UCL					6.511						
2062												
2063	**Nonparametric Distribution Free UCL Statistics**											
2064	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
2065												
2066	**Nonparametric Distribution Free UCLs**											
2067	95% CLT UCL					2.68	95% Jackknife UCL					2.71
2068	95% Standard Bootstrap UCL					2.649	95% Bootstrap-t UCL					3.222
2069	95% Hall's Bootstrap UCL					2.868	95% Percentile Bootstrap UCL					2.694
2070	95% BCA Bootstrap UCL					2.805						
2071	90% Chebyshev(Mean, Sd) UCL					3.273	95% Chebyshev(Mean, Sd) UCL					3.868
2072	97.5% Chebyshev(Mean, Sd) UCL					4.693	99% Chebyshev(Mean, Sd) UCL					6.315
2073												
2074	**Suggested UCL to Use**											
2075	95% Adjusted Gamma UCL					2.871						
2076												
2077	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2078	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2079	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2080	For additional insight the user may want to consult a statistician.											
2081												
2082												
2083	**Sulphur_tot**											
2084												
2085	**General Statistics**											
2086	Total Number of Observations					24	Number of Distinct Observations					24
2087							Number of Missing Observations					4
2088	Minimum					17.67	Mean					187.4
2089	Maximum					848.3	Median					106.6
2090	SD					197.9	Std. Error of Mean					40.4
2091	Coefficient of Variation					1.056	Skewness					2.116
2092												
2093	**Normal GOF Test**											
2094	Shapiro Wilk Test Statistic					0.752	**Shapiro Wilk GOF Test**					
2095	5% Shapiro Wilk Critical Value					0.916	Data Not Normal at 5% Significance Level					
2096	Lilliefors Test Statistic					0.241	**Lilliefors GOF Test**					
2097	5% Lilliefors Critical Value					0.181	Data Not Normal at 5% Significance Level					
2098	**Data Not Normal at 5% Significance Level**											
2099												
2100	**Assuming Normal Distribution**											

2101	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
2102				95% Student's-t UCL		256.6				95% Adjusted-CLT UCL (Chen-1995)		272.5
2103										95% Modified-t UCL (Johnson-1978)		259.5
2104												
2105	**Gamma GOF Test**											
2106				A-D Test Statistic		0.473	**Anderson-Darling Gamma GOF Test**					
2107				5% A-D Critical Value		0.766	Detected data appear Gamma Distributed at 5% Significance Level					
2108				K-S Test Statistic		0.142	**Kolmogrov-Smirnoff Gamma GOF Test**					
2109				5% K-S Critical Value		0.182	Detected data appear Gamma Distributed at 5% Significance Level					
2110	**Detected data appear Gamma Distributed at 5% Significance Level**											
2111												
2112	**Gamma Statistics**											
2113				k hat (MLE)		1.279				k star (bias corrected MLE)		1.147
2114				Theta hat (MLE)		146.6				Theta star (bias corrected MLE)		163.5
2115				nu hat (MLE)		61.37				nu star (bias corrected)		55.03
2116				MLE Mean (bias corrected)		187.4				MLE Sd (bias corrected)		175
2117										Approximate Chi Square Value (0.05)		38.99
2118				Adjusted Level of Significance		0.0392				Adjusted Chi Square Value		38.04
2119												
2120	**Assuming Gamma Distribution**											
2121				95% Approximate Gamma UCL (use when n>=50)		264.5				95% Adjusted Gamma UCL (use when n<50)		271.1
2122												
2123	**Lognormal GOF Test**											
2124				Shapiro Wilk Test Statistic		0.987	**Shapiro Wilk Lognormal GOF Test**					
2125				5% Shapiro Wilk Critical Value		0.916	Data appear Lognormal at 5% Significance Level					
2126				Lilliefors Test Statistic		0.0829	**Lilliefors Lognormal GOF Test**					
2127				5% Lilliefors Critical Value		0.181	Data appear Lognormal at 5% Significance Level					
2128	**Data appear Lognormal at 5% Significance Level**											
2129												
2130	**Lognormal Statistics**											
2131				Minimum of Logged Data		2.872				Mean of logged Data		4.794
2132				Maximum of Logged Data		6.743				SD of logged Data		0.962
2133												
2134	**Assuming Lognormal Distribution**											
2135				95% H-UCL		316.1				90% Chebyshev (MVUE) UCL		310.5
2136				95% Chebyshev (MVUE) UCL		366.5				97.5% Chebyshev (MVUE) UCL		444.4
2137				99% Chebyshev (MVUE) UCL		597.2						
2138												
2139	**Nonparametric Distribution Free UCL Statistics**											
2140	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
2141												
2142	**Nonparametric Distribution Free UCLs**											
2143				95% CLT UCL		253.9				95% Jackknife UCL		256.6
2144				95% Standard Bootstrap UCL		252.5				95% Bootstrap-t UCL		292.8
2145				95% Hall's Bootstrap UCL		305.8				95% Percentile Bootstrap UCL		259
2146				95% BCA Bootstrap UCL		274.8						
2147				90% Chebyshev(Mean, Sd) UCL		308.6				95% Chebyshev(Mean, Sd) UCL		363.5
2148				97.5% Chebyshev(Mean, Sd) UCL		439.7				99% Chebyshev(Mean, Sd) UCL		589.4
2149												
2150	**Suggested UCL to Use**											

2151					95% Adjusted Gamma UCL	271.1						
2152												
2153	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2154	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2155	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2156	For additional insight the user may want to consult a statistician.											
2157												
2158												
2159	**Thallium_tot**											
2160												
2161	**General Statistics**											
2162					Total Number of Observations	28			Number of Distinct Observations	24		
2163									Number of Missing Observations	0		
2164					Minimum	1.0000E-5			Mean	1.8145E-4		
2165					Maximum	0.001			Median	2.0350E-5		
2166					SD	3.3955E-4			Std. Error of Mean	6.4168E-5		
2167					Coefficient of Variation	1.871			Skewness	2.054		
2168												
2169	**Normal GOF Test**											
2170					Shapiro Wilk Test Statistic	0.527			**Shapiro Wilk GOF Test**			
2171					5% Shapiro Wilk Critical Value	0.924			Data Not Normal at 5% Significance Level			
2172					Lilliefors Test Statistic	0.357			**Lilliefors GOF Test**			
2173					5% Lilliefors Critical Value	0.167			Data Not Normal at 5% Significance Level			
2174	**Data Not Normal at 5% Significance Level**											
2175												
2176	**Assuming Normal Distribution**											
2177					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**			
2178					95% Student's-t UCL	2.9075E-4			95% Adjusted-CLT UCL (Chen-1995)	3.1361E-4		
2179									95% Modified-t UCL (Johnson-1978)	2.9490E-4		
2180												
2181	**Gamma GOF Test**											
2182					A-D Test Statistic	3.363			**Anderson-Darling Gamma GOF Test**			
2183					5% A-D Critical Value	0.819			Data Not Gamma Distributed at 5% Significance Level			
2184					K-S Test Statistic	0.318			**Kolmogrov-Smirnoff Gamma GOF Test**			
2185					5% K-S Critical Value	0.176			Data Not Gamma Distributed at 5% Significance Level			
2186	**Data Not Gamma Distributed at 5% Significance Level**											
2187												
2188	**Gamma Statistics**											
2189					k hat (MLE)	0.459			k star (bias corrected MLE)	0.434		
2190					Theta hat (MLE)	3.9533E-4			Theta star (bias corrected MLE)	4.1846E-4		
2191					nu hat (MLE)	25.7			nu star (bias corrected)	24.28		
2192					MLE Mean (bias corrected)	1.8145E-4			MLE Sd (bias corrected)	2.7555E-4		
2193									Approximate Chi Square Value (0.05)	14.06		
2194					Adjusted Level of Significance	0.0404			Adjusted Chi Square Value	13.58		
2195												
2196	**Assuming Gamma Distribution**											
2197					95% Approximate Gamma UCL (use when n>=50))	3.1329E-4			95% Adjusted Gamma UCL (use when n<50)	3.2439E-4		
2198												
2199	**Lognormal GOF Test**											
2200					Shapiro Wilk Test Statistic	0.801			**Shapiro Wilk Lognormal GOF Test**			

2201				5% Shapiro Wilk Critical Value		0.924	Data Not Lognormal at 5% Significance Level					
2202				Lilliefors Test Statistic		0.241	**Lilliefors Lognormal GOF Test**					
2203				5% Lilliefors Critical Value		0.167	Data Not Lognormal at 5% Significance Level					
2204	**Data Not Lognormal at 5% Significance Level**											
2205												
2206	**Lognormal Statistics**											
2207				Minimum of Logged Data		-11.51	Mean of logged Data					-10.02
2208				Maximum of Logged Data		-6.908	SD of logged Data					1.582
2209												
2210	**Assuming Lognormal Distribution**											
2211				95% H-UCL		4.1939E-4	90% Chebyshev (MVUE) UCL					3.0437E-4
2212				95% Chebyshev (MVUE) UCL		3.7769E-4	97.5% Chebyshev (MVUE) UCL					4.7946E-4
2213				99% Chebyshev (MVUE) UCL		6.7937E-4						
2214												
2215	**Nonparametric Distribution Free UCL Statistics**											
2216	**Data do not follow a Discernible Distribution (0.05)**											
2217												
2218	**Nonparametric Distribution Free UCLs**											
2219				95% CLT UCL		2.8700E-4	95% Jackknife UCL					2.9075E-4
2220				95% Standard Bootstrap UCL		2.8660E-4	95% Bootstrap-t UCL					3.6250E-4
2221				95% Hall's Bootstrap UCL		2.6499E-4	95% Percentile Bootstrap UCL					2.9386E-4
2222				95% BCA Bootstrap UCL		3.0613E-4						
2223				90% Chebyshev(Mean, Sd) UCL		3.7395E-4	95% Chebyshev(Mean, Sd) UCL					4.6115E-4
2224				97.5% Chebyshev(Mean, Sd) UCL		5.8218E-4	99% Chebyshev(Mean, Sd) UCL					8.1992E-4
2225												
2226	**Suggested UCL to Use**											
2227				95% Chebyshev (Mean, Sd) UCL		4.6115E-4						
2228												
2229	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2230	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2231	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2232	For additional insight the user may want to consult a statistician.											
2233												
2234												
2235	**Tin_tot**											
2236												
2237	**General Statistics**											
2238				Total Number of Observations		28	Number of Distinct Observations					26
2239							Number of Missing Observations					0
2240				Minimum		1.2000E-4	Mean					6.6193E-4
2241				Maximum		0.00275	Median					2.4400E-4
2242				SD		8.4196E-4	Std. Error of Mean					1.5912E-4
2243				Coefficient of Variation		1.272	Skewness					1.766
2244												
2245	**Normal GOF Test**											
2246				Shapiro Wilk Test Statistic		0.645	**Shapiro Wilk GOF Test**					
2247				5% Shapiro Wilk Critical Value		0.924	Data Not Normal at 5% Significance Level					
2248				Lilliefors Test Statistic		0.323	**Lilliefors GOF Test**					
2249				5% Lilliefors Critical Value		0.167	Data Not Normal at 5% Significance Level					
2250	**Data Not Normal at 5% Significance Level**											

2251												
2252	**Assuming Normal Distribution**											
2253	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
2254	95% Student's-t UCL				9.3295E-4		95% Adjusted-CLT UCL (Chen-1995)					9.8041E-4
2255							95% Modified-t UCL (Johnson-1978)					9.4181E-4
2256												
2257	**Gamma GOF Test**											
2258	A-D Test Statistic				2.324		**Anderson-Darling Gamma GOF Test**					
2259	5% A-D Critical Value				0.775		Data Not Gamma Distributed at 5% Significance Level					
2260	K-S Test Statistic				0.234		**Kolmogrov-Smirnoff Gamma GOF Test**					
2261	5% K-S Critical Value				0.17		Data Not Gamma Distributed at 5% Significance Level					
2262	**Data Not Gamma Distributed at 5% Significance Level**											
2263												
2264	**Gamma Statistics**											
2265	k hat (MLE)				0.98		k star (bias corrected MLE)					0.898
2266	Theta hat (MLE)				6.7573E-4		Theta star (bias corrected MLE)					7.3676E-4
2267	nu hat (MLE)				54.86		nu star (bias corrected)					50.31
2268	MLE Mean (bias corrected)				6.6193E-4		MLE Sd (bias corrected)					6.9834E-4
2269							Approximate Chi Square Value (0.05)					35.03
2270	Adjusted Level of Significance				0.0404		Adjusted Chi Square Value					34.24
2271												
2272	**Assuming Gamma Distribution**											
2273	95% Approximate Gamma UCL (use when n>=50))				9.5084E-4		95% Adjusted Gamma UCL (use when n<50)					9.7276E-4
2274												
2275	**Lognormal GOF Test**											
2276	Shapiro Wilk Test Statistic				0.853		**Shapiro Wilk Lognormal GOF Test**					
2277	5% Shapiro Wilk Critical Value				0.924		Data Not Lognormal at 5% Significance Level					
2278	Lilliefors Test Statistic				0.178		**Lilliefors Lognormal GOF Test**					
2279	5% Lilliefors Critical Value				0.167		Data Not Lognormal at 5% Significance Level					
2280	**Data Not Lognormal at 5% Significance Level**											
2281												
2282	**Lognormal Statistics**											
2283	Minimum of Logged Data				-9.028		Mean of logged Data					-7.911
2284	Maximum of Logged Data				-5.896		SD of logged Data					1.026
2285												
2286	**Assuming Lognormal Distribution**											
2287	95% H-UCL				0.00101		90% Chebyshev (MVUE) UCL					0.00101
2288	95% Chebyshev (MVUE) UCL				0.00119		97.5% Chebyshev (MVUE) UCL					0.00145
2289	99% Chebyshev (MVUE) UCL				0.00194							
2290												
2291	**Nonparametric Distribution Free UCL Statistics**											
2292	**Data do not follow a Discernible Distribution (0.05)**											
2293												
2294	**Nonparametric Distribution Free UCLs**											
2295	95% CLT UCL				9.2366E-4		95% Jackknife UCL					9.3295E-4
2296	95% Standard Bootstrap UCL				9.2491E-4		95% Bootstrap-t UCL					0.00106
2297	95% Hall's Bootstrap UCL				9.0541E-4		95% Percentile Bootstrap UCL					9.4232E-4
2298	95% BCA Bootstrap UCL				9.9799E-4							
2299	90% Chebyshev(Mean, Sd) UCL				0.00114		95% Chebyshev(Mean, Sd) UCL					0.00136
2300	97.5% Chebyshev(Mean, Sd) UCL				0.00166		99% Chebyshev(Mean, Sd) UCL					0.00225

2301												
2302	**Suggested UCL to Use**											
2303	95% Chebyshev (Mean, Sd) UCL				0.00136							
2304												
2305	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2306	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2307	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2308	For additional insight the user may want to consult a statistician.											
2309												
2310												
2311	**Titanium_tot**											
2312												
2313	**General Statistics**											
2314	Total Number of Observations				28		Number of Distinct Observations					19
2315							Number of Missing Observations					0
2316	Minimum				0.01		Mean					0.0525
2317	Maximum				0.534		Median					0.0111
2318	SD				0.117		Std. Error of Mean					0.0222
2319	Coefficient of Variation				2.234		Skewness					3.404
2320												
2321	**Normal GOF Test**											
2322	Shapiro Wilk Test Statistic				0.423		**Shapiro Wilk GOF Test**					
2323	5% Shapiro Wilk Critical Value				0.924		Data Not Normal at 5% Significance Level					
2324	Lilliefors Test Statistic				0.395		**Lilliefors GOF Test**					
2325	5% Lilliefors Critical Value				0.167		Data Not Normal at 5% Significance Level					
2326	**Data Not Normal at 5% Significance Level**											
2327												
2328	**Assuming Normal Distribution**											
2329	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
2330	95% Student's-t UCL				0.0902		95% Adjusted-CLT UCL (Chen-1995)					0.104
2331							95% Modified-t UCL (Johnson-1978)					0.0926
2332												
2333	**Gamma GOF Test**											
2334	A-D Test Statistic				5.35		**Anderson-Darling Gamma GOF Test**					
2335	5% A-D Critical Value				0.798		Data Not Gamma Distributed at 5% Significance Level					
2336	K-S Test Statistic				0.34		**Kolmogrov-Smirnoff Gamma GOF Test**					
2337	5% K-S Critical Value				0.174		Data Not Gamma Distributed at 5% Significance Level					
2338	**Data Not Gamma Distributed at 5% Significance Level**											
2339												
2340	**Gamma Statistics**											
2341	k hat (MLE)				0.617		k star (bias corrected MLE)					0.575
2342	Theta hat (MLE)				0.0851		Theta star (bias corrected MLE)					0.0913
2343	nu hat (MLE)				34.55		nu star (bias corrected)					32.18
2344	MLE Mean (bias corrected)				0.0525		MLE Sd (bias corrected)					0.0692
2345							Approximate Chi Square Value (0.05)					20.21
2346	Adjusted Level of Significance				0.0404		Adjusted Chi Square Value					19.63
2347												
2348	**Assuming Gamma Distribution**											
2349	95% Approximate Gamma UCL (use when n>=50))				0.0836		95% Adjusted Gamma UCL (use when n<50)					0.086
2350												

2351	**Lognormal GOF Test**											
2352					Shapiro Wilk Test Statistic	0.655	**Shapiro Wilk Lognormal GOF Test**					
2353					5% Shapiro Wilk Critical Value	0.924	Data Not Lognormal at 5% Significance Level					
2354					Lilliefors Test Statistic	0.296	**Lilliefors Lognormal GOF Test**					
2355					5% Lilliefors Critical Value	0.167	Data Not Lognormal at 5% Significance Level					
2356	**Data Not Lognormal at 5% Significance Level**											
2357												
2358	**Lognormal Statistics**											
2359					Minimum of Logged Data	-4.605	Mean of logged Data	-3.945				
2360					Maximum of Logged Data	-0.627	SD of logged Data	1.115				
2361												
2362	**Assuming Lognormal Distribution**											
2363					95% H-UCL	0.063	90% Chebyshev (MVUE) UCL	0.0606				
2364					95% Chebyshev (MVUE) UCL	0.0723	97.5% Chebyshev (MVUE) UCL	0.0885				
2365					99% Chebyshev (MVUE) UCL	0.12						
2366												
2367	**Nonparametric Distribution Free UCL Statistics**											
2368	**Data do not follow a Discernible Distribution (0.05)**											
2369												
2370	**Nonparametric Distribution Free UCLs**											
2371					95% CLT UCL	0.0889	95% Jackknife UCL	0.0902				
2372					95% Standard Bootstrap UCL	0.0887	95% Bootstrap-t UCL	0.169				
2373					95% Hall's Bootstrap UCL	0.167	95% Percentile Bootstrap UCL	0.0916				
2374					95% BCA Bootstrap UCL	0.106						
2375					90% Chebyshev(Mean, Sd) UCL	0.119	95% Chebyshev(Mean, Sd) UCL	0.149				
2376					97.5% Chebyshev(Mean, Sd) UCL	0.191	99% Chebyshev(Mean, Sd) UCL	0.273				
2377												
2378	**Suggested UCL to Use**											
2379					95% Chebyshev (Mean, Sd) UCL	0.149						
2380												
2381	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2382	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2383	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2384	For additional insight the user may want to consult a statistician.											
2385												
2386												
2387	**Total Cadmium (SWE)_tot**											
2388												
2389	**General Statistics**											
2390					Total Number of Observations	13	Number of Distinct Observations	7				
2391							Number of Missing Observations	15				
2392					Minimum	2.0000E-5	Mean	2.8212E-5				
2393					Maximum	5.7000E-5	Median	2.2250E-5				
2394					SD	1.1316E-5	Std. Error of Mean	3.1386E-6				
2395					Coefficient of Variation	N/A	Skewness	1.552				
2396												
2397	**Normal GOF Test**											
2398					Shapiro Wilk Test Statistic	0.771	**Shapiro Wilk GOF Test**					
2399					5% Shapiro Wilk Critical Value	0.866	Data Not Normal at 5% Significance Level					
2400					Lilliefors Test Statistic	0.239	**Lilliefors GOF Test**					

2401	5% Lilliefors Critical Value					0.246	Data appear Normal at 5% Significance Level					
2402	**Data appear Approximate Normal at 5% Significance Level**											
2403												
2404	**Assuming Normal Distribution**											
2405	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
2406	95% Student's-t UCL					3.3805E-5	95% Adjusted-CLT UCL (Chen-1995)					3.4818E-5
2407							95% Modified-t UCL (Johnson-1978)					3.4031E-5
2408												
2409	**Gamma GOF Test**											
2410	A-D Test Statistic					1.103	**Anderson-Darling Gamma GOF Test**					
2411	5% A-D Critical Value					0.734	Data Not Gamma Distributed at 5% Significance Level					
2412	K-S Test Statistic					0.255	**Kolmogrov-Smirnoff Gamma GOF Test**					
2413	5% K-S Critical Value					0.237	Data Not Gamma Distributed at 5% Significance Level					
2414	**Data Not Gamma Distributed at 5% Significance Level**											
2415												
2416	**Gamma Statistics**											
2417	k hat (MLE)					8.288	k star (bias corrected MLE)					6.427
2418	Theta hat (MLE)					3.4039E-6	Theta star (bias corrected MLE)					4.3897E-6
2419	nu hat (MLE)					215.5	nu star (bias corrected)					167.1
2420	MLE Mean (bias corrected)					2.8212E-5	MLE Sd (bias corrected)					1.1128E-5
2421							Approximate Chi Square Value (0.05)					138.2
2422	Adjusted Level of Significance					0.0301	Adjusted Chi Square Value					134.5
2423												
2424	**Assuming Gamma Distribution**											
2425	95% Approximate Gamma UCL (use when n>=50))					3.4109E-5	95% Adjusted Gamma UCL (use when n<50)					3.5058E-5
2426												
2427	**Lognormal GOF Test**											
2428	Shapiro Wilk Test Statistic					0.811	**Shapiro Wilk Lognormal GOF Test**					
2429	5% Shapiro Wilk Critical Value					0.866	Data Not Lognormal at 5% Significance Level					
2430	Lilliefors Test Statistic					0.252	**Lilliefors Lognormal GOF Test**					
2431	5% Lilliefors Critical Value					0.246	Data Not Lognormal at 5% Significance Level					
2432	**Data Not Lognormal at 5% Significance Level**											
2433												
2434	**Lognormal Statistics**											
2435	Minimum of Logged Data					-10.82	Mean of logged Data					-10.54
2436	Maximum of Logged Data					-9.772	SD of logged Data					0.349
2437												
2438	**Assuming Lognormal Distribution**											
2439	95% H-UCL					3.4342E-5	90% Chebyshev (MVUE) UCL					3.6329E-5
2440	95% Chebyshev (MVUE) UCL					4.0074E-5	97.5% Chebyshev (MVUE) UCL					4.5273E-5
2441	99% Chebyshev (MVUE) UCL					5.5485E-5						
2442												
2443	**Nonparametric Distribution Free UCL Statistics**											
2444	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
2445												
2446	**Nonparametric Distribution Free UCLs**											
2447	95% CLT UCL					3.3374E-5	95% Jackknife UCL					3.3805E-5
2448	95% Standard Bootstrap UCL					3.3235E-5	95% Bootstrap-t UCL					3.7366E-5
2449	95% Hall's Bootstrap UCL					3.6339E-5	95% Percentile Bootstrap UCL					3.3500E-5
2450	95% BCA Bootstrap UCL					3.4788E-5						

2451					90% Chebyshev(Mean, Sd) UCL	3.7627E-5				95% Chebyshev(Mean, Sd) UCL		4.1892E-5
2452					97.5% Chebyshev(Mean, Sd) UCL	4.7812E-5				99% Chebyshev(Mean, Sd) UCL		5.9440E-5
2453												
2454					**Suggested UCL to Use**							
2455					95% Student's-t UCL	3.3805E-5						
2456												
2457					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
2458					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
2459					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
2460					For additional insight the user may want to consult a statistician.							
2461												
2462												
2463	**Uranium_tot**											
2464												
2465					**General Statistics**							
2466					Total Number of Observations	28				Number of Distinct Observations		28
2467										Number of Missing Observations		0
2468					Minimum	1.8200E-4				Mean		0.00248
2469					Maximum	0.00933				Median		0.00191
2470					SD	0.00196				Std. Error of Mean		3.7100E-4
2471					Coefficient of Variation	0.793				Skewness		2.096
2472												
2473					**Normal GOF Test**							
2474					Shapiro Wilk Test Statistic	0.798				**Shapiro Wilk GOF Test**		
2475					5% Shapiro Wilk Critical Value	0.924				Data Not Normal at 5% Significance Level		
2476					Lilliefors Test Statistic	0.225				**Lilliefors GOF Test**		
2477					5% Lilliefors Critical Value	0.167				Data Not Normal at 5% Significance Level		
2478					**Data Not Normal at 5% Significance Level**							
2479												
2480					**Assuming Normal Distribution**							
2481					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**		
2482					95% Student's-t UCL	0.00311				95% Adjusted-CLT UCL (Chen-1995)		0.00324
2483										95% Modified-t UCL (Johnson-1978)		0.00313
2484												
2485					**Gamma GOF Test**							
2486					A-D Test Statistic	0.508				**Anderson-Darling Gamma GOF Test**		
2487					5% A-D Critical Value	0.759				Detected data appear Gamma Distributed at 5% Significance Level		
2488					K-S Test Statistic	0.133				**Kolmogrov-Smirnoff Gamma GOF Test**		
2489					5% K-S Critical Value	0.168				Detected data appear Gamma Distributed at 5% Significance Level		
2490					**Detected data appear Gamma Distributed at 5% Significance Level**							
2491												
2492					**Gamma Statistics**							
2493					k hat (MLE)	1.904				k star (bias corrected MLE)		1.724
2494					Theta hat (MLE)	0.0013				Theta star (bias corrected MLE)		0.00144
2495					nu hat (MLE)	106.6				nu star (bias corrected)		96.52
2496					MLE Mean (bias corrected)	0.00248				MLE Sd (bias corrected)		0.00189
2497										Approximate Chi Square Value (0.05)		74.86
2498					Adjusted Level of Significance	0.0404				Adjusted Chi Square Value		73.68
2499												
2500					**Assuming Gamma Distribution**							

2501	95% Approximate Gamma UCL (use when n>=50)					0.00319	95% Adjusted Gamma UCL (use when n<50)					0.00324
2502												
2503	**Lognormal GOF Test**											
2504	Shapiro Wilk Test Statistic					0.929	**Shapiro Wilk Lognormal GOF Test**					
2505	5% Shapiro Wilk Critical Value					0.924	Data appear Lognormal at 5% Significance Level					
2506	Lilliefors Test Statistic					0.169	**Lilliefors Lognormal GOF Test**					
2507	5% Lilliefors Critical Value					0.167	Data Not Lognormal at 5% Significance Level					
2508	**Data appear Approximate Lognormal at 5% Significance Level**											
2509												
2510	**Lognormal Statistics**											
2511	Minimum of Logged Data					-8.612	Mean of logged Data					-6.286
2512	Maximum of Logged Data					-4.674	SD of logged Data					0.838
2513												
2514	**Assuming Lognormal Distribution**											
2515	95% H-UCL					0.00381	90% Chebyshev (MVUE) UCL					0.00397
2516	95% Chebyshev (MVUE) UCL					0.00459	97.5% Chebyshev (MVUE) UCL					0.00546
2517	99% Chebyshev (MVUE) UCL					0.00715						
2518												
2519	**Nonparametric Distribution Free UCL Statistics**											
2520	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
2521												
2522	**Nonparametric Distribution Free UCLs**											
2523	95% CLT UCL					0.00309	95% Jackknife UCL					0.00311
2524	95% Standard Bootstrap UCL					0.00308	95% Bootstrap-t UCL					0.00345
2525	95% Hall's Bootstrap UCL					0.00403	95% Percentile Bootstrap UCL					0.0031
2526	95% BCA Bootstrap UCL					0.00325						
2527	90% Chebyshev(Mean, Sd) UCL					0.00359	95% Chebyshev(Mean, Sd) UCL					0.00409
2528	97.5% Chebyshev(Mean, Sd) UCL					0.00479	99% Chebyshev(Mean, Sd) UCL					0.00617
2529												
2530	**Suggested UCL to Use**											
2531	95% Adjusted Gamma UCL					0.00324						
2532												
2533	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2534	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2535	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2536	For additional insight the user may want to consult a statistician.											
2537												
2538												
2539	**Vanadium_tot**											
2540												
2541	**General Statistics**											
2542	Total Number of Observations					28	Number of Distinct Observations					21
2543							Number of Missing Observations					0
2544	Minimum					0.001	Mean					0.00495
2545	Maximum					0.0388	Median					0.0014
2546	SD					0.00899	Std. Error of Mean					0.0017
2547	Coefficient of Variation					1.817	Skewness					2.936
2548												
2549	**Normal GOF Test**											
2550	Shapiro Wilk Test Statistic					0.501	**Shapiro Wilk GOF Test**					

2551				5% Shapiro Wilk Critical Value		0.924	Data Not Normal at 5% Significance Level					
2552				Lilliefors Test Statistic		0.358	**Lilliefors GOF Test**					
2553				5% Lilliefors Critical Value		0.167	Data Not Normal at 5% Significance Level					
2554	**Data Not Normal at 5% Significance Level**											
2555												
2556	**Assuming Normal Distribution**											
2557	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
2558				95% Student's-t UCL		0.00784				95% Adjusted-CLT UCL (Chen-1995)		0.00875
2559										95% Modified-t UCL (Johnson-1978)		0.008
2560												
2561	**Gamma GOF Test**											
2562				A-D Test Statistic		3.698	**Anderson-Darling Gamma GOF Test**					
2563				5% A-D Critical Value		0.785	Data Not Gamma Distributed at 5% Significance Level					
2564				K-S Test Statistic		0.287	**Kolmogrov-Smirnoff Gamma GOF Test**					
2565				5% K-S Critical Value		0.172	Data Not Gamma Distributed at 5% Significance Level					
2566	**Data Not Gamma Distributed at 5% Significance Level**											
2567												
2568	**Gamma Statistics**											
2569				k hat (MLE)		0.752				k star (bias corrected MLE)		0.695
2570				Theta hat (MLE)		0.00658				Theta star (bias corrected MLE)		0.00712
2571				nu hat (MLE)		42.09				nu star (bias corrected)		38.91
2572				MLE Mean (bias corrected)		0.00495				MLE Sd (bias corrected)		0.00593
2573										Approximate Chi Square Value (0.05)		25.63
2574				Adjusted Level of Significance		0.0404				Adjusted Chi Square Value		24.96
2575												
2576	**Assuming Gamma Distribution**											
2577				95% Approximate Gamma UCL (use when n>=50))		0.00751				95% Adjusted Gamma UCL (use when n<50)		0.00771
2578												
2579	**Lognormal GOF Test**											
2580				Shapiro Wilk Test Statistic		0.762	**Shapiro Wilk Lognormal GOF Test**					
2581				5% Shapiro Wilk Critical Value		0.924	Data Not Lognormal at 5% Significance Level					
2582				Lilliefors Test Statistic		0.228	**Lilliefors Lognormal GOF Test**					
2583				5% Lilliefors Critical Value		0.167	Data Not Lognormal at 5% Significance Level					
2584	**Data Not Lognormal at 5% Significance Level**											
2585												
2586	**Lognormal Statistics**											
2587				Minimum of Logged Data		-6.908				Mean of logged Data		-6.105
2588				Maximum of Logged Data		-3.25				SD of logged Data		1.075
2589												
2590	**Assuming Lognormal Distribution**											
2591				95% H-UCL		0.00674				90% Chebyshev (MVUE) UCL		0.00659
2592				95% Chebyshev (MVUE) UCL		0.00782				97.5% Chebyshev (MVUE) UCL		0.00954
2593				99% Chebyshev (MVUE) UCL		0.0129						
2594												
2595	**Nonparametric Distribution Free UCL Statistics**											
2596	**Data do not follow a Discernible Distribution (0.05)**											
2597												
2598	**Nonparametric Distribution Free UCLs**											
2599				95% CLT UCL		0.00774				95% Jackknife UCL		0.00784
2600				95% Standard Bootstrap UCL		0.00758				95% Bootstrap-t UCL		0.0111

2601				95% Hall's Bootstrap UCL		0.00849				95% Percentile Bootstrap UCL		0.00787
2602				95% BCA Bootstrap UCL		0.00893						
2603				90% Chebyshev(Mean, Sd) UCL		0.01				95% Chebyshev(Mean, Sd) UCL		0.0124
2604				97.5% Chebyshev(Mean, Sd) UCL		0.0156				99% Chebyshev(Mean, Sd) UCL		0.0219
2605												
2606						**Suggested UCL to Use**							
2607				95% Chebyshev (Mean, Sd) UCL		0.0124						
2608												
2609						Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.						
2610						These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)						
2611						and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.						
2612						For additional insight the user may want to consult a statistician.						
2613												
2614												
2615	**Zinc_tot**											
2616												
2617						**General Statistics**						
2618				Total Number of Observations		28				Number of Distinct Observations		28
2619										Number of Missing Observations		0
2620				Minimum		0.003				Mean		0.0142
2621				Maximum		0.168				Median		0.00624
2622				SD		0.0309				Std. Error of Mean		0.00583
2623				Coefficient of Variation		2.177				Skewness		4.953
2624												
2625						**Normal GOF Test**						
2626				Shapiro Wilk Test Statistic		0.334				**Shapiro Wilk GOF Test**		
2627				5% Shapiro Wilk Critical Value		0.924				Data Not Normal at 5% Significance Level		
2628				Lilliefors Test Statistic		0.378				**Lilliefors GOF Test**		
2629				5% Lilliefors Critical Value		0.167				Data Not Normal at 5% Significance Level		
2630						**Data Not Normal at 5% Significance Level**						
2631												
2632						**Assuming Normal Distribution**						
2633				**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**		
2634				95% Student's-t UCL		0.0241				95% Adjusted-CLT UCL (Chen-1995)		0.0296
2635										95% Modified-t UCL (Johnson-1978)		0.025
2636												
2637						**Gamma GOF Test**						
2638				A-D Test Statistic		3.641				**Anderson-Darling Gamma GOF Test**		
2639				5% A-D Critical Value		0.775				Data Not Gamma Distributed at 5% Significance Level		
2640				K-S Test Statistic		0.295				**Kolmogrov-Smirnoff Gamma GOF Test**		
2641				5% K-S Critical Value		0.17				Data Not Gamma Distributed at 5% Significance Level		
2642						**Data Not Gamma Distributed at 5% Significance Level**						
2643												
2644						**Gamma Statistics**						
2645				k hat (MLE)		0.977				k star (bias corrected MLE)		0.896
2646				Theta hat (MLE)		0.0145				Theta star (bias corrected MLE)		0.0158
2647				nu hat (MLE)		54.68				nu star (bias corrected)		50.16
2648				MLE Mean (bias corrected)		0.0142				MLE Sd (bias corrected)		0.015
2649										Approximate Chi Square Value (0.05)		34.9
2650				Adjusted Level of Significance		0.0404				Adjusted Chi Square Value		34.11

2651												
2652	**Assuming Gamma Distribution**											
2653	95% Approximate Gamma UCL (use when n>=50))					0.0204	95% Adjusted Gamma UCL (use when n<50)					0.0209
2654												
2655	**Lognormal GOF Test**											
2656	Shapiro Wilk Test Statistic					0.795	**Shapiro Wilk Lognormal GOF Test**					
2657	5% Shapiro Wilk Critical Value					0.924	Data Not Lognormal at 5% Significance Level					
2658	Lilliefors Test Statistic					0.195	**Lilliefors Lognormal GOF Test**					
2659	5% Lilliefors Critical Value					0.167	Data Not Lognormal at 5% Significance Level					
2660	**Data Not Lognormal at 5% Significance Level**											
2661												
2662	**Lognormal Statistics**											
2663	Minimum of Logged Data					-5.809	Mean of logged Data					-4.849
2664	Maximum of Logged Data					-1.782	SD of logged Data					0.827
2665												
2666	**Assuming Lognormal Distribution**											
2667	95% H-UCL					0.0158	90% Chebyshev (MVUE) UCL					0.0165
2668	95% Chebyshev (MVUE) UCL					0.0191	97.5% Chebyshev (MVUE) UCL					0.0226
2669	99% Chebyshev (MVUE) UCL					0.0296						
2670												
2671	**Nonparametric Distribution Free UCL Statistics**											
2672	**Data do not follow a Discernible Distribution (0.05)**											
2673												
2674	**Nonparametric Distribution Free UCLs**											
2675	95% CLT UCL					0.0238	95% Jackknife UCL					0.0241
2676	95% Standard Bootstrap UCL					0.0238	95% Bootstrap-t UCL					0.0605
2677	95% Hall's Bootstrap UCL					0.0543	95% Percentile Bootstrap UCL					0.0256
2678	95% BCA Bootstrap UCL					0.0325						
2679	90% Chebyshev(Mean, Sd) UCL					0.0317	95% Chebyshev(Mean, Sd) UCL					0.0396
2680	97.5% Chebyshev(Mean, Sd) UCL					0.0506	99% Chebyshev(Mean, Sd) UCL					0.0722
2681												
2682	**Suggested UCL to Use**											
2683	95% Chebyshev (Mean, Sd) UCL					0.0396						
2684												
2685	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2686	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2687	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2688	For additional insight the user may want to consult a statistician.											
2689												

ProUCL Output for Fish Tissue (Whole Body)

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	4/13/2015 9:29:37 AM
From File	Revised Dataset-Proucl input.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum (mg/kg wwt)

General Statistics

Total Number of Observations	20	Number of Distinct Observations	19
Number of Detects	19	Number of Non-Detects	1
Number of Distinct Detects	18	Number of Distinct Non-Detects	1
Minimum Detect	0.45	Minimum Non-Detect	0.4
Maximum Detect	29.3	Maximum Non-Detect	0.4
Variance Detects	58.55	Percent Non-Detects	5%
Mean Detects	6.131	SD Detects	7.652
Median Detects	4.05	CV Detects	1.248
Skewness Detects	2.219	Kurtosis Detects	4.781
Mean of Logged Detects	1.199	SD of Logged Detects	1.156

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.701	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.901	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.235	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.203	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	5.845	Standard Error of Mean	1.692
SD	7.366	95% KM (BCA) UCL	9.018
95% KM (t) UCL	8.77	95% KM (Percentile Bootstrap) UCL	8.91
95% KM (z) UCL	8.628	95% KM Bootstrap t UCL	11.85
90% KM Chebyshev UCL	10.92	95% KM Chebyshev UCL	13.22
97.5% KM Chebyshev UCL	16.41	99% KM Chebyshev UCL	22.68

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.502	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.771	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.173	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.205	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.946	k star (bias corrected MLE)	0.832
Theta hat (MLE)	6.481	Theta star (bias corrected MLE)	7.372
nu hat (MLE)	35.95	nu star (bias corrected)	31.6
MLE Mean (bias corrected)	6.131	MLE Sd (bias corrected)	6.723

51												
52	**Gamma Kaplan-Meier (KM) Statistics**											
53					k hat (KM)	0.63				nu hat (KM)	25.19	
54					Approximate Chi Square Value (25.19, α)	14.75				Adjusted Chi Square Value (25.19, β)	14.12	
55					95% Gamma Approximate KM-UCL (use when n>=50)	9.977				95% Gamma Adjusted KM-UCL (use when n<50)	10.42	
56												
57	**Gamma ROS Statistics using Imputed Non-Detects**											
58	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
59	GROS may not be used when kstar of detected data is small such as < 0.1											
60	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
61	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
62					Minimum	0.01				Mean	5.825	
63					Maximum	29.3				Median	3.07	
64					SD	7.572				CV	1.3	
65					k hat (MLE)	0.707				k star (bias corrected MLE)	0.635	
66					Theta hat (MLE)	8.236				Theta star (bias corrected MLE)	9.18	
67					nu hat (MLE)	28.29				nu star (bias corrected)	25.38	
68					MLE Mean (bias corrected)	5.825				MLE Sd (bias corrected)	7.313	
69										Adjusted Level of Significance (β)	0.038	
70					Approximate Chi Square Value (25.38, α)	14.9				Adjusted Chi Square Value (25.38, β)	14.27	
71					95% Gamma Approximate UCL (use when n>=50)	9.92				95% Gamma Adjusted UCL (use when n<50)	10.36	
72												
73	**Lognormal GOF Test on Detected Observations Only**											
74					Shapiro Wilk Test Statistic	0.971				**Shapiro Wilk GOF Test**		
75					5% Shapiro Wilk Critical Value	0.901				Detected Data appear Lognormal at 5% Significance Level		
76					Lilliefors Test Statistic	0.129				**Lilliefors GOF Test**		
77					5% Lilliefors Critical Value	0.203				Detected Data appear Lognormal at 5% Significance Level		
78	**Detected Data appear Lognormal at 5% Significance Level**											
79												
80	**Lognormal ROS Statistics Using Imputed Non-Detects**											
81					Mean in Original Scale	5.834				Mean in Log Scale	1.056	
82					SD in Original Scale	7.565				SD in Log Scale	1.295	
83					95% t UCL (assumes normality of ROS data)	8.759				95% Percentile Bootstrap UCL	8.835	
84					95% BCA Bootstrap UCL	9.552				95% Bootstrap t UCL	12.06	
85					95% H-UCL (Log ROS)	16.63						
86												
87	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
88					KM Mean (logged)	1.093				95% H-UCL (KM -Log)	13.43	
89					KM SD (logged)	1.189				95% Critical H Value (KM-Log)	2.919	
90					KM Standard Error of Mean (logged)	0.273						
91												
92	**DL/2 Statistics**											
93	**DL/2 Normal**									**DL/2 Log-Transformed**		
94					Mean in Original Scale	5.835				Mean in Log Scale	1.059	
95					SD in Original Scale	7.565				SD in Log Scale	1.288	
96					95% t UCL (Assumes normality)	8.759				95% H-Stat UCL	16.41	
97	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
98												
99	**Nonparametric Distribution Free UCL Statistics**											
100	**Detected Data appear Gamma Distributed at 5% Significance Level**											

101												
102	**Suggested UCL to Use**											
103					95% KM (Chebyshev) UCL	13.22				95% GROS Adjusted Gamma UCL		10.36
104					95% Adjusted Gamma KM-UCL	10.42						
105												
106	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
107	Recommendations are based upon data size, data distribution, and skewness.											
108	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
109	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
110												
111												
112	**Arsenic (mg/kg wwt)**											
113												
114	**General Statistics**											
115					Total Number of Observations	20				Number of Distinct Observations		20
116										Number of Missing Observations		0
117					Minimum	0.0286				Mean		0.0509
118					Maximum	0.0768				Median		0.0493
119					SD	0.0152				Std. Error of Mean		0.00341
120					Coefficient of Variation	0.299				Skewness		0.0625
121												
122	**Normal GOF Test**											
123					Shapiro Wilk Test Statistic	0.944				**Shapiro Wilk GOF Test**		
124					5% Shapiro Wilk Critical Value	0.905				Data appear Normal at 5% Significance Level		
125					Lilliefors Test Statistic	0.162				**Lilliefors GOF Test**		
126					5% Lilliefors Critical Value	0.198				Data appear Normal at 5% Significance Level		
127	**Data appear Normal at 5% Significance Level**											
128												
129	**Assuming Normal Distribution**											
130					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**		
131					95% Student's-t UCL	0.0568				95% Adjusted-CLT UCL (Chen-1995)		0.0566
132										95% Modified-t UCL (Johnson-1978)		0.0568
133												
134	**Gamma GOF Test**											
135					A-D Test Statistic	0.419				**Anderson-Darling Gamma GOF Test**		
136					5% A-D Critical Value	0.742				Detected data appear Gamma Distributed at 5% Significance Level		
137					K-S Test Statistic	0.178				**Kolmogrov-Smirnoff Gamma GOF Test**		
138					5% K-S Critical Value	0.194				Detected data appear Gamma Distributed at 5% Significance Level		
139	**Detected data appear Gamma Distributed at 5% Significance Level**											
140												
141	**Gamma Statistics**											
142					k hat (MLE)	11.14				k star (bias corrected MLE)		9.503
143					Theta hat (MLE)	0.00457				Theta star (bias corrected MLE)		0.00536
144					nu hat (MLE)	445.6				nu star (bias corrected)		380.1
145					MLE Mean (bias corrected)	0.0509				MLE Sd (bias corrected)		0.0165
146										Approximate Chi Square Value (0.05)		335.9
147					Adjusted Level of Significance	0.038				Adjusted Chi Square Value		332.7
148												
149	**Assuming Gamma Distribution**											
150					95% Approximate Gamma UCL (use when n>=50))	0.0576				95% Adjusted Gamma UCL (use when n<50)		0.0582

151												
152	**Lognormal GOF Test**											
153					Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk Lognormal GOF Test**					
154					5% Shapiro Wilk Critical Value	0.905	Data appear Lognormal at 5% Significance Level					
155					Lilliefors Test Statistic	0.176	**Lilliefors Lognormal GOF Test**					
156					5% Lilliefors Critical Value	0.198	Data appear Lognormal at 5% Significance Level					
157	**Data appear Lognormal at 5% Significance Level**											
158												
159	**Lognormal Statistics**											
160					Minimum of Logged Data	-3.554	Mean of logged Data	-3.023				
161					Maximum of Logged Data	-2.567	SD of logged Data	0.316				
162												
163	**Assuming Lognormal Distribution**											
164					95% H-UCL	0.0585	90% Chebyshev (MVUE) UCL	0.062				
165					95% Chebyshev (MVUE) UCL	0.0669	97.5% Chebyshev (MVUE) UCL	0.0738				
166					99% Chebyshev (MVUE) UCL	0.0874						
167												
168	**Nonparametric Distribution Free UCL Statistics**											
169	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
170												
171	**Nonparametric Distribution Free UCLs**											
172					95% CLT UCL	0.0565	95% Jackknife UCL	0.0568				
173					95% Standard Bootstrap UCL	0.0564	95% Bootstrap-t UCL	0.0567				
174					95% Hall's Bootstrap UCL	0.0565	95% Percentile Bootstrap UCL	0.0566				
175					95% BCA Bootstrap UCL	0.0566						
176					90% Chebyshev(Mean, Sd) UCL	0.0611	95% Chebyshev(Mean, Sd) UCL	0.0658				
177					97.5% Chebyshev(Mean, Sd) UCL	0.0722	99% Chebyshev(Mean, Sd) UCL	0.0848				
178												
179	**Suggested UCL to Use**											
180					95% Student's-t UCL	0.0568						
181												
182	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
183	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
184	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
185	For additional insight the user may want to consult a statistician.											
186												
187												
188	**Barium (mg/kg wwt)**											
189												
190	**General Statistics**											
191					Total Number of Observations	20	Number of Distinct Observations	19				
192							Number of Missing Observations	0				
193					Minimum	0.069	Mean	0.773				
194					Maximum	1.93	Median	0.548				
195					SD	0.548	Std. Error of Mean	0.123				
196					Coefficient of Variation	0.709	Skewness	0.701				
197												
198	**Normal GOF Test**											
199					Shapiro Wilk Test Statistic	0.911	**Shapiro Wilk GOF Test**					
200					5% Shapiro Wilk Critical Value	0.905	Data appear Normal at 5% Significance Level					

201					Lilliefors Test Statistic	0.188	**Lilliefors GOF Test**					
202					5% Lilliefors Critical Value	0.198	Data appear Normal at 5% Significance Level					
203	**Data appear Normal at 5% Significance Level**											
204												
205	**Assuming Normal Distribution**											
206	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
207					95% Student's-t UCL	0.985				95% Adjusted-CLT UCL (Chen-1995)		0.996
208										95% Modified-t UCL (Johnson-1978)		0.989
209												
210	**Gamma GOF Test**											
211					A-D Test Statistic	0.357	**Anderson-Darling Gamma GOF Test**					
212					5% A-D Critical Value	0.755	Detected data appear Gamma Distributed at 5% Significance Level					
213					K-S Test Statistic	0.129	**Kolmogrov-Smirnoff Gamma GOF Test**					
214					5% K-S Critical Value	0.197	Detected data appear Gamma Distributed at 5% Significance Level					
215	**Detected data appear Gamma Distributed at 5% Significance Level**											
216												
217	**Gamma Statistics**											
218					k hat (MLE)	1.772				k star (bias corrected MLE)		1.539
219					Theta hat (MLE)	0.437				Theta star (bias corrected MLE)		0.503
220					nu hat (MLE)	70.86				nu star (bias corrected)		61.57
221					MLE Mean (bias corrected)	0.773				MLE Sd (bias corrected)		0.623
222										Approximate Chi Square Value (0.05)		44.52
223					Adjusted Level of Significance	0.038				Adjusted Chi Square Value		43.37
224												
225	**Assuming Gamma Distribution**											
226					95% Approximate Gamma UCL (use when n>=50))	1.07				95% Adjusted Gamma UCL (use when n<50)		1.098
227												
228	**Lognormal GOF Test**											
229					Shapiro Wilk Test Statistic	0.92	**Shapiro Wilk Lognormal GOF Test**					
230					5% Shapiro Wilk Critical Value	0.905	Data appear Lognormal at 5% Significance Level					
231					Lilliefors Test Statistic	0.159	**Lilliefors Lognormal GOF Test**					
232					5% Lilliefors Critical Value	0.198	Data appear Lognormal at 5% Significance Level					
233	**Data appear Lognormal at 5% Significance Level**											
234												
235	**Lognormal Statistics**											
236					Minimum of Logged Data	-2.674				Mean of logged Data		-0.565
237					Maximum of Logged Data	0.658				SD of logged Data		0.903
238												
239	**Assuming Lognormal Distribution**											
240					95% H-UCL	1.434				90% Chebyshev (MVUE) UCL		1.387
241					95% Chebyshev (MVUE) UCL	1.639				97.5% Chebyshev (MVUE) UCL		1.988
242					99% Chebyshev (MVUE) UCL	2.673						
243												
244	**Nonparametric Distribution Free UCL Statistics**											
245	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
246												
247	**Nonparametric Distribution Free UCLs**											
248					95% CLT UCL	0.975				95% Jackknife UCL		0.985
249					95% Standard Bootstrap UCL	0.973				95% Bootstrap-t UCL		1
250					95% Hall's Bootstrap UCL	0.989				95% Percentile Bootstrap UCL		0.972

251	95% BCA Bootstrap UCL					0.979						
252	90% Chebyshev(Mean, Sd) UCL					1.141	95% Chebyshev(Mean, Sd) UCL					1.308
253	97.5% Chebyshev(Mean, Sd) UCL					1.539	99% Chebyshev(Mean, Sd) UCL					1.993
254												
255	**Suggested UCL to Use**											
256	95% Student's-t UCL					0.985						
257												
258	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
259	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
260	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
261	For additional insight the user may want to consult a statistician.											
262												
263												
264	**Calcium (mg/kg wwt)**											
265												
266	**General Statistics**											
267	Total Number of Observations					20	Number of Distinct Observations					20
268							Number of Missing Observations					0
269	Minimum					689	Mean					5443
270	Maximum					9440	Median					5605
271	SD					2823	Std. Error of Mean					631.1
272	Coefficient of Variation					0.519	Skewness					-0.302
273												
274	**Normal GOF Test**											
275	Shapiro Wilk Test Statistic					0.92	**Shapiro Wilk GOF Test**					
276	5% Shapiro Wilk Critical Value					0.905	Data appear Normal at 5% Significance Level					
277	Lilliefors Test Statistic					0.16	**Lilliefors GOF Test**					
278	5% Lilliefors Critical Value					0.198	Data appear Normal at 5% Significance Level					
279	**Data appear Normal at 5% Significance Level**											
280												
281	**Assuming Normal Distribution**											
282	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
283	95% Student's-t UCL					6534	95% Adjusted-CLT UCL (Chen-1995)					6435
284							95% Modified-t UCL (Johnson-1978)					6527
285												
286	**Gamma GOF Test**											
287	A-D Test Statistic					0.91	**Anderson-Darling Gamma GOF Test**					
288	5% A-D Critical Value					0.75	Data Not Gamma Distributed at 5% Significance Level					
289	K-S Test Statistic					0.166	**Kolmogrov-Smirnoff Gamma GOF Test**					
290	5% K-S Critical Value					0.196	Detected data appear Gamma Distributed at 5% Significance Level					
291	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
292												
293	**Gamma Statistics**											
294	k hat (MLE)					2.475	k star (bias corrected MLE)					2.137
295	Theta hat (MLE)					2199	Theta star (bias corrected MLE)					2547
296	nu hat (MLE)					98.99	nu star (bias corrected)					85.48
297	MLE Mean (bias corrected)					5443	MLE Sd (bias corrected)					3723
298							Approximate Chi Square Value (0.05)					65.17
299	Adjusted Level of Significance					0.038	Adjusted Chi Square Value					63.77
300												

301	**Assuming Gamma Distribution**											
302	95% Approximate Gamma UCL (use when n>=50))					7139	95% Adjusted Gamma UCL (use when n<50)					7296
303												
304	**Lognormal GOF Test**											
305	Shapiro Wilk Test Statistic					0.82	**Shapiro Wilk Lognormal GOF Test**					
306	5% Shapiro Wilk Critical Value					0.905	Data Not Lognormal at 5% Significance Level					
307	Lilliefors Test Statistic					0.169	**Lilliefors Lognormal GOF Test**					
308	5% Lilliefors Critical Value					0.198	Data appear Lognormal at 5% Significance Level					
309	**Data appear Approximate Lognormal at 5% Significance Level**											
310												
311	**Lognormal Statistics**											
312	Minimum of Logged Data					6.535	Mean of logged Data					8.387
313	Maximum of Logged Data					9.153	SD of logged Data					0.791
314												
315	**Assuming Lognormal Distribution**											
316	95% H-UCL					9189	90% Chebyshev (MVUE) UCL					9262
317	95% Chebyshev (MVUE) UCL					10793	97.5% Chebyshev (MVUE) UCL					12918
318	99% Chebyshev (MVUE) UCL					17091						
319												
320	**Nonparametric Distribution Free UCL Statistics**											
321	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
322												
323	**Nonparametric Distribution Free UCLs**											
324	95% CLT UCL					6481	95% Jackknife UCL					6534
325	95% Standard Bootstrap UCL					6451	95% Bootstrap-t UCL					6460
326	95% Hall's Bootstrap UCL					6411	95% Percentile Bootstrap UCL					6407
327	95% BCA Bootstrap UCL					6416						
328	90% Chebyshev(Mean, Sd) UCL					7336	95% Chebyshev(Mean, Sd) UCL					8194
329	97.5% Chebyshev(Mean, Sd) UCL					9384	99% Chebyshev(Mean, Sd) UCL					11722
330												
331	**Suggested UCL to Use**											
332	95% Student's-t UCL					6534						
333												
334	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
335	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
336	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
337	For additional insight the user may want to consult a statistician.											
338												
339	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**											
340	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**											
341												
342												
343	**Cesium (mg/kg wwt)**											
344												
345	**General Statistics**											
346	Total Number of Observations					20	Number of Distinct Observations					16
347							Number of Missing Observations					0
348	Minimum					0.0017	Mean					0.00416
349	Maximum					0.007	Median					0.0041
350	SD					0.00137	Std. Error of Mean					3.0551E-4

351	Coefficient of Variation					0.328	Skewness					0.486
352												
353	**Normal GOF Test**											
354	Shapiro Wilk Test Statistic					0.948	**Shapiro Wilk GOF Test**					
355	5% Shapiro Wilk Critical Value					0.905	Data appear Normal at 5% Significance Level					
356	Lilliefors Test Statistic					0.152	**Lilliefors GOF Test**					
357	5% Lilliefors Critical Value					0.198	Data appear Normal at 5% Significance Level					
358	**Data appear Normal at 5% Significance Level**											
359												
360	**Assuming Normal Distribution**											
361	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
362	95% Student's-t UCL					0.00469	95% Adjusted-CLT UCL (Chen-1995)					0.0047
363							95% Modified-t UCL (Johnson-1978)					0.00469
364												
365	**Gamma GOF Test**											
366	A-D Test Statistic					0.376	**Anderson-Darling Gamma GOF Test**					
367	5% A-D Critical Value					0.742	Detected data appear Gamma Distributed at 5% Significance Level					
368	K-S Test Statistic					0.146	**Kolmogrov-Smirnoff Gamma GOF Test**					
369	5% K-S Critical Value					0.194	Detected data appear Gamma Distributed at 5% Significance Level					
370	**Detected data appear Gamma Distributed at 5% Significance Level**											
371												
372	**Gamma Statistics**											
373	k hat (MLE)					9.393	k star (bias corrected MLE)					8.017
374	Theta hat (MLE)					4.4290E-4	Theta star (bias corrected MLE)					5.1889E-4
375	nu hat (MLE)					375.7	nu star (bias corrected)					320.7
376	MLE Mean (bias corrected)					0.00416	MLE Sd (bias corrected)					0.00147
377							Approximate Chi Square Value (0.05)					280.2
378	Adjusted Level of Significance					0.038	Adjusted Chi Square Value					277.2
379												
380	**Assuming Gamma Distribution**											
381	95% Approximate Gamma UCL (use when n>=50))					0.00476	95% Adjusted Gamma UCL (use when n<50)					0.00481
382												
383	**Lognormal GOF Test**											
384	Shapiro Wilk Test Statistic					0.953	**Shapiro Wilk Lognormal GOF Test**					
385	5% Shapiro Wilk Critical Value					0.905	Data appear Lognormal at 5% Significance Level					
386	Lilliefors Test Statistic					0.167	**Lilliefors Lognormal GOF Test**					
387	5% Lilliefors Critical Value					0.198	Data appear Lognormal at 5% Significance Level					
388	**Data appear Lognormal at 5% Significance Level**											
389												
390	**Lognormal Statistics**											
391	Minimum of Logged Data					-6.377	Mean of logged Data					-5.536
392	Maximum of Logged Data					-4.962	SD of logged Data					0.347
393												
394	**Assuming Lognormal Distribution**											
395	95% H-UCL					0.00486	90% Chebyshev (MVUE) UCL					0.00516
396	95% Chebyshev (MVUE) UCL					0.00561	97.5% Chebyshev (MVUE) UCL					0.00623
397	99% Chebyshev (MVUE) UCL					0.00745						
398												
399	**Nonparametric Distribution Free UCL Statistics**											
400	**Data appear to follow a Discernible Distribution at 5% Significance Level**											

401												
402	**Nonparametric Distribution Free UCLs**											
403	95% CLT UCL				0.00466	95% Jackknife UCL						0.00469
404	95% Standard Bootstrap UCL				0.00465	95% Bootstrap-t UCL						0.00474
405	95% Hall's Bootstrap UCL				0.00475	95% Percentile Bootstrap UCL						0.00468
406	95% BCA Bootstrap UCL				0.0047							
407	90% Chebyshev(Mean, Sd) UCL				0.00508	95% Chebyshev(Mean, Sd) UCL						0.00549
408	97.5% Chebyshev(Mean, Sd) UCL				0.00607	99% Chebyshev(Mean, Sd) UCL						0.0072
409												
410	**Suggested UCL to Use**											
411	95% Student's-t UCL				0.00469							
412												
413	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
414	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
415	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
416	For additional insight the user may want to consult a statistician.											
417												
418	**Chromium (mg/kg wwt)**											
419												
420	**General Statistics**											
421	Total Number of Observations				20	Number of Distinct Observations						12
422	Number of Detects				11	Number of Non-Detects						9
423	Number of Distinct Detects				11	Number of Distinct Non-Detects						1
424	Minimum Detect				0.011	Minimum Non-Detect						0.01
425	Maximum Detect				0.129	Maximum Non-Detect						0.01
426	Variance Detects				0.00129	Percent Non-Detects						45%
427	Mean Detects				0.0345	SD Detects						0.0359
428	Median Detects				0.021	CV Detects						1.043
429	Skewness Detects				2.284	Kurtosis Detects						4.999
430	Mean of Logged Detects				-3.683	SD of Logged Detects						0.744
431												
432	**Normal GOF Test on Detects Only**											
433	Shapiro Wilk Test Statistic				0.648	**Shapiro Wilk GOF Test**						
434	5% Shapiro Wilk Critical Value				0.85	Detected Data Not Normal at 5% Significance Level						
435	Lilliefors Test Statistic				0.367	**Lilliefors GOF Test**						
436	5% Lilliefors Critical Value				0.267	Detected Data Not Normal at 5% Significance Level						
437	**Detected Data Not Normal at 5% Significance Level**											
438												
439	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
440	Mean				0.0235	Standard Error of Mean						0.00661
441	SD				0.0282	95% KM (BCA) UCL						0.0357
442	95% KM (t) UCL				0.0349	95% KM (Percentile Bootstrap) UCL						0.0356
443	95% KM (z) UCL				0.0343	95% KM Bootstrap t UCL						0.0674
444	90% KM Chebyshev UCL				0.0433	95% KM Chebyshev UCL						0.0523
445	97.5% KM Chebyshev UCL				0.0647	99% KM Chebyshev UCL						0.0892
446												
447	**Gamma GOF Tests on Detected Observations Only**											
448	A-D Test Statistic				1.076	**Anderson-Darling GOF Test**						
449	5% A-D Critical Value				0.741	Detected Data Not Gamma Distributed at 5% Significance Level						
450	K-S Test Statistic				0.286	**Kolmogrov-Smirnoff GOF**						

451	5% K-S Critical Value					0.259	Detected Data Not Gamma Distributed at 5% Significance Level					
452	**Detected Data Not Gamma Distributed at 5% Significance Level**											
453												
454	**Gamma Statistics on Detected Data Only**											
455	k hat (MLE)					1.734	k star (bias corrected MLE)					1.322
456	Theta hat (MLE)					0.0199	Theta star (bias corrected MLE)					0.0261
457	nu hat (MLE)					38.16	nu star (bias corrected)					29.08
458	MLE Mean (bias corrected)					0.0345	MLE Sd (bias corrected)					0.03
459												
460	**Gamma Kaplan-Meier (KM) Statistics**											
461	k hat (KM)					0.693	nu hat (KM)					27.7
462	Approximate Chi Square Value (27.70, α)					16.7	Adjusted Chi Square Value (27.70, β)					16.02
463	95% Gamma Approximate KM-UCL (use when n>=50)					0.0389	95% Gamma Adjusted KM-UCL (use when n<50)					0.0405
464												
465	**Gamma ROS Statistics using Imputed Non-Detects**											
466	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
467	GROS may not be used when kstar of detected data is small such as < 0.1											
468	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
469	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
470	Minimum					0.01	Mean					0.0235
471	Maximum					0.129	Median					0.012
472	SD					0.0289	CV					1.233
473	k hat (MLE)					1.594	k star (bias corrected MLE)					1.389
474	Theta hat (MLE)					0.0147	Theta star (bias corrected MLE)					0.0169
475	nu hat (MLE)					63.78	nu star (bias corrected)					55.54
476	MLE Mean (bias corrected)					0.0235	MLE Sd (bias corrected)					0.0199
477							Adjusted Level of Significance (β)					0.038
478	Approximate Chi Square Value (55.54, α)					39.42	Adjusted Chi Square Value (55.54, β)					38.34
479	95% Gamma Approximate UCL (use when n>=50)					0.033	95% Gamma Adjusted UCL (use when n<50)					0.034
480												
481	**Lognormal GOF Test on Detected Observations Only**											
482	Shapiro Wilk Test Statistic					0.859	**Shapiro Wilk GOF Test**					
483	5% Shapiro Wilk Critical Value					0.85	Detected Data appear Lognormal at 5% Significance Level					
484	Lilliefors Test Statistic					0.224	**Lilliefors GOF Test**					
485	5% Lilliefors Critical Value					0.267	Detected Data appear Lognormal at 5% Significance Level					
486	**Detected Data appear Lognormal at 5% Significance Level**											
487												
488	**Lognormal ROS Statistics Using Imputed Non-Detects**											
489	Mean in Original Scale					0.0207	Mean in Log Scale					-4.596
490	SD in Original Scale					0.0304	SD in Log Scale					1.24
491	95% t UCL (assumes normality of ROS data)					0.0325	95% Percentile Bootstrap UCL					0.0333
492	95% BCA Bootstrap UCL					0.0385	95% Bootstrap t UCL					0.0553
493	95% H-UCL (Log ROS)					0.0511						
494												
495	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
496	KM Mean (logged)					-4.098	95% H-UCL (KM -Log)					0.0303
497	KM SD (logged)					0.698	95% Critical H Value (KM-Log)					2.234
498	KM Standard Error of Mean (logged)					0.164						
499												
500	**DL/2 Statistics**											

501	**DL/2 Normal**						**DL/2 Log-Transformed**					
502				Mean in Original Scale		0.0212				Mean in Log Scale		-4.41
503				SD in Original Scale		0.0301				SD in Original Scale		0.986
504				95% t UCL (Assumes normality)		0.0328				95% H-Stat UCL		0.0357
505	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
506												
507	**Nonparametric Distribution Free UCL Statistics**											
508	**Detected Data appear Lognormal Distributed at 5% Significance Level**											
509												
510	**Suggested UCL to Use**											
511				95% KM (t) UCL		0.0349				95% KM (% Bootstrap) UCL		0.0356
512												
513	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
514	Recommendations are based upon data size, data distribution, and skewness.											
515	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
516	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
517												
518												
519	**Cobalt (mg/kg wwt)**											
520												
521	**General Statistics**											
522				Total Number of Observations		20				Number of Distinct Observations		19
523										Number of Missing Observations		0
524				Minimum		0.0096				Mean		0.0261
525				Maximum		0.0981				Median		0.0172
526				SD		0.023				Std. Error of Mean		0.00514
527				Coefficient of Variation		0.88				Skewness		2.254
528												
529	**Normal GOF Test**											
530				Shapiro Wilk Test Statistic		0.657	**Shapiro Wilk GOF Test**					
531				5% Shapiro Wilk Critical Value		0.905	Data Not Normal at 5% Significance Level					
532				Lilliefors Test Statistic		0.334	**Lilliefors GOF Test**					
533				5% Lilliefors Critical Value		0.198	Data Not Normal at 5% Significance Level					
534	**Data Not Normal at 5% Significance Level**											
535												
536	**Assuming Normal Distribution**											
537	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
538				95% Student's-t UCL		0.035				95% Adjusted-CLT UCL (Chen-1995)		0.0374
539										95% Modified-t UCL (Johnson-1978)		0.0355
540												
541	**Gamma GOF Test**											
542				A-D Test Statistic		1.773	**Anderson-Darling Gamma GOF Test**					
543				5% A-D Critical Value		0.751	Data Not Gamma Distributed at 5% Significance Level					
544				K-S Test Statistic		0.257	**Kolmogrov-Smirnoff Gamma GOF Test**					
545				5% K-S Critical Value		0.196	Data Not Gamma Distributed at 5% Significance Level					
546	**Data Not Gamma Distributed at 5% Significance Level**											
547												
548	**Gamma Statistics**											
549				k hat (MLE)		2.302				k star (bias corrected MLE)		1.99
550				Theta hat (MLE)		0.0114				Theta star (bias corrected MLE)		0.0131

551					nu hat (MLE)	92.1				nu star (bias corrected)		79.62
552					MLE Mean (bias corrected)	0.0261				MLE Sd (bias corrected)		0.0185
553										Approximate Chi Square Value (0.05)		60.06
554					Adjusted Level of Significance	0.038				Adjusted Chi Square Value		58.72
555												
556					**Assuming Gamma Distribution**							
557					95% Approximate Gamma UCL (use when n>=50))	0.0347				95% Adjusted Gamma UCL (use when n<50)		0.0355
558												
559					**Lognormal GOF Test**							
560					Shapiro Wilk Test Statistic	0.855				**Shapiro Wilk Lognormal GOF Test**		
561					5% Shapiro Wilk Critical Value	0.905				Data Not Lognormal at 5% Significance Level		
562					Lilliefors Test Statistic	0.202				**Lilliefors Lognormal GOF Test**		
563					5% Lilliefors Critical Value	0.198				Data Not Lognormal at 5% Significance Level		
564					**Data Not Lognormal at 5% Significance Level**							
565												
566					**Lognormal Statistics**							
567					Minimum of Logged Data	-4.646				Mean of logged Data		-3.877
568					Maximum of Logged Data	-2.322				SD of logged Data		0.628
569												
570					**Assuming Lognormal Distribution**							
571					95% H-UCL	0.0344				90% Chebyshev (MVUE) UCL		0.036
572					95% Chebyshev (MVUE) UCL	0.0411				97.5% Chebyshev (MVUE) UCL		0.0481
573					99% Chebyshev (MVUE) UCL	0.0618						
574												
575					**Nonparametric Distribution Free UCL Statistics**							
576					**Data do not follow a Discernible Distribution (0.05)**							
577												
578					**Nonparametric Distribution Free UCLs**							
579					95% CLT UCL	0.0346				95% Jackknife UCL		0.035
580					95% Standard Bootstrap UCL	0.0344				95% Bootstrap-t UCL		0.0429
581					95% Hall's Bootstrap UCL	0.0366				95% Percentile Bootstrap UCL		0.0349
582					95% BCA Bootstrap UCL	0.0373						
583					90% Chebyshev(Mean, Sd) UCL	0.0416				95% Chebyshev(Mean, Sd) UCL		0.0486
584					97.5% Chebyshev(Mean, Sd) UCL	0.0583				99% Chebyshev(Mean, Sd) UCL		0.0773
585												
586					**Suggested UCL to Use**							
587					95% Chebyshev (Mean, Sd) UCL	0.0486						
588												
589					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
590					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
591					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
592					For additional insight the user may want to consult a statistician.							
593												
594												
595	**Copper (mg/kg wwt)**											
596												
597					**General Statistics**							
598					Total Number of Observations	20				Number of Distinct Observations		20
599										Number of Missing Observations		0
600					Minimum	0.411				Mean		1.33

601					Maximum	2.8					Median	0.981
602					SD	0.764					Std. Error of Mean	0.171
603					Coefficient of Variation	0.574					Skewness	0.627
604												
605	**Normal GOF Test**											
606					Shapiro Wilk Test Statistic	0.897	**Shapiro Wilk GOF Test**					
607					5% Shapiro Wilk Critical Value	0.905	Data Not Normal at 5% Significance Level					
608					Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**					
609					5% Lilliefors Critical Value	0.198	Data Not Normal at 5% Significance Level					
610	**Data Not Normal at 5% Significance Level**											
611												
612	**Assuming Normal Distribution**											
613	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
614					95% Student's-t UCL	1.626					95% Adjusted-CLT UCL (Chen-1995)	1.637
615											95% Modified-t UCL (Johnson-1978)	1.63
616												
617	**Gamma GOF Test**											
618					A-D Test Statistic	0.532	**Anderson-Darling Gamma GOF Test**					
619					5% A-D Critical Value	0.747	Detected data appear Gamma Distributed at 5% Significance Level					
620					K-S Test Statistic	0.171	**Kolmogrov-Smirnoff Gamma GOF Test**					
621					5% K-S Critical Value	0.195	Detected data appear Gamma Distributed at 5% Significance Level					
622	**Detected data appear Gamma Distributed at 5% Significance Level**											
623												
624	**Gamma Statistics**											
625					k hat (MLE)	3.225					k star (bias corrected MLE)	2.774
626					Theta hat (MLE)	0.413					Theta star (bias corrected MLE)	0.48
627					nu hat (MLE)	129					nu star (bias corrected)	111
628					MLE Mean (bias corrected)	1.33					MLE Sd (bias corrected)	0.799
629											Approximate Chi Square Value (0.05)	87.66
630					Adjusted Level of Significance	0.038					Adjusted Chi Square Value	86.02
631												
632	**Assuming Gamma Distribution**											
633					95% Approximate Gamma UCL (use when n>=50)	1.684					95% Adjusted Gamma UCL (use when n<50)	1.716
634												
635	**Lognormal GOF Test**											
636					Shapiro Wilk Test Statistic	0.944	**Shapiro Wilk Lognormal GOF Test**					
637					5% Shapiro Wilk Critical Value	0.905	Data appear Lognormal at 5% Significance Level					
638					Lilliefors Test Statistic	0.141	**Lilliefors Lognormal GOF Test**					
639					5% Lilliefors Critical Value	0.198	Data appear Lognormal at 5% Significance Level					
640	**Data appear Lognormal at 5% Significance Level**											
641												
642	**Lognormal Statistics**											
643					Minimum of Logged Data	-0.889					Mean of logged Data	0.123
644					Maximum of Logged Data	1.03					SD of logged Data	0.595
645												
646	**Assuming Lognormal Distribution**											
647					95% H-UCL	1.8					90% Chebyshev (MVUE) UCL	1.895
648					95% Chebyshev (MVUE) UCL	2.148					97.5% Chebyshev (MVUE) UCL	2.5
649					99% Chebyshev (MVUE) UCL	3.191						
650												

651	**Nonparametric Distribution Free UCL Statistics**											
652	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
653												
654	**Nonparametric Distribution Free UCLs**											
655						95% CLT UCL	1.611			95% Jackknife UCL	1.626	
656						95% Standard Bootstrap UCL	1.607			95% Bootstrap-t UCL	1.651	
657						95% Hall's Bootstrap UCL	1.624			95% Percentile Bootstrap UCL	1.609	
658						95% BCA Bootstrap UCL	1.623					
659						90% Chebyshev(Mean, Sd) UCL	1.843			95% Chebyshev(Mean, Sd) UCL	2.075	
660						97.5% Chebyshev(Mean, Sd) UCL	2.397			99% Chebyshev(Mean, Sd) UCL	3.029	
661												
662	**Suggested UCL to Use**											
663						95% Adjusted Gamma UCL	1.716					
664												
665	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
666	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
667	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
668	For additional insight the user may want to consult a statistician.											
669												
670												
671	**Iron (mg/kg wwt)**											
672												
673	**General Statistics**											
674						Total Number of Observations	20			Number of Distinct Observations	19	
675										Number of Missing Observations	0	
676						Minimum	5.9			Mean	19.69	
677						Maximum	62.7			Median	15.25	
678						SD	13.38			Std. Error of Mean	2.991	
679						Coefficient of Variation	0.679			Skewness	2.283	
680												
681	**Normal GOF Test**											
682						Shapiro Wilk Test Statistic	0.736			**Shapiro Wilk GOF Test**		
683						5% Shapiro Wilk Critical Value	0.905			Data Not Normal at 5% Significance Level		
684						Lilliefors Test Statistic	0.267			**Lilliefors GOF Test**		
685						5% Lilliefors Critical Value	0.198			Data Not Normal at 5% Significance Level		
686	**Data Not Normal at 5% Significance Level**											
687												
688	**Assuming Normal Distribution**											
689	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
690						95% Student's-t UCL	24.86			95% Adjusted-CLT UCL (Chen-1995)	26.24	
691										95% Modified-t UCL (Johnson-1978)	25.12	
692												
693	**Gamma GOF Test**											
694						A-D Test Statistic	0.814			**Anderson-Darling Gamma GOF Test**		
695						5% A-D Critical Value	0.747			Data Not Gamma Distributed at 5% Significance Level		
696						K-S Test Statistic	0.189			**Kolmogrov-Smirnoff Gamma GOF Test**		
697						5% K-S Critical Value	0.195			Detected data appear Gamma Distributed at 5% Significance Level		
698	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
699												
700	**Gamma Statistics**											

701					k hat (MLE)	3.38				k star (bias corrected MLE)		2.906
702					Theta hat (MLE)	5.827				Theta star (bias corrected MLE)		6.776
703					nu hat (MLE)	135.2				nu star (bias corrected)		116.2
704					MLE Mean (bias corrected)	19.69				MLE Sd (bias corrected)		11.55
705										Approximate Chi Square Value (0.05)		92.35
706					Adjusted Level of Significance	0.038				Adjusted Chi Square Value		90.66
707												
708					**Assuming Gamma Distribution**							
709				95% Approximate Gamma UCL (use when n>=50)		24.79				95% Adjusted Gamma UCL (use when n<50)		25.25
710												
711					**Lognormal GOF Test**							
712					Shapiro Wilk Test Statistic	0.95				**Shapiro Wilk Lognormal GOF Test**		
713					5% Shapiro Wilk Critical Value	0.905				Data appear Lognormal at 5% Significance Level		
714					Lilliefors Test Statistic	0.149				**Lilliefors Lognormal GOF Test**		
715					5% Lilliefors Critical Value	0.198				Data appear Lognormal at 5% Significance Level		
716					**Data appear Lognormal at 5% Significance Level**							
717												
718					**Lognormal Statistics**							
719					Minimum of Logged Data	1.775				Mean of logged Data		2.825
720					Maximum of Logged Data	4.138				SD of logged Data		0.54
721												
722					**Assuming Lognormal Distribution**							
723					95% H-UCL	25.18				90% Chebyshev (MVUE) UCL		26.65
724					95% Chebyshev (MVUE) UCL	29.96				97.5% Chebyshev (MVUE) UCL		34.56
725					99% Chebyshev (MVUE) UCL	43.58						
726												
727					**Nonparametric Distribution Free UCL Statistics**							
728					**Data appear to follow a Discernible Distribution at 5% Significance Level**							
729												
730					**Nonparametric Distribution Free UCLs**							
731					95% CLT UCL	24.61				95% Jackknife UCL		24.86
732					95% Standard Bootstrap UCL	24.45				95% Bootstrap-t UCL		29.84
733					95% Hall's Bootstrap UCL	52.11				95% Percentile Bootstrap UCL		24.61
734					95% BCA Bootstrap UCL	26.19						
735					90% Chebyshev(Mean, Sd) UCL	28.67				95% Chebyshev(Mean, Sd) UCL		32.73
736					97.5% Chebyshev(Mean, Sd) UCL	38.37				99% Chebyshev(Mean, Sd) UCL		49.46
737												
738					**Suggested UCL to Use**							
739					95% Adjusted Gamma UCL	25.25						
740												
741					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
742					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
743					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
744					For additional insight the user may want to consult a statistician.							
745												
746	**Lead (mg/kg wwt)**											
747												
748					**General Statistics**							
749					Total Number of Observations	20				Number of Distinct Observations		16
750					Number of Detects	15				Number of Non-Detects		5

751	Number of Distinct Detects					15	Number of Distinct Non-Detects					1
752	Minimum Detect					0.0047	Minimum Non-Detect					0.004
753	Maximum Detect					0.198	Maximum Non-Detect					0.004
754	Variance Detects					0.00573	Percent Non-Detects					25%
755	Mean Detects					0.0927	SD Detects					0.0757
756	Median Detects					0.122	CV Detects					0.817
757	Skewness Detects					-0.0614	Kurtosis Detects					-2.008
758	Mean of Logged Detects					-3.032	SD of Logged Detects					1.422
759												
760	**Normal GOF Test on Detects Only**											
761	Shapiro Wilk Test Statistic					0.821	**Shapiro Wilk GOF Test**					
762	5% Shapiro Wilk Critical Value					0.881	Detected Data Not Normal at 5% Significance Level					
763	Lilliefors Test Statistic					0.237	**Lilliefors GOF Test**					
764	5% Lilliefors Critical Value					0.229	Detected Data Not Normal at 5% Significance Level					
765	**Detected Data Not Normal at 5% Significance Level**											
766												
767	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
768	Mean					0.0705	Standard Error of Mean					0.0171
769	SD					0.0741	95% KM (BCA) UCL					0.099
770	95% KM (t) UCL					0.1	95% KM (Percentile Bootstrap) UCL					0.0986
771	95% KM (z) UCL					0.0987	95% KM Bootstrap t UCL					0.102
772	90% KM Chebyshev UCL					0.122	95% KM Chebyshev UCL					0.145
773	97.5% KM Chebyshev UCL					0.178	99% KM Chebyshev UCL					0.241
774												
775	**Gamma GOF Tests on Detected Observations Only**											
776	A-D Test Statistic					1.215	**Anderson-Darling GOF Test**					
777	5% A-D Critical Value					0.768	Detected Data Not Gamma Distributed at 5% Significance Level					
778	K-S Test Statistic					0.266	**Kolmogrov-Smirnoff GOF**					
779	5% K-S Critical Value					0.229	Detected Data Not Gamma Distributed at 5% Significance Level					
780	**Detected Data Not Gamma Distributed at 5% Significance Level**											
781												
782	**Gamma Statistics on Detected Data Only**											
783	k hat (MLE)					0.895	k star (bias corrected MLE)					0.761
784	Theta hat (MLE)					0.104	Theta star (bias corrected MLE)					0.122
785	nu hat (MLE)					26.85	nu star (bias corrected)					22.82
786	MLE Mean (bias corrected)					0.0927	MLE Sd (bias corrected)					0.106
787												
788	**Gamma Kaplan-Meier (KM) Statistics**											
789	k hat (KM)					0.907	nu hat (KM)					36.26
790	Approximate Chi Square Value (36.26, α)					23.48	Adjusted Chi Square Value (36.26, β)					22.67
791	95% Gamma Approximate KM-UCL (use when n>=50)					0.109	95% Gamma Adjusted KM-UCL (use when n<50)					0.113
792												
793	**Gamma ROS Statistics using Imputed Non-Detects**											
794	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
795	GROS may not be used when kstar of detected data is small such as < 0.1											
796	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
797	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
798	Minimum					0.0047	Mean					0.0722
799	Maximum					0.198	Median					0.0176
800	SD					0.0745	CV					1.032

801					k hat (MLE)	0.763				k star (bias corrected MLE)		0.682
802					Theta hat (MLE)	0.0946				Theta star (bias corrected MLE)		0.106
803					nu hat (MLE)	30.53				nu star (bias corrected)		27.28
804					MLE Mean (bias corrected)	0.0722				MLE Sd (bias corrected)		0.0874
805										Adjusted Level of Significance (β)		0.038
806					Approximate Chi Square Value (27.28, α)	16.37				Adjusted Chi Square Value (27.28, β)		15.7
807					95% Gamma Approximate UCL (use when n>=50)	0.12				95% Gamma Adjusted UCL (use when n<50)		0.125
808												
809					**Lognormal GOF Test on Detected Observations Only**							
810					Shapiro Wilk Test Statistic	0.82				**Shapiro Wilk GOF Test**		
811					5% Shapiro Wilk Critical Value	0.881				Detected Data Not Lognormal at 5% Significance Level		
812					Lilliefors Test Statistic	0.276				**Lilliefors GOF Test**		
813					5% Lilliefors Critical Value	0.229				Detected Data Not Lognormal at 5% Significance Level		
814					**Detected Data Not Lognormal at 5% Significance Level**							
815												
816					**Lognormal ROS Statistics Using Imputed Non-Detects**							
817					Mean in Original Scale	0.0702				Mean in Log Scale		-3.811
818					SD in Original Scale	0.0763				SD in Log Scale		1.873
819					95% t UCL (assumes normality of ROS data)	0.0997				95% Percentile Bootstrap UCL		0.0986
820					95% BCA Bootstrap UCL	0.101				95% Bootstrap t UCL		0.103
821					95% H-UCL (Log ROS)	0.737						
822												
823					**DL/2 Statistics**							
824					**DL/2 Normal**					**DL/2 Log-Transformed**		
825					Mean in Original Scale	0.07				Mean in Log Scale		-3.828
826					SD in Original Scale	0.0765				SD in Log Scale		1.868
827					95% t UCL (Assumes normality)	0.0996				95% H-Stat UCL		0.711
828					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
829												
830					**Nonparametric Distribution Free UCL Statistics**							
831					**Data do not follow a Discernible Distribution at 5% Significance Level**							
832												
833					**Suggested UCL to Use**							
834					97.5% KM (Chebyshev) UCL	0.178						
835												
836					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
837					Recommendations are based upon data size, data distribution, and skewness.							
838					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
839					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
840												
841												
842	**Magnesium (mg/kg wwt)**											
843												
844					**General Statistics**							
845					Total Number of Observations	20				Number of Distinct Observations		18
846										Number of Missing Observations		0
847					Minimum	238				Mean		331.7
848					Maximum	434				Median		321.5
849					SD	52.28				Std. Error of Mean		11.69
850					Coefficient of Variation	0.158				Skewness		0.124

851												
852	**Normal GOF Test**											
853					Shapiro Wilk Test Statistic	0.959	**Shapiro Wilk GOF Test**					
854					5% Shapiro Wilk Critical Value	0.905	Data appear Normal at 5% Significance Level					
855					Lilliefors Test Statistic	0.195	**Lilliefors GOF Test**					
856					5% Lilliefors Critical Value	0.198	Data appear Normal at 5% Significance Level					
857	**Data appear Normal at 5% Significance Level**											
858												
859	**Assuming Normal Distribution**											
860	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
861					95% Student's-t UCL	351.9				95% Adjusted-CLT UCL (Chen-1995)	351.2	
862										95% Modified-t UCL (Johnson-1978)	351.9	
863												
864	**Gamma GOF Test**											
865					A-D Test Statistic	0.429	**Anderson-Darling Gamma GOF Test**					
866					5% A-D Critical Value	0.74	Detected data appear Gamma Distributed at 5% Significance Level					
867					K-S Test Statistic	0.186	**Kolmogrov-Smirnoff Gamma GOF Test**					
868					5% K-S Critical Value	0.193	Detected data appear Gamma Distributed at 5% Significance Level					
869	**Detected data appear Gamma Distributed at 5% Significance Level**											
870												
871	**Gamma Statistics**											
872					k hat (MLE)	41.95				k star (bias corrected MLE)	35.69	
873					Theta hat (MLE)	7.906				Theta star (bias corrected MLE)	9.292	
874					nu hat (MLE)	1678				nu star (bias corrected)	1428	
875					MLE Mean (bias corrected)	331.7				MLE Sd (bias corrected)	55.51	
876										Approximate Chi Square Value (0.05)	1341	
877					Adjusted Level of Significance	0.038				Adjusted Chi Square Value	1334	
878												
879	**Assuming Gamma Distribution**											
880					95% Approximate Gamma UCL (use when n>=50))	353.1				95% Adjusted Gamma UCL (use when n<50)	354.9	
881												
882	**Lognormal GOF Test**											
883					Shapiro Wilk Test Statistic	0.96	**Shapiro Wilk Lognormal GOF Test**					
884					5% Shapiro Wilk Critical Value	0.905	Data appear Lognormal at 5% Significance Level					
885					Lilliefors Test Statistic	0.174	**Lilliefors Lognormal GOF Test**					
886					5% Lilliefors Critical Value	0.198	Data appear Lognormal at 5% Significance Level					
887	**Data appear Lognormal at 5% Significance Level**											
888												
889	**Lognormal Statistics**											
890					Minimum of Logged Data	5.472				Mean of logged Data	5.792	
891					Maximum of Logged Data	6.073				SD of logged Data	0.159	
892												
893	**Assuming Lognormal Distribution**											
894					95% H-UCL	354				90% Chebyshev (MVUE) UCL	367.3	
895					95% Chebyshev (MVUE) UCL	383.5				97.5% Chebyshev (MVUE) UCL	405.8	
896					99% Chebyshev (MVUE) UCL	449.8						
897												
898	**Nonparametric Distribution Free UCL Statistics**											
899	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
900												

901	**Nonparametric Distribution Free UCLs**											
902				95% CLT UCL	350.9				95% Jackknife UCL	351.9		
903				95% Standard Bootstrap UCL	350.2				95% Bootstrap-t UCL	352		
904				95% Hall's Bootstrap UCL	350.5				95% Percentile Bootstrap UCL	350.1		
905				95% BCA Bootstrap UCL	350.6							
906				90% Chebyshev(Mean, Sd) UCL	366.7				95% Chebyshev(Mean, Sd) UCL	382.6		
907				97.5% Chebyshev(Mean, Sd) UCL	404.7				99% Chebyshev(Mean, Sd) UCL	448		
908												
909	**Suggested UCL to Use**											
910				95% Student's-t UCL	351.9							
911												
912	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
913	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
914	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
915	For additional insight the user may want to consult a statistician.											
916												
917												
918	**Manganese (mg/kg wwt)**											
919												
920	**General Statistics**											
921				Total Number of Observations	20				Number of Distinct Observations	20		
922									Number of Missing Observations	0		
923				Minimum	0.192				Mean	1.288		
924				Maximum	2.48				Median	1.215		
925				SD	0.647				Std. Error of Mean	0.145		
926				Coefficient of Variation	0.502				Skewness	0.163		
927												
928	**Normal GOF Test**											
929				Shapiro Wilk Test Statistic	0.972				**Shapiro Wilk GOF Test**			
930				5% Shapiro Wilk Critical Value	0.905				Data appear Normal at 5% Significance Level			
931				Lilliefors Test Statistic	0.0964				**Lilliefors GOF Test**			
932				5% Lilliefors Critical Value	0.198				Data appear Normal at 5% Significance Level			
933	**Data appear Normal at 5% Significance Level**											
934												
935	**Assuming Normal Distribution**											
936	**95% Normal UCL**								**95% UCLs (Adjusted for Skewness)**			
937				95% Student's-t UCL	1.538				95% Adjusted-CLT UCL (Chen-1995)	1.531		
938									95% Modified-t UCL (Johnson-1978)	1.539		
939												
940	**Gamma GOF Test**											
941				A-D Test Statistic	0.448				**Anderson-Darling Gamma GOF Test**			
942				5% A-D Critical Value	0.747				Detected data appear Gamma Distributed at 5% Significance Level			
943				K-S Test Statistic	0.128				**Kolmogrov-Smirnoff Gamma GOF Test**			
944				5% K-S Critical Value	0.195				Detected data appear Gamma Distributed at 5% Significance Level			
945	**Detected data appear Gamma Distributed at 5% Significance Level**											
946												
947	**Gamma Statistics**											
948				k hat (MLE)	3.045				k star (bias corrected MLE)	2.621		
949				Theta hat (MLE)	0.423				Theta star (bias corrected MLE)	0.491		
950				nu hat (MLE)	121.8				nu star (bias corrected)	104.8		

951	MLE Mean (bias corrected)					1.288	MLE Sd (bias corrected)					0.795
952							Approximate Chi Square Value (0.05)					82.22
953	Adjusted Level of Significance					0.038	Adjusted Chi Square Value					80.64
954												
955	**Assuming Gamma Distribution**											
956	95% Approximate Gamma UCL (use when n>=50))					1.642	95% Adjusted Gamma UCL (use when n<50)					1.675
957												
958	**Lognormal GOF Test**											
959	Shapiro Wilk Test Statistic					0.871	**Shapiro Wilk Lognormal GOF Test**					
960	5% Shapiro Wilk Critical Value					0.905	Data Not Lognormal at 5% Significance Level					
961	Lilliefors Test Statistic					0.171	**Lilliefors Lognormal GOF Test**					
962	5% Lilliefors Critical Value					0.198	Data appear Lognormal at 5% Significance Level					
963	**Data appear Approximate Lognormal at 5% Significance Level**											
964												
965	**Lognormal Statistics**											
966	Minimum of Logged Data					-1.65	Mean of logged Data					0.0799
967	Maximum of Logged Data					0.908	SD of logged Data					0.689
968												
969	**Assuming Lognormal Distribution**											
970	95% H-UCL					1.952	90% Chebyshev (MVUE) UCL					2.021
971	95% Chebyshev (MVUE) UCL					2.323	97.5% Chebyshev (MVUE) UCL					2.742
972	99% Chebyshev (MVUE) UCL					3.565						
973												
974	**Nonparametric Distribution Free UCL Statistics**											
975	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
976												
977	**Nonparametric Distribution Free UCLs**											
978	95% CLT UCL					1.526	95% Jackknife UCL					1.538
979	95% Standard Bootstrap UCL					1.513	95% Bootstrap-t UCL					1.546
980	95% Hall's Bootstrap UCL					1.536	95% Percentile Bootstrap UCL					1.514
981	95% BCA Bootstrap UCL					1.52						
982	90% Chebyshev(Mean, Sd) UCL					1.722	95% Chebyshev(Mean, Sd) UCL					1.918
983	97.5% Chebyshev(Mean, Sd) UCL					2.191	99% Chebyshev(Mean, Sd) UCL					2.727
984												
985	**Suggested UCL to Use**											
986	95% Student's-t UCL					1.538						
987												
988	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
989	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
990	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
991	For additional insight the user may want to consult a statistician.											
992												
993												
994	**Mercury (mg/kg wwt)**											
995												
996	**General Statistics**											
997	Total Number of Observations					20	Number of Distinct Observations					20
998							Number of Missing Observations					0
999	Minimum					0.0219	Mean					0.0787
1000	Maximum					0.137	Median					0.0775

1001					SD	0.0339				Std. Error of Mean		0.00757
1002					Coefficient of Variation	0.43				Skewness		0.0616
1003												
1004	**Normal GOF Test**											
1005					Shapiro Wilk Test Statistic	0.973	**Shapiro Wilk GOF Test**					
1006					5% Shapiro Wilk Critical Value	0.905	Data appear Normal at 5% Significance Level					
1007					Lilliefors Test Statistic	0.0748	**Lilliefors GOF Test**					
1008					5% Lilliefors Critical Value	0.198	Data appear Normal at 5% Significance Level					
1009	**Data appear Normal at 5% Significance Level**											
1010												
1011	**Assuming Normal Distribution**											
1012	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1013					95% Student's-t UCL	0.0918				95% Adjusted-CLT UCL (Chen-1995)		0.0913
1014										95% Modified-t UCL (Johnson-1978)		0.0918
1015												
1016	**Gamma GOF Test**											
1017					A-D Test Statistic	0.299	**Anderson-Darling Gamma GOF Test**					
1018					5% A-D Critical Value	0.745	Detected data appear Gamma Distributed at 5% Significance Level					
1019					K-S Test Statistic	0.131	**Kolmogrov-Smirnoff Gamma GOF Test**					
1020					5% K-S Critical Value	0.195	Detected data appear Gamma Distributed at 5% Significance Level					
1021	**Detected data appear Gamma Distributed at 5% Significance Level**											
1022												
1023	**Gamma Statistics**											
1024					k hat (MLE)	4.719				k star (bias corrected MLE)		4.044
1025					Theta hat (MLE)	0.0167				Theta star (bias corrected MLE)		0.0195
1026					nu hat (MLE)	188.7				nu star (bias corrected)		161.8
1027					MLE Mean (bias corrected)	0.0787				MLE Sd (bias corrected)		0.0391
1028										Approximate Chi Square Value (0.05)		133.4
1029					Adjusted Level of Significance	0.038				Adjusted Chi Square Value		131.3
1030												
1031	**Assuming Gamma Distribution**											
1032					95% Approximate Gamma UCL (use when n>=50))	0.0955				95% Adjusted Gamma UCL (use when n<50)		0.097
1033												
1034	**Lognormal GOF Test**											
1035					Shapiro Wilk Test Statistic	0.925	**Shapiro Wilk Lognormal GOF Test**					
1036					5% Shapiro Wilk Critical Value	0.905	Data appear Lognormal at 5% Significance Level					
1037					Lilliefors Test Statistic	0.157	**Lilliefors Lognormal GOF Test**					
1038					5% Lilliefors Critical Value	0.198	Data appear Lognormal at 5% Significance Level					
1039	**Data appear Lognormal at 5% Significance Level**											
1040												
1041	**Lognormal Statistics**											
1042					Minimum of Logged Data	-3.821				Mean of logged Data		-2.652
1043					Maximum of Logged Data	-1.988				SD of logged Data		0.516
1044												
1045	**Assuming Lognormal Distribution**											
1046					95% H-UCL	0.103				90% Chebyshev (MVUE) UCL		0.109
1047					95% Chebyshev (MVUE) UCL	0.122				97.5% Chebyshev (MVUE) UCL		0.14
1048					99% Chebyshev (MVUE) UCL	0.175						
1049												
1050	**Nonparametric Distribution Free UCL Statistics**											

1051	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1052												
1053	**Nonparametric Distribution Free UCLs**											
1054	95% CLT UCL				0.0912	95% Jackknife UCL						0.0918
1055	95% Standard Bootstrap UCL				0.0911	95% Bootstrap-t UCL						0.0921
1056	95% Hall's Bootstrap UCL				0.091	95% Percentile Bootstrap UCL						0.0901
1057	95% BCA Bootstrap UCL				0.0921							
1058	90% Chebyshev(Mean, Sd) UCL				0.101	95% Chebyshev(Mean, Sd) UCL						0.112
1059	97.5% Chebyshev(Mean, Sd) UCL				0.126	99% Chebyshev(Mean, Sd) UCL						0.154
1060												
1061	**Suggested UCL to Use**											
1062	95% Student's-t UCL				0.0918							
1063												
1064	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1065	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1066	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1067	For additional insight the user may want to consult a statistician.											
1068												
1069												
1070	**Molybdenum (mg/kg wwt)**											
1071												
1072	**General Statistics**											
1073	Total Number of Observations				20	Number of Distinct Observations						18
1074						Number of Missing Observations						0
1075	Minimum				0.0045	Mean						0.0124
1076	Maximum				0.0283	Median						0.0101
1077	SD				0.0068	Std. Error of Mean						0.00152
1078	Coefficient of Variation				0.547	Skewness						1.015
1079												
1080	**Normal GOF Test**											
1081	Shapiro Wilk Test Statistic				0.893	**Shapiro Wilk GOF Test**						
1082	5% Shapiro Wilk Critical Value				0.905	Data Not Normal at 5% Significance Level						
1083	Lilliefors Test Statistic				0.199	**Lilliefors GOF Test**						
1084	5% Lilliefors Critical Value				0.198	Data Not Normal at 5% Significance Level						
1085	**Data Not Normal at 5% Significance Level**											
1086												
1087	**Assuming Normal Distribution**											
1088	**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**						
1089	95% Student's-t UCL				0.0151	95% Adjusted-CLT UCL (Chen-1995)						0.0153
1090						95% Modified-t UCL (Johnson-1978)						0.0151
1091												
1092	**Gamma GOF Test**											
1093	A-D Test Statistic				0.371	**Anderson-Darling Gamma GOF Test**						
1094	5% A-D Critical Value				0.746	Detected data appear Gamma Distributed at 5% Significance Level						
1095	K-S Test Statistic				0.135	**Kolmogrov-Smirnoff Gamma GOF Test**						
1096	5% K-S Critical Value				0.195	Detected data appear Gamma Distributed at 5% Significance Level						
1097	**Detected data appear Gamma Distributed at 5% Significance Level**											
1098												
1099	**Gamma Statistics**											
1100	k hat (MLE)				3.864	k star (bias corrected MLE)						3.318

1101					Theta hat (MLE)	0.00322				Theta star (bias corrected MLE)		0.00375
1102					nu hat (MLE)	154.6				nu star (bias corrected)		132.7
1103					MLE Mean (bias corrected)	0.0124				MLE Sd (bias corrected)		0.00683
1104										Approximate Chi Square Value (0.05)		107.1
1105					Adjusted Level of Significance	0.038				Adjusted Chi Square Value		105.3
1106												
1107	**Assuming Gamma Distribution**											
1108				95% Approximate Gamma UCL (use when n>=50)		0.0154				95% Adjusted Gamma UCL (use when n<50)		0.0157
1109												
1110	**Lognormal GOF Test**											
1111					Shapiro Wilk Test Statistic	0.966				**Shapiro Wilk Lognormal GOF Test**		
1112					5% Shapiro Wilk Critical Value	0.905				Data appear Lognormal at 5% Significance Level		
1113					Lilliefors Test Statistic	0.109				**Lilliefors Lognormal GOF Test**		
1114					5% Lilliefors Critical Value	0.198				Data appear Lognormal at 5% Significance Level		
1115	**Data appear Lognormal at 5% Significance Level**											
1116												
1117	**Lognormal Statistics**											
1118					Minimum of Logged Data	-5.404				Mean of logged Data		-4.522
1119					Maximum of Logged Data	-3.565				SD of logged Data		0.532
1120												
1121	**Assuming Lognormal Distribution**											
1122					95% H-UCL	0.0161				90% Chebyshev (MVUE) UCL		0.017
1123					95% Chebyshev (MVUE) UCL	0.0191				97.5% Chebyshev (MVUE) UCL		0.022
1124					99% Chebyshev (MVUE) UCL	0.0277						
1125												
1126	**Nonparametric Distribution Free UCL Statistics**											
1127	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1128												
1129	**Nonparametric Distribution Free UCLs**											
1130					95% CLT UCL	0.0149				95% Jackknife UCL		0.0151
1131					95% Standard Bootstrap UCL	0.0149				95% Bootstrap-t UCL		0.0156
1132					95% Hall's Bootstrap UCL	0.0154				95% Percentile Bootstrap UCL		0.015
1133					95% BCA Bootstrap UCL	0.0153						
1134					90% Chebyshev(Mean, Sd) UCL	0.017				95% Chebyshev(Mean, Sd) UCL		0.0191
1135					97.5% Chebyshev(Mean, Sd) UCL	0.0219				99% Chebyshev(Mean, Sd) UCL		0.0276
1136												
1137	**Suggested UCL to Use**											
1138					95% Adjusted Gamma UCL	0.0157						
1139												
1140	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1141	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1142	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1143	For additional insight the user may want to consult a statistician.											
1144												
1145												
1146	**Phosphorus (mg/kg wwt)**											
1147												
1148	**General Statistics**											
1149					Total Number of Observations	20				Number of Distinct Observations		18
1150										Number of Missing Observations		0

1151					Minimum	2500					Mean	5109
1152					Maximum	7670					Median	5090
1153					SD	1534					Std. Error of Mean	343.1
1154					Coefficient of Variation	0.3					Skewness	-0.127
1155												
1156					**Normal GOF Test**							
1157					Shapiro Wilk Test Statistic	0.964			**Shapiro Wilk GOF Test**			
1158					5% Shapiro Wilk Critical Value	0.905			Data appear Normal at 5% Significance Level			
1159					Lilliefors Test Statistic	0.117			**Lilliefors GOF Test**			
1160					5% Lilliefors Critical Value	0.198			Data appear Normal at 5% Significance Level			
1161					**Data appear Normal at 5% Significance Level**							
1162												
1163					**Assuming Normal Distribution**							
1164					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**			
1165					95% Student's-t UCL	5702			95% Adjusted-CLT UCL (Chen-1995)			5663
1166									95% Modified-t UCL (Johnson-1978)			5701
1167												
1168					**Gamma GOF Test**							
1169					A-D Test Statistic	0.364			**Anderson-Darling Gamma GOF Test**			
1170					5% A-D Critical Value	0.742			Detected data appear Gamma Distributed at 5% Significance Level			
1171					K-S Test Statistic	0.136			**Kolmogrov-Smirnoff Gamma GOF Test**			
1172					5% K-S Critical Value	0.194			Detected data appear Gamma Distributed at 5% Significance Level			
1173					**Detected data appear Gamma Distributed at 5% Significance Level**							
1174												
1175					**Gamma Statistics**							
1176					k hat (MLE)	10.52			k star (bias corrected MLE)			8.977
1177					Theta hat (MLE)	485.6			Theta star (bias corrected MLE)			569.1
1178					nu hat (MLE)	420.9			nu star (bias corrected)			359.1
1179					MLE Mean (bias corrected)	5109			MLE Sd (bias corrected)			1705
1180									Approximate Chi Square Value (0.05)			316.2
1181					Adjusted Level of Significance	0.038			Adjusted Chi Square Value			313
1182												
1183					**Assuming Gamma Distribution**							
1184					95% Approximate Gamma UCL (use when n>=50))	5802			95% Adjusted Gamma UCL (use when n<50)			5861
1185												
1186					**Lognormal GOF Test**							
1187					Shapiro Wilk Test Statistic	0.936			**Shapiro Wilk Lognormal GOF Test**			
1188					5% Shapiro Wilk Critical Value	0.905			Data appear Lognormal at 5% Significance Level			
1189					Lilliefors Test Statistic	0.135			**Lilliefors Lognormal GOF Test**			
1190					5% Lilliefors Critical Value	0.198			Data appear Lognormal at 5% Significance Level			
1191					**Data appear Lognormal at 5% Significance Level**							
1192												
1193					**Lognormal Statistics**							
1194					Minimum of Logged Data	7.824			Mean of logged Data			8.49
1195					Maximum of Logged Data	8.945			SD of logged Data			0.33
1196												
1197					**Assuming Lognormal Distribution**							
1198					95% H-UCL	5923			90% Chebyshev (MVUE) UCL			6279
1199					95% Chebyshev (MVUE) UCL	6802			97.5% Chebyshev (MVUE) UCL			7527
1200					99% Chebyshev (MVUE) UCL	8951						

1201												
1202	**Nonparametric Distribution Free UCL Statistics**											
1203	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1204												
1205	**Nonparametric Distribution Free UCLs**											
1206					95% CLT UCL	5673				95% Jackknife UCL	5702	
1207					95% Standard Bootstrap UCL	5660				95% Bootstrap-t UCL	5702	
1208					95% Hall's Bootstrap UCL	5645				95% Percentile Bootstrap UCL	5674	
1209					95% BCA Bootstrap UCL	5639						
1210					90% Chebyshev(Mean, Sd) UCL	6138				95% Chebyshev(Mean, Sd) UCL	6605	
1211					97.5% Chebyshev(Mean, Sd) UCL	7252				99% Chebyshev(Mean, Sd) UCL	8523	
1212												
1213	**Suggested UCL to Use**											
1214					95% Student's-t UCL	5702						
1215												
1216	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1217	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1218	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1219	For additional insight the user may want to consult a statistician.											
1220												
1221	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**											
1222	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**											
1223												
1224												
1225	**Potassium (mg/kg wwt)**											
1226												
1227	**General Statistics**											
1228					Total Number of Observations	20				Number of Distinct Observations	19	
1229										Number of Missing Observations	0	
1230					Minimum	2970				Mean	3506	
1231					Maximum	3870				Median	3480	
1232					SD	219.8				Std. Error of Mean	49.15	
1233					Coefficient of Variation	0.0627				Skewness	-0.228	
1234												
1235	**Normal GOF Test**											
1236					Shapiro Wilk Test Statistic	0.954				**Shapiro Wilk GOF Test**		
1237					5% Shapiro Wilk Critical Value	0.905				Data appear Normal at 5% Significance Level		
1238					Lilliefors Test Statistic	0.113				**Lilliefors GOF Test**		
1239					5% Lilliefors Critical Value	0.198				Data appear Normal at 5% Significance Level		
1240	**Data appear Normal at 5% Significance Level**											
1241												
1242	**Assuming Normal Distribution**											
1243	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
1244					95% Student's-t UCL	3591				95% Adjusted-CLT UCL (Chen-1995)	3584	
1245										95% Modified-t UCL (Johnson-1978)	3591	
1246												
1247	**Gamma GOF Test**											
1248					A-D Test Statistic	0.34				**Anderson-Darling Gamma GOF Test**		
1249					5% A-D Critical Value	0.74				Detected data appear Gamma Distributed at 5% Significance Level		
1250					K-S Test Statistic	0.109				**Kolmogrov-Smirnoff Gamma GOF Test**		

1251	5% K-S Critical Value					0.193	Detected data appear Gamma Distributed at 5% Significance Level					
1252	**Detected data appear Gamma Distributed at 5% Significance Level**											
1253												
1254	**Gamma Statistics**											
1255	k hat (MLE)					264	k star (bias corrected MLE)					224.5
1256	Theta hat (MLE)					13.28	Theta star (bias corrected MLE)					15.62
1257	nu hat (MLE)					10561	nu star (bias corrected)					8978
1258	MLE Mean (bias corrected)					3506	MLE Sd (bias corrected)					234
1259							Approximate Chi Square Value (0.05)					8759
1260	Adjusted Level of Significance					0.038	Adjusted Chi Square Value					8742
1261												
1262	**Assuming Gamma Distribution**											
1263	95% Approximate Gamma UCL (use when n>=50))					3594	95% Adjusted Gamma UCL (use when n<50)					3601
1264												
1265	**Lognormal GOF Test**											
1266	Shapiro Wilk Test Statistic					0.947	**Shapiro Wilk Lognormal GOF Test**					
1267	5% Shapiro Wilk Critical Value					0.905	Data appear Lognormal at 5% Significance Level					
1268	Lilliefors Test Statistic					0.117	**Lilliefors Lognormal GOF Test**					
1269	5% Lilliefors Critical Value					0.198	Data appear Lognormal at 5% Significance Level					
1270	**Data appear Lognormal at 5% Significance Level**											
1271												
1272	**Lognormal Statistics**											
1273	Minimum of Logged Data					7.996	Mean of logged Data					8.16
1274	Maximum of Logged Data					8.261	SD of logged Data					0.0634
1275												
1276	**Assuming Lognormal Distribution**											
1277	95% H-UCL					N/A	90% Chebyshev (MVUE) UCL					3655
1278	95% Chebyshev (MVUE) UCL					3723	97.5% Chebyshev (MVUE) UCL					3817
1279	99% Chebyshev (MVUE) UCL					4001						
1280												
1281	**Nonparametric Distribution Free UCL Statistics**											
1282	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1283												
1284	**Nonparametric Distribution Free UCLs**											
1285	95% CLT UCL					3587	95% Jackknife UCL					3591
1286	95% Standard Bootstrap UCL					3585	95% Bootstrap-t UCL					3590
1287	95% Hall's Bootstrap UCL					3585	95% Percentile Bootstrap UCL					3582
1288	95% BCA Bootstrap UCL					3581						
1289	90% Chebyshev(Mean, Sd) UCL					3653	95% Chebyshev(Mean, Sd) UCL					3720
1290	97.5% Chebyshev(Mean, Sd) UCL					3813	99% Chebyshev(Mean, Sd) UCL					3995
1291												
1292	**Suggested UCL to Use**											
1293	95% Student's-t UCL					3591						
1294												
1295	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1296	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1297	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1298	For additional insight the user may want to consult a statistician.											
1299												
1300	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**											

1301	reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.											
1302												
1303												
1304	**Rubidium (mg/kg wwt)**											
1305												
1306	**General Statistics**											
1307	Total Number of Observations					20	Number of Distinct Observations					20
1308							Number of Missing Observations					0
1309	Minimum					0.416	Mean					0.553
1310	Maximum					0.791	Median					0.547
1311	SD					0.109	Std. Error of Mean					0.0244
1312	Coefficient of Variation					0.197	Skewness					0.663
1313												
1314	**Normal GOF Test**											
1315	Shapiro Wilk Test Statistic					0.931	**Shapiro Wilk GOF Test**					
1316	5% Shapiro Wilk Critical Value					0.905	Data appear Normal at 5% Significance Level					
1317	Lilliefors Test Statistic					0.134	**Lilliefors GOF Test**					
1318	5% Lilliefors Critical Value					0.198	Data appear Normal at 5% Significance Level					
1319	**Data appear Normal at 5% Significance Level**											
1320												
1321	**Assuming Normal Distribution**											
1322	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1323	95% Student's-t UCL					0.596	95% Adjusted-CLT UCL (Chen-1995)					0.597
1324							95% Modified-t UCL (Johnson-1978)					0.596
1325												
1326	**Gamma GOF Test**											
1327	A-D Test Statistic					0.366	**Anderson-Darling Gamma GOF Test**					
1328	5% A-D Critical Value					0.74	Detected data appear Gamma Distributed at 5% Significance Level					
1329	K-S Test Statistic					0.126	**Kolmogrov-Smirnoff Gamma GOF Test**					
1330	5% K-S Critical Value					0.193	Detected data appear Gamma Distributed at 5% Significance Level					
1331	**Detected data appear Gamma Distributed at 5% Significance Level**											
1332												
1333	**Gamma Statistics**											
1334	k hat (MLE)					28.32	k star (bias corrected MLE)					24.1
1335	Theta hat (MLE)					0.0195	Theta star (bias corrected MLE)					0.023
1336	nu hat (MLE)					1133	nu star (bias corrected)					964.1
1337	MLE Mean (bias corrected)					0.553	MLE Sd (bias corrected)					0.113
1338							Approximate Chi Square Value (0.05)					893
1339	Adjusted Level of Significance					0.038	Adjusted Chi Square Value					887.6
1340												
1341	**Assuming Gamma Distribution**											
1342	95% Approximate Gamma UCL (use when n>=50))					0.597	95% Adjusted Gamma UCL (use when n<50)					0.601
1343												
1344	**Lognormal GOF Test**											
1345	Shapiro Wilk Test Statistic					0.948	**Shapiro Wilk Lognormal GOF Test**					
1346	5% Shapiro Wilk Critical Value					0.905	Data appear Lognormal at 5% Significance Level					
1347	Lilliefors Test Statistic					0.125	**Lilliefors Lognormal GOF Test**					
1348	5% Lilliefors Critical Value					0.198	Data appear Lognormal at 5% Significance Level					
1349	**Data appear Lognormal at 5% Significance Level**											
1350												

1351	**Lognormal Statistics**											
1352					Minimum of Logged Data	-0.877				Mean of logged Data	-0.61	
1353					Maximum of Logged Data	-0.234				SD of logged Data	0.192	
1354												
1355	**Assuming Lognormal Distribution**											
1356					95% H-UCL	0.599				90% Chebyshev (MVUE) UCL	0.625	
1357					95% Chebyshev (MVUE) UCL	0.657				97.5% Chebyshev (MVUE) UCL	0.702	
1358					99% Chebyshev (MVUE) UCL	0.791						
1359												
1360	**Nonparametric Distribution Free UCL Statistics**											
1361	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1362												
1363	**Nonparametric Distribution Free UCLs**											
1364					95% CLT UCL	0.593				95% Jackknife UCL	0.596	
1365					95% Standard Bootstrap UCL	0.592				95% Bootstrap-t UCL	0.601	
1366					95% Hall's Bootstrap UCL	0.598				95% Percentile Bootstrap UCL	0.591	
1367					95% BCA Bootstrap UCL	0.597						
1368					90% Chebyshev(Mean, Sd) UCL	0.627				95% Chebyshev(Mean, Sd) UCL	0.66	
1369					97.5% Chebyshev(Mean, Sd) UCL	0.706				99% Chebyshev(Mean, Sd) UCL	0.796	
1370												
1371	**Suggested UCL to Use**											
1372					95% Student's-t UCL	0.596						
1373												
1374	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1375	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1376	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1377	For additional insight the user may want to consult a statistician.											
1378												
1379												
1380	**Selenium (mg/kg wwt)**											
1381												
1382	**General Statistics**											
1383					Total Number of Observations	20				Number of Distinct Observations	20	
1384										Number of Missing Observations	0	
1385					Minimum	0.18				Mean	0.575	
1386					Maximum	2.12				Median	0.377	
1387					SD	0.564				Std. Error of Mean	0.126	
1388					Coefficient of Variation	0.983				Skewness	1.947	
1389												
1390	**Normal GOF Test**											
1391					Shapiro Wilk Test Statistic	0.674	**Shapiro Wilk GOF Test**					
1392					5% Shapiro Wilk Critical Value	0.905	Data Not Normal at 5% Significance Level					
1393					Lilliefors Test Statistic	0.319	**Lilliefors GOF Test**					
1394					5% Lilliefors Critical Value	0.198	Data Not Normal at 5% Significance Level					
1395	**Data Not Normal at 5% Significance Level**											
1396												
1397	**Assuming Normal Distribution**											
1398	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1399					95% Student's-t UCL	0.793				95% Adjusted-CLT UCL (Chen-1995)	0.841	
1400										95% Modified-t UCL (Johnson-1978)	0.802	

1401												
1402	**Gamma GOF Test**											
1403	A-D Test Statistic				1.459	**Anderson-Darling Gamma GOF Test**						
1404	5% A-D Critical Value				0.755	Data Not Gamma Distributed at 5% Significance Level						
1405	K-S Test Statistic				0.222	**Kolmogrov-Smirnoff Gamma GOF Test**						
1406	5% K-S Critical Value				0.197	Data Not Gamma Distributed at 5% Significance Level						
1407	**Data Not Gamma Distributed at 5% Significance Level**											
1408												
1409	**Gamma Statistics**											
1410	k hat (MLE)				1.724	k star (bias corrected MLE)						1.499
1411	Theta hat (MLE)				0.333	Theta star (bias corrected MLE)						0.383
1412	nu hat (MLE)				68.96	nu star (bias corrected)						59.95
1413	MLE Mean (bias corrected)				0.575	MLE Sd (bias corrected)						0.469
1414						Approximate Chi Square Value (0.05)						43.15
1415	Adjusted Level of Significance				0.038	Adjusted Chi Square Value						42.02
1416												
1417	**Assuming Gamma Distribution**											
1418	95% Approximate Gamma UCL (use when n>=50))				0.798	95% Adjusted Gamma UCL (use when n<50)						0.82
1419												
1420	**Lognormal GOF Test**											
1421	Shapiro Wilk Test Statistic				0.872	**Shapiro Wilk Lognormal GOF Test**						
1422	5% Shapiro Wilk Critical Value				0.905	Data Not Lognormal at 5% Significance Level						
1423	Lilliefors Test Statistic				0.162	**Lilliefors Lognormal GOF Test**						
1424	5% Lilliefors Critical Value				0.198	Data appear Lognormal at 5% Significance Level						
1425	**Data appear Approximate Lognormal at 5% Significance Level**											
1426												
1427	**Lognormal Statistics**											
1428	Minimum of Logged Data				-1.715	Mean of logged Data						-0.871
1429	Maximum of Logged Data				0.751	SD of logged Data						0.751
1430												
1431	**Assuming Lognormal Distribution**											
1432	95% H-UCL				0.824	90% Chebyshev (MVUE) UCL						0.84
1433	95% Chebyshev (MVUE) UCL				0.974	97.5% Chebyshev (MVUE) UCL						1.159
1434	99% Chebyshev (MVUE) UCL				1.524							
1435												
1436	**Nonparametric Distribution Free UCL Statistics**											
1437	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1438												
1439	**Nonparametric Distribution Free UCLs**											
1440	95% CLT UCL				0.782	95% Jackknife UCL						0.793
1441	95% Standard Bootstrap UCL				0.776	95% Bootstrap-t UCL						0.899
1442	95% Hall's Bootstrap UCL				0.782	95% Percentile Bootstrap UCL						0.786
1443	95% BCA Bootstrap UCL				0.839							
1444	90% Chebyshev(Mean, Sd) UCL				0.953	95% Chebyshev(Mean, Sd) UCL						1.125
1445	97.5% Chebyshev(Mean, Sd) UCL				1.363	99% Chebyshev(Mean, Sd) UCL						1.83
1446												
1447	**Suggested UCL to Use**											
1448	95% Chebyshev (Mean, Sd) UCL				1.125							
1449												
1450	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											

1451	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1452	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1453	For additional insight the user may want to consult a statistician.											
1454												
1455												
1456	**Sodium (mg/kg wwt)**											
1457												
1458	**General Statistics**											
1459	Total Number of Observations					20	Number of Distinct Observations					20
1460							Number of Missing Observations					0
1461	Minimum					467	Mean					744.8
1462	Maximum					1200	Median					725.5
1463	SD					174.9	Std. Error of Mean					39.1
1464	Coefficient of Variation					0.235	Skewness					1.001
1465												
1466	**Normal GOF Test**											
1467	Shapiro Wilk Test Statistic					0.923	**Shapiro Wilk GOF Test**					
1468	5% Shapiro Wilk Critical Value					0.905	Data appear Normal at 5% Significance Level					
1469	Lilliefors Test Statistic					0.233	**Lilliefors GOF Test**					
1470	5% Lilliefors Critical Value					0.198	Data Not Normal at 5% Significance Level					
1471	**Data appear Approximate Normal at 5% Significance Level**											
1472												
1473	**Assuming Normal Distribution**											
1474	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1475	95% Student's-t UCL					812.4	95% Adjusted-CLT UCL (Chen-1995)					818.4
1476							95% Modified-t UCL (Johnson-1978)					813.8
1477												
1478	**Gamma GOF Test**											
1479	A-D Test Statistic					0.468	**Anderson-Darling Gamma GOF Test**					
1480	5% A-D Critical Value					0.741	Detected data appear Gamma Distributed at 5% Significance Level					
1481	K-S Test Statistic					0.203	**Kolmogrov-Smirnoff Gamma GOF Test**					
1482	5% K-S Critical Value					0.193	Data Not Gamma Distributed at 5% Significance Level					
1483	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
1484												
1485	**Gamma Statistics**											
1486	k hat (MLE)					20.52	k star (bias corrected MLE)					17.48
1487	Theta hat (MLE)					36.29	Theta star (bias corrected MLE)					42.61
1488	nu hat (MLE)					820.9	nu star (bias corrected)					699.1
1489	MLE Mean (bias corrected)					744.8	MLE Sd (bias corrected)					178.1
1490							Approximate Chi Square Value (0.05)					638.7
1491	Adjusted Level of Significance					0.038	Adjusted Chi Square Value					634.2
1492												
1493	**Assuming Gamma Distribution**											
1494	95% Approximate Gamma UCL (use when n>=50))					815.1	95% Adjusted Gamma UCL (use when n<50)					821
1495												
1496	**Lognormal GOF Test**											
1497	Shapiro Wilk Test Statistic					0.966	**Shapiro Wilk Lognormal GOF Test**					
1498	5% Shapiro Wilk Critical Value					0.905	Data appear Lognormal at 5% Significance Level					
1499	Lilliefors Test Statistic					0.19	**Lilliefors Lognormal GOF Test**					
1500	5% Lilliefors Critical Value					0.198	Data appear Lognormal at 5% Significance Level					

1501	**Data appear Lognormal at 5% Significance Level**											
1502												
1503	**Lognormal Statistics**											
1504					Minimum of Logged Data	6.146			Mean of logged Data	6.588		
1505					Maximum of Logged Data	7.09			SD of logged Data	0.225		
1506												
1507	**Assuming Lognormal Distribution**											
1508					95% H-UCL	818			90% Chebyshev (MVUE) UCL	857.6		
1509					95% Chebyshev (MVUE) UCL	909			97.5% Chebyshev (MVUE) UCL	980.2		
1510					99% Chebyshev (MVUE) UCL	1120						
1511												
1512	**Nonparametric Distribution Free UCL Statistics**											
1513	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1514												
1515	**Nonparametric Distribution Free UCLs**											
1516					95% CLT UCL	809.1			95% Jackknife UCL	812.4		
1517					95% Standard Bootstrap UCL	806.8			95% Bootstrap-t UCL	823.6		
1518					95% Hall's Bootstrap UCL	830.7			95% Percentile Bootstrap UCL	807.9		
1519					95% BCA Bootstrap UCL	815.6						
1520					90% Chebyshev(Mean, Sd) UCL	862.1			95% Chebyshev(Mean, Sd) UCL	915.2		
1521					97.5% Chebyshev(Mean, Sd) UCL	988.9			99% Chebyshev(Mean, Sd) UCL	1134		
1522												
1523	**Suggested UCL to Use**											
1524					95% Student's-t UCL	812.4						
1525												
1526	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1527	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1528	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1529	For additional insight the user may want to consult a statistician.											
1530												
1531												
1532	**Strontium (mg/kg wwt)**											
1533												
1534	**General Statistics**											
1535					Total Number of Observations	20			Number of Distinct Observations	19		
1536									Number of Missing Observations	0		
1537					Minimum	1.28			Mean	11.63		
1538					Maximum	27.7			Median	10.78		
1539					SD	7.005			Std. Error of Mean	1.566		
1540					Coefficient of Variation	0.602			Skewness	0.583		
1541												
1542	**Normal GOF Test**											
1543					Shapiro Wilk Test Statistic	0.963			**Shapiro Wilk GOF Test**			
1544					5% Shapiro Wilk Critical Value	0.905			Data appear Normal at 5% Significance Level			
1545					Lilliefors Test Statistic	0.0946			**Lilliefors GOF Test**			
1546					5% Lilliefors Critical Value	0.198			Data appear Normal at 5% Significance Level			
1547	**Data appear Normal at 5% Significance Level**											
1548												
1549	**Assuming Normal Distribution**											
1550	**95% Normal UCL**								**95% UCLs (Adjusted for Skewness)**			

1551					95% Student's-t UCL	14.34				95% Adjusted-CLT UCL (Chen-1995)		14.42
1552										95% Modified-t UCL (Johnson-1978)		14.37
1553												
1554	**Gamma GOF Test**											
1555					A-D Test Statistic	0.325	**Anderson-Darling Gamma GOF Test**					
1556					5% A-D Critical Value	0.751	Detected data appear Gamma Distributed at 5% Significance Level					
1557					K-S Test Statistic	0.111	**Kolmogrov-Smirnoff Gamma GOF Test**					
1558					5% K-S Critical Value	0.196	Detected data appear Gamma Distributed at 5% Significance Level					
1559	**Detected data appear Gamma Distributed at 5% Significance Level**											
1560												
1561	**Gamma Statistics**											
1562					k hat (MLE)	2.208				k star (bias corrected MLE)		1.91
1563					Theta hat (MLE)	5.266				Theta star (bias corrected MLE)		6.088
1564					nu hat (MLE)	88.31				nu star (bias corrected)		76.4
1565					MLE Mean (bias corrected)	11.63				MLE Sd (bias corrected)		8.413
1566										Approximate Chi Square Value (0.05)		57.26
1567					Adjusted Level of Significance	0.038				Adjusted Chi Square Value		55.96
1568												
1569	**Assuming Gamma Distribution**											
1570					95% Approximate Gamma UCL (use when n>=50))	15.51				95% Adjusted Gamma UCL (use when n<50)		15.87
1571												
1572	**Lognormal GOF Test**											
1573					Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk Lognormal GOF Test**					
1574					5% Shapiro Wilk Critical Value	0.905	Data Not Lognormal at 5% Significance Level					
1575					Lilliefors Test Statistic	0.141	**Lilliefors Lognormal GOF Test**					
1576					5% Lilliefors Critical Value	0.198	Data appear Lognormal at 5% Significance Level					
1577	**Data appear Approximate Lognormal at 5% Significance Level**											
1578												
1579	**Lognormal Statistics**											
1580					Minimum of Logged Data	0.247				Mean of logged Data		2.21
1581					Maximum of Logged Data	3.321				SD of logged Data		0.826
1582												
1583	**Assuming Lognormal Distribution**											
1584					95% H-UCL	20.18				90% Chebyshev (MVUE) UCL		20.11
1585					95% Chebyshev (MVUE) UCL	23.54				97.5% Chebyshev (MVUE) UCL		28.29
1586					99% Chebyshev (MVUE) UCL	37.64						
1587												
1588	**Nonparametric Distribution Free UCL Statistics**											
1589	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1590												
1591	**Nonparametric Distribution Free UCLs**											
1592					95% CLT UCL	14.2				95% Jackknife UCL		14.34
1593					95% Standard Bootstrap UCL	14.13				95% Bootstrap-t UCL		14.73
1594					95% Hall's Bootstrap UCL	14.77				95% Percentile Bootstrap UCL		14.02
1595					95% BCA Bootstrap UCL	14.33						
1596					90% Chebyshev(Mean, Sd) UCL	16.33				95% Chebyshev(Mean, Sd) UCL		18.45
1597					97.5% Chebyshev(Mean, Sd) UCL	21.41				99% Chebyshev(Mean, Sd) UCL		27.21
1598												
1599	**Suggested UCL to Use**											
1600					95% Student's-t UCL	14.34						

1601												
1602	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1603	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1604	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1605	For additional insight the user may want to consult a statistician.											
1606												
1607												
1608	**Titanium (mg/kg wwt)**											
1609												
1610	**General Statistics**											
1611						Total Number of Observations	20			Number of Distinct Observations	19	
1612										Number of Missing Observations	0	
1613						Minimum	0.133			Mean	0.863	
1614						Maximum	3.17			Median	0.692	
1615						SD	0.771			Std. Error of Mean	0.172	
1616						Coefficient of Variation	0.894			Skewness	2.089	
1617												
1618	**Normal GOF Test**											
1619						Shapiro Wilk Test Statistic	0.746			**Shapiro Wilk GOF Test**		
1620						5% Shapiro Wilk Critical Value	0.905			Data Not Normal at 5% Significance Level		
1621						Lilliefors Test Statistic	0.268			**Lilliefors GOF Test**		
1622						5% Lilliefors Critical Value	0.198			Data Not Normal at 5% Significance Level		
1623	**Data Not Normal at 5% Significance Level**											
1624												
1625	**Assuming Normal Distribution**											
1626						**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**		
1627						95% Student's-t UCL	1.161			95% Adjusted-CLT UCL (Chen-1995)	1.232	
1628										95% Modified-t UCL (Johnson-1978)	1.174	
1629												
1630	**Gamma GOF Test**											
1631						A-D Test Statistic	0.545			**Anderson-Darling Gamma GOF Test**		
1632						5% A-D Critical Value	0.754			Detected data appear Gamma Distributed at 5% Significance Level		
1633						K-S Test Statistic	0.166			**Kolmogrov-Smirnoff Gamma GOF Test**		
1634						5% K-S Critical Value	0.197			Detected data appear Gamma Distributed at 5% Significance Level		
1635	**Detected data appear Gamma Distributed at 5% Significance Level**											
1636												
1637	**Gamma Statistics**											
1638						k hat (MLE)	1.847			k star (bias corrected MLE)	1.603	
1639						Theta hat (MLE)	0.467			Theta star (bias corrected MLE)	0.538	
1640						nu hat (MLE)	73.89			nu star (bias corrected)	64.14	
1641						MLE Mean (bias corrected)	0.863			MLE Sd (bias corrected)	0.681	
1642										Approximate Chi Square Value (0.05)	46.71	
1643						Adjusted Level of Significance	0.038			Adjusted Chi Square Value	45.54	
1644												
1645	**Assuming Gamma Distribution**											
1646						95% Approximate Gamma UCL (use when n>=50)	1.184			95% Adjusted Gamma UCL (use when n<50)	1.215	
1647												
1648	**Lognormal GOF Test**											
1649						Shapiro Wilk Test Statistic	0.972			**Shapiro Wilk Lognormal GOF Test**		
1650						5% Shapiro Wilk Critical Value	0.905			Data appear Lognormal at 5% Significance Level		

1651					Lilliefors Test Statistic	0.119	**Lilliefors Lognormal GOF Test**					
1652					5% Lilliefors Critical Value	0.198	Data appear Lognormal at 5% Significance Level					
1653	**Data appear Lognormal at 5% Significance Level**											
1654												
1655	**Lognormal Statistics**											
1656					Minimum of Logged Data	-2.017				Mean of logged Data	-0.442	
1657					Maximum of Logged Data	1.154				SD of logged Data	0.775	
1658												
1659	**Assuming Lognormal Distribution**											
1660					95% H-UCL	1.312				90% Chebyshev (MVUE) UCL	1.329	
1661					95% Chebyshev (MVUE) UCL	1.546				97.5% Chebyshev (MVUE) UCL	1.846	
1662					99% Chebyshev (MVUE) UCL	2.436						
1663												
1664	**Nonparametric Distribution Free UCL Statistics**											
1665	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1666												
1667	**Nonparametric Distribution Free UCLs**											
1668					95% CLT UCL	1.146				95% Jackknife UCL	1.161	
1669					95% Standard Bootstrap UCL	1.132				95% Bootstrap-t UCL	1.475	
1670					95% Hall's Bootstrap UCL	2.684				95% Percentile Bootstrap UCL	1.147	
1671					95% BCA Bootstrap UCL	1.266						
1672					90% Chebyshev(Mean, Sd) UCL	1.38				95% Chebyshev(Mean, Sd) UCL	1.614	
1673					97.5% Chebyshev(Mean, Sd) UCL	1.94				99% Chebyshev(Mean, Sd) UCL	2.579	
1674												
1675	**Suggested UCL to Use**											
1676					95% Adjusted Gamma UCL	1.215						
1677												
1678	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1679	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1680	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1681	For additional insight the user may want to consult a statistician.											
1682												
1683	**Uranium (mg/kg wwt)**											
1684												
1685	**General Statistics**											
1686					Total Number of Observations	20				Number of Distinct Observations	19	
1687					Number of Detects	18				Number of Non-Detects	2	
1688					Number of Distinct Detects	18				Number of Distinct Non-Detects	1	
1689					Minimum Detect	5.0000E-4				Minimum Non-Detect	4.0000E-4	
1690					Maximum Detect	0.0157				Maximum Non-Detect	4.0000E-4	
1691					Variance Detects	2.1419E-5				Percent Non-Detects	10%	
1692					Mean Detects	0.00386				SD Detects	0.00463	
1693					Median Detects	0.00217				CV Detects	1.198	
1694					Skewness Detects	2.021				Kurtosis Detects	3.255	
1695					Mean of Logged Detects	-6.071				SD of Logged Detects	1.006	
1696												
1697	**Normal GOF Test on Detects Only**											
1698					Shapiro Wilk Test Statistic	0.68	**Shapiro Wilk GOF Test**					
1699					5% Shapiro Wilk Critical Value	0.897	Detected Data Not Normal at 5% Significance Level					
1700					Lilliefors Test Statistic	0.318	**Lilliefors GOF Test**					

1701	5% Lilliefors Critical Value					0.209	Detected Data Not Normal at 5% Significance Level					
1702	**Detected Data Not Normal at 5% Significance Level**											
1703												
1704	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
1705	Mean					0.00352	Standard Error of Mean					0.00101
1706	SD					0.00439	95% KM (BCA) UCL					0.00535
1707	95% KM (t) UCL					0.00526	95% KM (Percentile Bootstrap) UCL					0.00533
1708	95% KM (z) UCL					0.00518	95% KM Bootstrap t UCL					0.00701
1709	90% KM Chebyshev UCL					0.00655	95% KM Chebyshev UCL					0.00792
1710	97.5% KM Chebyshev UCL					0.00983	99% KM Chebyshev UCL					0.0136
1711												
1712	**Gamma GOF Tests on Detected Observations Only**											
1713	A-D Test Statistic					0.812	**Anderson-Darling GOF Test**					
1714	5% A-D Critical Value					0.764	Detected Data Not Gamma Distributed at 5% Significance Level					
1715	K-S Test Statistic					0.202	**Kolmogrov-Smirnoff GOF**					
1716	5% K-S Critical Value					0.209	Detected data appear Gamma Distributed at 5% Significance Level					
1717	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
1718												
1719	**Gamma Statistics on Detected Data Only**											
1720	k hat (MLE)					1.108	k star (bias corrected MLE)					0.961
1721	Theta hat (MLE)					0.00348	Theta star (bias corrected MLE)					0.00402
1722	nu hat (MLE)					39.9	nu star (bias corrected)					34.58
1723	MLE Mean (bias corrected)					0.00386	MLE Sd (bias corrected)					0.00394
1724												
1725	**Gamma Kaplan-Meier (KM) Statistics**											
1726	k hat (KM)					0.641	nu hat (KM)					25.63
1727	Approximate Chi Square Value (25.63, α)					15.1	Adjusted Chi Square Value (25.63, β)					14.46
1728	95% Gamma Approximate KM-UCL (use when n>=50)					0.00597	95% Gamma Adjusted KM-UCL (use when n<50)					0.00623
1729												
1730	**Gamma ROS Statistics using Imputed Non-Detects**											
1731	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
1732	GROS may not be used when kstar of detected data is small such as < 0.1											
1733	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
1734	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
1735	Minimum					5.0000E-4	Mean					0.00448
1736	Maximum					0.0157	Median					0.00239
1737	SD					0.00477	CV					1.065
1738	k hat (MLE)					1.107	k star (bias corrected MLE)					0.974
1739	Theta hat (MLE)					0.00404	Theta star (bias corrected MLE)					0.0046
1740	nu hat (MLE)					44.27	nu star (bias corrected)					38.96
1741	MLE Mean (bias corrected)					0.00448	MLE Sd (bias corrected)					0.00453
1742							Adjusted Level of Significance (β)					0.038
1743	Approximate Chi Square Value (38.96, α)					25.66	Adjusted Chi Square Value (38.96, β)					24.81
1744	95% Gamma Approximate UCL (use when n>=50)					0.00679	95% Gamma Adjusted UCL (use when n<50)					0.00703
1745												
1746	**Lognormal GOF Test on Detected Observations Only**											
1747	Shapiro Wilk Test Statistic					0.952	**Shapiro Wilk GOF Test**					
1748	5% Shapiro Wilk Critical Value					0.897	Detected Data appear Lognormal at 5% Significance Level					
1749	Lilliefors Test Statistic					0.128	**Lilliefors GOF Test**					
1750	5% Lilliefors Critical Value					0.209	Detected Data appear Lognormal at 5% Significance Level					

1751	**Detected Data appear Lognormal at 5% Significance Level**											
1752												
1753	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1754					Mean in Original Scale	0.0035				Mean in Log Scale	-6.31	
1755					SD in Original Scale	0.00452				SD in Log Scale	1.204	
1756					95% t UCL (assumes normality of ROS data)	0.00524				95% Percentile Bootstrap UCL	0.00526	
1757					95% BCA Bootstrap UCL	0.00563				95% Bootstrap t UCL	0.00678	
1758					95% H-UCL (Log ROS)	0.00845						
1759												
1760	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
1761					KM Mean (logged)	-6.247				95% H-UCL (KM -Log)	0.00667	
1762					KM SD (logged)	1.066				95% Critical H Value (KM-Log)	2.732	
1763					KM Standard Error of Mean (logged)	0.245						
1764												
1765	**DL/2 Statistics**											
1766					**DL/2 Normal**					**DL/2 Log-Transformed**		
1767					Mean in Original Scale	0.0035				Mean in Log Scale	-6.316	
1768					SD in Original Scale	0.00452				SD in Log Scale	1.213	
1769					95% t UCL (Assumes normality)	0.00524				95% H-Stat UCL	0.0086	
1770	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1771												
1772	**Nonparametric Distribution Free UCL Statistics**											
1773	**Detected Data appear Approximate Gamma Distributed at 5% Significance Level**											
1774												
1775	**Suggested UCL to Use**											
1776					95% KM (Chebyshev) UCL	0.00792				95% GROS Adjusted Gamma UCL	0.00703	
1777					95% Adjusted Gamma KM-UCL	0.00623						
1778												
1779	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1780	Recommendations are based upon data size, data distribution, and skewness.											
1781	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1782	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1783												
1784	**Vanadium (mg/kg wwt)**											
1785												
1786	**General Statistics**											
1787					Total Number of Observations	20				Number of Distinct Observations	12	
1788					Number of Detects	11				Number of Non-Detects	9	
1789					Number of Distinct Detects	11				Number of Distinct Non-Detects	1	
1790					Minimum Detect	0.021				Minimum Non-Detect	0.02	
1791					Maximum Detect	0.156				Maximum Non-Detect	0.02	
1792					Variance Detects	0.00194				Percent Non-Detects	45%	
1793					Mean Detects	0.0558				SD Detects	0.044	
1794					Median Detects	0.038				CV Detects	0.789	
1795					Skewness Detects	1.652				Kurtosis Detects	1.91	
1796					Mean of Logged Detects	-3.109				SD of Logged Detects	0.665	
1797												
1798	**Normal GOF Test on Detects Only**											
1799					Shapiro Wilk Test Statistic	0.771				**Shapiro Wilk GOF Test**		
1800					5% Shapiro Wilk Critical Value	0.85				Detected Data Not Normal at 5% Significance Level		

1801					Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**					
1802					5% Lilliefors Critical Value	0.267	Detected Data appear Normal at 5% Significance Level					
1803	**Detected Data appear Approximate Normal at 5% Significance Level**											
1804												
1805	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
1806					Mean	0.0397	Standard Error of Mean	0.00841				
1807					SD	0.0359	95% KM (BCA) UCL	0.054				
1808					95% KM (t) UCL	0.0542	95% KM (Percentile Bootstrap) UCL	0.0533				
1809					95% KM (z) UCL	0.0535	95% KM Bootstrap t UCL	0.0744				
1810					90% KM Chebyshev UCL	0.0649	95% KM Chebyshev UCL	0.0764				
1811					97.5% KM Chebyshev UCL	0.0922	99% KM Chebyshev UCL	0.123				
1812												
1813	**Gamma GOF Tests on Detected Observations Only**											
1814					A-D Test Statistic	0.581	**Anderson-Darling GOF Test**					
1815					5% A-D Critical Value	0.737	Detected data appear Gamma Distributed at 5% Significance Level					
1816					K-S Test Statistic	0.177	**Kolmogrov-Smirnoff GOF**					
1817					5% K-S Critical Value	0.258	Detected data appear Gamma Distributed at 5% Significance Level					
1818	**Detected data appear Gamma Distributed at 5% Significance Level**											
1819												
1820	**Gamma Statistics on Detected Data Only**											
1821					k hat (MLE)	2.39	k star (bias corrected MLE)	1.799				
1822					Theta hat (MLE)	0.0234	Theta star (bias corrected MLE)	0.031				
1823					nu hat (MLE)	52.57	nu star (bias corrected)	39.57				
1824					MLE Mean (bias corrected)	0.0558	MLE Sd (bias corrected)	0.0416				
1825												
1826	**Gamma Kaplan-Meier (KM) Statistics**											
1827					k hat (KM)	1.225	nu hat (KM)	49.02				
1828					Approximate Chi Square Value (49.02, α)	33.95	Adjusted Chi Square Value (49.02, β)	32.95				
1829					95% Gamma Approximate KM-UCL (use when n>=50)	0.0573	95% Gamma Adjusted KM-UCL (use when n<50)	0.0591				
1830												
1831	**Gamma ROS Statistics using Imputed Non-Detects**											
1832	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
1833	GROS may not be used when kstar of detected data is small such as < 0.1											
1834	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
1835	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
1836					Minimum	0.01	Mean	0.0352				
1837					Maximum	0.156	Median	0.0215				
1838					SD	0.0396	CV	1.124				
1839					k hat (MLE)	1.289	k star (bias corrected MLE)	1.129				
1840					Theta hat (MLE)	0.0273	Theta star (bias corrected MLE)	0.0312				
1841					nu hat (MLE)	51.55	nu star (bias corrected)	45.15				
1842					MLE Mean (bias corrected)	0.0352	MLE Sd (bias corrected)	0.0331				
1843							Adjusted Level of Significance (β)	0.038				
1844					Approximate Chi Square Value (45.15, α)	30.74	Adjusted Chi Square Value (45.15, β)	29.8				
1845					95% Gamma Approximate UCL (use when n>=50)	0.0517	95% Gamma Adjusted UCL (use when n<50)	0.0533				
1846												
1847	**Lognormal GOF Test on Detected Observations Only**											
1848					Shapiro Wilk Test Statistic	0.917	**Shapiro Wilk GOF Test**					
1849					5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level					
1850					Lilliefors Test Statistic	0.141	**Lilliefors GOF Test**					

1851	5% Lilliefors Critical Value					0.267	Detected Data appear Lognormal at 5% Significance Level					
1852	**Detected Data appear Lognormal at 5% Significance Level**											
1853												
1854	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1855	Mean in Original Scale					0.0343	Mean in Log Scale					-3.951
1856	SD in Original Scale					0.0403	SD in Log Scale					1.136
1857	95% t UCL (assumes normality of ROS data)					0.0498	95% Percentile Bootstrap UCL					0.0498
1858	95% BCA Bootstrap UCL					0.0547	95% Bootstrap t UCL					0.062
1859	95% H-UCL (Log ROS)					0.0769						
1860												
1861	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
1862	KM Mean (logged)					-3.47	95% H-UCL (KM -Log)					0.0509
1863	KM SD (logged)					0.617	95% Critical H Value (KM-Log)					2.141
1864	KM Standard Error of Mean (logged)					0.145						
1865												
1866	**DL/2 Statistics**											
1867	**DL/2 Normal**						**DL/2 Log-Transformed**					
1868	Mean in Original Scale					0.0352	Mean in Log Scale					-3.782
1869	SD in Original Scale					0.0396	SD in Log Scale					0.903
1870	95% t UCL (Assumes normality)					0.0505	95% H-Stat UCL					0.0574
1871	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1872												
1873	**Nonparametric Distribution Free UCL Statistics**											
1874	**Detected Data appear Approximate Normal Distributed at 5% Significance Level**											
1875												
1876	**Suggested UCL to Use**											
1877	95% KM (t) UCL					0.0542	95% KM (Percentile Bootstrap) UCL					0.0533
1878												
1879	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1880	Recommendations are based upon data size, data distribution, and skewness.											
1881	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1882	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1883												
1884												
1885	**Zinc (mg/kg wwt)**											
1886												
1887	**General Statistics**											
1888	Total Number of Observations					20	Number of Distinct Observations					19
1889							Number of Missing Observations					0
1890	Minimum					8.76	Mean					21.75
1891	Maximum					41.6	Median					21.15
1892	SD					7.918	Std. Error of Mean					1.77
1893	Coefficient of Variation					0.364	Skewness					0.586
1894												
1895	**Normal GOF Test**											
1896	Shapiro Wilk Test Statistic					0.955	**Shapiro Wilk GOF Test**					
1897	5% Shapiro Wilk Critical Value					0.905	Data appear Normal at 5% Significance Level					
1898	Lilliefors Test Statistic					0.117	**Lilliefors GOF Test**					
1899	5% Lilliefors Critical Value					0.198	Data appear Normal at 5% Significance Level					
1900	**Data appear Normal at 5% Significance Level**											

1901												
1902	**Assuming Normal Distribution**											
1903	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1904	95% Student's-t UCL				24.81		95% Adjusted-CLT UCL (Chen-1995)				24.91	
1905							95% Modified-t UCL (Johnson-1978)				24.85	
1906												
1907	**Gamma GOF Test**											
1908	A-D Test Statistic				0.383		**Anderson-Darling Gamma GOF Test**					
1909	5% A-D Critical Value				0.744		Detected data appear Gamma Distributed at 5% Significance Level					
1910	K-S Test Statistic				0.14		**Kolmogrov-Smirnoff Gamma GOF Test**					
1911	5% K-S Critical Value				0.194		Detected data appear Gamma Distributed at 5% Significance Level					
1912	**Detected data appear Gamma Distributed at 5% Significance Level**											
1913												
1914	**Gamma Statistics**											
1915	k hat (MLE)				7.505		k star (bias corrected MLE)				6.412	
1916	Theta hat (MLE)				2.898		Theta star (bias corrected MLE)				3.392	
1917	nu hat (MLE)				300.2		nu star (bias corrected)				256.5	
1918	MLE Mean (bias corrected)				21.75		MLE Sd (bias corrected)				8.589	
1919							Approximate Chi Square Value (0.05)				220.4	
1920	Adjusted Level of Significance				0.038		Adjusted Chi Square Value				217.8	
1921												
1922	**Assuming Gamma Distribution**											
1923	95% Approximate Gamma UCL (use when n>=50))				25.31		95% Adjusted Gamma UCL (use when n<50)				25.62	
1924												
1925	**Lognormal GOF Test**											
1926	Shapiro Wilk Test Statistic				0.939		**Shapiro Wilk Lognormal GOF Test**					
1927	5% Shapiro Wilk Critical Value				0.905		Data appear Lognormal at 5% Significance Level					
1928	Lilliefors Test Statistic				0.164		**Lilliefors Lognormal GOF Test**					
1929	5% Lilliefors Critical Value				0.198		Data appear Lognormal at 5% Significance Level					
1930	**Data appear Lognormal at 5% Significance Level**											
1931												
1932	**Lognormal Statistics**											
1933	Minimum of Logged Data				2.17		Mean of logged Data				3.011	
1934	Maximum of Logged Data				3.728		SD of logged Data				0.393	
1935												
1936	**Assuming Lognormal Distribution**											
1937	95% H-UCL				26.11		90% Chebyshev (MVUE) UCL				27.76	
1938	95% Chebyshev (MVUE) UCL				30.44		97.5% Chebyshev (MVUE) UCL				34.15	
1939	99% Chebyshev (MVUE) UCL				41.43							
1940												
1941	**Nonparametric Distribution Free UCL Statistics**											
1942	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1943												
1944	**Nonparametric Distribution Free UCLs**											
1945	95% CLT UCL				24.66		95% Jackknife UCL				24.81	
1946	95% Standard Bootstrap UCL				24.52		95% Bootstrap-t UCL				25.09	
1947	95% Hall's Bootstrap UCL				25.64		95% Percentile Bootstrap UCL				24.73	
1948	95% BCA Bootstrap UCL				24.91							
1949	90% Chebyshev(Mean, Sd) UCL				27.06		95% Chebyshev(Mean, Sd) UCL				29.47	
1950	97.5% Chebyshev(Mean, Sd) UCL				32.81		99% Chebyshev(Mean, Sd) UCL				39.36	

1951												
1952	**Suggested UCL to Use**											
1953					95% Student's-t UCL	24.81						
1954												
1955	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1956	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1957	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1958	For additional insight the user may want to consult a statistician.											
1959												
1960												
1961	**Methyl Mercury (mg/kg wwt)**											
1962												
1963	**General Statistics**											
1964					Total Number of Observations	20			Number of Distinct Observations	20		
1965									Number of Missing Observations	0		
1966					Minimum	0.0193			Mean	0.0668		
1967					Maximum	0.138			Median	0.0559		
1968					SD	0.035			Std. Error of Mean	0.00783		
1969					Coefficient of Variation	0.525			Skewness	0.503		
1970												
1971	**Normal GOF Test**											
1972					Shapiro Wilk Test Statistic	0.94			**Shapiro Wilk GOF Test**			
1973					5% Shapiro Wilk Critical Value	0.905			Data appear Normal at 5% Significance Level			
1974					Lilliefors Test Statistic	0.154			**Lilliefors GOF Test**			
1975					5% Lilliefors Critical Value	0.198			Data appear Normal at 5% Significance Level			
1976	**Data appear Normal at 5% Significance Level**											
1977												
1978	**Assuming Normal Distribution**											
1979					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**			
1980					95% Student's-t UCL	0.0803			95% Adjusted-CLT UCL (Chen-1995)	0.0806		
1981									95% Modified-t UCL (Johnson-1978)	0.0804		
1982												
1983	**Gamma GOF Test**											
1984					A-D Test Statistic	0.298			**Anderson-Darling Gamma GOF Test**			
1985					5% A-D Critical Value	0.746			Detected data appear Gamma Distributed at 5% Significance Level			
1986					K-S Test Statistic	0.119			**Kolmogrov-Smirnoff Gamma GOF Test**			
1987					5% K-S Critical Value	0.195			Detected data appear Gamma Distributed at 5% Significance Level			
1988	**Detected data appear Gamma Distributed at 5% Significance Level**											
1989												
1990	**Gamma Statistics**											
1991					k hat (MLE)	3.567			k star (bias corrected MLE)	3.066		
1992					Theta hat (MLE)	0.0187			Theta star (bias corrected MLE)	0.0218		
1993					nu hat (MLE)	142.7			nu star (bias corrected)	122.6		
1994					MLE Mean (bias corrected)	0.0668			MLE Sd (bias corrected)	0.0381		
1995									Approximate Chi Square Value (0.05)	98.05		
1996					Adjusted Level of Significance	0.038			Adjusted Chi Square Value	96.31		
1997												
1998	**Assuming Gamma Distribution**											
1999					95% Approximate Gamma UCL (use when n>=50))	0.0835			95% Adjusted Gamma UCL (use when n<50)	0.085		
2000												

2001	**Lognormal GOF Test**											
2002					Shapiro Wilk Test Statistic	0.952	**Shapiro Wilk Lognormal GOF Test**					
2003					5% Shapiro Wilk Critical Value	0.905	Data appear Lognormal at 5% Significance Level					
2004					Lilliefors Test Statistic	0.114	**Lilliefors Lognormal GOF Test**					
2005					5% Lilliefors Critical Value	0.198	Data appear Lognormal at 5% Significance Level					
2006	**Data appear Lognormal at 5% Significance Level**											
2007												
2008	**Lognormal Statistics**											
2009					Minimum of Logged Data	-3.948	Mean of logged Data	-2.853				
2010					Maximum of Logged Data	-1.981	SD of logged Data	0.58				
2011												
2012	**Assuming Lognormal Distribution**											
2013					95% H-UCL	0.0902	90% Chebyshev (MVUE) UCL	0.0951				
2014					95% Chebyshev (MVUE) UCL	0.108	97.5% Chebyshev (MVUE) UCL	0.125				
2015					99% Chebyshev (MVUE) UCL	0.159						
2016												
2017	**Nonparametric Distribution Free UCL Statistics**											
2018	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
2019												
2020	**Nonparametric Distribution Free UCLs**											
2021					95% CLT UCL	0.0796	95% Jackknife UCL	0.0803				
2022					95% Standard Bootstrap UCL	0.0794	95% Bootstrap-t UCL	0.0805				
2023					95% Hall's Bootstrap UCL	0.0803	95% Percentile Bootstrap UCL	0.0803				
2024					95% BCA Bootstrap UCL	0.0802						
2025					90% Chebyshev(Mean, Sd) UCL	0.0902	95% Chebyshev(Mean, Sd) UCL	0.101				
2026					97.5% Chebyshev(Mean, Sd) UCL	0.116	99% Chebyshev(Mean, Sd) UCL	0.145				
2027												
2028	**Suggested UCL to Use**											
2029					95% Student's-t UCL	0.0803						
2030												
2031	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2032	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2033	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2034	For additional insight the user may want to consult a statistician.											
2035												

ProUCL Output for Fish Tissue (Fillet)

1	**UCL Statistics for Uncensored Full Data Sets**												
2													
3	User Selected Options												
4	Date/Time of Computation			5/4/2015 8:50:49 PM									
5	From File			dat_fish_2014_fillets_b.xls									
6	Full Precision			OFF									
7	Confidence Coefficient			95%									
8	mber of Bootstrap Operations			2000									
9													
10													
11	**Arsenic (mg/kg ww)**												
12													
13	**General Statistics**												
14	Total Number of Observations			10			Number of Distinct Observations				10		
15							Number of Missing Observations				0		
16	Minimum			0.0235			Mean				0.0781		
17	Maximum			0.186			Median				0.0495		
18	SD			0.0651			Std. Error of Mean				0.0206		
19	Coefficient of Variation			0.834			Skewness				0.986		
20													
21	**Normal GOF Test**												
22	Shapiro Wilk Test Statistic			0.766			**Shapiro Wilk GOF Test**						
23	5% Shapiro Wilk Critical Value			0.842			Data Not Normal at 5% Significance Level						
24	Lilliefors Test Statistic			0.325			**Lilliefors GOF Test**						
25	5% Lilliefors Critical Value			0.28			Data Not Normal at 5% Significance Level						
26	**Data Not Normal at 5% Significance Level**												
27													
28	**Assuming Normal Distribution**												
29	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
30	95% Student's-t UCL			0.116			95% Adjusted-CLT UCL (Chen-1995)				0.119		
31							95% Modified-t UCL (Johnson-1978)				0.117		
32													
33	**Gamma GOF Test**												
34	A-D Test Statistic			0.778			**Anderson-Darling Gamma GOF Test**						
35	5% A-D Critical Value			0.737			Data Not Gamma Distributed at 5% Significance Level						
36	K-S Test Statistic			0.256			**Kolmogrov-Smirnoff Gamma GOF Test**						
37	5% K-S Critical Value			0.27			etected data appear Gamma Distributed at 5% Significance Lev						
38	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**												
39													
40	**Gamma Statistics**												
41	k hat (MLE)			1.818			k star (bias corrected MLE)				1.339		
42	Theta hat (MLE)			0.043			Theta star (bias corrected MLE)				0.0583		
43	nu hat (MLE)			36.35			nu star (bias corrected)				26.78		
44	MLE Mean (bias corrected)			0.0781			MLE Sd (bias corrected)				0.0675		
45							Approximate Chi Square Value (0.05)				15.98		
46	Adjusted Level of Significance			0.0267			Adjusted Chi Square Value				14.55		
47													
48	**Assuming Gamma Distribution**												
49	95% Approximate Gamma UCL (use when n>=50)			0.131			95% Adjusted Gamma UCL (use when n<50)				0.144		
50													
51	**Lognormal GOF Test**												
52	Shapiro Wilk Test Statistic			0.866			**Shapiro Wilk Lognormal GOF Test**						
53	5% Shapiro Wilk Critical Value			0.842			Data appear Lognormal at 5% Significance Level						
54	Lilliefors Test Statistic			0.204			**Lilliefors Lognormal GOF Test**						
55	5% Lilliefors Critical Value			0.28			Data appear Lognormal at 5% Significance Level						
56	**Data appear Lognormal at 5% Significance Level**												
57													
58	**Lognormal Statistics**												
59	Minimum of Logged Data			-3.751			Mean of logged Data				-2.849		
60	Maximum of Logged Data			-1.682			SD of logged Data				0.801		
61													
62	**Assuming Lognormal Distribution**												

63					95% H-UCL	0.164				90% Chebyshev (MVUE) UCL		0.137	
64					95% Chebyshev (MVUE) UCL	0.165				97.5% Chebyshev (MVUE) UCL		0.203	
65					99% Chebyshev (MVUE) UCL	0.277							
66													
67	**Nonparametric Distribution Free UCL Statistics**												
68	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
69													
70	**Nonparametric Distribution Free UCLs**												
71					95% CLT UCL	0.112				95% Jackknife UCL		0.116	
72					95% Standard Bootstrap UCL	0.111				95% Bootstrap-t UCL		0.124	
73					95% Hall's Bootstrap UCL	0.103				95% Percentile Bootstrap UCL		0.112	
74					95% BCA Bootstrap UCL	0.117							
75					90% Chebyshev(Mean, Sd) UCL	0.14				95% Chebyshev(Mean, Sd) UCL		0.168	
76					97.5% Chebyshev(Mean, Sd) UCL	0.207				99% Chebyshev(Mean, Sd) UCL		0.283	
77													
78	**Suggested UCL to Use**												
79					95% Adjusted Gamma UCL	0.144							
80													
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
84	For additional insight the user may want to consult a statistician.												
85													
86													
87	**Barium (mg/kg ww)**												
88													
89	**General Statistics**												
90					Total Number of Observations	10				Number of Distinct Observations		8	
91										Number of Missing Observations		0	
92					Minimum	0.018				Mean		0.028	
93					Maximum	0.041				Median		0.0295	
94					SD	0.00739				Std. Error of Mean		0.00234	
95					Coefficient of Variation	0.264				Skewness		0.355	
96													
97	**Normal GOF Test**												
98					Shapiro Wilk Test Statistic	0.939				**Shapiro Wilk GOF Test**			
99					5% Shapiro Wilk Critical Value	0.842				Data appear Normal at 5% Significance Level			
100					Lilliefors Test Statistic	0.193				**Lilliefors GOF Test**			
101					5% Lilliefors Critical Value	0.28				Data appear Normal at 5% Significance Level			
102	**Data appear Normal at 5% Significance Level**												
103													
104	**Assuming Normal Distribution**												
105					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**			
106					95% Student's-t UCL	0.0323				95% Adjusted-CLT UCL (Chen-1995)		0.0321	
107										95% Modified-t UCL (Johnson-1978)		0.0323	
108													
109	**Gamma GOF Test**												
110					A-D Test Statistic	0.342				**Anderson-Darling Gamma GOF Test**			
111					5% A-D Critical Value	0.725				etected data appear Gamma Distributed at 5% Significance Lev			
112					K-S Test Statistic	0.189				**Kolmogrov-Smirnoff Gamma GOF Test**			
113					5% K-S Critical Value	0.266				etected data appear Gamma Distributed at 5% Significance Lev			
114	**Detected data appear Gamma Distributed at 5% Significance Level**												
115													
116	**Gamma Statistics**												
117					k hat (MLE)	15.89				k star (bias corrected MLE)		11.19	
118					Theta hat (MLE)	0.00176				Theta star (bias corrected MLE)		0.0025	
119					nu hat (MLE)	317.8				nu star (bias corrected)		223.8	
120					MLE Mean (bias corrected)	0.028				MLE Sd (bias corrected)		0.00837	
121										Approximate Chi Square Value (0.05)		190.2	
122					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value		184.8	
123													
124	**Assuming Gamma Distribution**												

125	95% Approximate Gamma UCL (use when n>=50))					0.033	95% Adjusted Gamma UCL (use when n<50)					0.0339	
126													
127	**Lognormal GOF Test**												
128	Shapiro Wilk Test Statistic					0.945	**Shapiro Wilk Lognormal GOF Test**						
129	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level						
130	Lilliefors Test Statistic					0.199	**Lilliefors Lognormal GOF Test**						
131	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level						
132	**Data appear Lognormal at 5% Significance Level**												
133													
134	**Lognormal Statistics**												
135	Minimum of Logged Data					-4.017	Mean of logged Data					-3.607	
136	Maximum of Logged Data					-3.194	SD of logged Data					0.267	
137													
138	**Assuming Lognormal Distribution**												
139	95% H-UCL					0.0334	90% Chebyshev (MVUE) UCL					0.0352	
140	95% Chebyshev (MVUE) UCL					0.0384	97.5% Chebyshev (MVUE) UCL					0.0429	
141	99% Chebyshev (MVUE) UCL					0.0517							
142													
143	**Nonparametric Distribution Free UCL Statistics**												
144	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
145													
146	**Nonparametric Distribution Free UCLs**												
147	95% CLT UCL					0.0318	95% Jackknife UCL					0.0323	
148	95% Standard Bootstrap UCL					0.0317	95% Bootstrap-t UCL					0.0327	
149	95% Hall's Bootstrap UCL					0.0329	95% Percentile Bootstrap UCL					0.0318	
150	95% BCA Bootstrap UCL					0.032							
151	90% Chebyshev(Mean, Sd) UCL					0.035	95% Chebyshev(Mean, Sd) UCL					0.0382	
152	97.5% Chebyshev(Mean, Sd) UCL					0.0426	99% Chebyshev(Mean, Sd) UCL					0.0513	
153													
154	**Suggested UCL to Use**												
155	95% Student's-t UCL					0.0323							
156													
157	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
158	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
159	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
160	For additional insight the user may want to consult a statistician.												
161													
162													
163	**Calcium (mg/kg ww)**												
164													
165	**General Statistics**												
166	Total Number of Observations					10	Number of Distinct Observations					10	
167							Number of Missing Observations					0	
168	Minimum					185	Mean					311	
169	Maximum					447	Median					309.5	
170	SD					82.89	Std. Error of Mean					26.21	
171	Coefficient of Variation					0.267	Skewness					0.302	
172													
173	**Normal GOF Test**												
174	Shapiro Wilk Test Statistic					0.96	**Shapiro Wilk GOF Test**						
175	5% Shapiro Wilk Critical Value					0.842	Data appear Normal at 5% Significance Level						
176	Lilliefors Test Statistic					0.171	**Lilliefors GOF Test**						
177	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level						
178	**Data appear Normal at 5% Significance Level**												
179													
180	**Assuming Normal Distribution**												
181	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
182	95% Student's-t UCL					359	95% Adjusted-CLT UCL (Chen-1995)					356.8	
183							95% Modified-t UCL (Johnson-1978)					359.5	
184													
185	**Gamma GOF Test**												
186	A-D Test Statistic					0.226	**Anderson-Darling Gamma GOF Test**						

187				5% A-D Critical Value		0.725	etected data appear Gamma Distributed at 5% Significance Lev						
188				K-S Test Statistic		0.136	**Kolmogrov-Smirnoff Gamma GOF Test**						
189				5% K-S Critical Value		0.266	etected data appear Gamma Distributed at 5% Significance Lev						
190	**Detected data appear Gamma Distributed at 5% Significance Level**												
191													
192	**Gamma Statistics**												
193				k hat (MLE)		15.44	k star (bias corrected MLE)					10.87	
194				Theta hat (MLE)		20.15	Theta star (bias corrected MLE)					28.6	
195				nu hat (MLE)		308.8	nu star (bias corrected)					217.5	
196				MLE Mean (bias corrected)		311	MLE Sd (bias corrected)					94.32	
197							Approximate Chi Square Value (0.05)					184.3	
198				Adjusted Level of Significance		0.0267	Adjusted Chi Square Value					179	
199													
200	**Assuming Gamma Distribution**												
201	95% Approximate Gamma UCL (use when n>=50))					366.9	95% Adjusted Gamma UCL (use when n<50)					377.8	
202													
203	**Lognormal GOF Test**												
204				Shapiro Wilk Test Statistic		0.967	**Shapiro Wilk Lognormal GOF Test**						
205				5% Shapiro Wilk Critical Value		0.842	Data appear Lognormal at 5% Significance Level						
206				Lilliefors Test Statistic		0.124	**Lilliefors Lognormal GOF Test**						
207				5% Lilliefors Critical Value		0.28	Data appear Lognormal at 5% Significance Level						
208	**Data appear Lognormal at 5% Significance Level**												
209													
210	**Lognormal Statistics**												
211				Minimum of Logged Data		5.22	Mean of logged Data					5.707	
212				Maximum of Logged Data		6.103	SD of logged Data					0.272	
213													
214	**Assuming Lognormal Distribution**												
215				95% H-UCL		372.8	90% Chebyshev (MVUE) UCL					392	
216				95% Chebyshev (MVUE) UCL		428.6	97.5% Chebyshev (MVUE) UCL					479.5	
217				99% Chebyshev (MVUE) UCL		579.3							
218													
219	**Nonparametric Distribution Free UCL Statistics**												
220	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
221													
222	**Nonparametric Distribution Free UCLs**												
223				95% CLT UCL		354.1	95% Jackknife UCL					359	
224				95% Standard Bootstrap UCL		351.6	95% Bootstrap-t UCL					363.3	
225				95% Hall's Bootstrap UCL		357.7	95% Percentile Bootstrap UCL					352.8	
226				95% BCA Bootstrap UCL		353.7							
227				90% Chebyshev(Mean, Sd) UCL		389.6	95% Chebyshev(Mean, Sd) UCL					425.3	
228				97.5% Chebyshev(Mean, Sd) UCL		474.7	99% Chebyshev(Mean, Sd) UCL					571.8	
229													
230	**Suggested UCL to Use**												
231				95% Student's-t UCL		359							
232													
233	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
234	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
235	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
236	For additional insight the user may want to consult a statistician.												
237													
238													
239	**Copper (mg/kg ww)**												
240													
241	**General Statistics**												
242				Total Number of Observations		10	Number of Distinct Observations					9	
243							Number of Missing Observations					0	
244				Minimum		0.243	Mean					0.455	
245				Maximum		0.665	Median					0.443	
246				SD		0.13	Std. Error of Mean					0.0412	
247				Coefficient of Variation		0.287	Skewness					0.456	
248													

249	**Normal GOF Test**												
250					Shapiro Wilk Test Statistic	0.914	**Shapiro Wilk GOF Test**						
251					5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level						
252					Lilliefors Test Statistic	0.233	**Lilliefors GOF Test**						
253					5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level						
254	**Data appear Normal at 5% Significance Level**												
255													
256	**Assuming Normal Distribution**												
257				**95% Normal UCL**			**95% UCLs (Adjusted for Skewness)**						
258					95% Student's-t UCL	0.53	95% Adjusted-CLT UCL (Chen-1995)	0.529					
259							95% Modified-t UCL (Johnson-1978)	0.531					
260													
261	**Gamma GOF Test**												
262					A-D Test Statistic	0.394	**Anderson-Darling Gamma GOF Test**						
263					5% A-D Critical Value	0.725	etected data appear Gamma Distributed at 5% Significance Lev						
264					K-S Test Statistic	0.195	**Kolmogrov-Smirnoff Gamma GOF Test**						
265					5% K-S Critical Value	0.266	etected data appear Gamma Distributed at 5% Significance Lev						
266	**Detected data appear Gamma Distributed at 5% Significance Level**												
267													
268	**Gamma Statistics**												
269					k hat (MLE)	13.3	k star (bias corrected MLE)	9.376					
270					Theta hat (MLE)	0.0342	Theta star (bias corrected MLE)	0.0485					
271					nu hat (MLE)	266	nu star (bias corrected)	187.5					
272					MLE Mean (bias corrected)	0.455	MLE Sd (bias corrected)	0.149					
273							Approximate Chi Square Value (0.05)	156.8					
274					Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	152					
275													
276	**Assuming Gamma Distribution**												
277	95% Approximate Gamma UCL (use when n>=50))					0.544	95% Adjusted Gamma UCL (use when n<50)	0.561					
278													
279	**Lognormal GOF Test**												
280					Shapiro Wilk Test Statistic	0.929	**Shapiro Wilk Lognormal GOF Test**						
281					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level						
282					Lilliefors Test Statistic	0.186	**Lilliefors Lognormal GOF Test**						
283					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level						
284	**Data appear Lognormal at 5% Significance Level**												
285													
286	**Lognormal Statistics**												
287					Minimum of Logged Data	-1.415	Mean of logged Data	-0.826					
288					Maximum of Logged Data	-0.408	SD of logged Data	0.295					
289													
290	**Assuming Lognormal Distribution**												
291					95% H-UCL	0.556	90% Chebyshev (MVUE) UCL	0.584					
292					95% Chebyshev (MVUE) UCL	0.642	97.5% Chebyshev (MVUE) UCL	0.723					
293					99% Chebyshev (MVUE) UCL	0.882							
294													
295	**Nonparametric Distribution Free UCL Statistics**												
296	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
297													
298	**Nonparametric Distribution Free UCLs**												
299					95% CLT UCL	0.523	95% Jackknife UCL	0.53					
300					95% Standard Bootstrap UCL	0.52	95% Bootstrap-t UCL	0.552					
301					95% Hall's Bootstrap UCL	0.607	95% Percentile Bootstrap UCL	0.519					
302					95% BCA Bootstrap UCL	0.526							
303					90% Chebyshev(Mean, Sd) UCL	0.579	95% Chebyshev(Mean, Sd) UCL	0.635					
304					97.5% Chebyshev(Mean, Sd) UCL	0.712	99% Chebyshev(Mean, Sd) UCL	0.865					
305													
306	**Suggested UCL to Use**												
307					95% Student's-t UCL	0.53							
308													
309	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
310	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												

and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.

For additional insight the user may want to consult a statistician.

Iron (mg/kg ww)

General Statistics

Total Number of Observations	10	Number of Distinct Observations	10
		Number of Missing Observations	0
Minimum	2.2	Mean	5.63
Maximum	16.9	Median	4.6
SD	4.253	Std. Error of Mean	1.345
Coefficient of Variation	0.755	Skewness	2.412

Normal GOF Test

Shapiro Wilk Test Statistic	0.716	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.842	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.283	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.28	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	8.095	95% Adjusted-CLT UCL (Chen-1995)	8.938
		95% Modified-t UCL (Johnson-1978)	8.266

Gamma GOF Test

A-D Test Statistic	0.475	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.732	etected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.19	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.269	etected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.955	k star (bias corrected MLE)	2.135
Theta hat (MLE)	1.905	Theta star (bias corrected MLE)	2.637
nu hat (MLE)	59.1	nu star (bias corrected)	42.7
MLE Mean (bias corrected)	5.63	MLE Sd (bias corrected)	3.853
		Approximate Chi Square Value (0.05)	28.72
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	26.74

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	8.371	95% Adjusted Gamma UCL (use when n<50)	8.99

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.158	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.788	Mean of logged Data	1.549
Maximum of Logged Data	2.827	SD of logged Data	0.589

Assuming Lognormal Distribution

95% H-UCL	8.893	90% Chebyshev (MVUE) UCL	8.639
95% Chebyshev (MVUE) UCL	10.06	97.5% Chebyshev (MVUE) UCL	12.04
99% Chebyshev (MVUE) UCL	15.93		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

373													
374	**Nonparametric Distribution Free UCLs**												
375	95% CLT UCL					7.842	95% Jackknife UCL					8.095	
376	95% Standard Bootstrap UCL					7.693	95% Bootstrap-t UCL					10.84	
377	95% Hall's Bootstrap UCL					17.04	95% Percentile Bootstrap UCL					7.96	
378	95% BCA Bootstrap UCL					9.14							
379	90% Chebyshev(Mean, Sd) UCL					9.664	95% Chebyshev(Mean, Sd) UCL					11.49	
380	97.5% Chebyshev(Mean, Sd) UCL					14.03	99% Chebyshev(Mean, Sd) UCL					19.01	
381													
382	**Suggested UCL to Use**												
383	95% Adjusted Gamma UCL					8.99							
384													
385	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
386	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
387	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
388	For additional insight the user may want to consult a statistician.												
389													
390													
391	**Magnesium (mg/kg ww)**												
392													
393	**General Statistics**												
394	Total Number of Observations					10	Number of Distinct Observations					10	
395							Number of Missing Observations					0	
396	Minimum					235	Mean					249.3	
397	Maximum					271	Median					244.5	
398	SD					11.51	Std. Error of Mean					3.639	
399	Coefficient of Variation					0.0462	Skewness					0.667	
400													
401	**Normal GOF Test**												
402	Shapiro Wilk Test Statistic					0.918	**Shapiro Wilk GOF Test**						
403	5% Shapiro Wilk Critical Value					0.842	Data appear Normal at 5% Significance Level						
404	Lilliefors Test Statistic					0.246	**Lilliefors GOF Test**						
405	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level						
406	**Data appear Normal at 5% Significance Level**												
407													
408	**Assuming Normal Distribution**												
409	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
410	95% Student's-t UCL					256	95% Adjusted-CLT UCL (Chen-1995)					256.1	
411							95% Modified-t UCL (Johnson-1978)					256.1	
412													
413	**Gamma GOF Test**												
414	A-D Test Statistic					0.461	**Anderson-Darling Gamma GOF Test**						
415	5% A-D Critical Value					0.724	etected data appear Gamma Distributed at 5% Significance Lev						
416	K-S Test Statistic					0.25	**Kolmogrov-Smirnoff Gamma GOF Test**						
417	5% K-S Critical Value					0.266	etected data appear Gamma Distributed at 5% Significance Lev						
418	**Detected data appear Gamma Distributed at 5% Significance Level**												
419													
420	**Gamma Statistics**												
421	k hat (MLE)					529.2	k star (bias corrected MLE)					370.5	
422	Theta hat (MLE)					0.471	Theta star (bias corrected MLE)					0.673	
423	nu hat (MLE)					10583	nu star (bias corrected)					7410	
424	MLE Mean (bias corrected)					249.3	MLE Sd (bias corrected)					12.95	
425							Approximate Chi Square Value (0.05)					7210	
426	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					7176	
427													
428	**Assuming Gamma Distribution**												
429	95% Approximate Gamma UCL (use when n>=50))					256.2	95% Adjusted Gamma UCL (use when n<50)					257.4	
430													
431	**Lognormal GOF Test**												
432	Shapiro Wilk Test Statistic					0.923	**Shapiro Wilk Lognormal GOF Test**						
433	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level						
434	Lilliefors Test Statistic					0.241	**Lilliefors Lognormal GOF Test**						

435				5% Lilliefors Critical Value		0.28	Data appear Lognormal at 5% Significance Level						
436	**Data appear Lognormal at 5% Significance Level**												
437													
438	**Lognormal Statistics**												
439				Minimum of Logged Data		5.46				Mean of logged Data		5.518	
440				Maximum of Logged Data		5.602				SD of logged Data		0.0457	
441													
442	**Assuming Lognormal Distribution**												
443				95% H-UCL		N/A				90% Chebyshev (MVUE) UCL		260.1	
444				95% Chebyshev (MVUE) UCL		265				97.5% Chebyshev (MVUE) UCL		271.8	
445				99% Chebyshev (MVUE) UCL		285.1							
446													
447	**Nonparametric Distribution Free UCL Statistics**												
448	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
449													
450	**Nonparametric Distribution Free UCLs**												
451				95% CLT UCL		255.3				95% Jackknife UCL		256	
452				95% Standard Bootstrap UCL		255.2				95% Bootstrap-t UCL		257	
453				95% Hall's Bootstrap UCL		255.7				95% Percentile Bootstrap UCL		255.3	
454				95% BCA Bootstrap UCL		255.5							
455				90% Chebyshev(Mean, Sd) UCL		260.2				95% Chebyshev(Mean, Sd) UCL		265.2	
456				97.5% Chebyshev(Mean, Sd) UCL		272				99% Chebyshev(Mean, Sd) UCL		285.5	
457													
458	**Suggested UCL to Use**												
459				95% Student's-t UCL		256							
460													
461	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
462	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
463	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
464	For additional insight the user may want to consult a statistician.												
465													
466													
467	**Manganese (mg/kg ww)**												
468													
469	**General Statistics**												
470				Total Number of Observations		10				Number of Distinct Observations		10	
471										Number of Missing Observations		0	
472				Minimum		0.092				Mean		0.18	
473				Maximum		0.409				Median		0.15	
474				SD		0.0897				Std. Error of Mean		0.0284	
475				Coefficient of Variation		0.499				Skewness		2.103	
476													
477	**Normal GOF Test**												
478				Shapiro Wilk Test Statistic		0.774	**Shapiro Wilk GOF Test**						
479				5% Shapiro Wilk Critical Value		0.842	Data Not Normal at 5% Significance Level						
480				Lilliefors Test Statistic		0.249	**Lilliefors GOF Test**						
481				5% Lilliefors Critical Value		0.28	Data appear Normal at 5% Significance Level						
482	**Data appear Approximate Normal at 5% Significance Level**												
483													
484	**Assuming Normal Distribution**												
485	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
486				95% Student's-t UCL		0.232				95% Adjusted-CLT UCL (Chen-1995)		0.247	
487										95% Modified-t UCL (Johnson-1978)		0.235	
488													
489	**Gamma GOF Test**												
490				A-D Test Statistic		0.537	**Anderson-Darling Gamma GOF Test**						
491				5% A-D Critical Value		0.729	etected data appear Gamma Distributed at 5% Significance Lev						
492				K-S Test Statistic		0.206	**Kolmogrov-Smirnoff Gamma GOF Test**						
493				5% K-S Critical Value		0.267	etected data appear Gamma Distributed at 5% Significance Lev						
494	**Detected data appear Gamma Distributed at 5% Significance Level**												
495													
496	**Gamma Statistics**												

497					k hat (MLE)	6.004				k star (bias corrected MLE)		4.27	
498					Theta hat (MLE)	0.03				Theta star (bias corrected MLE)		0.0422	
499					nu hat (MLE)	120.1				nu star (bias corrected)		85.39	
500					MLE Mean (bias corrected)	0.18				MLE Sd (bias corrected)		0.0871	
501										Approximate Chi Square Value (0.05)		65.09	
502					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value		62.02	
503													
504					**Assuming Gamma Distribution**								
505	95% Approximate Gamma UCL (use when n>=50))					0.236				95% Adjusted Gamma UCL (use when n<50)		0.248	
506													
507					**Lognormal GOF Test**								
508					Shapiro Wilk Test Statistic	0.926				**Shapiro Wilk Lognormal GOF Test**			
509					5% Shapiro Wilk Critical Value	0.842				Data appear Lognormal at 5% Significance Level			
510					Lilliefors Test Statistic	0.178				**Lilliefors Lognormal GOF Test**			
511					5% Lilliefors Critical Value	0.28				Data appear Lognormal at 5% Significance Level			
512					**Data appear Lognormal at 5% Significance Level**								
513													
514					**Lognormal Statistics**								
515					Minimum of Logged Data	-2.386				Mean of logged Data		-1.8	
516					Maximum of Logged Data	-0.894				SD of logged Data		0.413	
517													
518					**Assuming Lognormal Distribution**								
519					95% H-UCL	0.24				90% Chebyshev (MVUE) UCL		0.249	
520					95% Chebyshev (MVUE) UCL	0.281				97.5% Chebyshev (MVUE) UCL		0.326	
521					99% Chebyshev (MVUE) UCL	0.413							
522													
523					**Nonparametric Distribution Free UCL Statistics**								
524					**Data appear to follow a Discernible Distribution at 5% Significance Level**								
525													
526					**Nonparametric Distribution Free UCLs**								
527					95% CLT UCL	0.227				95% Jackknife UCL		0.232	
528					95% Standard Bootstrap UCL	0.224				95% Bootstrap-t UCL		0.281	
529					95% Hall's Bootstrap UCL	0.428				95% Percentile Bootstrap UCL		0.227	
530					95% BCA Bootstrap UCL	0.244							
531					90% Chebyshev(Mean, Sd) UCL	0.265				95% Chebyshev(Mean, Sd) UCL		0.304	
532					97.5% Chebyshev(Mean, Sd) UCL	0.357				99% Chebyshev(Mean, Sd) UCL		0.462	
533													
534					**Suggested UCL to Use**								
535					95% Student's-t UCL	0.232							
536													
537	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
538	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
539	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
540	For additional insight the user may want to consult a statistician.												
541													
542													
543	**Mercury (mg/kg ww)**												
544													
545					**General Statistics**								
546					Total Number of Observations	10				Number of Distinct Observations		10	
547										Number of Missing Observations		0	
548					Minimum	0.0214				Mean		0.0469	
549					Maximum	0.0745				Median		0.0432	
550					SD	0.0174				Std. Error of Mean		0.00551	
551					Coefficient of Variation	0.372				Skewness		0.355	
552													
553					**Normal GOF Test**								
554					Shapiro Wilk Test Statistic	0.958				**Shapiro Wilk GOF Test**			
555					5% Shapiro Wilk Critical Value	0.842				Data appear Normal at 5% Significance Level			
556					Lilliefors Test Statistic	0.154				**Lilliefors GOF Test**			
557					5% Lilliefors Critical Value	0.28				Data appear Normal at 5% Significance Level			
558					**Data appear Normal at 5% Significance Level**								

559													
560	**Assuming Normal Distribution**												
561	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
562	95% Student's-t UCL				0.0569		95% Adjusted-CLT UCL (Chen-1995)				0.0566		
563							95% Modified-t UCL (Johnson-1978)				0.057		
564													
565	**Gamma GOF Test**												
566	A-D Test Statistic				0.175		**Anderson-Darling Gamma GOF Test**						
567	5% A-D Critical Value				0.727		etected data appear Gamma Distributed at 5% Significance Lev						
568	K-S Test Statistic				0.112		**Kolmogrov-Smirnoff Gamma GOF Test**						
569	5% K-S Critical Value				0.267		etected data appear Gamma Distributed at 5% Significance Lev						
570	**Detected data appear Gamma Distributed at 5% Significance Level**												
571													
572	**Gamma Statistics**												
573	k hat (MLE)				7.757		k star (bias corrected MLE)				5.496		
574	Theta hat (MLE)				0.00604		Theta star (bias corrected MLE)				0.00852		
575	nu hat (MLE)				155.1		nu star (bias corrected)				109.9		
576	MLE Mean (bias corrected)				0.0469		MLE Sd (bias corrected)				0.02		
577							Approximate Chi Square Value (0.05)				86.73		
578	Adjusted Level of Significance				0.0267		Adjusted Chi Square Value				83.15		
579													
580	**Assuming Gamma Distribution**												
581	95% Approximate Gamma UCL (use when n>=50))				0.0594		95% Adjusted Gamma UCL (use when n<50)				0.0619		
582													
583	**Lognormal GOF Test**												
584	Shapiro Wilk Test Statistic				0.97		**Shapiro Wilk Lognormal GOF Test**						
585	5% Shapiro Wilk Critical Value				0.842		Data appear Lognormal at 5% Significance Level						
586	Lilliefors Test Statistic				0.108		**Lilliefors Lognormal GOF Test**						
587	5% Lilliefors Critical Value				0.28		Data appear Lognormal at 5% Significance Level						
588	**Data appear Lognormal at 5% Significance Level**												
589													
590	**Lognormal Statistics**												
591	Minimum of Logged Data				-3.844		Mean of logged Data				-3.127		
592	Maximum of Logged Data				-2.597		SD of logged Data				0.391		
593													
594	**Assuming Lognormal Distribution**												
595	95% H-UCL				0.0621		90% Chebyshev (MVUE) UCL				0.0646		
596	95% Chebyshev (MVUE) UCL				0.0725		97.5% Chebyshev (MVUE) UCL				0.0836		
597	99% Chebyshev (MVUE) UCL				0.105								
598													
599	**Nonparametric Distribution Free UCL Statistics**												
600	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
601													
602	**Nonparametric Distribution Free UCLs**												
603	95% CLT UCL				0.0559		95% Jackknife UCL				0.0569		
604	95% Standard Bootstrap UCL				0.0557		95% Bootstrap-t UCL				0.0585		
605	95% Hall's Bootstrap UCL				0.0573		95% Percentile Bootstrap UCL				0.056		
606	95% BCA Bootstrap UCL				0.0567								
607	90% Chebyshev(Mean, Sd) UCL				0.0634		95% Chebyshev(Mean, Sd) UCL				0.0709		
608	97.5% Chebyshev(Mean, Sd) UCL				0.0812		99% Chebyshev(Mean, Sd) UCL				0.102		
609													
610	**Suggested UCL to Use**												
611	95% Student's-t UCL				0.0569								
612													
613	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
614	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
615	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
616	For additional insight the user may want to consult a statistician.												
617													
618													
619	**Phosphorus (mg/kg ww)**												
620													

621	**General Statistics**												
622					Total Number of Observations	10				Number of Distinct Observations	9		
623										Number of Missing Observations	0		
624					Minimum	1890				Mean	2184		
625					Maximum	2400				Median	2195		
626					SD	137.4				Std. Error of Mean	43.44		
627					Coefficient of Variation	0.0629				Skewness	-0.757		
628													
629	**Normal GOF Test**												
630					Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk GOF Test**						
631					5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level						
632					Lilliefors Test Statistic	0.195	**Lilliefors GOF Test**						
633					5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level						
634	**Data appear Normal at 5% Significance Level**												
635													
636	**Assuming Normal Distribution**												
637	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
638					95% Student's-t UCL	2264				95% Adjusted-CLT UCL (Chen-1995)	2244		
639										95% Modified-t UCL (Johnson-1978)	2262		
640													
641	**Gamma GOF Test**												
642					A-D Test Statistic	0.373	**Anderson-Darling Gamma GOF Test**						
643					5% A-D Critical Value	0.724	etected data appear Gamma Distributed at 5% Significance Lev						
644					K-S Test Statistic	0.193	**Kolmogrov-Smirnoff Gamma GOF Test**						
645					5% K-S Critical Value	0.266	etected data appear Gamma Distributed at 5% Significance Lev						
646	**Detected data appear Gamma Distributed at 5% Significance Level**												
647													
648	**Gamma Statistics**												
649					k hat (MLE)	272.3				k star (bias corrected MLE)	190.7		
650					Theta hat (MLE)	8.02				Theta star (bias corrected MLE)	11.45		
651					nu hat (MLE)	5446				nu star (bias corrected)	3814		
652					MLE Mean (bias corrected)	2184				MLE Sd (bias corrected)	158.2		
653										Approximate Chi Square Value (0.05)	3671		
654					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value	3647		
655													
656	**Assuming Gamma Distribution**												
657	95% Approximate Gamma UCL (use when n>=50))					2269				95% Adjusted Gamma UCL (use when n<50)	2284		
658													
659	**Lognormal GOF Test**												
660					Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk Lognormal GOF Test**						
661					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level						
662					Lilliefors Test Statistic	0.206	**Lilliefors Lognormal GOF Test**						
663					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level						
664	**Data appear Lognormal at 5% Significance Level**												
665													
666	**Lognormal Statistics**												
667					Minimum of Logged Data	7.544				Mean of logged Data	7.687		
668					Maximum of Logged Data	7.783				SD of logged Data	0.0644		
669													
670	**Assuming Lognormal Distribution**												
671					95% H-UCL	N/A				90% Chebyshev (MVUE) UCL	2318		
672					95% Chebyshev (MVUE) UCL	2378				97.5% Chebyshev (MVUE) UCL	2462		
673					99% Chebyshev (MVUE) UCL	2627							
674													
675	**Nonparametric Distribution Free UCL Statistics**												
676	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
677													
678	**Nonparametric Distribution Free UCLs**												
679					95% CLT UCL	2255				95% Jackknife UCL	2264		
680					95% Standard Bootstrap UCL	2251				95% Bootstrap-t UCL	2256		
681					95% Hall's Bootstrap UCL	2256				95% Percentile Bootstrap UCL	2246		
682					95% BCA Bootstrap UCL	2244							

683	90% Chebyshev(Mean, Sd) UCL					2314	95% Chebyshev(Mean, Sd) UCL					2373	
684	97.5% Chebyshev(Mean, Sd) UCL					2455	99% Chebyshev(Mean, Sd) UCL					2616	
685													
686	**Suggested UCL to Use**												
687	95% Student's-t UCL					2264							
688													
689	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
690	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
691	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
692	For additional insight the user may want to consult a statistician.												
693													
694	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**												
695	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**												
696													
697													
698	**Potassium (mg/kg ww)**												
699													
700	**General Statistics**												
701	Total Number of Observations					10	Number of Distinct Observations					10	
702							Number of Missing Observations					0	
703	Minimum					3990	Mean					4128	
704	Maximum					4370	Median					4065	
705	SD					135.5	Std. Error of Mean					42.84	
706	Coefficient of Variation					0.0328	Skewness					0.957	
707													
708	**Normal GOF Test**												
709	Shapiro Wilk Test Statistic					0.847	**Shapiro Wilk GOF Test**						
710	5% Shapiro Wilk Critical Value					0.842	Data appear Normal at 5% Significance Level						
711	Lilliefors Test Statistic					0.266	**Lilliefors GOF Test**						
712	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level						
713	**Data appear Normal at 5% Significance Level**												
714													
715	**Assuming Normal Distribution**												
716	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
717	95% Student's-t UCL					4207	95% Adjusted-CLT UCL (Chen-1995)					4212	
718							95% Modified-t UCL (Johnson-1978)					4209	
719													
720	**Gamma GOF Test**												
721	A-D Test Statistic					0.759	**Anderson-Darling Gamma GOF Test**						
722	5% A-D Critical Value					0.724	Data Not Gamma Distributed at 5% Significance Level						
723	K-S Test Statistic					0.273	**Kolmogrov-Smirnoff Gamma GOF Test**						
724	5% K-S Critical Value					0.266	Data Not Gamma Distributed at 5% Significance Level						
725	**Data Not Gamma Distributed at 5% Significance Level**												
726													
727	**Gamma Statistics**												
728	k hat (MLE)					1048	k star (bias corrected MLE)					734	
729	Theta hat (MLE)					3.937	Theta star (bias corrected MLE)					5.624	
730	nu hat (MLE)					20969	nu star (bias corrected)					14680	
731	MLE Mean (bias corrected)					4128	MLE Sd (bias corrected)					152.4	
732							Approximate Chi Square Value (0.05)					14399	
733	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					14350	
734													
735	**Assuming Gamma Distribution**												
736	95% Approximate Gamma UCL (use when n>=50))					4208	95% Adjusted Gamma UCL (use when n<50)					4223	
737													
738	**Lognormal GOF Test**												
739	Shapiro Wilk Test Statistic					0.851	**Shapiro Wilk Lognormal GOF Test**						
740	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level						
741	Lilliefors Test Statistic					0.263	**Lilliefors Lognormal GOF Test**						
742	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level						
743	**Data appear Lognormal at 5% Significance Level**												
744													

745	**Lognormal Statistics**												
746					Minimum of Logged Data	8.292				Mean of logged Data		8.325	
747					Maximum of Logged Data	8.383				SD of logged Data		0.0324	
748													
749	**Assuming Lognormal Distribution**												
750					95% H-UCL	N/A				90% Chebyshev (MVUE) UCL		4255	
751					95% Chebyshev (MVUE) UCL	4313				97.5% Chebyshev (MVUE) UCL		4392	
752					99% Chebyshev (MVUE) UCL	4549							
753													
754	**Nonparametric Distribution Free UCL Statistics**												
755	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
756													
757	**Nonparametric Distribution Free UCLs**												
758					95% CLT UCL	4198				95% Jackknife UCL		4207	
759					95% Standard Bootstrap UCL	4196				95% Bootstrap-t UCL		4227	
760					95% Hall's Bootstrap UCL	4201				95% Percentile Bootstrap UCL		4196	
761					95% BCA Bootstrap UCL	4205							
762					90% Chebyshev(Mean, Sd) UCL	4257				95% Chebyshev(Mean, Sd) UCL		4315	
763					97.5% Chebyshev(Mean, Sd) UCL	4396				99% Chebyshev(Mean, Sd) UCL		4554	
764													
765	**Suggested UCL to Use**												
766					95% Student's-t UCL	4207							
767													
768	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
769	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
770	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
771	For additional insight the user may want to consult a statistician.												
772													
773													
774	**Rubidium (mg/kg ww)**												
775													
776	**General Statistics**												
777					Total Number of Observations	10				Number of Distinct Observations		9	
778										Number of Missing Observations		0	
779					Minimum	0.252				Mean		0.444	
780					Maximum	0.535				Median		0.486	
781					SD	0.105				Std. Error of Mean		0.0331	
782					Coefficient of Variation	0.235				Skewness		-1.457	
783													
784	**Normal GOF Test**												
785					Shapiro Wilk Test Statistic	0.739				**Shapiro Wilk GOF Test**			
786					5% Shapiro Wilk Critical Value	0.842				Data Not Normal at 5% Significance Level			
787					Lilliefors Test Statistic	0.334				**Lilliefors GOF Test**			
788					5% Lilliefors Critical Value	0.28				Data Not Normal at 5% Significance Level			
789	**Data Not Normal at 5% Significance Level**												
790													
791	**Assuming Normal Distribution**												
792					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**			
793					95% Student's-t UCL	0.505				95% Adjusted-CLT UCL (Chen-1995)		0.482	
794										95% Modified-t UCL (Johnson-1978)		0.502	
795													
796	**Gamma GOF Test**												
797					A-D Test Statistic	1.444				**Anderson-Darling Gamma GOF Test**			
798					5% A-D Critical Value	0.725				Data Not Gamma Distributed at 5% Significance Level			
799					K-S Test Statistic	0.353				**Kolmogrov-Smirnoff Gamma GOF Test**			
800					5% K-S Critical Value	0.266				Data Not Gamma Distributed at 5% Significance Level			
801	**Data Not Gamma Distributed at 5% Significance Level**												
802													
803	**Gamma Statistics**												
804					k hat (MLE)	15.71				k star (bias corrected MLE)		11.06	
805					Theta hat (MLE)	0.0283				Theta star (bias corrected MLE)		0.0402	
806					nu hat (MLE)	314.2				nu star (bias corrected)		221.3	

807				MLE Mean (bias corrected)		0.444				MLE Sd (bias corrected)		0.134	
808										Approximate Chi Square Value (0.05)		187.8	
809				Adjusted Level of Significance		0.0267				Adjusted Chi Square Value		182.5	
810													
811	**Assuming Gamma Distribution**												
812	95% Approximate Gamma UCL (use when n>=50))					0.523	95% Adjusted Gamma UCL (use when n<50)					0.539	
813													
814	**Lognormal GOF Test**												
815				Shapiro Wilk Test Statistic		0.69	**Shapiro Wilk Lognormal GOF Test**						
816				5% Shapiro Wilk Critical Value		0.842	Data Not Lognormal at 5% Significance Level						
817				Lilliefors Test Statistic		0.35	**Lilliefors Lognormal GOF Test**						
818				5% Lilliefors Critical Value		0.28	Data Not Lognormal at 5% Significance Level						
819	**Data Not Lognormal at 5% Significance Level**												
820													
821	**Lognormal Statistics**												
822				Minimum of Logged Data		-1.378	Mean of logged Data					-0.843	
823				Maximum of Logged Data		-0.625	SD of logged Data					0.285	
824													
825	**Assuming Lognormal Distribution**												
826				95% H-UCL		0.54	90% Chebyshev (MVUE) UCL					0.567	
827				95% Chebyshev (MVUE) UCL		0.622	97.5% Chebyshev (MVUE) UCL					0.699	
828				99% Chebyshev (MVUE) UCL		0.848							
829													
830	**Nonparametric Distribution Free UCL Statistics**												
831	**Data do not follow a Discernible Distribution (0.05)**												
832													
833	**Nonparametric Distribution Free UCLs**												
834				95% CLT UCL		0.499	95% Jackknife UCL					0.505	
835				95% Standard Bootstrap UCL		0.496	95% Bootstrap-t UCL					0.49	
836				95% Hall's Bootstrap UCL		0.484	95% Percentile Bootstrap UCL					0.494	
837				95% BCA Bootstrap UCL		0.487							
838				90% Chebyshev(Mean, Sd) UCL		0.544	95% Chebyshev(Mean, Sd) UCL					0.588	
839				97.5% Chebyshev(Mean, Sd) UCL		0.651	99% Chebyshev(Mean, Sd) UCL					0.773	
840													
841	**Suggested UCL to Use**												
842				95% Student's-t UCL		0.505	or 95% Modified-t UCL					0.502	
843													
844	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
845	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
846	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
847	For additional insight the user may want to consult a statistician.												
848													
849	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**												
850	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**												
851													
852													
853	**Selenium (mg/kg ww)**												
854													
855	**General Statistics**												
856				Total Number of Observations		10	Number of Distinct Observations					10	
857							Number of Missing Observations					0	
858				Minimum		0.126	Mean					0.694	
859				Maximum		1.38	Median					0.658	
860				SD		0.419	Std. Error of Mean					0.132	
861				Coefficient of Variation		0.603	Skewness					0.274	
862													
863	**Normal GOF Test**												
864				Shapiro Wilk Test Statistic		0.951	**Shapiro Wilk GOF Test**						
865				5% Shapiro Wilk Critical Value		0.842	Data appear Normal at 5% Significance Level						
866				Lilliefors Test Statistic		0.161	**Lilliefors GOF Test**						
867				5% Lilliefors Critical Value		0.28	Data appear Normal at 5% Significance Level						
868	**Data appear Normal at 5% Significance Level**												

869													
870	**Assuming Normal Distribution**												
871	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
872	95% Student's-t UCL					0.937	95% Adjusted-CLT UCL (Chen-1995)					0.924	
873							95% Modified-t UCL (Johnson-1978)					0.939	
874													
875	**Gamma GOF Test**												
876	A-D Test Statistic					0.342	**Anderson-Darling Gamma GOF Test**						
877	5% A-D Critical Value					0.735	etected data appear Gamma Distributed at 5% Significance Lev						
878	K-S Test Statistic					0.154	**Kolmogrov-Smirnoff Gamma GOF Test**						
879	5% K-S Critical Value					0.269	etected data appear Gamma Distributed at 5% Significance Lev						
880	**Detected data appear Gamma Distributed at 5% Significance Level**												
881													
882	**Gamma Statistics**												
883	k hat (MLE)					2.302	k star (bias corrected MLE)					1.678	
884	Theta hat (MLE)					0.302	Theta star (bias corrected MLE)					0.414	
885	nu hat (MLE)					46.03	nu star (bias corrected)					33.55	
886	MLE Mean (bias corrected)					0.694	MLE Sd (bias corrected)					0.536	
887							Approximate Chi Square Value (0.05)					21.31	
888	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					19.63	
889													
890	**Assuming Gamma Distribution**												
891	95% Approximate Gamma UCL (use when n>=50))					1.093	95% Adjusted Gamma UCL (use when n<50)					1.187	
892													
893	**Lognormal GOF Test**												
894	Shapiro Wilk Test Statistic					0.887	**Shapiro Wilk Lognormal GOF Test**						
895	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level						
896	Lilliefors Test Statistic					0.206	**Lilliefors Lognormal GOF Test**						
897	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level						
898	**Data appear Lognormal at 5% Significance Level**												
899													
900	**Lognormal Statistics**												
901	Minimum of Logged Data					-2.071	Mean of logged Data					-0.598	
902	Maximum of Logged Data					0.322	SD of logged Data					0.806	
903													
904	**Assuming Lognormal Distribution**												
905	95% H-UCL					1.583	90% Chebyshev (MVUE) UCL					1.313	
906	95% Chebyshev (MVUE) UCL					1.576	97.5% Chebyshev (MVUE) UCL					1.941	
907	99% Chebyshev (MVUE) UCL					2.658							
908													
909	**Nonparametric Distribution Free UCL Statistics**												
910	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
911													
912	**Nonparametric Distribution Free UCLs**												
913	95% CLT UCL					0.912	95% Jackknife UCL					0.937	
914	95% Standard Bootstrap UCL					0.899	95% Bootstrap-t UCL					0.965	
915	95% Hall's Bootstrap UCL					0.923	95% Percentile Bootstrap UCL					0.905	
916	95% BCA Bootstrap UCL					0.925							
917	90% Chebyshev(Mean, Sd) UCL					1.092	95% Chebyshev(Mean, Sd) UCL					1.272	
918	97.5% Chebyshev(Mean, Sd) UCL					1.521	99% Chebyshev(Mean, Sd) UCL					2.012	
919													
920	**Suggested UCL to Use**												
921	95% Student's-t UCL					0.937							
922													
923	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
924	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
925	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
926	For additional insight the user may want to consult a statistician.												
927													
928													
929	**Sodium (mg/kg ww)**												
930													

931	**General Statistics**												
932				Total Number of Observations		10			Number of Distinct Observations			10	
933									Number of Missing Observations			0	
934				Minimum		407			Mean			577.7	
935				Maximum		693			Median			592.5	
936				SD		95.43			Std. Error of Mean			30.18	
937				Coefficient of Variation		0.165			Skewness			-0.904	
938													
939	**Normal GOF Test**												
940				Shapiro Wilk Test Statistic		0.897	**Shapiro Wilk GOF Test**						
941				5% Shapiro Wilk Critical Value		0.842	Data appear Normal at 5% Significance Level						
942				Lilliefors Test Statistic		0.202	**Lilliefors GOF Test**						
943				5% Lilliefors Critical Value		0.28	Data appear Normal at 5% Significance Level						
944	**Data appear Normal at 5% Significance Level**												
945													
946	**Assuming Normal Distribution**												
947	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
948				95% Student's-t UCL		633			95% Adjusted-CLT UCL (Chen-1995)			618.1	
949									95% Modified-t UCL (Johnson-1978)			631.6	
950													
951	**Gamma GOF Test**												
952				A-D Test Statistic		0.608	**Anderson-Darling Gamma GOF Test**						
953				5% A-D Critical Value		0.724	etected data appear Gamma Distributed at 5% Significance Lev						
954				K-S Test Statistic		0.222	**Kolmogrov-Smirnoff Gamma GOF Test**						
955				5% K-S Critical Value		0.266	etected data appear Gamma Distributed at 5% Significance Lev						
956	**Detected data appear Gamma Distributed at 5% Significance Level**												
957													
958	**Gamma Statistics**												
959				k hat (MLE)		36.64	k star (bias corrected MLE)					25.71	
960				Theta hat (MLE)		15.77	Theta star (bias corrected MLE)					22.47	
961				nu hat (MLE)		732.7	nu star (bias corrected)					514.3	
962				MLE Mean (bias corrected)		577.7	MLE Sd (bias corrected)					113.9	
963							Approximate Chi Square Value (0.05)					462.7	
964				Adjusted Level of Significance		0.0267	Adjusted Chi Square Value					454.1	
965													
966	**Assuming Gamma Distribution**												
967	95% Approximate Gamma UCL (use when n>=50))					642.1	95% Adjusted Gamma UCL (use when n<50)					654.2	
968													
969	**Lognormal GOF Test**												
970				Shapiro Wilk Test Statistic		0.858	**Shapiro Wilk Lognormal GOF Test**						
971				5% Shapiro Wilk Critical Value		0.842	Data appear Lognormal at 5% Significance Level						
972				Lilliefors Test Statistic		0.238	**Lilliefors Lognormal GOF Test**						
973				5% Lilliefors Critical Value		0.28	Data appear Lognormal at 5% Significance Level						
974	**Data appear Lognormal at 5% Significance Level**												
975													
976	**Lognormal Statistics**												
977				Minimum of Logged Data		6.009	Mean of logged Data					6.345	
978				Maximum of Logged Data		6.541	SD of logged Data					0.18	
979													
980	**Assuming Lognormal Distribution**												
981				95% H-UCL		647.4	90% Chebyshev (MVUE) UCL					676.9	
982				95% Chebyshev (MVUE) UCL		721.6	97.5% Chebyshev (MVUE) UCL					783.7	
983				99% Chebyshev (MVUE) UCL		905.6							
984													
985	**Nonparametric Distribution Free UCL Statistics**												
986	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
987													
988	**Nonparametric Distribution Free UCLs**												
989				95% CLT UCL		627.3	95% Jackknife UCL					633	
990				95% Standard Bootstrap UCL		624.2	95% Bootstrap-t UCL					624.9	
991				95% Hall's Bootstrap UCL		618.9	95% Percentile Bootstrap UCL					623.9	
992				95% BCA Bootstrap UCL		617.3							

993	90% Chebyshev(Mean, Sd) UCL					668.2	95% Chebyshev(Mean, Sd) UCL					709.2	
994	97.5% Chebyshev(Mean, Sd) UCL					766.2	99% Chebyshev(Mean, Sd) UCL					878	
995													
996	**Suggested UCL to Use**												
997	95% Student's-t UCL					633							
998													
999	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1000	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1001	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1002	For additional insight the user may want to consult a statistician.												
1003													
1004	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**												
1005	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**												
1006													
1007													
1008	**Strontium (mg/kg ww)**												
1009													
1010	**General Statistics**												
1011	Total Number of Observations					10	Number of Distinct Observations					10	
1012							Number of Missing Observations					0	
1013	Minimum					0.273	Mean					0.709	
1014	Maximum					1.73	Median					0.482	
1015	SD					0.518	Std. Error of Mean					0.164	
1016	Coefficient of Variation					0.731	Skewness					1.428	
1017													
1018	**Normal GOF Test**												
1019	Shapiro Wilk Test Statistic					0.767	**Shapiro Wilk GOF Test**						
1020	5% Shapiro Wilk Critical Value					0.842	Data Not Normal at 5% Significance Level						
1021	Lilliefors Test Statistic					0.281	**Lilliefors GOF Test**						
1022	5% Lilliefors Critical Value					0.28	Data Not Normal at 5% Significance Level						
1023	**Data Not Normal at 5% Significance Level**												
1024													
1025	**Assuming Normal Distribution**												
1026	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**						
1027	95% Student's-t UCL					1.01	95% Adjusted-CLT UCL (Chen-1995)					1.058	
1028							95% Modified-t UCL (Johnson-1978)					1.022	
1029													
1030	**Gamma GOF Test**												
1031	A-D Test Statistic					0.715	**Anderson-Darling Gamma GOF Test**						
1032	5% A-D Critical Value					0.733	etected data appear Gamma Distributed at 5% Significance Lev						
1033	K-S Test Statistic					0.236	**Kolmogrov-Smirnoff Gamma GOF Test**						
1034	5% K-S Critical Value					0.269	etected data appear Gamma Distributed at 5% Significance Lev						
1035	**Detected data appear Gamma Distributed at 5% Significance Level**												
1036													
1037	**Gamma Statistics**												
1038	k hat (MLE)					2.686	k star (bias corrected MLE)					1.947	
1039	Theta hat (MLE)					0.264	Theta star (bias corrected MLE)					0.364	
1040	nu hat (MLE)					53.72	nu star (bias corrected)					38.93	
1041	MLE Mean (bias corrected)					0.709	MLE Sd (bias corrected)					0.508	
1042							Approximate Chi Square Value (0.05)					25.64	
1043	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					23.78	
1044													
1045	**Assuming Gamma Distribution**												
1046	95% Approximate Gamma UCL (use when n>=50)					1.077	95% Adjusted Gamma UCL (use when n<50)					1.161	
1047													
1048	**Lognormal GOF Test**												
1049	Shapiro Wilk Test Statistic					0.89	**Shapiro Wilk Lognormal GOF Test**						
1050	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level						
1051	Lilliefors Test Statistic					0.219	**Lilliefors Lognormal GOF Test**						
1052	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level						
1053	**Data appear Lognormal at 5% Significance Level**												
1054													

1055	**Lognormal Statistics**												
1056					Minimum of Logged Data	-1.298				Mean of logged Data	-0.541		
1057					Maximum of Logged Data	0.548				SD of logged Data	0.631		
1058													
1059	**Assuming Lognormal Distribution**												
1060					95% H-UCL	1.181				90% Chebyshev (MVUE) UCL	1.121		
1061					95% Chebyshev (MVUE) UCL	1.314				97.5% Chebyshev (MVUE) UCL	1.582		
1062					99% Chebyshev (MVUE) UCL	2.109							
1063													
1064	**Nonparametric Distribution Free UCL Statistics**												
1065	**Data appear to follow a Discernible Distribution at 5% Significance Level**												
1066													
1067	**Nonparametric Distribution Free UCLs**												
1068					95% CLT UCL	0.979				95% Jackknife UCL	1.01		
1069					95% Standard Bootstrap UCL	0.964				95% Bootstrap-t UCL	1.455		
1070					95% Hall's Bootstrap UCL	2.304				95% Percentile Bootstrap UCL	0.981		
1071					95% BCA Bootstrap UCL	1.046							
1072					90% Chebyshev(Mean, Sd) UCL	1.201				95% Chebyshev(Mean, Sd) UCL	1.424		
1073					97.5% Chebyshev(Mean, Sd) UCL	1.733				99% Chebyshev(Mean, Sd) UCL	2.34		
1074													
1075	**Suggested UCL to Use**												
1076					95% Adjusted Gamma UCL	1.161							
1077													
1078	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1079	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1080	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1081	For additional insight the user may want to consult a statistician.												
1082													
1083													
1084	**Zinc (mg/kg ww)**												
1085													
1086	**General Statistics**												
1087					Total Number of Observations	10				Number of Distinct Observations	10		
1088										Number of Missing Observations	0		
1089					Minimum	4.12				Mean	6.034		
1090					Maximum	8.57				Median	5.635		
1091					SD	1.637				Std. Error of Mean	0.518		
1092					Coefficient of Variation	0.271				Skewness	0.408		
1093													
1094	**Normal GOF Test**												
1095					Shapiro Wilk Test Statistic	0.907				**Shapiro Wilk GOF Test**			
1096					5% Shapiro Wilk Critical Value	0.842				Data appear Normal at 5% Significance Level			
1097					Lilliefors Test Statistic	0.185				**Lilliefors GOF Test**			
1098					5% Lilliefors Critical Value	0.28				Data appear Normal at 5% Significance Level			
1099	**Data appear Normal at 5% Significance Level**												
1100													
1101	**Assuming Normal Distribution**												
1102					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**			
1103					95% Student's-t UCL	6.983				95% Adjusted-CLT UCL (Chen-1995)	6.957		
1104										95% Modified-t UCL (Johnson-1978)	6.994		
1105													
1106	**Gamma GOF Test**												
1107					A-D Test Statistic	0.403				**Anderson-Darling Gamma GOF Test**			
1108					5% A-D Critical Value	0.725				etected data appear Gamma Distributed at 5% Significance Lev			
1109					K-S Test Statistic	0.195				**Kolmogrov-Smirnoff Gamma GOF Test**			
1110					5% K-S Critical Value	0.266				etected data appear Gamma Distributed at 5% Significance Lev			
1111	**Detected data appear Gamma Distributed at 5% Significance Level**												
1112													
1113	**Gamma Statistics**												
1114					k hat (MLE)	15.41				k star (bias corrected MLE)	10.85		
1115					Theta hat (MLE)	0.392				Theta star (bias corrected MLE)	0.556		
1116					nu hat (MLE)	308.1				nu star (bias corrected)	217		

1117					MLE Mean (bias corrected)	6.034					MLE Sd (bias corrected)	1.832	
1118											Approximate Chi Square Value (0.05)	183.9	
1119					Adjusted Level of Significance	0.0267					Adjusted Chi Square Value	178.6	
1120													
1121					**Assuming Gamma Distribution**								
1122					95% Approximate Gamma UCL (use when n>=50))	7.12					95% Adjusted Gamma UCL (use when n<50)	7.331	
1123													
1124					**Lognormal GOF Test**								
1125					Shapiro Wilk Test Statistic	0.92					**Shapiro Wilk Lognormal GOF Test**		
1126					5% Shapiro Wilk Critical Value	0.842					Data appear Lognormal at 5% Significance Level		
1127					Lilliefors Test Statistic	0.181					**Lilliefors Lognormal GOF Test**		
1128					5% Lilliefors Critical Value	0.28					Data appear Lognormal at 5% Significance Level		
1129					**Data appear Lognormal at 5% Significance Level**								
1130													
1131					**Lognormal Statistics**								
1132					Minimum of Logged Data	1.416					Mean of logged Data	1.765	
1133					Maximum of Logged Data	2.148					SD of logged Data	0.269	
1134													
1135					**Assuming Lognormal Distribution**								
1136					95% H-UCL	7.21					90% Chebyshev (MVUE) UCL	7.582	
1137					95% Chebyshev (MVUE) UCL	8.284					97.5% Chebyshev (MVUE) UCL	9.259	
1138					99% Chebyshev (MVUE) UCL	11.17							
1139													
1140					**Nonparametric Distribution Free UCL Statistics**								
1141					**Data appear to follow a Discernible Distribution at 5% Significance Level**								
1142													
1143					**Nonparametric Distribution Free UCLs**								
1144					95% CLT UCL	6.886					95% Jackknife UCL	6.983	
1145					95% Standard Bootstrap UCL	6.856					95% Bootstrap-t UCL	7.114	
1146					95% Hall's Bootstrap UCL	6.757					95% Percentile Bootstrap UCL	6.847	
1147					95% BCA Bootstrap UCL	6.932							
1148					90% Chebyshev(Mean, Sd) UCL	7.587					95% Chebyshev(Mean, Sd) UCL	8.291	
1149					97.5% Chebyshev(Mean, Sd) UCL	9.267					99% Chebyshev(Mean, Sd) UCL	11.19	
1150													
1151					**Suggested UCL to Use**								
1152					95% Student's-t UCL	6.983							
1153													
1154	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1155	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1156	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1157	For additional insight the user may want to consult a statistician.												
1158													
1159													
1160	**Methyl Mercury (mg/kg ww)**												
1161													
1162					**General Statistics**								
1163					Total Number of Observations	10					Number of Distinct Observations	10	
1164											Number of Missing Observations	0	
1165					Minimum	0.0149					Mean	0.03	
1166					Maximum	0.0642					Median	0.0241	
1167					SD	0.0159					Std. Error of Mean	0.00502	
1168					Coefficient of Variation	0.53					Skewness	1.393	
1169													
1170					**Normal GOF Test**								
1171					Shapiro Wilk Test Statistic	0.839					**Shapiro Wilk GOF Test**		
1172					5% Shapiro Wilk Critical Value	0.842					Data Not Normal at 5% Significance Level		
1173					Lilliefors Test Statistic	0.239					**Lilliefors GOF Test**		
1174					5% Lilliefors Critical Value	0.28					Data appear Normal at 5% Significance Level		
1175					**Data appear Approximate Normal at 5% Significance Level**								
1176													
1177					**Assuming Normal Distribution**								
1178					**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**		

1179				95% Student's-t UCL	0.0392			95% Adjusted-CLT UCL (Chen-1995)				0.0406	
1180								95% Modified-t UCL (Johnson-1978)				0.0395	
1181													
1182					**Gamma GOF Test**								
1183				A-D Test Statistic	0.459			**Anderson-Darling Gamma GOF Test**					
1184				5% A-D Critical Value	0.729			etected data appear Gamma Distributed at 5% Significance Lev					
1185				K-S Test Statistic	0.214			**Kolmogrov-Smirnoff Gamma GOF Test**					
1186				5% K-S Critical Value	0.268			etected data appear Gamma Distributed at 5% Significance Lev					
1187				**Detected data appear Gamma Distributed at 5% Significance Level**									
1188													
1189					**Gamma Statistics**								
1190				k hat (MLE)	4.814			k star (bias corrected MLE)				3.437	
1191				Theta hat (MLE)	0.00622			Theta star (bias corrected MLE)				0.00872	
1192				nu hat (MLE)	96.28			nu star (bias corrected)				68.73	
1193				MLE Mean (bias corrected)	0.03			MLE Sd (bias corrected)				0.0162	
1194								Approximate Chi Square Value (0.05)				50.65	
1195				Adjusted Level of Significance	0.0267			Adjusted Chi Square Value				47.96	
1196													
1197					**Assuming Gamma Distribution**								
1198	95% Approximate Gamma UCL (use when n>=50))				0.0407			95% Adjusted Gamma UCL (use when n<50)				0.0429	
1199													
1200					**Lognormal GOF Test**								
1201				Shapiro Wilk Test Statistic	0.932			**Shapiro Wilk Lognormal GOF Test**					
1202				5% Shapiro Wilk Critical Value	0.842			Data appear Lognormal at 5% Significance Level					
1203				Lilliefors Test Statistic	0.186			**Lilliefors Lognormal GOF Test**					
1204				5% Lilliefors Critical Value	0.28			Data appear Lognormal at 5% Significance Level					
1205				**Data appear Lognormal at 5% Significance Level**									
1206													
1207					**Lognormal Statistics**								
1208				Minimum of Logged Data	-4.206			Mean of logged Data				-3.615	
1209				Maximum of Logged Data	-2.746			SD of logged Data				0.471	
1210													
1211					**Assuming Lognormal Distribution**								
1212				95% H-UCL	0.0424			90% Chebyshev (MVUE) UCL				0.0432	
1213				95% Chebyshev (MVUE) UCL	0.0493			97.5% Chebyshev (MVUE) UCL				0.0578	
1214				99% Chebyshev (MVUE) UCL	0.0745								
1215													
1216					**Nonparametric Distribution Free UCL Statistics**								
1217				**Data appear to follow a Discernible Distribution at 5% Significance Level**									
1218													
1219					**Nonparametric Distribution Free UCLs**								
1220				95% CLT UCL	0.0382			95% Jackknife UCL				0.0392	
1221				95% Standard Bootstrap UCL	0.0379			95% Bootstrap-t UCL				0.0482	
1222				95% Hall's Bootstrap UCL	0.0797			95% Percentile Bootstrap UCL				0.0387	
1223				95% BCA Bootstrap UCL	0.0402								
1224				90% Chebyshev(Mean, Sd) UCL	0.045			95% Chebyshev(Mean, Sd) UCL				0.0518	
1225				97.5% Chebyshev(Mean, Sd) UCL	0.0613			99% Chebyshev(Mean, Sd) UCL				0.0799	
1226													
1227					**Suggested UCL to Use**								
1228				95% Student's-t UCL	0.0392								
1229													
1230	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
1231	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)												
1232	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.												
1233	For additional insight the user may want to consult a statistician.												
1234													

ProUCL Output for Small Mammal

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	8/27/2015 8:24:40 PM
From File	Baseline Small Mammal Wet Weight ProUCL data only_for use in Proucl.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum (Al)_Total

General Statistics

Total Number of Observations	10	Number of Distinct Observations	10
		Number of Missing Observations	0
Minimum	25	Mean	179.3
Maximum	520	Median	134.5
SD	149.1	Std. Error of Mean	47.14
Coefficient of Variation	0.831	Skewness	1.418

Normal GOF Test

Shapiro Wilk Test Statistic	0.873	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.177	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	265.7	95% Adjusted-CLT UCL (Chen-1995)	279.4
		95% Modified-t UCL (Johnson-1978)	269.2

Gamma GOF Test

A-D Test Statistic	0.17	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.738	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.136	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.271	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.687	k star (bias corrected MLE)	1.248
Theta hat (MLE)	106.3	Theta star (bias corrected MLE)	143.7
nu hat (MLE)	33.75	nu star (bias corrected)	24.96
MLE Mean (bias corrected)	179.3	MLE Sd (bias corrected)	160.5
		Approximate Chi Square Value (0.05)	14.58
Adjusted Level of Significance	0.0267	Adjusted Chi Square Value	13.22

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	306.9	95% Adjusted Gamma UCL (use when n<50)	338.5

51	**Lognormal GOF Test**											
52					Shapiro Wilk Test Statistic	0.983	**Shapiro Wilk Lognormal GOF Test**					
53					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
54					Lilliefors Test Statistic	0.121	**Lilliefors Lognormal GOF Test**					
55					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level					
56	**Data appear Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59					Minimum of Logged Data	3.219	Mean of logged Data	4.864				
60					Maximum of Logged Data	6.254	SD of logged Data	0.894				
61												
62	**Assuming Lognormal Distribution**											
63					95% H-UCL	456.9	90% Chebyshev (MVUE) UCL	346				
64					95% Chebyshev (MVUE) UCL	419.5	97.5% Chebyshev (MVUE) UCL	521.6				
65					99% Chebyshev (MVUE) UCL	722.1						
66												
67	**Nonparametric Distribution Free UCL Statistics**											
68	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
69												
70	**Nonparametric Distribution Free UCLs**											
71					95% CLT UCL	256.8	95% Jackknife UCL	265.7				
72					95% Standard Bootstrap UCL	253.3	95% Bootstrap-t UCL	306.5				
73					95% Hall's Bootstrap UCL	349.2	95% Percentile Bootstrap UCL	256.8				
74					95% BCA Bootstrap UCL	276.4						
75					90% Chebyshev(Mean, Sd) UCL	320.7	95% Chebyshev(Mean, Sd) UCL	384.8				
76					97.5% Chebyshev(Mean, Sd) UCL	473.7	99% Chebyshev(Mean, Sd) UCL	648.3				
77												
78	**Suggested UCL to Use**											
79					95% Student's-t UCL	265.7						
80												
81	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
82	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
83	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
84	For additional insight the user may want to consult a statistician.											
85												
86												
87	**Arsenic (As)_Total**											
88												
89	**General Statistics**											
90					Total Number of Observations	10	Number of Distinct Observations	10				
91							Number of Missing Observations	0				
92					Minimum	0.0093	Mean	0.0183				
93					Maximum	0.0345	Median	0.0151				
94					SD	0.00851	Std. Error of Mean	0.00269				
95					Coefficient of Variation	0.464	Skewness	1.07				
96												
97	**Normal GOF Test**											
98					Shapiro Wilk Test Statistic	0.862	**Shapiro Wilk GOF Test**					
99					5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level					
100					Lilliefors Test Statistic	0.244	**Lilliefors GOF Test**					

101	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level					
102	**Data appear Normal at 5% Significance Level**											
103												
104	**Assuming Normal Distribution**											
105	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
106	95% Student's-t UCL					0.0233	95% Adjusted-CLT UCL (Chen-1995)					0.0237
107							95% Modified-t UCL (Johnson-1978)					0.0234
108												
109	**Gamma GOF Test**											
110	A-D Test Statistic					0.44	**Anderson-Darling Gamma GOF Test**					
111	5% A-D Critical Value					0.729	Detected data appear Gamma Distributed at 5% Significance Level					
112	K-S Test Statistic					0.216	**Kolmogrov-Smirnoff Gamma GOF Test**					
113	5% K-S Critical Value					0.267	Detected data appear Gamma Distributed at 5% Significance Level					
114	**Detected data appear Gamma Distributed at 5% Significance Level**											
115												
116	**Gamma Statistics**											
117	k hat (MLE)					5.765	k star (bias corrected MLE)					4.102
118	Theta hat (MLE)					0.00318	Theta star (bias corrected MLE)					0.00447
119	nu hat (MLE)					115.3	nu star (bias corrected)					82.04
120	MLE Mean (bias corrected)					0.0183	MLE Sd (bias corrected)					0.00906
121							Approximate Chi Square Value (0.05)					62.17
122	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					59.17
123												
124	**Assuming Gamma Distribution**											
125	95% Approximate Gamma UCL (use when n>=50))					0.0242	95% Adjusted Gamma UCL (use when n<50)					0.0254
126												
127	**Lognormal GOF Test**											
128	Shapiro Wilk Test Statistic					0.927	**Shapiro Wilk Lognormal GOF Test**					
129	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
130	Lilliefors Test Statistic					0.189	**Lilliefors Lognormal GOF Test**					
131	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
132	**Data appear Lognormal at 5% Significance Level**											
133												
134	**Lognormal Statistics**											
135	Minimum of Logged Data					-4.678	Mean of logged Data					-4.088
136	Maximum of Logged Data					-3.367	SD of logged Data					0.439
137												
138	**Assuming Lognormal Distribution**											
139	95% H-UCL					0.0253	90% Chebyshev (MVUE) UCL					0.026
140	95% Chebyshev (MVUE) UCL					0.0295	97.5% Chebyshev (MVUE) UCL					0.0344
141	99% Chebyshev (MVUE) UCL					0.0439						
142												
143	**Nonparametric Distribution Free UCL Statistics**											
144	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
145												
146	**Nonparametric Distribution Free UCLs**											
147	95% CLT UCL					0.0228	95% Jackknife UCL					0.0233
148	95% Standard Bootstrap UCL					0.0226	95% Bootstrap-t UCL					0.0272
149	95% Hall's Bootstrap UCL					0.0321	95% Percentile Bootstrap UCL					0.0229
150	95% BCA Bootstrap UCL					0.0235						

151	90% Chebyshev(Mean, Sd) UCL					0.0264	95% Chebyshev(Mean, Sd) UCL					0.0301
152	97.5% Chebyshev(Mean, Sd) UCL					0.0352	99% Chebyshev(Mean, Sd) UCL					0.0451
153												
154	**Suggested UCL to Use**											
155	95% Student's-t UCL					0.0233						
156												
157	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
158	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
159	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
160	For additional insight the user may want to consult a statistician.											
161												
162												
163	**Barium (Ba)_Total**											
164												
165	**General Statistics**											
166	Total Number of Observations					10	Number of Distinct Observations					10
167							Number of Missing Observations					0
168	Minimum					2.08	Mean					3.987
169	Maximum					8.41	Median					3.3
170	SD					2.267	Std. Error of Mean					0.717
171	Coefficient of Variation					0.568	Skewness					1.497
172												
173	**Normal GOF Test**											
174	Shapiro Wilk Test Statistic					0.753	**Shapiro Wilk GOF Test**					
175	5% Shapiro Wilk Critical Value					0.842	Data Not Normal at 5% Significance Level					
176	Lilliefors Test Statistic					0.31	**Lilliefors GOF Test**					
177	5% Lilliefors Critical Value					0.28	Data Not Normal at 5% Significance Level					
178	**Data Not Normal at 5% Significance Level**											
179												
180	**Assuming Normal Distribution**											
181	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
182	95% Student's-t UCL					5.301	95% Adjusted-CLT UCL (Chen-1995)					5.528
183							95% Modified-t UCL (Johnson-1978)					5.357
184												
185	**Gamma GOF Test**											
186	A-D Test Statistic					0.789	**Anderson-Darling Gamma GOF Test**					
187	5% A-D Critical Value					0.729	Data Not Gamma Distributed at 5% Significance Level					
188	K-S Test Statistic					0.249	**Kolmogrov-Smirnoff Gamma GOF Test**					
189	5% K-S Critical Value					0.268	Detected data appear Gamma Distributed at 5% Significance Level					
190	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
191												
192	**Gamma Statistics**											
193	k hat (MLE)					4.428	k star (bias corrected MLE)					3.167
194	Theta hat (MLE)					0.9	Theta star (bias corrected MLE)					1.259
195	nu hat (MLE)					88.57	nu star (bias corrected)					63.33
196	MLE Mean (bias corrected)					3.987	MLE Sd (bias corrected)					2.241
197							Approximate Chi Square Value (0.05)					46.02
198	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					43.47
199												
200	**Assuming Gamma Distribution**											

201	95% Approximate Gamma UCL (use when n>=50)					5.486	95% Adjusted Gamma UCL (use when n<50)					5.809
202												
203	**Lognormal GOF Test**											
204	Shapiro Wilk Test Statistic					0.866	**Shapiro Wilk Lognormal GOF Test**					
205	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
206	Lilliefors Test Statistic					0.216	**Lilliefors Lognormal GOF Test**					
207	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
208	**Data appear Lognormal at 5% Significance Level**											
209												
210	**Lognormal Statistics**											
211	Minimum of Logged Data					0.732	Mean of logged Data					1.266
212	Maximum of Logged Data					2.129	SD of logged Data					0.484
213												
214	**Assuming Lognormal Distribution**											
215	95% H-UCL					5.681	90% Chebyshev (MVUE) UCL					5.773
216	95% Chebyshev (MVUE) UCL					6.605	97.5% Chebyshev (MVUE) UCL					7.76
217	99% Chebyshev (MVUE) UCL					10.03						
218												
219	**Nonparametric Distribution Free UCL Statistics**											
220	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
221												
222	**Nonparametric Distribution Free UCLs**											
223	95% CLT UCL					5.166	95% Jackknife UCL					5.301
224	95% Standard Bootstrap UCL					5.114	95% Bootstrap-t UCL					7.67
225	95% Hall's Bootstrap UCL					13.47	95% Percentile Bootstrap UCL					5.178
226	95% BCA Bootstrap UCL					5.638						
227	90% Chebyshev(Mean, Sd) UCL					6.137	95% Chebyshev(Mean, Sd) UCL					7.111
228	97.5% Chebyshev(Mean, Sd) UCL					8.463	99% Chebyshev(Mean, Sd) UCL					11.12
229												
230	**Suggested UCL to Use**											
231	95% Adjusted Gamma UCL					5.809						
232												
233	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
234	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
235	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
236	For additional insight the user may want to consult a statistician.											
237												
238												
239	**Cadmium (Cd)_Total**											
240												
241	**General Statistics**											
242	Total Number of Observations					10	Number of Distinct Observations					10
243							Number of Missing Observations					0
244	Minimum					0.0045	Mean					0.011
245	Maximum					0.027	Median					0.00885
246	SD					0.00769	Std. Error of Mean					0.00243
247	Coefficient of Variation					0.697	Skewness					1.552
248												
249	**Normal GOF Test**											
250	Shapiro Wilk Test Statistic					0.763	**Shapiro Wilk GOF Test**					

251	5% Shapiro Wilk Critical Value					0.842	Data Not Normal at 5% Significance Level					
252	Lilliefors Test Statistic					0.338	**Lilliefors GOF Test**					
253	5% Lilliefors Critical Value					0.28	Data Not Normal at 5% Significance Level					
254	**Data Not Normal at 5% Significance Level**											
255												
256	**Assuming Normal Distribution**											
257	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
258	95% Student's-t UCL					0.0155	95% Adjusted-CLT UCL (Chen-1995)					0.0163
259							95% Modified-t UCL (Johnson-1978)					0.0157
260												
261	**Gamma GOF Test**											
262	A-D Test Statistic					0.666	**Anderson-Darling Gamma GOF Test**					
263	5% A-D Critical Value					0.732	Detected data appear Gamma Distributed at 5% Significance Level					
264	K-S Test Statistic					0.269	**Kolmogrov-Smirnoff Gamma GOF Test**					
265	5% K-S Critical Value					0.268	Data Not Gamma Distributed at 5% Significance Level					
266	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
267												
268	**Gamma Statistics**											
269	k hat (MLE)					3.01	k star (bias corrected MLE)					2.174
270	Theta hat (MLE)					0.00366	Theta star (bias corrected MLE)					0.00507
271	nu hat (MLE)					60.2	nu star (bias corrected)					43.47
272	MLE Mean (bias corrected)					0.011	MLE Sd (bias corrected)					0.00748
273							Approximate Chi Square Value (0.05)					29.35
274	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					27.35
275												
276	**Assuming Gamma Distribution**											
277	95% Approximate Gamma UCL (use when n>=50)					0.0163	95% Adjusted Gamma UCL (use when n<50)					0.0175
278												
279	**Lognormal GOF Test**											
280	Shapiro Wilk Test Statistic					0.903	**Shapiro Wilk Lognormal GOF Test**					
281	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
282	Lilliefors Test Statistic					0.229	**Lilliefors Lognormal GOF Test**					
283	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
284	**Data appear Lognormal at 5% Significance Level**											
285												
286	**Lognormal Statistics**											
287	Minimum of Logged Data					-5.404	Mean of logged Data					-4.682
288	Maximum of Logged Data					-3.612	SD of logged Data					0.593
289												
290	**Assuming Lognormal Distribution**											
291	95% H-UCL					0.0176	90% Chebyshev (MVUE) UCL					0.017
292	95% Chebyshev (MVUE) UCL					0.0199	97.5% Chebyshev (MVUE) UCL					0.0238
293	99% Chebyshev (MVUE) UCL					0.0315						
294												
295	**Nonparametric Distribution Free UCL Statistics**											
296	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
297												
298	**Nonparametric Distribution Free UCLs**											
299	95% CLT UCL					0.015	95% Jackknife UCL					0.0155
300	95% Standard Bootstrap UCL					0.0147	95% Bootstrap-t UCL					0.0234

301				95% Hall's Bootstrap UCL		0.0428				95% Percentile Bootstrap UCL		0.0153
302				95% BCA Bootstrap UCL		0.0163						
303				90% Chebyshev(Mean, Sd) UCL		0.0183				95% Chebyshev(Mean, Sd) UCL		0.0216
304				97.5% Chebyshev(Mean, Sd) UCL		0.0262				99% Chebyshev(Mean, Sd) UCL		0.0352
305												
306					**Suggested UCL to Use**							
307				95% Adjusted Gamma UCL		0.0175						
308												
309					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
310					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
311					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
312					For additional insight the user may want to consult a statistician.							
313												
314												
315	**Calcium (Ca)_Total**											
316												
317					**General Statistics**							
318				Total Number of Observations		10				Number of Distinct Observations		10
319										Number of Missing Observations		0
320				Minimum		4720				Mean		7999
321				Maximum		12500				Median		7415
322				SD		2496				Std. Error of Mean		789.2
323				Coefficient of Variation		0.312				Skewness		0.479
324												
325					**Normal GOF Test**							
326				Shapiro Wilk Test Statistic		0.952				**Shapiro Wilk GOF Test**		
327				5% Shapiro Wilk Critical Value		0.842				Data appear Normal at 5% Significance Level		
328				Lilliefors Test Statistic		0.161				**Lilliefors GOF Test**		
329				5% Lilliefors Critical Value		0.28				Data appear Normal at 5% Significance Level		
330					**Data appear Normal at 5% Significance Level**							
331												
332					**Assuming Normal Distribution**							
333				**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**		
334				95% Student's-t UCL		9446				95% Adjusted-CLT UCL (Chen-1995)		9425
335										95% Modified-t UCL (Johnson-1978)		9466
336												
337					**Gamma GOF Test**							
338				A-D Test Statistic		0.23				**Anderson-Darling Gamma GOF Test**		
339				5% A-D Critical Value		0.725				Detected data appear Gamma Distributed at 5% Significance Level		
340				K-S Test Statistic		0.142				**Kolmogrov-Smirnoff Gamma GOF Test**		
341				5% K-S Critical Value		0.267				Detected data appear Gamma Distributed at 5% Significance Level		
342					**Detected data appear Gamma Distributed at 5% Significance Level**							
343												
344					**Gamma Statistics**							
345				k hat (MLE)		11.56				k star (bias corrected MLE)		8.161
346				Theta hat (MLE)		691.7				Theta star (bias corrected MLE)		980.1
347				nu hat (MLE)		231.3				nu star (bias corrected)		163.2
348				MLE Mean (bias corrected)		7999				MLE Sd (bias corrected)		2800
349										Approximate Chi Square Value (0.05)		134.7
350				Adjusted Level of Significance		0.0267				Adjusted Chi Square Value		130.2

351												
352	**Assuming Gamma Distribution**											
353	95% Approximate Gamma UCL (use when n>=50))					9694	95% Adjusted Gamma UCL (use when n<50)					10029
354												
355	**Lognormal GOF Test**											
356	Shapiro Wilk Test Statistic					0.969	**Shapiro Wilk Lognormal GOF Test**					
357	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
358	Lilliefors Test Statistic					0.131	**Lilliefors Lognormal GOF Test**					
359	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
360	**Data appear Lognormal at 5% Significance Level**											
361												
362	**Lognormal Statistics**											
363	Minimum of Logged Data					8.46	Mean of logged Data					8.943
364	Maximum of Logged Data					9.433	SD of logged Data					0.313
365												
366	**Assuming Lognormal Distribution**											
367	95% H-UCL					9897	90% Chebyshev (MVUE) UCL					10394
368	95% Chebyshev (MVUE) UCL					11478	97.5% Chebyshev (MVUE) UCL					12983
369	99% Chebyshev (MVUE) UCL					15940						
370												
371	**Nonparametric Distribution Free UCL Statistics**											
372	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
373												
374	**Nonparametric Distribution Free UCLs**											
375	95% CLT UCL					9297	95% Jackknife UCL					9446
376	95% Standard Bootstrap UCL					9233	95% Bootstrap-t UCL					9573
377	95% Hall's Bootstrap UCL					9327	95% Percentile Bootstrap UCL					9302
378	95% BCA Bootstrap UCL					9309						
379	90% Chebyshev(Mean, Sd) UCL					10367	95% Chebyshev(Mean, Sd) UCL					11439
380	97.5% Chebyshev(Mean, Sd) UCL					12928	99% Chebyshev(Mean, Sd) UCL					15852
381												
382	**Suggested UCL to Use**											
383	95% Student's-t UCL					9446						
384												
385	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
386	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
387	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
388	For additional insight the user may want to consult a statistician.											
389												
390												
391	**Cesium (Cs)_Total**											
392												
393	**General Statistics**											
394	Total Number of Observations					10	Number of Distinct Observations					7
395							Number of Missing Observations					0
396	Minimum					0.0032	Mean					0.0045
397	Maximum					0.0065	Median					0.0043
398	SD					0.00109	Std. Error of Mean					3.4351E-4
399	Coefficient of Variation					0.241	Skewness					0.568
400												

401	**Normal GOF Test**											
402				Shapiro Wilk Test Statistic		0.94	**Shapiro Wilk GOF Test**					
403				5% Shapiro Wilk Critical Value		0.842	Data appear Normal at 5% Significance Level					
404				Lilliefors Test Statistic		0.173	**Lilliefors GOF Test**					
405				5% Lilliefors Critical Value		0.28	Data appear Normal at 5% Significance Level					
406	**Data appear Normal at 5% Significance Level**											
407												
408	**Assuming Normal Distribution**											
409	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
410				95% Student's-t UCL		0.00513	95% Adjusted-CLT UCL (Chen-1995)					0.00513
411							95% Modified-t UCL (Johnson-1978)					0.00514
412												
413	**Gamma GOF Test**											
414				A-D Test Statistic		0.25	**Anderson-Darling Gamma GOF Test**					
415				5% A-D Critical Value		0.725	Detected data appear Gamma Distributed at 5% Significance Level					
416				K-S Test Statistic		0.149	**Kolmogrov-Smirnoff Gamma GOF Test**					
417				5% K-S Critical Value		0.266	Detected data appear Gamma Distributed at 5% Significance Level					
418	**Detected data appear Gamma Distributed at 5% Significance Level**											
419												
420	**Gamma Statistics**											
421				k hat (MLE)		19.64	k star (bias corrected MLE)					13.81
422				Theta hat (MLE)		2.2916E-4	Theta star (bias corrected MLE)					3.2579E-4
423				nu hat (MLE)		392.7	nu star (bias corrected)					276.2
424				MLE Mean (bias corrected)		0.0045	MLE Sd (bias corrected)					0.00121
425							Approximate Chi Square Value (0.05)					238.8
426				Adjusted Level of Significance		0.0267	Adjusted Chi Square Value					232.7
427												
428	**Assuming Gamma Distribution**											
429				95% Approximate Gamma UCL (use when n>=50))		0.00521	95% Adjusted Gamma UCL (use when n<50)					0.00534
430												
431	**Lognormal GOF Test**											
432				Shapiro Wilk Test Statistic		0.952	**Shapiro Wilk Lognormal GOF Test**					
433				5% Shapiro Wilk Critical Value		0.842	Data appear Lognormal at 5% Significance Level					
434				Lilliefors Test Statistic		0.133	**Lilliefors Lognormal GOF Test**					
435				5% Lilliefors Critical Value		0.28	Data appear Lognormal at 5% Significance Level					
436	**Data appear Lognormal at 5% Significance Level**											
437												
438	**Lognormal Statistics**											
439				Minimum of Logged Data		-5.745	Mean of logged Data					-5.429
440				Maximum of Logged Data		-5.036	SD of logged Data					0.238
441												
442	**Assuming Lognormal Distribution**											
443				95% H-UCL		0.00525	90% Chebyshev (MVUE) UCL					0.00552
444				95% Chebyshev (MVUE) UCL		0.00598	97.5% Chebyshev (MVUE) UCL					0.00662
445				99% Chebyshev (MVUE) UCL		0.00788						
446												
447	**Nonparametric Distribution Free UCL Statistics**											
448	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
449												
450	**Nonparametric Distribution Free UCLs**											

451					95% CLT UCL	0.00507					95% Jackknife UCL	0.00513
452					95% Standard Bootstrap UCL	0.00502					95% Bootstrap-t UCL	0.00523
453					95% Hall's Bootstrap UCL	0.00529					95% Percentile Bootstrap UCL	0.00502
454					95% BCA Bootstrap UCL	0.00507						
455					90% Chebyshev(Mean, Sd) UCL	0.00553					95% Chebyshev(Mean, Sd) UCL	0.006
456					97.5% Chebyshev(Mean, Sd) UCL	0.00665					99% Chebyshev(Mean, Sd) UCL	0.00792
457												
458					**Suggested UCL to Use**							
459					95% Student's-t UCL	0.00513						
460												
461	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
462	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
463	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
464	For additional insight the user may want to consult a statistician.											
465												
466												
467	**Chromium (Cr)_Total**											
468												
469					**General Statistics**							
470					Total Number of Observations	10					Number of Distinct Observations	10
471											Number of Missing Observations	0
472					Minimum	0.097					Mean	0.203
473					Maximum	0.461					Median	0.176
474					SD	0.11					Std. Error of Mean	0.0349
475					Coefficient of Variation	0.544					Skewness	1.51
476												
477					**Normal GOF Test**							
478					Shapiro Wilk Test Statistic	0.859					**Shapiro Wilk GOF Test**	
479					5% Shapiro Wilk Critical Value	0.842					Data appear Normal at 5% Significance Level	
480					Lilliefors Test Statistic	0.188					**Lilliefors GOF Test**	
481					5% Lilliefors Critical Value	0.28					Data appear Normal at 5% Significance Level	
482					**Data appear Normal at 5% Significance Level**							
483												
484					**Assuming Normal Distribution**							
485					**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**	
486					95% Student's-t UCL	0.267					95% Adjusted-CLT UCL (Chen-1995)	0.278
487											95% Modified-t UCL (Johnson-1978)	0.27
488												
489					**Gamma GOF Test**							
490					A-D Test Statistic	0.29					**Anderson-Darling Gamma GOF Test**	
491					5% A-D Critical Value	0.729					Detected data appear Gamma Distributed at 5% Significance Level	
492					K-S Test Statistic	0.178					**Kolmogrov-Smirnoff Gamma GOF Test**	
493					5% K-S Critical Value	0.268					Detected data appear Gamma Distributed at 5% Significance Level	
494					**Detected data appear Gamma Distributed at 5% Significance Level**							
495												
496					**Gamma Statistics**							
497					k hat (MLE)	4.499					k star (bias corrected MLE)	3.216
498					Theta hat (MLE)	0.0451					Theta star (bias corrected MLE)	0.0632
499					nu hat (MLE)	89.97					nu star (bias corrected)	64.31
500					MLE Mean (bias corrected)	0.203					MLE Sd (bias corrected)	0.113

501							Approximate Chi Square Value (0.05)					46.86
502					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value		44.28
503												
504	**Assuming Gamma Distribution**											
505				95% Approximate Gamma UCL (use when n>=50))		0.279				95% Adjusted Gamma UCL (use when n<50)		0.295
506												
507	**Lognormal GOF Test**											
508					Shapiro Wilk Test Statistic	0.954	**Shapiro Wilk Lognormal GOF Test**					
509					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
510					Lilliefors Test Statistic	0.153	**Lilliefors Lognormal GOF Test**					
511					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level					
512	**Data appear Lognormal at 5% Significance Level**											
513												
514	**Lognormal Statistics**											
515					Minimum of Logged Data	-2.333				Mean of logged Data		-1.709
516					Maximum of Logged Data	-0.774				SD of logged Data		0.494
517												
518	**Assuming Lognormal Distribution**											
519					95% H-UCL	0.294				90% Chebyshev (MVUE) UCL		0.298
520					95% Chebyshev (MVUE) UCL	0.342				97.5% Chebyshev (MVUE) UCL		0.402
521					99% Chebyshev (MVUE) UCL	0.521						
522												
523	**Nonparametric Distribution Free UCL Statistics**											
524	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
525												
526	**Nonparametric Distribution Free UCLs**											
527					95% CLT UCL	0.261				95% Jackknife UCL		0.267
528					95% Standard Bootstrap UCL	0.258				95% Bootstrap-t UCL		0.303
529					95% Hall's Bootstrap UCL	0.367				95% Percentile Bootstrap UCL		0.26
530					95% BCA Bootstrap UCL	0.277						
531					90% Chebyshev(Mean, Sd) UCL	0.308				95% Chebyshev(Mean, Sd) UCL		0.355
532					97.5% Chebyshev(Mean, Sd) UCL	0.421				99% Chebyshev(Mean, Sd) UCL		0.55
533												
534	**Suggested UCL to Use**											
535					95% Student's-t UCL	0.267						
536												
537	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
538	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
539	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
540	For additional insight the user may want to consult a statistician.											
541												
542												
543	**Cobalt (Co)_Total**											
544												
545	**General Statistics**											
546					Total Number of Observations	10				Number of Distinct Observations		10
547										Number of Missing Observations		0
548					Minimum	0.0174				Mean		0.0494
549					Maximum	0.112				Median		0.0387
550					SD	0.0331				Std. Error of Mean		0.0105

551	Coefficient of Variation					0.67	Skewness					1.27
552												
553	**Normal GOF Test**											
554	Shapiro Wilk Test Statistic					0.823	**Shapiro Wilk GOF Test**					
555	5% Shapiro Wilk Critical Value					0.842	Data Not Normal at 5% Significance Level					
556	Lilliefors Test Statistic					0.247	**Lilliefors GOF Test**					
557	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level					
558	**Data appear Approximate Normal at 5% Significance Level**											
559												
560	**Assuming Normal Distribution**											
561	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
562	95% Student's-t UCL					0.0686	95% Adjusted-CLT UCL (Chen-1995)					0.0712
563							95% Modified-t UCL (Johnson-1978)					0.0693
564												
565	**Gamma GOF Test**											
566	A-D Test Statistic					0.401	**Anderson-Darling Gamma GOF Test**					
567	5% A-D Critical Value					0.732	Detected data appear Gamma Distributed at 5% Significance Level					
568	K-S Test Statistic					0.177	**Kolmogrov-Smirnoff Gamma GOF Test**					
569	5% K-S Critical Value					0.269	Detected data appear Gamma Distributed at 5% Significance Level					
570	**Detected data appear Gamma Distributed at 5% Significance Level**											
571												
572	**Gamma Statistics**											
573	k hat (MLE)					2.935	k star (bias corrected MLE)					2.121
574	Theta hat (MLE)					0.0168	Theta star (bias corrected MLE)					0.0233
575	nu hat (MLE)					58.7	nu star (bias corrected)					42.42
576	MLE Mean (bias corrected)					0.0494	MLE Sd (bias corrected)					0.0339
577							Approximate Chi Square Value (0.05)					28.49
578	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					26.52
579												
580	**Assuming Gamma Distribution**											
581	95% Approximate Gamma UCL (use when n>=50))					0.0736	95% Adjusted Gamma UCL (use when n<50)					0.0791
582												
583	**Lognormal GOF Test**											
584	Shapiro Wilk Test Statistic					0.948	**Shapiro Wilk Lognormal GOF Test**					
585	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
586	Lilliefors Test Statistic					0.138	**Lilliefors Lognormal GOF Test**					
587	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
588	**Data appear Lognormal at 5% Significance Level**											
589												
590	**Lognormal Statistics**											
591	Minimum of Logged Data					-4.051	Mean of logged Data					-3.187
592	Maximum of Logged Data					-2.189	SD of logged Data					0.619
593												
594	**Assuming Lognormal Distribution**											
595	95% H-UCL					0.0821	90% Chebyshev (MVUE) UCL					0.0784
596	95% Chebyshev (MVUE) UCL					0.0918	97.5% Chebyshev (MVUE) UCL					0.11
597	99% Chebyshev (MVUE) UCL					0.147						
598												
599	**Nonparametric Distribution Free UCL Statistics**											
600	**Data appear to follow a Discernible Distribution at 5% Significance Level**											

601												
602	**Nonparametric Distribution Free UCLs**											
603	95% CLT UCL				0.0667	95% Jackknife UCL						0.0686
604	95% Standard Bootstrap UCL				0.0657	95% Bootstrap-t UCL						0.0874
605	95% Hall's Bootstrap UCL				0.176	95% Percentile Bootstrap UCL						0.067
606	95% BCA Bootstrap UCL				0.0699							
607	90% Chebyshev(Mean, Sd) UCL				0.0809	95% Chebyshev(Mean, Sd) UCL						0.0951
608	97.5% Chebyshev(Mean, Sd) UCL				0.115	99% Chebyshev(Mean, Sd) UCL						0.154
609												
610	**Suggested UCL to Use**											
611	95% Student's-t UCL				0.0686							
612												
613	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
614	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
615	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
616	For additional insight the user may want to consult a statistician.											
617												
618												
619	**Copper (Cu)_Total**											
620												
621	**General Statistics**											
622	Total Number of Observations				10	Number of Distinct Observations						9
623						Number of Missing Observations						0
624	Minimum				2.53	Mean						3.259
625	Maximum				4.55	Median						3.235
626	SD				0.594	Std. Error of Mean						0.188
627	Coefficient of Variation				0.182	Skewness						1.011
628												
629	**Normal GOF Test**											
630	Shapiro Wilk Test Statistic				0.919	**Shapiro Wilk GOF Test**						
631	5% Shapiro Wilk Critical Value				0.842	Data appear Normal at 5% Significance Level						
632	Lilliefors Test Statistic				0.177	**Lilliefors GOF Test**						
633	5% Lilliefors Critical Value				0.28	Data appear Normal at 5% Significance Level						
634	**Data appear Normal at 5% Significance Level**											
635												
636	**Assuming Normal Distribution**											
637	**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**						
638	95% Student's-t UCL				3.604	95% Adjusted-CLT UCL (Chen-1995)						3.632
639						95% Modified-t UCL (Johnson-1978)						3.614
640												
641	**Gamma GOF Test**											
642	A-D Test Statistic				0.293	**Anderson-Darling Gamma GOF Test**						
643	5% A-D Critical Value				0.724	Detected data appear Gamma Distributed at 5% Significance Level						
644	K-S Test Statistic				0.149	**Kolmogrov-Smirnoff Gamma GOF Test**						
645	5% K-S Critical Value				0.266	Detected data appear Gamma Distributed at 5% Significance Level						
646	**Detected data appear Gamma Distributed at 5% Significance Level**											
647												
648	**Gamma Statistics**											
649	k hat (MLE)				35.64	k star (bias corrected MLE)						25.02
650	Theta hat (MLE)				0.0914	Theta star (bias corrected MLE)						0.13

651					nu hat (MLE)	712.9				nu star (bias corrected)		500.3
652					MLE Mean (bias corrected)	3.259				MLE Sd (bias corrected)		0.652
653										Approximate Chi Square Value (0.05)		449.5
654					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value		441.1
655												
656					**Assuming Gamma Distribution**							
657					95% Approximate Gamma UCL (use when n>=50))	3.628				95% Adjusted Gamma UCL (use when n<50)		3.697
658												
659					**Lognormal GOF Test**							
660					Shapiro Wilk Test Statistic	0.952				**Shapiro Wilk Lognormal GOF Test**		
661					5% Shapiro Wilk Critical Value	0.842				Data appear Lognormal at 5% Significance Level		
662					Lilliefors Test Statistic	0.153				**Lilliefors Lognormal GOF Test**		
663					5% Lilliefors Critical Value	0.28				Data appear Lognormal at 5% Significance Level		
664					**Data appear Lognormal at 5% Significance Level**							
665												
666					**Lognormal Statistics**							
667					Minimum of Logged Data	0.928				Mean of logged Data		1.167
668					Maximum of Logged Data	1.515				SD of logged Data		0.175
669												
670					**Assuming Lognormal Distribution**							
671					95% H-UCL	3.636				90% Chebyshev (MVUE) UCL		3.799
672					95% Chebyshev (MVUE) UCL	4.044				97.5% Chebyshev (MVUE) UCL		4.384
673					99% Chebyshev (MVUE) UCL	5.053						
674												
675					**Nonparametric Distribution Free UCL Statistics**							
676					**Data appear to follow a Discernible Distribution at 5% Significance Level**							
677												
678					**Nonparametric Distribution Free UCLs**							
679					95% CLT UCL	3.568				95% Jackknife UCL		3.604
680					95% Standard Bootstrap UCL	3.554				95% Bootstrap-t UCL		3.679
681					95% Hall's Bootstrap UCL	3.767				95% Percentile Bootstrap UCL		3.566
682					95% BCA Bootstrap UCL	3.643						
683					90% Chebyshev(Mean, Sd) UCL	3.823				95% Chebyshev(Mean, Sd) UCL		4.078
684					97.5% Chebyshev(Mean, Sd) UCL	4.433				99% Chebyshev(Mean, Sd) UCL		5.129
685												
686					**Suggested UCL to Use**							
687					95% Student's-t UCL	3.604						
688												
689	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
690	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
691	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
692	For additional insight the user may want to consult a statistician.											
693												
694												
695	**Gallium (Ga)_Total**											
696												
697					**General Statistics**							
698					Total Number of Observations	10				Number of Distinct Observations		10
699										Number of Missing Observations		0
700					Minimum	0.0068				Mean		0.0255

701					Maximum	0.0647					Median	0.022
702					SD	0.017					Std. Error of Mean	0.00539
703					Coefficient of Variation	0.669					Skewness	1.385
704												
705	**Normal GOF Test**											
706					Shapiro Wilk Test Statistic	0.883	**Shapiro Wilk GOF Test**					
707					5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level					
708					Lilliefors Test Statistic	0.185	**Lilliefors GOF Test**					
709					5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level					
710	**Data appear Normal at 5% Significance Level**											
711												
712	**Assuming Normal Distribution**											
713	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
714					95% Student's-t UCL	0.0354	95% Adjusted-CLT UCL (Chen-1995)					0.0369
715							95% Modified-t UCL (Johnson-1978)					0.0358
716												
717	**Gamma GOF Test**											
718					A-D Test Statistic	0.196	**Anderson-Darling Gamma GOF Test**					
719					5% A-D Critical Value	0.733	Detected data appear Gamma Distributed at 5% Significance Level					
720					K-S Test Statistic	0.152	**Kolmogrov-Smirnoff Gamma GOF Test**					
721					5% K-S Critical Value	0.269	Detected data appear Gamma Distributed at 5% Significance Level					
722	**Detected data appear Gamma Distributed at 5% Significance Level**											
723												
724	**Gamma Statistics**											
725					k hat (MLE)	2.72	k star (bias corrected MLE)					1.971
726					Theta hat (MLE)	0.00937	Theta star (bias corrected MLE)					0.0129
727					nu hat (MLE)	54.41	nu star (bias corrected)					39.42
728					MLE Mean (bias corrected)	0.0255	MLE Sd (bias corrected)					0.0182
729							Approximate Chi Square Value (0.05)					26.04
730					Adjusted Level of Significance	0.0267	Adjusted Chi Square Value					24.16
731												
732	**Assuming Gamma Distribution**											
733					95% Approximate Gamma UCL (use when n>=50))	0.0386	95% Adjusted Gamma UCL (use when n<50)					0.0416
734												
735	**Lognormal GOF Test**											
736					Shapiro Wilk Test Statistic	0.983	**Shapiro Wilk Lognormal GOF Test**					
737					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
738					Lilliefors Test Statistic	0.138	**Lilliefors Lognormal GOF Test**					
739					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level					
740	**Data appear Lognormal at 5% Significance Level**											
741												
742	**Lognormal Statistics**											
743					Minimum of Logged Data	-4.991	Mean of logged Data					-3.864
744					Maximum of Logged Data	-2.738	SD of logged Data					0.67
745												
746	**Assuming Lognormal Distribution**											
747					95% H-UCL	0.0457	90% Chebyshev (MVUE) UCL					0.0423
748					95% Chebyshev (MVUE) UCL	0.0499	97.5% Chebyshev (MVUE) UCL					0.0604
749					99% Chebyshev (MVUE) UCL	0.0811						
750												

751	**Nonparametric Distribution Free UCL Statistics**											
752	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
753												
754	**Nonparametric Distribution Free UCLs**											
755						95% CLT UCL	0.0344			95% Jackknife UCL	0.0354	
756						95% Standard Bootstrap UCL	0.0339			95% Bootstrap-t UCL	0.0398	
757						95% Hall's Bootstrap UCL	0.0466			95% Percentile Bootstrap UCL	0.0347	
758						95% BCA Bootstrap UCL	0.0365					
759						90% Chebyshev(Mean, Sd) UCL	0.0417			95% Chebyshev(Mean, Sd) UCL	0.049	
760						97.5% Chebyshev(Mean, Sd) UCL	0.0592			99% Chebyshev(Mean, Sd) UCL	0.0791	
761												
762	**Suggested UCL to Use**											
763						95% Student's-t UCL	0.0354					
764												
765	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
766	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
767	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
768	For additional insight the user may want to consult a statistician.											
769												
770												
771	**Iron (Fe)_Total**											
772												
773	**General Statistics**											
774						Total Number of Observations	10			Number of Distinct Observations	10	
775										Number of Missing Observations	0	
776						Minimum	59.3			Mean	104.5	
777						Maximum	127			Median	112	
778						SD	21.94			Std. Error of Mean	6.939	
779						Coefficient of Variation	0.21			Skewness	-1.087	
780												
781	**Normal GOF Test**											
782						Shapiro Wilk Test Statistic	0.89			**Shapiro Wilk GOF Test**		
783						5% Shapiro Wilk Critical Value	0.842			Data appear Normal at 5% Significance Level		
784						Lilliefors Test Statistic	0.2			**Lilliefors GOF Test**		
785						5% Lilliefors Critical Value	0.28			Data appear Normal at 5% Significance Level		
786	**Data appear Normal at 5% Significance Level**											
787												
788	**Assuming Normal Distribution**											
789						**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**		
790						95% Student's-t UCL	117.2			95% Adjusted-CLT UCL (Chen-1995)	113.4	
791										95% Modified-t UCL (Johnson-1978)	116.8	
792												
793	**Gamma GOF Test**											
794						A-D Test Statistic	0.606			**Anderson-Darling Gamma GOF Test**		
795						5% A-D Critical Value	0.725			Detected data appear Gamma Distributed at 5% Significance Level		
796						K-S Test Statistic	0.212			**Kolmogrov-Smirnoff Gamma GOF Test**		
797						5% K-S Critical Value	0.266			Detected data appear Gamma Distributed at 5% Significance Level		
798	**Detected data appear Gamma Distributed at 5% Significance Level**											
799												
800	**Gamma Statistics**											

801					k hat (MLE)	21.18				k star (bias corrected MLE)		14.89
802					Theta hat (MLE)	4.934				Theta star (bias corrected MLE)		7.017
803					nu hat (MLE)	423.7				nu star (bias corrected)		297.9
804					MLE Mean (bias corrected)	104.5				MLE Sd (bias corrected)		27.08
805										Approximate Chi Square Value (0.05)		258.9
806					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value		252.6
807												
808					**Assuming Gamma Distribution**							
809				95% Approximate Gamma UCL (use when n>=50))		120.3				95% Adjusted Gamma UCL (use when n<50)		123.3
810												
811					**Lognormal GOF Test**							
812					Shapiro Wilk Test Statistic	0.842				**Shapiro Wilk Lognormal GOF Test**		
813					5% Shapiro Wilk Critical Value	0.842				Data Not Lognormal at 5% Significance Level		
814					Lilliefors Test Statistic	0.202				**Lilliefors Lognormal GOF Test**		
815					5% Lilliefors Critical Value	0.28				Data appear Lognormal at 5% Significance Level		
816					**Data appear Approximate Lognormal at 5% Significance Level**							
817												
818					**Lognormal Statistics**							
819					Minimum of Logged Data	4.083				Mean of logged Data		4.626
820					Maximum of Logged Data	4.844				SD of logged Data		0.241
821												
822					**Assuming Lognormal Distribution**							
823					95% H-UCL	122.6				90% Chebyshev (MVUE) UCL		128.8
824					95% Chebyshev (MVUE) UCL	139.8				97.5% Chebyshev (MVUE) UCL		154.9
825					99% Chebyshev (MVUE) UCL	184.6						
826												
827					**Nonparametric Distribution Free UCL Statistics**							
828					**Data appear to follow a Discernible Distribution at 5% Significance Level**							
829												
830					**Nonparametric Distribution Free UCLs**							
831					95% CLT UCL	115.9				95% Jackknife UCL		117.2
832					95% Standard Bootstrap UCL	115.1				95% Bootstrap-t UCL		114.8
833					95% Hall's Bootstrap UCL	113.6				95% Percentile Bootstrap UCL		114.9
834					95% BCA Bootstrap UCL	113.4						
835					90% Chebyshev(Mean, Sd) UCL	125.3				95% Chebyshev(Mean, Sd) UCL		134.8
836					97.5% Chebyshev(Mean, Sd) UCL	147.9				99% Chebyshev(Mean, Sd) UCL		173.6
837												
838					**Suggested UCL to Use**							
839					95% Student's-t UCL	117.2						
840												
841					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
842					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
843					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
844					For additional insight the user may want to consult a statistician.							
845												
846					**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**							
847					**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**							
848												
849												
850	**Magnesium (Mg)_Total**											

851												
852	**General Statistics**											
853					Total Number of Observations	10				Number of Distinct Observations	10	
854										Number of Missing Observations	0	
855					Minimum	375				Mean	465.3	
856					Maximum	548				Median	466	
857					SD	64.56				Std. Error of Mean	20.42	
858					Coefficient of Variation	0.139				Skewness	-0.189	
859												
860	**Normal GOF Test**											
861					Shapiro Wilk Test Statistic	0.923	**Shapiro Wilk GOF Test**					
862					5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level					
863					Lilliefors Test Statistic	0.16	**Lilliefors GOF Test**					
864					5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level					
865	**Data appear Normal at 5% Significance Level**											
866												
867	**Assuming Normal Distribution**											
868	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
869					95% Student's-t UCL	502.7				95% Adjusted-CLT UCL (Chen-1995)	497.6	
870										95% Modified-t UCL (Johnson-1978)	502.5	
871												
872	**Gamma GOF Test**											
873					A-D Test Statistic	0.355	**Anderson-Darling Gamma GOF Test**					
874					5% A-D Critical Value	0.724	Detected data appear Gamma Distributed at 5% Significance Level					
875					K-S Test Statistic	0.176	**Kolmogrov-Smirnoff Gamma GOF Test**					
876					5% K-S Critical Value	0.266	Detected data appear Gamma Distributed at 5% Significance Level					
877	**Detected data appear Gamma Distributed at 5% Significance Level**											
878												
879	**Gamma Statistics**											
880					k hat (MLE)	56.27				k star (bias corrected MLE)	39.46	
881					Theta hat (MLE)	8.269				Theta star (bias corrected MLE)	11.79	
882					nu hat (MLE)	1125				nu star (bias corrected)	789.2	
883					MLE Mean (bias corrected)	465.3				MLE Sd (bias corrected)	74.07	
884										Approximate Chi Square Value (0.05)	725	
885					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value	714.3	
886												
887	**Assuming Gamma Distribution**											
888					95% Approximate Gamma UCL (use when n>=50))	506.5				95% Adjusted Gamma UCL (use when n<50)	514.1	
889												
890	**Lognormal GOF Test**											
891					Shapiro Wilk Test Statistic	0.916	**Shapiro Wilk Lognormal GOF Test**					
892					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
893					Lilliefors Test Statistic	0.165	**Lilliefors Lognormal GOF Test**					
894					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level					
895	**Data appear Lognormal at 5% Significance Level**											
896												
897	**Lognormal Statistics**											
898					Minimum of Logged Data	5.927				Mean of logged Data	6.134	
899					Maximum of Logged Data	6.306				SD of logged Data	0.142	
900												

901	**Assuming Lognormal Distribution**											
902				95% H-UCL	508				90% Chebyshev (MVUE) UCL		528	
903				95% Chebyshev (MVUE) UCL	556.4				97.5% Chebyshev (MVUE) UCL		595.8	
904				99% Chebyshev (MVUE) UCL	673.2							
905												
906	**Nonparametric Distribution Free UCL Statistics**											
907	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
908												
909	**Nonparametric Distribution Free UCLs**											
910				95% CLT UCL	498.9				95% Jackknife UCL		502.7	
911				95% Standard Bootstrap UCL	498.1				95% Bootstrap-t UCL		500.9	
912				95% Hall's Bootstrap UCL	494.8				95% Percentile Bootstrap UCL		497.3	
913				95% BCA Bootstrap UCL	495.4							
914				90% Chebyshev(Mean, Sd) UCL	526.5				95% Chebyshev(Mean, Sd) UCL		554.3	
915				97.5% Chebyshev(Mean, Sd) UCL	592.8				99% Chebyshev(Mean, Sd) UCL		668.4	
916												
917	**Suggested UCL to Use**											
918				95% Student's-t UCL	502.7							
919												
920	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
921	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
922	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
923	For additional insight the user may want to consult a statistician.											
924												
925	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**											
926	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**											
927												
928												
929	**Manganese (Mn)_Total**											
930												
931	**General Statistics**											
932				Total Number of Observations	10				Number of Distinct Observations		10	
933									Number of Missing Observations		0	
934				Minimum	2.77				Mean		5.113	
935				Maximum	10.4				Median		4.875	
936				SD	2.278				Std. Error of Mean		0.72	
937				Coefficient of Variation	0.445				Skewness		1.419	
938												
939	**Normal GOF Test**											
940				Shapiro Wilk Test Statistic	0.866				**Shapiro Wilk GOF Test**			
941				5% Shapiro Wilk Critical Value	0.842				Data appear Normal at 5% Significance Level			
942				Lilliefors Test Statistic	0.215				**Lilliefors GOF Test**			
943				5% Lilliefors Critical Value	0.28				Data appear Normal at 5% Significance Level			
944	**Data appear Normal at 5% Significance Level**											
945												
946	**Assuming Normal Distribution**											
947	**95% Normal UCL**								**95% UCLs (Adjusted for Skewness)**			
948				95% Student's-t UCL	6.433				95% Adjusted-CLT UCL (Chen-1995)		6.643	
949									95% Modified-t UCL (Johnson-1978)		6.487	
950												

	A	B	C	D	E	F	G	H	I	J	K	L
951	**Gamma GOF Test**											
952	A-D Test Statistic					0.336	**Anderson-Darling Gamma GOF Test**					
953	5% A-D Critical Value					0.728	Detected data appear Gamma Distributed at 5% Significance Level					
954	K-S Test Statistic					0.164	**Kolmogrov-Smirnoff Gamma GOF Test**					
955	5% K-S Critical Value					0.267	Detected data appear Gamma Distributed at 5% Significance Level					
956	**Detected data appear Gamma Distributed at 5% Significance Level**											
957												
958	**Gamma Statistics**											
959	k hat (MLE)					6.487	k star (bias corrected MLE)					4.608
960	Theta hat (MLE)					0.788	Theta star (bias corrected MLE)					1.11
961	nu hat (MLE)					129.7	nu star (bias corrected)					92.15
962	MLE Mean (bias corrected)					5.113	MLE Sd (bias corrected)					2.382
963							Approximate Chi Square Value (0.05)					71.01
964	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					67.8
965												
966	**Assuming Gamma Distribution**											
967	95% Approximate Gamma UCL (use when n>=50))					6.635	95% Adjusted Gamma UCL (use when n<50)					6.95
968												
969	**Lognormal GOF Test**											
970	Shapiro Wilk Test Statistic					0.943	**Shapiro Wilk Lognormal GOF Test**					
971	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
972	Lilliefors Test Statistic					0.153	**Lilliefors Lognormal GOF Test**					
973	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
974	**Data appear Lognormal at 5% Significance Level**											
975												
976	**Lognormal Statistics**											
977	Minimum of Logged Data					1.019	Mean of logged Data					1.553
978	Maximum of Logged Data					2.342	SD of logged Data					0.411
979												
980	**Assuming Lognormal Distribution**											
981	95% H-UCL					6.856	90% Chebyshev (MVUE) UCL					7.106
982	95% Chebyshev (MVUE) UCL					8.017	97.5% Chebyshev (MVUE) UCL					9.281
983	99% Chebyshev (MVUE) UCL					11.76						
984												
985	**Nonparametric Distribution Free UCL Statistics**											
986	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
987												
988	**Nonparametric Distribution Free UCLs**											
989	95% CLT UCL					6.298	95% Jackknife UCL					6.433
990	95% Standard Bootstrap UCL					6.224	95% Bootstrap-t UCL					7.111
991	95% Hall's Bootstrap UCL					8.946	95% Percentile Bootstrap UCL					6.267
992	95% BCA Bootstrap UCL					6.556						
993	90% Chebyshev(Mean, Sd) UCL					7.274	95% Chebyshev(Mean, Sd) UCL					8.252
994	97.5% Chebyshev(Mean, Sd) UCL					9.611	99% Chebyshev(Mean, Sd) UCL					12.28
995												
996	**Suggested UCL to Use**											
997	95% Student's-t UCL					6.433						
998												
999	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1000	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											

1001	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1002	For additional insight the user may want to consult a statistician.											
1003												
1004												
1005	**Mercury (Hg)_Total**											
1006												
1007	**General Statistics**											
1008						Total Number of Observations	10			Number of Distinct Observations	10	
1009										Number of Missing Observations	0	
1010						Minimum	0.001			Mean	0.00402	
1011						Maximum	0.0102			Median	0.0033	
1012						SD	0.00307			Std. Error of Mean	9.6986E-4	
1013						Coefficient of Variation	0.763			Skewness	0.867	
1014												
1015	**Normal GOF Test**											
1016						Shapiro Wilk Test Statistic	0.892			**Shapiro Wilk GOF Test**		
1017						5% Shapiro Wilk Critical Value	0.842			Data appear Normal at 5% Significance Level		
1018						Lilliefors Test Statistic	0.175			**Lilliefors GOF Test**		
1019						5% Lilliefors Critical Value	0.28			Data appear Normal at 5% Significance Level		
1020	**Data appear Normal at 5% Significance Level**											
1021												
1022	**Assuming Normal Distribution**											
1023						**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**		
1024						95% Student's-t UCL	0.0058			95% Adjusted-CLT UCL (Chen-1995)	0.0059	
1025										95% Modified-t UCL (Johnson-1978)	0.00584	
1026												
1027	**Gamma GOF Test**											
1028						A-D Test Statistic	0.372			**Anderson-Darling Gamma GOF Test**		
1029						5% A-D Critical Value	0.737			Detected data appear Gamma Distributed at 5% Significance Level		
1030						K-S Test Statistic	0.175			**Kolmogrov-Smirnoff Gamma GOF Test**		
1031						5% K-S Critical Value	0.27			Detected data appear Gamma Distributed at 5% Significance Level		
1032	**Detected data appear Gamma Distributed at 5% Significance Level**											
1033												
1034	**Gamma Statistics**											
1035						k hat (MLE)	1.828			k star (bias corrected MLE)	1.346	
1036						Theta hat (MLE)	0.0022			Theta star (bias corrected MLE)	0.00299	
1037						nu hat (MLE)	36.56			nu star (bias corrected)	26.93	
1038						MLE Mean (bias corrected)	0.00402			MLE Sd (bias corrected)	0.00346	
1039										Approximate Chi Square Value (0.05)	16.1	
1040						Adjusted Level of Significance	0.0267			Adjusted Chi Square Value	14.66	
1041												
1042	**Assuming Gamma Distribution**											
1043						95% Approximate Gamma UCL (use when n>=50))	0.00673			95% Adjusted Gamma UCL (use when n<50)	0.00739	
1044												
1045	**Lognormal GOF Test**											
1046						Shapiro Wilk Test Statistic	0.916			**Shapiro Wilk Lognormal GOF Test**		
1047						5% Shapiro Wilk Critical Value	0.842			Data appear Lognormal at 5% Significance Level		
1048						Lilliefors Test Statistic	0.165			**Lilliefors Lognormal GOF Test**		
1049						5% Lilliefors Critical Value	0.28			Data appear Lognormal at 5% Significance Level		
1050	**Data appear Lognormal at 5% Significance Level**											

1051												
1052	**Lognormal Statistics**											
1053					Minimum of Logged Data	-6.908				Mean of logged Data	-5.814	
1054					Maximum of Logged Data	-4.585				SD of logged Data	0.847	
1055												
1056	**Assuming Lognormal Distribution**											
1057					95% H-UCL	0.00942				90% Chebyshev (MVUE) UCL	0.0075	
1058					95% Chebyshev (MVUE) UCL	0.00905				97.5% Chebyshev (MVUE) UCL	0.0112	
1059					99% Chebyshev (MVUE) UCL	0.0154						
1060												
1061	**Nonparametric Distribution Free UCL Statistics**											
1062	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1063												
1064	**Nonparametric Distribution Free UCLs**											
1065					95% CLT UCL	0.00562				95% Jackknife UCL	0.0058	
1066					95% Standard Bootstrap UCL	0.00556				95% Bootstrap-t UCL	0.0061	
1067					95% Hall's Bootstrap UCL	0.00601				95% Percentile Bootstrap UCL	0.00566	
1068					95% BCA Bootstrap UCL	0.00577						
1069					90% Chebyshev(Mean, Sd) UCL	0.00693				95% Chebyshev(Mean, Sd) UCL	0.00825	
1070					97.5% Chebyshev(Mean, Sd) UCL	0.0101				99% Chebyshev(Mean, Sd) UCL	0.0137	
1071												
1072	**Suggested UCL to Use**											
1073					95% Student's-t UCL	0.0058						
1074												
1075	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1076	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1077	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1078	For additional insight the user may want to consult a statistician.											
1079												
1080												
1081	**Molybdenum (Mo)_Total**											
1082												
1083	**General Statistics**											
1084					Total Number of Observations	10				Number of Distinct Observations	10	
1085										Number of Missing Observations	0	
1086					Minimum	0.212				Mean	0.377	
1087					Maximum	0.852				Median	0.319	
1088					SD	0.181				Std. Error of Mean	0.0571	
1089					Coefficient of Variation	0.48				Skewness	2.37	
1090												
1091	**Normal GOF Test**											
1092					Shapiro Wilk Test Statistic	0.72				**Shapiro Wilk GOF Test**		
1093					5% Shapiro Wilk Critical Value	0.842				Data Not Normal at 5% Significance Level		
1094					Lilliefors Test Statistic	0.287				**Lilliefors GOF Test**		
1095					5% Lilliefors Critical Value	0.28				Data Not Normal at 5% Significance Level		
1096	**Data Not Normal at 5% Significance Level**											
1097												
1098	**Assuming Normal Distribution**											
1099	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
1100					95% Student's-t UCL	0.481				95% Adjusted-CLT UCL (Chen-1995)	0.516	

1101											95% Modified-t UCL (Johnson-1978)	0.488
1102												
1103	**Gamma GOF Test**											
1104					A-D Test Statistic	0.746	**Anderson-Darling Gamma GOF Test**					
1105					5% A-D Critical Value	0.728	Data Not Gamma Distributed at 5% Significance Level					
1106					K-S Test Statistic	0.262	**Kolmogrov-Smirnoff Gamma GOF Test**					
1107					5% K-S Critical Value	0.267	Detected data appear Gamma Distributed at 5% Significance Level					
1108	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
1109												
1110	**Gamma Statistics**											
1111					k hat (MLE)	6.859	k star (bias corrected MLE)					4.868
1112					Theta hat (MLE)	0.0549	Theta star (bias corrected MLE)					0.0773
1113					nu hat (MLE)	137.2	nu star (bias corrected)					97.35
1114					MLE Mean (bias corrected)	0.377	MLE Sd (bias corrected)					0.171
1115							Approximate Chi Square Value (0.05)					75.59
1116					Adjusted Level of Significance	0.0267	Adjusted Chi Square Value					72.27
1117												
1118	**Assuming Gamma Distribution**											
1119					95% Approximate Gamma UCL (use when n>=50)	0.485	95% Adjusted Gamma UCL (use when n<50)					0.507
1120												
1121	**Lognormal GOF Test**											
1122					Shapiro Wilk Test Statistic	0.879	**Shapiro Wilk Lognormal GOF Test**					
1123					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
1124					Lilliefors Test Statistic	0.238	**Lilliefors Lognormal GOF Test**					
1125					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level					
1126	**Data appear Lognormal at 5% Significance Level**											
1127												
1128	**Lognormal Statistics**											
1129					Minimum of Logged Data	-1.551	Mean of logged Data					-1.052
1130					Maximum of Logged Data	-0.16	SD of logged Data					0.379
1131												
1132	**Assuming Lognormal Distribution**											
1133					95% H-UCL	0.487	90% Chebyshev (MVUE) UCL					0.508
1134					95% Chebyshev (MVUE) UCL	0.569	97.5% Chebyshev (MVUE) UCL					0.654
1135					99% Chebyshev (MVUE) UCL	0.822						
1136												
1137	**Nonparametric Distribution Free UCL Statistics**											
1138	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1139												
1140	**Nonparametric Distribution Free UCLs**											
1141					95% CLT UCL	0.47	95% Jackknife UCL					0.481
1142					95% Standard Bootstrap UCL	0.462	95% Bootstrap-t UCL					0.607
1143					95% Hall's Bootstrap UCL	0.866	95% Percentile Bootstrap UCL					0.472
1144					95% BCA Bootstrap UCL	0.535						
1145					90% Chebyshev(Mean, Sd) UCL	0.548	95% Chebyshev(Mean, Sd) UCL					0.625
1146					97.5% Chebyshev(Mean, Sd) UCL	0.733	99% Chebyshev(Mean, Sd) UCL					0.945
1147												
1148	**Suggested UCL to Use**											
1149					95% Adjusted Gamma UCL	0.507						
1150												

1151	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1152	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1153	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1154	For additional insight the user may want to consult a statistician.											
1155												
1156												
1157	**Phosphorus (P)_Total**											
1158												
1159	**General Statistics**											
1160						Total Number of Observations	10			Number of Distinct Observations	10	
1161										Number of Missing Observations	0	
1162						Minimum	4290			Mean	5948	
1163						Maximum	8280			Median	5645	
1164						SD	1244			Std. Error of Mean	393.3	
1165						Coefficient of Variation	0.209			Skewness	0.54	
1166												
1167	**Normal GOF Test**											
1168						Shapiro Wilk Test Statistic	0.942			**Shapiro Wilk GOF Test**		
1169						5% Shapiro Wilk Critical Value	0.842			Data appear Normal at 5% Significance Level		
1170						Lilliefors Test Statistic	0.202			**Lilliefors GOF Test**		
1171						5% Lilliefors Critical Value	0.28			Data appear Normal at 5% Significance Level		
1172	**Data appear Normal at 5% Significance Level**											
1173												
1174	**Assuming Normal Distribution**											
1175						**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**		
1176						95% Student's-t UCL	6669			95% Adjusted-CLT UCL (Chen-1995)	6667	
1177										95% Modified-t UCL (Johnson-1978)	6680	
1178												
1179	**Gamma GOF Test**											
1180						A-D Test Statistic	0.309			**Anderson-Darling Gamma GOF Test**		
1181						5% A-D Critical Value	0.725			Detected data appear Gamma Distributed at 5% Significance Level		
1182						K-S Test Statistic	0.199			**Kolmogrov-Smirnoff Gamma GOF Test**		
1183						5% K-S Critical Value	0.266			Detected data appear Gamma Distributed at 5% Significance Level		
1184	**Detected data appear Gamma Distributed at 5% Significance Level**											
1185												
1186	**Gamma Statistics**											
1187						k hat (MLE)	26.14			k star (bias corrected MLE)	18.37	
1188						Theta hat (MLE)	227.5			Theta star (bias corrected MLE)	323.8	
1189						nu hat (MLE)	522.9			nu star (bias corrected)	367.3	
1190						MLE Mean (bias corrected)	5948			MLE Sd (bias corrected)	1388	
1191										Approximate Chi Square Value (0.05)	323.9	
1192						Adjusted Level of Significance	0.0267			Adjusted Chi Square Value	316.8	
1193												
1194	**Assuming Gamma Distribution**											
1195						95% Approximate Gamma UCL (use when n>=50))	6745			95% Adjusted Gamma UCL (use when n<50)	6896	
1196												
1197	**Lognormal GOF Test**											
1198						Shapiro Wilk Test Statistic	0.958			**Shapiro Wilk Lognormal GOF Test**		
1199						5% Shapiro Wilk Critical Value	0.842			Data appear Lognormal at 5% Significance Level		
1200						Lilliefors Test Statistic	0.183			**Lilliefors Lognormal GOF Test**		

1201	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
1202	**Data appear Lognormal at 5% Significance Level**											
1203												
1204	**Lognormal Statistics**											
1205	Minimum of Logged Data					8.364	Mean of logged Data					8.672
1206	Maximum of Logged Data					9.022	SD of logged Data					0.206
1207												
1208	**Assuming Lognormal Distribution**											
1209	95% H-UCL					6784	90% Chebyshev (MVUE) UCL					7113
1210	95% Chebyshev (MVUE) UCL					7641	97.5% Chebyshev (MVUE) UCL					8374
1211	99% Chebyshev (MVUE) UCL					9814						
1212												
1213	**Nonparametric Distribution Free UCL Statistics**											
1214	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1215												
1216	**Nonparametric Distribution Free UCLs**											
1217	95% CLT UCL					6595	95% Jackknife UCL					6669
1218	95% Standard Bootstrap UCL					6560	95% Bootstrap-t UCL					6812
1219	95% Hall's Bootstrap UCL					6694	95% Percentile Bootstrap UCL					6560
1220	95% BCA Bootstrap UCL					6607						
1221	90% Chebyshev(Mean, Sd) UCL					7128	95% Chebyshev(Mean, Sd) UCL					7662
1222	97.5% Chebyshev(Mean, Sd) UCL					8404	99% Chebyshev(Mean, Sd) UCL					9861
1223												
1224	**Suggested UCL to Use**											
1225	95% Student's-t UCL					6669						
1226												
1227	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1228	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1229	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1230	For additional insight the user may want to consult a statistician.											
1231												
1232												
1233	**Potassium (K)_Total**											
1234												
1235	**General Statistics**											
1236	Total Number of Observations					10	Number of Distinct Observations					10
1237							Number of Missing Observations					0
1238	Minimum					3080	Mean					3396
1239	Maximum					3710	Median					3385
1240	SD					168.9	Std. Error of Mean					53.42
1241	Coefficient of Variation					0.0497	Skewness					0.0163
1242												
1243	**Normal GOF Test**											
1244	Shapiro Wilk Test Statistic					0.978	**Shapiro Wilk GOF Test**					
1245	5% Shapiro Wilk Critical Value					0.842	Data appear Normal at 5% Significance Level					
1246	Lilliefors Test Statistic					0.146	**Lilliefors GOF Test**					
1247	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level					
1248	**Data appear Normal at 5% Significance Level**											
1249												
1250	**Assuming Normal Distribution**											

1251	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1252	95% Student's-t UCL					3494	95% Adjusted-CLT UCL (Chen-1995)					3484
1253							95% Modified-t UCL (Johnson-1978)					3494
1254												
1255	**Gamma GOF Test**											
1256	A-D Test Statistic					0.2	**Anderson-Darling Gamma GOF Test**					
1257	5% A-D Critical Value					0.724	Detected data appear Gamma Distributed at 5% Significance Level					
1258	K-S Test Statistic					0.137	**Kolmogrov-Smirnoff Gamma GOF Test**					
1259	5% K-S Critical Value					0.266	Detected data appear Gamma Distributed at 5% Significance Level					
1260	**Detected data appear Gamma Distributed at 5% Significance Level**											
1261												
1262	**Gamma Statistics**											
1263	k hat (MLE)					447.8	k star (bias corrected MLE)					313.6
1264	Theta hat (MLE)					7.583	Theta star (bias corrected MLE)					10.83
1265	nu hat (MLE)					8957	nu star (bias corrected)					6271
1266	MLE Mean (bias corrected)					3396	MLE Sd (bias corrected)					191.8
1267							Approximate Chi Square Value (0.05)					6088
1268	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					6057
1269												
1270	**Assuming Gamma Distribution**											
1271	95% Approximate Gamma UCL (use when n>=50))					3498	95% Adjusted Gamma UCL (use when n<50)					3516
1272												
1273	**Lognormal GOF Test**											
1274	Shapiro Wilk Test Statistic					0.977	**Shapiro Wilk Lognormal GOF Test**					
1275	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
1276	Lilliefors Test Statistic					0.15	**Lilliefors Lognormal GOF Test**					
1277	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
1278	**Data appear Lognormal at 5% Significance Level**											
1279												
1280	**Lognormal Statistics**											
1281	Minimum of Logged Data					8.033	Mean of logged Data					8.129
1282	Maximum of Logged Data					8.219	SD of logged Data					0.0499
1283												
1284	**Assuming Lognormal Distribution**											
1285	95% H-UCL					N/A	90% Chebyshev (MVUE) UCL					3557
1286	95% Chebyshev (MVUE) UCL					3630	97.5% Chebyshev (MVUE) UCL					3731
1287	99% Chebyshev (MVUE) UCL					3929						
1288												
1289	**Nonparametric Distribution Free UCL Statistics**											
1290	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1291												
1292	**Nonparametric Distribution Free UCLs**											
1293	95% CLT UCL					3484	95% Jackknife UCL					3494
1294	95% Standard Bootstrap UCL					3480	95% Bootstrap-t UCL					3500
1295	95% Hall's Bootstrap UCL					3501	95% Percentile Bootstrap UCL					3477
1296	95% BCA Bootstrap UCL					3475						
1297	90% Chebyshev(Mean, Sd) UCL					3556	95% Chebyshev(Mean, Sd) UCL					3629
1298	97.5% Chebyshev(Mean, Sd) UCL					3730	99% Chebyshev(Mean, Sd) UCL					3928
1299												
1300	**Suggested UCL to Use**											

1301					95% Student's-t UCL	3494						
1302												
1303	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1304	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1305	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1306	For additional insight the user may want to consult a statistician.											
1307												
1308												
1309	**Rubidium (Rb)_Total**											
1310												
1311	**General Statistics**											
1312	Total Number of Observations					10	Number of Distinct Observations					10
1313							Number of Missing Observations					0
1314	Minimum					0.819	Mean					1.408
1315	Maximum					1.95	Median					1.47
1316	SD					0.378	Std. Error of Mean					0.12
1317	Coefficient of Variation					0.269	Skewness					-0.415
1318												
1319	**Normal GOF Test**											
1320	Shapiro Wilk Test Statistic					0.948	**Shapiro Wilk GOF Test**					
1321	5% Shapiro Wilk Critical Value					0.842	Data appear Normal at 5% Significance Level					
1322	Lilliefors Test Statistic					0.132	**Lilliefors GOF Test**					
1323	5% Lilliefors Critical Value					0.28	Data appear Normal at 5% Significance Level					
1324	**Data appear Normal at 5% Significance Level**											
1325												
1326	**Assuming Normal Distribution**											
1327	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1328	95% Student's-t UCL					1.628	95% Adjusted-CLT UCL (Chen-1995)					1.588
1329							95% Modified-t UCL (Johnson-1978)					1.625
1330												
1331	**Gamma GOF Test**											
1332	A-D Test Statistic					0.382	**Anderson-Darling Gamma GOF Test**					
1333	5% A-D Critical Value					0.725	Detected data appear Gamma Distributed at 5% Significance Level					
1334	K-S Test Statistic					0.15	**Kolmogrov-Smirnoff Gamma GOF Test**					
1335	5% K-S Critical Value					0.266	Detected data appear Gamma Distributed at 5% Significance Level					
1336	**Detected data appear Gamma Distributed at 5% Significance Level**											
1337												
1338	**Gamma Statistics**											
1339	k hat (MLE)					13.65	k star (bias corrected MLE)					9.623
1340	Theta hat (MLE)					0.103	Theta star (bias corrected MLE)					0.146
1341	nu hat (MLE)					273	nu star (bias corrected)					192.5
1342	MLE Mean (bias corrected)					1.408	MLE Sd (bias corrected)					0.454
1343							Approximate Chi Square Value (0.05)					161.4
1344	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					156.4
1345												
1346	**Assuming Gamma Distribution**											
1347	95% Approximate Gamma UCL (use when n>=50))					1.68	95% Adjusted Gamma UCL (use when n<50)					1.733
1348												
1349	**Lognormal GOF Test**											
1350	Shapiro Wilk Test Statistic					0.903	**Shapiro Wilk Lognormal GOF Test**					

1351				5% Shapiro Wilk Critical Value		0.842		Data appear Lognormal at 5% Significance Level				
1352				Lilliefors Test Statistic		0.16		**Lilliefors Lognormal GOF Test**				
1353				5% Lilliefors Critical Value		0.28		Data appear Lognormal at 5% Significance Level				
1354				**Data appear Lognormal at 5% Significance Level**								
1355												
1356				**Lognormal Statistics**								
1357				Minimum of Logged Data		-0.2		Mean of logged Data				0.305
1358				Maximum of Logged Data		0.668		SD of logged Data				0.297
1359												
1360				**Assuming Lognormal Distribution**								
1361				95% H-UCL		1.725		90% Chebyshev (MVUE) UCL				1.813
1362				95% Chebyshev (MVUE) UCL		1.995		97.5% Chebyshev (MVUE) UCL				2.247
1363				99% Chebyshev (MVUE) UCL		2.743						
1364												
1365				**Nonparametric Distribution Free UCL Statistics**								
1366				**Data appear to follow a Discernible Distribution at 5% Significance Level**								
1367												
1368				**Nonparametric Distribution Free UCLs**								
1369				95% CLT UCL		1.605		95% Jackknife UCL				1.628
1370				95% Standard Bootstrap UCL		1.595		95% Bootstrap-t UCL				1.61
1371				95% Hall's Bootstrap UCL		1.584		95% Percentile Bootstrap UCL				1.589
1372				95% BCA Bootstrap UCL		1.585						
1373				90% Chebyshev(Mean, Sd) UCL		1.767		95% Chebyshev(Mean, Sd) UCL				1.93
1374				97.5% Chebyshev(Mean, Sd) UCL		2.155		99% Chebyshev(Mean, Sd) UCL				2.599
1375												
1376				**Suggested UCL to Use**								
1377				95% Student's-t UCL		1.628						
1378												
1379				Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.								
1380				These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)								
1381				and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.								
1382				For additional insight the user may want to consult a statistician.								
1383												
1384				**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**								
1385				**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**								
1386												
1387												
1388	**Selenium (Se)_Total**											
1389												
1390				**General Statistics**								
1391				Total Number of Observations		10		Number of Distinct Observations				10
1392								Number of Missing Observations				0
1393				Minimum		0.147		Mean				0.353
1394				Maximum		0.48		Median				0.36
1395				SD		0.0898		Std. Error of Mean				0.0284
1396				Coefficient of Variation		0.255		Skewness				-1.137
1397												
1398				**Normal GOF Test**								
1399				Shapiro Wilk Test Statistic		0.903		**Shapiro Wilk GOF Test**				
1400				5% Shapiro Wilk Critical Value		0.842		Data appear Normal at 5% Significance Level				

1401					Lilliefors Test Statistic	0.209	**Lilliefors GOF Test**					
1402					5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level					
1403	**Data appear Normal at 5% Significance Level**											
1404												
1405	**Assuming Normal Distribution**											
1406	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1407					95% Student's-t UCL	0.405				95% Adjusted-CLT UCL (Chen-1995)		0.389
1408										95% Modified-t UCL (Johnson-1978)		0.403
1409												
1410	**Gamma GOF Test**											
1411					A-D Test Statistic	0.741	**Anderson-Darling Gamma GOF Test**					
1412					5% A-D Critical Value	0.725	Data Not Gamma Distributed at 5% Significance Level					
1413					K-S Test Statistic	0.252	**Kolmogrov-Smirnoff Gamma GOF Test**					
1414					5% K-S Critical Value	0.267	Detected data appear Gamma Distributed at 5% Significance Level					
1415	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
1416												
1417	**Gamma Statistics**											
1418					k hat (MLE)	12.76				k star (bias corrected MLE)		8.999
1419					Theta hat (MLE)	0.0276				Theta star (bias corrected MLE)		0.0392
1420					nu hat (MLE)	255.2				nu star (bias corrected)		180
1421					MLE Mean (bias corrected)	0.353				MLE Sd (bias corrected)		0.118
1422										Approximate Chi Square Value (0.05)		149.9
1423					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value		145.2
1424												
1425	**Assuming Gamma Distribution**											
1426					95% Approximate Gamma UCL (use when n>=50))	0.423				95% Adjusted Gamma UCL (use when n<50)		0.437
1427												
1428	**Lognormal GOF Test**											
1429					Shapiro Wilk Test Statistic	0.775	**Shapiro Wilk Lognormal GOF Test**					
1430					5% Shapiro Wilk Critical Value	0.842	Data Not Lognormal at 5% Significance Level					
1431					Lilliefors Test Statistic	0.283	**Lilliefors Lognormal GOF Test**					
1432					5% Lilliefors Critical Value	0.28	Data Not Lognormal at 5% Significance Level					
1433	**Data Not Lognormal at 5% Significance Level**											
1434												
1435	**Lognormal Statistics**											
1436					Minimum of Logged Data	-1.917				Mean of logged Data		-1.082
1437					Maximum of Logged Data	-0.734				SD of logged Data		0.324
1438												
1439	**Assuming Lognormal Distribution**											
1440					95% H-UCL	0.444				90% Chebyshev (MVUE) UCL		0.466
1441					95% Chebyshev (MVUE) UCL	0.516				97.5% Chebyshev (MVUE) UCL		0.585
1442					99% Chebyshev (MVUE) UCL	0.721						
1443												
1444	**Nonparametric Distribution Free UCL Statistics**											
1445	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1446												
1447	**Nonparametric Distribution Free UCLs**											
1448					95% CLT UCL	0.4				95% Jackknife UCL		0.405
1449					95% Standard Bootstrap UCL	0.398				95% Bootstrap-t UCL		0.395
1450					95% Hall's Bootstrap UCL	0.394				95% Percentile Bootstrap UCL		0.395

1451				95% BCA Bootstrap UCL		0.389						
1452				90% Chebyshev(Mean, Sd) UCL		0.438				95% Chebyshev(Mean, Sd) UCL		0.477
1453				97.5% Chebyshev(Mean, Sd) UCL		0.53				99% Chebyshev(Mean, Sd) UCL		0.635
1454												
1455					**Suggested UCL to Use**							
1456				95% Student's-t UCL		0.405						
1457												
1458	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1459	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1460	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1461	For additional insight the user may want to consult a statistician.											
1462												
1463	**Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be**											
1464	**reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.**											
1465												
1466												
1467	**Sodium (Na)_Total**											
1468												
1469					**General Statistics**							
1470				Total Number of Observations		10				Number of Distinct Observations		10
1471										Number of Missing Observations		0
1472				Minimum		1310				Mean		1448
1473				Maximum		1700				Median		1395
1474				SD		128.9				Std. Error of Mean		40.76
1475				Coefficient of Variation		0.089				Skewness		0.867
1476												
1477					**Normal GOF Test**							
1478				Shapiro Wilk Test Statistic		0.903				**Shapiro Wilk GOF Test**		
1479				5% Shapiro Wilk Critical Value		0.842				Data appear Normal at 5% Significance Level		
1480				Lilliefors Test Statistic		0.245				**Lilliefors GOF Test**		
1481				5% Lilliefors Critical Value		0.28				Data appear Normal at 5% Significance Level		
1482					**Data appear Normal at 5% Significance Level**							
1483												
1484					**Assuming Normal Distribution**							
1485				**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**		
1486				95% Student's-t UCL		1523				95% Adjusted-CLT UCL (Chen-1995)		1527
1487										95% Modified-t UCL (Johnson-1978)		1525
1488												
1489					**Gamma GOF Test**							
1490				A-D Test Statistic		0.444				**Anderson-Darling Gamma GOF Test**		
1491				5% A-D Critical Value		0.724				Detected data appear Gamma Distributed at 5% Significance Level		
1492				K-S Test Statistic		0.247				**Kolmogrov-Smirnoff Gamma GOF Test**		
1493				5% K-S Critical Value		0.266				Detected data appear Gamma Distributed at 5% Significance Level		
1494					**Detected data appear Gamma Distributed at 5% Significance Level**							
1495												
1496					**Gamma Statistics**							
1497				k hat (MLE)		145.2				k star (bias corrected MLE)		101.7
1498				Theta hat (MLE)		9.971				Theta star (bias corrected MLE)		14.24
1499				nu hat (MLE)		2904				nu star (bias corrected)		2034
1500				MLE Mean (bias corrected)		1448				MLE Sd (bias corrected)		143.6

1501							Approximate Chi Square Value (0.05)					1931
1502					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value		1913
1503												
1504	**Assuming Gamma Distribution**											
1505				95% Approximate Gamma UCL (use when n>=50))		1526				95% Adjusted Gamma UCL (use when n<50)		1540
1506												
1507	**Lognormal GOF Test**											
1508					Shapiro Wilk Test Statistic	0.914	**Shapiro Wilk Lognormal GOF Test**					
1509					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
1510					Lilliefors Test Statistic	0.236	**Lilliefors Lognormal GOF Test**					
1511					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level					
1512	**Data appear Lognormal at 5% Significance Level**											
1513												
1514	**Lognormal Statistics**											
1515					Minimum of Logged Data	7.178				Mean of logged Data		7.274
1516					Maximum of Logged Data	7.438				SD of logged Data		0.0868
1517												
1518	**Assuming Lognormal Distribution**											
1519					95% H-UCL	N/A				90% Chebyshev (MVUE) UCL		1567
1520					95% Chebyshev (MVUE) UCL	1621				97.5% Chebyshev (MVUE) UCL		1696
1521					99% Chebyshev (MVUE) UCL	1844						
1522												
1523	**Nonparametric Distribution Free UCL Statistics**											
1524	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1525												
1526	**Nonparametric Distribution Free UCLs**											
1527					95% CLT UCL	1515				95% Jackknife UCL		1523
1528					95% Standard Bootstrap UCL	1513				95% Bootstrap-t UCL		1545
1529					95% Hall's Bootstrap UCL	1519				95% Percentile Bootstrap UCL		1508
1530					95% BCA Bootstrap UCL	1525						
1531					90% Chebyshev(Mean, Sd) UCL	1570				95% Chebyshev(Mean, Sd) UCL		1626
1532					97.5% Chebyshev(Mean, Sd) UCL	1703				99% Chebyshev(Mean, Sd) UCL		1854
1533												
1534	**Suggested UCL to Use**											
1535					95% Student's-t UCL	1523						
1536												
1537	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1538	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1539	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1540	For additional insight the user may want to consult a statistician.											
1541												
1542												
1543	**Strontium (Sr)_Total**											
1544												
1545	**General Statistics**											
1546					Total Number of Observations	10				Number of Distinct Observations		10
1547										Number of Missing Observations		0
1548					Minimum	4.25				Mean		12.84
1549					Maximum	30.4				Median		8.85
1550					SD	9.55				Std. Error of Mean		3.02

1551	Coefficient of Variation					0.744	Skewness					1.073
1552												
1553	**Normal GOF Test**											
1554	Shapiro Wilk Test Statistic					0.788	**Shapiro Wilk GOF Test**					
1555	5% Shapiro Wilk Critical Value					0.842	Data Not Normal at 5% Significance Level					
1556	Lilliefors Test Statistic					0.332	**Lilliefors GOF Test**					
1557	5% Lilliefors Critical Value					0.28	Data Not Normal at 5% Significance Level					
1558	**Data Not Normal at 5% Significance Level**											
1559												
1560	**Assuming Normal Distribution**											
1561	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1562	95% Student's-t UCL					18.37	95% Adjusted-CLT UCL (Chen-1995)					18.9
1563							95% Modified-t UCL (Johnson-1978)					18.54
1564												
1565	**Gamma GOF Test**											
1566	A-D Test Statistic					0.784	**Anderson-Darling Gamma GOF Test**					
1567	5% A-D Critical Value					0.734	Data Not Gamma Distributed at 5% Significance Level					
1568	K-S Test Statistic					0.279	**Kolmogrov-Smirnoff Gamma GOF Test**					
1569	5% K-S Critical Value					0.269	Data Not Gamma Distributed at 5% Significance Level					
1570	**Data Not Gamma Distributed at 5% Significance Level**											
1571												
1572	**Gamma Statistics**											
1573	k hat (MLE)					2.357	k star (bias corrected MLE)					1.716
1574	Theta hat (MLE)					5.447	Theta star (bias corrected MLE)					7.479
1575	nu hat (MLE)					47.13	nu star (bias corrected)					34.32
1576	MLE Mean (bias corrected)					12.84	MLE Sd (bias corrected)					9.798
1577							Approximate Chi Square Value (0.05)					21.92
1578	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					20.22
1579												
1580	**Assuming Gamma Distribution**											
1581	95% Approximate Gamma UCL (use when n>=50))					20.1	95% Adjusted Gamma UCL (use when n<50)					21.79
1582												
1583	**Lognormal GOF Test**											
1584	Shapiro Wilk Test Statistic					0.88	**Shapiro Wilk Lognormal GOF Test**					
1585	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
1586	Lilliefors Test Statistic					0.236	**Lilliefors Lognormal GOF Test**					
1587	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
1588	**Data appear Lognormal at 5% Significance Level**											
1589												
1590	**Lognormal Statistics**											
1591	Minimum of Logged Data					1.447	Mean of logged Data					2.325
1592	Maximum of Logged Data					3.414	SD of logged Data					0.691
1593												
1594	**Assuming Lognormal Distribution**											
1595	95% H-UCL					23.17	90% Chebyshev (MVUE) UCL					21.15
1596	95% Chebyshev (MVUE) UCL					25.02	97.5% Chebyshev (MVUE) UCL					30.38
1597	99% Chebyshev (MVUE) UCL					40.9						
1598												
1599	**Nonparametric Distribution Free UCL Statistics**											
1600	**Data appear to follow a Discernible Distribution at 5% Significance Level**											

1601												
1602	**Nonparametric Distribution Free UCLs**											
1603					95% CLT UCL	17.8				95% Jackknife UCL	18.37	
1604					95% Standard Bootstrap UCL	17.61				95% Bootstrap-t UCL	19.98	
1605					95% Hall's Bootstrap UCL	16.86				95% Percentile Bootstrap UCL	17.59	
1606					95% BCA Bootstrap UCL	18.17						
1607					90% Chebyshev(Mean, Sd) UCL	21.9				95% Chebyshev(Mean, Sd) UCL	26	
1608					97.5% Chebyshev(Mean, Sd) UCL	31.7				99% Chebyshev(Mean, Sd) UCL	42.88	
1609												
1610	**Suggested UCL to Use**											
1611					95% H-UCL	23.17						
1612												
1613	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1614	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1615	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1616	For additional insight the user may want to consult a statistician.											
1617												
1618	**ProUCL computes and outputs H-statistic based UCLs for historical reasons only.**											
1619	**H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.**											
1620	**It is therefore recommended to avoid the use of H-statistic based 95% UCLs.**											
1621	**Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.**											
1622												
1623												
1624	**Vanadium (V)_Total**											
1625												
1626	**General Statistics**											
1627					Total Number of Observations	10				Number of Distinct Observations	10	
1628										Number of Missing Observations	0	
1629					Minimum	0.046				Mean	0.145	
1630					Maximum	0.266				Median	0.152	
1631					SD	0.0707				Std. Error of Mean	0.0224	
1632					Coefficient of Variation	0.488				Skewness	0.154	
1633												
1634	**Normal GOF Test**											
1635					Shapiro Wilk Test Statistic	0.962				**Shapiro Wilk GOF Test**		
1636					5% Shapiro Wilk Critical Value	0.842				Data appear Normal at 5% Significance Level		
1637					Lilliefors Test Statistic	0.169				**Lilliefors GOF Test**		
1638					5% Lilliefors Critical Value	0.28				Data appear Normal at 5% Significance Level		
1639	**Data appear Normal at 5% Significance Level**											
1640												
1641	**Assuming Normal Distribution**											
1642	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
1643					95% Student's-t UCL	0.186				95% Adjusted-CLT UCL (Chen-1995)	0.183	
1644										95% Modified-t UCL (Johnson-1978)	0.186	
1645												
1646	**Gamma GOF Test**											
1647					A-D Test Statistic	0.293				**Anderson-Darling Gamma GOF Test**		
1648					5% A-D Critical Value	0.729				Detected data appear Gamma Distributed at 5% Significance Level		
1649					K-S Test Statistic	0.214				**Kolmogrov-Smirnoff Gamma GOF Test**		
1650					5% K-S Critical Value	0.268				Detected data appear Gamma Distributed at 5% Significance Level		

1651	**Detected data appear Gamma Distributed at 5% Significance Level**											
1652												
1653	**Gamma Statistics**											
1654						k hat (MLE)	3.977				k star (bias corrected MLE)	2.851
1655						Theta hat (MLE)	0.0365				Theta star (bias corrected MLE)	0.0509
1656						nu hat (MLE)	79.55				nu star (bias corrected)	57.02
1657						MLE Mean (bias corrected)	0.145				MLE Sd (bias corrected)	0.0859
1658											Approximate Chi Square Value (0.05)	40.66
1659						Adjusted Level of Significance	0.0267				Adjusted Chi Square Value	38.27
1660												
1661	**Assuming Gamma Distribution**											
1662						95% Approximate Gamma UCL (use when n>=50))	0.203				95% Adjusted Gamma UCL (use when n<50)	0.216
1663												
1664	**Lognormal GOF Test**											
1665						Shapiro Wilk Test Statistic	0.931				**Shapiro Wilk Lognormal GOF Test**	
1666						5% Shapiro Wilk Critical Value	0.842				Data appear Lognormal at 5% Significance Level	
1667						Lilliefors Test Statistic	0.214				**Lilliefors Lognormal GOF Test**	
1668						5% Lilliefors Critical Value	0.28				Data appear Lognormal at 5% Significance Level	
1669	**Data appear Lognormal at 5% Significance Level**											
1670												
1671	**Lognormal Statistics**											
1672						Minimum of Logged Data	-3.079				Mean of logged Data	-2.062
1673						Maximum of Logged Data	-1.324				SD of logged Data	0.573
1674												
1675	**Assuming Lognormal Distribution**											
1676						95% H-UCL	0.234				90% Chebyshev (MVUE) UCL	0.229
1677						95% Chebyshev (MVUE) UCL	0.266				97.5% Chebyshev (MVUE) UCL	0.318
1678						99% Chebyshev (MVUE) UCL	0.419					
1679												
1680	**Nonparametric Distribution Free UCL Statistics**											
1681	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1682												
1683	**Nonparametric Distribution Free UCLs**											
1684						95% CLT UCL	0.182				95% Jackknife UCL	0.186
1685						95% Standard Bootstrap UCL	0.179				95% Bootstrap-t UCL	0.188
1686						95% Hall's Bootstrap UCL	0.185				95% Percentile Bootstrap UCL	0.18
1687						95% BCA Bootstrap UCL	0.18					
1688						90% Chebyshev(Mean, Sd) UCL	0.212				95% Chebyshev(Mean, Sd) UCL	0.242
1689						97.5% Chebyshev(Mean, Sd) UCL	0.285				99% Chebyshev(Mean, Sd) UCL	0.367
1690												
1691	**Suggested UCL to Use**											
1692						95% Student's-t UCL	0.186					
1693												
1694	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1695	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1696	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1697	For additional insight the user may want to consult a statistician.											
1698												
1699												
1700	**Yttrium (Y)_Total**											

1701												
1702	**General Statistics**											
1703					Total Number of Observations	10				Number of Distinct Observations	9	
1704										Number of Missing Observations	0	
1705					Minimum	0.0035				Mean	0.012	
1706					Maximum	0.0217				Median	0.0121	
1707					SD	0.00575				Std. Error of Mean	0.00182	
1708					Coefficient of Variation	0.478				Skewness	0.185	
1709												
1710	**Normal GOF Test**											
1711					Shapiro Wilk Test Statistic	0.964	**Shapiro Wilk GOF Test**					
1712					5% Shapiro Wilk Critical Value	0.842	Data appear Normal at 5% Significance Level					
1713					Lilliefors Test Statistic	0.166	**Lilliefors GOF Test**					
1714					5% Lilliefors Critical Value	0.28	Data appear Normal at 5% Significance Level					
1715	**Data appear Normal at 5% Significance Level**											
1716												
1717	**Assuming Normal Distribution**											
1718	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1719					95% Student's-t UCL	0.0154				95% Adjusted-CLT UCL (Chen-1995)	0.0151	
1720										95% Modified-t UCL (Johnson-1978)	0.0154	
1721												
1722	**Gamma GOF Test**											
1723					A-D Test Statistic	0.262	**Anderson-Darling Gamma GOF Test**					
1724					5% A-D Critical Value	0.729	Detected data appear Gamma Distributed at 5% Significance Level					
1725					K-S Test Statistic	0.211	**Kolmogrov-Smirnoff Gamma GOF Test**					
1726					5% K-S Critical Value	0.268	Detected data appear Gamma Distributed at 5% Significance Level					
1727	**Detected data appear Gamma Distributed at 5% Significance Level**											
1728												
1729	**Gamma Statistics**											
1730					k hat (MLE)	4.177				k star (bias corrected MLE)	2.99	
1731					Theta hat (MLE)	0.00288				Theta star (bias corrected MLE)	0.00402	
1732					nu hat (MLE)	83.54				nu star (bias corrected)	59.81	
1733					MLE Mean (bias corrected)	0.012				MLE Sd (bias corrected)	0.00696	
1734										Approximate Chi Square Value (0.05)	43.02	
1735					Adjusted Level of Significance	0.0267				Adjusted Chi Square Value	40.56	
1736												
1737	**Assuming Gamma Distribution**											
1738					95% Approximate Gamma UCL (use when n>=50))	0.0167				95% Adjusted Gamma UCL (use when n<50)	0.0177	
1739												
1740	**Lognormal GOF Test**											
1741					Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk Lognormal GOF Test**					
1742					5% Shapiro Wilk Critical Value	0.842	Data appear Lognormal at 5% Significance Level					
1743					Lilliefors Test Statistic	0.211	**Lilliefors Lognormal GOF Test**					
1744					5% Lilliefors Critical Value	0.28	Data appear Lognormal at 5% Significance Level					
1745	**Data appear Lognormal at 5% Significance Level**											
1746												
1747	**Lognormal Statistics**											
1748					Minimum of Logged Data	-5.655				Mean of logged Data	-4.545	
1749					Maximum of Logged Data	-3.83				SD of logged Data	0.56	
1750												

1751	**Assuming Lognormal Distribution**											
1752					95% H-UCL	0.0191				90% Chebyshev (MVUE) UCL		0.0188
1753					95% Chebyshev (MVUE) UCL	0.0218				97.5% Chebyshev (MVUE) UCL		0.026
1754					99% Chebyshev (MVUE) UCL	0.0342						
1755												
1756	**Nonparametric Distribution Free UCL Statistics**											
1757	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1758												
1759	**Nonparametric Distribution Free UCLs**											
1760					95% CLT UCL	0.015				95% Jackknife UCL		0.0154
1761					95% Standard Bootstrap UCL	0.0149				95% Bootstrap-t UCL		0.0153
1762					95% Hall's Bootstrap UCL	0.0152				95% Percentile Bootstrap UCL		0.0148
1763					95% BCA Bootstrap UCL	0.015						
1764					90% Chebyshev(Mean, Sd) UCL	0.0175				95% Chebyshev(Mean, Sd) UCL		0.02
1765					97.5% Chebyshev(Mean, Sd) UCL	0.0234				99% Chebyshev(Mean, Sd) UCL		0.0301
1766												
1767	**Suggested UCL to Use**											
1768					95% Student's-t UCL	0.0154						
1769												
1770	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1771	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1772	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1773	For additional insight the user may want to consult a statistician.											
1774												
1775												
1776	**Zinc (Zn)_Total**											
1777												
1778	**General Statistics**											
1779					Total Number of Observations	10				Number of Distinct Observations		10
1780										Number of Missing Observations		0
1781					Minimum	20.7				Mean		26.97
1782					Maximum	32.9				Median		27.3
1783					SD	3.51				Std. Error of Mean		1.11
1784					Coefficient of Variation	0.13				Skewness		-0.293
1785												
1786	**Normal GOF Test**											
1787					Shapiro Wilk Test Statistic	0.976				**Shapiro Wilk GOF Test**		
1788					5% Shapiro Wilk Critical Value	0.842				Data appear Normal at 5% Significance Level		
1789					Lilliefors Test Statistic	0.135				**Lilliefors GOF Test**		
1790					5% Lilliefors Critical Value	0.28				Data appear Normal at 5% Significance Level		
1791	**Data appear Normal at 5% Significance Level**											
1792												
1793	**Assuming Normal Distribution**											
1794	**95% Normal UCL**									**95% UCLs (Adjusted for Skewness)**		
1795					95% Student's-t UCL	29				95% Adjusted-CLT UCL (Chen-1995)		28.69
1796										95% Modified-t UCL (Johnson-1978)		28.99
1797												
1798	**Gamma GOF Test**											
1799					A-D Test Statistic	0.251				**Anderson-Darling Gamma GOF Test**		
1800					5% A-D Critical Value	0.724				Detected data appear Gamma Distributed at 5% Significance Level		

1801	K-S Test Statistic					0.149	**Kolmogrov-Smirnoff Gamma GOF Test**					
1802	5% K-S Critical Value					0.266	Detected data appear Gamma Distributed at 5% Significance Level					
1803	**Detected data appear Gamma Distributed at 5% Significance Level**											
1804												
1805	**Gamma Statistics**											
1806	k hat (MLE)					63.16	k star (bias corrected MLE)					44.28
1807	Theta hat (MLE)					0.427	Theta star (bias corrected MLE)					0.609
1808	nu hat (MLE)					1263	nu star (bias corrected)					885.6
1809	MLE Mean (bias corrected)					26.97	MLE Sd (bias corrected)					4.053
1810							Approximate Chi Square Value (0.05)					817.5
1811	Adjusted Level of Significance					0.0267	Adjusted Chi Square Value					806.1
1812												
1813	**Assuming Gamma Distribution**											
1814	95% Approximate Gamma UCL (use when n>=50))					29.22	95% Adjusted Gamma UCL (use when n<50)					29.63
1815												
1816	**Lognormal GOF Test**											
1817	Shapiro Wilk Test Statistic					0.96	**Shapiro Wilk Lognormal GOF Test**					
1818	5% Shapiro Wilk Critical Value					0.842	Data appear Lognormal at 5% Significance Level					
1819	Lilliefors Test Statistic					0.16	**Lilliefors Lognormal GOF Test**					
1820	5% Lilliefors Critical Value					0.28	Data appear Lognormal at 5% Significance Level					
1821	**Data appear Lognormal at 5% Significance Level**											
1822												
1823	**Lognormal Statistics**											
1824	Minimum of Logged Data					3.03	Mean of logged Data					3.287
1825	Maximum of Logged Data					3.493	SD of logged Data					0.134
1826												
1827	**Assuming Lognormal Distribution**											
1828	95% H-UCL					29.3	90% Chebyshev (MVUE) UCL					30.42
1829	95% Chebyshev (MVUE) UCL					31.98	97.5% Chebyshev (MVUE) UCL					34.14
1830	99% Chebyshev (MVUE) UCL					38.39						
1831												
1832	**Nonparametric Distribution Free UCL Statistics**											
1833	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1834												
1835	**Nonparametric Distribution Free UCLs**											
1836	95% CLT UCL					28.8	95% Jackknife UCL					29
1837	95% Standard Bootstrap UCL					28.67	95% Bootstrap-t UCL					28.88
1838	95% Hall's Bootstrap UCL					28.83	95% Percentile Bootstrap UCL					28.65
1839	95% BCA Bootstrap UCL					28.7						
1840	90% Chebyshev(Mean, Sd) UCL					30.3	95% Chebyshev(Mean, Sd) UCL					31.81
1841	97.5% Chebyshev(Mean, Sd) UCL					33.9	99% Chebyshev(Mean, Sd) UCL					38.01
1842												
1843	**Suggested UCL to Use**											
1844	95% Student's-t UCL					29						
1845												
1846	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1847	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1848	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1849	For additional insight the user may want to consult a statistician.											
1850												

	A	B	C	D	E	F	G	H	I	J	K	L
1851	Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be											
1852	reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.											
1853												

ProUCL Output for Ore

Antimony

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	89

Raw Statistics		Log-transformed Statistics	
Minimum	2.5	Minimum of Log Data	0.916
Maximum	2980	Maximum of Log Data	8
Mean	11.71	Mean of log Data	1.853
Geometric Mean	6.376	SD of log Data	1.033
Median	5		
SD	28.41		
Std. Error of Mean	0.127		
Coefficient of Variation	2.427		
Skewness	-67.95		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.373	Lilliefors Test Statistic	0.299
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	11.92	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	11.15
95% Adjusted-CLT UCL (Chen-1995)	11.87	97.5% Chebyshev (MVUE) UCL	11.26
95% Modified-t UCL (Johnson-1978)	11.91	99% Chebyshev (MVUE) UCL	11.49

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.955	Data do not follow a Discernable Distribution (0.05)	
Theta Star	12.26		
MLE of Mean	11.71		
MLE of Standard Deviation	11.98		
nu star	95680		
Approximate Chi Square Value (.05)	94961	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	11.92
Adjusted Chi Square Value	94961	95% Jackknife UCL	11.92
		95% Standard Bootstrap UCL	11.92
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	11.96
Anderson-Darling 5% Critical Value	0.788	95% Hall's Bootstrap UCL	11.89
Kolmogorov-Smirnov Test Statistic	0.279	95% Percentile Bootstrap UCL	11.92
Kolmogorov-Smirnov 5% Critical Value	0.0188	95% BCA Bootstrap UCL	11.94
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	12.26
		97.5% Chebyshev(Mean, Sd) UCL	12.5
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	12.97
95% Approximate Gamma UCL (Use when n >= 40)	11.8		
95% Adjusted Gamma UCL (Use when n < 40)	11.8		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	12.26

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Aluminum

Variable	NumObs	Minimum	Maximum	Mean	Median	Variance	SD	MAD/0.675	Skewness	Kurtosis	CV
C2	50084	300	70900	17013	16100	36314947	6026	5189	-1.409	2.092	0.354

Percentiles for Raw Full Dataset

Variable	NumObs	5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
C2	50084	8900	10300	12200	12900	16100	20100	21300	25100	28300	35000

General UCL Statistics for Full Data Sets

User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C2

General Statistics			
Number of Valid Observations	50084	Number of Distinct Observations	811
Raw Statistics		Log-transformed Statistics	
Minimum	300	Minimum of Log Data	5.704
Maximum	70900	Maximum of Log Data	11.17
Mean	17013	Mean of log Data	9.68
Geometric Mean	15997	SD of log Data	0.357
Median	16100		
SD	6026		
Std. Error of Mean	26.93		
Coefficient of Variation	0.354		
Skewness	-1.409		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0738	Lilliefors Test Statistic	0.0281
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	17057	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17171
95% Adjusted-CLT UCL (Chen-1995)	17057	97.5% Chebyshev (MVUE) UCL	17224
95% Modified-t UCL (Johnson-1978)	17057	99% Chebyshev (MVUE) UCL	17328
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	8.286	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2053		
MLE of Mean	17013		
MLE of Standard Deviation	5910		
nu star	829991		
Approximate Chi Square Value (.05)	827873	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	17057
Adjusted Chi Square Value	827873	95% Jackknife UCL	17057
		95% Standard Bootstrap UCL	17058
Anderson-Darling Test Statistic	64.04	95% Bootstrap-t UCL	17057
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL	17058
Kolmogorov-Smirnov Test Statistic	0.0296	95% Percentile Bootstrap UCL	17056
Kolmogorov-Smirnov 5% Critical Value	0.0182	95% BCA Bootstrap UCL	17056
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	17130
		97.5% Chebyshev(Mean, Sd) UCL	17181
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	17281
95% Approximate Gamma UCL (Use when n >= 40)	17057		
95% Adjusted Gamma UCL (Use when n < 40)	17057		
Potential UCL to Use		Use 95% Student's-t UCL	17057
		or 95% Modified-t UCL	17057

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Arsenic

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1_b.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

as

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	272
Raw Statistics		Log-transformed Statistics	
Minimum	2.5	Minimum of Log Data	0.916
Maximum	10000	Maximum of Log Data	9.21
Mean	26.67	Mean of log Data	2.296
Geometric Mean	9.937	SD of log Data	1.216
Median	10		
SD	134.9		
Std. Error of Mean	0.603		
Coefficient of Variation	5.057		
Skewness	-47.93		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.429	Lilliefors Test Statistic	0.196
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	27.66	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21.45
95% Adjusted-CLT UCL (Chen-1995)	27.52	97.5% Chebyshev (MVUE) UCL	21.74
95% Modified-t UCL (Johnson-1978)	27.64	99% Chebyshev (MVUE) UCL	22.29

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.622	Data do not follow a Discernable Distribution (0.05)	
Theta Star	42.84		
MLE of Mean	26.67		
MLE of Standard Deviation	33.8		
nu star	62355		
Approximate Chi Square Value (.05)	61775	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	27.66
Adjusted Chi Square Value	61775	95% Jackknife UCL	27.66
		95% Standard Bootstrap UCL	27.64
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	27.8
Anderson-Darling 5% Critical Value	0.81	95% Hall's Bootstrap UCL	27.55
Kolmogorov-Smirnov Test Statistic	0.186	95% Percentile Bootstrap UCL	27.68
Kolmogorov-Smirnov 5% Critical Value	0.0191	95% BCA Bootstrap UCL	27.76
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	29.3
		97.5% Chebyshev(Mean, Sd) UCL	30.43
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	32.66
95% Approximate Gamma UCL (Use when n >= 40)	26.92		
95% Adjusted Gamma UCL (Use when n < 40)	26.92		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	29.3

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Barium

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	538

Raw Statistics		Log-transformed Statistics	
Minimum	1	Minimum of Log Data	0
Maximum	4535	Maximum of Log Data	8.42
Mean	103.2	Mean of log Data	4.263
Geometric Mean	71.04	SD of log Data	0.878
Median	70		
SD	108.6		
Std. Error of Mean	0.485		
Coefficient of Variation	1.052		
Skewness	-8.164		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.188	Lilliefors Test Statistic	0.0409
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	104	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	106.6
95% Adjusted-CLT UCL (Chen-1995)	104	97.5% Chebyshev (MVUE) UCL	107.5
95% Modified-t UCL (Johnson-1978)	104	99% Chebyshev (MVUE) UCL	109.2

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.482	Data do not follow a Discernable Distribution (0.05)	
Theta Star	69.67		
MLE of Mean	103.2		
MLE of Standard Deviation	84.81		
nu star	148437		
Approximate Chi Square Value (.05)	147542	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	104
Adjusted Chi Square Value	147542	95% Jackknife UCL	104
		95% Standard Bootstrap UCL	104
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	104.1
Anderson-Darling 5% Critical Value	0.773	95% Hall's Bootstrap UCL	104
Kolmogorov-Smirnov Test Statistic	0.0854	95% Percentile Bootstrap UCL	104
Kolmogorov-Smirnov 5% Critical Value	0.0185	95% BCA Bootstrap UCL	104
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	105.4
		97.5% Chebyshev(Mean, Sd) UCL	106.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	108.1
95% Approximate Gamma UCL (Use when n >= 40)	103.9		
95% Adjusted Gamma UCL (Use when n < 40)	103.9		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	105.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Bismuth

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	34

Raw Statistics		Log-transformed Statistics	
Minimum	2.5	Minimum of Log Data	0.916
Maximum	240	Maximum of Log Data	5.481
Mean	5.707	Mean of log Data	1.216
Geometric Mean	3.374	SD of log Data	0.762
Median	2.5		
SD	10.71		
Std. Error of Mean	0.0479		
Coefficient of Variation	1.877		
Skewness	-7.222		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.463	Lilliefors Test Statistic	0.498
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	5.786	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.586
95% Adjusted-CLT UCL (Chen-1995)	5.784	97.5% Chebyshev (MVUE) UCL	4.619
95% Modified-t UCL (Johnson-1978)	5.786	99% Chebyshev (MVUE) UCL	4.684

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.087	Data do not follow a Discernable Distribution (0.05)	
Theta Star	5.248		
MLE of Mean	5.707		
MLE of Standard Deviation	5.473		
nu star	108926		
Approximate Chi Square Value (.05)	108160	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	5.786
Adjusted Chi Square Value	108160	95% Jackknife UCL	5.786
		95% Standard Bootstrap UCL	5.786
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	5.789
Anderson-Darling 5% Critical Value	0.784	95% Hall's Bootstrap UCL	5.788
Kolmogorov-Smirnov Test Statistic	0.507	95% Percentile Bootstrap UCL	5.788
Kolmogorov-Smirnov 5% Critical Value	0.0187	95% BCA Bootstrap UCL	5.784
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	5.916
		97.5% Chebyshev(Mean, Sd) UCL	6.006
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	6.184
95% Approximate Gamma UCL (Use when n >= 40)	5.748		
95% Adjusted Gamma UCL (Use when n < 40)	5.748		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	5.916

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Cadmium

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

cd

General Statistics			
Number of Valid Observations	50084	Number of Distinct Observations	30
Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	981	Maximum of Log Data	6.889
Mean	0.816	Mean of log Data	-0.454
Geometric Mean	0.635	SD of log Data	0.535
Median	0.5		
SD	4.518		
Std. Error of Mean	0.0202		
Coefficient of Variation	5.535		
Skewness	-286.8		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.472	Lilliefors Test Statistic	0.471
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.85	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.741
95% Adjusted-CLT UCL (Chen-1995)	0.822	97.5% Chebyshev (MVUE) UCL	0.744
95% Modified-t UCL (Johnson-1978)	0.845	99% Chebyshev (MVUE) UCL	0.751

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.142	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.381		
MLE of Mean	0.816		
MLE of Standard Deviation	0.558		
nu star	214608		
Approximate Chi Square Value (.05)	213531	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	0.85
Adjusted Chi Square Value	213531	95% Jackknife UCL	0.85
		95% Standard Bootstrap UCL	0.849
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	0.927
Anderson-Darling 5% Critical Value	0.766	95% Hall's Bootstrap UCL	0.858
Kolmogorov-Smirnov Test Statistic	0.463	95% Percentile Bootstrap UCL	0.855
Kolmogorov-Smirnov 5% Critical Value	0.0184	95% BCA Bootstrap UCL	0.881
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.904
		97.5% Chebyshev(Mean, Sd) UCL	0.942
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.017
95% Approximate Gamma UCL (Use when n >= 40)	0.82		
95% Adjusted Gamma UCL (Use when n < 40)	0.82		

Potential UCL to Use			
		Use 95% Chebyshev (Mean, Sd) UCL	0.904

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Calcium
Summary Statistics for Raw Full Dataset

Variable	NumObs	Minimum	Maximum	Mean	Median	Variance	SD	MAD/0.675	Skewness	Kurtosis	CV
C15	50083	1300	124600	30568	27200	3.07E+08	17525	13491	-1.669	1.978	0.573

Percentiles for Raw Full Dataset

Variable	NumObs	5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
C15	50083	5800	11900	17600	19400	27200	38400	42200	53800	64900	91100

General UCL Statistics for Full Data Sets

User Selected Options

From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C15

General Statistics

Number of Valid Observations	50083	Number of Distinct Observations	2014

Raw Statistics		Log-transformed Statistics	
Minimum	1300	Minimum of Log Data	7.17
Maximum	124600	Maximum of Log Data	11.73
Mean	30568	Mean of log Data	10.14
Geometric Mean	25406	SD of log Data	0.67
Median	27200		
SD	17525		
Std. Error of Mean	78.31		
Coefficient of Variation	0.573		
Skewness	-1.669		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0993	Lilliefors Test Statistic	0.0953
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	30697	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	32262
95% Adjusted-CLT UCL (Chen-1995)	30696	97.5% Chebyshev (MVUE) UCL	32461
95% Modified-t UCL (Johnson-1978)	30697	99% Chebyshev (MVUE) UCL	32851

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.859	Data do not follow a Discernable Distribution (0.05)	
Theta Star	10693		
MLE of Mean	30568		
MLE of Standard Deviation	18079		
nu star	286356		
Approximate Chi Square Value (.05)	285112	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	30697
Adjusted Chi Square Value	285112	95% Jackknife UCL	30697
		95% Standard Bootstrap UCL	30698
Anderson-Darling Test Statistic	282.8	95% Bootstrap-t UCL	30701
Anderson-Darling 5% Critical Value	0.761	95% Hall's Bootstrap UCL	30695
Kolmogorov-Smirnov Test Statistic	0.0604	95% Percentile Bootstrap UCL	30691
Kolmogorov-Smirnov 5% Critical Value	0.0183	95% BCA Bootstrap UCL	30707
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	30909
		97.5% Chebyshev(Mean, Sd) UCL	31057
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	31347
95% Approximate Gamma UCL (Use when n >= 40)	30701		
95% Adjusted Gamma UCL (Use when n < 40)	30701		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	30909

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Chromium

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	1145

Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	2086	Maximum of Log Data	7.643
Mean	155.8	Mean of log Data	4.363
Geometric Mean	78.47	SD of log Data	1.142
Median	56		
SD	203.6		
Std. Error of Mean	0.91		
Coefficient of Variation	1.307		
Skewness	-2.817		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.259	Lilliefors Test Statistic	0.125
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	157.3	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	155
95% Adjusted-CLT UCL (Chen-1995)	157.3	97.5% Chebyshev (MVUE) UCL	156.9
95% Modified-t UCL (Johnson-1978)	157.3	99% Chebyshev (MVUE) UCL	160.5

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.858	Data do not follow a Discernable Distribution (0.05)	
Theta Star	181.6		
MLE of Mean	155.8		
MLE of Standard Deviation	168.2		
nu star	85913		
Approximate Chi Square Value (.05)	85232	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	157.3
Adjusted Chi Square Value	85232	95% Jackknife UCL	157.3
		95% Standard Bootstrap UCL	157.3
Anderson-Darling Test Statistic	2609	95% Bootstrap-t UCL	157.3
Anderson-Darling 5% Critical Value	0.792	95% Hall's Bootstrap UCL	157.3
Kolmogorov-Smirnov Test Statistic	0.185	95% Percentile Bootstrap UCL	157.3
Kolmogorov-Smirnov 5% Critical Value	0.0188	95% BCA Bootstrap UCL	157.4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	159.7
		97.5% Chebyshev(Mean, Sd) UCL	161.5
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	164.8
95% Approximate Gamma UCL (Use when n >= 40)	157		
95% Adjusted Gamma UCL (Use when n < 40)	157		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	159.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Cobalt

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	412

Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	2216	Maximum of Log Data	7.703
Mean	38.59	Mean of log Data	3.415
Geometric Mean	30.43	SD of log Data	0.682
Median	32		
SD	39.2		
Std. Error of Mean	0.175		
Coefficient of Variation	1.016		
Skewness	-21.9		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.193	Lilliefors Test Statistic	0.0489
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	38.88	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	38.97
95% Adjusted-CLT UCL (Chen-1995)	38.86	97.5% Chebyshev (MVUE) UCL	39.22
95% Modified-t UCL (Johnson-1978)	38.88	99% Chebyshev (MVUE) UCL	39.7

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.256	Data do not follow a Discernable Distribution (0.05)	
Theta Star	17.11		
MLE of Mean	38.59		
MLE of Standard Deviation	25.7		
nu star	225963		
Approximate Chi Square Value (.05)	224859	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	38.88
Adjusted Chi Square Value	224859	95% Jackknife UCL	38.88
		95% Standard Bootstrap UCL	38.87
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	38.9
Anderson-Darling 5% Critical Value	0.765	95% Hall's Bootstrap UCL	38.87
Kolmogorov-Smirnov Test Statistic	0.0564	95% Percentile Bootstrap UCL	38.89
Kolmogorov-Smirnov 5% Critical Value	0.0184	95% BCA Bootstrap UCL	38.92
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	39.36
		97.5% Chebyshev(Mean, Sd) UCL	39.69
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	40.34
95% Approximate Gamma UCL (Use when n >= 40)	38.78		
95% Adjusted Gamma UCL (Use when n < 40)	38.78		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	39.36

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Copper

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

cu

General Statistics			
Number of Valid Observations	50089	Number of Distinct Observations	8813
Raw Statistics		**Log-transformed Statistics**	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	10000	Maximum of Log Data	9.21
Mean	1528	Mean of log Data	6.263
Geometric Mean	524.7	SD of log Data	1.649
Median	576		
SD	2206		
Std. Error of Mean	9.856		
Coefficient of Variation	1.443		
Skewness	-3.114		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.244	Lilliefors Test Statistic	0.0369
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1545	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2144
95% Adjusted-CLT UCL (Chen-1995)	1544	97.5% Chebyshev (MVUE) UCL	2187
95% Modified-t UCL (Johnson-1978)	1545	99% Chebyshev (MVUE) UCL	2273

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.581	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2632		
MLE of Mean	1528		
MLE of Standard Deviation	2006		
nu star	58176		
Approximate Chi Square Value (.05)	57616	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	1545
Adjusted Chi Square Value	57616	95% Jackknife UCL	1545
		95% Standard Bootstrap UCL	1545
Anderson-Darling Test Statistic	522.1	95% Bootstrap-t UCL	1544
Anderson-Darling 5% Critical Value	0.814	95% Hall's Bootstrap UCL	1544
Kolmogorov-Smirnov Test Statistic	0.0711	95% Percentile Bootstrap UCL	1545
Kolmogorov-Smirnov 5% Critical Value	0.0191	95% BCA Bootstrap UCL	1544
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1571
		97.5% Chebyshev(Mean, Sd) UCL	1590
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1626
95% Approximate Gamma UCL (Use when n >= 40)	1543		
95% Adjusted Gamma UCL (Use when n < 40)	1543		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	1571

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Iron
Summary Statistics for Raw Full Dataset

Variable	NumObs	Minimum	Maximum	Mean	Median	Variance	SD	MAD/0.675	Skewness	Kurtosis	CV
C5	50084	200	110000	37599	35100	3.71E+08	19263	16901	-1.287	0.996	0.512

Percentiles for Raw Full Dataset

Variable	NumObs	5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
C5	50084	10800	15000	21500	24300	35100	47300	50600	62700	76000	100000

General UCL Statistics for Full Data Sets

User Selected Options

From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C5

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	1229

Raw Statistics		Log-transformed Statistics	
Minimum	200	Minimum of Log Data	5.298
Maximum	110000	Maximum of Log Data	11.61
Mean	37599	Mean of log Data	10.39
Geometric Mean	32518	SD of log Data	0.577
Median	35100		
SD	19263		
Std. Error of Mean	86.07		
Coefficient of Variation	0.512		
Skewness	-1.287		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0671	Lilliefors Test Statistic	0.0715
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	37740	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	38874
95% Adjusted-CLT UCL (Chen-1995)	37740	97.5% Chebyshev (MVUE) UCL	39076
95% Modified-t UCL (Johnson-1978)	37740	99% Chebyshev (MVUE) UCL	39472

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.602	Data do not follow a Discernable Distribution (0.05)	
Theta Star	10438		
MLE of Mean	37599		
MLE of Standard Deviation	19810		
nu star	360817		
Approximate Chi Square Value (.05)	359420	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	37740
Adjusted Chi Square Value	359420	95% Jackknife UCL	37740
		95% Standard Bootstrap UCL	37737
Anderson-Darling Test Statistic	100.9	95% Bootstrap-t UCL	37734
Anderson-Darling 5% Critical Value	0.763	95% Hall's Bootstrap UCL	37739
Kolmogorov-Smirnov Test Statistic	0.0356	95% Percentile Bootstrap UCL	37736
Kolmogorov-Smirnov 5% Critical Value	0.0183	95% BCA Bootstrap UCL	37744
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	37974
		97.5% Chebyshev(Mean, Sd) UCL	38136
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	38455
95% Approximate Gamma UCL (Use when n >= 40)	37745		
95% Adjusted Gamma UCL (Use when n < 40)	37745		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	37974

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Lead

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

pb

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	275
Raw Statistics		Log-transformed Statistics	
Minimum	1	Minimum of Log Data	0
Maximum	10000	Maximum of Log Data	9.21
Mean	23.19	Mean of log Data	2.534
Geometric Mean	12.6	SD of log Data	1.328
Median	20		
SD	48.97		
Std. Error of Mean	0.219		
Coefficient of Variation	2.112		
Skewness	-237.2		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.325	Lilliefors Test Statistic	0.144
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	23.55	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	31.52
95% Adjusted-CLT UCL (Chen-1995)	23.3	97.5% Chebyshev (MVUE) UCL	31.99
95% Modified-t UCL (Johnson-1978)	23.51	99% Chebyshev (MVUE) UCL	32.91
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.952	Data do not follow a Discernable Distribution (0.05)	
Theta Star	24.37		
MLE of Mean	23.19		
MLE of Standard Deviation	23.77		
nu star	95330		
Approximate Chi Square Value (.05)	94613	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	23.55
Adjusted Chi Square Value	94613	95% Jackknife UCL	23.55
		95% Standard Bootstrap UCL	23.56
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	23.91
Anderson-Darling 5% Critical Value	0.788	95% Hall's Bootstrap UCL	23.57
Kolmogorov-Smirnov Test Statistic	0.1	95% Percentile Bootstrap UCL	23.61
Kolmogorov-Smirnov 5% Critical Value	0.0188	95% BCA Bootstrap UCL	23.81
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	24.15
		97.5% Chebyshev(Mean, Sd) UCL	24.56
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	25.37
95% Approximate Gamma UCL (Use when n >= 40)	23.37		
95% Adjusted Gamma UCL (Use when n < 40)	23.37		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	24.15

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Magnesium
Summary Statistics for Raw Full Dataset

Variable	NumObs	Minimum	Maximum	Mean	Median	Variance	SD	MAD/0.675	Skewness	Kurtosis	CV
C7	50084	50	100000	24252	16300	4.80E+08	21911	9637	-2.874	3.603	0.903

Percentiles for Raw Full Dataset

Variable	NumObs	5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
C7	50084	6500	8000	10100	11000	16300	26700	31900	54600	82100	100000

General UCL Statistics for Full Data Sets

User Selected Options

From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C7

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	1174
Raw Statistics		**Log-transformed Statistics**	
Minimum	50	Minimum of Log Data	3.912
Maximum	100000	Maximum of Log Data	11.51
Mean	24252	Mean of log Data	9.806
Geometric Mean	18142	SD of log Data	0.724
Median	16300		
SD	21911		
Std. Error of Mean	97.9		
Coefficient of Variation	0.903		
Skewness	-2.874		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.217	Lilliefors Test Statistic	0.0726
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	24413	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	23956
95% Adjusted-CLT UCL (Chen-1995)	24412	97.5% Chebyshev (MVUE) UCL	24118
95% Modified-t UCL (Johnson-1978)	24413	99% Chebyshev (MVUE) UCL	24436
Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.872	Data do not follow a Discernable Distribution (0.05)	
Theta Star	12957		
MLE of Mean	24252		
MLE of Standard Deviation	17727		
nu star	187496		
Approximate Chi Square Value (.05)	186490	**Nonparametric Statistics**	
Adjusted Level of Significance	0.05	95% CLT UCL	24413
Adjusted Chi Square Value	186490	95% Jackknife UCL	24413
		95% Standard Bootstrap UCL	24416
Anderson-Darling Test Statistic	1595	95% Bootstrap-t UCL	24413
Anderson-Darling 5% Critical Value	0.768	95% Hall's Bootstrap UCL	24410
Kolmogorov-Smirnov Test Statistic	0.129	95% Percentile Bootstrap UCL	24410
Kolmogorov-Smirnov 5% Critical Value	0.0184	95% BCA Bootstrap UCL	24409
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	24679
		97.5% Chebyshev(Mean, Sd) UCL	24864
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	25227
95% Approximate Gamma UCL (Use when n >= 40)	24383		
95% Adjusted Gamma UCL (Use when n < 40)	24383		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	24679

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Manganese

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	1309

Raw Statistics		Log-transformed Statistics	
Minimum	1.86	Minimum of Log Data	0.621
Maximum	2893	Maximum of Log Data	7.97
Mean	282.9	Mean of log Data	5.53
Geometric Mean	252.1	SD of log Data	0.48
Median	249		
SD	144.2		
Std. Error of Mean	0.644		
Coefficient of Variation	0.51		
Skewness	-2.284		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.109	Lilliefors Test Statistic	0.0152
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	283.9	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	285.7
95% Adjusted-CLT UCL (Chen-1995)	283.9	97.5% Chebyshev (MVUE) UCL	286.9
95% Modified-t UCL (Johnson-1978)	283.9	99% Chebyshev (MVUE) UCL	289.3

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	4.492	Data do not follow a Discernable Distribution (0.05)	
Theta Star	62.98		
MLE of Mean	282.9		
MLE of Standard Deviation	133.5		
nu star	449921		
Approximate Chi Square Value (.05)	448362	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	283.9
Adjusted Chi Square Value	448362	95% Jackknife UCL	283.9
		95% Standard Bootstrap UCL	284
Anderson-Darling Test Statistic	214.1	95% Bootstrap-t UCL	283.9
Anderson-Darling 5% Critical Value	0.761	95% Hall's Bootstrap UCL	284
Kolmogorov-Smirnov Test Statistic	0.048	95% Percentile Bootstrap UCL	284
Kolmogorov-Smirnov 5% Critical Value	0.0183	95% BCA Bootstrap UCL	284
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	285.7
		97.5% Chebyshev(Mean, Sd) UCL	286.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	289.3
95% Approximate Gamma UCL (Use when n >= 40)	283.9		
95% Adjusted Gamma UCL (Use when n < 40)	283.9		

Potential UCL to Use		
	Use 95% Student's-t UCL	283.9
	or 95% Modified-t UCL	283.9

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Molybdenum

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	768

Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	2258	Maximum of Log Data	7.722
Mean	13.79	Mean of log Data	1.321
Geometric Mean	3.746	SD of log Data	1.499
Median	4		
SD	46.64		
Std. Error of Mean	0.208		
Coefficient of Variation	3.384		
Skewness	-20.94		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.388	Lilliefors Test Statistic	0.122
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	14.13	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12.02
95% Adjusted-CLT UCL (Chen-1995)	14.11	97.5% Chebyshev (MVUE) UCL	12.23
95% Modified-t UCL (Johnson-1978)	14.12	99% Chebyshev (MVUE) UCL	12.65

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.489	Data do not follow a Discernable Distribution (0.05)	
Theta Star	28.18		
MLE of Mean	13.79		
MLE of Standard Deviation	19.71		
nu star	48997		
Approximate Chi Square Value (.05)	48483	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	14.13
Adjusted Chi Square Value	48483	95% Jackknife UCL	14.13
		95% Standard Bootstrap UCL	14.13
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	14.14
Anderson-Darling 5% Critical Value	0.825	95% Hall's Bootstrap UCL	14.12
Kolmogorov-Smirnov Test Statistic	0.17	95% Percentile Bootstrap UCL	14.12
Kolmogorov-Smirnov 5% Critical Value	0.0193	95% BCA Bootstrap UCL	14.16
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	14.69
		97.5% Chebyshev(Mean, Sd) UCL	15.09
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	15.86
95% Approximate Gamma UCL (Use when n >= 40)	13.93		
95% Adjusted Gamma UCL (Use when n < 40)	13.93		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	14.69

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Nickel

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1_b.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ni

General Statistics			
Number of Valid Observations	50084	Number of Distinct Observations	1182
Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	1739	Maximum of Log Data	7.461
Mean	135.2	Mean of log Data	3.872
Geometric Mean	48.06	SD of log Data	1.377
Median	35		
SD	228.3		
Std. Error of Mean	1.02		
Coefficient of Variation	1.689		
Skewness	-3.387		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.299	Lilliefors Test Statistic	0.0988
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	136.8	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	128.6
95% Adjusted-CLT UCL (Chen-1995)	136.8	97.5% Chebyshev (MVUE) UCL	130.6
95% Modified-t UCL (Johnson-1978)	136.8	99% Chebyshev (MVUE) UCL	134.5

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.598	Data do not follow a Discernable Distribution (0.05)	
Theta Star	226.1		
MLE of Mean	135.2		
MLE of Standard Deviation	174.8		
nu star	59883		
Approximate Chi Square Value (.05)	59315	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	136.8
Adjusted Chi Square Value	59315	95% Jackknife UCL	136.8
		95% Standard Bootstrap UCL	136.8
Anderson-Darling Test Statistic	2979	95% Bootstrap-t UCL	136.9
Anderson-Darling 5% Critical Value	0.812	95% Hall's Bootstrap UCL	136.9
Kolmogorov-Smirnov Test Statistic	0.188	95% Percentile Bootstrap UCL	136.9
Kolmogorov-Smirnov 5% Critical Value	0.0191	95% BCA Bootstrap UCL	136.8
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	139.6
		97.5% Chebyshev(Mean, Sd) UCL	141.5
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	145.3
95% Approximate Gamma UCL (Use when n >= 40)	136.4		
95% Adjusted Gamma UCL (Use when n < 40)	136.4		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	139.6

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Phosphorous

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	451

Raw Statistics		Log-transformed Statistics	
Minimum	5	Minimum of Log Data	1.609
Maximum	10000	Maximum of Log Data	9.21
Mean	1032	Mean of log Data	6.79
Geometric Mean	889.3	SD of log Data	0.706
Median	1050		
SD	479.5		
Std. Error of Mean	2.143		
Coefficient of Variation	0.465		
Skewness	-4.623		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.0681	Lilliefors Test Statistic	0.169
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1036	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1158
95% Adjusted-CLT UCL (Chen-1995)	1036	97.5% Chebyshev (MVUE) UCL	1166
95% Modified-t UCL (Johnson-1978)	1036	99% Chebyshev (MVUE) UCL	1181

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.515	Data do not follow a Discernable Distribution (0.05)	
Theta Star	293.6		
MLE of Mean	1032		
MLE of Standard Deviation	550.5		
nu star	352085		
Approximate Chi Square Value (.05)	350706	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	1036
Adjusted Chi Square Value	350706	95% Jackknife UCL	1036
		95% Standard Bootstrap UCL	1036
Anderson-Darling Test Statistic	1451	95% Bootstrap-t UCL	1036
Anderson-Darling 5% Critical Value	0.762	95% Hall's Bootstrap UCL	1036
Kolmogorov-Smirnov Test Statistic	0.13	95% Percentile Bootstrap UCL	1036
Kolmogorov-Smirnov 5% Critical Value	0.0183	95% BCA Bootstrap UCL	1035
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1041
		97.5% Chebyshev(Mean, Sd) UCL	1045
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1053
95% Approximate Gamma UCL (Use when n >= 40)	1036		
95% Adjusted Gamma UCL (Use when n < 40)	1036		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	1041

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Potassium
Summary Statistics for Raw Full Dataset

Variable	NumObs	Minimum	Maximum	Mean	Median	Variance	SD	MAD/0.675	Skewness	Kurtosis	CV
C12	9738	100	100000	2731	1100	1.69E+07	4105	741.3	4.922	70.07	1.503

Percentiles for Raw Full Dataset

Variable	NumObs	5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
C12	9738	400	500	600	700	1100	2600	3500	8000	11900	18000

General UCL Statistics for Full Data Sets

User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C12

General Statistics			
Number of Valid Observations	9738	Number of Distinct Observations	233
Raw Statistics		Log-transformed Statistics	
Minimum	100	Minimum of Log Data	4.605
Maximum	100000	Maximum of Log Data	11.51
Mean	2731	Mean of log Data	7.276
Geometric Mean	1445	SD of log Data	1.03
Median	1100		
SD	4105		
Std. Error of Mean	41.6		
Coefficient of Variation	1.503		
Skewness	4.922		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.278	Lilliefors Test Statistic	0.146
Lilliefors Critical Value	0.00898	Lilliefors Critical Value	0.00898
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	2799	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2595
95% Adjusted-CLT UCL (Chen-1995)	2802	97.5% Chebyshev (MVUE) UCL	2654
95% Modified-t UCL (Johnson-1978)	2800	99% Chebyshev (MVUE) UCL	2772
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	0.916	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2982		
MLE of Mean	2731		
MLE of Standard Deviation	2854		
nu star	17835		
Approximate Chi Square Value (.05)	17525	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	2799
Adjusted Chi Square Value	17525	95% Jackknife UCL	2799
		95% Standard Bootstrap UCL	2800
Anderson-Darling Test Statistic	622.3	95% Bootstrap-t UCL	2803
Anderson-Darling 5% Critical Value	0.79	95% Hall's Bootstrap UCL	2803
Kolmogorov-Smirnov Test Statistic	0.206	95% Percentile Bootstrap UCL	2801
Kolmogorov-Smirnov 5% Critical Value	0.0188	95% BCA Bootstrap UCL	2800
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	2912
		97.5% Chebyshev(Mean, Sd) UCL	2991
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3145
95% Approximate Gamma UCL (Use when n >= 40)	2779		
95% Adjusted Gamma UCL (Use when n < 40)	2779		
Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	2912

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Silver

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1_a.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ag

General Statistics			
Number of Valid Observations	50084	Number of Distinct Observations	93
Raw Statistics		Log-transformed Statistics	
Minimum	0.04	Minimum of Log Data	-3.219
Maximum	28.9	Maximum of Log Data	3.364
Mean	0.259	Mean of log Data	-1.81
Geometric Mean	0.164	SD of log Data	0.787
Median	0.1		
SD	0.486		
Std. Error of Mean	0.00217		
Coefficient of Variation	1.877		
Skewness	-23.99		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.372	Lilliefors Test Statistic	0.384
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	0.263	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.227
95% Adjusted-CLT UCL (Chen-1995)	0.262	97.5% Chebyshev (MVUE) UCL	0.229
95% Modified-t UCL (Johnson-1978)	0.263	99% Chebyshev (MVUE) UCL	0.232
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.227	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.211		
MLE of Mean	0.259		
MLE of Standard Deviation	0.234		
nu star	122905		
Approximate Chi Square Value (.05)	122091	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	0.263
Adjusted Chi Square Value	122091	95% Jackknife UCL	0.263
		95% Standard Bootstrap UCL	0.263
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	0.263
Anderson-Darling 5% Critical Value	0.78	95% Hall's Bootstrap UCL	0.263
Kolmogorov-Smirnov Test Statistic	0.372	95% Percentile Bootstrap UCL	0.263
Kolmogorov-Smirnov 5% Critical Value	0.0186	95% BCA Bootstrap UCL	0.263
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.269
		97.5% Chebyshev(Mean, Sd) UCL	0.273
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	0.281
95% Approximate Gamma UCL (Use when n >= 40)	0.261		
95% Adjusted Gamma UCL (Use when n < 40)	0.261		

Potential UCL to Use			
		Use 95% Chebyshev (Mean, Sd) UCL	0.269

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Sodium
Summary Statistics for Raw Full Dataset

Variable	NumObs	Minimum	Maximum	Mean	Median	Variance	SD	MAD/0.675	Skewness	Kurtosis	CV
C8	50084	50	16000	618.1	600	168539	410.5	148.3	-15.14	226.1	0.664

Percentiles for Raw Full Dataset

Variable	NumObs	5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
C8	50084	300	300	400	400	600	700	800	900	1100	1800

General UCL Statistics for Full Data Sets

User Selected Options	
From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C8

General Statistics			
Number of Valid Observations	50084	Number of Distinct Observations	101
Raw Statistics		Log-transformed Statistics	
Minimum	50	Minimum of Log Data	3.912
Maximum	16000	Maximum of Log Data	9.68
Mean	618.1	Mean of log Data	6.315
Geometric Mean	552.7	SD of log Data	0.462
Median	600		
SD	410.5		
Std. Error of Mean	1.834		
Coefficient of Variation	0.664		
Skewness	-15.14		
Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.217	Lilliefors Test Statistic	0.148
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	621.1	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	620.6
95% Adjusted-CLT UCL (Chen-1995)	621	97.5% Chebyshev (MVUE) UCL	623.1
95% Modified-t UCL (Johnson-1978)	621.1	99% Chebyshev (MVUE) UCL	628.1
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	4.63	Data do not follow a Discernable Distribution (0.05)	
Theta Star	133.5		
MLE of Mean	618.1		
MLE of Standard Deviation	287.2		
nu star	463798		
Approximate Chi Square Value (.05)	462215	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	621.1
Adjusted Chi Square Value	462215	95% Jackknife UCL	621.1
		95% Standard Bootstrap UCL	621
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	621.3
Anderson-Darling 5% Critical Value	0.76	95% Hall's Bootstrap UCL	621
Kolmogorov-Smirnov Test Statistic	0.131	95% Percentile Bootstrap UCL	621.2
Kolmogorov-Smirnov 5% Critical Value	0.0183	95% BCA Bootstrap UCL	621.3
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	626.1
		97.5% Chebyshev(Mean, Sd) UCL	629.5
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	636.3
95% Approximate Gamma UCL (Use when n >= 40)	620.2		
95% Adjusted Gamma UCL (Use when n < 40)	620.2		
Potential UCL to Use		Use 95% Student's-t UCL	621.1
		or 95% Modified-t UCL	621.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Strontium

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	715

Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	4819	Maximum of Log Data	8.48
Mean	94.27	Mean of log Data	4.321
Geometric Mean	75.24	SD of log Data	0.683
Median	77		
SD	81.14		
Std. Error of Mean	0.363		
Coefficient of Variation	0.861		
Skewness	-14.94		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.161	Lilliefors Test Statistic	0.0437
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	94.86	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	96.42
95% Adjusted-CLT UCL (Chen-1995)	94.84	97.5% Chebyshev (MVUE) UCL	97.02
95% Modified-t UCL (Johnson-1978)	94.86	99% Chebyshev (MVUE) UCL	98.22

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.371	Data do not follow a Discernable Distribution (0.05)	
Theta Star	39.77		
MLE of Mean	94.27		
MLE of Standard Deviation	61.23		
nu star	237454		
Approximate Chi Square Value (.05)	236321	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	94.86
Adjusted Chi Square Value	236321	95% Jackknife UCL	94.86
		95% Standard Bootstrap UCL	94.86
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	94.87
Anderson-Darling 5% Critical Value	0.764	95% Hall's Bootstrap UCL	94.84
Kolmogorov-Smirnov Test Statistic	0.0631	95% Percentile Bootstrap UCL	94.85
Kolmogorov-Smirnov 5% Critical Value	0.0184	95% BCA Bootstrap UCL	94.9
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	95.85
		97.5% Chebyshev(Mean, Sd) UCL	96.53
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	97.87
95% Approximate Gamma UCL (Use when n >= 40)	94.72		
95% Adjusted Gamma UCL (Use when n < 40)	94.72		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	95.85

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Tin

General Statistics			
Number of Valid Observations	50084	Number of Distinct Observations	15

Raw Statistics		Log-transformed Statistics	
Minimum	2.5	Minimum of Log Data	0.916
Maximum	300	Maximum of Log Data	5.704
Mean	8.601	Mean of log Data	2.035
Geometric Mean	7.649	SD of log Data	0.552
Median	10		
SD	4.237		
Std. Error of Mean	0.0189		
Coefficient of Variation	0.493		
Skewness	-34.83		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.435	Lilliefors Test Statistic	0.492
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	8.632	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9.011
95% Adjusted-CLT UCL (Chen-1995)	8.629	97.5% Chebyshev (MVUE) UCL	9.055
95% Modified-t UCL (Johnson-1978)	8.632	99% Chebyshev (MVUE) UCL	9.143

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	4.423	Data do not follow a Discernable Distribution (0.05)	
Theta Star	1.945		
MLE of Mean	8.601		
MLE of Standard Deviation	4.09		
nu star	443028		
Approximate Chi Square Value (.05)	441480	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	8.632
Adjusted Chi Square Value	441480	95% Jackknife UCL	8.632
		95% Standard Bootstrap UCL	8.632
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	8.635
Anderson-Darling 5% Critical Value	0.761	95% Hall's Bootstrap UCL	8.629
Kolmogorov-Smirnov Test Statistic	0.491	95% Percentile Bootstrap UCL	8.631
Kolmogorov-Smirnov 5% Critical Value	0.0183	95% BCA Bootstrap UCL	8.635
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	8.683
		97.5% Chebyshev(Mean, Sd) UCL	8.719
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.789
95% Approximate Gamma UCL (Use when n >= 40)	8.631		
95% Adjusted Gamma UCL (Use when n < 40)	8.631		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	8.683

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Titanium
Summary Statistics for Raw Full Dataset

Variable	NumObs	Minimum	Maximum	Mean	Median	Variance	SD	MAD/0.675	Skewness	Kurtosis	CV
C10	50084	50	100000	1124	1000	759818	871.7	593	-43.32	3317	0.776

Percentiles for Raw Full Dataset

Variable	NumObs	5%ile	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
C10	50084	200	300	600	600	1000	1500	1600	2000	2400	3300

General UCL Statistics for Full Data Sets

User Selected Options

From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

C10

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	113

Raw Statistics		Log-transformed Statistics	
Minimum	50	Minimum of Log Data	3.912
Maximum	100000	Maximum of Log Data	11.51
Mean	1124	Mean of log Data	6.778
Geometric Mean	878	SD of log Data	0.803
Median	1000		
SD	871.7		
Std. Error of Mean	3.895		
Coefficient of Variation	0.776		
Skewness	-43.32		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.124	Lilliefors Test Statistic	0.129
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	1130	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1234
95% Adjusted-CLT UCL (Chen-1995)	1130	97.5% Chebyshev (MVUE) UCL	1243
95% Modified-t UCL (Johnson-1978)	1130	99% Chebyshev (MVUE) UCL	1262

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.177	Data do not follow a Discernable Distribution (0.05)	
Theta Star	516.4		
MLE of Mean	1124		
MLE of Standard Deviation	761.8		
nu star	218020		
Approximate Chi Square Value (.05)	216935	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	1130
Adjusted Chi Square Value	216935	95% Jackknife UCL	1130
		95% Standard Bootstrap UCL	1130
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	1131
Anderson-Darling 5% Critical Value	0.766	95% Hall's Bootstrap UCL	1130
Kolmogorov-Smirnov Test Statistic	0.0807	95% Percentile Bootstrap UCL	1131
Kolmogorov-Smirnov 5% Critical Value	0.0184	95% BCA Bootstrap UCL	1131
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1141
		97.5% Chebyshev(Mean, Sd) UCL	1148
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1163
95% Approximate Gamma UCL (Use when n >= 40)	1130		
95% Adjusted Gamma UCL (Use when n < 40)	1130		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	1141

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Uranium

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

u

General Statistics			
Number of Valid Observations	50084	Number of Distinct Observations	11
Raw Statistics		Log-transformed Statistics	
Minimum	2.5	Minimum of Log Data	0.916
Maximum	110	Maximum of Log Data	4.7
Mean	4.543	Mean of log Data	1.478
Geometric Mean	4.386	SD of log Data	0.279
Median	5		
SD	1.304		
Std. Error of Mean	0.00583		
Coefficient of Variation	0.287		
Skewness	-25.06		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.445	Lilliefors Test Statistic	0.489
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	4.553	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.585
95% Adjusted-CLT UCL (Chen-1995)	4.552	97.5% Chebyshev (MVUE) UCL	4.596
95% Modified-t UCL (Johnson-1978)	4.553	99% Chebyshev (MVUE) UCL	4.617
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	14.31	Data do not follow a Discernable Distribution (0.05)	
Theta Star	0.318		
MLE of Mean	4.543		
MLE of Standard Deviation	1.201		
nu star	1432909		
Approximate Chi Square Value (.05)	1430126	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	4.553
Adjusted Chi Square Value	1430126	95% Jackknife UCL	4.553
		95% Standard Bootstrap UCL	4.553
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	4.554
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL	4.552
Kolmogorov-Smirnov Test Statistic	0.484	95% Percentile Bootstrap UCL	4.553
Kolmogorov-Smirnov 5% Critical Value	0.0182	95% BCA Bootstrap UCL	4.554
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	4.569
		97.5% Chebyshev(Mean, Sd) UCL	4.58
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	4.601
95% Approximate Gamma UCL (Use when n >= 40)	4.552		
95% Adjusted Gamma UCL (Use when n < 40)	4.552		
Potential UCL to Use		Use 95% Student's-t UCL	4.553
		or 95% Modified-t UCL	4.553

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Vanadium

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

v

General Statistics			
Number of Valid Observations	50084	Number of Distinct Observations	702
Raw Statistics		Log-transformed Statistics	
Minimum	3	Minimum of Log Data	1.099
Maximum	1360	Maximum of Log Data	7.215
Mean	145.8	Mean of log Data	4.834
Geometric Mean	125.8	SD of log Data	0.523
Median	121		
SD	92.16		
Std. Error of Mean	0.412		
Coefficient of Variation	0.632		
Skewness	-3.277		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.158	Lilliefors Test Statistic	0.0419
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	146.4	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	145.7
95% Adjusted-CLT UCL (Chen-1995)	146.4	97.5% Chebyshev (MVUE) UCL	146.4
95% Modified-t UCL (Johnson-1978)	146.4	99% Chebyshev (MVUE) UCL	147.7
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	3.548	Data do not follow a Discernable Distribution (0.05)	
Theta Star	41.08		
MLE of Mean	145.8		
MLE of Standard Deviation	77.38		
nu star	355439		
Approximate Chi Square Value (.05)	354054	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	146.4
Adjusted Chi Square Value	354054	95% Jackknife UCL	146.4
		95% Standard Bootstrap UCL	146.4
Anderson-Darling Test Statistic	781	95% Bootstrap-t UCL	146.5
Anderson-Darling 5% Critical Value	0.762	95% Hall's Bootstrap UCL	146.4
Kolmogorov-Smirnov Test Statistic	0.0821	95% Percentile Bootstrap UCL	146.5
Kolmogorov-Smirnov 5% Critical Value	0.0183	95% BCA Bootstrap UCL	146.4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	147.6
		97.5% Chebyshev(Mean, Sd) UCL	148.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	149.9
95% Approximate Gamma UCL (Use when n >= 40)	146.3		
95% Adjusted Gamma UCL (Use when n < 40)	146.3		

Potential UCL to Use			
		Use 95% Chebyshev (Mean, Sd) UCL	147.6

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Tungstun

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

w

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	23

Raw Statistics		Log-transformed Statistics
Minimum	0	Log Statistics Not Avaliable
Maximum	400	
Mean	4.774	
Geometric Mean	0	
Median	5	
SD	2.906	
Std. Error of Mean	0.013	
Coefficient of Variation	0.609	
Skewness	-87.01	

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test
Lilliefors Test Statistic	0.453	Not Available
Lilliefors Critical Value	0.00396	
Data not Normal at 5% Significance Level		

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	4.795	95% H-UCL	N/A
Assuming Normal Distribution		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	4.795	95% Adjusted-CLT UCL (Chen 1995)	4.789
		95% Modified-t UCL (Johnson-1978)	4.794

Gamma Distribution Test	Data Distribution
Gamma Statistics Not Available	Data do not follow a Discernable Distribution (0.05)

Potential UCL to Use

Use 95% Chebyshev (Mean, Sd) UCL	4.83	95% CLT UCL	4.795
		95% Jackknife UCL	4.795
		95% Standard Bootstrap UCL	4.795
		95% Bootstrap-t UCL	4.799
		95% Hall's Bootstrap UCL	4.792
		95% Percentile Bootstrap UCL	4.795
		95% BCA Bootstrap UCL	4.8
		95% Chebyshev(Mean, Sd) UCL	4.83
		97.5% Chebyshev(Mean, Sd) UCL	4.855
		99% Chebyshev(Mean, Sd) UCL	4.903

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Yttrium

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

y

General Statistics			
Number of Valid Observations	50084	Number of Distinct Observations	47
Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	89	Maximum of Log Data	4.489
Mean	3.846	Mean of log Data	0.816
Geometric Mean	2.26	SD of log Data	1.129
Median	3		
SD	3.692		
Std. Error of Mean	0.0165		
Coefficient of Variation	0.96		
Skewness	-3.028		

Relevant UCL Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.182	Lilliefors Test Statistic	0.209
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	3.873	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.395
95% Adjusted-CLT UCL (Chen-1995)	3.872	97.5% Chebyshev (MVUE) UCL	4.447
95% Modified-t UCL (Johnson-1978)	3.873	99% Chebyshev (MVUE) UCL	4.55
Gamma Distribution Test		Data Distribution	
k star (bias corrected)	1.077	Data do not follow a Discernable Distribution (0.05)	
Theta Star	3.57		
MLE of Mean	3.846		
MLE of Standard Deviation	3.705		
nu star	107887		
Approximate Chi Square Value (.05)	107124	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	3.873
Adjusted Chi Square Value	107124	95% Jackknife UCL	3.873
		95% Standard Bootstrap UCL	3.873
Anderson-Darling Test Statistic	1627	95% Bootstrap-t UCL	3.873
Anderson-Darling 5% Critical Value	0.784	95% Hall's Bootstrap UCL	3.874
Kolmogorov-Smirnov Test Statistic	0.191	95% Percentile Bootstrap UCL	3.872
Kolmogorov-Smirnov 5% Critical Value	0.0187	95% BCA Bootstrap UCL	3.872
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	3.917
		97.5% Chebyshev(Mean, Sd) UCL	3.949
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	4.01
95% Approximate Gamma UCL (Use when n >= 40)	3.873		
95% Adjusted Gamma UCL (Use when n < 40)	3.873		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	3.917

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

Zinc

General UCL Statistics for Full Data Sets

User Selected Options	
From File	Sheet1.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

zn

General Statistics

Number of Valid Observations	50084	Number of Distinct Observations	379

Raw Statistics		Log-transformed Statistics	
Minimum	0.5	Minimum of Log Data	-0.693
Maximum	1808	Maximum of Log Data	7.5
Mean	16.34	Mean of log Data	2.614
Geometric Mean	13.65	SD of log Data	0.642
Median	14		
SD	13.66		
Std. Error of Mean	0.0611		
Coefficient of Variation	0.836		
Skewness	-71.24		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.17	Lilliefors Test Statistic	0.0939
Lilliefors Critical Value	0.00396	Lilliefors Critical Value	0.00396
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
95% Student's-t UCL	16.44	95% H-UCL	N/A
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17.01
95% Adjusted-CLT UCL (Chen-1995)	16.42	97.5% Chebyshev (MVUE) UCL	17.11
95% Modified-t UCL (Johnson-1978)	16.44	99% Chebyshev (MVUE) UCL	17.3

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	2.934	Data do not follow a Discernable Distribution (0.05)	
Theta Star	5.57		
MLE of Mean	16.34		
MLE of Standard Deviation	9.541		
nu star	293896		
Approximate Chi Square Value (.05)	292637	Nonparametric Statistics	
Adjusted Level of Significance	0.05	95% CLT UCL	16.44
Adjusted Chi Square Value	292636	95% Jackknife UCL	16.44
		95% Standard Bootstrap UCL	16.44
Anderson-Darling Test Statistic	2.00E+26	95% Bootstrap-t UCL	16.46
Anderson-Darling 5% Critical Value	0.761	95% Hall's Bootstrap UCL	16.43
Kolmogorov-Smirnov Test Statistic	0.0708	95% Percentile Bootstrap UCL	16.45
Kolmogorov-Smirnov 5% Critical Value	0.0183	95% BCA Bootstrap UCL	16.46
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	16.61
		97.5% Chebyshev(Mean, Sd) UCL	16.72
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	16.95
95% Approximate Gamma UCL (Use when n >= 40)	16.41		
95% Adjusted Gamma UCL (Use when n < 40)	16.41		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	16.61

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Note: For highly negative-skewed data, confidence limits
(e.g., Chen, Johnson, Lognormal, and Gamma) may not be
reliable. Chen's and Johnson's methods provide
adjustments for positvely skewed data sets.

ProUCL Output for Forage

1	**UCL Statistics for Data Sets with Non-Detects**											
2												
3	User Selected Options											
4	Date/Time of Computation			3/24/2015 11:53:25 AM								
5	From File			LM ProUCL input file_a.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	mber of Bootstrap Operations			2000								
9												
10												
11	**Aluminum (Al)-Total**											
12												
13	**General Statistics**											
14	Total Number of Observations			12			Number of Distinct Observations					12
15							Number of Missing Observations					0
16	Minimum			2.68			Mean					34.05
17	Maximum			103			Median					15.15
18	SD			37.81			Std. Error of Mean					10.91
19	Coefficient of Variation			1.11			Skewness					1.102
20												
21	**Normal GOF Test**											
22	Shapiro Wilk Test Statistic			0.786			**Shapiro Wilk GOF Test**					
23	5% Shapiro Wilk Critical Value			0.859			Data Not Normal at 5% Significance Level					
24	Lilliefors Test Statistic			0.258			**Lilliefors GOF Test**					
25	5% Lilliefors Critical Value			0.256			Data Not Normal at 5% Significance Level					
26	**Data Not Normal at 5% Significance Level**											
27												
28	**Assuming Normal Distribution**											
29	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
30	95% Student's-t UCL			53.65			95% Adjusted-CLT UCL (Chen-1995)					55.72
31							95% Modified-t UCL (Johnson-1978)					54.23
32												
33	**Gamma GOF Test**											
34	A-D Test Statistic			0.478			**Anderson-Darling Gamma GOF Test**					
35	5% A-D Critical Value			0.762			etected data appear Gamma Distributed at 5% Significance Lev					
36	K-S Test Statistic			0.165			**Kolmogrov-Smirnoff Gamma GOF Test**					
37	5% K-S Critical Value			0.254			etected data appear Gamma Distributed at 5% Significance Lev					
38	**Detected data appear Gamma Distributed at 5% Significance Level**											
39												
40	**Gamma Statistics**											
41	k hat (MLE)			0.863			k star (bias corrected MLE)					0.703
42	Theta hat (MLE)			39.45			Theta star (bias corrected MLE)					48.44
43	nu hat (MLE)			20.72			nu star (bias corrected)					16.87
44	MLE Mean (bias corrected)			34.05			MLE Sd (bias corrected)					40.61
45							Approximate Chi Square Value (0.05)					8.582
46	Adjusted Level of Significance			0.029			Adjusted Chi Square Value					7.695
47												
48	**Assuming Gamma Distribution**											
49	95% Approximate Gamma UCL (use when n>=50)			66.96			95% Adjusted Gamma UCL (use when n<50)					74.67
50												
51	**Lognormal GOF Test**											
52	Shapiro Wilk Test Statistic			0.933			**Shapiro Wilk Lognormal GOF Test**					
53	5% Shapiro Wilk Critical Value			0.859			Data appear Lognormal at 5% Significance Level					
54	Lilliefors Test Statistic			0.123			**Lilliefors Lognormal GOF Test**					
55	5% Lilliefors Critical Value			0.256			Data appear Lognormal at 5% Significance Level					
56	**Data appear Lognormal at 5% Significance Level**											
57												
58	**Lognormal Statistics**											
59	Minimum of Logged Data			0.986			Mean of logged Data					2.847
60	Maximum of Logged Data			4.635			SD of logged Data					1.287
61												
62	**Assuming Lognormal Distribution**											

63					95% H-UCL	151.1				90% Chebyshev (MVUE) UCL		78.36
64					95% Chebyshev (MVUE) UCL	97.82				97.5% Chebyshev (MVUE) UCL		124.8
65					99% Chebyshev (MVUE) UCL	177.9						
66												
67					**Nonparametric Distribution Free UCL Statistics**							
68					**Data appear to follow a Discernible Distribution at 5% Significance Level**							
69												
70					**Nonparametric Distribution Free UCLs**							
71					95% CLT UCL	52.01				95% Jackknife UCL		53.65
72					95% Standard Bootstrap UCL	51.68				95% Bootstrap-t UCL		61.13
73					95% Hall's Bootstrap UCL	52.35				95% Percentile Bootstrap UCL		52.6
74					95% BCA Bootstrap UCL	54.76						
75					90% Chebyshev(Mean, Sd) UCL	66.8				95% Chebyshev(Mean, Sd) UCL		81.63
76					97.5% Chebyshev(Mean, Sd) UCL	102.2				99% Chebyshev(Mean, Sd) UCL		142.6
77												
78					**Suggested UCL to Use**							
79					95% Adjusted Gamma UCL	74.67						
80												
81					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
82					These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)							
83					and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.							
84					For additional insight the user may want to consult a statistician.							
85												
86	**Antimony (Sb)-Total**											
87												
88					**General Statistics**							
89					Total Number of Observations	12				Number of Distinct Observations		5
90					Number of Detects	4				Number of Non-Detects		8
91					Number of Distinct Detects	4				Number of Distinct Non-Detects		1
92					Minimum Detect	0.0024				Minimum Non-Detect		0.002
93					Maximum Detect	0.0044				Maximum Non-Detect		0.002
94					Variance Detects	1.0967E-6				Percent Non-Detects		66.67%
95					Mean Detects	0.00345				SD Detects		0.00105
96					Median Detects	0.0035				CV Detects		0.304
97					Skewness Detects	-0.0627				Kurtosis Detects		-5.55
98					Mean of Logged Detects	-5.706				SD of Logged Detects		0.313
99												
100					**Normal GOF Test on Detects Only**							
101					Shapiro Wilk Test Statistic	0.82				**Shapiro Wilk GOF Test**		
102					5% Shapiro Wilk Critical Value	0.748				Detected Data appear Normal at 5% Significance Level		
103					Lilliefors Test Statistic	0.292				**Lilliefors GOF Test**		
104					5% Lilliefors Critical Value	0.443				Detected Data appear Normal at 5% Significance Level		
105					**Detected Data appear Normal at 5% Significance Level**							
106												
107					**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**							
108					Mean	0.00248				Standard Error of Mean		2.8701E-4
109					SD	8.6104E-4				95% KM (BCA) UCL		N/A
110					95% KM (t) UCL	0.003				95% KM (Percentile Bootstrap) UCL		N/A
111					95% KM (z) UCL	0.00296				95% KM Bootstrap t UCL		N/A
112					90% KM Chebyshev UCL	0.00334				95% KM Chebyshev UCL		0.00373
113					97.5% KM Chebyshev UCL	0.00428				99% KM Chebyshev UCL		0.00534
114												
115					**Gamma GOF Tests on Detected Observations Only**							
116					A-D Test Statistic	0.523				**Anderson-Darling GOF Test**		
117					5% A-D Critical Value	0.657				etected data appear Gamma Distributed at 5% Significance Lev		
118					K-S Test Statistic	0.327				**Kolmogrov-Smirnoff GOF**		
119					5% K-S Critical Value	0.395				etected data appear Gamma Distributed at 5% Significance Lev		
120					**Detected data appear Gamma Distributed at 5% Significance Level**							
121												
122					**Gamma Statistics on Detected Data Only**							
123					k hat (MLE)	14				k star (bias corrected MLE)		3.667
124					Theta hat (MLE)	2.4643E-4				Theta star (bias corrected MLE)		9.4091E-4

125					nu hat (MLE)	112				nu star (bias corrected)		29.33
126					MLE Mean (bias corrected)	0.00345				MLE Sd (bias corrected)		0.0018
127												
128					**Gamma Kaplan-Meier (KM) Statistics**							
129					k hat (KM)	8.318				nu hat (KM)		199.6
130					Approximate Chi Square Value (199.63, α)	167.9				Adjusted Chi Square Value (199.63, β)		163.5
131					5% Gamma Approximate KM-UCL (use when n>=50)	0.00295				95% Gamma Adjusted KM-UCL (use when n<50)		0.00303
132												
133					**Gamma ROS Statistics using Imputed Non-Detects**							
134					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
135					GROS may not be used when kstar of detected data is small such as < 0.1							
136					For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
137					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
138					Minimum	0.0024				Mean		0.00782
139					Maximum	0.01				Median		0.01
140					SD	0.00327				CV		0.418
141					k hat (MLE)	4.311				k star (bias corrected MLE)		3.288
142					Theta hat (MLE)	0.00181				Theta star (bias corrected MLE)		0.00238
143					nu hat (MLE)	103.5				nu star (bias corrected)		78.92
144					MLE Mean (bias corrected)	0.00782				MLE Sd (bias corrected)		0.00431
145										Adjusted Level of Significance (β)		0.029
146					Approximate Chi Square Value (78.92, α)	59.46				Adjusted Chi Square Value (78.92, β)		56.88
147					95% Gamma Approximate UCL (use when n>=50)	0.0104				95% Gamma Adjusted UCL (use when n<50)		N/A
148												
149					**Lognormal GOF Test on Detected Observations Only**							
150					Shapiro Wilk Test Statistic	0.831				**Shapiro Wilk GOF Test**		
151					5% Shapiro Wilk Critical Value	0.748				Detected Data appear Lognormal at 5% Significance Level		
152					Lilliefors Test Statistic	0.294				**Lilliefors GOF Test**		
153					5% Lilliefors Critical Value	0.443				Detected Data appear Lognormal at 5% Significance Level		
154					**Detected Data appear Lognormal at 5% Significance Level**							
155												
156					**Lognormal ROS Statistics Using Imputed Non-Detects**							
157					Mean in Original Scale	0.00191				Mean in Log Scale		-6.47
158					SD in Original Scale	0.00131				SD in Log Scale		0.681
159					95% t UCL (assumes normality of ROS data)	0.00259				95% Percentile Bootstrap UCL		0.00252
160					95% BCA Bootstrap UCL	0.00266				95% Bootstrap t UCL		0.00292
161					95% H-UCL (Log ROS)	0.00319						
162												
163					**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**							
164					KM Mean (logged)	-6.045				95% H-UCL (KM -Log)		0.00291
165					KM SD (logged)	0.287				95% Critical H Value (KM-Log)		1.915
166					KM Standard Error of Mean (logged)	0.0955						
167												
168					**DL/2 Statistics**							
169					**DL/2 Normal**					**DL/2 Log-Transformed**		
170					Mean in Original Scale	0.00182				Mean in Log Scale		-6.507
171					SD in Original Scale	0.00132				SD in Log Scale		0.614
172					95% t UCL (Assumes normality)	0.0025				95% H-Stat UCL		0.00275
173					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
174												
175					**Nonparametric Distribution Free UCL Statistics**							
176					**Detected Data appear Normal Distributed at 5% Significance Level**							
177												
178					**Suggested UCL to Use**							
179					95% KM (t) UCL	0.003				95% KM (Percentile Bootstrap) UCL		N/A
180					**Warning: One or more Recommended UCL(s) not available!**							
181												
182					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
183					Recommendations are based upon data size, data distribution, and skewness.							
184					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
185					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
186												

187												
188	**Arsenic (As)-Total**											
189												
190	**General Statistics**											
191					Total Number of Observations		12			Number of Distinct Observations		12
192										Number of Missing Observations		0
193					Minimum		0.0057			Mean		0.0238
194					Maximum		0.0635			Median		0.0202
195					SD		0.017			Std. Error of Mean		0.0049
196					Coefficient of Variation		0.714			Skewness		1.237
197												
198	**Normal GOF Test**											
199					Shapiro Wilk Test Statistic		0.888			**Shapiro Wilk GOF Test**		
200					5% Shapiro Wilk Critical Value		0.859			Data appear Normal at 5% Significance Level		
201					Lilliefors Test Statistic		0.193			**Lilliefors GOF Test**		
202					5% Lilliefors Critical Value		0.256			Data appear Normal at 5% Significance Level		
203	**Data appear Normal at 5% Significance Level**											
204												
205	**Assuming Normal Distribution**											
206					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**		
207					95% Student's-t UCL		0.0326			95% Adjusted-CLT UCL (Chen-1995)		0.0337
208										95% Modified-t UCL (Johnson-1978)		0.0329
209												
210	**Gamma GOF Test**											
211					A-D Test Statistic		0.213			**Anderson-Darling Gamma GOF Test**		
212					5% A-D Critical Value		0.741			etected data appear Gamma Distributed at 5% Significance Lev		
213					K-S Test Statistic		0.143			**Kolmogrov-Smirnoff Gamma GOF Test**		
214					5% K-S Critical Value		0.248			etected data appear Gamma Distributed at 5% Significance Lev		
215	**Detected data appear Gamma Distributed at 5% Significance Level**											
216												
217	**Gamma Statistics**											
218					k hat (MLE)		2.296			k star (bias corrected MLE)		1.777
219					Theta hat (MLE)		0.0104			Theta star (bias corrected MLE)		0.0134
220					nu hat (MLE)		55.09			nu star (bias corrected)		42.65
221					MLE Mean (bias corrected)		0.0238			MLE Sd (bias corrected)		0.0178
222										Approximate Chi Square Value (0.05)		28.68
223					Adjusted Level of Significance		0.029			Adjusted Chi Square Value		26.94
224												
225	**Assuming Gamma Distribution**											
226					95% Approximate Gamma UCL (use when n>=50))		0.0353			95% Adjusted Gamma UCL (use when n<50)		0.0376
227												
228	**Lognormal GOF Test**											
229					Shapiro Wilk Test Statistic		0.977			**Shapiro Wilk Lognormal GOF Test**		
230					5% Shapiro Wilk Critical Value		0.859			Data appear Lognormal at 5% Significance Level		
231					Lilliefors Test Statistic		0.145			**Lilliefors Lognormal GOF Test**		
232					5% Lilliefors Critical Value		0.256			Data appear Lognormal at 5% Significance Level		
233	**Data appear Lognormal at 5% Significance Level**											
234												
235	**Lognormal Statistics**											
236					Minimum of Logged Data		-5.167			Mean of logged Data		-3.973
237					Maximum of Logged Data		-2.757			SD of logged Data		0.729
238												
239	**Assuming Lognormal Distribution**											
240					95% H-UCL		0.0422			90% Chebyshev (MVUE) UCL		0.0397
241					95% Chebyshev (MVUE) UCL		0.0468			97.5% Chebyshev (MVUE) UCL		0.0567
242					99% Chebyshev (MVUE) UCL		0.0762					
243												
244	**Nonparametric Distribution Free UCL Statistics**											
245	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
246												
247	**Nonparametric Distribution Free UCLs**											
248					95% CLT UCL		0.0318			95% Jackknife UCL		0.0326

249					95% Standard Bootstrap UCL	0.0315					95% Bootstrap-t UCL	0.0365
250					95% Hall's Bootstrap UCL	0.0362					95% Percentile Bootstrap UCL	0.0321
251					95% BCA Bootstrap UCL	0.0333						
252					90% Chebyshev(Mean, Sd) UCL	0.0385					95% Chebyshev(Mean, Sd) UCL	0.0451
253					97.5% Chebyshev(Mean, Sd) UCL	0.0544					99% Chebyshev(Mean, Sd) UCL	0.0725
254												
255					**Suggested UCL to Use**							
256					95% Student's-t UCL	0.0326						
257												
258	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
259	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
260	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
261	For additional insight the user may want to consult a statistician.											
262												
263												
264	**Barium (Ba)-Total**											
265												
266					**General Statistics**							
267					Total Number of Observations	12					Number of Distinct Observations	12
268											Number of Missing Observations	0
269					Minimum	3.42					Mean	19.29
270					Maximum	45.5					Median	17.3
271					SD	13.82					Std. Error of Mean	3.99
272					Coefficient of Variation	0.717					Skewness	0.769
273												
274					**Normal GOF Test**							
275					Shapiro Wilk Test Statistic	0.917					**Shapiro Wilk GOF Test**	
276					5% Shapiro Wilk Critical Value	0.859					Data appear Normal at 5% Significance Level	
277					Lilliefors Test Statistic	0.147					**Lilliefors GOF Test**	
278					5% Lilliefors Critical Value	0.256					Data appear Normal at 5% Significance Level	
279					**Data appear Normal at 5% Significance Level**							
280												
281					**Assuming Normal Distribution**							
282					**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**	
283					95% Student's-t UCL	26.46					95% Adjusted-CLT UCL (Chen-1995)	26.8
284											95% Modified-t UCL (Johnson-1978)	26.61
285												
286					**Gamma GOF Test**							
287					A-D Test Statistic	0.21					**Anderson-Darling Gamma GOF Test**	
288					5% A-D Critical Value	0.742					etected data appear Gamma Distributed at 5% Significance Lev	
289					K-S Test Statistic	0.12					**Kolmogrov-Smirnoff Gamma GOF Test**	
290					5% K-S Critical Value	0.249					etected data appear Gamma Distributed at 5% Significance Lev	
291					**Detected data appear Gamma Distributed at 5% Significance Level**							
292												
293					**Gamma Statistics**							
294					k hat (MLE)	1.893					k star (bias corrected MLE)	1.475
295					Theta hat (MLE)	10.19					Theta star (bias corrected MLE)	13.08
296					nu hat (MLE)	45.44					nu star (bias corrected)	35.41
297					MLE Mean (bias corrected)	19.29					MLE Sd (bias corrected)	15.88
298											Approximate Chi Square Value (0.05)	22.79
299					Adjusted Level of Significance	0.029					Adjusted Chi Square Value	21.26
300												
301					**Assuming Gamma Distribution**							
302					95% Approximate Gamma UCL (use when n>=50))	29.97					95% Adjusted Gamma UCL (use when n<50)	32.13
303												
304					**Lognormal GOF Test**							
305					Shapiro Wilk Test Statistic	0.943					**Shapiro Wilk Lognormal GOF Test**	
306					5% Shapiro Wilk Critical Value	0.859					Data appear Lognormal at 5% Significance Level	
307					Lilliefors Test Statistic	0.163					**Lilliefors Lognormal GOF Test**	
308					5% Lilliefors Critical Value	0.256					Data appear Lognormal at 5% Significance Level	
309					**Data appear Lognormal at 5% Significance Level**							
310												

311	**Lognormal Statistics**											
312					Minimum of Logged Data	1.23				Mean of logged Data		2.673
313					Maximum of Logged Data	3.818				SD of logged Data		0.853
314												
315	**Assuming Lognormal Distribution**											
316					95% H-UCL	41.24				90% Chebyshev (MVUE) UCL		35.68
317					95% Chebyshev (MVUE) UCL	42.77				97.5% Chebyshev (MVUE) UCL		52.6
318					99% Chebyshev (MVUE) UCL	71.91						
319												
320	**Nonparametric Distribution Free UCL Statistics**											
321	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
322												
323	**Nonparametric Distribution Free UCLs**											
324					95% CLT UCL	25.86				95% Jackknife UCL		26.46
325					95% Standard Bootstrap UCL	25.6				95% Bootstrap-t UCL		28.42
326					95% Hall's Bootstrap UCL	28.45				95% Percentile Bootstrap UCL		26.01
327					95% BCA Bootstrap UCL	26.35						
328					90% Chebyshev(Mean, Sd) UCL	31.26				95% Chebyshev(Mean, Sd) UCL		36.69
329					97.5% Chebyshev(Mean, Sd) UCL	44.21				99% Chebyshev(Mean, Sd) UCL		58.99
330												
331	**Suggested UCL to Use**											
332					95% Student's-t UCL	26.46						
333												
334	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
335	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
336	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
337	For additional insight the user may want to consult a statistician.											
338												
339	**Beryllium (Be)-Total**											
340												
341	**General Statistics**											
342					Total Number of Observations	12				Number of Distinct Observations		2
343					Number of Detects	1				Number of Non-Detects		11
344					Number of Distinct Detects	1				Number of Distinct Non-Detects		1
345												
346	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**											
347	**suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, B**											
348												
349	**The data set for variable Beryllium (Be)-Total was not processed!**											
350												
351												
352	**Boron (B)-Total**											
353												
354	**General Statistics**											
355					Total Number of Observations	12				Number of Distinct Observations		11
356					Number of Detects	7				Number of Non-Detects		5
357					Number of Distinct Detects	7				Number of Distinct Non-Detects		4
358					Minimum Detect	7.06				Minimum Non-Detect		3
359					Maximum Detect	40.1				Maximum Non-Detect		10
360					Variance Detects	155.8				Percent Non-Detects		41.67%
361					Mean Detects	16.65				SD Detects		12.48
362					Median Detects	11.4				CV Detects		0.75
363					Skewness Detects	1.465				Kurtosis Detects		1.048
364					Mean of Logged Detects	2.612				SD of Logged Detects		0.65
365												
366	**Normal GOF Test on Detects Only**											
367					Shapiro Wilk Test Statistic	0.777				**Shapiro Wilk GOF Test**		
368					5% Shapiro Wilk Critical Value	0.803				Detected Data Not Normal at 5% Significance Level		
369					Lilliefors Test Statistic	0.338				**Lilliefors GOF Test**		
370					5% Lilliefors Critical Value	0.335				Detected Data Not Normal at 5% Significance Level		
371	**Detected Data Not Normal at 5% Significance Level**											
372												

	A	B	C	D	E	F	G	H	I	J	K	L
373	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
374					Mean	11.15				Standard Error of Mean		3.441
375					SD	11.01				95% KM (BCA) UCL		17.98
376					95% KM (t) UCL	17.33				95% KM (Percentile Bootstrap) UCL		17.14
377					95% KM (z) UCL	16.81				95% KM Bootstrap t UCL		25.34
378					90% KM Chebyshev UCL	21.47				95% KM Chebyshev UCL		26.15
379					97.5% KM Chebyshev UCL	32.64				99% KM Chebyshev UCL		45.39
380												
381	**Gamma GOF Tests on Detected Observations Only**											
382					A-D Test Statistic	0.62	**Anderson-Darling GOF Test**					
383					5% A-D Critical Value	0.713	etected data appear Gamma Distributed at 5% Significance Lev					
384					K-S Test Statistic	0.298	**Kolmogrov-Smirnoff GOF**					
385					5% K-S Critical Value	0.314	etected data appear Gamma Distributed at 5% Significance Lev					
386	**Detected data appear Gamma Distributed at 5% Significance Level**											
387												
388	**Gamma Statistics on Detected Data Only**											
389					k hat (MLE)	2.646				k star (bias corrected MLE)		1.607
390					Theta hat (MLE)	6.291				Theta star (bias corrected MLE)		10.36
391					nu hat (MLE)	37.05				nu star (bias corrected)		22.5
392					MLE Mean (bias corrected)	16.65				MLE Sd (bias corrected)		13.13
393												
394	**Gamma Kaplan-Meier (KM) Statistics**											
395					k hat (KM)	1.026				nu hat (KM)		24.61
396					Approximate Chi Square Value (24.61, α)	14.32				Adjusted Chi Square Value (24.61, β)		13.13
397					5% Gamma Approximate KM-UCL (use when n>=50)	19.16				95% Gamma Adjusted KM-UCL (use when n<50)		20.9
398												
399	**Gamma ROS Statistics using Imputed Non-Detects**											
400	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
401	GROS may not be used when kstar of detected data is small such as < 0.1											
402	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
403	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
404					Minimum	0.01				Mean		9.716
405					Maximum	40.1				Median		7.82
406					SD	12.58				CV		1.295
407					k hat (MLE)	0.264				k star (bias corrected MLE)		0.253
408					Theta hat (MLE)	36.83				Theta star (bias corrected MLE)		38.34
409					nu hat (MLE)	6.331				nu star (bias corrected)		6.082
410					MLE Mean (bias corrected)	9.716				MLE Sd (bias corrected)		19.3
411										Adjusted Level of Significance (β)		0.029
412					Approximate Chi Square Value (6.08, α)	1.682				Adjusted Chi Square Value (6.08, β)		1.354
413					95% Gamma Approximate UCL (use when n>=50)	35.13				95% Gamma Adjusted UCL (use when n<50)		43.63
414												
415	**Lognormal GOF Test on Detected Observations Only**											
416					Shapiro Wilk Test Statistic	0.873	**Shapiro Wilk GOF Test**					
417					5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level					
418					Lilliefors Test Statistic	0.257	**Lilliefors GOF Test**					
419					5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level					
420	**Detected Data appear Lognormal at 5% Significance Level**											
421												
422	**Lognormal ROS Statistics Using Imputed Non-Detects**											
423					Mean in Original Scale	11.03				Mean in Log Scale		1.992
424					SD in Original Scale	11.55				SD in Log Scale		0.92
425					95% t UCL (assumes normality of ROS data)	17.02				95% Percentile Bootstrap UCL		16.55
426					95% BCA Bootstrap UCL	18.38				95% Bootstrap t UCL		26.78
427					95% H-UCL (Log ROS)	24.15						
428												
429	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
430					KM Mean (logged)	2.017				95% H-UCL (KM -Log)		21.73
431					KM SD (logged)	0.86				95% Critical H Value (KM-Log)		2.669
432					KM Standard Error of Mean (logged)	0.272						
433												
434	**DL/2 Statistics**											

435	**DL/2 Normal**						**DL/2 Log-Transformed**					
436					Mean in Original Scale	10.81					Mean in Log Scale	1.891
437					SD in Original Scale	11.73					SD in Log Scale	1.048
438					95% t UCL (Assumes normality)	16.89					95% H-Stat UCL	29.63
439	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
440												
441	**Nonparametric Distribution Free UCL Statistics**											
442	**Detected Data appear Gamma Distributed at 5% Significance Level**											
443												
444	**Suggested UCL to Use**											
445					95% KM (t) UCL	17.33					95% GROS Adjusted Gamma UCL	43.63
446					95% Adjusted Gamma KM-UCL	20.9						
447	**Warning: Recommended UCL exceeds the maximum observation**											
448												
449	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
450	Recommendations are based upon data size, data distribution, and skewness.											
451	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
452	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
453												
454	**Cadmium (Cd)-Total**											
455												
456	**General Statistics**											
457					Total Number of Observations	12					Number of Distinct Observations	6
458					Number of Detects	4					Number of Non-Detects	8
459					Number of Distinct Detects	4					Number of Distinct Non-Detects	2
460					Minimum Detect	0.0044					Minimum Non-Detect	0.002
461					Maximum Detect	0.0215					Maximum Non-Detect	0.003
462					Variance Detects	6.3020E-5					Percent Non-Detects	66.67%
463					Mean Detects	0.0097					SD Detects	0.00794
464					Median Detects	0.00645					CV Detects	0.818
465					Skewness Detects	1.892					Kurtosis Detects	3.654
466					Mean of Logged Detects	-4.84					SD of Logged Detects	0.694
467												
468	**Normal GOF Test on Detects Only**											
469					Shapiro Wilk Test Statistic	0.754	**Shapiro Wilk GOF Test**					
470					5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level					
471					Lilliefors Test Statistic	0.383	**Lilliefors GOF Test**					
472					5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level					
473	**Detected Data appear Normal at 5% Significance Level**											
474												
475	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
476					Mean	0.00457					Standard Error of Mean	0.00179
477					SD	0.00538					95% KM (BCA) UCL	N/A
478					95% KM (t) UCL	0.00779					95% KM (Percentile Bootstrap) UCL	N/A
479					95% KM (z) UCL	0.00752					95% KM Bootstrap t UCL	N/A
480					90% KM Chebyshev UCL	0.00995					95% KM Chebyshev UCL	0.0124
481					97.5% KM Chebyshev UCL	0.0158					99% KM Chebyshev UCL	0.0224
482												
483	**Gamma GOF Tests on Detected Observations Only**											
484					A-D Test Statistic	0.527	**Anderson-Darling GOF Test**					
485					5% A-D Critical Value	0.66	etected data appear Gamma Distributed at 5% Significance Lev					
486					K-S Test Statistic	0.362	**Kolmogrov-Smirnoff GOF**					
487					5% K-S Critical Value	0.397	etected data appear Gamma Distributed at 5% Significance Lev					
488	**Detected data appear Gamma Distributed at 5% Significance Level**											
489												
490	**Gamma Statistics on Detected Data Only**											
491					k hat (MLE)	2.6					k star (bias corrected MLE)	0.817
492					Theta hat (MLE)	0.00373					Theta star (bias corrected MLE)	0.0119
493					nu hat (MLE)	20.8					nu star (bias corrected)	6.533
494					MLE Mean (bias corrected)	0.0097					MLE Sd (bias corrected)	0.0107
495												
496	**Gamma Kaplan-Meier (KM) Statistics**											

497					k hat (KM)	0.721					nu hat (KM)		17.3
498					Approximate Chi Square Value (17.30, α)	8.887					Adjusted Chi Square Value (17.30, β)		7.982
499	5% Gamma Approximate KM-UCL (use when n>=50)					0.00889					95% Gamma Adjusted KM-UCL (use when n<50)		0.0099
500													
501	**Gamma ROS Statistics using Imputed Non-Detects**												
502	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
503	GROS may not be used when kstar of detected data is small such as < 0.1												
504	For such situations, GROS method tends to yield inflated values of UCLs and BTVs												
505	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
506					Minimum	0.0044					Mean		0.0099
507					Maximum	0.0215					Median		0.01
508					SD	0.00415					CV		0.419
509					k hat (MLE)	7.487					k star (bias corrected MLE)		5.671
510					Theta hat (MLE)	0.00132					Theta star (bias corrected MLE)		0.00175
511					nu hat (MLE)	179.7					nu star (bias corrected)		136.1
512					MLE Mean (bias corrected)	0.0099					MLE Sd (bias corrected)		0.00416
513											Adjusted Level of Significance (β)		0.029
514					Approximate Chi Square Value (136.10, α)	110.1					Adjusted Chi Square Value (136.10, β)		106.6
515	95% Gamma Approximate UCL (use when n>=50)					0.0122					95% Gamma Adjusted UCL (use when n<50)		N/A
516													
517	**Lognormal GOF Test on Detected Observations Only**												
518					Shapiro Wilk Test Statistic	0.867					**Shapiro Wilk GOF Test**		
519					5% Shapiro Wilk Critical Value	0.748					Detected Data appear Lognormal at 5% Significance Level		
520					Lilliefors Test Statistic	0.32					**Lilliefors GOF Test**		
521					5% Lilliefors Critical Value	0.443					Detected Data appear Lognormal at 5% Significance Level		
522	**Detected Data appear Lognormal at 5% Significance Level**												
523													
524	**Lognormal ROS Statistics Using Imputed Non-Detects**												
525					Mean in Original Scale	0.00374					Mean in Log Scale		-6.605
526					SD in Original Scale	0.00606					SD in Log Scale		1.536
527					95% t UCL (assumes normality of ROS data)	0.00689					95% Percentile Bootstrap UCL		0.00684
528					95% BCA Bootstrap UCL	0.00805					95% Bootstrap t UCL		0.0115
529					95% H-UCL (Log ROS)	0.0277							
530													
531	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**												
532					KM Mean (logged)	-5.756					95% H-UCL (KM -Log)		0.00716
533					KM SD (logged)	0.735					95% Critical H Value (KM-Log)		2.467
534					KM Standard Error of Mean (logged)	0.245							
535													
536	**DL/2 Statistics**												
537					**DL/2 Normal**						**DL/2 Log-Transformed**		
538					Mean in Original Scale	0.00394					Mean in Log Scale		-6.185
539					SD in Original Scale	0.00594					SD in Log Scale		1.063
540					95% t UCL (Assumes normality)	0.00702					95% H-Stat UCL		0.00958
541	**DL/2 is not a recommended method, provided for comparisons and historical reasons**												
542													
543	**Nonparametric Distribution Free UCL Statistics**												
544	**Detected Data appear Normal Distributed at 5% Significance Level**												
545													
546	**Suggested UCL to Use**												
547					95% KM (t) UCL	0.00779					95% KM (Percentile Bootstrap) UCL		N/A
548	**Warning: One or more Recommended UCL(s) not available!**												
549													
550	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
551	Recommendations are based upon data size, data distribution, and skewness.												
552	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
553	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.												
554													
555													
556	**Calcium (Ca)-Total**												
557													
558	**General Statistics**												

559	Total Number of Observations					12	Number of Distinct Observations					12
560							Number of Missing Observations					0
561	Minimum					836	Mean					3235
562	Maximum					9660	Median					2225
563	SD					2692	Std. Error of Mean					777.1
564	Coefficient of Variation					0.832	Skewness					1.529
565												
566	**Normal GOF Test**											
567	Shapiro Wilk Test Statistic					0.821	**Shapiro Wilk GOF Test**					
568	5% Shapiro Wilk Critical Value					0.859	Data Not Normal at 5% Significance Level					
569	Lilliefors Test Statistic					0.238	**Lilliefors GOF Test**					
570	5% Lilliefors Critical Value					0.256	Data appear Normal at 5% Significance Level					
571	**Data appear Approximate Normal at 5% Significance Level**											
572												
573	**Assuming Normal Distribution**											
574	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
575	95% Student's-t UCL					4630	95% Adjusted-CLT UCL (Chen-1995)					4879
576							95% Modified-t UCL (Johnson-1978)					4687
577												
578	**Gamma GOF Test**											
579	A-D Test Statistic					0.385	**Anderson-Darling Gamma GOF Test**					
580	5% A-D Critical Value					0.742	etected data appear Gamma Distributed at 5% Significance Lev					
581	K-S Test Statistic					0.158	**Kolmogrov-Smirnoff Gamma GOF Test**					
582	5% K-S Critical Value					0.249	etected data appear Gamma Distributed at 5% Significance Lev					
583	**Detected data appear Gamma Distributed at 5% Significance Level**											
584												
585	**Gamma Statistics**											
586	k hat (MLE)					1.956	k star (bias corrected MLE)					1.523
587	Theta hat (MLE)					1653	Theta star (bias corrected MLE)					2124
588	nu hat (MLE)					46.95	nu star (bias corrected)					36.55
589	MLE Mean (bias corrected)					3235	MLE Sd (bias corrected)					2621
590							Approximate Chi Square Value (0.05)					23.71
591	Adjusted Level of Significance					0.029	Adjusted Chi Square Value					22.14
592												
593	**Assuming Gamma Distribution**											
594	95% Approximate Gamma UCL (use when n>=50))					4986	95% Adjusted Gamma UCL (use when n<50)					5339
595												
596	**Lognormal GOF Test**											
597	Shapiro Wilk Test Statistic					0.962	**Shapiro Wilk Lognormal GOF Test**					
598	5% Shapiro Wilk Critical Value					0.859	Data appear Lognormal at 5% Significance Level					
599	Lilliefors Test Statistic					0.129	**Lilliefors Lognormal GOF Test**					
600	5% Lilliefors Critical Value					0.256	Data appear Lognormal at 5% Significance Level					
601	**Data appear Lognormal at 5% Significance Level**											
602												
603	**Lognormal Statistics**											
604	Minimum of Logged Data					6.729	Mean of logged Data					7.805
605	Maximum of Logged Data					9.176	SD of logged Data					0.761
606												
607	**Assuming Lognormal Distribution**											
608	95% H-UCL					5826	90% Chebyshev (MVUE) UCL					5379
609	95% Chebyshev (MVUE) UCL					6375	97.5% Chebyshev (MVUE) UCL					7756
610	99% Chebyshev (MVUE) UCL					10470						
611												
612	**Nonparametric Distribution Free UCL Statistics**											
613	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
614												
615	**Nonparametric Distribution Free UCLs**											
616	95% CLT UCL					4513	95% Jackknife UCL					4630
617	95% Standard Bootstrap UCL					4426	95% Bootstrap-t UCL					5748
618	95% Hall's Bootstrap UCL					5941	95% Percentile Bootstrap UCL					4519
619	95% BCA Bootstrap UCL					4952						
620	90% Chebyshev(Mean, Sd) UCL					5566	95% Chebyshev(Mean, Sd) UCL					6622

621	97.5% Chebyshev(Mean, Sd) UCL					8088	99% Chebyshev(Mean, Sd) UCL					10967
622												
623	**Suggested UCL to Use**											
624	95% Student's-t UCL					4630						
625												
626	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
627	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
628	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
629	For additional insight the user may want to consult a statistician.											
630												
631	**Cesium (Cs)-Total**											
632												
633	**General Statistics**											
634	Total Number of Observations					12	Number of Distinct Observations					9
635	Number of Detects					8	Number of Non-Detects					4
636	Number of Distinct Detects					8	Number of Distinct Non-Detects					1
637	Minimum Detect					0.0013	Minimum Non-Detect					0.001
638	Maximum Detect					0.0163	Maximum Non-Detect					0.001
639	Variance Detects					2.4811E-5	Percent Non-Detects					33.33%
640	Mean Detects					0.00548	SD Detects					0.00498
641	Median Detects					0.00435	CV Detects					0.91
642	Skewness Detects					1.673	Kurtosis Detects					3.189
643	Mean of Logged Detects					-5.553	SD of Logged Detects					0.901
644												
645	**Normal GOF Test on Detects Only**											
646	Shapiro Wilk Test Statistic					0.821	**Shapiro Wilk GOF Test**					
647	5% Shapiro Wilk Critical Value					0.818	Detected Data appear Normal at 5% Significance Level					
648	Lilliefors Test Statistic					0.21	**Lilliefors GOF Test**					
649	5% Lilliefors Critical Value					0.313	Detected Data appear Normal at 5% Significance Level					
650	**Detected Data appear Normal at 5% Significance Level**											
651												
652	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
653	Mean					0.00398	Standard Error of Mean					0.00134
654	SD					0.00435	95% KM (BCA) UCL					0.00604
655	95% KM (t) UCL					0.00639	95% KM (Percentile Bootstrap) UCL					0.00633
656	95% KM (z) UCL					0.00619	95% KM Bootstrap t UCL					0.00822
657	90% KM Chebyshev UCL					0.00801	95% KM Chebyshev UCL					0.00983
658	97.5% KM Chebyshev UCL					0.0124	99% KM Chebyshev UCL					0.0173
659												
660	**Gamma GOF Tests on Detected Observations Only**											
661	A-D Test Statistic					0.302	**Anderson-Darling GOF Test**					
662	5% A-D Critical Value					0.728	etected data appear Gamma Distributed at 5% Significance Lev					
663	K-S Test Statistic					0.191	**Kolmogrov-Smirnoff GOF**					
664	5% K-S Critical Value					0.299	etected data appear Gamma Distributed at 5% Significance Lev					
665	**Detected data appear Gamma Distributed at 5% Significance Level**											
666												
667	**Gamma Statistics on Detected Data Only**											
668	k hat (MLE)					1.593	k star (bias corrected MLE)					1.079
669	Theta hat (MLE)					0.00344	Theta star (bias corrected MLE)					0.00507
670	nu hat (MLE)					25.5	nu star (bias corrected)					17.27
671	MLE Mean (bias corrected)					0.00548	MLE Sd (bias corrected)					0.00527
672												
673	**Gamma Kaplan-Meier (KM) Statistics**											
674	k hat (KM)					0.838	nu hat (KM)					20.12
675	Approximate Chi Square Value (20.12, α)					10.94	Adjusted Chi Square Value (20.12, β)					9.924
676	5% Gamma Approximate KM-UCL (use when n>=50)					0.00733	95% Gamma Adjusted KM-UCL (use when n<50)					0.00808
677												
678	**Gamma ROS Statistics using Imputed Non-Detects**											
679	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
680	GROS may not be used when kstar of detected data is small such as < 0.1											
681	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
682	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											

683					Minimum	0.0013					Mean	0.00698
684					Maximum	0.0163					Median	0.00715
685					SD	0.00456					CV	0.652
686					k hat (MLE)	1.983					k star (bias corrected MLE)	1.543
687					Theta hat (MLE)	0.00352					Theta star (bias corrected MLE)	0.00453
688					nu hat (MLE)	47.59					nu star (bias corrected)	37.03
689					MLE Mean (bias corrected)	0.00698					MLE Sd (bias corrected)	0.00562
690											Adjusted Level of Significance (β)	0.029
691					Approximate Chi Square Value (37.03, α)	24.1					Adjusted Chi Square Value (37.03, β)	22.51
692				95% Gamma Approximate UCL (use when n>=50)		0.0107				95% Gamma Adjusted UCL (use when n<50)		0.0115
693												
694					**Lognormal GOF Test on Detected Observations Only**							
695					Shapiro Wilk Test Statistic	0.936				**Shapiro Wilk GOF Test**		
696					5% Shapiro Wilk Critical Value	0.818				Detected Data appear Lognormal at 5% Significance Level		
697					Lilliefors Test Statistic	0.178				**Lilliefors GOF Test**		
698					5% Lilliefors Critical Value	0.313				Detected Data appear Lognormal at 5% Significance Level		
699					**Detected Data appear Lognormal at 5% Significance Level**							
700												
701					**Lognormal ROS Statistics Using Imputed Non-Detects**							
702					Mean in Original Scale	0.00379					Mean in Log Scale	-6.339
703					SD in Original Scale	0.00469					SD in Log Scale	1.399
704				95% t UCL (assumes normality of ROS data)		0.00622					95% Percentile Bootstrap UCL	0.00595
705					95% BCA Bootstrap UCL	0.00694					95% Bootstrap t UCL	0.00826
706					95% H-UCL (Log ROS)	0.0223						
707												
708					**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**							
709					KM Mean (logged)	-6.005					95% H-UCL (KM -Log)	0.00848
710					KM SD (logged)	0.939					95% Critical H Value (KM-Log)	2.805
711					KM Standard Error of Mean (logged)	0.29						
712												
713					**DL/2 Statistics**							
714					**DL/2 Normal**					**DL/2 Log-Transformed**		
715					Mean in Original Scale	0.00382					Mean in Log Scale	-6.236
716					SD in Original Scale	0.00467					SD in Log Scale	1.238
717					95% t UCL (Assumes normality)	0.00624					95% H-Stat UCL	0.0148
718					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
719												
720					**Nonparametric Distribution Free UCL Statistics**							
721					**Detected Data appear Normal Distributed at 5% Significance Level**							
722												
723					**Suggested UCL to Use**							
724					95% KM (t) UCL	0.00639					95% KM (Percentile Bootstrap) UCL	0.00633
725												
726					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
727					Recommendations are based upon data size, data distribution, and skewness.							
728					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
729					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
730												
731												
732	**Chromium (Cr)-Total**											
733												
734					**General Statistics**							
735					Total Number of Observations	12					Number of Distinct Observations	12
736											Number of Missing Observations	0
737					Minimum	0.022					Mean	0.137
738					Maximum	0.364					Median	0.0735
739					SD	0.129					Std. Error of Mean	0.0373
740					Coefficient of Variation	0.942					Skewness	0.851
741												
742					**Normal GOF Test**							
743					Shapiro Wilk Test Statistic	0.814				**Shapiro Wilk GOF Test**		
744					5% Shapiro Wilk Critical Value	0.859				Data Not Normal at 5% Significance Level		

745	Lilliefors Test Statistic					0.257	**Lilliefors GOF Test**					
746	5% Lilliefors Critical Value					0.256	Data Not Normal at 5% Significance Level					
747	**Data Not Normal at 5% Significance Level**											
748												
749	**Assuming Normal Distribution**											
750	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
751	95% Student's-t UCL					0.204	95% Adjusted-CLT UCL (Chen-1995)					0.208
752							95% Modified-t UCL (Johnson-1978)					0.206
753												
754	**Gamma GOF Test**											
755	A-D Test Statistic					0.65	**Anderson-Darling Gamma GOF Test**					
756	5% A-D Critical Value					0.752	etected data appear Gamma Distributed at 5% Significance Lev					
757	K-S Test Statistic					0.248	**Kolmogrov-Smirnoff Gamma GOF Test**					
758	5% K-S Critical Value					0.251	etected data appear Gamma Distributed at 5% Significance Lev					
759	**Detected data appear Gamma Distributed at 5% Significance Level**											
760												
761	**Gamma Statistics**											
762	k hat (MLE)					1.199	k star (bias corrected MLE)					0.955
763	Theta hat (MLE)					0.114	Theta star (bias corrected MLE)					0.144
764	nu hat (MLE)					28.77	nu star (bias corrected)					22.91
765	MLE Mean (bias corrected)					0.137	MLE Sd (bias corrected)					0.14
766							Approximate Chi Square Value (0.05)					13.03
767	Adjusted Level of Significance					0.029	Adjusted Chi Square Value					11.9
768												
769	**Assuming Gamma Distribution**											
770	95% Approximate Gamma UCL (use when n>=50)					0.241	95% Adjusted Gamma UCL (use when n<50)					0.264
771												
772	**Lognormal GOF Test**											
773	Shapiro Wilk Test Statistic					0.896	**Shapiro Wilk Lognormal GOF Test**					
774	5% Shapiro Wilk Critical Value					0.859	Data appear Lognormal at 5% Significance Level					
775	Lilliefors Test Statistic					0.216	**Lilliefors Lognormal GOF Test**					
776	5% Lilliefors Critical Value					0.256	Data appear Lognormal at 5% Significance Level					
777	**Data appear Lognormal at 5% Significance Level**											
778												
779	**Lognormal Statistics**											
780	Minimum of Logged Data					-3.817	Mean of logged Data					-2.459
781	Maximum of Logged Data					-1.011	SD of logged Data					1.048
782												
783	**Assuming Lognormal Distribution**											
784	95% H-UCL					0.382	90% Chebyshev (MVUE) UCL					0.274
785	95% Chebyshev (MVUE) UCL					0.336	97.5% Chebyshev (MVUE) UCL					0.421
786	99% Chebyshev (MVUE) UCL					0.588						
787												
788	**Nonparametric Distribution Free UCL Statistics**											
789	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
790												
791	**Nonparametric Distribution Free UCLs**											
792	95% CLT UCL					0.198	95% Jackknife UCL					0.204
793	95% Standard Bootstrap UCL					0.196	95% Bootstrap-t UCL					0.221
794	95% Hall's Bootstrap UCL					0.199	95% Percentile Bootstrap UCL					0.196
795	95% BCA Bootstrap UCL					0.203						
796	90% Chebyshev(Mean, Sd) UCL					0.249	95% Chebyshev(Mean, Sd) UCL					0.3
797	97.5% Chebyshev(Mean, Sd) UCL					0.37	99% Chebyshev(Mean, Sd) UCL					0.508
798												
799	**Suggested UCL to Use**											
800	95% Adjusted Gamma UCL					0.264						
801												
802	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
803	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
804	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
805	For additional insight the user may want to consult a statistician.											
806												

807												
808	**Cobalt (Co)-Total**											
809												
810	**General Statistics**											
811					Total Number of Observations		12			Number of Distinct Observations		12
812										Number of Missing Observations		0
813					Minimum		0.005			Mean		0.0589
814					Maximum		0.376			Median		0.0196
815					SD		0.103			Std. Error of Mean		0.0299
816					Coefficient of Variation		1.757			Skewness		3.07
817												
818	**Normal GOF Test**											
819					Shapiro Wilk Test Statistic		0.544			**Shapiro Wilk GOF Test**		
820					5% Shapiro Wilk Critical Value		0.859			Data Not Normal at 5% Significance Level		
821					Lilliefors Test Statistic		0.309			**Lilliefors GOF Test**		
822					5% Lilliefors Critical Value		0.256			Data Not Normal at 5% Significance Level		
823	**Data Not Normal at 5% Significance Level**											
824												
825	**Assuming Normal Distribution**											
826					**95% Normal UCL**					**95% UCLs (Adjusted for Skewness)**		
827					95% Student's-t UCL		0.113			95% Adjusted-CLT UCL (Chen-1995)		0.136
828										95% Modified-t UCL (Johnson-1978)		0.117
829												
830	**Gamma GOF Test**											
831					A-D Test Statistic		0.77			**Anderson-Darling Gamma GOF Test**		
832					5% A-D Critical Value		0.768			Data Not Gamma Distributed at 5% Significance Level		
833					K-S Test Statistic		0.212			**Kolmogrov-Smirnoff Gamma GOF Test**		
834					5% K-S Critical Value		0.255			etected data appear Gamma Distributed at 5% Significance Lev		
835	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
836												
837	**Gamma Statistics**											
838					k hat (MLE)		0.722			k star (bias corrected MLE)		0.597
839					Theta hat (MLE)		0.0815			Theta star (bias corrected MLE)		0.0986
840					nu hat (MLE)		17.33			nu star (bias corrected)		14.33
841					MLE Mean (bias corrected)		0.0589			MLE Sd (bias corrected)		0.0762
842										Approximate Chi Square Value (0.05)		6.799
843					Adjusted Level of Significance		0.029			Adjusted Chi Square Value		6.025
844												
845	**Assuming Gamma Distribution**											
846					95% Approximate Gamma UCL (use when n>=50)		0.124			95% Adjusted Gamma UCL (use when n<50)		0.14
847												
848	**Lognormal GOF Test**											
849					Shapiro Wilk Test Statistic		0.945			**Shapiro Wilk Lognormal GOF Test**		
850					5% Shapiro Wilk Critical Value		0.859			Data appear Lognormal at 5% Significance Level		
851					Lilliefors Test Statistic		0.145			**Lilliefors Lognormal GOF Test**		
852					5% Lilliefors Critical Value		0.256			Data appear Lognormal at 5% Significance Level		
853	**Data appear Lognormal at 5% Significance Level**											
854												
855	**Lognormal Statistics**											
856					Minimum of Logged Data		-5.298			Mean of logged Data		-3.665
857					Maximum of Logged Data		-0.978			SD of logged Data		1.241
858												
859	**Assuming Lognormal Distribution**											
860					95% H-UCL		0.195			90% Chebyshev (MVUE) UCL		0.109
861					95% Chebyshev (MVUE) UCL		0.135			97.5% Chebyshev (MVUE) UCL		0.172
862					99% Chebyshev (MVUE) UCL		0.244					
863												
864	**Nonparametric Distribution Free UCL Statistics**											
865	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
866												
867	**Nonparametric Distribution Free UCLs**											
868					95% CLT UCL		0.108			95% Jackknife UCL		0.113

869					95% Standard Bootstrap UCL	0.105					95% Bootstrap-t UCL	0.244
870					95% Hall's Bootstrap UCL	0.284					95% Percentile Bootstrap UCL	0.116
871					95% BCA Bootstrap UCL	0.148						
872					90% Chebyshev(Mean, Sd) UCL	0.148					95% Chebyshev(Mean, Sd) UCL	0.189
873					97.5% Chebyshev(Mean, Sd) UCL	0.245					99% Chebyshev(Mean, Sd) UCL	0.356
874												
875					**Suggested UCL to Use**							
876					95% Adjusted Gamma UCL	0.14						
877												
878	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
879	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
880	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
881	For additional insight the user may want to consult a statistician.											
882												
883												
884	**Copper (Cu)-Total**											
885												
886					**General Statistics**							
887					Total Number of Observations	12					Number of Distinct Observations	11
888											Number of Missing Observations	0
889					Minimum	1.32					Mean	2.194
890					Maximum	4.78					Median	1.95
891					SD	0.91					Std. Error of Mean	0.263
892					Coefficient of Variation	0.415					Skewness	2.35
893												
894					**Normal GOF Test**							
895					Shapiro Wilk Test Statistic	0.747					**Shapiro Wilk GOF Test**	
896					5% Shapiro Wilk Critical Value	0.859					Data Not Normal at 5% Significance Level	
897					Lilliefors Test Statistic	0.235					**Lilliefors GOF Test**	
898					5% Lilliefors Critical Value	0.256					Data appear Normal at 5% Significance Level	
899					**Data appear Approximate Normal at 5% Significance Level**							
900												
901					**Assuming Normal Distribution**							
902					**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**	
903					95% Student's-t UCL	2.666					95% Adjusted-CLT UCL (Chen-1995)	2.817
904											95% Modified-t UCL (Johnson-1978)	2.696
905												
906					**Gamma GOF Test**							
907					A-D Test Statistic	0.669					**Anderson-Darling Gamma GOF Test**	
908					5% A-D Critical Value	0.731					etected data appear Gamma Distributed at 5% Significance Lev	
909					K-S Test Statistic	0.195					**Kolmogrov-Smirnoff Gamma GOF Test**	
910					5% K-S Critical Value	0.246					etected data appear Gamma Distributed at 5% Significance Lev	
911					**Detected data appear Gamma Distributed at 5% Significance Level**							
912												
913					**Gamma Statistics**							
914					k hat (MLE)	8.723					k star (bias corrected MLE)	6.598
915					Theta hat (MLE)	0.252					Theta star (bias corrected MLE)	0.333
916					nu hat (MLE)	209.3					nu star (bias corrected)	158.3
917					MLE Mean (bias corrected)	2.194					MLE Sd (bias corrected)	0.854
918											Approximate Chi Square Value (0.05)	130.3
919					Adjusted Level of Significance	0.029					Adjusted Chi Square Value	126.4
920												
921					**Assuming Gamma Distribution**							
922					95% Approximate Gamma UCL (use when n>=50))	2.667					95% Adjusted Gamma UCL (use when n<50)	2.749
923												
924					**Lognormal GOF Test**							
925					Shapiro Wilk Test Statistic	0.899					**Shapiro Wilk Lognormal GOF Test**	
926					5% Shapiro Wilk Critical Value	0.859					Data appear Lognormal at 5% Significance Level	
927					Lilliefors Test Statistic	0.172					**Lilliefors Lognormal GOF Test**	
928					5% Lilliefors Critical Value	0.256					Data appear Lognormal at 5% Significance Level	
929					**Data appear Lognormal at 5% Significance Level**							
930												

931	**Lognormal Statistics**											
932					Minimum of Logged Data	0.278				Mean of logged Data		0.727
933					Maximum of Logged Data	1.564				SD of logged Data		0.335
934												
935	**Assuming Lognormal Distribution**											
936					95% H-UCL	2.667				90% Chebyshev (MVUE) UCL		2.816
937					95% Chebyshev (MVUE) UCL	3.105				97.5% Chebyshev (MVUE) UCL		3.507
938					99% Chebyshev (MVUE) UCL	4.295						
939												
940	**Nonparametric Distribution Free UCL Statistics**											
941	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
942												
943	**Nonparametric Distribution Free UCLs**											
944					95% CLT UCL	2.626				95% Jackknife UCL		2.666
945					95% Standard Bootstrap UCL	2.606				95% Bootstrap-t UCL		3.105
946					95% Hall's Bootstrap UCL	4.664				95% Percentile Bootstrap UCL		2.661
947					95% BCA Bootstrap UCL	2.795						
948					90% Chebyshev(Mean, Sd) UCL	2.982				95% Chebyshev(Mean, Sd) UCL		3.339
949					97.5% Chebyshev(Mean, Sd) UCL	3.834				99% Chebyshev(Mean, Sd) UCL		4.807
950												
951	**Suggested UCL to Use**											
952					95% Student's-t UCL	2.666						
953												
954	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
955	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
956	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
957	For additional insight the user may want to consult a statistician.											
958												
959	**Gallium (Ga)-Total**											
960												
961	**General Statistics**											
962					Total Number of Observations	11				Number of Distinct Observations		7
963										Number of Missing Observations		1
964					Number of Detects	6				Number of Non-Detects		5
965					Number of Distinct Detects	6				Number of Distinct Non-Detects		1
966					Minimum Detect	0.0053				Minimum Non-Detect		0.004
967					Maximum Detect	0.0305				Maximum Non-Detect		0.004
968					Variance Detects	1.2080E-4				Percent Non-Detects		45.45%
969					Mean Detects	0.0183				SD Detects		0.011
970					Median Detects	0.0179				CV Detects		0.6
971					Skewness Detects	0.0263				Kurtosis Detects		-2.466
972					Mean of Logged Detects	-4.191				SD of Logged Detects		0.721
973												
974	**Normal GOF Test on Detects Only**											
975					Shapiro Wilk Test Statistic	0.884				**Shapiro Wilk GOF Test**		
976					5% Shapiro Wilk Critical Value	0.788				Detected Data appear Normal at 5% Significance Level		
977					Lilliefors Test Statistic	0.205				**Lilliefors GOF Test**		
978					5% Lilliefors Critical Value	0.362				Detected Data appear Normal at 5% Significance Level		
979	**Detected Data appear Normal at 5% Significance Level**											
980												
981	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
982					Mean	0.0118				Standard Error of Mean		0.0034
983					SD	0.0103				95% KM (BCA) UCL		0.017
984					95% KM (t) UCL	0.018				95% KM (Percentile Bootstrap) UCL		0.0174
985					95% KM (z) UCL	0.0174				95% KM Bootstrap t UCL		0.0183
986					90% KM Chebyshev UCL	0.022				95% KM Chebyshev UCL		0.0266
987					97.5% KM Chebyshev UCL	0.033				99% KM Chebyshev UCL		0.0456
988												
989	**Gamma GOF Tests on Detected Observations Only**											
990					A-D Test Statistic	0.374				**Anderson-Darling GOF Test**		
991					5% A-D Critical Value	0.702				etected data appear Gamma Distributed at 5% Significance Lev		
992					K-S Test Statistic	0.231				**Kolmogrov-Smirnoff GOF**		

993				5% K-S Critical Value	0.335	etected data appear Gamma Distributed at 5% Significance Lev						
994	**Detected data appear Gamma Distributed at 5% Significance Level**											
995												
996	**Gamma Statistics on Detected Data Only**											
997				k hat (MLE)	2.766	k star (bias corrected MLE)	1.494					
998				Theta hat (MLE)	0.00662	Theta star (bias corrected MLE)	0.0123					
999				nu hat (MLE)	33.2	nu star (bias corrected)	17.93					
1000				MLE Mean (bias corrected)	0.0183	MLE Sd (bias corrected)	0.015					
1001												
1002	**Gamma Kaplan-Meier (KM) Statistics**											
1003				k hat (KM)	1.319	nu hat (KM)	29.02					
1004				Approximate Chi Square Value (29.02, α)	17.72	Adjusted Chi Square Value (29.02, β)	16.3					
1005	5% Gamma Approximate KM-UCL (use when n>=50)				0.0193	95% Gamma Adjusted KM-UCL (use when n<50)	0.021					
1006												
1007	**Gamma ROS Statistics using Imputed Non-Detects**											
1008	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
1009	GROS may not be used when kstar of detected data is small such as < 0.1											
1010	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
1011	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
1012				Minimum	0.0053	Mean	0.0145					
1013				Maximum	0.0305	Median	0.01					
1014				SD	0.0089	CV	0.612					
1015				k hat (MLE)	3.527	k star (bias corrected MLE)	2.626					
1016				Theta hat (MLE)	0.00412	Theta star (bias corrected MLE)	0.00554					
1017				nu hat (MLE)	77.6	nu star (bias corrected)	57.77					
1018				MLE Mean (bias corrected)	0.0145	MLE Sd (bias corrected)	0.00897					
1019						Adjusted Level of Significance (β)	0.0278					
1020				Approximate Chi Square Value (57.77, α)	41.3	Adjusted Chi Square Value (57.77, β)	39.04					
1021	95% Gamma Approximate UCL (use when n>=50)				0.0203	95% Gamma Adjusted UCL (use when n<50)	0.0215					
1022												
1023	**Lognormal GOF Test on Detected Observations Only**											
1024				Shapiro Wilk Test Statistic	0.901	**Shapiro Wilk GOF Test**						
1025				5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level						
1026				Lilliefors Test Statistic	0.226	**Lilliefors GOF Test**						
1027				5% Lilliefors Critical Value	0.362	Detected Data appear Lognormal at 5% Significance Level						
1028	**Detected Data appear Lognormal at 5% Significance Level**											
1029												
1030	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1031				Mean in Original Scale	0.011	Mean in Log Scale	-5.107					
1032				SD in Original Scale	0.0114	SD in Log Scale	1.23					
1033				95% t UCL (assumes normality of ROS data)	0.0173	95% Percentile Bootstrap UCL	0.0166					
1034				95% BCA Bootstrap UCL	0.0173	95% Bootstrap t UCL	0.0197					
1035				95% H-UCL (Log ROS)	0.0495							
1036												
1037	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
1038				KM Mean (logged)	-4.796	95% H-UCL (KM -Log)	0.0232					
1039				KM SD (logged)	0.821	95% Critical H Value (KM-Log)	2.669					
1040				KM Standard Error of Mean (logged)	0.271							
1041												
1042	**DL/2 Statistics**											
1043	**DL/2 Normal**					**DL/2 Log-Transformed**						
1044				Mean in Original Scale	0.0109	Mean in Log Scale	-5.111					
1045				SD in Original Scale	0.0115	SD in Log Scale	1.173					
1046				95% t UCL (Assumes normality)	0.0172	95% H-Stat UCL	0.0414					
1047	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1048												
1049	**Nonparametric Distribution Free UCL Statistics**											
1050	**Detected Data appear Normal Distributed at 5% Significance Level**											
1051												
1052	**Suggested UCL to Use**											
1053				95% KM (t) UCL	0.018	95% KM (Percentile Bootstrap) UCL	0.0174					
1054												

1055	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1056	Recommendations are based upon data size, data distribution, and skewness.											
1057	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1058	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1059												
1060												
1061	**Iron (Fe)-Total**											
1062												
1063	**General Statistics**											
1064						Total Number of Observations	12			Number of Distinct Observations	12	
1065										Number of Missing Observations	0	
1066						Minimum	9.6			Mean	55.21	
1067						Maximum	150			Median	30.95	
1068						SD	51.51			Std. Error of Mean	14.87	
1069						Coefficient of Variation	0.933			Skewness	1.128	
1070												
1071	**Normal GOF Test**											
1072						Shapiro Wilk Test Statistic	0.791			**Shapiro Wilk GOF Test**		
1073						5% Shapiro Wilk Critical Value	0.859			Data Not Normal at 5% Significance Level		
1074						Lilliefors Test Statistic	0.263			**Lilliefors GOF Test**		
1075						5% Lilliefors Critical Value	0.256			Data Not Normal at 5% Significance Level		
1076	**Data Not Normal at 5% Significance Level**											
1077												
1078	**Assuming Normal Distribution**											
1079						**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**		
1080						95% Student's-t UCL	81.91			95% Adjusted-CLT UCL (Chen-1995)	84.84	
1081										95% Modified-t UCL (Johnson-1978)	82.72	
1082												
1083	**Gamma GOF Test**											
1084						A-D Test Statistic	0.588			**Anderson-Darling Gamma GOF Test**		
1085						5% A-D Critical Value	0.748			etected data appear Gamma Distributed at 5% Significance Lev		
1086						K-S Test Statistic	0.186			**Kolmogrov-Smirnoff Gamma GOF Test**		
1087						5% K-S Critical Value	0.25			etected data appear Gamma Distributed at 5% Significance Lev		
1088	**Detected data appear Gamma Distributed at 5% Significance Level**											
1089												
1090	**Gamma Statistics**											
1091						k hat (MLE)	1.411			k star (bias corrected MLE)	1.114	
1092						Theta hat (MLE)	39.12			Theta star (bias corrected MLE)	49.56	
1093						nu hat (MLE)	33.87			nu star (bias corrected)	26.73	
1094						MLE Mean (bias corrected)	55.21			MLE Sd (bias corrected)	52.31	
1095										Approximate Chi Square Value (0.05)	15.95	
1096						Adjusted Level of Significance	0.029			Adjusted Chi Square Value	14.69	
1097												
1098	**Assuming Gamma Distribution**											
1099						95% Approximate Gamma UCL (use when n>=50)	92.56			95% Adjusted Gamma UCL (use when n<50)	100.5	
1100												
1101	**Lognormal GOF Test**											
1102						Shapiro Wilk Test Statistic	0.928			**Shapiro Wilk Lognormal GOF Test**		
1103						5% Shapiro Wilk Critical Value	0.859			Data appear Lognormal at 5% Significance Level		
1104						Lilliefors Test Statistic	0.133			**Lilliefors Lognormal GOF Test**		
1105						5% Lilliefors Critical Value	0.256			Data appear Lognormal at 5% Significance Level		
1106	**Data appear Lognormal at 5% Significance Level**											
1107												
1108	**Lognormal Statistics**											
1109						Minimum of Logged Data	2.262			Mean of logged Data	3.617	
1110						Maximum of Logged Data	5.011			SD of logged Data	0.927	
1111												
1112	**Assuming Lognormal Distribution**											
1113						95% H-UCL	124.5			90% Chebyshev (MVUE) UCL	101.1	
1114						95% Chebyshev (MVUE) UCL	122.2			97.5% Chebyshev (MVUE) UCL	151.4	
1115						99% Chebyshev (MVUE) UCL	208.9					
1116												

1117	**Nonparametric Distribution Free UCL Statistics**											
1118	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1119												
1120	**Nonparametric Distribution Free UCLs**											
1121	95% CLT UCL					79.67	95% Jackknife UCL					81.91
1122	95% Standard Bootstrap UCL					79.09	95% Bootstrap-t UCL					92.19
1123	95% Hall's Bootstrap UCL					79.83	95% Percentile Bootstrap UCL					79.93
1124	95% BCA Bootstrap UCL					82.35						
1125	90% Chebyshev(Mean, Sd) UCL					99.82	95% Chebyshev(Mean, Sd) UCL					120
1126	97.5% Chebyshev(Mean, Sd) UCL					148.1	99% Chebyshev(Mean, Sd) UCL					203.2
1127												
1128	**Suggested UCL to Use**											
1129	95% Adjusted Gamma UCL					100.5						
1130												
1131	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1132	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1133	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1134	For additional insight the user may want to consult a statistician.											
1135												
1136	**Lead (Pb)-Total**											
1137												
1138	**General Statistics**											
1139	Total Number of Observations					12	Number of Distinct Observations					12
1140	Number of Detects					11	Number of Non-Detects					1
1141	Number of Distinct Detects					11	Number of Distinct Non-Detects					1
1142	Minimum Detect					0.0043	Minimum Non-Detect					0.004
1143	Maximum Detect					0.0403	Maximum Non-Detect					0.004
1144	Variance Detects					1.6083E-4	Percent Non-Detects					8.333%
1145	Mean Detects					0.0186	SD Detects					0.0127
1146	Median Detects					0.0196	CV Detects					0.68
1147	Skewness Detects					0.512	Kurtosis Detects					-1.034
1148	Mean of Logged Detects					-4.237	SD of Logged Detects					0.79
1149												
1150	**Normal GOF Test on Detects Only**											
1151	Shapiro Wilk Test Statistic					0.911	**Shapiro Wilk GOF Test**					
1152	5% Shapiro Wilk Critical Value					0.85	Detected Data appear Normal at 5% Significance Level					
1153	Lilliefors Test Statistic					0.165	**Lilliefors GOF Test**					
1154	5% Lilliefors Critical Value					0.267	Detected Data appear Normal at 5% Significance Level					
1155	**Detected Data appear Normal at 5% Significance Level**											
1156												
1157	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
1158	Mean					0.0174	Standard Error of Mean					0.00371
1159	SD					0.0123	95% KM (BCA) UCL					0.024
1160	95% KM (t) UCL					0.0241	95% KM (Percentile Bootstrap) UCL					0.0236
1161	95% KM (z) UCL					0.0235	95% KM Bootstrap t UCL					0.026
1162	90% KM Chebyshev UCL					0.0286	95% KM Chebyshev UCL					0.0336
1163	97.5% KM Chebyshev UCL					0.0406	99% KM Chebyshev UCL					0.0544
1164												
1165	**Gamma GOF Tests on Detected Observations Only**											
1166	A-D Test Statistic					0.362	**Anderson-Darling GOF Test**					
1167	5% A-D Critical Value					0.738	etected data appear Gamma Distributed at 5% Significance Lev					
1168	K-S Test Statistic					0.166	**Kolmogrov-Smirnoff GOF**					
1169	5% K-S Critical Value					0.258	etected data appear Gamma Distributed at 5% Significance Lev					
1170	**Detected data appear Gamma Distributed at 5% Significance Level**											
1171												
1172	**Gamma Statistics on Detected Data Only**											
1173	k hat (MLE)					2.116	k star (bias corrected MLE)					1.6
1174	Theta hat (MLE)					0.00881	Theta star (bias corrected MLE)					0.0117
1175	nu hat (MLE)					46.55	nu star (bias corrected)					35.19
1176	MLE Mean (bias corrected)					0.0186	MLE Sd (bias corrected)					0.0147
1177												
1178	**Gamma Kaplan-Meier (KM) Statistics**											

1179					k hat (KM)	2.017					nu hat (KM)	48.41
1180					Approximate Chi Square Value (48.41, α)	33.44					Adjusted Chi Square Value (48.41, β)	31.55
1181	5% Gamma Approximate KM-UCL (use when n>=50)					0.0252	95% Gamma Adjusted KM-UCL (use when n<50)					0.0267
1182												
1183	**Gamma ROS Statistics using Imputed Non-Detects**											
1184	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
1185	GROS may not be used when kstar of detected data is small such as < 0.1											
1186	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
1187	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
1188					Minimum	0.0043					Mean	0.0179
1189					Maximum	0.0403					Median	0.0156
1190					SD	0.0123					CV	0.689
1191					k hat (MLE)	2.186					k star (bias corrected MLE)	1.695
1192					Theta hat (MLE)	0.00819					Theta star (bias corrected MLE)	0.0106
1193					nu hat (MLE)	52.47					nu star (bias corrected)	40.69
1194					MLE Mean (bias corrected)	0.0179					MLE Sd (bias corrected)	0.0138
1195											Adjusted Level of Significance (β)	0.029
1196					Approximate Chi Square Value (40.69, α)	27.07					Adjusted Chi Square Value (40.69, β)	25.38
1197	95% Gamma Approximate UCL (use when n>=50)					0.0269	95% Gamma Adjusted UCL (use when n<50)					0.0287
1198												
1199	**Lognormal GOF Test on Detected Observations Only**											
1200					Shapiro Wilk Test Statistic	0.924	**Shapiro Wilk GOF Test**					
1201					5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level					
1202					Lilliefors Test Statistic	0.196	**Lilliefors GOF Test**					
1203					5% Lilliefors Critical Value	0.267	Detected Data appear Lognormal at 5% Significance Level					
1204	**Detected Data appear Lognormal at 5% Significance Level**											
1205												
1206	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1207					Mean in Original Scale	0.0173					Mean in Log Scale	-4.397
1208					SD in Original Scale	0.013					SD in Log Scale	0.935
1209					95% t UCL (assumes normality of ROS data)	0.024					95% Percentile Bootstrap UCL	0.0232
1210					95% BCA Bootstrap UCL	0.0235					95% Bootstrap t UCL	0.0249
1211					95% H-UCL (Log ROS)	0.0419						
1212												
1213	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
1214					KM Mean (logged)	-4.344					95% H-UCL (KM -Log)	0.0335
1215					KM SD (logged)	0.804					95% Critical H Value (KM-Log)	2.576
1216					KM Standard Error of Mean (logged)	0.243						
1217												
1218	**DL/2 Statistics**											
1219	**DL/2 Normal**						**DL/2 Log-Transformed**					
1220					Mean in Original Scale	0.0173					Mean in Log Scale	-4.402
1221					SD in Original Scale	0.013					SD in Log Scale	0.945
1222					95% t UCL (Assumes normality)	0.024					95% H-Stat UCL	0.0427
1223	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1224												
1225	**Nonparametric Distribution Free UCL Statistics**											
1226	**Detected Data appear Normal Distributed at 5% Significance Level**											
1227												
1228	**Suggested UCL to Use**											
1229					95% KM (t) UCL	0.0241					95% KM (Percentile Bootstrap) UCL	0.0236
1230												
1231	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1232	Recommendations are based upon data size, data distribution, and skewness.											
1233	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1234	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1235												
1236	**Lithium (Li)-Total**											
1237												
1238	**General Statistics**											
1239					Total Number of Observations	12					Number of Distinct Observations	7
1240					Number of Detects	6					Number of Non-Detects	6

1241					Number of Distinct Detects	6					Number of Distinct Non-Detects	1
1242					Minimum Detect	0.023					Minimum Non-Detect	0.02
1243					Maximum Detect	0.649					Maximum Non-Detect	0.02
1244					Variance Detects	0.058					Percent Non-Detects	50%
1245					Mean Detects	0.16					SD Detects	0.241
1246					Median Detects	0.078					CV Detects	1.503
1247					Skewness Detects	2.388					Kurtosis Detects	5.774
1248					Mean of Logged Detects	-2.477					SD of Logged Detects	1.125
1249												
1250					**Normal GOF Test on Detects Only**							
1251					Shapiro Wilk Test Statistic	0.597					**Shapiro Wilk GOF Test**	
1252					5% Shapiro Wilk Critical Value	0.788					Detected Data Not Normal at 5% Significance Level	
1253					Lilliefors Test Statistic	0.448					**Lilliefors GOF Test**	
1254					5% Lilliefors Critical Value	0.362					Detected Data Not Normal at 5% Significance Level	
1255					**Detected Data Not Normal at 5% Significance Level**							
1256												
1257					**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**							
1258					Mean	0.0901					Standard Error of Mean	0.0539
1259					SD	0.171					95% KM (BCA) UCL	0.196
1260					95% KM (t) UCL	0.187					95% KM (Percentile Bootstrap) UCL	0.187
1261					95% KM (z) UCL	0.179					95% KM Bootstrap t UCL	0.493
1262					90% KM Chebyshev UCL	0.252					95% KM Chebyshev UCL	0.325
1263					97.5% KM Chebyshev UCL	0.427					99% KM Chebyshev UCL	0.627
1264												
1265					**Gamma GOF Tests on Detected Observations Only**							
1266					A-D Test Statistic	0.769					**Anderson-Darling GOF Test**	
1267					5% A-D Critical Value	0.717					Detected Data Not Gamma Distributed at 5% Significance Level	
1268					K-S Test Statistic	0.386					**Kolmogrov-Smirnoff GOF**	
1269					5% K-S Critical Value	0.342					Detected Data Not Gamma Distributed at 5% Significance Level	
1270					**Detected Data Not Gamma Distributed at 5% Significance Level**							
1271												
1272					**Gamma Statistics on Detected Data Only**							
1273					k hat (MLE)	0.905					k star (bias corrected MLE)	0.564
1274					Theta hat (MLE)	0.177					Theta star (bias corrected MLE)	0.284
1275					nu hat (MLE)	10.86					nu star (bias corrected)	6.764
1276					MLE Mean (bias corrected)	0.16					MLE Sd (bias corrected)	0.213
1277												
1278					**Gamma Kaplan-Meier (KM) Statistics**							
1279					k hat (KM)	0.279					nu hat (KM)	6.699
1280					Approximate Chi Square Value (6.70, α)	2.007					Adjusted Chi Square Value (6.70, β)	1.64
1281					5% Gamma Approximate KM-UCL (use when n>=50)	0.301					95% Gamma Adjusted KM-UCL (use when n<50)	0.368
1282												
1283					**Gamma ROS Statistics using Imputed Non-Detects**							
1284					GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs							
1285					GROS may not be used when kstar of detected data is small such as < 0.1							
1286					For such situations, GROS method tends to yield inflated values of UCLs and BTVs							
1287					For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates							
1288					Minimum	0.01					Mean	0.0851
1289					Maximum	0.649					Median	0.0165
1290					SD	0.18					CV	2.119
1291					k hat (MLE)	0.577					k star (bias corrected MLE)	0.488
1292					Theta hat (MLE)	0.147					Theta star (bias corrected MLE)	0.174
1293					nu hat (MLE)	13.85					nu star (bias corrected)	11.72
1294					MLE Mean (bias corrected)	0.0851					MLE Sd (bias corrected)	0.122
1295											Adjusted Level of Significance (β)	0.029
1296					Approximate Chi Square Value (11.72, α)	5.043					Adjusted Chi Square Value (11.72, β)	4.394
1297					95% Gamma Approximate UCL (use when n>=50)	0.198					95% Gamma Adjusted UCL (use when n<50)	0.227
1298												
1299					**Lognormal GOF Test on Detected Observations Only**							
1300					Shapiro Wilk Test Statistic	0.88					**Shapiro Wilk GOF Test**	
1301					5% Shapiro Wilk Critical Value	0.788					Detected Data appear Lognormal at 5% Significance Level	
1302					Lilliefors Test Statistic	0.309					**Lilliefors GOF Test**	

1303	5% Lilliefors Critical Value					0.362	Detected Data appear Lognormal at 5% Significance Level					
1304	**Detected Data appear Lognormal at 5% Significance Level**											
1305												
1306	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1307	Mean in Original Scale					0.0824	Mean in Log Scale					-4.125
1308	SD in Original Scale					0.182	SD in Log Scale					2.011
1309	95% t UCL (assumes normality of ROS data)					0.176	95% Percentile Bootstrap UCL					0.184
1310	95% BCA Bootstrap UCL					0.236	95% Bootstrap t UCL					0.477
1311	95% H-UCL (Log ROS)					2.512						
1312												
1313	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
1314	KM Mean (logged)					-3.194	95% H-UCL (KM -Log)					0.171
1315	KM SD (logged)					1.021	95% Critical H Value (KM-Log)					2.953
1316	KM Standard Error of Mean (logged)					0.323						
1317												
1318	**DL/2 Statistics**											
1319	**DL/2 Normal**						**DL/2 Log-Transformed**					
1320	Mean in Original Scale					0.0851	Mean in Log Scale					-3.541
1321	SD in Original Scale					0.18	SD in Log Scale					1.345
1322	95% t UCL (Assumes normality)					0.179	95% H-Stat UCL					0.306
1323	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1324												
1325	**Nonparametric Distribution Free UCL Statistics**											
1326	**Detected Data appear Lognormal Distributed at 5% Significance Level**											
1327												
1328	**Suggested UCL to Use**											
1329	95% KM (BCA) UCL					0.196						
1330												
1331	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1332	Recommendations are based upon data size, data distribution, and skewness.											
1333	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1334	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1335												
1336												
1337	**Magnesium (Mg)-Total**											
1338												
1339	**General Statistics**											
1340	Total Number of Observations					12	Number of Distinct Observations					11
1341							Number of Missing Observations					0
1342	Minimum					736	Mean					1038
1343	Maximum					1990	Median					886.5
1344	SD					346	Std. Error of Mean					99.88
1345	Coefficient of Variation					0.333	Skewness					2.131
1346												
1347	**Normal GOF Test**											
1348	Shapiro Wilk Test Statistic					0.759	**Shapiro Wilk GOF Test**					
1349	5% Shapiro Wilk Critical Value					0.859	Data Not Normal at 5% Significance Level					
1350	Lilliefors Test Statistic					0.225	**Lilliefors GOF Test**					
1351	5% Lilliefors Critical Value					0.256	Data appear Normal at 5% Significance Level					
1352	**Data appear Approximate Normal at 5% Significance Level**											
1353												
1354	**Assuming Normal Distribution**											
1355	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1356	95% Student's-t UCL					1217	95% Adjusted-CLT UCL (Chen-1995)					1267
1357							95% Modified-t UCL (Johnson-1978)					1227
1358												
1359	**Gamma GOF Test**											
1360	A-D Test Statistic					0.772	**Anderson-Darling Gamma GOF Test**					
1361	5% A-D Critical Value					0.731	Data Not Gamma Distributed at 5% Significance Level					
1362	K-S Test Statistic					0.222	**Kolmogrov-Smirnoff Gamma GOF Test**					
1363	5% K-S Critical Value					0.245	etected data appear Gamma Distributed at 5% Significance Lev					
1364	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											

1365												
1366	**Gamma Statistics**											
1367	k hat (MLE)					12.68	k star (bias corrected MLE)					9.569
1368	Theta hat (MLE)					81.79	Theta star (bias corrected MLE)					108.4
1369	nu hat (MLE)					304.4	nu star (bias corrected)					229.7
1370	MLE Mean (bias corrected)					1038	MLE Sd (bias corrected)					335.4
1371							Approximate Chi Square Value (0.05)					195.6
1372	Adjusted Level of Significance					0.029	Adjusted Chi Square Value					190.8
1373												
1374	**Assuming Gamma Distribution**											
1375	95% Approximate Gamma UCL (use when n>=50))					1218	95% Adjusted Gamma UCL (use when n<50)					1249
1376												
1377	**Lognormal GOF Test**											
1378	Shapiro Wilk Test Statistic					0.86	**Shapiro Wilk Lognormal GOF Test**					
1379	5% Shapiro Wilk Critical Value					0.859	Data appear Lognormal at 5% Significance Level					
1380	Lilliefors Test Statistic					0.208	**Lilliefors Lognormal GOF Test**					
1381	5% Lilliefors Critical Value					0.256	Data appear Lognormal at 5% Significance Level					
1382	**Data appear Lognormal at 5% Significance Level**											
1383												
1384	**Lognormal Statistics**											
1385	Minimum of Logged Data					6.601	Mean of logged Data					6.905
1386	Maximum of Logged Data					7.596	SD of logged Data					0.279
1387												
1388	**Assuming Lognormal Distribution**											
1389	95% H-UCL					1217	90% Chebyshev (MVUE) UCL					1285
1390	95% Chebyshev (MVUE) UCL					1399	97.5% Chebyshev (MVUE) UCL					1557
1391	99% Chebyshev (MVUE) UCL					1868						
1392												
1393	**Nonparametric Distribution Free UCL Statistics**											
1394	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1395												
1396	**Nonparametric Distribution Free UCLs**											
1397	95% CLT UCL					1202	95% Jackknife UCL					1217
1398	95% Standard Bootstrap UCL					1191	95% Bootstrap-t UCL					1365
1399	95% Hall's Bootstrap UCL					1860	95% Percentile Bootstrap UCL					1215
1400	95% BCA Bootstrap UCL					1273						
1401	90% Chebyshev(Mean, Sd) UCL					1337	95% Chebyshev(Mean, Sd) UCL					1473
1402	97.5% Chebyshev(Mean, Sd) UCL					1661	99% Chebyshev(Mean, Sd) UCL					2031
1403												
1404	**Suggested UCL to Use**											
1405	95% Student's-t UCL					1217						
1406												
1407	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1408	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1409	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1410	For additional insight the user may want to consult a statistician.											
1411												
1412												
1413	**Manganese (Mn)-Total**											
1414												
1415	**General Statistics**											
1416	Total Number of Observations					12	Number of Distinct Observations					12
1417							Number of Missing Observations					0
1418	Minimum					8.58	Mean					25.21
1419	Maximum					51	Median					22.3
1420	SD					14.07	Std. Error of Mean					4.062
1421	Coefficient of Variation					0.558	Skewness					0.77
1422												
1423	**Normal GOF Test**											
1424	Shapiro Wilk Test Statistic					0.887	**Shapiro Wilk GOF Test**					
1425	5% Shapiro Wilk Critical Value					0.859	Data appear Normal at 5% Significance Level					
1426	Lilliefors Test Statistic					0.228	**Lilliefors GOF Test**					

1427	5% Lilliefors Critical Value					0.256	Data appear Normal at 5% Significance Level					
1428	**Data appear Normal at 5% Significance Level**											
1429												
1430	**Assuming Normal Distribution**											
1431	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1432	95% Student's-t UCL					32.5	95% Adjusted-CLT UCL (Chen-1995)					32.86
1433							95% Modified-t UCL (Johnson-1978)					32.66
1434												
1435	**Gamma GOF Test**											
1436	A-D Test Statistic					0.381	**Anderson-Darling Gamma GOF Test**					
1437	5% A-D Critical Value					0.737	etected data appear Gamma Distributed at 5% Significance Lev					
1438	K-S Test Statistic					0.157	**Kolmogrov-Smirnoff Gamma GOF Test**					
1439	5% K-S Critical Value					0.247	etected data appear Gamma Distributed at 5% Significance Lev					
1440	**Detected data appear Gamma Distributed at 5% Significance Level**											
1441												
1442	**Gamma Statistics**											
1443	k hat (MLE)					3.527	k star (bias corrected MLE)					2.701
1444	Theta hat (MLE)					7.147	Theta star (bias corrected MLE)					9.333
1445	nu hat (MLE)					84.66	nu star (bias corrected)					64.83
1446	MLE Mean (bias corrected)					25.21	MLE Sd (bias corrected)					15.34
1447							Approximate Chi Square Value (0.05)					47.3
1448	Adjusted Level of Significance					0.029	Adjusted Chi Square Value					45.02
1449												
1450	**Assuming Gamma Distribution**											
1451	95% Approximate Gamma UCL (use when n>=50))					34.55	95% Adjusted Gamma UCL (use when n<50)					36.3
1452												
1453	**Lognormal GOF Test**											
1454	Shapiro Wilk Test Statistic					0.936	**Shapiro Wilk Lognormal GOF Test**					
1455	5% Shapiro Wilk Critical Value					0.859	Data appear Lognormal at 5% Significance Level					
1456	Lilliefors Test Statistic					0.162	**Lilliefors Lognormal GOF Test**					
1457	5% Lilliefors Critical Value					0.256	Data appear Lognormal at 5% Significance Level					
1458	**Data appear Lognormal at 5% Significance Level**											
1459												
1460	**Lognormal Statistics**											
1461	Minimum of Logged Data					2.149	Mean of logged Data					3.079
1462	Maximum of Logged Data					3.932	SD of logged Data					0.582
1463												
1464	**Assuming Lognormal Distribution**											
1465	95% H-UCL					38.21	90% Chebyshev (MVUE) UCL					38.52
1466	95% Chebyshev (MVUE) UCL					44.49	97.5% Chebyshev (MVUE) UCL					52.78
1467	99% Chebyshev (MVUE) UCL					69.06						
1468												
1469	**Nonparametric Distribution Free UCL Statistics**											
1470	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1471												
1472	**Nonparametric Distribution Free UCLs**											
1473	95% CLT UCL					31.89	95% Jackknife UCL					32.5
1474	95% Standard Bootstrap UCL					31.65	95% Bootstrap-t UCL					34.17
1475	95% Hall's Bootstrap UCL					32.19	95% Percentile Bootstrap UCL					32.47
1476	95% BCA Bootstrap UCL					32.09						
1477	90% Chebyshev(Mean, Sd) UCL					37.4	95% Chebyshev(Mean, Sd) UCL					42.92
1478	97.5% Chebyshev(Mean, Sd) UCL					50.58	99% Chebyshev(Mean, Sd) UCL					65.63
1479												
1480	**Suggested UCL to Use**											
1481	95% Student's-t UCL					32.5						
1482												
1483	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1484	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1485	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1486	For additional insight the user may want to consult a statistician.											
1487												
1488	**Mercury (Hg)-Total**											

1489												
1490	**General Statistics**											
1491					Total Number of Observations	12			Number of Distinct Observations	11		
1492					Number of Detects	11			Number of Non-Detects	1		
1493					Number of Distinct Detects	10			Number of Distinct Non-Detects	1		
1494					Minimum Detect	0.0013			Minimum Non-Detect	0.001		
1495					Maximum Detect	0.0061			Maximum Non-Detect	0.001		
1496					Variance Detects	2.1362E-6			Percent Non-Detects	8.333%		
1497					Mean Detects	0.00403			SD Detects	0.00146		
1498					Median Detects	0.0041			CV Detects	0.363		
1499					Skewness Detects	-0.436			Kurtosis Detects	-0.473		
1500					Mean of Logged Detects	-5.594			SD of Logged Detects	0.452		
1501												
1502	**Normal GOF Test on Detects Only**											
1503					Shapiro Wilk Test Statistic	0.97			**Shapiro Wilk GOF Test**			
1504					5% Shapiro Wilk Critical Value	0.85			Detected Data appear Normal at 5% Significance Level			
1505					Lilliefors Test Statistic	0.132			**Lilliefors GOF Test**			
1506					5% Lilliefors Critical Value	0.267			Detected Data appear Normal at 5% Significance Level			
1507	**Detected Data appear Normal at 5% Significance Level**											
1508												
1509	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
1510					Mean	0.00378			Standard Error of Mean	4.7681E-4		
1511					SD	0.00157			95% KM (BCA) UCL	0.00448		
1512					95% KM (t) UCL	0.00463			95% KM (Percentile Bootstrap) UCL	0.0045		
1513					95% KM (z) UCL	0.00456			95% KM Bootstrap t UCL	0.00457		
1514					90% KM Chebyshev UCL	0.00521			95% KM Chebyshev UCL	0.00585		
1515					97.5% KM Chebyshev UCL	0.00675			99% KM Chebyshev UCL	0.00852		
1516												
1517	**Gamma GOF Tests on Detected Observations Only**											
1518					A-D Test Statistic	0.35			**Anderson-Darling GOF Test**			
1519					5% A-D Critical Value	0.731			etected data appear Gamma Distributed at 5% Significance Lev			
1520					K-S Test Statistic	0.168			**Kolmogrov-Smirnoff GOF**			
1521					5% K-S Critical Value	0.256			etected data appear Gamma Distributed at 5% Significance Lev			
1522	**Detected data appear Gamma Distributed at 5% Significance Level**											
1523												
1524	**Gamma Statistics on Detected Data Only**											
1525					k hat (MLE)	6.498			k star (bias corrected MLE)	4.786		
1526					Theta hat (MLE)	6.1976E-4			Theta star (bias corrected MLE)	8.4138E-4		
1527					nu hat (MLE)	143			nu star (bias corrected)	105.3		
1528					MLE Mean (bias corrected)	0.00403			MLE Sd (bias corrected)	0.00184		
1529												
1530	**Gamma Kaplan-Meier (KM) Statistics**											
1531					k hat (KM)	5.746			nu hat (KM)	137.9		
1532					Approximate Chi Square Value (137.90, α)	111.8			Adjusted Chi Square Value (137.90, β)	108.2		
1533	5% Gamma Approximate KM-UCL (use when n>=50)					0.00466			95% Gamma Adjusted KM-UCL (use when n<50)	0.00481		
1534												
1535	**Gamma ROS Statistics using Imputed Non-Detects**											
1536	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
1537	GROS may not be used when kstar of detected data is small such as < 0.1											
1538	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
1539	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
1540					Minimum	0.0013			Mean	0.00453		
1541					Maximum	0.01			Median	0.0044		
1542					SD	0.00222			CV	0.49		
1543					k hat (MLE)	4.582			k star (bias corrected MLE)	3.492		
1544					Theta hat (MLE)	9.8758E-4			Theta star (bias corrected MLE)	0.0013		
1545					nu hat (MLE)	110			nu star (bias corrected)	83.81		
1546					MLE Mean (bias corrected)	0.00453			MLE Sd (bias corrected)	0.00242		
1547									Adjusted Level of Significance (β)	0.029		
1548					Approximate Chi Square Value (83.81, α)	63.71			Adjusted Chi Square Value (83.81, β)	61.04		
1549	95% Gamma Approximate UCL (use when n>=50)					0.00595			95% Gamma Adjusted UCL (use when n<50)	0.00621		
1550												

1551	**Lognormal GOF Test on Detected Observations Only**											
1552					Shapiro Wilk Test Statistic	0.889	**Shapiro Wilk GOF Test**					
1553					5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level					
1554					Lilliefors Test Statistic	0.198	**Lilliefors GOF Test**					
1555					5% Lilliefors Critical Value	0.267	Detected Data appear Lognormal at 5% Significance Level					
1556	**Detected Data appear Lognormal at 5% Significance Level**											
1557												
1558	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1559					Mean in Original Scale	0.0038	Mean in Log Scale	-5.68				
1560					SD in Original Scale	0.0016	SD in Log Scale	0.524				
1561					95% t UCL (assumes normality of ROS data)	0.00463	95% Percentile Bootstrap UCL	0.00452				
1562					95% BCA Bootstrap UCL	0.00449	95% Bootstrap t UCL	0.00459				
1563					95% H-UCL (Log ROS)	0.00552						
1564												
1565	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
1566					KM Mean (logged)	-5.703	95% H-UCL (KM -Log)	0.00559				
1567					KM SD (logged)	0.55	95% Critical H Value (KM-Log)	2.204				
1568					KM Standard Error of Mean (logged)	0.166						
1569												
1570	**DL/2 Statistics**											
1571					**DL/2 Normal**		**DL/2 Log-Transformed**					
1572					Mean in Original Scale	0.00373	Mean in Log Scale	-5.761				
1573					SD in Original Scale	0.00173	SD in Log Scale	0.722				
1574					95% t UCL (Assumes normality)	0.00463	95% H-Stat UCL	0.00696				
1575	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1576												
1577	**Nonparametric Distribution Free UCL Statistics**											
1578	**Detected Data appear Normal Distributed at 5% Significance Level**											
1579												
1580	**Suggested UCL to Use**											
1581					95% KM (t) UCL	0.00463	95% KM (Percentile Bootstrap) UCL	0.0045				
1582												
1583	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1584	Recommendations are based upon data size, data distribution, and skewness.											
1585	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1586	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1587												
1588												
1589	**Molybdenum (Mo)-Total**											
1590												
1591	**General Statistics**											
1592					Total Number of Observations	12	Number of Distinct Observations	12				
1593							Number of Missing Observations	0				
1594					Minimum	0.124	Mean	3.244				
1595					Maximum	12.7	Median	1.7				
1596					SD	3.65	Std. Error of Mean	1.054				
1597					Coefficient of Variation	1.125	Skewness	1.755				
1598												
1599	**Normal GOF Test**											
1600					Shapiro Wilk Test Statistic	0.802	**Shapiro Wilk GOF Test**					
1601					5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level					
1602					Lilliefors Test Statistic	0.218	**Lilliefors GOF Test**					
1603					5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level					
1604	**Data appear Approximate Normal at 5% Significance Level**											
1605												
1606	**Assuming Normal Distribution**											
1607					**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**					
1608					95% Student's-t UCL	5.136	95% Adjusted-CLT UCL (Chen-1995)	5.547				
1609							95% Modified-t UCL (Johnson-1978)	5.225				
1610												
1611	**Gamma GOF Test**											
1612					A-D Test Statistic	0.201	**Anderson-Darling Gamma GOF Test**					

1613				5% A-D Critical Value	0.761	etected data appear Gamma Distributed at 5% Significance Lev						
1614				K-S Test Statistic	0.122	**Kolmogrov-Smirnoff Gamma GOF Test**						
1615				5% K-S Critical Value	0.254	etected data appear Gamma Distributed at 5% Significance Lev						
1616	**Detected data appear Gamma Distributed at 5% Significance Level**											
1617												
1618	**Gamma Statistics**											
1619				k hat (MLE)	0.882	k star (bias corrected MLE)	0.717					
1620				Theta hat (MLE)	3.676	Theta star (bias corrected MLE)	4.522					
1621				nu hat (MLE)	21.18	nu star (bias corrected)	17.22					
1622				MLE Mean (bias corrected)	3.244	MLE Sd (bias corrected)	3.83					
1623						Approximate Chi Square Value (0.05)	8.827					
1624				Adjusted Level of Significance	0.029	Adjusted Chi Square Value	7.926					
1625												
1626	**Assuming Gamma Distribution**											
1627	95% Approximate Gamma UCL (use when n>=50))				6.327	95% Adjusted Gamma UCL (use when n<50)	7.046					
1628												
1629	**Lognormal GOF Test**											
1630				Shapiro Wilk Test Statistic	0.975	**Shapiro Wilk Lognormal GOF Test**						
1631				5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level						
1632				Lilliefors Test Statistic	0.135	**Lilliefors Lognormal GOF Test**						
1633				5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level						
1634	**Data appear Lognormal at 5% Significance Level**											
1635												
1636	**Lognormal Statistics**											
1637				Minimum of Logged Data	-2.087	Mean of logged Data	0.513					
1638				Maximum of Logged Data	2.542	SD of logged Data	1.335					
1639												
1640	**Assuming Lognormal Distribution**											
1641				95% H-UCL	17.04	90% Chebyshev (MVUE) UCL	8.168					
1642				95% Chebyshev (MVUE) UCL	10.23	97.5% Chebyshev (MVUE) UCL	13.09					
1643				99% Chebyshev (MVUE) UCL	18.72							
1644												
1645	**Nonparametric Distribution Free UCL Statistics**											
1646	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1647												
1648	**Nonparametric Distribution Free UCLs**											
1649				95% CLT UCL	4.977	95% Jackknife UCL	5.136					
1650				95% Standard Bootstrap UCL	4.925	95% Bootstrap-t UCL	6.354					
1651				95% Hall's Bootstrap UCL	6.918	95% Percentile Bootstrap UCL	4.96					
1652				95% BCA Bootstrap UCL	5.684							
1653				90% Chebyshev(Mean, Sd) UCL	6.405	95% Chebyshev(Mean, Sd) UCL	7.837					
1654				97.5% Chebyshev(Mean, Sd) UCL	9.825	99% Chebyshev(Mean, Sd) UCL	13.73					
1655												
1656	**Suggested UCL to Use**											
1657				95% Student's-t UCL	5.136							
1658												
1659	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1660	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1661	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1662	For additional insight the user may want to consult a statistician.											
1663												
1664												
1665	**Nickel (Ni)-Total**											
1666												
1667	**General Statistics**											
1668				Total Number of Observations	12	Number of Distinct Observations	12					
1669						Number of Missing Observations	0					
1670				Minimum	0.093	Mean	0.363					
1671				Maximum	1.24	Median	0.278					
1672				SD	0.31	Std. Error of Mean	0.0894					
1673				Coefficient of Variation	0.854	Skewness	2.324					
1674												

1675	**Normal GOF Test**											
1676				Shapiro Wilk Test Statistic		0.748	**Shapiro Wilk GOF Test**					
1677				5% Shapiro Wilk Critical Value		0.859	Data Not Normal at 5% Significance Level					
1678				Lilliefors Test Statistic		0.236	**Lilliefors GOF Test**					
1679				5% Lilliefors Critical Value		0.256	Data appear Normal at 5% Significance Level					
1680	**Data appear Approximate Normal at 5% Significance Level**											
1681												
1682	**Assuming Normal Distribution**											
1683				**95% Normal UCL**			**95% UCLs (Adjusted for Skewness)**					
1684				95% Student's-t UCL		0.523	95% Adjusted-CLT UCL (Chen-1995)					0.574
1685							95% Modified-t UCL (Johnson-1978)					0.533
1686												
1687	**Gamma GOF Test**											
1688				A-D Test Statistic		0.316	**Anderson-Darling Gamma GOF Test**					
1689				5% A-D Critical Value		0.741	etected data appear Gamma Distributed at 5% Significance Lev					
1690				K-S Test Statistic		0.137	**Kolmogrov-Smirnoff Gamma GOF Test**					
1691				5% K-S Critical Value		0.248	etected data appear Gamma Distributed at 5% Significance Lev					
1692	**Detected data appear Gamma Distributed at 5% Significance Level**											
1693												
1694	**Gamma Statistics**											
1695				k hat (MLE)		2.168	k star (bias corrected MLE)					1.682
1696				Theta hat (MLE)		0.167	Theta star (bias corrected MLE)					0.216
1697				nu hat (MLE)		52.04	nu star (bias corrected)					40.36
1698				MLE Mean (bias corrected)		0.363	MLE Sd (bias corrected)					0.28
1699							Approximate Chi Square Value (0.05)					26.8
1700				Adjusted Level of Significance		0.029	Adjusted Chi Square Value					25.13
1701												
1702	**Assuming Gamma Distribution**											
1703	95% Approximate Gamma UCL (use when n>=50))					0.546	95% Adjusted Gamma UCL (use when n<50)					0.583
1704												
1705	**Lognormal GOF Test**											
1706				Shapiro Wilk Test Statistic		0.98	**Shapiro Wilk Lognormal GOF Test**					
1707				5% Shapiro Wilk Critical Value		0.859	Data appear Lognormal at 5% Significance Level					
1708				Lilliefors Test Statistic		0.102	**Lilliefors Lognormal GOF Test**					
1709				5% Lilliefors Critical Value		0.256	Data appear Lognormal at 5% Significance Level					
1710	**Data appear Lognormal at 5% Significance Level**											
1711												
1712	**Lognormal Statistics**											
1713				Minimum of Logged Data		-2.375	Mean of logged Data					-1.262
1714				Maximum of Logged Data		0.215	SD of logged Data					0.71
1715												
1716	**Assuming Lognormal Distribution**											
1717				95% H-UCL		0.612	90% Chebyshev (MVUE) UCL					0.583
1718				95% Chebyshev (MVUE) UCL		0.686	97.5% Chebyshev (MVUE) UCL					0.829
1719				99% Chebyshev (MVUE) UCL		1.11						
1720												
1721	**Nonparametric Distribution Free UCL Statistics**											
1722	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1723												
1724	**Nonparametric Distribution Free UCLs**											
1725				95% CLT UCL		0.51	95% Jackknife UCL					0.523
1726				95% Standard Bootstrap UCL		0.499	95% Bootstrap-t UCL					0.686
1727				95% Hall's Bootstrap UCL		1.161	95% Percentile Bootstrap UCL					0.515
1728				95% BCA Bootstrap UCL		0.569						
1729				90% Chebyshev(Mean, Sd) UCL		0.631	95% Chebyshev(Mean, Sd) UCL					0.752
1730				97.5% Chebyshev(Mean, Sd) UCL		0.921	99% Chebyshev(Mean, Sd) UCL					1.252
1731												
1732	**Suggested UCL to Use**											
1733				95% Student's-t UCL		0.523						
1734												
1735	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1736	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											

1737	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1738	For additional insight the user may want to consult a statistician.											
1739												
1740												
1741	**Phosphorus (P)-Total**											
1742												
1743	**General Statistics**											
1744	Total Number of Observations					12	Number of Distinct Observations					12
1745							Number of Missing Observations					0
1746	Minimum					761	Mean					979.4
1747	Maximum					1470	Median					850
1748	SD					243.1	Std. Error of Mean					70.18
1749	Coefficient of Variation					0.248	Skewness					1.4
1750												
1751	**Normal GOF Test**											
1752	Shapiro Wilk Test Statistic					0.775	**Shapiro Wilk GOF Test**					
1753	5% Shapiro Wilk Critical Value					0.859	Data Not Normal at 5% Significance Level					
1754	Lilliefors Test Statistic					0.266	**Lilliefors GOF Test**					
1755	5% Lilliefors Critical Value					0.256	Data Not Normal at 5% Significance Level					
1756	**Data Not Normal at 5% Significance Level**											
1757												
1758	**Assuming Normal Distribution**											
1759	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1760	95% Student's-t UCL					1105	95% Adjusted-CLT UCL (Chen-1995)					1125
1761							95% Modified-t UCL (Johnson-1978)					1110
1762												
1763	**Gamma GOF Test**											
1764	A-D Test Statistic					1.028	**Anderson-Darling Gamma GOF Test**					
1765	5% A-D Critical Value					0.732	Data Not Gamma Distributed at 5% Significance Level					
1766	K-S Test Statistic					0.268	**Kolmogrov-Smirnoff Gamma GOF Test**					
1767	5% K-S Critical Value					0.245	Data Not Gamma Distributed at 5% Significance Level					
1768	**Data Not Gamma Distributed at 5% Significance Level**											
1769												
1770	**Gamma Statistics**											
1771	k hat (MLE)					20.47	k star (bias corrected MLE)					15.41
1772	Theta hat (MLE)					47.84	Theta star (bias corrected MLE)					63.56
1773	nu hat (MLE)					491.3	nu star (bias corrected)					369.8
1774	MLE Mean (bias corrected)					979.4	MLE Sd (bias corrected)					249.5
1775							Approximate Chi Square Value (0.05)					326.2
1776	Adjusted Level of Significance					0.029	Adjusted Chi Square Value					320
1777												
1778	**Assuming Gamma Distribution**											
1779	95% Approximate Gamma UCL (use when n>=50))					1110	95% Adjusted Gamma UCL (use when n<50)					1132
1780												
1781	**Lognormal GOF Test**											
1782	Shapiro Wilk Test Statistic					0.821	**Shapiro Wilk Lognormal GOF Test**					
1783	5% Shapiro Wilk Critical Value					0.859	Data Not Lognormal at 5% Significance Level					
1784	Lilliefors Test Statistic					0.257	**Lilliefors Lognormal GOF Test**					
1785	5% Lilliefors Critical Value					0.256	Data Not Lognormal at 5% Significance Level					
1786	**Data Not Lognormal at 5% Significance Level**											
1787												
1788	**Lognormal Statistics**											
1789	Minimum of Logged Data					6.635	Mean of logged Data					6.862
1790	Maximum of Logged Data					7.293	SD of logged Data					0.224
1791												
1792	**Assuming Lognormal Distribution**											
1793	95% H-UCL					1111	90% Chebyshev (MVUE) UCL					1169
1794	95% Chebyshev (MVUE) UCL					1255	97.5% Chebyshev (MVUE) UCL					1375
1795	99% Chebyshev (MVUE) UCL					1610						
1796												
1797	**Nonparametric Distribution Free UCL Statistics**											
1798	**Data do not follow a Discernible Distribution (0.05)**											

1799												
1800	**Nonparametric Distribution Free UCLs**											
1801	95% CLT UCL					1095	95% Jackknife UCL					1105
1802	95% Standard Bootstrap UCL					1092	95% Bootstrap-t UCL					1200
1803	95% Hall's Bootstrap UCL					1289	95% Percentile Bootstrap UCL					1093
1804	95% BCA Bootstrap UCL					1115						
1805	90% Chebyshev(Mean, Sd) UCL					1190	95% Chebyshev(Mean, Sd) UCL					1285
1806	97.5% Chebyshev(Mean, Sd) UCL					1418	99% Chebyshev(Mean, Sd) UCL					1678
1807												
1808	**Suggested UCL to Use**											
1809	95% Student's-t UCL					1105	or 95% Modified-t UCL					1110
1810												
1811	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1812	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1813	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1814	For additional insight the user may want to consult a statistician.											
1815												
1816												
1817	**Potassium (K)-Total**											
1818												
1819	**General Statistics**											
1820	Total Number of Observations					12	Number of Distinct Observations					11
1821							Number of Missing Observations					0
1822	Minimum					5070	Mean					7033
1823	Maximum					10500	Median					6180
1824	SD					1878	Std. Error of Mean					542.1
1825	Coefficient of Variation					0.267	Skewness					0.697
1826												
1827	**Normal GOF Test**											
1828	Shapiro Wilk Test Statistic					0.88	**Shapiro Wilk GOF Test**					
1829	5% Shapiro Wilk Critical Value					0.859	Data appear Normal at 5% Significance Level					
1830	Lilliefors Test Statistic					0.241	**Lilliefors GOF Test**					
1831	5% Lilliefors Critical Value					0.256	Data appear Normal at 5% Significance Level					
1832	**Data appear Normal at 5% Significance Level**											
1833												
1834	**Assuming Normal Distribution**											
1835	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1836	95% Student's-t UCL					8007	95% Adjusted-CLT UCL (Chen-1995)					8042
1837							95% Modified-t UCL (Johnson-1978)					8025
1838												
1839	**Gamma GOF Test**											
1840	A-D Test Statistic					0.611	**Anderson-Darling Gamma GOF Test**					
1841	5% A-D Critical Value					0.731	etected data appear Gamma Distributed at 5% Significance Lev					
1842	K-S Test Statistic					0.244	**Kolmogrov-Smirnoff Gamma GOF Test**					
1843	5% K-S Critical Value					0.245	etected data appear Gamma Distributed at 5% Significance Lev					
1844	**Detected data appear Gamma Distributed at 5% Significance Level**											
1845												
1846	**Gamma Statistics**											
1847	k hat (MLE)					16.29	k star (bias corrected MLE)					12.27
1848	Theta hat (MLE)					431.8	Theta star (bias corrected MLE)					573.1
1849	nu hat (MLE)					390.9	nu star (bias corrected)					294.5
1850	MLE Mean (bias corrected)					7033	MLE Sd (bias corrected)					2008
1851							Approximate Chi Square Value (0.05)					255.8
1852	Adjusted Level of Significance					0.029	Adjusted Chi Square Value					250.3
1853												
1854	**Assuming Gamma Distribution**											
1855	95% Approximate Gamma UCL (use when n>=50))					8099	95% Adjusted Gamma UCL (use when n<50)					8277
1856												
1857	**Lognormal GOF Test**											
1858	Shapiro Wilk Test Statistic					0.896	**Shapiro Wilk Lognormal GOF Test**					
1859	5% Shapiro Wilk Critical Value					0.859	Data appear Lognormal at 5% Significance Level					
1860	Lilliefors Test Statistic					0.231	**Lilliefors Lognormal GOF Test**					

1861	5% Lilliefors Critical Value					0.256	Data appear Lognormal at 5% Significance Level					
1862	**Data appear Lognormal at 5% Significance Level**											
1863												
1864	**Lognormal Statistics**											
1865	Minimum of Logged Data					8.531	Mean of logged Data					8.827
1866	Maximum of Logged Data					9.259	SD of logged Data					0.257
1867												
1868	**Assuming Lognormal Distribution**											
1869	95% H-UCL					8156	90% Chebyshev (MVUE) UCL					8600
1870	95% Chebyshev (MVUE) UCL					9313	97.5% Chebyshev (MVUE) UCL					10302
1871	99% Chebyshev (MVUE) UCL					12244						
1872												
1873	**Nonparametric Distribution Free UCL Statistics**											
1874	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
1875												
1876	**Nonparametric Distribution Free UCLs**											
1877	95% CLT UCL					7925	95% Jackknife UCL					8007
1878	95% Standard Bootstrap UCL					7898	95% Bootstrap-t UCL					8216
1879	95% Hall's Bootstrap UCL					7875	95% Percentile Bootstrap UCL					7921
1880	95% BCA Bootstrap UCL					7996						
1881	90% Chebyshev(Mean, Sd) UCL					8660	95% Chebyshev(Mean, Sd) UCL					9396
1882	97.5% Chebyshev(Mean, Sd) UCL					10419	99% Chebyshev(Mean, Sd) UCL					12427
1883												
1884	**Suggested UCL to Use**											
1885	95% Student's-t UCL					8007						
1886												
1887	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1888	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
1889	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
1890	For additional insight the user may want to consult a statistician.											
1891												
1892	**Rhenium (Re)-Total**											
1893												
1894	**General Statistics**											
1895	Total Number of Observations					12	Number of Distinct Observations					10
1896	Number of Detects					9	Number of Non-Detects					3
1897	Number of Distinct Detects					9	Number of Distinct Non-Detects					1
1898	Minimum Detect					0.0038	Minimum Non-Detect					0.002
1899	Maximum Detect					0.0732	Maximum Non-Detect					0.002
1900	Variance Detects					4.8198E-4	Percent Non-Detects					25%
1901	Mean Detects					0.0224	SD Detects					0.022
1902	Median Detects					0.0115	CV Detects					0.979
1903	Skewness Detects					1.796	Kurtosis Detects					3.421
1904	Mean of Logged Detects					-4.176	SD of Logged Detects					0.92
1905												
1906	**Normal GOF Test on Detects Only**											
1907	Shapiro Wilk Test Statistic					0.793	**Shapiro Wilk GOF Test**					
1908	5% Shapiro Wilk Critical Value					0.829	Detected Data Not Normal at 5% Significance Level					
1909	Lilliefors Test Statistic					0.246	**Lilliefors GOF Test**					
1910	5% Lilliefors Critical Value					0.295	Detected Data appear Normal at 5% Significance Level					
1911	**Detected Data appear Approximate Normal at 5% Significance Level**											
1912												
1913	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
1914	Mean					0.0173	Standard Error of Mean					0.00612
1915	SD					0.02	95% KM (BCA) UCL					0.0278
1916	95% KM (t) UCL					0.0283	95% KM (Percentile Bootstrap) UCL					0.0273
1917	95% KM (z) UCL					0.0274	95% KM Bootstrap t UCL					0.0388
1918	90% KM Chebyshev UCL					0.0357	95% KM Chebyshev UCL					0.044
1919	97.5% KM Chebyshev UCL					0.0555	99% KM Chebyshev UCL					0.0782
1920												
1921	**Gamma GOF Tests on Detected Observations Only**											
1922	A-D Test Statistic					0.377	**Anderson-Darling GOF Test**					

1923				5% A-D Critical Value		0.735	etected data appear Gamma Distributed at 5% Significance Lev					
1924				K-S Test Statistic		0.225	**Kolmogrov-Smirnoff GOF**					
1925				5% K-S Critical Value		0.284	etected data appear Gamma Distributed at 5% Significance Lev					
1926	**Detected data appear Gamma Distributed at 5% Significance Level**											
1927												
1928	**Gamma Statistics on Detected Data Only**											
1929				k hat (MLE)		1.465	k star (bias corrected MLE)					1.051
1930				Theta hat (MLE)		0.0153	Theta star (bias corrected MLE)					0.0213
1931				nu hat (MLE)		26.37	nu star (bias corrected)					18.92
1932				MLE Mean (bias corrected)		0.0224	MLE Sd (bias corrected)					0.0219
1933												
1934	**Gamma Kaplan-Meier (KM) Statistics**											
1935				k hat (KM)		0.751	nu hat (KM)					18.03
1936				Approximate Chi Square Value (18.03, α)		9.41	Adjusted Chi Square Value (18.03, β)					8.476
1937	5% Gamma Approximate KM-UCL (use when n>=50)					0.0332	95% Gamma Adjusted KM-UCL (use when n<50)					0.0368
1938												
1939	**Gamma ROS Statistics using Imputed Non-Detects**											
1940	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
1941	GROS may not be used when kstar of detected data is small such as < 0.1											
1942	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
1943	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
1944				Minimum		0.0038	Mean					0.0193
1945				Maximum		0.0732	Median					0.01
1946				SD		0.0195	CV					1.012
1947				k hat (MLE)		1.632	k star (bias corrected MLE)					1.279
1948				Theta hat (MLE)		0.0118	Theta star (bias corrected MLE)					0.0151
1949				nu hat (MLE)		39.16	nu star (bias corrected)					30.7
1950				MLE Mean (bias corrected)		0.0193	MLE Sd (bias corrected)					0.0171
1951							Adjusted Level of Significance (β)					0.029
1952				Approximate Chi Square Value (30.70, α)		19.05	Adjusted Chi Square Value (30.70, β)					17.66
1953	95% Gamma Approximate UCL (use when n>=50)					0.0312	95% Gamma Adjusted UCL (use when n<50)					0.0336
1954												
1955	**Lognormal GOF Test on Detected Observations Only**											
1956				Shapiro Wilk Test Statistic		0.961	**Shapiro Wilk GOF Test**					
1957				5% Shapiro Wilk Critical Value		0.829	Detected Data appear Lognormal at 5% Significance Level					
1958				Lilliefors Test Statistic		0.179	**Lilliefors GOF Test**					
1959				5% Lilliefors Critical Value		0.295	Detected Data appear Lognormal at 5% Significance Level					
1960	**Detected Data appear Lognormal at 5% Significance Level**											
1961												
1962	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1963				Mean in Original Scale		0.0172	Mean in Log Scale					-4.749
1964				SD in Original Scale		0.0209	SD in Log Scale					1.315
1965				95% t UCL (assumes normality of ROS data)		0.0281	95% Percentile Bootstrap UCL					0.0275
1966				95% BCA Bootstrap UCL		0.031	95% Bootstrap t UCL					0.0378
1967				95% H-UCL (Log ROS)		0.0831						
1968												
1969	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
1970				KM Mean (logged)		-4.685	95% H-UCL (KM -Log)					0.0555
1971				KM SD (logged)		1.159	95% Critical H Value (KM-Log)					3.212
1972				KM Standard Error of Mean (logged)		0.355						
1973												
1974	**DL/2 Statistics**											
1975	**DL/2 Normal**						**DL/2 Log-Transformed**					
1976				Mean in Original Scale		0.0171	Mean in Log Scale					-4.859
1977				SD in Original Scale		0.0211	SD in Log Scale					1.464
1978				95% t UCL (Assumes normality)		0.028	95% H-Stat UCL					0.122
1979	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1980												
1981	**Nonparametric Distribution Free UCL Statistics**											
1982	**Detected Data appear Approximate Normal Distributed at 5% Significance Level**											
1983												
1984	**Suggested UCL to Use**											

1985					95% KM (t) UCL	0.0283					95% KM (Percentile Bootstrap) UCL	0.0273
1986												
1987	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1988	Recommendations are based upon data size, data distribution, and skewness.											
1989	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1990	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1991												
1992												
1993	**Rubidium (Rb)-Total**											
1994												
1995	**General Statistics**											
1996					Total Number of Observations	12					Number of Distinct Observations	12
1997											Number of Missing Observations	0
1998					Minimum	0.219					Mean	0.673
1999					Maximum	1.61					Median	0.465
2000					SD	0.499					Std. Error of Mean	0.144
2001					Coefficient of Variation	0.742					Skewness	1.133
2002												
2003	**Normal GOF Test**											
2004					Shapiro Wilk Test Statistic	0.8	**Shapiro Wilk GOF Test**					
2005					5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level					
2006					Lilliefors Test Statistic	0.238	**Lilliefors GOF Test**					
2007					5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level					
2008	**Data appear Approximate Normal at 5% Significance Level**											
2009												
2010	**Assuming Normal Distribution**											
2011					**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**					
2012					95% Student's-t UCL	0.932					95% Adjusted-CLT UCL (Chen-1995)	0.96
2013											95% Modified-t UCL (Johnson-1978)	0.94
2014												
2015	**Gamma GOF Test**											
2016					A-D Test Statistic	0.671	**Anderson-Darling Gamma GOF Test**					
2017					5% A-D Critical Value	0.741	etected data appear Gamma Distributed at 5% Significance Lev					
2018					K-S Test Statistic	0.217	**Kolmogrov-Smirnoff Gamma GOF Test**					
2019					5% K-S Critical Value	0.248	etected data appear Gamma Distributed at 5% Significance Lev					
2020	**Detected data appear Gamma Distributed at 5% Significance Level**											
2021												
2022	**Gamma Statistics**											
2023					k hat (MLE)	2.349					k star (bias corrected MLE)	1.817
2024					Theta hat (MLE)	0.287					Theta star (bias corrected MLE)	0.37
2025					nu hat (MLE)	56.37					nu star (bias corrected)	43.61
2026					MLE Mean (bias corrected)	0.673					MLE Sd (bias corrected)	0.499
2027											Approximate Chi Square Value (0.05)	29.47
2028					Adjusted Level of Significance	0.029					Adjusted Chi Square Value	27.7
2029												
2030	**Assuming Gamma Distribution**											
2031					95% Approximate Gamma UCL (use when n>=50))	0.996					95% Adjusted Gamma UCL (use when n<50)	1.059
2032												
2033	**Lognormal GOF Test**											
2034					Shapiro Wilk Test Statistic	0.908	**Shapiro Wilk Lognormal GOF Test**					
2035					5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level					
2036					Lilliefors Test Statistic	0.193	**Lilliefors Lognormal GOF Test**					
2037					5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level					
2038	**Data appear Lognormal at 5% Significance Level**											
2039												
2040	**Lognormal Statistics**											
2041					Minimum of Logged Data	-1.519					Mean of logged Data	-0.624
2042					Maximum of Logged Data	0.476					SD of logged Data	0.687
2043												
2044	**Assuming Lognormal Distribution**											
2045					95% H-UCL	1.114					90% Chebyshev (MVUE) UCL	1.073
2046					95% Chebyshev (MVUE) UCL	1.259					97.5% Chebyshev (MVUE) UCL	1.517

2047			99% Chebyshev (MVUE) UCL			2.023						
2048												
2049	**Nonparametric Distribution Free UCL Statistics**											
2050	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
2051												
2052	**Nonparametric Distribution Free UCLs**											
2053			95% CLT UCL			0.91			95% Jackknife UCL			0.932
2054			95% Standard Bootstrap UCL			0.899			95% Bootstrap-t UCL			1.002
2055			95% Hall's Bootstrap UCL			0.904			95% Percentile Bootstrap UCL			0.916
2056			95% BCA Bootstrap UCL			0.976						
2057			90% Chebyshev(Mean, Sd) UCL			1.105			95% Chebyshev(Mean, Sd) UCL			1.301
2058			97.5% Chebyshev(Mean, Sd) UCL			1.573			99% Chebyshev(Mean, Sd) UCL			2.107
2059												
2060	**Suggested UCL to Use**											
2061			95% Student's-t UCL			0.932						
2062												
2063	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2064	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2065	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2066	For additional insight the user may want to consult a statistician.											
2067												
2068	**Selenium (Se)-Total**											
2069												
2070	**General Statistics**											
2071			Total Number of Observations			12			Number of Distinct Observations			9
2072			Number of Detects			9			Number of Non-Detects			3
2073			Number of Distinct Detects			9			Number of Distinct Non-Detects			1
2074			Minimum Detect			0.02			Minimum Non-Detect			0.02
2075			Maximum Detect			0.122			Maximum Non-Detect			0.02
2076			Variance Detects			0.00155			Percent Non-Detects			25%
2077			Mean Detects			0.0526			SD Detects			0.0394
2078			Median Detects			0.026			CV Detects			0.75
2079			Skewness Detects			0.937			Kurtosis Detects			-0.684
2080			Mean of Logged Detects			-3.19			SD of Logged Detects			0.731
2081												
2082	**Normal GOF Test on Detects Only**											
2083			Shapiro Wilk Test Statistic			0.811			**Shapiro Wilk GOF Test**			
2084			5% Shapiro Wilk Critical Value			0.829			Detected Data Not Normal at 5% Significance Level			
2085			Lilliefors Test Statistic			0.305			**Lilliefors GOF Test**			
2086			5% Lilliefors Critical Value			0.295			Detected Data Not Normal at 5% Significance Level			
2087	**Detected Data Not Normal at 5% Significance Level**											
2088												
2089	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
2090			Mean			0.0444			Standard Error of Mean			0.0108
2091			SD			0.0351			95% KM (BCA) UCL			0.0625
2092			95% KM (t) UCL			0.0637			95% KM (Percentile Bootstrap) UCL			0.062
2093			95% KM (z) UCL			0.0621			95% KM Bootstrap t UCL			0.0758
2094			90% KM Chebyshev UCL			0.0767			95% KM Chebyshev UCL			0.0913
2095			97.5% KM Chebyshev UCL			0.112			99% KM Chebyshev UCL			0.151
2096												
2097	**Gamma GOF Tests on Detected Observations Only**											
2098			A-D Test Statistic			0.745			**Anderson-Darling GOF Test**			
2099			5% A-D Critical Value			0.729			Detected Data Not Gamma Distributed at 5% Significance Level			
2100			K-S Test Statistic			0.313			**Kolmogrov-Smirnoff GOF**			
2101			5% K-S Critical Value			0.282			Detected Data Not Gamma Distributed at 5% Significance Level			
2102	**Detected Data Not Gamma Distributed at 5% Significance Level**											
2103												
2104	**Gamma Statistics on Detected Data Only**											
2105			k hat (MLE)			2.202			k star (bias corrected MLE)			1.542
2106			Theta hat (MLE)			0.0239			Theta star (bias corrected MLE)			0.0341
2107			nu hat (MLE)			39.64			nu star (bias corrected)			27.76
2108			MLE Mean (bias corrected)			0.0526			MLE Sd (bias corrected)			0.0423

2109												
2110	**Gamma Kaplan-Meier (KM) Statistics**											
2111					k hat (KM)	1.6				nu hat (KM)		38.39
2112				Approximate Chi Square Value (38.39, α)		25.2				Adjusted Chi Square Value (38.39, β)		23.58
2113	5% Gamma Approximate KM-UCL (use when n>=50)					0.0677				95% Gamma Adjusted KM-UCL (use when n<50)		0.0723
2114												
2115	**Gamma ROS Statistics using Imputed Non-Detects**											
2116	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
2117	GROS may not be used when kstar of detected data is small such as < 0.1											
2118	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
2119	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
2120					Minimum	0.01				Mean		0.0419
2121					Maximum	0.122				Median		0.024
2122					SD	0.0387				CV		0.924
2123					k hat (MLE)	1.49				k star (bias corrected MLE)		1.173
2124					Theta hat (MLE)	0.0281				Theta star (bias corrected MLE)		0.0357
2125					nu hat (MLE)	35.77				nu star (bias corrected)		28.16
2126					MLE Mean (bias corrected)	0.0419				MLE Sd (bias corrected)		0.0387
2127										Adjusted Level of Significance (β)		0.029
2128				Approximate Chi Square Value (28.16, α)		17.05				Adjusted Chi Square Value (28.16, β)		15.75
2129	95% Gamma Approximate UCL (use when n>=50)					0.0692				95% Gamma Adjusted UCL (use when n<50)		0.075
2130												
2131	**Lognormal GOF Test on Detected Observations Only**											
2132					Shapiro Wilk Test Statistic	0.84				**Shapiro Wilk GOF Test**		
2133					5% Shapiro Wilk Critical Value	0.829				Detected Data appear Lognormal at 5% Significance Level		
2134					Lilliefors Test Statistic	0.291				**Lilliefors GOF Test**		
2135					5% Lilliefors Critical Value	0.295				Detected Data appear Lognormal at 5% Significance Level		
2136	**Detected Data appear Lognormal at 5% Significance Level**											
2137												
2138	**Lognormal ROS Statistics Using Imputed Non-Detects**											
2139					Mean in Original Scale	0.0412				Mean in Log Scale		-3.633
2140					SD in Original Scale	0.0394				SD in Log Scale		1.028
2141					95% t UCL (assumes normality of ROS data)	0.0616				95% Percentile Bootstrap UCL		0.0601
2142					95% BCA Bootstrap UCL	0.064				95% Bootstrap t UCL		0.0741
2143					95% H-UCL (Log ROS)	0.112						
2144												
2145	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
2146					KM Mean (logged)	-3.37				95% H-UCL (KM -Log)		0.0699
2147					KM SD (logged)	0.674				95% Critical H Value (KM-Log)		2.375
2148					KM Standard Error of Mean (logged)	0.206						
2149												
2150	**DL/2 Statistics**											
2151	**DL/2 Normal**									**DL/2 Log-Transformed**		
2152					Mean in Original Scale	0.0419				Mean in Log Scale		-3.544
2153					SD in Original Scale	0.0387				SD in Log Scale		0.894
2154					95% t UCL (Assumes normality)	0.062				95% H-Stat UCL		0.0898
2155	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
2156												
2157	**Nonparametric Distribution Free UCL Statistics**											
2158	**Detected Data appear Lognormal Distributed at 5% Significance Level**											
2159												
2160	**Suggested UCL to Use**											
2161					95% KM (BCA) UCL	0.0625						
2162												
2163	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2164	Recommendations are based upon data size, data distribution, and skewness.											
2165	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
2166	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
2167												
2168												
2169	**Strontium (Sr)-Total**											
2170												

2171	**General Statistics**											
2172					Total Number of Observations	12				Number of Distinct Observations		11
2173										Number of Missing Observations		0
2174					Minimum	6.04				Mean		30.24
2175					Maximum	140				Median		14.05
2176					SD	37.46				Std. Error of Mean		10.81
2177					Coefficient of Variation	1.239				Skewness		2.657
2178												
2179	**Normal GOF Test**											
2180					Shapiro Wilk Test Statistic	0.64	**Shapiro Wilk GOF Test**					
2181					5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level					
2182					Lilliefors Test Statistic	0.262	**Lilliefors GOF Test**					
2183					5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level					
2184	**Data Not Normal at 5% Significance Level**											
2185												
2186	**Assuming Normal Distribution**											
2187	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
2188					95% Student's-t UCL	49.66				95% Adjusted-CLT UCL (Chen-1995)		56.89
2189										95% Modified-t UCL (Johnson-1978)		51.04
2190												
2191	**Gamma GOF Test**											
2192					A-D Test Statistic	0.776	**Anderson-Darling Gamma GOF Test**					
2193					5% A-D Critical Value	0.751	Data Not Gamma Distributed at 5% Significance Level					
2194					K-S Test Statistic	0.249	**Kolmogrov-Smirnoff Gamma GOF Test**					
2195					5% K-S Critical Value	0.251	etected data appear Gamma Distributed at 5% Significance Lev					
2196	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**											
2197												
2198	**Gamma Statistics**											
2199					k hat (MLE)	1.263				k star (bias corrected MLE)		1.003
2200					Theta hat (MLE)	23.93				Theta star (bias corrected MLE)		30.14
2201					nu hat (MLE)	30.32				nu star (bias corrected)		24.07
2202					MLE Mean (bias corrected)	30.24				MLE Sd (bias corrected)		30.19
2203										Approximate Chi Square Value (0.05)		13.9
2204					Adjusted Level of Significance	0.029				Adjusted Chi Square Value		12.74
2205												
2206	**Assuming Gamma Distribution**											
2207					95% Approximate Gamma UCL (use when n>=50)	52.35				95% Adjusted Gamma UCL (use when n<50)		57.14
2208												
2209	**Lognormal GOF Test**											
2210					Shapiro Wilk Test Statistic	0.919	**Shapiro Wilk Lognormal GOF Test**					
2211					5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level					
2212					Lilliefors Test Statistic	0.212	**Lilliefors Lognormal GOF Test**					
2213					5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level					
2214	**Data appear Lognormal at 5% Significance Level**											
2215												
2216	**Lognormal Statistics**											
2217					Minimum of Logged Data	1.798				Mean of logged Data		2.964
2218					Maximum of Logged Data	4.942				SD of logged Data		0.903
2219												
2220	**Assuming Lognormal Distribution**											
2221					95% H-UCL	61.44				90% Chebyshev (MVUE) UCL		50.97
2222					95% Chebyshev (MVUE) UCL	61.44				97.5% Chebyshev (MVUE) UCL		75.98
2223					99% Chebyshev (MVUE) UCL	104.5						
2224												
2225	**Nonparametric Distribution Free UCL Statistics**											
2226	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
2227												
2228	**Nonparametric Distribution Free UCLs**											
2229					95% CLT UCL	48.02				95% Jackknife UCL		49.66
2230					95% Standard Bootstrap UCL	46.68				95% Bootstrap-t UCL		76.76
2231					95% Hall's Bootstrap UCL	114.1				95% Percentile Bootstrap UCL		49.76
2232					95% BCA Bootstrap UCL	58.92						

2233					90% Chebyshev(Mean, Sd) UCL	62.68					95% Chebyshev(Mean, Sd) UCL	77.37
2234					97.5% Chebyshev(Mean, Sd) UCL	97.77					99% Chebyshev(Mean, Sd) UCL	137.8
2235												
2236					**Suggested UCL to Use**							
2237					95% Adjusted Gamma UCL	57.14						
2238												
2239	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2240	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2241	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2242	For additional insight the user may want to consult a statistician.											
2243												
2244	**Thallium (Tl)-Total**											
2245												
2246	**General Statistics**											
2247					Total Number of Observations	12					Number of Distinct Observations	5
2248					Number of Detects	2					Number of Non-Detects	10
2249					Number of Distinct Detects	2					Number of Distinct Non-Detects	3
2250					Minimum Detect	8.0000E-4					Minimum Non-Detect	4.0000E-4
2251					Maximum Detect	0.001					Maximum Non-Detect	7.0000E-4
2252					Variance Detects	2.0000E-8					Percent Non-Detects	83.33%
2253					Mean Detects	9.0000E-4					SD Detects	1.4142E-4
2254					Median Detects	9.0000E-4					CV Detects	0.157
2255					Skewness Detects	N/A					Kurtosis Detects	N/A
2256					Mean of Logged Detects	-7.019					SD of Logged Detects	0.158
2257												
2258	**Warning: Data set has only 2 Detected Values.**											
2259	**This is not enough to compute meaningful or reliable statistics and estimates.**											
2260												
2261												
2262	**Normal GOF Test on Detects Only**											
2263	**Not Enough Data to Perform GOF Test**											
2264												
2265	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
2266					Mean	4.8333E-4					Standard Error of Mean	7.7877E-5
2267					SD	1.9076E-4					95% KM (BCA) UCL	N/A
2268					95% KM (t) UCL	6.2319E-4					95% KM (Percentile Bootstrap) UCL	N/A
2269					95% KM (z) UCL	6.1143E-4					95% KM Bootstrap t UCL	N/A
2270					90% KM Chebyshev UCL	7.1696E-4					95% KM Chebyshev UCL	8.2279E-4
2271					97.5% KM Chebyshev UCL	9.6967E-4					99% KM Chebyshev UCL	0.00126
2272												
2273	**Gamma GOF Tests on Detected Observations Only**											
2274	**Not Enough Data to Perform GOF Test**											
2275												
2276	**Gamma Statistics on Detected Data Only**											
2277					k hat (MLE)	80.67					k star (bias corrected MLE)	N/A
2278					Theta hat (MLE)	1.1157E-5					Theta star (bias corrected MLE)	N/A
2279					nu hat (MLE)	322.7					nu star (bias corrected)	N/A
2280					MLE Mean (bias corrected)	N/A					MLE Sd (bias corrected)	N/A
2281												
2282	**Gamma Kaplan-Meier (KM) Statistics**											
2283					k hat (KM)	6.42					nu hat (KM)	154.1
2284											Adjusted Level of Significance (β)	0.029
2285					Approximate Chi Square Value (154.08, α)	126.4					Adjusted Chi Square Value (154.08, β)	122.6
2286	5% Gamma Approximate KM-UCL (use when n>=50)					5.8924E-4					95% Gamma Adjusted KM-UCL (use when n<50)	6.0763E-4
2287												
2288	**Lognormal GOF Test on Detected Observations Only**											
2289	**Not Enough Data to Perform GOF Test**											
2290												
2291	**Lognormal ROS Statistics Using Imputed Non-Detects**											
2292					Mean in Original Scale	4.4102E-4					Mean in Log Scale	-7.844
2293					SD in Original Scale	2.4117E-4					SD in Log Scale	0.492
2294					95% t UCL (assumes normality of ROS data)	5.6605E-4					95% Percentile Bootstrap UCL	5.6082E-4

2295					95% BCA Bootstrap UCL	5.9032E-4					95% Bootstrap t UCL	6.5426E-4
2296					95% H-UCL (Log ROS)	6.0747E-4						
2297												
2298					**DL/2 Statistics**							
2299					**DL/2 Normal**						**DL/2 Log-Transformed**	
2300					Mean in Original Scale	3.5000E-4					Mean in Log Scale	-8.14
2301					SD in Original Scale	2.6714E-4					SD in Log Scale	0.572
2302					95% t UCL (Assumes normality)	4.8849E-4					95% H-Stat UCL	5.0464E-4
2303					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
2304												
2305					**Nonparametric Distribution Free UCL Statistics**							
2306					**Data do not follow a Discernible Distribution at 5% Significance Level**							
2307												
2308					**Suggested UCL to Use**							
2309					95% KM (t) UCL	6.2319E-4					95% KM (% Bootstrap) UCL	N/A
2310					**Warning: One or more Recommended UCL(s) not available!**							
2311												
2312					Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
2313					Recommendations are based upon data size, data distribution, and skewness.							
2314					These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
2315					However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
2316												
2317	**Thorium (Th)-Total**											
2318												
2319					**General Statistics**							
2320					Total Number of Observations	12					Number of Distinct Observations	5
2321					Number of Detects	4					Number of Non-Detects	8
2322					Number of Distinct Detects	4					Number of Distinct Non-Detects	1
2323					Minimum Detect	0.0025					Minimum Non-Detect	0.002
2324					Maximum Detect	0.0099					Maximum Non-Detect	0.002
2325					Variance Detects	1.0163E-5					Percent Non-Detects	66.67%
2326					Mean Detects	0.00533					SD Detects	0.00319
2327					Median Detects	0.00445					CV Detects	0.599
2328					Skewness Detects	1.477					Kurtosis Detects	2.74
2329					Mean of Logged Detects	-5.359					SD of Logged Detects	0.566
2330												
2331					**Normal GOF Test on Detects Only**							
2332					Shapiro Wilk Test Statistic	0.865					**Shapiro Wilk GOF Test**	
2333					5% Shapiro Wilk Critical Value	0.748					Detected Data appear Normal at 5% Significance Level	
2334					Lilliefors Test Statistic	0.34					**Lilliefors GOF Test**	
2335					5% Lilliefors Critical Value	0.443					Detected Data appear Normal at 5% Significance Level	
2336					**Detected Data appear Normal at 5% Significance Level**							
2337												
2338					**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**							
2339					Mean	0.00311					Standard Error of Mean	7.4516E-4
2340					SD	0.00224					95% KM (BCA) UCL	N/A
2341					95% KM (t) UCL	0.00445					95% KM (Percentile Bootstrap) UCL	N/A
2342					95% KM (z) UCL	0.00433					95% KM Bootstrap t UCL	N/A
2343					90% KM Chebyshev UCL	0.00534					95% KM Chebyshev UCL	0.00636
2344					97.5% KM Chebyshev UCL	0.00776					99% KM Chebyshev UCL	0.0105
2345												
2346					**Gamma GOF Tests on Detected Observations Only**							
2347					A-D Test Statistic	0.343					**Anderson-Darling GOF Test**	
2348					5% A-D Critical Value	0.659					etected data appear Gamma Distributed at 5% Significance Lev	
2349					K-S Test Statistic	0.301					**Kolmogrov-Smirnoff GOF**	
2350					5% K-S Critical Value	0.396					etected data appear Gamma Distributed at 5% Significance Lev	
2351					**Detected data appear Gamma Distributed at 5% Significance Level**							
2352												
2353					**Gamma Statistics on Detected Data Only**							
2354					k hat (MLE)	4.19					k star (bias corrected MLE)	1.214
2355					Theta hat (MLE)	0.00127					Theta star (bias corrected MLE)	0.00439
2356					nu hat (MLE)	33.52					nu star (bias corrected)	9.714

2357	MLE Mean (bias corrected)					0.00533	MLE Sd (bias corrected)						0.00483
2358													
2359	**Gamma Kaplan-Meier (KM) Statistics**												
2360	k hat (KM)					1.933	nu hat (KM)						46.4
2361	Approximate Chi Square Value (46.40, α)					31.77	Adjusted Chi Square Value (46.40, β)						29.93
2362	5% Gamma Approximate KM-UCL (use when n>=50)					0.00454	95% Gamma Adjusted KM-UCL (use when n<50)						0.00482
2363													
2364	**Gamma ROS Statistics using Imputed Non-Detects**												
2365	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
2366	GROS may not be used when kstar of detected data is small such as < 0.1												
2367	For such situations, GROS method tends to yield inflated values of UCLs and BTVs												
2368	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
2369	Minimum					0.0025	Mean						0.00844
2370	Maximum					0.01	Median						0.01
2371	SD					0.00284	CV						0.337
2372	k hat (MLE)					6.26	k star (bias corrected MLE)						4.75
2373	Theta hat (MLE)					0.00135	Theta star (bias corrected MLE)						0.00178
2374	nu hat (MLE)					150.2	nu star (bias corrected)						114
2375	MLE Mean (bias corrected)					0.00844	MLE Sd (bias corrected)						0.00387
2376							Adjusted Level of Significance (β)						0.029
2377	Approximate Chi Square Value (114.01, α)					90.36	Adjusted Chi Square Value (114.01, β)						87.15
2378	95% Gamma Approximate UCL (use when n>=50)					0.0107	95% Gamma Adjusted UCL (use when n<50)						N/A
2379													
2380	**Lognormal GOF Test on Detected Observations Only**												
2381	Shapiro Wilk Test Statistic					0.952	**Shapiro Wilk GOF Test**						
2382	5% Shapiro Wilk Critical Value					0.748	Detected Data appear Lognormal at 5% Significance Level						
2383	Lilliefors Test Statistic					0.266	**Lilliefors GOF Test**						
2384	5% Lilliefors Critical Value					0.443	Detected Data appear Lognormal at 5% Significance Level						
2385	**Detected Data appear Lognormal at 5% Significance Level**												
2386													
2387	**Lognormal ROS Statistics Using Imputed Non-Detects**												
2388	Mean in Original Scale					0.00223	Mean in Log Scale						-6.827
2389	SD in Original Scale					0.00286	SD in Log Scale						1.302
2390	95% t UCL (assumes normality of ROS data)					0.00371	95% Percentile Bootstrap UCL						0.00362
2391	95% BCA Bootstrap UCL					0.00409	95% Bootstrap t UCL						0.00492
2392	95% H-UCL (Log ROS)					0.00996							
2393													
2394	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**												
2395	KM Mean (logged)					-5.93	95% H-UCL (KM -Log)						0.00412
2396	KM SD (logged)					0.493	95% Critical H Value (KM-Log)						2.132
2397	KM Standard Error of Mean (logged)					0.164							
2398													
2399	**DL/2 Statistics**												
2400	**DL/2 Normal**						**DL/2 Log-Transformed**						
2401	Mean in Original Scale					0.00244	Mean in Log Scale						-6.392
2402	SD in Original Scale					0.0027	SD in Log Scale						0.818
2403	95% t UCL (Assumes normality)					0.00384	95% H-Stat UCL						0.00444
2404	**DL/2 is not a recommended method, provided for comparisons and historical reasons**												
2405													
2406	**Nonparametric Distribution Free UCL Statistics**												
2407	**Detected Data appear Normal Distributed at 5% Significance Level**												
2408													
2409	**Suggested UCL to Use**												
2410	95% KM (t) UCL					0.00445	95% KM (Percentile Bootstrap) UCL						N/A
2411	**Warning: One or more Recommended UCL(s) not available!**												
2412													
2413	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.												
2414	Recommendations are based upon data size, data distribution, and skewness.												
2415	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).												
2416	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.												
2417													
2418	**Tin (Sn)-Total**												

2419												
2420	**General Statistics**											
2421					Total Number of Observations	12			Number of Distinct Observations	5		
2422					Number of Detects	4			Number of Non-Detects	8		
2423					Number of Distinct Detects	4			Number of Distinct Non-Detects	1		
2424					Minimum Detect	0.0046			Minimum Non-Detect	0.004		
2425					Maximum Detect	0.0064			Maximum Non-Detect	0.004		
2426					Variance Detects	7.8000E-7			Percent Non-Detects	66.67%		
2427					Mean Detects	0.0055			SD Detects	8.8318E-4		
2428					Median Detects	0.0055			CV Detects	0.161		
2429					Skewness Detects	-2.80E-15			Kurtosis Detects	-4.891		
2430					Mean of Logged Detects	-5.213			SD of Logged Detects	0.162		
2431												
2432	**Normal GOF Test on Detects Only**											
2433					Shapiro Wilk Test Statistic	0.884			**Shapiro Wilk GOF Test**			
2434					5% Shapiro Wilk Critical Value	0.748			Detected Data appear Normal at 5% Significance Level			
2435					Lilliefors Test Statistic	0.252			**Lilliefors GOF Test**			
2436					5% Lilliefors Critical Value	0.443			Detected Data appear Normal at 5% Significance Level			
2437	**Detected Data appear Normal at 5% Significance Level**											
2438												
2439	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
2440					Mean	0.0045			Standard Error of Mean	2.7789E-4		
2441					SD	8.3367E-4			95% KM (BCA) UCL	N/A		
2442					95% KM (t) UCL	0.005			95% KM (Percentile Bootstrap) UCL	N/A		
2443					95% KM (z) UCL	0.00496			95% KM Bootstrap t UCL	N/A		
2444					90% KM Chebyshev UCL	0.00533			95% KM Chebyshev UCL	0.00571		
2445					97.5% KM Chebyshev UCL	0.00624			99% KM Chebyshev UCL	0.00726		
2446												
2447	**Gamma GOF Tests on Detected Observations Only**											
2448					A-D Test Statistic	0.412			**Anderson-Darling GOF Test**			
2449					5% A-D Critical Value	0.656			etected data appear Gamma Distributed at 5% Significance Lev			
2450					K-S Test Statistic	0.288			**Kolmogrov-Smirnoff GOF**			
2451					5% K-S Critical Value	0.394			etected data appear Gamma Distributed at 5% Significance Lev			
2452	**Detected data appear Gamma Distributed at 5% Significance Level**											
2453												
2454	**Gamma Statistics on Detected Data Only**											
2455					k hat (MLE)	51.3			k star (bias corrected MLE)	12.99		
2456					Theta hat (MLE)	1.0722E-4			Theta star (bias corrected MLE)	4.2336E-4		
2457					nu hat (MLE)	410.4			nu star (bias corrected)	103.9		
2458					MLE Mean (bias corrected)	0.0055			MLE Sd (bias corrected)	0.00153		
2459												
2460	**Gamma Kaplan-Meier (KM) Statistics**											
2461					k hat (KM)	29.14			nu hat (KM)	699.3		
2462					Approximate Chi Square Value (699.28, α)	638.9			Adjusted Chi Square Value (699.28, β)	630.1		
2463	5% Gamma Approximate KM-UCL (use when n>=50)					0.00493			95% Gamma Adjusted KM-UCL (use when n<50)	0.00499		
2464												
2465	**Gamma ROS Statistics using Imputed Non-Detects**											
2466	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
2467	GROS may not be used when kstar of detected data is small such as < 0.1											
2468	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
2469	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
2470					Minimum	0.0046			Mean	0.0085		
2471					Maximum	0.01			Median	0.01		
2472					SD	0.00226			CV	0.266		
2473					k hat (MLE)	12.66			k star (bias corrected MLE)	9.549		
2474					Theta hat (MLE)	6.7150E-4			Theta star (bias corrected MLE)	8.9012E-4		
2475					nu hat (MLE)	303.8			nu star (bias corrected)	229.2		
2476					MLE Mean (bias corrected)	0.0085			MLE Sd (bias corrected)	0.00275		
2477									Adjusted Level of Significance (β)	0.029		
2478					Approximate Chi Square Value (229.18, α)	195.1			Adjusted Chi Square Value (229.18, β)	190.3		
2479	95% Gamma Approximate UCL (use when n>=50)					0.00998			95% Gamma Adjusted UCL (use when n<50)	N/A		
2480												

2481	**Lognormal GOF Test on Detected Observations Only**											
2482					Shapiro Wilk Test Statistic	0.885	**Shapiro Wilk GOF Test**					
2483					5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level					
2484					Lilliefors Test Statistic	0.258	**Lilliefors GOF Test**					
2485					5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level					
2486	**Detected Data appear Lognormal at 5% Significance Level**											
2487												
2488	**Lognormal ROS Statistics Using Imputed Non-Detects**											
2489					Mean in Original Scale	0.00384	Mean in Log Scale	-5.622				
2490					SD in Original Scale	0.00141	SD in Log Scale	0.364				
2491					95% t UCL (assumes normality of ROS data)	0.00457	95% Percentile Bootstrap UCL	0.00451				
2492					95% BCA Bootstrap UCL	0.00455	95% Bootstrap t UCL	0.00472				
2493					95% H-UCL (Log ROS)	0.00481						
2494												
2495	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
2496					KM Mean (logged)	-5.419	95% H-UCL (KM -Log)	0.00493				
2497					KM SD (logged)	0.166	95% Critical H Value (KM-Log)	1.818				
2498					KM Standard Error of Mean (logged)	0.0555						
2499												
2500	**DL/2 Statistics**											
2501				**DL/2 Normal**			**DL/2 Log-Transformed**					
2502					Mean in Original Scale	0.00317	Mean in Log Scale	-5.881				
2503					SD in Original Scale	0.00178	SD in Log Scale	0.5				
2504					95% t UCL (Assumes normality)	0.00409	95% H-Stat UCL	0.00437				
2505	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
2506												
2507	**Nonparametric Distribution Free UCL Statistics**											
2508	**Detected Data appear Normal Distributed at 5% Significance Level**											
2509												
2510	**Suggested UCL to Use**											
2511					95% KM (t) UCL	0.005	95% KM (Percentile Bootstrap) UCL	N/A				
2512	**Warning: One or more Recommended UCL(s) not available!**											
2513												
2514	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2515	Recommendations are based upon data size, data distribution, and skewness.											
2516	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
2517	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
2518												
2519												
2520	**Titanium (Ti)-Total**											
2521												
2522	**General Statistics**											
2523					Total Number of Observations	12	Number of Distinct Observations	12				
2524							Number of Missing Observations	0				
2525					Minimum	0.222	Mean	2.004				
2526					Maximum	7.35	Median	0.961				
2527					SD	2.155	Std. Error of Mean	0.622				
2528					Coefficient of Variation	1.075	Skewness	1.561				
2529												
2530	**Normal GOF Test**											
2531					Shapiro Wilk Test Statistic	0.807	**Shapiro Wilk GOF Test**					
2532					5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level					
2533					Lilliefors Test Statistic	0.233	**Lilliefors GOF Test**					
2534					5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level					
2535	**Data appear Approximate Normal at 5% Significance Level**											
2536												
2537	**Assuming Normal Distribution**											
2538				**95% Normal UCL**			**95% UCLs (Adjusted for Skewness)**					
2539					95% Student's-t UCL	3.121	95% Adjusted-CLT UCL (Chen-1995)	3.327				
2540							95% Modified-t UCL (Johnson-1978)	3.168				
2541												
2542	**Gamma GOF Test**											

2543				A-D Test Statistic	0.452	**Anderson-Darling Gamma GOF Test**						
2544				5% A-D Critical Value	0.756	etected data appear Gamma Distributed at 5% Significance Lev						
2545				K-S Test Statistic	0.226	**Kolmogrov-Smirnoff Gamma GOF Test**						
2546				5% K-S Critical Value	0.252	etected data appear Gamma Distributed at 5% Significance Lev						
2547	**Detected data appear Gamma Distributed at 5% Significance Level**											
2548												
2549	**Gamma Statistics**											
2550				k hat (MLE)	1.032	k star (bias corrected MLE)	0.83					
2551				Theta hat (MLE)	1.942	Theta star (bias corrected MLE)	2.416					
2552				nu hat (MLE)	24.77	nu star (bias corrected)	19.91					
2553				MLE Mean (bias corrected)	2.004	MLE Sd (bias corrected)	2.2					
2554						Approximate Chi Square Value (0.05)	10.79					
2555				Adjusted Level of Significance	0.029	Adjusted Chi Square Value	9.775					
2556												
2557	**Assuming Gamma Distribution**											
2558	95% Approximate Gamma UCL (use when n>=50))				3.7	95% Adjusted Gamma UCL (use when n<50)	4.082					
2559												
2560	**Lognormal GOF Test**											
2561				Shapiro Wilk Test Statistic	0.941	**Shapiro Wilk Lognormal GOF Test**						
2562				5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level						
2563				Lilliefors Test Statistic	0.186	**Lilliefors Lognormal GOF Test**						
2564				5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level						
2565	**Data appear Lognormal at 5% Significance Level**											
2566												
2567	**Lognormal Statistics**											
2568				Minimum of Logged Data	-1.505	Mean of logged Data	0.138					
2569				Maximum of Logged Data	1.995	SD of logged Data	1.139					
2570												
2571	**Assuming Lognormal Distribution**											
2572				95% H-UCL	6.537	90% Chebyshev (MVUE) UCL	4.194					
2573				95% Chebyshev (MVUE) UCL	5.174	97.5% Chebyshev (MVUE) UCL	6.535					
2574				99% Chebyshev (MVUE) UCL	9.207							
2575												
2576	**Nonparametric Distribution Free UCL Statistics**											
2577	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
2578												
2579	**Nonparametric Distribution Free UCLs**											
2580				95% CLT UCL	3.027	95% Jackknife UCL	3.121					
2581				95% Standard Bootstrap UCL	2.96	95% Bootstrap-t UCL	3.75					
2582				95% Hall's Bootstrap UCL	3.894	95% Percentile Bootstrap UCL	3.065					
2583				95% BCA Bootstrap UCL	3.278							
2584				90% Chebyshev(Mean, Sd) UCL	3.87	95% Chebyshev(Mean, Sd) UCL	4.716					
2585				97.5% Chebyshev(Mean, Sd) UCL	5.889	99% Chebyshev(Mean, Sd) UCL	8.193					
2586												
2587	**Suggested UCL to Use**											
2588				95% Student's-t UCL	3.121							
2589												
2590	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2591	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2592	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2593	For additional insight the user may want to consult a statistician.											
2594												
2595	**Uranium (U)-Total**											
2596												
2597	**General Statistics**											
2598				Total Number of Observations	12	Number of Distinct Observations	10					
2599				Number of Detects	9	Number of Non-Detects	3					
2600				Number of Distinct Detects	9	Number of Distinct Non-Detects	1					
2601				Minimum Detect	5.3000E-4	Minimum Non-Detect	4.0000E-4					
2602				Maximum Detect	0.00467	Maximum Non-Detect	4.0000E-4					
2603				Variance Detects	1.7570E-6	Percent Non-Detects	25%					
2604				Mean Detects	0.00181	SD Detects	0.00133					

2605				Median Detects	0.0015					CV Detects	0.731	
2606				Skewness Detects	1.252					Kurtosis Detects	1.854	
2607				Mean of Logged Detects	-6.557					SD of Logged Detects	0.763	
2608												
2609				**Normal GOF Test on Detects Only**								
2610				Shapiro Wilk Test Statistic	0.874			**Shapiro Wilk GOF Test**				
2611				5% Shapiro Wilk Critical Value	0.829			Detected Data appear Normal at 5% Significance Level				
2612				Lilliefors Test Statistic	0.178			**Lilliefors GOF Test**				
2613				5% Lilliefors Critical Value	0.295			Detected Data appear Normal at 5% Significance Level				
2614				**Detected Data appear Normal at 5% Significance Level**								
2615												
2616				**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**								
2617				Mean	0.00146					Standard Error of Mean	3.8069E-4	
2618				SD	0.00124					95% KM (BCA) UCL	0.00213	
2619				95% KM (t) UCL	0.00214					95% KM (Percentile Bootstrap) UCL	0.00211	
2620				95% KM (z) UCL	0.00209					95% KM Bootstrap t UCL	0.00247	
2621				90% KM Chebyshev UCL	0.0026					95% KM Chebyshev UCL	0.00312	
2622				97.5% KM Chebyshev UCL	0.00384					99% KM Chebyshev UCL	0.00525	
2623												
2624				**Gamma GOF Tests on Detected Observations Only**								
2625				A-D Test Statistic	0.316			**Anderson-Darling GOF Test**				
2626				5% A-D Critical Value	0.729			etected data appear Gamma Distributed at 5% Significance Lev				
2627				K-S Test Statistic	0.181			**Kolmogrov-Smirnoff GOF**				
2628				5% K-S Critical Value	0.282			etected data appear Gamma Distributed at 5% Significance Lev				
2629				**Detected data appear Gamma Distributed at 5% Significance Level**								
2630												
2631				**Gamma Statistics on Detected Data Only**								
2632				k hat (MLE)	2.196					k star (bias corrected MLE)	1.538	
2633				Theta hat (MLE)	8.2585E-4					Theta star (bias corrected MLE)	0.00118	
2634				nu hat (MLE)	39.52					nu star (bias corrected)	27.68	
2635				MLE Mean (bias corrected)	0.00181					MLE Sd (bias corrected)	0.00146	
2636												
2637				**Gamma Kaplan-Meier (KM) Statistics**								
2638				k hat (KM)	1.379					nu hat (KM)	33.09	
2639				Approximate Chi Square Value (33.09, α)	20.94					Adjusted Chi Square Value (33.09, β)	19.48	
2640				5% Gamma Approximate KM-UCL (use when n>=50)	0.00231					95% Gamma Adjusted KM-UCL (use when n<50)	0.00248	
2641												
2642				**Gamma ROS Statistics using Imputed Non-Detects**								
2643				GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs								
2644				GROS may not be used when kstar of detected data is small such as < 0.1								
2645				For such situations, GROS method tends to yield inflated values of UCLs and BTVs								
2646				For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates								
2647				Minimum	5.3000E-4					Mean	0.00386	
2648				Maximum	0.01					Median	0.00228	
2649				SD	0.00387					CV	1.003	
2650				k hat (MLE)	1.113					k star (bias corrected MLE)	0.891	
2651				Theta hat (MLE)	0.00347					Theta star (bias corrected MLE)	0.00433	
2652				nu hat (MLE)	26.72					nu star (bias corrected)	21.37	
2653				MLE Mean (bias corrected)	0.00386					MLE Sd (bias corrected)	0.00409	
2654										Adjusted Level of Significance (β)	0.029	
2655				Approximate Chi Square Value (21.37, α)	11.87					Adjusted Chi Square Value (21.37, β)	10.8	
2656				95% Gamma Approximate UCL (use when n>=50)	0.00695					95% Gamma Adjusted UCL (use when n<50)	0.00764	
2657												
2658				**Lognormal GOF Test on Detected Observations Only**								
2659				Shapiro Wilk Test Statistic	0.927			**Shapiro Wilk GOF Test**				
2660				5% Shapiro Wilk Critical Value	0.829			Detected Data appear Lognormal at 5% Significance Level				
2661				Lilliefors Test Statistic	0.171			**Lilliefors GOF Test**				
2662				5% Lilliefors Critical Value	0.295			Detected Data appear Lognormal at 5% Significance Level				
2663				**Detected Data appear Lognormal at 5% Significance Level**								
2664												
2665				**Lognormal ROS Statistics Using Imputed Non-Detects**								
2666				Mean in Original Scale	0.00142					Mean in Log Scale	-7.026	

2667				SD in Original Scale	0.00134					SD in Log Scale	1.082
2668			95% t UCL (assumes normality of ROS data)		0.00211					95% Percentile Bootstrap UCL	0.00206
2669				95% BCA Bootstrap UCL	0.00214					95% Bootstrap t UCL	0.0024
2670				95% H-UCL (Log ROS)	0.00434						
2671											
2672				**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**							
2673				KM Mean (logged)	-6.874					95% H-UCL (KM -Log)	0.00281
2674				KM SD (logged)	0.83					95% Critical H Value (KM-Log)	2.619
2675				KM Standard Error of Mean (logged)	0.254						
2676											
2677				**DL/2 Statistics**							
2678				**DL/2 Normal**						**DL/2 Log-Transformed**	
2679				Mean in Original Scale	0.00141					Mean in Log Scale	-7.047
2680				SD in Original Scale	0.00135					SD in Log Scale	1.099
2681				95% t UCL (Assumes normality)	0.00211					95% H-Stat UCL	0.00444
2682				**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
2683											
2684				**Nonparametric Distribution Free UCL Statistics**							
2685				**Detected Data appear Normal Distributed at 5% Significance Level**							
2686											
2687				**Suggested UCL to Use**							
2688				95% KM (t) UCL	0.00214					95% KM (Percentile Bootstrap) UCL	0.00211
2689											
2690				Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.							
2691				Recommendations are based upon data size, data distribution, and skewness.							
2692				These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).							
2693				However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.							
2694											
2695											
2696	**Vanadium (V)-Total**										
2697											
2698				**General Statistics**							
2699				Total Number of Observations	12					Number of Distinct Observations	12
2700										Number of Missing Observations	0
2701				Minimum	0.0126					Mean	0.17
2702				Maximum	0.546					Median	0.0805
2703				SD	0.2					Std. Error of Mean	0.0577
2704				Coefficient of Variation	1.175					Skewness	1.283
2705											
2706				**Normal GOF Test**							
2707				Shapiro Wilk Test Statistic	0.755					**Shapiro Wilk GOF Test**	
2708				5% Shapiro Wilk Critical Value	0.859					Data Not Normal at 5% Significance Level	
2709				Lilliefors Test Statistic	0.273					**Lilliefors GOF Test**	
2710				5% Lilliefors Critical Value	0.256					Data Not Normal at 5% Significance Level	
2711				**Data Not Normal at 5% Significance Level**							
2712											
2713				**Assuming Normal Distribution**							
2714				**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**	
2715				95% Student's-t UCL	0.274					95% Adjusted-CLT UCL (Chen-1995)	0.288
2716										95% Modified-t UCL (Johnson-1978)	0.277
2717											
2718				**Gamma GOF Test**							
2719				A-D Test Statistic	0.502					**Anderson-Darling Gamma GOF Test**	
2720				5% A-D Critical Value	0.763					etected data appear Gamma Distributed at 5% Significance Lev	
2721				K-S Test Statistic	0.156					**Kolmogrov-Smirnoff Gamma GOF Test**	
2722				5% K-S Critical Value	0.254					etected data appear Gamma Distributed at 5% Significance Lev	
2723				**Detected data appear Gamma Distributed at 5% Significance Level**							
2724											
2725				**Gamma Statistics**							
2726				k hat (MLE)	0.834					k star (bias corrected MLE)	0.681
2727				Theta hat (MLE)	0.204					Theta star (bias corrected MLE)	0.25
2728				nu hat (MLE)	20.02					nu star (bias corrected)	16.34

2729	MLE Mean (bias corrected)					0.17	MLE Sd (bias corrected)					0.206
2730							Approximate Chi Square Value (0.05)					8.206
2731	Adjusted Level of Significance					0.029	Adjusted Chi Square Value					7.342
2732												
2733	**Assuming Gamma Distribution**											
2734	95% Approximate Gamma UCL (use when n>=50)					0.339	95% Adjusted Gamma UCL (use when n<50)					0.379
2735												
2736	**Lognormal GOF Test**											
2737	Shapiro Wilk Test Statistic					0.939	**Shapiro Wilk Lognormal GOF Test**					
2738	5% Shapiro Wilk Critical Value					0.859	Data appear Lognormal at 5% Significance Level					
2739	Lilliefors Test Statistic					0.124	**Lilliefors Lognormal GOF Test**					
2740	5% Lilliefors Critical Value					0.256	Data appear Lognormal at 5% Significance Level					
2741	**Data appear Lognormal at 5% Significance Level**											
2742												
2743	**Lognormal Statistics**											
2744	Minimum of Logged Data					-4.374	Mean of logged Data					-2.479
2745	Maximum of Logged Data					-0.605	SD of logged Data					1.294
2746												
2747	**Assuming Lognormal Distribution**											
2748	95% H-UCL					0.751	90% Chebyshev (MVUE) UCL					0.385
2749	95% Chebyshev (MVUE) UCL					0.481	97.5% Chebyshev (MVUE) UCL					0.614
2750	99% Chebyshev (MVUE) UCL					0.876						
2751												
2752	**Nonparametric Distribution Free UCL Statistics**											
2753	**Data appear to follow a Discernible Distribution at 5% Significance Level**											
2754												
2755	**Nonparametric Distribution Free UCLs**											
2756	95% CLT UCL					0.265	95% Jackknife UCL					0.274
2757	95% Standard Bootstrap UCL					0.26	95% Bootstrap-t UCL					0.331
2758	95% Hall's Bootstrap UCL					0.275	95% Percentile Bootstrap UCL					0.266
2759	95% BCA Bootstrap UCL					0.29						
2760	90% Chebyshev(Mean, Sd) UCL					0.343	95% Chebyshev(Mean, Sd) UCL					0.422
2761	97.5% Chebyshev(Mean, Sd) UCL					0.531	99% Chebyshev(Mean, Sd) UCL					0.745
2762												
2763	**Suggested UCL to Use**											
2764	95% Adjusted Gamma UCL					0.379						
2765												
2766	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2767	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2768	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2769	For additional insight the user may want to consult a statistician.											
2770												
2771												
2772	**Yttrium (Y)-Total**											
2773												
2774	**General Statistics**											
2775	Total Number of Observations					12	Number of Distinct Observations					12
2776							Number of Missing Observations					0
2777	Minimum					0.0024	Mean					0.017
2778	Maximum					0.0458	Median					0.01
2779	SD					0.0166	Std. Error of Mean					0.00479
2780	Coefficient of Variation					0.977	Skewness					0.944
2781												
2782	**Normal GOF Test**											
2783	Shapiro Wilk Test Statistic					0.812	**Shapiro Wilk GOF Test**					
2784	5% Shapiro Wilk Critical Value					0.859	Data Not Normal at 5% Significance Level					
2785	Lilliefors Test Statistic					0.217	**Lilliefors GOF Test**					
2786	5% Lilliefors Critical Value					0.256	Data appear Normal at 5% Significance Level					
2787	**Data appear Approximate Normal at 5% Significance Level**											
2788												
2789	**Assuming Normal Distribution**											
2790	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					

2791				95% Student's-t UCL	0.0256			95% Adjusted-CLT UCL (Chen-1995)			0.0263	
2792								95% Modified-t UCL (Johnson-1978)			0.0258	
2793												
2794					**Gamma GOF Test**							
2795				A-D Test Statistic	0.523			**Anderson-Darling Gamma GOF Test**				
2796				5% A-D Critical Value	0.754			etected data appear Gamma Distributed at 5% Significance Lev				
2797				K-S Test Statistic	0.19			**Kolmogrov-Smirnoff Gamma GOF Test**				
2798				5% K-S Critical Value	0.252			etected data appear Gamma Distributed at 5% Significance Lev				
2799					**Detected data appear Gamma Distributed at 5% Significance Level**							
2800												
2801					**Gamma Statistics**							
2802				k hat (MLE)	1.119			k star (bias corrected MLE)			0.895	
2803				Theta hat (MLE)	0.0152			Theta star (bias corrected MLE)			0.019	
2804				nu hat (MLE)	26.85			nu star (bias corrected)			21.47	
2805				MLE Mean (bias corrected)	0.017			MLE Sd (bias corrected)			0.018	
2806								Approximate Chi Square Value (0.05)			11.94	
2807				Adjusted Level of Significance	0.029			Adjusted Chi Square Value			10.87	
2808												
2809					**Assuming Gamma Distribution**							
2810				95% Approximate Gamma UCL (use when n>=50))	0.0305			95% Adjusted Gamma UCL (use when n<50)			0.0335	
2811												
2812					**Lognormal GOF Test**							
2813				Shapiro Wilk Test Statistic	0.911			**Shapiro Wilk Lognormal GOF Test**				
2814				5% Shapiro Wilk Critical Value	0.859			Data appear Lognormal at 5% Significance Level				
2815				Lilliefors Test Statistic	0.165			**Lilliefors Lognormal GOF Test**				
2816				5% Lilliefors Critical Value	0.256			Data appear Lognormal at 5% Significance Level				
2817					**Data appear Lognormal at 5% Significance Level**							
2818												
2819					**Lognormal Statistics**							
2820				Minimum of Logged Data	-6.032			Mean of logged Data			-4.585	
2821				Maximum of Logged Data	-3.083			SD of logged Data			1.096	
2822												
2823					**Assuming Lognormal Distribution**							
2824				95% H-UCL	0.0517			90% Chebyshev (MVUE) UCL			0.035	
2825				95% Chebyshev (MVUE) UCL	0.0431			97.5% Chebyshev (MVUE) UCL			0.0542	
2826				99% Chebyshev (MVUE) UCL	0.0761							
2827												
2828					**Nonparametric Distribution Free UCL Statistics**							
2829					**Data appear to follow a Discernible Distribution at 5% Significance Level**							
2830												
2831					**Nonparametric Distribution Free UCLs**							
2832				95% CLT UCL	0.0249			95% Jackknife UCL			0.0256	
2833				95% Standard Bootstrap UCL	0.0245			95% Bootstrap-t UCL			0.0276	
2834				95% Hall's Bootstrap UCL	0.0248			95% Percentile Bootstrap UCL			0.0248	
2835				95% BCA Bootstrap UCL	0.0257							
2836				90% Chebyshev(Mean, Sd) UCL	0.0314			95% Chebyshev(Mean, Sd) UCL			0.0379	
2837				97.5% Chebyshev(Mean, Sd) UCL	0.0469			99% Chebyshev(Mean, Sd) UCL			0.0646	
2838												
2839					**Suggested UCL to Use**							
2840				95% Student's-t UCL	0.0256							
2841												
2842	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2843	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2844	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2845	For additional insight the user may want to consult a statistician.											
2846												
2847												
2848	**Zinc (Zn)-Total**											
2849												
2850					**General Statistics**							
2851				Total Number of Observations	12			Number of Distinct Observations			12	
2852								Number of Missing Observations			0	

2853					Minimum	2.37					Mean	6.433
2854					Maximum	10.3					Median	6.09
2855					SD	2.362					Std. Error of Mean	0.682
2856					Coefficient of Variation	0.367					Skewness	0.0916
2857												
2858					**Normal GOF Test**							
2859					Shapiro Wilk Test Statistic	0.979			**Shapiro Wilk GOF Test**			
2860					5% Shapiro Wilk Critical Value	0.859			Data appear Normal at 5% Significance Level			
2861					Lilliefors Test Statistic	0.106			**Lilliefors GOF Test**			
2862					5% Lilliefors Critical Value	0.256			Data appear Normal at 5% Significance Level			
2863					**Data appear Normal at 5% Significance Level**							
2864												
2865					**Assuming Normal Distribution**							
2866					**95% Normal UCL**				**95% UCLs (Adjusted for Skewness)**			
2867					95% Student's-t UCL	7.658			95% Adjusted-CLT UCL (Chen-1995)			7.574
2868									95% Modified-t UCL (Johnson-1978)			7.661
2869												
2870					**Gamma GOF Test**							
2871					A-D Test Statistic	0.179			**Anderson-Darling Gamma GOF Test**			
2872					5% A-D Critical Value	0.731			etected data appear Gamma Distributed at 5% Significance Lev			
2873					K-S Test Statistic	0.116			**Kolmogrov-Smirnoff Gamma GOF Test**			
2874					5% K-S Critical Value	0.246			etected data appear Gamma Distributed at 5% Significance Lev			
2875					**Detected data appear Gamma Distributed at 5% Significance Level**							
2876												
2877					**Gamma Statistics**							
2878					k hat (MLE)	7.144			k star (bias corrected MLE)			5.414
2879					Theta hat (MLE)	0.901			Theta star (bias corrected MLE)			1.188
2880					nu hat (MLE)	171.5			nu star (bias corrected)			129.9
2881					MLE Mean (bias corrected)	6.433			MLE Sd (bias corrected)			2.765
2882									Approximate Chi Square Value (0.05)			104.6
2883					Adjusted Level of Significance	0.029			Adjusted Chi Square Value			101.1
2884												
2885					**Assuming Gamma Distribution**							
2886					95% Approximate Gamma UCL (use when n>=50))	7.991			95% Adjusted Gamma UCL (use when n<50)			8.265
2887												
2888					**Lognormal GOF Test**							
2889					Shapiro Wilk Test Statistic	0.947			**Shapiro Wilk Lognormal GOF Test**			
2890					5% Shapiro Wilk Critical Value	0.859			Data appear Lognormal at 5% Significance Level			
2891					Lilliefors Test Statistic	0.14			**Lilliefors Lognormal GOF Test**			
2892					5% Lilliefors Critical Value	0.256			Data appear Lognormal at 5% Significance Level			
2893					**Data appear Lognormal at 5% Significance Level**							
2894												
2895					**Lognormal Statistics**							
2896					Minimum of Logged Data	0.863			Mean of logged Data			1.79
2897					Maximum of Logged Data	2.332			SD of logged Data			0.416
2898												
2899					**Assuming Lognormal Distribution**							
2900					95% H-UCL	8.434			90% Chebyshev (MVUE) UCL			8.851
2901					95% Chebyshev (MVUE) UCL	9.925			97.5% Chebyshev (MVUE) UCL			11.42
2902					99% Chebyshev (MVUE) UCL	14.34						
2903												
2904					**Nonparametric Distribution Free UCL Statistics**							
2905					**Data appear to follow a Discernible Distribution at 5% Significance Level**							
2906												
2907					**Nonparametric Distribution Free UCLs**							
2908					95% CLT UCL	7.555			95% Jackknife UCL			7.658
2909					95% Standard Bootstrap UCL	7.494			95% Bootstrap-t UCL			7.683
2910					95% Hall's Bootstrap UCL	7.532			95% Percentile Bootstrap UCL			7.448
2911					95% BCA Bootstrap UCL	7.524						
2912					90% Chebyshev(Mean, Sd) UCL	8.479			95% Chebyshev(Mean, Sd) UCL			9.405
2913					97.5% Chebyshev(Mean, Sd) UCL	10.69			99% Chebyshev(Mean, Sd) UCL			13.22
2914												

2915	**Suggested UCL to Use**											
2916				95% Student's-t UCL		7.658						
2917												
2918	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
2919	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
2920	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
2921	For additional insight the user may want to consult a statistician.											
2922												
2923	**Zirconium (Zr)-Total**											
2924												
2925	**General Statistics**											
2926				Total Number of Observations		12			Number of Distinct Observations			5
2927				Number of Detects		4			Number of Non-Detects			8
2928				Number of Distinct Detects		4			Number of Distinct Non-Detects			1
2929				Minimum Detect		0.042			Minimum Non-Detect			0.04
2930				Maximum Detect		0.071			Maximum Non-Detect			0.04
2931				Variance Detects		1.8467E-4			Percent Non-Detects			66.67%
2932				Mean Detects		0.06			SD Detects			0.0136
2933				Median Detects		0.0635			CV Detects			0.226
2934				Skewness Detects		-0.937			Kurtosis Detects			-0.822
2935				Mean of Logged Detects		-2.835			SD of Logged Detects			0.245
2936												
2937	**Normal GOF Test on Detects Only**											
2938				Shapiro Wilk Test Statistic		0.882			**Shapiro Wilk GOF Test**			
2939				5% Shapiro Wilk Critical Value		0.748			Detected Data appear Normal at 5% Significance Level			
2940				Lilliefors Test Statistic		0.269			**Lilliefors GOF Test**			
2941				5% Lilliefors Critical Value		0.443			Detected Data appear Normal at 5% Significance Level			
2942	**Detected Data appear Normal at 5% Significance Level**											
2943												
2944	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
2945				Mean		0.0467			Standard Error of Mean			0.00387
2946				SD		0.0116			95% KM (BCA) UCL			N/A
2947				95% KM (t) UCL		0.0536			95% KM (Percentile Bootstrap) UCL			N/A
2948				95% KM (z) UCL		0.053			95% KM Bootstrap t UCL			N/A
2949				90% KM Chebyshev UCL		0.0583			95% KM Chebyshev UCL			0.0636
2950				97.5% KM Chebyshev UCL		0.0709			99% KM Chebyshev UCL			0.0852
2951												
2952	**Gamma GOF Tests on Detected Observations Only**											
2953				A-D Test Statistic		0.409			**Anderson-Darling GOF Test**			
2954				5% A-D Critical Value		0.657			etected data appear Gamma Distributed at 5% Significance Lev			
2955				K-S Test Statistic		0.298			**Kolmogrov-Smirnoff GOF**			
2956				5% K-S Critical Value		0.394			etected data appear Gamma Distributed at 5% Significance Lev			
2957	**Detected data appear Gamma Distributed at 5% Significance Level**											
2958												
2959	**Gamma Statistics on Detected Data Only**											
2960				k hat (MLE)		23.56			k star (bias corrected MLE)			6.057
2961				Theta hat (MLE)		0.00255			Theta star (bias corrected MLE)			0.00991
2962				nu hat (MLE)		188.5			nu star (bias corrected)			48.46
2963				MLE Mean (bias corrected)		0.06			MLE Sd (bias corrected)			0.0244
2964												
2965	**Gamma Kaplan-Meier (KM) Statistics**											
2966				k hat (KM)		16.13			nu hat (KM)			387
2967				Approximate Chi Square Value (387.00, α)		342.4			Adjusted Chi Square Value (387.00, β)			336
2968	5% Gamma Approximate KM-UCL (use when n>=50)					0.0527			95% Gamma Adjusted KM-UCL (use when n<50)			0.0538
2969												
2970	**Gamma ROS Statistics using Imputed Non-Detects**											
2971	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
2972	GROS may not be used when kstar of detected data is small such as < 0.1											
2973	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
2974	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
2975				Minimum		0.01			Mean			0.0331
2976				Maximum		0.071			Median			0.0281

2977					SD	0.0226					CV	0.682
2978					k hat (MLE)	2.268					k star (bias corrected MLE)	1.757
2979					Theta hat (MLE)	0.0146					Theta star (bias corrected MLE)	0.0189
2980					nu hat (MLE)	54.44					nu star (bias corrected)	42.16
2981					MLE Mean (bias corrected)	0.0331					MLE Sd (bias corrected)	0.025
2982											Adjusted Level of Significance (β)	0.029
2983					Approximate Chi Square Value (42.16, α)	28.28					Adjusted Chi Square Value (42.16, β)	26.55
2984					95% Gamma Approximate UCL (use when n>=50)	0.0494					95% Gamma Adjusted UCL (use when n<50)	N/A
2985												
2986					**Lognormal GOF Test on Detected Observations Only**							
2987					Shapiro Wilk Test Statistic	0.867					**Shapiro Wilk GOF Test**	
2988					5% Shapiro Wilk Critical Value	0.748					Detected Data appear Lognormal at 5% Significance Level	
2989					Lilliefors Test Statistic	0.263					**Lilliefors GOF Test**	
2990					5% Lilliefors Critical Value	0.443					Detected Data appear Lognormal at 5% Significance Level	
2991					**Detected Data appear Lognormal at 5% Significance Level**							
2992												
2993					**Lognormal ROS Statistics Using Imputed Non-Detects**							
2994					Mean in Original Scale	0.0372					Mean in Log Scale	-3.414
2995					SD in Original Scale	0.0193					SD in Log Scale	0.516
2996					95% t UCL (assumes normality of ROS data)	0.0472					95% Percentile Bootstrap UCL	0.0462
2997					95% BCA Bootstrap UCL	0.0467					95% Bootstrap t UCL	0.0495
2998					95% H-UCL (Log ROS)	0.0527						
2999												
3000					**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**							
3001					KM Mean (logged)	-3.091					95% H-UCL (KM -Log)	0.0526
3002					KM SD (logged)	0.219					95% Critical H Value (KM-Log)	1.857
3003					KM Standard Error of Mean (logged)	0.0729						
3004												
3005					**DL/2 Statistics**							
3006					**DL/2 Normal**						**DL/2 Log-Transformed**	
3007					Mean in Original Scale	0.0333					Mean in Log Scale	-3.553
3008					SD in Original Scale	0.0209					SD in Log Scale	0.546
3009					95% t UCL (Assumes normality)	0.0442					95% H-Stat UCL	0.0477
3010					**DL/2 is not a recommended method, provided for comparisons and historical reasons**							
3011												
3012					**Nonparametric Distribution Free UCL Statistics**							
3013					**Detected Data appear Normal Distributed at 5% Significance Level**							
3014												
3015					**Suggested UCL to Use**							
3016					95% KM (t) UCL	0.0536					95% KM (Percentile Bootstrap) UCL	N/A
3017					**Warning: One or more Recommended UCL(s) not available!**							
3018												
3019	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
3020	Recommendations are based upon data size, data distribution, and skewness.											
3021	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
3022	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
3023												

ProUCL Output for Browse

UCL Statistics for Data Sets with Non-Detects

User Selected Options	
Date/Time of Computation	3/24/2015 2:15:00 PM
From File	LM Mine Veg ProUCL input file_b.xls
Full Precision	OFF
Confidence Coefficient	95%
mber of Bootstrap Operations	2000

Aluminum (Al)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
		Number of Missing Observations	0
Minimum	6.14	Mean	49.09
Maximum	109	Median	51.8
SD	25.69	Std. Error of Mean	7.417
Coefficient of Variation	0.523	Skewness	0.6

Normal GOF Test

Shapiro Wilk Test Statistic	0.887	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.249	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	62.41	95% Adjusted-CLT UCL (Chen-1995)	62.66
		95% Modified-t UCL (Johnson-1978)	62.62

Gamma GOF Test

A-D Test Statistic	0.944	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.74	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.264	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.248	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.772	k star (bias corrected MLE)	2.134
Theta hat (MLE)	17.71	Theta star (bias corrected MLE)	23
nu hat (MLE)	66.52	nu star (bias corrected)	51.23
MLE Mean (bias corrected)	49.09	MLE Sd (bias corrected)	33.6
		Approximate Chi Square Value (0.05)	35.79
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	33.83

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	70.26	95% Adjusted Gamma UCL (use when n<50)	74.33

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.789	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.309	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.815	Mean of logged Data	3.702
Maximum of Logged Data	4.691	SD of logged Data	0.76

Assuming Lognormal Distribution

95% H-UCL	96.14	90% Chebyshev (MVUE) UCL	88.83
95% Chebyshev (MVUE) UCL	105.2	97.5% Chebyshev (MVUE) UCL	128
99% Chebyshev (MVUE) UCL	172.8		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	61.29	95% Jackknife UCL	62.41
95% Standard Bootstrap UCL	60.64	95% Bootstrap-t UCL	63.78
95% Hall's Bootstrap UCL	68.02	95% Percentile Bootstrap UCL	61.11
95% BCA Bootstrap UCL	62.3		
90% Chebyshev(Mean, Sd) UCL	71.34	95% Chebyshev(Mean, Sd) UCL	81.42
97.5% Chebyshev(Mean, Sd) UCL	95.41	99% Chebyshev(Mean, Sd) UCL	122.9

Suggested UCL to Use

95% Student's-t UCL 62.41

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Antimony (Sb)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	10
Number of Detects	11	Number of Non-Detects	1
Number of Distinct Detects	9	Number of Distinct Non-Detects	1
Minimum Detect	0.0033	Minimum Non-Detect	0.002
Maximum Detect	0.009	Maximum Non-Detect	0.002
Variance Detects	3.3696E-6	Percent Non-Detects	8.333%
Mean Detects	0.00552	SD Detects	0.00184
Median Detects	0.005	CV Detects	0.333
Skewness Detects	0.977	Kurtosis Detects	0.403
Mean of Logged Detects	-5.247	SD of Logged Detects	0.318

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.875	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.215	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.267	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.00523	Standard Error of Mean	5.8658E-4
SD	0.00194	95% KM (BCA) UCL	0.0062
95% KM (t) UCL	0.00628	95% KM (Percentile Bootstrap) UCL	0.00619
95% KM (z) UCL	0.00619	95% KM Bootstrap t UCL	0.00657
90% KM Chebyshev UCL	0.00698	95% KM Chebyshev UCL	0.00778

97.5% KM Chebyshev UCL	0.00889	99% KM Chebyshev UCL	0.0111

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.462	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.729	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.17	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.255	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	10.81	k star (bias corrected MLE)	7.923
Theta hat (MLE)	5.1046E-4	Theta star (bias corrected MLE)	6.9651E-4
nu hat (MLE)	237.8	nu star (bias corrected)	174.3
MLE Mean (bias corrected)	0.00552	MLE Sd (bias corrected)	0.00196

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	7.273	nu hat (KM)	174.6
Approximate Chi Square Value (174.56, α)	145	Adjusted Chi Square Value (174.56, β)	140.9
5% Gamma Approximate KM-UCL (use when n>=50)	0.00629	95% Gamma Adjusted KM-UCL (use when n<50)	0.00647

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0033	Mean	0.00589
Maximum	0.01	Median	0.0052
SD	0.00218	CV	0.369
k hat (MLE)	8.638	k star (bias corrected MLE)	6.534
Theta hat (MLE)	6.8204E-4	Theta star (bias corrected MLE)	9.0165E-4
nu hat (MLE)	207.3	nu star (bias corrected)	156.8
MLE Mean (bias corrected)	0.00589	MLE Sd (bias corrected)	0.0023
		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (156.82, α)	128.9	Adjusted Chi Square Value (156.82, β)	125
95% Gamma Approximate UCL (use when n>=50)	0.00717	95% Gamma Adjusted UCL (use when n<50)	0.00739

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.926	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.179	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.267	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.00526	Mean in Log Scale	-5.311
SD in Original Scale	0.00196	SD in Log Scale	0.375
95% t UCL (assumes normality of ROS data)	0.00628	95% Percentile Bootstrap UCL	0.00613
95% BCA Bootstrap UCL	0.00628	95% Bootstrap t UCL	0.00663
95% H-UCL (Log ROS)	0.00664		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-5.327	95% H-UCL (KM -Log)	0.00668
KM SD (logged)	0.395	95% Critical H Value (KM-Log)	2.02
KM Standard Error of Mean (logged)	0.119		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.00514	Mean in Log Scale	-5.385
SD in Original Scale	0.00218	SD in Log Scale	0.567
95% t UCL (Assumes normality)	0.00627	95% H-Stat UCL	0.00788

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.00628	95% KM (Percentile Bootstrap) UCL	0.00619

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Arsenic (As)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.0075	Mean	0.0948
Maximum	0.431	Median	0.0673
SD	0.113	Std. Error of Mean	0.0326
Coefficient of Variation	1.191	Skewness	2.745

Normal GOF Test

Shapiro Wilk Test Statistic	0.661	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.298	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	0.153	95% Adjusted-CLT UCL (Chen-1995)	0.176
		95% Modified-t UCL (Johnson-1978)	0.158

Gamma GOF Test

A-D Test Statistic	0.332	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.173	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.251	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.163	k star (bias corrected MLE)	0.928
Theta hat (MLE)	0.0815	Theta star (bias corrected MLE)	0.102
nu hat (MLE)	27.92	nu star (bias corrected)	22.28
MLE Mean (bias corrected)	0.0948	MLE Sd (bias corrected)	0.0984
		Approximate Chi Square Value (0.05)	12.55
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	11.44

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.168	95% Adjusted Gamma UCL (use when n<50)	0.185

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.974	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.144	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-4.893	Mean of logged Data	-2.843
Maximum of Logged Data	-0.842	SD of logged Data	1.063

Assuming Lognormal Distribution

95% H-UCL	0.27	90% Chebyshev (MVUE) UCL	0.191
95% Chebyshev (MVUE) UCL	0.234	97.5% Chebyshev (MVUE) UCL	0.293
99% Chebyshev (MVUE) UCL	0.41		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.148	95% Jackknife UCL	0.153
95% Standard Bootstrap UCL	0.147	95% Bootstrap-t UCL	0.232
95% Hall's Bootstrap UCL	0.364	95% Percentile Bootstrap UCL	0.154
95% BCA Bootstrap UCL	0.179		
90% Chebyshev(Mean, Sd) UCL	0.193	95% Chebyshev(Mean, Sd) UCL	0.237
97.5% Chebyshev(Mean, Sd) UCL	0.298	99% Chebyshev(Mean, Sd) UCL	0.419

Suggested UCL to Use

95% Adjusted Gamma UCL	0.185

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Barium (Ba)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	3.45	Mean	10.62
Maximum	21.4	Median	9.04
SD	6.017	Std. Error of Mean	1.737
Coefficient of Variation	0.566	Skewness	0.506

Normal GOF Test

Shapiro Wilk Test Statistic	0.924	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.188	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	13.74	95% Adjusted-CLT UCL (Chen-1995)	13.75
		95% Modified-t UCL (Johnson-1978)	13.78

Gamma GOF Test

A-D Test Statistic	0.288	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.738	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.14	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.247	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.199	k star (bias corrected MLE)	2.455
Theta hat (MLE)	3.32	Theta star (bias corrected MLE)	4.327
nu hat (MLE)	76.78	nu star (bias corrected)	58.92
MLE Mean (bias corrected)	10.62	MLE Sd (bias corrected)	6.779
		Approximate Chi Square Value (0.05)	42.27
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	40.13

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	14.81	95% Adjusted Gamma UCL (use when n<50)	15.6

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.94	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.135	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.238	Mean of logged Data	2.199
Maximum of Logged Data	3.063	SD of logged Data	0.621

Assuming Lognormal Distribution

95% H-UCL	16.81	90% Chebyshev (MVUE) UCL	16.7
95% Chebyshev (MVUE) UCL	19.4	97.5% Chebyshev (MVUE) UCL	23.15
99% Chebyshev (MVUE) UCL	30.52		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	13.48	95% Jackknife UCL	13.74
95% Standard Bootstrap UCL	13.29	95% Bootstrap-t UCL	14.01
95% Hall's Bootstrap UCL	13.61	95% Percentile Bootstrap UCL	13.24
95% BCA Bootstrap UCL	13.45		
90% Chebyshev(Mean, Sd) UCL	15.83	95% Chebyshev(Mean, Sd) UCL	18.19
97.5% Chebyshev(Mean, Sd) UCL	21.47	99% Chebyshev(Mean, Sd) UCL	27.9

Suggested UCL to Use

95% Student's-t UCL 13.74

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Boron (B)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	10.1	Mean	33.13
Maximum	62.6	Median	30
SD	20.48	Std. Error of Mean	5.912
Coefficient of Variation	0.618	Skewness	0.215

Normal GOF Test

Shapiro Wilk Test Statistic	0.87	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.212	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	43.75	95% Adjusted-CLT UCL (Chen-1995)	43.25
		95% Modified-t UCL (Johnson-1978)	43.81

Gamma GOF Test

A-D Test Statistic	0.643	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.74	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.202	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.248	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.503	k star (bias corrected MLE)	1.932
Theta hat (MLE)	13.24	Theta star (bias corrected MLE)	17.15
nu hat (MLE)	60.06	nu star (bias corrected)	46.38
MLE Mean (bias corrected)	33.13	MLE Sd (bias corrected)	23.83
		Approximate Chi Square Value (0.05)	31.75
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	29.92

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	48.4	95% Adjusted Gamma UCL (use when n<50)	51.37

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.874	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.198	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.313	Mean of logged Data	3.288
Maximum of Logged Data	4.137	SD of logged Data	0.713

Assuming Lognormal Distribution

95% H-UCL	58.3	90% Chebyshev (MVUE) UCL	55.38
95% Chebyshev (MVUE) UCL	65.21	97.5% Chebyshev (MVUE) UCL	78.86

99% Chebyshev (MVUE) UCL	105.7

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	42.86	95% Jackknife UCL	43.75
95% Standard Bootstrap UCL	42.5	95% Bootstrap-t UCL	44.62
95% Hall's Bootstrap UCL	41.7	95% Percentile Bootstrap UCL	43.13
95% BCA Bootstrap UCL	42.72		
90% Chebyshev(Mean, Sd) UCL	50.87	95% Chebyshev(Mean, Sd) UCL	58.9
97.5% Chebyshev(Mean, Sd) UCL	70.06	99% Chebyshev(Mean, Sd) UCL	91.96

Suggested UCL to Use

95% Student's-t UCL	43.75

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Cadmium (Cd)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	9
Number of Detects	8	Number of Non-Detects	4
Number of Distinct Detects	8	Number of Distinct Non-Detects	1
Minimum Detect	0.0031	Minimum Non-Detect	0.002
Maximum Detect	0.409	Maximum Non-Detect	0.002
Variance Detects	0.0162	Percent Non-Detects	33.33%
Mean Detects	0.136	SD Detects	0.127
Median Detects	0.13	CV Detects	0.935
Skewness Detects	1.488	Kurtosis Detects	3.119
Mean of Logged Detects	-2.657	SD of Logged Detects	1.588

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.857	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.234	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.313	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0913	Standard Error of Mean	0.0357
SD	0.116	95% KM (BCA) UCL	0.154
95% KM (t) UCL	0.156	95% KM (Percentile Bootstrap) UCL	0.152
95% KM (z) UCL	0.15	95% KM Bootstrap t UCL	0.182
90% KM Chebyshev UCL	0.199	95% KM Chebyshev UCL	0.247
97.5% KM Chebyshev UCL	0.315	99% KM Chebyshev UCL	0.447

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.411	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.74	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.242	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.303	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.886	k star (bias corrected MLE)	0.637
Theta hat (MLE)	0.154	Theta star (bias corrected MLE)	0.214
nu hat (MLE)	14.17	nu star (bias corrected)	10.19
MLE Mean (bias corrected)	0.136	MLE Sd (bias corrected)	0.17

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.622	nu hat (KM)	14.92
Approximate Chi Square Value (14.92, α)	7.206	Adjusted Chi Square Value (14.92, β)	6.404
5% Gamma Approximate KM-UCL (use when n>=50)	0.189	95% Gamma Adjusted KM-UCL (use when n<50)	0.213

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0031	Mean	0.094
Maximum	0.409	Median	0.0444
SD	0.119	CV	1.265
k hat (MLE)	0.649	k star (bias corrected MLE)	0.542
Theta hat (MLE)	0.145	Theta star (bias corrected MLE)	0.173
nu hat (MLE)	15.57	nu star (bias corrected)	13.01
MLE Mean (bias corrected)	0.094	MLE Sd (bias corrected)	0.128
		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (13.01, α)	5.9	Adjusted Chi Square Value (13.01, β)	5.187
95% Gamma Approximate UCL (use when n>=50)	0.207	95% Gamma Adjusted UCL (use when n<50)	0.236

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.855	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.271	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.313	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0914	Mean in Log Scale	-3.877
SD in Original Scale	0.121	SD in Log Scale	2.254
95% t UCL (assumes normality of ROS data)	0.154	95% Percentile Bootstrap UCL	0.15
95% BCA Bootstrap UCL	0.166	95% Bootstrap t UCL	0.193
95% H-UCL (Log ROS)	11.2		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-3.843	95% H-UCL (KM -Log)	4.445
KM SD (logged)	2.07	95% Critical H Value (KM-Log)	5.115
KM Standard Error of Mean (logged)	0.639		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.091	Mean in Log Scale	-4.074
SD in Original Scale	0.121	SD in Log Scale	2.447
95% t UCL (Assumes normality)	0.154	95% H-Stat UCL	27.31

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.156	95% KM (Percentile Bootstrap) UCL	0.152

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Calcium (Ca)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	2360	Mean	10321
Maximum	25000	Median	8395
SD	6173	Std. Error of Mean	1782
Coefficient of Variation	0.598	Skewness	1.344

Normal GOF Test

Shapiro Wilk Test Statistic	0.887	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.23	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	13521	95% Adjusted-CLT UCL (Chen-1995)	13991
		95% Modified-t UCL (Johnson-1978)	13636

Gamma GOF Test

A-D Test Statistic	0.284	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.738	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.164	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.247	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.268	k star (bias corrected MLE)	2.506
Theta hat (MLE)	3158	Theta star (bias corrected MLE)	4118
nu hat (MLE)	78.43	nu star (bias corrected)	60.15
MLE Mean (bias corrected)	10321	MLE Sd (bias corrected)	6519
		Approximate Chi Square Value (0.05)	43.32
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	41.15

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	14332	95% Adjusted Gamma UCL (use when n<50)	15089

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.964	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.16	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	7.766	Mean of logged Data	9.081
Maximum of Logged Data	10.13	SD of logged Data	0.612

Assuming Lognormal Distribution

95% H-UCL	16172	90% Chebyshev (MVUE) UCL	16121
95% Chebyshev (MVUE) UCL	18706	97.5% Chebyshev (MVUE) UCL	22295
99% Chebyshev (MVUE) UCL	29344		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	13252	95% Jackknife UCL	13521
95% Standard Bootstrap UCL	13185	95% Bootstrap-t UCL	15245
95% Hall's Bootstrap UCL	30499	95% Percentile Bootstrap UCL	13476
95% BCA Bootstrap UCL	13547		
90% Chebyshev(Mean, Sd) UCL	15667	95% Chebyshev(Mean, Sd) UCL	18088
97.5% Chebyshev(Mean, Sd) UCL	21449	99% Chebyshev(Mean, Sd) UCL	28051

Suggested UCL to Use

95% Student's-t UCL 13521

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Cesium (Cs)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	10
		Number of Missing Observations	0
Minimum	0.001	Mean	0.00483
Maximum	0.0182	Median	0.003
SD	0.00481	Std. Error of Mean	0.00139
Coefficient of Variation	0.995	Skewness	2.36

Normal GOF Test

Shapiro Wilk Test Statistic	0.674	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.32	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.00733	95% Adjusted-CLT UCL (Chen-1995)	0.00813
		95% Modified-t UCL (Johnson-1978)	0.00748

Gamma GOF Test

A-D Test Statistic	0.882	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.743	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.245	**Kolmogrov-Smirnoff Gamma GOF Test**	

5% K-S Critical Value	0.249	ıetected data appear Gamma Distributed at 5% Significance Lev	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.764	k star (bias corrected MLE)	1.379
Theta hat (MLE)	0.00274	Theta star (bias corrected MLE)	0.00351
nu hat (MLE)	42.34	nu star (bias corrected)	33.09
MLE Mean (bias corrected)	0.00483	MLE Sd (bias corrected)	0.00412
		Approximate Chi Square Value (0.05)	20.94
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	19.47

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.00764	95% Adjusted Gamma UCL (use when n<50)	0.00821

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.916	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.213	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-6.908	Mean of logged Data	-5.642
Maximum of Logged Data	-4.006	SD of logged Data	0.774

Assuming Lognormal Distribution

95% H-UCL	0.00863	90% Chebyshev (MVUE) UCL	0.0079
95% Chebyshev (MVUE) UCL	0.00938	97.5% Chebyshev (MVUE) UCL	0.0114
99% Chebyshev (MVUE) UCL	0.0155		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.00712	95% Jackknife UCL	0.00733
95% Standard Bootstrap UCL	0.00702	95% Bootstrap-t UCL	0.0137
95% Hall's Bootstrap UCL	0.0198	95% Percentile Bootstrap UCL	0.00712
95% BCA Bootstrap UCL	0.00836		
90% Chebyshev(Mean, Sd) UCL	0.009	95% Chebyshev(Mean, Sd) UCL	0.0109
97.5% Chebyshev(Mean, Sd) UCL	0.0135	99% Chebyshev(Mean, Sd) UCL	0.0186

Suggested UCL to Use

95% Adjusted Gamma UCL	0.00821

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Chromium (Cr)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
		Number of Missing Observations	0
Minimum	0.043	Mean	0.54

Maximum	1.73	Median	0.426
SD	0.422	Std. Error of Mean	0.122
Coefficient of Variation	0.782	Skewness	2.236

Normal GOF Test

Shapiro Wilk Test Statistic	0.758	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.28	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.759	95% Adjusted-CLT UCL (Chen-1995)	0.824
		95% Modified-t UCL (Johnson-1978)	0.772

Gamma GOF Test

A-D Test Statistic	0.647	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.742	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.231	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.249	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.985	k star (bias corrected MLE)	1.544
Theta hat (MLE)	0.272	Theta star (bias corrected MLE)	0.35
nu hat (MLE)	47.63	nu star (bias corrected)	37.06
MLE Mean (bias corrected)	0.54	MLE Sd (bias corrected)	0.434
		Approximate Chi Square Value (0.05)	24.12
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	22.54

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.829	95% Adjusted Gamma UCL (use when n<50)	0.887

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.846	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.284	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-3.147	Mean of logged Data	-0.889
Maximum of Logged Data	0.548	SD of logged Data	0.868

Assuming Lognormal Distribution

95% H-UCL	1.208	90% Chebyshev (MVUE) UCL	1.033
95% Chebyshev (MVUE) UCL	1.24	97.5% Chebyshev (MVUE) UCL	1.527
99% Chebyshev (MVUE) UCL	2.092		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.74	95% Jackknife UCL	0.759
95% Standard Bootstrap UCL	0.724	95% Bootstrap-t UCL	0.944

95% Hall's Bootstrap UCL	1.739	95% Percentile Bootstrap UCL	0.751
95% BCA Bootstrap UCL	0.832		
90% Chebyshev(Mean, Sd) UCL	0.905	95% Chebyshev(Mean, Sd) UCL	1.071
97.5% Chebyshev(Mean, Sd) UCL	1.301	99% Chebyshev(Mean, Sd) UCL	1.752

Suggested UCL to Use

95% Adjusted Gamma UCL 0.887

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Cobalt (Co)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.0092	Mean	0.546
Maximum	1.5	Median	0.349
SD	0.543	Std. Error of Mean	0.157
Coefficient of Variation	0.996	Skewness	0.502

Normal GOF Test

Shapiro Wilk Test Statistic	0.859	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.26	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.828	95% Adjusted-CLT UCL (Chen-1995)	0.828
		95% Modified-t UCL (Johnson-1978)	0.831

Gamma GOF Test

A-D Test Statistic	0.517	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.773	etected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.193	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.256	etected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.657	k star (bias corrected MLE)	0.548
Theta hat (MLE)	0.83	Theta star (bias corrected MLE)	0.995
nu hat (MLE)	15.77	nu star (bias corrected)	13.16
MLE Mean (bias corrected)	0.546	MLE Sd (bias corrected)	0.737
		Approximate Chi Square Value (0.05)	6.002
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	5.282

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	1.197	95% Adjusted Gamma UCL (use when n<50)	1.36

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.899	**Shapiro Wilk Lognormal GOF Test**	

5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.198	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-4.689	Mean of logged Data	-1.533
Maximum of Logged Data	0.405	SD of logged Data	1.75

Assuming Lognormal Distribution

95% H-UCL	10.27	90% Chebyshev (MVUE) UCL	2.064
95% Chebyshev (MVUE) UCL	2.647	97.5% Chebyshev (MVUE) UCL	3.456
99% Chebyshev (MVUE) UCL	5.045		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.804	95% Jackknife UCL	0.828
95% Standard Bootstrap UCL	0.802	95% Bootstrap-t UCL	0.847
95% Hall's Bootstrap UCL	0.798	95% Percentile Bootstrap UCL	0.8
95% BCA Bootstrap UCL	0.801		
90% Chebyshev(Mean, Sd) UCL	1.016	95% Chebyshev(Mean, Sd) UCL	1.23
97.5% Chebyshev(Mean, Sd) UCL	1.525	99% Chebyshev(Mean, Sd) UCL	2.107

Suggested UCL to Use

95% Adjusted Gamma UCL	1.36

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Copper (Cu)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	1.24	Mean	2.905
Maximum	5.63	Median	2.75
SD	1.258	Std. Error of Mean	0.363
Coefficient of Variation	0.433	Skewness	0.874

Normal GOF Test

Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.136	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	3.557	95% Adjusted-CLT UCL (Chen-1995)	3.6
		95% Modified-t UCL (Johnson-1978)	3.572

Gamma GOF Test

A-D Test Statistic	0.105	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.732	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.0926	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.246	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	6.063	k star (bias corrected MLE)	4.602
Theta hat (MLE)	0.479	Theta star (bias corrected MLE)	0.631
nu hat (MLE)	145.5	nu star (bias corrected)	110.5
MLE Mean (bias corrected)	2.905	MLE Sd (bias corrected)	1.354
		Approximate Chi Square Value (0.05)	87.2
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	84.05

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	3.68	95% Adjusted Gamma UCL (use when n<50)	3.818

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.995	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0732	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.215	Mean of logged Data	0.982
Maximum of Logged Data	1.728	SD of logged Data	0.433

Assuming Lognormal Distribution

95% H-UCL	3.839	90% Chebyshev (MVUE) UCL	4.019
95% Chebyshev (MVUE) UCL	4.522	97.5% Chebyshev (MVUE) UCL	5.22
99% Chebyshev (MVUE) UCL	6.593		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	3.502	95% Jackknife UCL	3.557
95% Standard Bootstrap UCL	3.478	95% Bootstrap-t UCL	3.687
95% Hall's Bootstrap UCL	3.815	95% Percentile Bootstrap UCL	3.49
95% BCA Bootstrap UCL	3.548		
90% Chebyshev(Mean, Sd) UCL	3.994	95% Chebyshev(Mean, Sd) UCL	4.488
97.5% Chebyshev(Mean, Sd) UCL	5.172	99% Chebyshev(Mean, Sd) UCL	6.518

Suggested UCL to Use

95% Student's-t UCL	3.557

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Gallium (Ga)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
Number of Detects	10	Number of Non-Detects	2
Number of Distinct Detects	10	Number of Distinct Non-Detects	1
Minimum Detect	0.0104	Minimum Non-Detect	0.004
Maximum Detect	0.0289	Maximum Non-Detect	0.004
Variance Detects	2.6660E-5	Percent Non-Detects	16.67%
Mean Detects	0.0158	SD Detects	0.00516
Median Detects	0.0155	CV Detects	0.327
Skewness Detects	1.959	Kurtosis Detects	5.178
Mean of Logged Detects	-4.187	SD of Logged Detects	0.285

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.789	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.842	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.301	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.28	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0138	Standard Error of Mean	0.00191
SD	0.00627	95% KM (BCA) UCL	0.0165
95% KM (t) UCL	0.0173	95% KM (Percentile Bootstrap) UCL	0.0167
95% KM (z) UCL	0.017	95% KM Bootstrap t UCL	0.0174
90% KM Chebyshev UCL	0.0196	95% KM Chebyshev UCL	0.0222
97.5% KM Chebyshev UCL	0.0258	99% KM Chebyshev UCL	0.0328

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.571	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.725	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.252	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.267	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.78	k star (bias corrected MLE)	9.01
Theta hat (MLE)	0.00124	Theta star (bias corrected MLE)	0.00175
nu hat (MLE)	255.5	nu star (bias corrected)	180.2
MLE Mean (bias corrected)	0.0158	MLE Sd (bias corrected)	0.00526

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.865	nu hat (KM)	116.8
Approximate Chi Square Value (116.76, α)	92.81	Adjusted Chi Square Value (116.76, β)	89.56
5% Gamma Approximate KM-UCL (use when n>=50)	0.0174	95% Gamma Adjusted KM-UCL (use when n<50)	0.018

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.0148
Maximum	0.0289	Median	0.0146
SD	0.00519	CV	0.35
k hat (MLE)	11	k star (bias corrected MLE)	8.306
Theta hat (MLE)	0.00135	Theta star (bias corrected MLE)	0.00179
nu hat (MLE)	264	nu star (bias corrected)	199.3
MLE Mean (bias corrected)	0.0148	MLE Sd (bias corrected)	0.00515

		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (199.34, α)	167.7	Adjusted Chi Square Value (199.34, β)	163.2
95% Gamma Approximate UCL (use when n>=50)	0.0176	95% Gamma Adjusted UCL (use when n<50)	0.0181

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.895	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.239	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.28	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0145	Mean in Log Scale	-4.297
SD in Original Scale	0.0056	SD in Log Scale	0.365
95% t UCL (assumes normality of ROS data)	0.0174	95% Percentile Bootstrap UCL	0.0172
95% BCA Bootstrap UCL	0.0176	95% Bootstrap t UCL	0.0184
95% H-UCL (Log ROS)	0.0181		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-4.41	95% H-UCL (KM -Log)	0.0205
KM SD (logged)	0.555	95% Critical H Value (KM-Log)	2.211
KM Standard Error of Mean (logged)	0.169		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.0135	Mean in Log Scale	-4.525
SD in Original Scale	0.00712	SD in Log Scale	0.83
95% t UCL (Assumes normality)	0.0172	95% H-Stat UCL	0.0295

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	0.0165	95% GROS Adjusted Gamma UCL	0.0181
95% Adjusted Gamma KM-UCL	0.018		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Iron (Fe)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
		Number of Missing Observations	0
Minimum	18	Mean	87.24
Maximum	172	Median	89.8
SD	38.23	Std. Error of Mean	11.04
Coefficient of Variation	0.438	Skewness	0.312

Normal GOF Test

Shapiro Wilk Test Statistic	0.916	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level

Lilliefors Test Statistic	0.219	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	107.1	95% Adjusted-CLT UCL (Chen-1995)	106.5
		95% Modified-t UCL (Johnson-1978)	107.2

Gamma GOF Test

A-D Test Statistic	0.781	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.735	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.279	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.246	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.263	k star (bias corrected MLE)	3.253
Theta hat (MLE)	20.47	Theta star (bias corrected MLE)	26.82
nu hat (MLE)	102.3	nu star (bias corrected)	78.06
MLE Mean (bias corrected)	87.24	MLE Sd (bias corrected)	48.37
		Approximate Chi Square Value (0.05)	58.71
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	56.15

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	116	95% Adjusted Gamma UCL (use when n<50)	121.3

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.821	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.314	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.89	Mean of logged Data	4.347
Maximum of Logged Data	5.147	SD of logged Data	0.582

Assuming Lognormal Distribution

95% H-UCL	135.6	90% Chebyshev (MVUE) UCL	136.8
95% Chebyshev (MVUE) UCL	157.9	97.5% Chebyshev (MVUE) UCL	187.3
99% Chebyshev (MVUE) UCL	245		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	105.4	95% Jackknife UCL	107.1
95% Standard Bootstrap UCL	105	95% Bootstrap-t UCL	107.4
95% Hall's Bootstrap UCL	111.8	95% Percentile Bootstrap UCL	104.8
95% BCA Bootstrap UCL	103.9		
90% Chebyshev(Mean, Sd) UCL	120.3	95% Chebyshev(Mean, Sd) UCL	135.3
97.5% Chebyshev(Mean, Sd) UCL	156.2	99% Chebyshev(Mean, Sd) UCL	197

Suggested UCL to Use

95% Student's-t UCL	107.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Lead (Pb)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.0092	Mean	0.0435
Maximum	0.083	Median	0.0418
SD	0.0191	Std. Error of Mean	0.00552
Coefficient of Variation	0.439	Skewness	0.44

Normal GOF Test

Shapiro Wilk Test Statistic	0.949	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.203	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.0534	95% Adjusted-CLT UCL (Chen-1995)	0.0534
		95% Modified-t UCL (Johnson-1978)	0.0536

Gamma GOF Test

A-D Test Statistic	0.482	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.734	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.192	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.246	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.535	k star (bias corrected MLE)	3.457
Theta hat (MLE)	0.0096	Theta star (bias corrected MLE)	0.0126
nu hat (MLE)	108.8	nu star (bias corrected)	82.96
MLE Mean (bias corrected)	0.0435	MLE Sd (bias corrected)	0.0234
		Approximate Chi Square Value (0.05)	62.97
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	60.32

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.0573	95% Adjusted Gamma UCL (use when n<50)	0.0599

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.861	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.227	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-4.689	Mean of logged Data	-3.249

Maximum of Logged Data	-2.489	SD of logged Data	0.555

Assuming Lognormal Distribution

95% H-UCL	0.0656	90% Chebyshev (MVUE) UCL	0.0667
95% Chebyshev (MVUE) UCL	0.0767	97.5% Chebyshev (MVUE) UCL	0.0906
99% Chebyshev (MVUE) UCL	0.118		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0526	95% Jackknife UCL	0.0534
95% Standard Bootstrap UCL	0.0522	95% Bootstrap-t UCL	0.0551
95% Hall's Bootstrap UCL	0.059	95% Percentile Bootstrap UCL	0.0523
95% BCA Bootstrap UCL	0.0532		
90% Chebyshev(Mean, Sd) UCL	0.0601	95% Chebyshev(Mean, Sd) UCL	0.0676
97.5% Chebyshev(Mean, Sd) UCL	0.078	99% Chebyshev(Mean, Sd) UCL	0.0985

Suggested UCL to Use

95% Student's-t UCL	0.0534

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Lithium (Li)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	8
Number of Detects	7	Number of Non-Detects	5
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	0.06	Minimum Non-Detect	0.02
Maximum Detect	1.01	Maximum Non-Detect	0.02
Variance Detects	0.119	Percent Non-Detects	41.67%
Mean Detects	0.32	SD Detects	0.346
Median Detects	0.123	CV Detects	1.08
Skewness Detects	1.624	Kurtosis Detects	2.421
Mean of Logged Detects	-1.616	SD of Logged Detects	1.046

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.79	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.287	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.195	Standard Error of Mean	0.0891
SD	0.286	95% KM (BCA) UCL	0.354
95% KM (t) UCL	0.355	95% KM (Percentile Bootstrap) UCL	0.342
95% KM (z) UCL	0.341	95% KM Bootstrap t UCL	0.55
90% KM Chebyshev UCL	0.462	95% KM Chebyshev UCL	0.583
97.5% KM Chebyshev UCL	0.751	99% KM Chebyshev UCL	1.081

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.444	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.725	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.288	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.319	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.187	k star (bias corrected MLE)	0.774
Theta hat (MLE)	0.269	Theta star (bias corrected MLE)	0.414
nu hat (MLE)	16.62	nu star (bias corrected)	10.83
MLE Mean (bias corrected)	0.32	MLE Sd (bias corrected)	0.364

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.466	nu hat (KM)	11.19
Approximate Chi Square Value (11.19, α)	4.697	Adjusted Chi Square Value (11.19, β)	4.075
5% Gamma Approximate KM-UCL (use when n>=50)	0.464	95% Gamma Adjusted KM-UCL (use when n<50)	0.535

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.191
Maximum	1.01	Median	0.073
SD	0.301	CV	1.577
k hat (MLE)	0.523	k star (bias corrected MLE)	0.448
Theta hat (MLE)	0.365	Theta star (bias corrected MLE)	0.426
nu hat (MLE)	12.56	nu star (bias corrected)	10.75
MLE Mean (bias corrected)	0.191	MLE Sd (bias corrected)	0.285
		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (10.75, α)	4.417	Adjusted Chi Square Value (10.75, β)	3.817
95% Gamma Approximate UCL (use when n>=50)	0.465	95% Gamma Adjusted UCL (use when n<50)	0.538

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.248	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.192	Mean in Log Scale	-2.844
SD in Original Scale	0.3	SD in Log Scale	1.777
95% t UCL (assumes normality of ROS data)	0.348	95% Percentile Bootstrap UCL	0.349
95% BCA Bootstrap UCL	0.38	95% Bootstrap t UCL	0.546
95% H-UCL (Log ROS)	3.116		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-2.573	95% H-UCL (KM -Log)	0.823
KM SD (logged)	1.352	95% Critical H Value (KM-Log)	3.592
KM Standard Error of Mean (logged)	0.422		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.191	Mean in Log Scale	-2.862
SD in Original Scale	0.301	SD in Log Scale	1.722

95% t UCL (Assumes normality)	0.347	95% H-Stat UCL	2.425

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.355	95% KM (Percentile Bootstrap) UCL	0.342

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Magnesium (Mg)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	1620	Mean	2728
Maximum	4880	Median	2165
SD	1208	Std. Error of Mean	348.8
Coefficient of Variation	0.443	Skewness	1.073

Normal GOF Test

Shapiro Wilk Test Statistic	0.785	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.302	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	3355	95% Adjusted-CLT UCL (Chen-1995)	3418
		95% Modified-t UCL (Johnson-1978)	3373

Gamma GOF Test

A-D Test Statistic	0.968	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.731	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.277	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.246	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	6.528	k star (bias corrected MLE)	4.951
Theta hat (MLE)	418	Theta star (bias corrected MLE)	551
nu hat (MLE)	156.7	nu star (bias corrected)	118.8
MLE Mean (bias corrected)	2728	MLE Sd (bias corrected)	1226
		Approximate Chi Square Value (0.05)	94.66
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	91.37

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	3425	95% Adjusted Gamma UCL (use when n<50)	3548

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.849	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.254	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level	

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	7.39	Mean of logged Data	7.833
Maximum of Logged Data	8.493	SD of logged Data	0.399

Assuming Lognormal Distribution

95% H-UCL	3486	90% Chebyshev (MVUE) UCL	3666
95% Chebyshev (MVUE) UCL	4097	97.5% Chebyshev (MVUE) UCL	4696
99% Chebyshev (MVUE) UCL	5873		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	3302	95% Jackknife UCL	3355
95% Standard Bootstrap UCL	3292	95% Bootstrap-t UCL	3594
95% Hall's Bootstrap UCL	3192	95% Percentile Bootstrap UCL	3322
95% BCA Bootstrap UCL	3377		
90% Chebyshev(Mean, Sd) UCL	3775	95% Chebyshev(Mean, Sd) UCL	4249
97.5% Chebyshev(Mean, Sd) UCL	4907	99% Chebyshev(Mean, Sd) UCL	6199

Suggested UCL to Use

95% Student's-t UCL	3355	or 95% Modified-t UCL	3373

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Manganese (Mn)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	12.7	Mean	36.13
Maximum	93.1	Median	34.05
SD	24.18	Std. Error of Mean	6.98
Coefficient of Variation	0.669	Skewness	1.155

Normal GOF Test

Shapiro Wilk Test Statistic	0.869	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.175	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	48.67	95% Adjusted-CLT UCL (Chen-1995)	50.1
		95% Modified-t UCL (Johnson-1978)	49.06

Gamma GOF Test

A-D Test Statistic	0.503	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.74	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.195	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.248	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.589	k star (bias corrected MLE)	1.997
Theta hat (MLE)	13.96	Theta star (bias corrected MLE)	18.09
nu hat (MLE)	62.13	nu star (bias corrected)	47.93
MLE Mean (bias corrected)	36.13	MLE Sd (bias corrected)	25.57
		Approximate Chi Square Value (0.05)	33.04
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	31.16

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	52.42	95% Adjusted Gamma UCL (use when n<50)	55.58

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.903	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.194	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.542	Mean of logged Data	3.382
Maximum of Logged Data	4.534	SD of logged Data	0.679

Assuming Lognormal Distribution

95% H-UCL	60.31	90% Chebyshev (MVUE) UCL	58.36
95% Chebyshev (MVUE) UCL	68.38	97.5% Chebyshev (MVUE) UCL	82.3
99% Chebyshev (MVUE) UCL	109.6		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	47.62	95% Jackknife UCL	48.67
95% Standard Bootstrap UCL	47.24	95% Bootstrap-t UCL	52.72
95% Hall's Bootstrap UCL	54.19	95% Percentile Bootstrap UCL	47.53
95% BCA Bootstrap UCL	48.93		
90% Chebyshev(Mean, Sd) UCL	57.07	95% Chebyshev(Mean, Sd) UCL	66.56
97.5% Chebyshev(Mean, Sd) UCL	79.73	99% Chebyshev(Mean, Sd) UCL	105.6

Suggested UCL to Use

95% Student's-t UCL	48.67

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Mercury (Hg)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.001	Mean	0.0072
Maximum	0.0102	Median	0.00765
SD	0.0025	Std. Error of Mean	7.2310E-4
Coefficient of Variation	0.348	Skewness	-1.338

Normal GOF Test

Shapiro Wilk Test Statistic	0.899	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.141	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.0085	95% Adjusted-CLT UCL (Chen-1995)	0.00809
		95% Modified-t UCL (Johnson-1978)	0.00845

Gamma GOF Test

A-D Test Statistic	1.131	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.734	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.24	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.246	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.508	k star (bias corrected MLE)	3.436
Theta hat (MLE)	0.0016	Theta star (bias corrected MLE)	0.0021
nu hat (MLE)	108.2	nu star (bias corrected)	82.47
MLE Mean (bias corrected)	0.0072	MLE Sd (bias corrected)	0.00388
		Approximate Chi Square Value (0.05)	62.54
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	59.9

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.00949	95% Adjusted Gamma UCL (use when n<50)	0.00991

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.647	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.296	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-6.908	Mean of logged Data	-5.049
Maximum of Logged Data	-4.585	SD of logged Data	0.622

Assuming Lognormal Distribution

95% H-UCL	0.012	90% Chebyshev (MVUE) UCL	0.0119
95% Chebyshev (MVUE) UCL	0.0138	97.5% Chebyshev (MVUE) UCL	0.0165
99% Chebyshev (MVUE) UCL	0.0218		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.00839	95% Jackknife UCL	0.0085
95% Standard Bootstrap UCL	0.00835	95% Bootstrap-t UCL	0.00824
95% Hall's Bootstrap UCL	0.00821	95% Percentile Bootstrap UCL	0.00825
95% BCA Bootstrap UCL	0.00813		
90% Chebyshev(Mean, Sd) UCL	0.00937	95% Chebyshev(Mean, Sd) UCL	0.0104
97.5% Chebyshev(Mean, Sd) UCL	0.0117	99% Chebyshev(Mean, Sd) UCL	0.0144

Suggested UCL to Use

95% Student's-t UCL 0.0085

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Molybdenum (Mo)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.0974	Mean	0.349
Maximum	1.33	Median	0.294
SD	0.341	Std. Error of Mean	0.0983
Coefficient of Variation	0.976	Skewness	2.482

Normal GOF Test

Shapiro Wilk Test Statistic	0.698	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.526	95% Adjusted-CLT UCL (Chen-1995)	0.586
		95% Modified-t UCL (Johnson-1978)	0.537

Gamma GOF Test

A-D Test Statistic	0.529	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.186	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.249	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.797	k star (bias corrected MLE)	1.403
Theta hat (MLE)	0.194	Theta star (bias corrected MLE)	0.249
nu hat (MLE)	43.13	nu star (bias corrected)	33.68
MLE Mean (bias corrected)	0.349	MLE Sd (bias corrected)	0.295

		Approximate Chi Square Value (0.05)	21.41
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	19.93

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	0.549	95% Adjusted Gamma UCL (use when n<50)	0.59

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.154	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-2.329	Mean of logged Data	-1.356
Maximum of Logged Data	0.285	SD of logged Data	0.77

Assuming Lognormal Distribution

95% H-UCL	0.622	90% Chebyshev (MVUE) UCL	0.571
95% Chebyshev (MVUE) UCL	0.678	97.5% Chebyshev (MVUE) UCL	0.826
99% Chebyshev (MVUE) UCL	1.116		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.511	95% Jackknife UCL	0.526
95% Standard Bootstrap UCL	0.502	95% Bootstrap-t UCL	0.752
95% Hall's Bootstrap UCL	1.22	95% Percentile Bootstrap UCL	0.514
95% BCA Bootstrap UCL	0.608		
90% Chebyshev(Mean, Sd) UCL	0.644	95% Chebyshev(Mean, Sd) UCL	0.778
97.5% Chebyshev(Mean, Sd) UCL	0.963	99% Chebyshev(Mean, Sd) UCL	1.327

Suggested UCL to Use

95% Adjusted Gamma UCL	0.59

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Nickel (Ni)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.221	Mean	0.917
Maximum	2.38	Median	0.744
SD	0.611	Std. Error of Mean	0.176
Coefficient of Variation	0.666	Skewness	1.455

Normal GOF Test

Shapiro Wilk Test Statistic	0.854	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.228	**Lilliefors GOF Test**	

5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1.234	95% Adjusted-CLT UCL (Chen-1995)	1.286
		95% Modified-t UCL (Johnson-1978)	1.246

Gamma GOF Test

A-D Test Statistic	0.385	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.74	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.187	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.248	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.707	k star (bias corrected MLE)	2.086
Theta hat (MLE)	0.339	Theta star (bias corrected MLE)	0.44
nu hat (MLE)	64.97	nu star (bias corrected)	50.06
MLE Mean (bias corrected)	0.917	MLE Sd (bias corrected)	0.635
		Approximate Chi Square Value (0.05)	34.82
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	32.89

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.319	95% Adjusted Gamma UCL (use when n<50)	1.396

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.941	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.226	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-1.51	Mean of logged Data	-0.282
Maximum of Logged Data	0.867	SD of logged Data	0.674

Assuming Lognormal Distribution

95% H-UCL	1.533	90% Chebyshev (MVUE) UCL	1.487
95% Chebyshev (MVUE) UCL	1.741	97.5% Chebyshev (MVUE) UCL	2.094
99% Chebyshev (MVUE) UCL	2.787		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.207	95% Jackknife UCL	1.234
95% Standard Bootstrap UCL	1.193	95% Bootstrap-t UCL	1.463
95% Hall's Bootstrap UCL	3.121	95% Percentile Bootstrap UCL	1.228
95% BCA Bootstrap UCL	1.278		
90% Chebyshev(Mean, Sd) UCL	1.446	95% Chebyshev(Mean, Sd) UCL	1.686
97.5% Chebyshev(Mean, Sd) UCL	2.018	99% Chebyshev(Mean, Sd) UCL	2.671

Suggested UCL to Use

95% Student's-t UCL	1.234

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Phosphorus (P)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	719	Mean	1405
Maximum	2790	Median	1180
SD	706.7	Std. Error of Mean	204
Coefficient of Variation	0.503	Skewness	1.318

Normal GOF Test

Shapiro Wilk Test Statistic	0.807	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.265	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	1771	95% Adjusted-CLT UCL (Chen-1995)	1824
		95% Modified-t UCL (Johnson-1978)	1784

Gamma GOF Test

A-D Test Statistic	0.643	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.732	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.226	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.246	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.246	k star (bias corrected MLE)	3.99
Theta hat (MLE)	267.9	Theta star (bias corrected MLE)	352.2
nu hat (MLE)	125.9	nu star (bias corrected)	95.76
MLE Mean (bias corrected)	1405	MLE Sd (bias corrected)	703.4
		Approximate Chi Square Value (0.05)	74.19
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	71.29

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	1814	95% Adjusted Gamma UCL (use when n<50)	1887

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.198	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	6.578	Mean of logged Data	7.15
Maximum of Logged Data	7.934	SD of logged Data	0.446

Assuming Lognormal Distribution

95% H-UCL	1860	90% Chebyshev (MVUE) UCL	1943
95% Chebyshev (MVUE) UCL	2192	97.5% Chebyshev (MVUE) UCL	2537
99% Chebyshev (MVUE) UCL	3215		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1741	95% Jackknife UCL	1771
95% Standard Bootstrap UCL	1720	95% Bootstrap-t UCL	2066
95% Hall's Bootstrap UCL	2127	95% Percentile Bootstrap UCL	1745
95% BCA Bootstrap UCL	1808		
90% Chebyshev(Mean, Sd) UCL	2017	95% Chebyshev(Mean, Sd) UCL	2294
97.5% Chebyshev(Mean, Sd) UCL	2679	99% Chebyshev(Mean, Sd) UCL	3435

Suggested UCL to Use

95% Adjusted Gamma UCL 1887

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Potassium (K)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	2680	Mean	6737
Maximum	17500	Median	5970
SD	3864	Std. Error of Mean	1115
Coefficient of Variation	0.574	Skewness	2.114

Normal GOF Test

Shapiro Wilk Test Statistic	0.784	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.277	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	8740	95% Adjusted-CLT UCL (Chen-1995)	9299
		95% Modified-t UCL (Johnson-1978)	8853

Gamma GOF Test

A-D Test Statistic	0.448	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.735	etected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.207	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.246	etected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.329	k star (bias corrected MLE)	3.302
Theta hat (MLE)	1556	Theta star (bias corrected MLE)	2040
nu hat (MLE)	103.9	nu star (bias corrected)	79.25
MLE Mean (bias corrected)	6737	MLE Sd (bias corrected)	3707
		Approximate Chi Square Value (0.05)	59.74
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	57.16

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	8937	95% Adjusted Gamma UCL (use when n<50)	9340

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.945	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.179	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	7.894	Mean of logged Data	8.695
Maximum of Logged Data	9.77	SD of logged Data	0.498

Assuming Lognormal Distribution

95% H-UCL	9320	90% Chebyshev (MVUE) UCL	9636
95% Chebyshev (MVUE) UCL	10971	97.5% Chebyshev (MVUE) UCL	12825
99% Chebyshev (MVUE) UCL	16467		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	8571	95% Jackknife UCL	8740
95% Standard Bootstrap UCL	8521	95% Bootstrap-t UCL	10199
95% Hall's Bootstrap UCL	17784	95% Percentile Bootstrap UCL	8705
95% BCA Bootstrap UCL	9408		
90% Chebyshev(Mean, Sd) UCL	10083	95% Chebyshev(Mean, Sd) UCL	11598
97.5% Chebyshev(Mean, Sd) UCL	13702	99% Chebyshev(Mean, Sd) UCL	17834

Suggested UCL to Use

95% Adjusted Gamma UCL	9340

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Rhenium (Re)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	8
Number of Detects	7	Number of Non-Detects	5
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	0.0076	Minimum Non-Detect	0.002
Maximum Detect	0.0958	Maximum Non-Detect	0.002
Variance Detects	0.00112	Percent Non-Detects	41.67%
Mean Detects	0.0463	SD Detects	0.0334
Median Detects	0.0367	CV Detects	0.721

Skewness Detects	0.439	Kurtosis Detects	-1.32
Mean of Logged Detects	-3.376	SD of Logged Detects	0.925

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.938	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.184	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0278	Standard Error of Mean	0.01
SD	0.0322	95% KM (BCA) UCL	0.0442
95% KM (t) UCL	0.0458	95% KM (Percentile Bootstrap) UCL	0.0435
95% KM (z) UCL	0.0443	95% KM Bootstrap t UCL	0.0504
90% KM Chebyshev UCL	0.0579	95% KM Chebyshev UCL	0.0715
97.5% KM Chebyshev UCL	0.0905	99% KM Chebyshev UCL	0.128

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.209	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.717	etected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.144	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.316	etected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.799	k star (bias corrected MLE)	1.123
Theta hat (MLE)	0.0257	Theta star (bias corrected MLE)	0.0412
nu hat (MLE)	25.18	nu star (bias corrected)	15.72
MLE Mean (bias corrected)	0.0463	MLE Sd (bias corrected)	0.0437

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.749	nu hat (KM)	17.98
Approximate Chi Square Value (17.98, α)	9.374	Adjusted Chi Square Value (17.98, β)	8.441
5% Gamma Approximate KM-UCL (use when n>=50)	0.0534	95% Gamma Adjusted KM-UCL (use when n<50)	0.0593

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0076	Mean	0.0312
Maximum	0.0958	Median	0.0122
SD	0.0309	CV	0.993
k hat (MLE)	1.333	k star (bias corrected MLE)	1.056
Theta hat (MLE)	0.0234	Theta star (bias corrected MLE)	0.0295
nu hat (MLE)	32	nu star (bias corrected)	25.33
MLE Mean (bias corrected)	0.0312	MLE Sd (bias corrected)	0.0303
		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (25.33, α)	14.87	Adjusted Chi Square Value (25.33, β)	13.66
95% Gamma Approximate UCL (use when n>=50)	0.0531	95% Gamma Adjusted UCL (use when n<50)	0.0578

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.942	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.157	**Lilliefors GOF Test**	

5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0284	Mean in Log Scale	-4.417
SD in Original Scale	0.0331	SD in Log Scale	1.52
95% t UCL (assumes normality of ROS data)	0.0456	95% Percentile Bootstrap UCL	0.0439
95% BCA Bootstrap UCL	0.0473	95% Bootstrap t UCL	0.0525
95% H-UCL (Log ROS)	0.232		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-4.559	95% H-UCL (KM -Log)	0.221
KM SD (logged)	1.545	95% Critical H Value (KM-Log)	3.989
KM Standard Error of Mean (logged)	0.482		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0274	Mean in Log Scale	-4.848
SD in Original Scale	0.0339	SD in Log Scale	1.943
95% t UCL (Assumes normality)	0.045	95% H-Stat UCL	0.88

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.0458	95% KM (Percentile Bootstrap) UCL	0.0435

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Rubidium (Rb)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.124	Mean	0.938
Maximum	4.03	Median	0.439
SD	1.132	Std. Error of Mean	0.327
Coefficient of Variation	1.207	Skewness	2.108

Normal GOF Test

Shapiro Wilk Test Statistic	0.734	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.253	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		95% UCLs (Adjusted for Skewness)	
95% Student's-t UCL	1.524	95% Adjusted-CLT UCL (Chen-1995)	1.687
		95% Modified-t UCL (Johnson-1978)	1.557

Gamma GOF Test

A-D Test Statistic	0.483	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.757	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.204	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.253	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.981	k star (bias corrected MLE)	0.791
Theta hat (MLE)	0.956	Theta star (bias corrected MLE)	1.185
nu hat (MLE)	23.54	nu star (bias corrected)	18.98
MLE Mean (bias corrected)	0.938	MLE Sd (bias corrected)	1.054
		Approximate Chi Square Value (0.05)	10.11
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	9.132

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1.761	95% Adjusted Gamma UCL (use when n<50)	1.949

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.147	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-2.087	Mean of logged Data	-0.654
Maximum of Logged Data	1.394	SD of logged Data	1.137

Assuming Lognormal Distribution

95% H-UCL	2.937	90% Chebyshev (MVUE) UCL	1.891
95% Chebyshev (MVUE) UCL	2.333	97.5% Chebyshev (MVUE) UCL	2.945
99% Chebyshev (MVUE) UCL	4.149		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	1.475	95% Jackknife UCL	1.524
95% Standard Bootstrap UCL	1.468	95% Bootstrap-t UCL	1.976
95% Hall's Bootstrap UCL	3.403	95% Percentile Bootstrap UCL	1.501
95% BCA Bootstrap UCL	1.734		
90% Chebyshev(Mean, Sd) UCL	1.918	95% Chebyshev(Mean, Sd) UCL	2.361
97.5% Chebyshev(Mean, Sd) UCL	2.978	99% Chebyshev(Mean, Sd) UCL	4.188

Suggested UCL to Use

95% Student's-t UCL	1.524

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Selenium (Se)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
Number of Detects	10	Number of Non-Detects	2
Number of Distinct Detects	10	Number of Distinct Non-Detects	1
Minimum Detect	0.022	Minimum Non-Detect	0.02
Maximum Detect	0.27	Maximum Non-Detect	0.02
Variance Detects	0.00685	Percent Non-Detects	16.67%
Mean Detects	0.0995	SD Detects	0.0828
Median Detects	0.0615	CV Detects	0.832
Skewness Detects	1.244	Kurtosis Detects	0.485
Mean of Logged Detects	-2.603	SD of Logged Detects	0.807

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.834	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.842	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.275	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.28	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0863	Standard Error of Mean	0.0236
SD	0.0776	95% KM (BCA) UCL	0.127
95% KM (t) UCL	0.129	95% KM (Percentile Bootstrap) UCL	0.125
95% KM (z) UCL	0.125	95% KM Bootstrap t UCL	0.154
90% KM Chebyshev UCL	0.157	95% KM Chebyshev UCL	0.189
97.5% KM Chebyshev UCL	0.234	99% KM Chebyshev UCL	0.321

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.406	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.737	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.233	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.27	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.843	k star (bias corrected MLE)	1.356
Theta hat (MLE)	0.054	Theta star (bias corrected MLE)	0.0734
nu hat (MLE)	36.85	nu star (bias corrected)	27.13
MLE Mean (bias corrected)	0.0995	MLE Sd (bias corrected)	0.0854

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	1.236	nu hat (KM)	29.67
Approximate Chi Square Value (29.67, α)	18.23	Adjusted Chi Square Value (29.67, β)	16.87
5% Gamma Approximate KM-UCL (use when n>=50)	0.14	95% Gamma Adjusted KM-UCL (use when n<50)	0.152

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.0846
Maximum	0.27	Median	0.0565
SD	0.0826	CV	0.976
k hat (MLE)	1.211	k star (bias corrected MLE)	0.964
Theta hat (MLE)	0.0698	Theta star (bias corrected MLE)	0.0877
nu hat (MLE)	29.07	nu star (bias corrected)	23.13
MLE Mean (bias corrected)	0.0846	MLE Sd (bias corrected)	0.0862

		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (23.13, α)	13.19	Adjusted Chi Square Value (23.13, β)	12.06
95% Gamma Approximate UCL (use when n>=50)	0.148	95% Gamma Adjusted UCL (use when n<50)	0.162

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.959	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.187	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.28	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0847	Mean in Log Scale	-2.93
SD in Original Scale	0.0825	SD in Log Scale	1.06
95% t UCL (assumes normality of ROS data)	0.127	95% Percentile Bootstrap UCL	0.122
95% BCA Bootstrap UCL	0.129	95% Bootstrap t UCL	0.153
95% H-UCL (Log ROS)	0.247		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-2.821	95% H-UCL (KM -Log)	0.17
KM SD (logged)	0.853	95% Critical H Value (KM-Log)	2.657
KM Standard Error of Mean (logged)	0.259		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.0846	Mean in Log Scale	-2.937
SD in Original Scale	0.0826	SD in Log Scale	1.068
95% t UCL (Assumes normality)	0.127	95% H-Stat UCL	0.25

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.129	95% KM (Percentile Bootstrap) UCL	0.125

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Sodium (Na)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	6
Number of Detects	2	Number of Non-Detects	10
Number of Distinct Detects	2	Number of Distinct Non-Detects	4
Minimum Detect	100	Minimum Non-Detect	20
Maximum Detect	317	Maximum Non-Detect	800
Variance Detects	23545	Percent Non-Detects	83.33%
Mean Detects	208.5	SD Detects	153.4
Median Detects	208.5	CV Detects	0.736
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	5.182	SD of Logged Detects	0.816

Warning: Data set has only 2 Detected Values.

This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	55.08	Standard Error of Mean	36.92
SD	86.23	95% KM (BCA) UCL	N/A
95% KM (t) UCL	121.4	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	115.8	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	165.9	95% KM Chebyshev UCL	216
97.5% KM Chebyshev UCL	285.7	99% KM Chebyshev UCL	422.5

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	3.324	k star (bias corrected MLE)	N/A
Theta hat (MLE)	62.73	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	13.3	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.408	nu hat (KM)	9.794
		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (9.79, α)	3.813	Adjusted Chi Square Value (9.79, β)	3.264
95% Gamma Approximate KM-UCL (use when n>=50)	141.5	95% Gamma Adjusted KM-UCL (use when n<50)	165.3

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	45.04	Mean in Log Scale	2.653
SD in Original Scale	89.79	SD in Log Scale	1.502
95% t UCL (assumes normality of ROS data)	91.59	95% Percentile Bootstrap UCL	93.93
95% BCA Bootstrap UCL	121	95% Bootstrap t UCL	345.7
95% H-UCL (Log ROS)	256.6		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	83.92	Mean in Log Scale	3.34
SD in Original Scale	133.9	SD in Log Scale	1.469
95% t UCL (Assumes normality)	153.3	95% H-Stat UCL	452.7

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	121.4	95% KM (% Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Strontium (Sr)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	22.4	Mean	75.89
Maximum	182	Median	63.7
SD	44.03	Std. Error of Mean	12.71
Coefficient of Variation	0.58	Skewness	1.516

Normal GOF Test

Shapiro Wilk Test Statistic	0.854	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.237	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	98.72	95% Adjusted-CLT UCL (Chen-1995)	102.7
		95% Modified-t UCL (Johnson-1978)	99.64

Gamma GOF Test

A-D Test Statistic	0.355	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.736	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.18	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.247	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.802	k star (bias corrected MLE)	2.907
Theta hat (MLE)	19.96	Theta star (bias corrected MLE)	26.1
nu hat (MLE)	91.26	nu star (bias corrected)	69.78
MLE Mean (bias corrected)	75.89	MLE Sd (bias corrected)	44.51
		Approximate Chi Square Value (0.05)	51.55
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	49.16

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	102.7	95% Adjusted Gamma UCL (use when n<50)	107.7

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.969	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.146	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.109	Mean of logged Data	4.192
Maximum of Logged Data	5.204	SD of logged Data	0.546

Assuming Lognormal Distribution

95% H-UCL	110.3	90% Chebyshev (MVUE) UCL	112.6

95% Chebyshev (MVUE) UCL	129.2	97.5% Chebyshev (MVUE) UCL	152.4
99% Chebyshev (MVUE) UCL	197.9		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	96.8	95% Jackknife UCL	98.72
95% Standard Bootstrap UCL	95.49	95% Bootstrap-t UCL	117
95% Hall's Bootstrap UCL	229.1	95% Percentile Bootstrap UCL	97.83
95% BCA Bootstrap UCL	103.6		
90% Chebyshev(Mean, Sd) UCL	114	95% Chebyshev(Mean, Sd) UCL	131.3
97.5% Chebyshev(Mean, Sd) UCL	155.3	99% Chebyshev(Mean, Sd) UCL	202.4

Suggested UCL to Use

95% Student's-t UCL 98.72

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Thallium (Tl)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
Number of Detects	10	Number of Non-Detects	2
Number of Distinct Detects	10	Number of Distinct Non-Detects	1
Minimum Detect	4.6000E-4	Minimum Non-Detect	4.0000E-4
Maximum Detect	0.00121	Maximum Non-Detect	4.0000E-4
Variance Detects	5.0338E-8	Percent Non-Detects	16.67%
Mean Detects	7.2600E-4	SD Detects	2.2436E-4
Median Detects	6.7500E-4	CV Detects	0.309
Skewness Detects	1.16	Kurtosis Detects	1.228
Mean of Logged Detects	-7.267	SD of Logged Detects	0.289

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.914	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.157	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.28	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	6.7167E-4	Standard Error of Mean	6.9731E-5
SD	2.2916E-4	95% KM (BCA) UCL	7.8583E-4
95% KM (t) UCL	7.9690E-4	95% KM (Percentile Bootstrap) UCL	7.8667E-4
95% KM (z) UCL	7.8636E-4	95% KM Bootstrap t UCL	8.2503E-4
90% KM Chebyshev UCL	8.8086E-4	95% KM Chebyshev UCL	9.7562E-4
97.5% KM Chebyshev UCL	0.00111	99% KM Chebyshev UCL	0.00137

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.258	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.725	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.153	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.266	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.96	k star (bias corrected MLE)	9.141
Theta hat (MLE)	5.6002E-5	Theta star (bias corrected MLE)	7.9420E-5
nu hat (MLE)	259.3	nu star (bias corrected)	182.8
MLE Mean (bias corrected)	7.2600E-4	MLE Sd (bias corrected)	2.4012E-4

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	8.591	nu hat (KM)	206.2
Approximate Chi Square Value (206.18, α)	174	Adjusted Chi Square Value (206.18, β)	169.4
5% Gamma Approximate KM-UCL (use when n>=50)	7.9610E-4	95% Gamma Adjusted KM-UCL (use when n<50)	8.1732E-4

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	4.6000E-4	Mean	0.00227
Maximum	0.01	Median	7.3000E-4
SD	0.00362	CV	1.592
k hat (MLE)	0.805	k star (bias corrected MLE)	0.66
Theta hat (MLE)	0.00282	Theta star (bias corrected MLE)	0.00344
nu hat (MLE)	19.33	nu star (bias corrected)	15.83
MLE Mean (bias corrected)	0.00227	MLE Sd (bias corrected)	0.0028
		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (15.83, α)	7.844	Adjusted Chi Square Value (15.83, β)	7.002
95% Gamma Approximate UCL (use when n>=50)	0.00459	95% Gamma Adjusted UCL (use when n<50)	0.00514

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.97	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.14	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.28	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	6.6270E-4	Mean in Log Scale	-7.384
SD in Original Scale	2.5135E-4	SD in Log Scale	0.38
95% t UCL (assumes normality of ROS data)	7.9300E-4	95% Percentile Bootstrap UCL	7.7734E-4
95% BCA Bootstrap UCL	7.9167E-4	95% Bootstrap t UCL	8.1789E-4
95% H-UCL (Log ROS)	8.3990E-4		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-7.36	95% H-UCL (KM -Log)	8.1212E-4
KM SD (logged)	0.325	95% Critical H Value (KM-Log)	1.95
KM Standard Error of Mean (logged)	0.0989		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	6.3833E-4	Mean in Log Scale	-7.475
SD in Original Scale	2.8828E-4	SD in Log Scale	0.552
95% t UCL (Assumes normality)	7.8779E-4	95% H-Stat UCL	9.5359E-4

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	7.9690E-4	95% KM (Percentile Bootstrap) UCL	7.8667E-4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Thorium (Th)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	7
Number of Detects	7	Number of Non-Detects	5
Number of Distinct Detects	6	Number of Distinct Non-Detects	1
Minimum Detect	0.0022	Minimum Non-Detect	0.002
Maximum Detect	0.0036	Maximum Non-Detect	0.002
Variance Detects	3.2905E-7	Percent Non-Detects	41.67%
Mean Detects	0.00303	SD Detects	5.7363E-4
Median Detects	0.003	CV Detects	0.189
Skewness Detects	-0.422	Kurtosis Detects	-1.563
Mean of Logged Detects	-5.816	SD of Logged Detects	0.199

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.883	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.223	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0026	Standard Error of Mean	2.0247E-4
SD	6.4936E-4	95% KM (BCA) UCL	0.00293
95% KM (t) UCL	0.00296	95% KM (Percentile Bootstrap) UCL	0.00291
95% KM (z) UCL	0.00293	95% KM Bootstrap t UCL	0.00294
90% KM Chebyshev UCL	0.00321	95% KM Chebyshev UCL	0.00348
97.5% KM Chebyshev UCL	0.00386	99% KM Chebyshev UCL	0.00461

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.443	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.707	Detected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.239	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.311	Detected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	30.66	k star (bias corrected MLE)	17.62
Theta hat (MLE)	9.8764E-5	Theta star (bias corrected MLE)	1.7190E-4
nu hat (MLE)	429.3	nu star (bias corrected)	246.7
MLE Mean (bias corrected)	0.00303	MLE Sd (bias corrected)	7.2154E-4

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	16.03	nu hat (KM)	384.8
Approximate Chi Square Value (384.76, α)	340.3	Adjusted Chi Square Value (384.76, β)	333.9
95% Gamma Approximate KM-UCL (use when n>=50)	0.00294	95% Gamma Adjusted KM-UCL (use when n<50)	0.003

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0022	Mean	0.00593
Maximum	0.01	Median	0.0036
SD	0.00361	CV	0.609
k hat (MLE)	2.868	k star (bias corrected MLE)	2.207
Theta hat (MLE)	0.00207	Theta star (bias corrected MLE)	0.00269
nu hat (MLE)	68.83	nu star (bias corrected)	52.96
MLE Mean (bias corrected)	0.00593	MLE Sd (bias corrected)	0.00399
		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (52.96, α)	37.24	Adjusted Chi Square Value (52.96, β)	35.24
95% Gamma Approximate UCL (use when n>=50)	0.00844	95% Gamma Adjusted UCL (use when n<50)	0.00892

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.00251	Mean in Log Scale	-6.033
SD in Original Scale	7.8398E-4	SD in Log Scale	0.319
95% t UCL (assumes normality of ROS data)	0.00292	95% Percentile Bootstrap UCL	0.00287
95% BCA Bootstrap UCL	0.00288	95% Bootstrap t UCL	0.00293
95% H-UCL (Log ROS)	0.00304		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-5.982	95% H-UCL (KM -Log)	0.00298
KM SD (logged)	0.242	95% Critical H Value (KM-Log)	1.876
KM Standard Error of Mean (logged)	0.0753		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.00218	Mean in Log Scale	-6.271
SD in Original Scale	0.00113	SD in Log Scale	0.581
95% t UCL (Assumes normality)	0.00277	95% H-Stat UCL	0.00332

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.00296	95% KM (Percentile Bootstrap) UCL	0.00291

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Tin (Sn)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	8
Number of Detects	8	Number of Non-Detects	4
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	0.0041	Minimum Non-Detect	0.004
Maximum Detect	0.0075	Maximum Non-Detect	0.004
Variance Detects	1.1593E-6	Percent Non-Detects	33.33%
Mean Detects	0.00523	SD Detects	0.00108
Median Detects	0.0051	CV Detects	0.206
Skewness Detects	1.442	Kurtosis Detects	2.553
Mean of Logged Detects	-5.271	SD of Logged Detects	0.191

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.872	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.205	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.00482	Standard Error of Mean	3.1010E-4
SD	0.001	95% KM (BCA) UCL	0.00533
95% KM (t) UCL	0.00537	95% KM (Percentile Bootstrap) UCL	0.00532
95% KM (z) UCL	0.00533	95% KM Bootstrap t UCL	0.00564
90% KM Chebyshev UCL	0.00575	95% KM Chebyshev UCL	0.00617
97.5% KM Chebyshev UCL	0.00675	99% KM Chebyshev UCL	0.0079

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.376	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.716	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.168	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.294	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	29.97	k star (bias corrected MLE)	18.82
Theta hat (MLE)	1.7431E-4	Theta star (bias corrected MLE)	2.7766E-4
nu hat (MLE)	479.6	nu star (bias corrected)	301.1
MLE Mean (bias corrected)	0.00523	MLE Sd (bias corrected)	0.0012

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	22.98	nu hat (KM)	551.4
Approximate Chi Square Value (551.45, α)	498	Adjusted Chi Square Value (551.45, β)	490.2
5% Gamma Approximate KM-UCL (use when n>=50)	0.00533	95% Gamma Adjusted KM-UCL (use when n<50)	0.00542

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0041	Mean	0.00682
Maximum	0.01	Median	0.00555
SD	0.0025	CV	0.367
k hat (MLE)	8.398	k star (bias corrected MLE)	6.354
Theta hat (MLE)	8.1174E-4	Theta star (bias corrected MLE)	0.00107
nu hat (MLE)	201.5	nu star (bias corrected)	152.5

MLE Mean (bias corrected)	0.00682	MLE Sd (bias corrected)	0.0027
		Adjusted Level of Significance (β)	0.029
Approximate Chi Square Value (152.49, α)	124.9	Adjusted Chi Square Value (152.49, β)	121.1
95% Gamma Approximate UCL (use when n>=50)	0.00832	95% Gamma Adjusted UCL (use when n<50)	0.00858

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.922	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.169	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.00453	Mean in Log Scale	-5.436
SD in Original Scale	0.00135	SD in Log Scale	0.295
95% t UCL (assumes normality of ROS data)	0.00523	95% Percentile Bootstrap UCL	0.00517
95% BCA Bootstrap UCL	0.00526	95% Bootstrap t UCL	0.00536
95% H-UCL (Log ROS)	0.0054		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-5.355	95% H-UCL (KM -Log)	0.00534
KM SD (logged)	0.188	95% Critical H Value (KM-Log)	1.834
KM Standard Error of Mean (logged)	0.058		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.00415	Mean in Log Scale	-5.586
SD in Original Scale	0.00181	SD in Log Scale	0.489
95% t UCL (Assumes normality)	0.00509	95% H-Stat UCL	0.00579

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.00537	95% KM (Percentile Bootstrap) UCL	0.00532

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Titanium (Ti)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.097	Mean	2.656
Maximum	5.06	Median	2.98
SD	1.283	Std. Error of Mean	0.37
Coefficient of Variation	0.483	Skewness	-0.339

Normal GOF Test

Shapiro Wilk Test Statistic	0.956	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level

Lilliefors Test Statistic	0.15	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	3.321	95% Adjusted-CLT UCL (Chen-1995)	3.227
		95% Modified-t UCL (Johnson-1978)	3.315

Gamma GOF Test

A-D Test Statistic	1.104	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.741	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.254	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.249	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.043	k star (bias corrected MLE)	1.588
Theta hat (MLE)	1.3	Theta star (bias corrected MLE)	1.673
nu hat (MLE)	49.02	nu star (bias corrected)	38.1
MLE Mean (bias corrected)	2.656	MLE Sd (bias corrected)	2.108
		Approximate Chi Square Value (0.05)	24.97
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	23.35

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	4.054	95% Adjusted Gamma UCL (use when n<50)	4.334

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.665	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.31	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-2.333	Mean of logged Data	0.713
Maximum of Logged Data	1.621	SD of logged Data	1.041

Assuming Lognormal Distribution

95% H-UCL	8.959	90% Chebyshev (MVUE) UCL	6.477
95% Chebyshev (MVUE) UCL	7.92	97.5% Chebyshev (MVUE) UCL	9.921
99% Chebyshev (MVUE) UCL	13.85		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	3.266	95% Jackknife UCL	3.321
95% Standard Bootstrap UCL	3.238	95% Bootstrap-t UCL	3.261
95% Hall's Bootstrap UCL	3.274	95% Percentile Bootstrap UCL	3.23
95% BCA Bootstrap UCL	3.213		
90% Chebyshev(Mean, Sd) UCL	3.767	95% Chebyshev(Mean, Sd) UCL	4.271
97.5% Chebyshev(Mean, Sd) UCL	4.969	99% Chebyshev(Mean, Sd) UCL	6.341

Suggested UCL to Use

95% Student's-t UCL	3.321

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Uranium (U)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	8.7000E-4	Mean	0.00288
Maximum	0.00516	Median	0.00289
SD	0.0016	Std. Error of Mean	4.6073E-4
Coefficient of Variation	0.555	Skewness	0.269

Normal GOF Test

Shapiro Wilk Test Statistic	0.905	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.179	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.0037	95% Adjusted-CLT UCL (Chen-1995)	0.00367
		95% Modified-t UCL (Johnson-1978)	0.00371

Gamma GOF Test

A-D Test Statistic	0.377	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.739	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.151	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.247	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.129	k star (bias corrected MLE)	2.403
Theta hat (MLE)	9.1954E-4	Theta star (bias corrected MLE)	0.0012
nu hat (MLE)	75.1	nu star (bias corrected)	57.66
MLE Mean (bias corrected)	0.00288	MLE Sd (bias corrected)	0.00186
		Approximate Chi Square Value (0.05)	41.2
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	39.09

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.00403	95% Adjusted Gamma UCL (use when n<50)	0.00424

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.916	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.158	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-7.047	Mean of logged Data	-6.019
Maximum of Logged Data	-5.267	SD of logged Data	0.637

Assuming Lognormal Distribution

95% H-UCL	0.00465	90% Chebyshev (MVUE) UCL	0.00459
95% Chebyshev (MVUE) UCL	0.00535	97.5% Chebyshev (MVUE) UCL	0.0064
99% Chebyshev (MVUE) UCL	0.00846		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.00364	95% Jackknife UCL	0.0037
95% Standard Bootstrap UCL	0.0036	95% Bootstrap-t UCL	0.00387
95% Hall's Bootstrap UCL	0.00361	95% Percentile Bootstrap UCL	0.00364
95% BCA Bootstrap UCL	0.00357		
90% Chebyshev(Mean, Sd) UCL	0.00426	95% Chebyshev(Mean, Sd) UCL	0.00489
97.5% Chebyshev(Mean, Sd) UCL	0.00575	99% Chebyshev(Mean, Sd) UCL	0.00746

Suggested UCL to Use

95% Student's-t UCL	0.0037

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Vanadium (V)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.0257	Mean	0.235
Maximum	0.54	Median	0.245
SD	0.132	Std. Error of Mean	0.0382
Coefficient of Variation	0.565	Skewness	0.674

Normal GOF Test

Shapiro Wilk Test Statistic	0.925	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.209	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.303	95% Adjusted-CLT UCL (Chen-1995)	0.305
		95% Modified-t UCL (Johnson-1978)	0.304

Gamma GOF Test

A-D Test Statistic	0.624	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.74	letected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.192	**Kolmogrov-Smirnoff Gamma GOF Test**	

5% K-S Critical Value	0.248	ıetected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.436	k star (bias corrected MLE)	1.883
Theta hat (MLE)	0.0963	Theta star (bias corrected MLE)	0.125
nu hat (MLE)	58.47	nu star (bias corrected)	45.19
MLE Mean (bias corrected)	0.235	MLE Sd (bias corrected)	0.171
		Approximate Chi Square Value (0.05)	30.77
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	28.96

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.345	95% Adjusted Gamma UCL (use when n<50)	0.366

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.835	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.238	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level	

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-3.661	Mean of logged Data	-1.669
Maximum of Logged Data	-0.616	SD of logged Data	0.814

Assuming Lognormal Distribution

95% H-UCL	0.495	90% Chebyshev (MVUE) UCL	0.441
95% Chebyshev (MVUE) UCL	0.527	97.5% Chebyshev (MVUE) UCL	0.645
99% Chebyshev (MVUE) UCL	0.877		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.297	95% Jackknife UCL	0.303
95% Standard Bootstrap UCL	0.295	95% Bootstrap-t UCL	0.311
95% Hall's Bootstrap UCL	0.333	95% Percentile Bootstrap UCL	0.298
95% BCA Bootstrap UCL	0.297		
90% Chebyshev(Mean, Sd) UCL	0.349	95% Chebyshev(Mean, Sd) UCL	0.401
97.5% Chebyshev(Mean, Sd) UCL	0.473	99% Chebyshev(Mean, Sd) UCL	0.615

Suggested UCL to Use

95% Student's-t UCL	0.303

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Yttrium (Y)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	0.0032	Mean	0.0199

Maximum	0.0368	Median	0.0213
SD	0.00901	Std. Error of Mean	0.0026
Coefficient of Variation	0.452	Skewness	-0.211

Normal GOF Test

Shapiro Wilk Test Statistic	0.968	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.141	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	0.0246	95% Adjusted-CLT UCL (Chen-1995)	0.024
		95% Modified-t UCL (Johnson-1978)	0.0246

Gamma GOF Test

A-D Test Statistic	0.652	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.737	Detected data appear Gamma Distributed at 5% Significance Lev
K-S Test Statistic	0.224	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.247	Detected data appear Gamma Distributed at 5% Significance Lev

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.488	k star (bias corrected MLE)	2.671
Theta hat (MLE)	0.00571	Theta star (bias corrected MLE)	0.00746
nu hat (MLE)	83.71	nu star (bias corrected)	64.11
MLE Mean (bias corrected)	0.0199	MLE Sd (bias corrected)	0.0122
		Approximate Chi Square Value (0.05)	46.69
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	44.43

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	0.0274	95% Adjusted Gamma UCL (use when n<50)	0.0288

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.818	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.269	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	-5.745	Mean of logged Data	-4.066
Maximum of Logged Data	-3.302	SD of logged Data	0.666

Assuming Lognormal Distribution

95% H-UCL	0.0344	90% Chebyshev (MVUE) UCL	0.0335
95% Chebyshev (MVUE) UCL	0.0392	97.5% Chebyshev (MVUE) UCL	0.0471
99% Chebyshev (MVUE) UCL	0.0626		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	0.0242	95% Jackknife UCL	0.0246
95% Standard Bootstrap UCL	0.024	95% Bootstrap-t UCL	0.0245

95% Hall's Bootstrap UCL	0.0247	95% Percentile Bootstrap UCL	0.0241
95% BCA Bootstrap UCL	0.0238		
90% Chebyshev(Mean, Sd) UCL	0.0277	95% Chebyshev(Mean, Sd) UCL	0.0313
97.5% Chebyshev(Mean, Sd) UCL	0.0362	99% Chebyshev(Mean, Sd) UCL	0.0458

Suggested UCL to Use

95% Student's-t UCL 0.0246

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Zinc (Zn)-Total

General Statistics

Total Number of Observations	12	Number of Distinct Observations	12
		Number of Missing Observations	0
Minimum	3.71	Mean	25.77
Maximum	102	Median	15.2
SD	29.05	Std. Error of Mean	8.385
Coefficient of Variation	1.127	Skewness	1.874

Normal GOF Test

Shapiro Wilk Test Statistic	0.768	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.859	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.26	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.256	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	40.83	95% Adjusted-CLT UCL (Chen-1995)	44.41
		95% Modified-t UCL (Johnson-1978)	41.58

Gamma GOF Test

A-D Test Statistic	0.452	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.755	etected data appear Gamma Distributed at 5% Significance Lev	
K-S Test Statistic	0.176	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.252	etected data appear Gamma Distributed at 5% Significance Lev	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.059	k star (bias corrected MLE)	0.85
Theta hat (MLE)	24.34	Theta star (bias corrected MLE)	30.33
nu hat (MLE)	25.41	nu star (bias corrected)	20.39
MLE Mean (bias corrected)	25.77	MLE Sd (bias corrected)	27.96
		Approximate Chi Square Value (0.05)	11.14
Adjusted Level of Significance	0.029	Adjusted Chi Square Value	10.11

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	47.17	95% Adjusted Gamma UCL (use when n<50)	51.97

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.859	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.152	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.256	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	1.311	Mean of logged Data	2.708
Maximum of Logged Data	4.625	SD of logged Data	1.096

Assuming Lognormal Distribution

95% H-UCL	76.03	90% Chebyshev (MVUE) UCL	51.5
95% Chebyshev (MVUE) UCL	63.3	97.5% Chebyshev (MVUE) UCL	79.67
99% Chebyshev (MVUE) UCL	111.8		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	39.56	95% Jackknife UCL	40.83
95% Standard Bootstrap UCL	39.27	95% Bootstrap-t UCL	50.53
95% Hall's Bootstrap UCL	87.24	95% Percentile Bootstrap UCL	40.33
95% BCA Bootstrap UCL	43.64		
90% Chebyshev(Mean, Sd) UCL	50.92	95% Chebyshev(Mean, Sd) UCL	62.32
97.5% Chebyshev(Mean, Sd) UCL	78.13	99% Chebyshev(Mean, Sd) UCL	109.2

Suggested UCL to Use

95% Adjusted Gamma UCL	51.97

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

ProUCL Outlier Test for Root Samples

Arsenic in Root Sample

Outlier Tests for Selected Variables

User Selected Options

From File	V:\01221\active\123510762 - New Ajax Mine Kamloops\
Full Precision	OFF
Test for Suspected Outliers with Dixon test	1
Test for Suspected Outliers with Rosner test	1

Dixon's Outlier Test for Arsenic (As)-Total

Number of data = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698

1. Data Value 0.0619 is a Potential Outlier (Upper Tail)? **0.0619 was exlcuded.**

Test Statistic: 0.794

For 10% significance level, 0.0619 is an outlier.
For 5% significance level, 0.0619 is an outlier.
For 1% significance level, 0.0619 is an outlier.

2. Data Value 0.004 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.004 is not an outlier.
For 5% significance level, 0.004 is not an outlier.
For 1% significance level, 0.004 is not an outlier.

Chromium in Root Sample

Outlier Tests for Selected Variables

User Selected Options

From File	V:\01221\active\123510762 - New Ajax Mine Kamloops\
Full Precision	OFF
Test for Suspected Outliers with Dixon test	1
Test for Suspected Outliers with Rosner test	1

Dixon's Outlier Test for Chromium (Cr)-Total

Number of data = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698

1. Data Value 0.89 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.914

For 10% significance level, 0.89 is an outlier.
For 5% significance level, 0.89 is an outlier.
For 1% significance level, 0.89 is an outlier.

2. Data Value 0.021 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.017

For 10% significance level, 0.021 is not an outlier.
For 5% significance level, 0.021 is not an outlier.
For 1% significance level, 0.021 is not an outlier.

APPENDIX D
COPC SELECTION

Methodology:

A three-step screening process was used to identify COPCs for soil (and related secondary pathways)

Step 1. If the 95% UCLM background concentration of a metal in the LAA was higher than the applicable guidelines, it was considered a COPC
Rationale: the highest amount of deposition of metals is expected in the LAA. If background concentrations are already high, any additonal deposition could be significant and should be assessed
Detail: Used the maximum concentration observed in the LAA for screening chemicals in.

Step 2. Those metals with the greatest toxic potential, based on concentrations in the coal dust and human, mammal, avian, and plants/soil inverts TRVs were carried forward
Rationale: methodology based on US EPA (1989) guidance, and focuses the risk assessment on those chemcials with the greatest potential to cause harm.
Detail: Used adult TRVs for humans; all those chemicals contributing more than 1% of the total toxic potential were carried forward

Step 3. If the concentration in the coal dust is lower than the background concentration, the chemical was not considered a COPC
Rationale: If the concentration in the source material (coal dust) is lower than the existing soil concentrations, deposition of coal dust will not result in a change in environmental conditions
Detail: The median concentrations in the LAA were conservatively used as background for screening out.

Step 1. Comparison of 95% UCLM soil concentrations to Guidelines

Parameter	Guideline/Standard (mg/kg)					Does 95% UCLM Exceed Guideline?		
COC	BC MOE	CCME	Other	Applicable Guideline	95% UCLM			
Aluminum	---	---	15400	15400.00	18068.00	**Yes**	15400	17729
Antimony	20	20	---	20.00	0.46	No	20	0.463
Arsenic	15	17	---	15.00	5.76	No	15	5.756
Barium	400	500	---	400.00	189.00	No	400	189
Beryllium	4	4	---	4.00	0.39	No	4	0.394
Cadmium	1.5	1.4	---	1.50	0.20	No	1.5	0.199
Chromium	50	64	---	50.00	62.52	**Yes**	50	62.52
Cobalt	40	40	---	40.00	15.11	No	40	15.11
Copper	90	63	---	90.00	85.71	No	90	85.71
Lead	100	70	---	100.00	12.86	No	100	12.86
Manganese	---	---	360	360.00	752.50	**Yes**	360	752.5
Mercury	0.6	6.6	---	0.60	0.05	No	0.6	0.0469
Molybdenum	5	5	---	5.00	1.16	No	5	1.161
Nickel	100	50	---	100.00	55.34	No	100	55.34
Selenium	2	1	---	2.00	0.40	No	2	0.399
Silver	20	20	---	20.00	0.13	No	20	0.128
Strontium	---	---	9400	9400.00	127.30	No	9400	127.3
Thallium	2	1	---	2.00	0.10	No	2	0.0968
Tin	5	5	---	5.00	1.06	No	5	1.058
Uranium	---	23	---	23.00	0.62	No	23	0.618
Vanadium	200	130	---	200.00	95.70	No	200	95.7
Zinc	150	200	---	150.00	69.02	No	150	69.02

Lowest guidelines from each source are used.

Order of preference for guidelines/standards:

1. BC MOE - lowest of Generic or Matrix Numerical Soil Standards
2. CMME

3. Other- USEPA. 2010. Regional Risk Based Criteria for residential soils. November. Accessed January 2011. Criteria are divided by 5 to reflect differences between the USEPA approach to risk assessment and that of Health Canada and the CCME

Criterion to use

INT - Inherently Non-Toxic- Not considered a COPC

a = agricultural

r_p = residential/parkland

c = coarse

f = fine

AL = Agricultural

PL = Urban Park

RL = Residential

Step 2. Background Screening

Parameter	Background Concentration (mg/kg)	UCLM Concentration (mg/kg)	Does UCLM Concentration Exceed Background Concentration?
Aluminum	---	17057	---
Antimony	4	12.26	Yes
Arsenic	25	29.3	Yes
Barium	350	105.4	No
Beryllium	2	0.514	No
Bismuth	---	5.916	---
Boron	---	---	---
Cadmium	0.55	0.904	Yes
Calcium	---	30909	---
Chromium	150	159.7	Yes
Cobalt	30	39.36	Yes
Copper	75	1571	Yes
Iron	---	37974	---
Lead	15	24.15	Yes
Lithium	---	8.383	---
Magnesium	---	24679	---
Manganese	---	283.9	---
Mercury	0.025	2.591	Yes
Molybdenum	1	14.69	Yes
Nickel	75	139.6	Yes
Phosphorus	---	1041	---
Potassium	---	2912	---
Selenium	4	5.009	Yes
Silver	1	0.269	No
Sodium	---	621.1	---
Strontium	---	95.85	---
Sulphur	---	5601	---
Thallium	---	2.5	---
Thorium	---	---	---
Tin	4	8.683	Yes
Titanium	---	1141	---
Tungsten	---	4.83	---
Uranium	---	4.553	---
Vanadium	150	147.6	No
Yttrium	---	---	---
Zinc	100	16.61	No

1. Protocol 4 for Contaminated Sites. Determining Background Soil Quality, Tabble 1. Column V, Region 3/8- Thompson Nicola Okanagan. BC MOE, 2010
http://www2.gov.bc.ca/gov/DownloadAsset?assetId=689220CEB1DD447DB1FF22D9AB12D78B

Step 3. Toxic Potential Evaluation

Analytes	Ore Dust UCLM	Human Health COPCs			Bird COPC			Mammal COPC			Plants and Soil Organism COPCs		
		TRV (Adult) mg/kg-day	EPC/TRV (mg/kg)	Relative Tox Pot (%)	TRV (Bird) (mg/kg-d)	EPC/TRV (mg/kg)	Relative Tox Pot (%)	TRV (Mammal) (mg/kg-d)	EPC/TRV (mg/kg)	Relative Tox Pot (%)	TRV (Phytotox/Soil Invert - lowest	EPC/TRV (mg/kg)	Relative Tox Pot (%)
Aluminum	17057	1	17057	3.1	---	---	---	100.00	171	16.5	---	---	---
Antimony	12.26	0.0004	30650	5.6	---	---	---	0.592	21	2.0	5	2.452	9.7
Arsenic	29.3	0.0003	97667	17.9	12.84	2.28	1.1	0.55	53	5.1	20	1.465	5.8
Barium	105.4	0.2	---	---	139	---	---	51.8	---	---	330	---	---
Beryllium	0.514	0.002	---	---	---	---	---	0.532	---	---	4	---	---
Cadmium	0.904	0.001	904	0.2	1.47	0.61	0.3	1.86	0.49	0.0	12	0.075333333	0.3
Chromium	159.7	0.001	159700	29.3	2.66	60.04	29.5	2.4	67	6.4	310	0.51516129	2.0
Cobalt	39.36	0.01	3936	0.7	2.54	15.52	7.6	7.33	5	0.5	40	0.984	3.9
Copper	1571	0.141	11142	2.0	18.5	84.92	41.7	3.11	505	48.8	140	11.22142857	44.5
Lead	24.15	0.0019	12711	2.3	10.9	2.22	1.1	40.7	1	0.1	250	0.0966	0.4
Manganese	283.9	0.156	1820	0.3	179	1.59	0.8	51.5	6	0.5	220	1.290454545	5.1
Mercury	2.591	0.0003	8637	1.6	0.9	2.88	1.4	1.01	3	0.2	10	0.2591	1.0
Molybdenum	14.69	0.028	525	0.1	35.3	0.42	0.2	2.60	6	0.5	40	0.36725	1.5
Nickel	139.6	0.011	12691	2.3	6.71	20.80	10.2	0.81	172	16.7	100	1.396	5.5
Selenium	5.009	0.0057	879	0.2	1	5.01	2.5	0.33	15	1.5	4.1	1.221707317	4.8
Silver	0.269	0.005	---	---	6.73	---	---	20.07	---	---	20	---	---
Strontium	95.85	0.6	160	0.0	---	---	---	263	0	0.0	---	---	---
Thallium	2.5	0.000014	178571	32.8	0.35	7.23	3.5	0.25	10	1.0	1.4	1.785714286	7.1
Tin	8.683	0.3	29	0.0	---	---	---	44	0	0.0	500	0.017366	0.1
Uranium	4.553	0.0006	7588	1.4	53.33	0.09	0.0	6.13	1	0.1	5	0.9106	3.6
Vanadium	147.6	0.009	---	---	0.23	---	---	1.70	---	---	100	---	---
Zinc	16.61	0.57	---	---	89.2	---	---	75.9	---	---	400	---	---

Parameter (total, except Al)	Units	Aquatic Life Screening			Drinking Water Screening			Agricultural Screening			Agricultural Screening		
		FWAL Guideline	Concentration (Total), except aluminum for aquatic life screening- Used dissolved concentration instead since guideline is based on dissolved	Does Concentration Exceed Aquatic Life Guideline?	Drinking Water Guideline	Concentration (Total)	Does Concentration Exceed Drinking Water Guideline?	Agricultural Guideline	Concentration (Total)-Groundwater	Does Concentration Exceed Drinking Water Guideline?	Agricultural Guideline	Concentration (Total)-Surface	Does Concentration Exceed Drinking Water Guideline?
Aluminum	mg/L	5.00E-02	1.64E-03		2.00E-01	6.80E-03		5.00E+00	2.39E+00		5.00E+00	1.64E-03	
Antimony	mg/L	9.00E-03	1.40E-04		6.00E-03	3.05E-04		---	1.29E-03		---	1.40E-04	
Arsenic	mg/L	5.00E-03	2.17E-03		2.50E-02	3.89E-03		2.50E-02	8.24E-03		2.50E-02	2.17E-03	
Barium	mg/L	1.00E+00	5.67E-02		1.00E+00	2.85E-02		---	1.18E-01		---	5.67E-02	
Beryllium	mg/L	1.30E-04	1.00E-04		4.00E-03	1.83E-04		1.00E-01	2.32E-03		1.00E-01	1.00E-04	
Cadmium	mg/L	9.00E-05	1.22E-05		5.00E-03	6.66E-05		5.10E-03	1.85E-04		5.10E-03	1.22E-05	
Chromium	mg/L	8.90E-03	8.61E-04		5.00E-02	8.74E-04		4.90E-03	1.60E-02	Yes	4.90E-03	8.61E-04	
Cobalt	mg/L	4.00E-03	3.87E-04		3.80E-03	2.73E-04		5.00E-02	4.93E-03		5.00E-02	3.87E-04	
Copper	mg/L	2.45E-02	3.98E-03		5.00E-01	2.25E-02		2.00E-01	6.83E-02		2.00E-01	3.98E-03	
Lead	mg/L	3.53E-02	1.30E-04		5.00E-02	1.75E-03		1.00E-01	1.44E-03		1.00E-01	1.30E-04	
Manganese	mg/L	3.30E+00	1.25E-01		5.00E-02	7.12E-02	Yes	2.00E-01	1.17E+00	Yes	2.00E-01	1.25E-01	
Mercury	mg/L	2.60E-05	1.00E-05		1.00E-03	5.75E-05		2.00E-03	3.86E-05		2.00E-03	1.00E-05	
Molybdenum	mg/L	1.00E+00	1.98E-02		2.50E-01	1.66E-02		5.00E-02	1.21E-01	Yes	5.00E-02	1.98E-02	
Nickel	mg/L	1.50E-01	4.57E-03		1.00E-01	7.75E-03		2.00E-01	3.61E-02		2.00E-01	4.57E-03	
Selenium	mg/L	2.00E-03	6.90E-04		1.00E-02	9.18E-03		1.00E-02	8.94E-03		1.00E-02	6.90E-04	
Silver	mg/L	1.50E-03	1.14E-05		1.00E-01	1.83E-05		---	7.93E-05		---	1.14E-05	
Strontium	mg/L	---	9.32E-01		---	3.00E+00		---	2.87E+00		---	9.32E-01	
Thallium	mg/L	8.00E-04	1.07E-05		2.00E-03	1.83E-05		---	4.61E-04		---	1.07E-05	
Tin	mg/L	---	1.00E-04		---	2.20E-04		---	1.36E-03		---	1.00E-04	
Titanium	mg/L	2.00E+00	1.60E-02		---	1.83E-02		---	1.49E-01		---	1.60E-02	
Uranium	mg/L	8.50E-03	2.29E-03		2.00E-02	6.18E-03		1.00E-02	3.24E-03		1.00E-02	2.29E-03	
Vanadium	mg/L	---	3.64E-03		1.80E-01	3.73E-03		1.00E-01	1.24E-02		1.00E-01	3.64E-03	
Zinc	mg/L	3.99E-01	4.48E-03		5.00E+00	1.24E-01		2.00E+00	3.96E-02		2.00E+00	4.48E-03	

Notes

Guidelines, in order of preference:

1. BC Approved Water Quality Guidelines
2. BC Interim Water Qualtiy Guidelines
3. BC Working Water Quality Guidelines
4. CCME Water Quality Guidelines (Eco)

Summary of COPC Screening

Parameter	Step 1- Soil Screening	Step 2- Ore Screening	Step 3- Toxic Potential Screening				Step 4- Water Screening				Final List of COPCs
	Guideline Exceedance	Background Concentration Exceedance	HH	Bird	Small Animal Prey	Plant/Soil Inverts	Freshwater Aquatic Life Screening (Surface Water)	Drinking Water Guideline Screening (Groundwater)	Agricultural Screening (Groundwater)	Agricultural Screening (Surface Water)	
Aluminum	X		X		X						Aluminum
Antimony			X		X	X					Antimony
Arsenic			X	X	X	X					Arsenic
Barium		X									
Beryllium		X									
Cadmium											
Chromium	X		X	X	X	X			X		Chromium
Cobalt				X		X					Cobalt
Copper			X	X	X	X					Copper
Lead			X	X							Lead
Manganese	X					X		X	X		Manganese
Mercury			X	X		X					Mercury
Molybdenum						X			X		Molybdenum
Nickel			X	X	X	X					Nickel
Selenium				X	X	X					Selenium
Silver		X									
Strontium											
Thallium			X	X		X					Thallium
Tin											
Uranium			X			X					Uranium
Vanadium		X									
Zinc											

IOI - Inherently of Interest

APPENDIX E
EXPOSURE POINT CONCENTRATIONS-BASELINE AND FUTURE CONDITIONS

Baseline Case Soil Concentrations- Ajax Mine Project

		Human Health Area Soil						
Parameter	**Units**	**Concentration**						
		Aberdeen	**Brocklehurst**	**Sahali**	**Knutsford**	**North Shore**	**West End/Downtown**	**Mine Site**
Aluminum	mg/kg dw	1.54E+04	1.77E+04	1.14E+04	1.54E+04	1.40E+04	1.45E+04	1.88E+04
Antimony	mg/kg dw	3.60E-01	3.30E-01	3.50E-01	3.60E-01	3.90E-01	5.57E-01	4.64E-01
Arsenic	mg/kg dw	5.56E+00	4.92E+00	4.40E+00	5.56E+00	5.65E+00	4.17E+00	5.84E+00
Barium	mg/kg dw	1.49E+02	1.44E+02	1.24E+02	1.49E+02	1.42E+02	1.42E+02	2.00E+02
Beryllium	mg/kg dw	4.12E-01	4.10E-01	3.03E-01	4.12E-01	2.80E-01	3.95E-01	3.93E-01
Bismuth	mg/kg dw	2.00E-01	3.60E-01	2.00E-01	2.00E-01	2.30E-01	2.22E-01	2.00E-01
Boron	mg/kg dw	---	---	---	---	---	---	---
Cadmium	mg/kg dw	2.18E-01	3.25E-01	2.18E-01	2.18E-01	1.90E-01	4.18E-01	1.68E-01
Calcium	mg/kg dw	1.43E+04	1.05E+04	2.49E+04	1.43E+04	1.86E+04	1.49E+04	1.54E+04
Cesium	mg/kg dw	---	---	---	---	---	---	---
Chromium	mg/kg dw	4.89E+01	4.34E+01	4.10E+01	4.89E+01	4.78E+01	4.39E+01	6.69E+01
Cobalt	mg/kg dw	1.20E+01	1.35E+01	1.07E+01	1.20E+01	1.16E+01	1.39E+01	1.57E+01
Copper	mg/kg dw	4.40E+01	4.82E+01	4.67E+01	4.40E+01	6.22E+01	8.45E+01	9.14E+01
Gallium	mg/kg dw	---	---	---	---	---	---	---
Iron	mg/kg dw	2.66E+04	2.84E+04	2.22E+04	2.66E+04	2.38E+04	2.29E+04	3.40E+04
Lead	mg/kg dw	5.40E+00	1.25E+01	7.43E+00	5.40E+00	6.65E+00	3.42E+01	5.19E+00
Lithium	mg/kg dw	8.88E+00	2.05E+01	8.53E+00	8.88E+00	7.40E+00	8.75E+00	9.64E+00
Magnesium	mg/kg dw	1.05E+04	9.73E+03	1.01E+04	1.05E+04	9.02E+03	1.57E+04	1.31E+04
Manganese	mg/kg dw	5.64E+02	4.83E+02	5.26E+02	5.64E+02	5.63E+02	5.43E+02	7.98E+02
Mercury	mg/kg dw	4.08E-02	3.44E-02	3.02E-02	4.08E-02	4.62E-02	7.99E-02	4.37E-02
Molybdenum	mg/kg dw	1.02E+00	1.51E+00	1.32E+00	1.02E+00	1.21E+00	1.40E+00	1.12E+00
Nickel	mg/kg dw	4.37E+01	3.73E+01	3.82E+01	4.37E+01	4.48E+01	5.59E+01	5.77E+01
Phosphorus	mg/kg dw	1.31E+03	2.58E+03	2.87E+03	1.31E+03	3.44E+03	2.50E+03	1.08E+03
Potassium	mg/kg dw	2.43E+03	5.15E+03	3.35E+03	2.43E+03	2.83E+03	3.43E+03	3.28E+03
Rhenium	mg/kg dw	---	---	---	---	---	---	---
Rubidium	mg/kg dw	---	---	---	---	---	---	---
Selenium	mg/kg dw	2.24E-01	4.20E-01	5.05E-01	2.24E-01	4.40E-01	4.30E-01	4.09E-01
Silver	mg/kg dw	1.36E-01	4.50E-01	1.00E-01	1.36E-01	3.50E-01	2.27E-01	1.00E-01
Sodium	mg/kg dw	5.10E+02	3.80E+02	5.10E+02	5.10E+02	3.30E+02	7.98E+02	1.15E+03
Strontium	mg/kg dw	1.25E+02	6.95E+01	1.16E+02	1.25E+02	8.82E+01	1.14E+02	1.30E+02
Tellurium	mg/kg dw	---	---	---	---	---	---	---
Thallium	mg/kg dw	1.03E-01	2.09E-01	9.30E-02	1.03E-01	8.50E-02	1.03E-01	8.59E-02
Thorium	mg/kg dw	---	---	---	---	---	---	---
Tin	mg/kg dw	2.00E+00	2.00E+00	2.00E+00	2.00E+00	2.00E+00	3.10E+00	2.00E+00
Titanium	mg/kg dw	8.29E+02	1.01E+03	6.35E+02	8.29E+02	5.08E+02	8.31E+02	1.01E+03
Uranium	mg/kg dw	7.56E-01	1.39E+00	7.57E-01	7.56E-01	5.89E-01	1.03E+00	5.28E-01
Vanadium	mg/kg dw	7.47E+01	4.70E+01	5.33E+01	7.47E+01	6.84E+01	6.15E+01	1.15E+02
Yttrium	mg/kg dw	---	---	---	---	---	---	---
Zinc	mg/kg dw	6.01E+01	9.71E+01	9.52E+01	6.01E+01	8.85E+01	1.17E+02	6.17E+01
Zirconium	mg/kg dw	---	---	---	---	---	---	---

Baseline Garden Soil					
Concentration					
Aberdeen	**Brocklehurst**	**Sahali**	**Knutsford**	**North Shore**	**West End/Downtown**
1.28E+04	1.77E+04	1.03E+04	1.28E+04	1.40E+04	1.01E+04
3.50E-01	3.30E-01	3.40E-01	3.50E-01	3.90E-01	4.20E-01
4.05E+00	4.92E+00	4.22E+00	4.05E+00	5.65E+00	3.97E+00
1.24E+02	1.44E+02	1.31E+02	1.24E+02	1.42E+02	1.24E+02
3.20E-01	4.10E-01	2.50E-01	3.20E-01	2.80E-01	2.55E-01
2.00E-01	3.60E-01	2.00E-01	2.00E-01	2.30E-01	2.35E-01
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2.25E-01	3.25E-01	2.11E-01	2.25E-01	1.90E-01	4.31E-01
1.28E+04	1.05E+04	3.87E+04	1.28E+04	1.86E+04	1.82E+04
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4.75E+01	4.34E+01	3.73E+01	4.75E+01	4.78E+01	3.32E+01
1.05E+01	1.35E+01	8.91E+00	1.05E+01	1.16E+01	8.16E+00
3.48E+01	4.82E+01	6.11E+01	3.48E+01	6.22E+01	4.65E+01
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2.23E+04	2.84E+04	1.89E+04	2.23E+04	2.38E+04	1.71E+04
5.74E+00	1.25E+01	5.68E+00	5.74E+00	6.65E+00	1.64E+01
7.40E+00	2.05E+01	6.50E+00	7.40E+00	7.40E+00	8.75E+00
8.46E+03	9.73E+03	1.00E+04	8.46E+03	9.02E+03	7.23E+03
4.74E+02	4.83E+02	5.67E+02	4.74E+02	5.63E+02	3.58E+02
5.24E-02	3.44E-02	3.46E-02	5.24E-02	4.62E-02	6.71E-02
7.80E-01	1.51E+00	1.84E+00	7.80E-01	1.21E+00	1.22E+00
3.92E+01	3.73E+01	3.35E+01	3.92E+01	4.48E+01	2.66E+01
1.86E+03	2.58E+03	4.72E+03	1.86E+03	3.44E+03	2.99E+03
2.22E+03	5.15E+03	4.59E+03	2.22E+03	2.83E+03	4.19E+03
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2.30E-01	4.20E-01	6.80E-01	2.30E-01	4.40E-01	4.80E-01
2.40E-01	4.50E-01	1.00E-01	2.40E-01	3.50E-01	3.20E-01
3.80E+02	3.80E+02	5.90E+02	3.80E+02	3.30E+02	3.55E+02
7.80E+01	6.95E+01	1.73E+02	7.80E+01	8.82E+01	1.14E+02
---	---	---	---	---	---
8.90E-02	2.09E-01	7.80E-02	8.90E-02	8.50E-02	9.90E-02
---	---	---	---	---	---
2.00E+00	2.00E+00	2.00E+00	2.00E+00	2.00E+00	2.00E+00
8.16E+02	1.01E+03	3.59E+02	8.16E+02	5.08E+02	5.40E+02
6.54E-01	1.39E+00	7.77E-01	6.54E-01	5.89E-01	9.08E-01
5.33E+01	4.70E+01	5.29E+01	5.33E+01	6.84E+01	3.28E+01
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6.11E+01	9.71E+01	1.33E+02	6.11E+01	8.85E+01	1.09E+02
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Baseline Case Groundwater Concentrations- Ajax Mine Project

		Average of Monitoring Wells and Residential Wells	
Parameter	**Units**	**Concentration (Total)**	**Concentration (Dissolved)**
Aluminum	mg/L	2.39E+00	1.86E-02
Antimony	mg/L	1.29E-03	1.25E-03
Arsenic	mg/L	8.24E-03	7.09E-03
Barium	mg/L	1.18E-01	6.26E-02
Beryllium	mg/L	2.32E-03	2.31E-03
Bismuth	mg/L	3.07E-02	2.91E-02
Boron	mg/L	7.90E-01	7.68E-01
Cadmium	mg/L	1.85E-04	1.66E-04
Calcium	mg/L	1.41E+02	1.37E+02
Cesium	mg/L	---	---
Chromium	mg/L	1.60E-02	2.38E-03
Cobalt	mg/L	4.93E-03	2.20E-03
Copper	mg/L	6.83E-02	7.33E-03
Gallium	mg/L	---	---
Iron	mg/L	3.69E+00	8.34E-01
Lead	mg/L	1.44E-03	1.15E-03
Lithium	mg/L	1.83E-02	1.81E-02
Magnesium	mg/L	1.12E+02	9.90E+01
Manganese	mg/L	1.17E+00	1.00E+00
Mercury	mg/L	3.86E-05	1.25E-05
Molybdenum	mg/L	1.21E-01	1.60E-01
Nickel	mg/L	3.61E-02	7.00E-03
Phosphorus	mg/L	1.38E-01	1.29E-01
Potassium	mg/L	2.04E+01	2.04E+01
Rhenium	mg/L	---	---
Rubidium	mg/L	---	---
Selenium	mg/L	8.94E-03	9.26E-03
Silver	mg/L	7.93E-05	5.09E-05
Sodium	mg/L	1.66E+02	1.63E+02
Strontium	mg/L	2.87E+00	2.82E+00
Tellurium	mg/L	---	---
Thallium	mg/L	4.61E-04	4.58E-04
Thorium	mg/L	---	---
Tin	mg/L	1.36E-03	1.21E-03
Titanium	mg/L	1.49E-01	1.15E-02
Uranium	mg/L	3.24E-03	3.05E-03
Vanadium	mg/L	1.24E-02	3.47E-03
Yttrium	mg/L	---	---
Zinc	mg/L	3.96E-02	2.57E-02
Zirconium	mg/L	---	---

Baseline Case Groundwater Concentrations- Ajax Mine Project

Average of Residential Wells	Concentration in RES-2
Concentration (Dissolved)	Concentration (Dissolved)
6.80E-03	3.00E-03
3.05E-04	1.10E-04
3.89E-03	9.30E-04
2.85E-02	2.94E-02
1.83E-04	1.00E-04
9.17E-04	5.00E-04
2.12E-01	1.72E-01
6.66E-05	1.50E-05
1.73E+02	2.42E+02
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8.74E-04	1.10E-04
2.73E-04	1.20E-04
2.25E-02	9.13E-02
---	---
2.95E+00	3.14E-01
1.75E-03	5.19E-04
2.28E-02	1.09E-02
1.71E+02	1.21E+02
7.12E-02	3.70E-02
5.75E-05	1.00E-05
1.66E-02	1.56E-02
7.75E-03	1.91E-03
7.08E-02	5.00E-02
3.08E+01	1.39E+01
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---	---
9.18E-03	1.10E-04
1.83E-05	1.00E-05
2.60E+02	8.18E+01
3.00E+00	2.98E+00
---	---
1.83E-05	1.00E-05
---	---
2.20E-04	1.00E-04
1.83E-02	1.00E-02
6.18E-03	1.79E-03
3.73E-03	1.80E-03
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1.24E-01	4.84E-02
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Baseline Case Surface Water Concentrations- Ajax Mine Project

		95% UCLM of All Data- Used for Screeing			Jacko	PC02.3	PC02	Jacko	PC02.3	PC02
Parameter	Units	Concentration (Total)	Concentration (DIssolved)	Ratio	SW - Dissolved	SW - Dissolved	SW - Dissolved	SW - Total	SW - Total	SW - Total
Aluminum	mg/L	4.70E-01	3.64E-03	1.29E+02	1.21E-03	1.64E-03	1.55E-03	7.60E-03	6.49E-02	2.31E-01
Antimony	mg/L	1.06E-03	1.05E-03	1.01E+00	1.07E-04	1.03E-04	1.06E-04	1.40E-04	1.06E-04	1.20E-04
Arsenic	mg/L	1.20E-02	1.15E-02	1.04E+00	1.33E-03	2.13E-03	1.78E-03	1.35E-03	2.17E-03	1.86E-03
Barium	mg/L	6.95E-02	8.17E-02	8.51E-01	5.61E-02	5.18E-02	5.16E-02	5.67E-02	5.30E-02	5.37E-02
Beryllium	mg/L	5.21E-04	5.21E-04	1.00E+00	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04
Bismuth	mg/L	7.54E-02	7.54E-02	1.00E+00	5.00E-04	5.00E-04	5.00E-04	5.00E-04	5.00E-04	5.00E-04
Boron	mg/L	1.75E-01	1.79E-01	9.78E-01	2.12E-02	3.51E-02	6.55E-02	2.46E-02	4.00E-02	7.12E-02
Cadmium	mg/L	2.44E-05	3.17E-05	7.70E-01	1.01E-05	1.00E-05	1.01E-05	1.11E-05	1.00E-05	1.22E-05
Calcium	mg/L	7.49E+01	7.61E+01	9.84E-01	5.38E+01	8.08E+01	1.01E+02	5.39E+01	8.10E+01	1.01E+02
Cesium	mg/L			---	---	---	---	---	---	---
Chromium	mg/L	1.26E-03	5.05E-04	2.49E+00	1.00E-04	1.21E-04	1.24E-04	1.70E-04	3.41E-04	8.61E-04
Cobalt	mg/L	5.37E-04	3.51E-04	1.53E+00	1.00E-04	1.05E-04	1.92E-04	1.04E-04	1.56E-04	3.87E-04
Copper	mg/L	6.66E-03	3.36E-03	1.98E+00	7.83E-04	2.47E-03	2.07E-03	1.37E-03	3.29E-03	3.98E-03
Gallium	mg/L			---	---	---	---	---	---	---
Iron	mg/L	5.74E-01	5.70E-02	1.01E+01	1.11E-02	1.78E-02	2.96E-02	1.97E-02	1.08E-01	3.51E-01
Lead	mg/L	2.27E-04	2.61E-04	8.72E-01	5.14E-05	5.00E-05	5.00E-05	1.30E-04	5.36E-05	1.09E-04
Lithium	mg/L	3.24E-02	3.30E-02	9.82E-01	5.71E-03	7.60E-03	8.24E-03	5.71E-03	7.70E-03	8.49E-03
Magnesium	mg/L	1.57E+02	1.60E+02	9.79E-01	3.97E+01	6.91E+01	9.56E+01	3.97E+01	6.96E+01	9.56E+01
Manganese	mg/L	1.55E-01	1.88E-01	8.24E-01	3.16E-02	3.10E-02	9.43E-02	3.73E-02	4.24E-02	1.25E-01
Mercury	mg/L	1.24E-05	1.07E-05	1.15E+00	1.00E-05	1.00E-05	1.00E-05	1.00E-05	1.00E-05	1.00E-05
Molybdenum	mg/L	2.54E-02	2.35E-02	1.08E+00	2.18E-03	1.80E-02	1.02E-02	2.36E-03	1.98E-02	1.07E-02
Nickel	mg/L	3.49E-03	2.35E-03	1.49E+00	6.83E-04	2.17E-03	3.51E-03	7.66E-04	2.55E-03	4.57E-03
Phosphorus	mg/L	1.88E-01	1.63E-01	1.15E+00	1.30E-01	1.09E-01	9.81E-02	1.34E-01	1.12E-01	1.14E-01
Potassium	mg/L	9.13E+01	9.31E+01	9.81E-01	1.18E+01	1.61E+01	1.91E+01	1.18E+01	1.61E+01	1.91E+01
Rhenium	mg/L			---	---	---	---	---	---	---
Rubidium	mg/L			---	---	---	---	---	---	---
Selenium	mg/L	1.94E-03	3.01E-03	6.45E-01	1.82E-04	1.87E-04	6.90E-04	1.82E-04	1.87E-04	6.90E-04
Silver	mg/L	2.42E-05	2.18E-05	1.11E+00	1.00E-05	1.00E-05	1.00E-05	1.00E-05	1.00E-05	1.14E-05
Sodium	mg/L	4.51E+02	4.58E+02	9.84E-01	3.64E+01	5.57E+01	8.42E+01	3.72E+01	5.79E+01	8.42E+01
Strontium	mg/L	7.01E-01	6.96E-01	1.01E+00	3.68E-01	6.90E-01	9.09E-01	3.78E-01	7.14E-01	9.32E-01
Tellurium	mg/L			---	---	---	---	---	---	---
Thallium	mg/L	9.05E-05	9.04E-05	1.00E+00	1.00E-05	1.00E-05	1.07E-05	1.00E-05	1.00E-05	1.07E-05
Thorium	mg/L			---	---	---	---	---	---	---
Tin	mg/L	2.73E-04	2.68E-04	1.02E+00	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04	1.00E-04
Titanium	mg/L	3.44E-02	1.95E-02	1.76E+00	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.02E-02	1.60E-02
Uranium	mg/L	3.12E-03	3.01E-03	1.04E+00	1.08E-03	1.26E-03	2.23E-03	1.16E-03	1.36E-03	2.29E-03
Vanadium	mg/L	5.78E-03	4.82E-03	1.20E+00	1.99E-03	2.61E-03	2.82E-03	2.26E-03	3.23E-03	3.64E-03
Yttrium	mg/L			---	---	---	---	---	---	---
Zinc	mg/L	6.43E-03	3.11E-03	2.07E+00	4.48E-03	1.01E-03	1.72E-03	4.48E-03	3.00E-03	3.43E-03
Zirconium	mg/L			---	---	---	---	---	---	---

Baseline Case Public Water Concentrations- Ajax Mine Project

Parameter	Units	Concentration (Total)
Aluminum	mg/L	8.00E-03
Antimony	mg/L	2.00E-04
Arsenic	mg/L	5.00E-04
Barium	mg/L	1.00E-02
Beryllium	mg/L	1.00E-04
Bismuth	mg/L	1.00E-04
Boron	mg/L	1.10E-02
Cadmium	mg/L	1.00E-05
Calcium	mg/L	1.36E+01
Cesium	mg/L	---
Chromium	mg/L	5.00E-04
Cobalt	mg/L	5.00E-05
Copper	mg/L	3.43E-01
Gallium	mg/L	---
Iron	mg/L	2.00E-02
Lead	mg/L	3.00E-04
Lithium	mg/L	9.00E-04
Magnesium	mg/L	2.19E+00
Manganese	mg/L	1.30E-03
Mercury	mg/L	2.00E-05
Molybdenum	mg/L	7.00E-04
Nickel	mg/L	4.00E-04
Phosphorus	mg/L	2.70E-02
Potassium	mg/L	8.60E-01
Rhenium	mg/L	---
Rubidium	mg/L	---
Selenium	mg/L	5.00E-04
Silver	mg/L	5.00E-05
Sodium	mg/L	4.38E+00
Strontium	mg/L	8.00E-02
Tellurium	mg/L	2.00E-04
Thallium	mg/L	2.00E-05
Thorium	mg/L	1.00E-04
Tin	mg/L	2.00E-04
Titanium	mg/L	5.00E-03
Uranium	mg/L	7.00E-05
Vanadium	mg/L	2.00E-03
Yttrium	mg/L	---
Zinc	mg/L	5.00E-03
Zirconium	mg/L	1.00E-04

Parameter	A_{game}
	(mg COPC/kg FW tissue)
Aluminum	7.400E-01
Antimony	2.000E-03
Arsenic	4.000E-03
Barium	1.300E-02
Beryllium	2.000E-03
Bismuth	2.700E-03
Boron	2.700E-01
Cadmium	1.000E-03
Calcium	3.240E+01
Cesium	3.000E-03
Chromium	1.940E-01
Cobalt	4.000E-03
Copper	4.160E-01
Gallium	---
Iron	1.340E+01
Lead	4.000E-03
Lithium	1.000E-01
Magnesium	1.480E+02
Manganese	7.100E-02
Mercury	1.200E-03
Molybdenum	1.190E-02
Nickel	8.400E-02
Phosphorus	1.460E+03
Potassium	2.570E+03
Rhenium	---
Rubidium	9.050E-01
Selenium	1.080E-01
Silver	1.000E-03
Sodium	4.600E+02
Strontium	3.200E-02
Tellurium	4.000E-03
Thallium	4.000E-04
Thorium	---
Tin	3.800E-02
Titanium	---
Uranium	4.000E-04
Vanadium	2.700E-02
Yttrium	---
Zinc	2.770E+01
Zirconium	4.000E-02

Baseline Case Sediment Concentrations- Ajax Mine Project

Averages of 5 samples per locations

Parameter	Units	Concentration	Baseline Sediment PC02	Baseline Sediment Jacko
Aluminum	mg/kg dw	1.06E+04	1.31E+04	6.48E+03
Antimony	mg/kg dw	4.05E-01	3.30E-01	3.78E-01
Arsenic	mg/kg dw	4.90E+00	4.43E+00	4.36E+00
Barium	mg/kg dw	1.64E+02	1.41E+02	2.06E+02
Beryllium	mg/kg dw	2.38E-01	2.86E-01	1.40E-01
Bismuth	mg/kg dw	1.00E-01	1.00E-01	1.00E-01
Boron	mg/kg dw	2.18E+01	1.02E+01	1.72E+01
Cadmium	mg/kg dw	1.31E-01	1.43E-01	1.08E-01
Calcium	mg/kg dw	5.65E+04	1.67E+04	1.45E+05
Cesium	mg/kg dw	---	---	---
Chromium	mg/kg dw	6.68E+01	1.20E+02	3.47E+01
Cobalt	mg/kg dw	1.07E+01	1.33E+01	6.79E+00
Copper	mg/kg dw	6.37E+01	5.66E+01	6.95E+01
Gallium	mg/kg dw	---	---	---
Iron	mg/kg dw	2.31E+04	2.64E+04	1.24E+04
Lead	mg/kg dw	4.18E+00	4.89E+00	3.41E+00
Lithium	mg/kg dw	7.19E+00	6.28E+00	5.00E+00
Magnesium	mg/kg dw	2.84E+04	1.24E+04	9.29E+03
Manganese	mg/kg dw	7.22E+02	9.47E+02	7.49E+02
Mercury	mg/kg dw	4.86E-02	6.30E-02	5.57E-02
Molybdenum	mg/kg dw	4.34E+00	1.29E+00	1.71E+01
Nickel	mg/kg dw	4.65E+01	7.36E+01	3.48E+01
Phosphorus	mg/kg dw	1.11E+03	1.07E+03	1.32E+03
Potassium	mg/kg dw	2.09E+03	2.18E+03	1.17E+03
Rhenium	mg/kg dw	---	---	---
Rubidium	mg/kg dw	---	---	---
Selenium	mg/kg dw	7.54E-01	7.26E-01	1.45E+00
Silver	mg/kg dw	7.72E-02	5.94E-02	7.37E-02
Sodium	mg/kg dw	2.99E+03	6.40E+02	5.84E+02
Strontium	mg/kg dw	3.49E+02	1.17E+02	4.53E+02
Tellurium	mg/kg dw	---	---	---
Thallium	mg/kg dw	6.37E-02	6.26E-02	5.00E-02
Thorium	mg/kg dw	---	---	---
Tin	mg/kg dw	7.26E-01	6.26E-01	1.11E+00
Titanium	mg/kg dw	6.94E+02	1.00E+03	3.04E+02
Uranium	mg/kg dw	1.73E+00	5.49E-01	3.87E+00
Vanadium	mg/kg dw	7.00E+01	6.68E+01	4.44E+01
Yttrium	mg/kg dw	---	---	---
Zinc	mg/kg dw	4.38E+01	6.04E+01	2.73E+01
Zirconium	mg/kg dw	---	---	---

Baseline Case Root Vegetable Concentrations- Ajax Mine Project

Parameter	Units		
		Aberdeen	Brocklehurst
Aluminum	mg/kg ww	2.57E+02	1.14E+01
Antimony	mg/kg ww	6.10E-03	2.00E-03
Arsenic	mg/kg ww	6.19E-02	4.00E-03
Barium	mg/kg ww	7.81E+00	3.66E+00
Beryllium	mg/kg ww	5.90E-03	2.00E-03
Bismuth	mg/kg ww	3.30E-03	2.00E-03
Boron	mg/kg ww	3.48E+00	2.43E+00
Cadmium	mg/kg ww	1.72E-02	7.40E-03
Calcium	mg/kg ww	6.44E+02	2.13E+02
Cesium	mg/kg ww	1.45E-02	1.60E-03
Chromium	mg/kg ww	2.92E-01	3.60E-02
Cobalt	mg/kg ww	1.84E-01	1.16E-02
Copper	mg/kg ww	1.82E+00	9.86E-01
Gallium	mg/kg ww	8.40E-02	4.00E-03
Iron	mg/kg ww	3.69E+02	1.64E+01
Lead	mg/kg ww	1.06E-01	1.06E-02
Lithium	mg/kg ww	1.69E-01	2.00E-02
Magnesium	mg/kg ww	5.77E+02	2.26E+02
Manganese	mg/kg ww	1.30E+01	3.01E+00
Mercury	mg/kg ww	1.00E-03	1.00E-03
Molybdenum	mg/kg ww	7.61E-02	4.89E-02
Nickel	mg/kg ww	7.39E-01	3.10E-02
Phosphorus	mg/kg ww	4.79E+02	4.12E+02
Potassium	mg/kg ww	4.39E+03	3.20E+03
Rhenium	mg/kg ww	2.00E-03	2.00E-03
Rubidium	mg/kg ww	8.33E-01	4.79E-01
Selenium	mg/kg ww	2.00E-02	2.00E-02
Silver	mg/kg ww	-	-
Sodium	mg/kg ww	5.51E+02	3.10E+02
Strontium	mg/kg ww	5.35E+00	2.21E+00
Tellurium	mg/kg ww	4.00E-03	4.00E-03
Thallium	mg/kg ww	2.27E-03	4.00E-04
Thorium	mg/kg ww	3.59E-02	4.30E-03
Tin	mg/kg ww	9.30E-03	4.00E-03
Titanium	mg/kg ww	2.12E+01	7.73E-01
Uranium	mg/kg ww	1.34E-02	1.33E-03
Vanadium	mg/kg ww	1.05E+00	2.53E-02
Yttrium	mg/kg ww	1.38E-01	6.60E-03
Zinc	mg/kg ww	4.39E+00	2.62E+00
Zirconium	mg/kg ww	1.72E-01	4.00E-02

Baseline Case Root Vegetable Concentrations- Ajax Mine Project

Concentration			
Sahali	**Knutsford**	**North Shore**	**West End/Downtown**
2.34E+01	2.57E+02	1.74E+01	1.14E+01
2.00E-03	6.10E-03	2.00E-03	2.00E-03
9.30E-03	6.19E-02	1.60E-02	4.00E-03
1.12E+00	7.81E+00	1.38E+00	3.66E+00
2.00E-03	5.90E-03	2.00E-03	2.00E-03
2.00E-03	3.30E-03	2.00E-03	2.00E-03
2.91E+00	3.48E+00	2.03E+00	2.43E+00
3.10E-03	1.72E-02	3.08E-02	7.40E-03
2.08E+02	6.44E+02	1.68E+02	2.13E+02
1.60E-03	1.45E-02	1.20E-03	1.60E-03
9.60E-02	2.92E-01	7.45E-02	3.60E-02
1.65E-02	1.84E-01	2.55E-02	1.16E-02
1.09E+00	1.82E+00	7.46E-01	9.86E-01
6.60E-03	8.40E-02	4.75E-03	4.00E-03
3.14E+01	3.69E+02	2.48E+01	1.64E+01
1.22E-02	1.06E-01	9.85E-03	1.06E-02
2.30E-02	1.69E-01	2.00E-02	2.00E-02
5.04E+02	5.77E+02	2.21E+02	2.26E+02
2.52E+00	1.30E+01	2.25E+00	3.01E+00
1.00E-03	1.00E-03	1.00E-03	1.00E-03
5.04E-02	7.61E-02	2.02E-01	4.89E-02
7.40E-02	7.39E-01	8.05E-02	3.10E-02
5.26E+02	4.79E+02	3.72E+02	4.12E+02
4.89E+03	4.39E+03	3.67E+03	3.20E+03
7.10E-03	2.00E-03	2.00E-03	2.00E-03
1.17E+00	8.33E-01	4.08E-01	4.79E-01
2.00E-02	2.00E-02	2.00E-02	2.00E-02
-	-	-	-
1.15E+03	5.51E+02	1.11E+03	3.10E+02
1.58E+00	5.35E+00	2.35E+00	2.21E+00
4.00E-03	4.00E-03	4.00E-03	4.00E-03
9.10E-04	2.27E-03	9.30E-04	4.00E-04
4.30E-03	3.59E-02	2.00E-03	4.30E-03
4.90E-03	9.30E-03	9.15E-03	4.00E-03
1.63E+00	2.12E+01	7.45E-01	7.73E-01
1.82E-03	1.34E-02	7.70E-04	1.33E-03
8.87E-02	1.05E+00	6.24E-02	2.53E-02
1.10E-02	1.38E-01	5.70E-03	6.60E-03
3.94E+00	4.39E+00	2.94E+00	2.62E+00
1.13E-01	1.72E-01	4.00E-02	4.00E-02

Baseline Case Garden Leaf Concentrations- Ajax Mine Project

Parameter	Units		
		Aberdeen	Brocklehurst
Aluminum	mg/kg ww	2.53E+01	1.87E+01
Antimony	mg/kg ww	2.00E-03	2.00E-03
Arsenic	mg/kg ww	1.09E-02	5.50E-03
Barium	mg/kg ww	1.26E+00	1.50E+00
Beryllium	mg/kg ww	2.00E-03	2.00E-03
Bismuth	mg/kg ww	2.00E-03	2.00E-03
Boron	mg/kg ww	2.13E+00	5.04E+00
Cadmium	mg/kg ww	1.13E-02	2.01E-02
Calcium	mg/kg ww	9.88E+02	1.18E+03
Cesium	mg/kg ww	1.60E-03	3.30E-03
Chromium	mg/kg ww	1.10E-01	6.20E-02
Cobalt	mg/kg ww	1.98E-02	1.81E-02
Copper	mg/kg ww	9.56E-01	1.06E+00
Gallium	mg/kg ww	8.10E-03	6.10E-03
Iron	mg/kg ww	3.86E+01	3.08E+01
Lead	mg/kg ww	1.76E-02	1.43E-02
Lithium	mg/kg ww	2.00E-02	1.02E-01
Magnesium	mg/kg ww	2.43E+02	6.27E+02
Manganese	mg/kg ww	3.89E+00	1.37E+01
Mercury	mg/kg ww	1.00E-03	1.00E-03
Molybdenum	mg/kg ww	9.40E-01	7.39E-01
Nickel	mg/kg ww	1.06E-01	5.40E-02
Phosphorus	mg/kg ww	6.58E+02	4.54E+02
Potassium	mg/kg ww	6.75E+03	8.65E+03
Rhenium	mg/kg ww	2.00E-03	2.80E-03
Rubidium	mg/kg ww	1.02E+00	6.81E-01
Selenium	mg/kg ww	2.00E-02	3.60E-02
Silver	mg/kg ww	-	-
Sodium	mg/kg ww	5.70E+01	1.83E+03
Strontium	mg/kg ww	5.13E+00	4.04E+00
Tellurium	mg/kg ww	4.00E-03	4.00E-03
Thallium	mg/kg ww	4.00E-04	5.10E-04
Thorium	mg/kg ww	2.60E-03	6.80E-03
Tin	mg/kg ww	4.00E-03	4.00E-03
Titanium	mg/kg ww	1.78E+00	1.61E+00
Uranium	mg/kg ww	1.92E-03	2.24E-03
Vanadium	mg/kg ww	1.03E-01	5.24E-02
Yttrium	mg/kg ww	1.49E-02	1.10E-02
Zinc	mg/kg ww	6.87E+00	2.59E+00
Zirconium	mg/kg ww	4.00E-02	4.00E-02

Baseline Case Garden Leaf Concentrations- Ajax Mine Project

Concentration			
Sahali	**Knutsford**	**North Shore**	**West End/Downtown**
5.53E+00	2.53E+01	1.74E+01	9.23E+00
2.00E-03	2.00E-03	2.00E-03	2.00E-03
1.00E-02	1.09E-02	6.20E-03	6.70E-03
4.97E-01	1.26E+00	5.20E-01	8.74E-01
2.00E-03	2.00E-03	2.00E-03	2.00E-03
2.00E-03	2.00E-03	2.00E-03	2.00E-03
2.87E+00	2.13E+00	5.20E+00	4.63E+00
1.01E-02	1.13E-02	3.51E-02	1.36E-02
9.13E+02	9.88E+02	8.20E+02	6.61E+02
1.00E-03	1.60E-03	1.60E-03	1.00E-03
2.70E-02	1.10E-01	4.50E-02	4.60E-02
5.80E-03	1.98E-02	1.72E-02	8.60E-03
1.14E+00	9.56E-01	1.10E+00	1.15E+00
4.00E-03	8.10E-03	5.10E-03	4.00E-03
1.24E+01	3.86E+01	1.80E+01	1.80E+01
7.90E-03	1.76E-02	1.61E-02	1.26E-02
2.20E-02	2.00E-02	4.70E-02	3.98E-01
4.37E+02	2.43E+02	1.04E+03	1.01E+03
2.37E+00	3.89E+00	5.74E+00	4.60E+00
1.00E-03	1.00E-03	1.20E-03	1.00E-03
7.82E-01	9.40E-01	4.96E-01	8.10E-01
3.10E-02	1.06E-01	6.50E-02	3.50E-02
7.13E+02	6.58E+02	8.89E+02	3.89E+02
7.81E+03	6.75E+03	6.42E+03	6.07E+03
2.00E-03	2.00E-03	1.32E-02	1.47E-02
2.33E+00	1.02E+00	6.90E-01	1.02E+00
2.00E-02	2.00E-02	2.00E-02	2.00E-02
-	-	-	-
3.54E+02	5.70E+01	1.62E+03	1.42E+03
3.65E+00	5.13E+00	1.77E+00	2.33E+00
4.00E-03	4.00E-03	4.00E-03	4.00E-03
4.00E-04	4.00E-04	4.70E-04	4.00E-04
2.00E-03	2.60E-03	2.90E-03	2.50E-03
4.40E-03	4.00E-03	4.40E-03	4.00E-03
5.53E-01	1.78E+00	7.42E-01	7.56E-01
4.00E-04	1.92E-03	1.84E-03	9.60E-04
2.82E-02	1.03E-01	3.74E-02	3.33E-02
3.40E-03	1.49E-02	4.80E-03	5.30E-03
7.88E+00	6.87E+00	7.82E+00	4.19E+00
4.00E-02	4.00E-02	4.00E-02	4.00E-02

Baseline Case Fruit Concentration- Ajax Mine Project

Parameter	Units		
		Aberdeen	Brocklehurst
Aluminum	mg/kg ww	3.20E+00	4.50E-01
Antimony	mg/kg ww	2.00E-03	2.00E-03
Arsenic	mg/kg ww	4.00E-03	4.00E-03
Barium	mg/kg ww	3.06E-01	6.42E-01
Beryllium	mg/kg ww	2.00E-03	2.00E-03
Bismuth	mg/kg ww	2.00E-03	2.00E-03
Boron	mg/kg ww	2.26E+00	7.50E-01
Cadmium	mg/kg ww	2.35E-03	5.65E-03
Calcium	mg/kg ww	1.07E+02	2.14E+02
Cesium	mg/kg ww	1.00E-03	1.00E-03
Chromium	mg/kg ww	1.55E-02	1.60E-02
Cobalt	mg/kg ww	4.05E-03	1.69E-02
Copper	mg/kg ww	5.13E-01	1.17E+00
Gallium	mg/kg ww	4.00E-03	4.00E-03
Iron	mg/kg ww	4.29E+00	2.83E+00
Lead	mg/kg ww	4.00E-03	4.00E-03
Lithium	mg/kg ww	2.00E-02	2.00E-02
Magnesium	mg/kg ww	1.10E+02	1.06E+02
Manganese	mg/kg ww	6.42E-01	6.69E-01
Mercury	mg/kg ww	1.00E-03	1.00E-03
Molybdenum	mg/kg ww	1.02E-01	4.16E-02
Nickel	mg/kg ww	1.90E-02	7.35E-02
Phosphorus	mg/kg ww	2.40E+02	2.18E+02
Potassium	mg/kg ww	2.05E+03	2.31E+03
Rhenium	mg/kg ww	2.00E-03	2.00E-03
Rubidium	mg/kg ww	2.71E-01	7.60E-01
Selenium	mg/kg ww	2.00E-02	2.00E-02
Silver	mg/kg ww	-	-
Sodium	mg/kg ww	2.00E+01	2.05E+01
Strontium	mg/kg ww	6.42E-01	7.84E-01
Tellurium	mg/kg ww	4.00E-03	4.00E-03
Thallium	mg/kg ww	4.00E-04	4.00E-04
Thorium	mg/kg ww	2.00E-03	2.00E-03
Tin	mg/kg ww	1.53E-02	1.02E-02
Titanium	mg/kg ww	1.68E-01	2.50E-02
Uranium	mg/kg ww	4.00E-04	4.00E-04
Vanadium	mg/kg ww	8.10E-03	4.00E-03
Yttrium	mg/kg ww	2.00E-03	2.00E-03
Zinc	mg/kg ww	6.15E-01	1.29E+00
Zirconium	mg/kg ww	4.00E-02	4.00E-02

Baseline Case Fruit Concentration- Ajax Mine Project

Concentration			
Sahali	**Knutsford**	**North Shore**	**West End/Downtown**
4.00E-01	3.20E+00	4.30E-01	4.00E-01
2.00E-03	2.00E-03	2.00E-03	2.00E-03
4.00E-03	4.00E-03	4.00E-03	4.00E-03
4.00E-02	3.06E-01	1.28E-01	2.80E-02
2.00E-03	2.00E-03	2.00E-03	2.00E-03
2.00E-03	2.00E-03	2.00E-03	2.00E-03
1.08E+00	2.26E+00	9.60E-01	4.90E-01
2.00E-03	2.35E-03	4.20E-03	2.00E-03
8.98E+01	1.07E+02	1.25E+02	5.42E+01
1.00E-03	1.00E-03	1.00E-03	1.00E-03
1.40E-02	1.55E-02	2.90E-02	1.00E-02
4.00E-03	4.05E-03	5.50E-03	4.00E-03
7.71E-01	5.13E-01	6.26E-01	2.37E-01
4.00E-03	4.00E-03	4.00E-03	4.00E-03
2.85E+00	4.29E+00	2.90E+00	1.17E+00
4.00E-03	4.00E-03	4.00E-03	4.00E-03
2.00E-02	2.00E-02	2.00E-02	2.00E-02
1.35E+02	1.10E+02	9.18E+01	5.23E+01
6.26E-01	6.42E-01	5.48E-01	2.96E-01
1.00E-03	1.00E-03	1.00E-03	1.00E-03
1.21E-01	1.02E-01	7.19E-02	6.28E-02
1.00E-02	1.90E-02	3.30E-02	1.00E-02
3.62E+02	2.40E+02	3.10E+02	1.28E+02
2.96E+03	2.05E+03	2.13E+03	1.18E+03
2.00E-03	2.00E-03	2.00E-03	2.00E-03
7.25E-01	2.71E-01	3.62E-01	1.99E-01
2.00E-02	2.00E-02	2.00E-02	2.00E-02
-	-	-	-
2.00E+01	2.00E+01	2.00E+01	2.00E+01
2.89E-01	6.42E-01	6.41E-01	2.06E-01
4.00E-03	4.00E-03	4.00E-03	4.00E-03
4.00E-04	4.00E-04	4.00E-04	4.00E-04
2.00E-03	2.00E-03	2.00E-03	2.00E-03
9.10E-03	1.53E-02	3.27E-02	4.00E-03
1.60E-02	1.68E-01	2.10E-02	1.50E-02
4.00E-04	4.00E-04	4.00E-04	4.00E-04
4.00E-03	8.10E-03	4.00E-03	4.00E-03
2.00E-03	2.00E-03	2.00E-03	2.00E-03
1.81E+00	6.15E-01	1.58E+00	6.80E-01
4.00E-02	4.00E-02	4.00E-02	4.00E-02

Baseline Case Fish Concentration (Whole Body and Fillet)- Ajax Mine Project

Parameter	Units	Concentration	Concentration (fillets)- Concentration used for HHRA
Aluminum	mg/kg ww	1.32E+01	1.00E+00
Antimony	mg/kg ww	2.00E-03	2.00E-03
Arsenic	mg/kg ww	5.68E-02	1.44E-02
Barium	mg/kg ww	9.85E-01	3.23E-02
Beryllium	mg/kg ww	2.00E-03	2.00E-03
Bismuth	mg/kg ww	2.00E-03	2.00E-03
Boron	mg/kg ww	2.00E-01	2.00E-01
Cadmium	mg/kg ww	1.75E-02	1.25E-02
Calcium	mg/kg ww	6.53E+03	3.59E+02
Cesium	mg/kg ww	4.69E-03	5.20E-03
Chromium	mg/kg ww	3.56E-02	4.00E-02
Cobalt	mg/kg ww	4.86E-02	5.86E-02
Copper	mg/kg ww	1.72E+00	5.30E-01
Gallium	mg/kg ww	---	---
Iron	mg/kg ww	2.53E+01	8.99E+00
Lead	mg/kg ww	1.78E-01	3.15E-01
Lithium	mg/kg ww	1.00E-01	1.00E-01
Magnesium	mg/kg ww	3.52E+02	2.56E+02
Manganese	mg/kg ww	1.54E+00	2.32E-01
Mercury	mg/kg ww	9.18E-02	5.69E-02
Molybdenum	mg/kg ww	1.57E-02	5.72E-02
Nickel	mg/kg ww	1.03E-01	1.53E+00
Phosphorus	mg/kg ww	5.70E+03	2.26E+03
Potassium	mg/kg ww	3.59E+03	4.21E+03
Rhenium	mg/kg ww	---	---
Rubidium	mg/kg ww	5.96E-01	5.05E-01
Selenium	mg/kg ww	1.13E+00	9.37E-01
Silver	mg/kg ww	6.40E-03	1.60E-03
Sodium	mg/kg ww	8.12E+02	6.33E+02
Strontium	mg/kg ww	1.43E+01	1.16E+00
Tellurium	mg/kg ww	4.00E-03	4.00E-03
Thallium	mg/kg ww	3.98E-03	3.05E-03
Thorium	mg/kg ww	---	---
Tin	mg/kg ww	2.00E-02	2.00E-02
Titanium	mg/kg ww	1.22E+00	1.00E-01
Uranium	mg/kg ww	7.92E-03	5.60E-04
Vanadium	mg/kg ww	5.33E-02	2.30E-02
Yttrium	mg/kg ww	---	---
Zinc	mg/kg ww	2.48E+01	6.98E+00
Zirconium	mg/kg ww	4.00E-02	4.00E-02
Methyl Mercury	mg/kg ww	8.03E-02	3.92E-02

Baseline Case Fish Concentration (Whole Body and Fillet)- Ajax Mine Project

Jacko - Whole Fish - EPC	PC - Whole Fish - EPC	Jacko - Whole Fish - UCLM
5.77E+00	2.93E+01	5.77E+00
2.00E-03	2.00E-03	
6.15E-02	7.68E-02	6.15E-02
1.49E+00	1.12E+00	1.49E+00
2.00E-03	2.00E-03	
2.00E-03	2.00E-03	
2.00E-01	2.00E-01	
1.60E-03	1.75E-02	
7.38E+03	9.44E+03	7.38E+03
3.94E-03	4.50E-03	3.94E-03
3.00E-02	1.29E-01	
2.46E-02	9.81E-02	2.46E-02
2.13E+00	2.62E+00	2.13E+00
---	---	---
1.82E+01	6.27E+01	1.82E+01
1.73E-01	1.84E-02	1.73E-01
1.00E-01	1.00E-01	
3.71E+02	4.34E+02	3.71E+02
1.76E+00	2.45E+00	1.76E+00
1.20E-01	3.94E-02	1.20E-01
1.69E-02	2.83E-02	1.69E-02
4.00E-02	1.03E-01	
5.95E+03	7.67E+03	5.95E+03
3.71E+03	3.52E+03	3.71E+03
---	---	---
5.83E-01	4.36E-01	5.83E-01
6.51E-01	2.12E+00	
2.10E-03	6.40E-03	
7.60E+02	1.20E+03	7.60E+02
1.53E+01	2.77E+01	1.53E+01
4.00E-03	4.00E-03	
4.00E-04	3.98E-03	
---	---	---
2.00E-02	2.00E-02	
7.98E-01	3.17E+00	7.98E-01
5.94E-03	1.57E-02	
4.70E-02	1.56E-01	
---	---	---
2.33E+01	4.16E+01	2.33E+01
4.00E-02	4.00E-02	
1.14E-01	3.18E-02	1.14E-01

Baseline Case Fish Concentration (Whole Body and Fillet)- Ajax Mine Project

Jacko - Whole Fish - Max	PC - Whole Fish - UCLM	PC - Whole Fish - Max
8.33E+00	N/A - Only 3 samples	2.93E+01
2.00E-03	N/A - Only 3 samples	2.00E-03
7.20E-02	N/A - Only 3 samples	7.68E-02
1.93E+00	N/A - Only 3 samples	1.12E+00
2.00E-03	N/A - Only 3 samples	2.00E-03
2.00E-03	N/A - Only 3 samples	2.00E-03
2.00E-01	N/A - Only 3 samples	2.00E-01
1.60E-03	N/A - Only 3 samples	1.75E-02
8.34E+03	N/A - Only 3 samples	9.44E+03
5.00E-03	N/A - Only 3 samples	4.50E-03
3.00E-02	N/A - Only 3 samples	1.29E-01
3.36E-02	N/A - Only 3 samples	9.81E-02
2.80E+00	N/A - Only 3 samples	2.62E+00
---	---	---
2.08E+01	N/A - Only 3 samples	6.27E+01
1.98E-01	N/A - Only 3 samples	1.84E-02
1.00E-01	N/A - Only 3 samples	1.00E-01
3.92E+02	N/A - Only 3 samples	4.34E+02
2.48E+00	N/A - Only 3 samples	2.45E+00
1.37E-01	N/A - Only 3 samples	3.94E-02
1.98E-02	N/A - Only 3 samples	2.83E-02
4.00E-02	N/A - Only 3 samples	1.03E-01
6.79E+03	N/A - Only 3 samples	7.67E+03
3.87E+03	N/A - Only 3 samples	3.52E+03
---	---	---
6.61E-01	N/A - Only 3 samples	4.36E-01
6.51E-01	N/A - Only 3 samples	2.12E+00
2.10E-03	N/A - Only 3 samples	6.40E-03
8.35E+02	N/A - Only 3 samples	1.20E+03
1.83E+01	N/A - Only 3 samples	2.77E+01
4.00E-03	N/A - Only 3 samples	4.00E-03
4.00E-04	N/A - Only 3 samples	3.98E-03
---	---	---
2.00E-02	N/A - Only 3 samples	2.00E-02
9.25E-01	N/A - Only 3 samples	3.17E+00
5.94E-03	N/A - Only 3 samples	1.57E-02
4.70E-02	N/A - Only 3 samples	1.56E-01
---	---	---
2.71E+01	N/A - Only 3 samples	4.16E+01
4.00E-02	N/A - Only 3 samples	4.00E-02
1.38E-01	N/A - Only 3 samples	3.18E-02

Baseline Case Vegetation Concentration- Ajax Mine Project

Parameter	Units	Concentration				
		Browse	Forage	Berries	Traditional Plant	Browse and Forage
Aluminum	mg/kg ww	6.24E+01	7.47E+01	1.32E+01	2.55E+01	5.30E+01
Antimony	mg/kg ww	6.28E-03	4.40E-03	1.50E-03	2.08E-03	4.58E-03
Arsenic	mg/kg ww	1.85E-01	3.26E-02	1.16E-02	1.58E-02	9.06E-02
Barium	mg/kg ww	1.37E+01	2.65E+01	2.41E+00	7.22E+00	1.89E+01
Beryllium	mg/kg ww	2.00E-03	2.10E-03	---	---	2.10E-03
Bismuth	mg/kg ww	2.00E-03	2.00E-03	---	---	2.00E-03
Boron	mg/kg ww	4.38E+01	4.01E+01	---	---	4.11E+01
Cadmium	mg/kg ww	4.09E-01	2.15E-02	1.21E-03	5.27E-03	8.08E-02
Calcium	mg/kg ww	1.35E+04	4.63E+03	1.05E+03	1.77E+03	8.84E+03
Cesium	mg/kg ww	8.21E-03	1.63E-02	---	---	8.06E-03
Chromium	mg/kg ww	8.87E-01	2.64E-01	1.81E-03	5.42E-02	5.18E-01
Cobalt	mg/kg ww	1.36E+00	1.40E-01	1.13E-02	3.70E-02	7.08E-01
Copper	mg/kg ww	3.56E+00	2.67E+00	2.30E+00	2.38E+00	2.95E+00
Gallium	mg/kg ww	1.81E-02	3.05E-02	---	---	1.58E-02
Iron	mg/kg ww	1.07E+02	1.01E+02	9.80E+00	2.79E+01	8.78E+01
Lead	mg/kg ww	5.34E-02	2.41E-02	1.03E-03	5.64E-03	3.76E-02
Lithium	mg/kg ww	1.01E+00	6.49E-01	---	---	4.62E-01
Magnesium	mg/kg ww	3.37E+03	1.22E+03	3.99E+02	5.63E+02	2.38E+03
Manganese	mg/kg ww	4.87E+01	3.25E+01	6.46E+01	5.82E+01	3.77E+01
Mercury	mg/kg ww	8.50E-03	4.63E-03	2.91E-02	2.42E-02	6.35E-03
Molybdenum	mg/kg ww	5.90E-01	5.14E+00	2.22E-02	1.04E+00	4.41E+00
Nickel	mg/kg ww	1.23E+00	5.23E-01	3.95E-01	4.20E-01	8.80E-01
Phosphorus	mg/kg ww	1.89E+03	1.11E+03	---	---	1.39E+03
Potassium	mg/kg ww	9.34E+03	8.01E+03	3.42E+03	4.34E+03	7.93E+03
Rhenium	mg/kg ww	9.58E-02	7.32E-02	---	---	3.21E-02
Rubidium	mg/kg ww	1.52E+00	9.32E-01	---	---	1.16E+00
Selenium	mg/kg ww	1.29E-01	1.22E-01	1.44E-01	1.40E-01	8.97E-02
Silver	mg/kg ww	---	---	---	---	---
Sodium	mg/kg ww	3.17E+02	2.00E+01	1.12E+01	1.29E+01	3.17E+02
Strontium	mg/kg ww	9.87E+01	5.71E+01	---	---	6.93E+01
Tellurium	mg/kg ww	4.00E-03	4.00E-03	---	---	4.00E-03
Thallium	mg/kg ww	7.97E-04	1.00E-03	2.01E-04	3.61E-04	6.67E-04
Thorium	mg/kg ww	3.60E-03	9.90E-03	---	---	8.92E-03
Tin	mg/kg ww	7.50E-03	6.40E-03	4.68E-03	5.02E-03	5.00E-03
Titanium	mg/kg ww	3.32E+00	3.12E+00	2.91E-01	8.57E-01	2.95E+00
Uranium	mg/kg ww	3.70E-03	4.67E-03	1.24E-04	1.03E-03	2.72E-03
Vanadium	mg/kg ww	3.03E-01	3.79E-01	9.72E-03	8.36E-02	2.62E-01
Yttrium	mg/kg ww	2.46E-02	2.56E-02	---	---	2.31E-02
Zinc	mg/kg ww	5.20E+01	7.66E+00	1.22E+00	2.51E+00	3.61E+01
Zirconium	mg/kg ww	4.00E-02	7.10E-02	---	---	7.10E-02

Baseline Case Vegetation Concentration- Ajax Mine Project

Units	Concentration				
	Browse	Forage	Berries	Traditional Plant	Browse and Forage
mg/kg dw	4.16E+02	1.59E+02	7.32E+01	9.03E+01	3.53E+02
mg/kg dw	4.19E-02	1.00E-02	8.35E-03	8.68E-03	3.05E-02
mg/kg dw	1.23E+00	7.09E-02	6.43E-02	6.56E-02	6.04E-01
mg/kg dw	9.16E+01	5.93E+01	1.34E+01	2.26E+01	1.26E+02
mg/kg dw	1.33E-02	1.00E-02	---	#VALUE!	1.40E-02
mg/kg dw	1.33E-02	1.00E-02	---	#VALUE!	1.33E-02
mg/kg dw	2.92E+02	1.11E+02	---	#VALUE!	2.74E+02
mg/kg dw	2.73E+00	5.80E-02	6.72E-03	1.70E-02	5.39E-01
mg/kg dw	9.01E+04	1.22E+04	5.83E+03	7.11E+03	5.89E+04
mg/kg dw	5.47E-02	4.39E-02	---	#VALUE!	5.37E-02
mg/kg dw	5.91E+00	5.48E-01	1.00E-02	1.18E-01	3.45E+00
mg/kg dw	9.07E+00	1.11E+00	6.26E-02	2.73E-01	4.72E+00
mg/kg dw	2.37E+01	7.37E+00	1.28E+01	1.17E+01	1.96E+01
mg/kg dw	1.21E-01	8.20E-02	---	---	1.05E-01
mg/kg dw	7.14E+02	2.20E+02	5.44E+01	8.76E+01	5.85E+02
mg/kg dw	3.56E-01	7.80E-02	5.71E-03	2.02E-02	2.51E-01
mg/kg dw	6.73E+00	1.76E+00	---	---	3.08E+00
mg/kg dw	2.25E+04	3.44E+03	2.22E+03	2.46E+03	1.58E+04
mg/kg dw	3.24E+02	7.21E+01	3.59E+02	3.02E+02	2.51E+02
mg/kg dw	5.67E-02	1.02E-02	2.91E-02	2.54E-02	4.23E-02
mg/kg dw	3.93E+00	1.14E+01	1.23E-01	2.38E+00	2.94E+01
mg/kg dw	8.23E+00	2.03E+00	2.19E+00	2.16E+00	5.87E+00
mg/kg dw	1.26E+04	2.79E+03	---	---	9.25E+03
mg/kg dw	6.23E+04	2.15E+04	1.90E+04	1.95E+04	5.28E+04
mg/kg dw	6.39E-01	2.02E-01	---	---	2.14E-01
mg/kg dw	1.02E+01	3.65E+00	---	---	7.71E+00
mg/kg dw	8.60E-01	5.10E-01	8.02E-01	7.43E-01	5.98E-01
mg/kg dw	---	---	---	---	---
mg/kg dw	2.11E+03	1.00E+03	6.20E+01	2.50E+02	2.11E+03
mg/kg dw	6.58E+02	2.25E+02	---	---	4.62E+02
mg/kg dw	2.67E-02	2.00E-02	---	---	2.67E-02
mg/kg dw	5.31E-03	2.00E-03	1.12E-03	1.29E-03	4.45E-03
mg/kg dw	2.40E-02	1.80E-02	---	---	5.95E-02
mg/kg dw	5.00E-02	2.00E-02	2.60E-02	2.48E-02	3.33E-02
mg/kg dw	2.21E+01	8.05E+00	1.61E+00	2.90E+00	1.97E+01
mg/kg dw	2.47E-02	1.26E-02	6.86E-04	3.07E-03	1.81E-02
mg/kg dw	2.02E+00	8.09E-01	5.40E-02	2.05E-01	1.75E+00
mg/kg dw	1.64E-01	6.80E-02	---	---	1.54E-01
mg/kg dw	3.46E+02	1.79E+01	6.78E+00	9.00E+00	2.40E+02
mg/kg dw	2.67E-01	2.00E-01	---	---	4.73E-01

Baseline Case Small Mammal Concentration- Ajax Mine Project

Parameter	Units	Concentration
Aluminum	mg/kg	2.66E+02
Antimony	mg/kg	5.30E-03
Arsenic	mg/kg	2.33E-02
Barium	mg/kg	5.81E+00
Beryllium	mg/kg	2.00E-03
Bismuth	mg/kg	3.50E-03
Boron	mg/kg	3.20E+00
Cadmium	mg/kg	1.75E-02
Calcium	mg/kg	9.45E+03
Cesium	mg/kg	5.13E-03
Chromium	mg/kg	2.67E-01
Cobalt	mg/kg	6.86E-02
Copper	mg/kg	3.60E+00
Gallium	mg/kg	3.54E-02
Iron	mg/kg	1.17E+02
Lead	mg/kg	1.10E-01
Lithium	mg/kg	1.10E-01
Magnesium	mg/kg	5.03E+02
Manganese	mg/kg	6.43E+00
Mercury	mg/kg	5.80E-03
Molybdenum	mg/kg	5.07E-01
Nickel	mg/kg	3.65E-01
Phosphorus	mg/kg	6.67E+03
Potassium	mg/kg	3.49E+03
Rhenium	mg/kg	3.88E-02
Rubidium	mg/kg	1.63E+00
Selenium	mg/kg	4.05E-01
Silver	mg/kg	---
Sodium	mg/kg	1.52E+03
Strontium	mg/kg	2.32E+01
Tellurium	mg/kg	4.00E-03
Thallium	mg/kg	6.70E-04
Thorium	mg/kg	5.90E-03
Tin	mg/kg	---
Titanium	mg/kg	1.49E-01
Uranium	mg/kg	2.12E-03
Vanadium	mg/kg	1.86E-01
Yttrium	mg/kg	1.54E-02
Zinc	mg/kg	2.90E+01
Zirconium	mg/kg	4.00E-02

Baseline Case Concentration in Deer- Ajax Mine Project

Parameter	A_{game}	$F_{(forage)}$	$Qp_{(game)}$	Concentration in Vegetation (Forage)	Proportion of Diet (Forage)	Concentration in Vegetation (Browse)	Proportion of Diet (Browse)
	(mg COPC/kg FW tissue)	(unitless)	(kg DW plant/day)	(mg/kg DW)	(unitless)	(mg/kg DW)	(unitless)
Aluminum	9.93E-01	1	0.975	1.59E+02	65%	4.16E+02	35%
Antimony	2.45E-05	1	0.975	1.00E-02	65%	4.19E-02	35%
Arsenic	8.34E-04	1	0.975	7.09E-02	65%	1.23E+00	35%
Barium	6.32E-03	1	0.975	5.93E+01	65%	9.16E+01	35%
Beryllium	#VALUE!	1	0.975	1.00E-02	65%	1.33E-02	35%
Bismuth	#VALUE!	1	0.975	1.00E-02	65%	1.33E-02	35%
Boron	#VALUE!	1	0.975	1.11E+02	65%	2.92E+02	35%
Cadmium	6.17E-05	1	0.975	5.80E-02	65%	2.73E+00	35%
Calcium	1.47E+01	1	0.975	1.22E+04	65%	9.01E+04	35%
Cesium	#VALUE!	1	0.975	4.39E-02	65%	5.47E-02	35%
Chromium	1.73E-02	1	0.975	5.48E-01	65%	5.91E+00	35%
Cobalt	4.89E-02	1	0.975	1.11E+00	65%	9.07E+00	35%
Copper	9.33E-02	1	0.975	7.37E+00	65%	2.37E+01	35%
Gallium	#VALUE!	1	0.975	8.20E-02	65%	1.21E-01	35%
Iron	2.34E+01	1	0.975	2.20E+02	65%	7.14E+02	35%
Lead	7.14E-05	1	0.975	7.80E-02	65%	3.56E-01	35%
Lithium	#VALUE!	1	0.975	1.76E+00	65%	6.73E+00	35%
Magnesium	2.93E+01	1	0.975	3.44E+03	65%	2.25E+04	35%
Manganese	4.22E-02	1	0.975	7.21E+01	65%	3.24E+02	35%
Mercury	7.75E-05	1	0.975	1.02E-02	65%	5.67E-02	35%
Molybdenum	2.75E-02	1	0.975	1.14E+01	65%	3.93E+00	35%
Nickel	2.28E-02	1	0.975	2.03E+00	65%	8.23E+00	35%
Phosphorus	#VALUE!	1	0.975	2.79E+03	65%	1.26E+04	35%
Potassium	3.70E+03	1	0.975	2.15E+04	65%	6.23E+04	35%
Rhenium	#VALUE!	1	0.975	2.02E-01	65%	6.39E-01	35%
Rubidium	#VALUE!	1	0.975	3.65E+00	65%	1.02E+01	35%
Selenium	7.66E-04	1	0.975	5.10E-01	65%	8.60E-01	35%
Silver	#VALUE!	1	0.975	---	65%	---	35%
Sodium	5.56E+01	1	0.975	1.00E+03	65%	2.11E+03	35%
Strontium	#VALUE!	1	0.975	2.25E+02	65%	6.58E+02	35%
Tellurium	#VALUE!	1	0.975	2.00E-02	65%	2.67E-02	35%
Thallium	1.64E-04	1	0.975	2.00E-03	65%	5.31E-03	35%
Thorium	#VALUE!	1	0.975	1.80E-02	65%	2.40E-02	35%
Tin	5.82E-03	1	0.975	2.00E-02	65%	5.00E-02	35%
Titanium	1.06E+00	1	0.975	8.05E+00	65%	2.21E+01	35%
Uranium	6.17E-06	1	0.975	1.26E-02	65%	2.47E-02	35%
Vanadium	9.77E-03	1	0.975	8.09E-01	65%	2.02E+00	35%
Yttrium	#VALUE!	1	0.975	6.80E-02	65%	1.64E-01	35%
Zinc	6.30E-03	1	0.975	1.79E+01	65%	3.46E+02	35%
Zirconium	#VALUE!	1	0.975	2.00E-01	65%	2.67E-01	35%

Baseline Case Concentration in Deer- Ajax Mine Project

Concentration in Vegetation (Berries)	Proportion of Diet (Berries)	$Qs_{(game)}$	*Concentration in Soil*	Bs	$Ba_{(game)}$
(mg/kg DW)	(unitless)	(kg/day)	(mg COPC/kg soil)	(unitless)	(day/kg FW tissue)
7.32E+01	0%	0.05	18777.000	1.00E+00	7.89E-04
8.35E-03	0%	0.05	0.464	1.00E+00	5.26E-04
6.43E-02	0%	0.05	5.844	1.00E+00	1.05E-03
1.34E+01	0%	0.05	200.200	1.00E+00	7.89E-05
---	0%	0.05	0.393	1.00E+00	5.26E-04
---	0%	0.05	0.200	1.00E+00	2.11E-04
---	0%	0.05	---	1.00E+00	3.16E-04
6.72E-03	0%	0.05	0.168	1.00E+00	6.32E-05
5.83E+03	0%	0.05	15354.000	1.00E+00	3.68E-04
---	0%	0.05	---	1.00E+00	1.05E-02
1.00E-02	0%	0.05	66.920	1.00E+00	2.89E-03
6.26E-02	0%	0.05	15.660	1.00E+00	1.05E-02
1.28E+01	0%	0.05	91.360	1.00E+00	5.26E-03
---	0%	0.05	---	1.00E+00	2.63E-04
5.44E+01	0%	0.05	34030.000	1.00E+00	1.05E-02
5.71E-03	0%	0.05	5.193	1.00E+00	1.58E-04
---	0%	0.05	9.636	1.00E+00	5.26E-03
2.22E+03	0%	0.05	13050.000	1.00E+00	2.63E-03
3.59E+02	0%	0.05	797.800	1.00E+00	2.11E-04
2.91E-02	0%	0.05	0.044	1.00E+00	2.75E-03
1.23E-01	0%	0.05	1.119	1.00E+00	3.16E-03
2.19E+00	0%	0.05	57.690	1.00E+00	3.16E-03
---	0%	0.05	1080.000	1.00E+00	2.89E-02
1.90E+04	0%	0.05	3279.000	1.00E+00	1.05E-01
---	0%	0.05	---	1.00E+00	1.05E-03
---	0%	0.05	---	1.00E+00	7.89E-03
8.02E-01	0%	0.05	0.409	1.00E+00	1.19E-03
---	0%	0.05	0.100	1.00E+00	1.58E-03
6.20E+01	0%	0.05	1148.000	1.00E+00	2.89E-02
---	0%	0.05	130.400	1.00E+00	1.58E-04
---	0%	0.05	---	1.00E+00	7.89E-03
1.12E-03	0%	0.05	0.086	1.00E+00	2.11E-02
---	0%	0.05	---	1.00E+00	3.16E-06
2.60E-02	0%	0.05	2.000	1.00E+00	4.21E-02
1.61E+00	0%	0.05	1009.000	1.00E+00	1.58E-02
6.86E-04	0%	0.05	0.528	1.00E+00	1.05E-04
5.40E-02	0%	0.05	114.900	1.00E+00	1.32E-03
---	0%	0.05	---	1.00E+00	1.58E-04
6.78E+00	0%	0.05	61.650	1.00E+00	4.74E-05
---	0%	0.05	---	1.00E+00	2.89E-03

Baseline Case Concentration in Deer- Ajax Mine Project

MF	$Qw_{(game)}$	$F_{L(game)}$	*Max of Surface water at PC02 or Jacko Lake* $C_{wctot(Lake)}$	Kow	Ba_{beef}
(unitless)	(L/day)	(unitless)	mg COPC/L water column	(unitless)	(day/kg FW tissue)
1	6.00	1	2.31E-01	7.30E-01	1.50E-03
1	6.00	1	1.40E-04	5.37E+00	1.00E-03
1	6.00	1	1.86E-03	4.79E+00	2.00E-03
1	6.00	1	5.67E-02	1.70E+00	1.50E-04
1	6.00	1	1.00E-04	2.69E-01	1.00E-03
1	6.00	1	5.00E-04		4.00E-04
1	6.00	1	7.12E-02	1.69E+00	6.00E-04
1	6.00	1	1.22E-05	-7.00E-02	1.20E-04
1	6.00	1	1.01E+02		7.00E-04
1	6.00	1	0.00E+00		2.00E-02
1	6.00	1	8.61E-04	1.70E+00	5.50E-03
1	6.00	1	3.87E-04	1.69E+00	2.00E-02
1	6.00	1	3.98E-03	2.69E-01	1.00E-02
1	6.00	1	0.00E+00		5.00E-04
1	6.00	1	3.51E-01		2.00E-02
1	6.00	1	1.30E-04	5.37E+00	3.00E-04
1	6.00	1	8.49E-03		1.00E-02
1	6.00	1	9.56E+01		5.00E-03
1	6.00	1	1.25E-01	1.70E+00	4.00E-04
1	6.00	1	1.00E-05	6.10E-01	5.22E-03
1	6.00	1	1.07E-02		6.00E-03
1	6.00	1	4.57E-03	1.00E+01	6.00E-03
1	6.00	1	1.34E-01		5.50E-02
1	6.00	1	1.91E+01		2.00E-01
1	6.00	1	0.00E+00		2.00E-03
1	6.00	1	0.00E+00		1.50E-02
1	6.00	1	6.90E-04	1.74E+00	2.27E-03
1	6.00	1	1.14E-05	1.70E+00	3.00E-03
1	6.00	1	8.42E+01		5.50E-02
1	6.00	1	9.32E-01		3.00E-04
1	6.00	1	0.00E+00		1.50E-02
1	6.00	1	1.07E-05		4.00E-02
1	6.00	1	0.00E+00		6.00E-06
1	6.00	1	1.00E-04		8.00E-02
1	6.00	1	1.60E-02		3.00E-02
1	6.00	1	2.29E-03		2.00E-04
1	6.00	1	3.64E-03		2.50E-03
1	6.00	1	0.00E+00		3.00E-04
1	6.00	1	4.48E-03	3.39E-01	9.00E-05
1	6.00	1	0.00E+00		5.50E-03

Baseline Case Concentration in Snowshoe Hare- Ajax Mine Project

Parameter	A_{game}	$F_{(forage)}$	$Qp_{(game)}$	Concentration in Vegetation (Forage)
	(mg COPC/kg FW tissue	(unitless)	(kg DW plant/day)	(mg/kg DW)
Aluminum	1.56E-02	1	0.039	1.59E+02
Antimony	3.42E-07	1	0.039	1.00E-02
Arsenic	1.02E-05	1	0.039	7.09E-02
Barium	8.22E-05	1	0.039	5.93E+01
Beryllium	---	1	0.039	1.00E-02
Bismuth	---	1	0.039	1.00E-02
Boron	---	1	0.039	1.11E+02
Cadmium	5.49E-07	1	0.039	5.80E-02
Calcium	1.49E-01	1	0.039	1.22E+04
Cesium	---	1	0.039	4.39E-02
Chromium	2.40E-04	1	0.039	5.48E-01
Cobalt	5.42E-04	1	0.039	1.11E+00
Copper	1.24E-03	1	0.039	7.37E+00
Gallium	---	1	0.039	8.20E-02
Iron	3.68E-01	1	0.039	2.20E+02
Lead	1.02E-06	1	0.039	7.80E-02
Lithium	---	1	0.039	1.76E+00
Magnesium	3.06E-01	1	0.039	3.44E+03
Manganese	5.73E-04	1	0.039	7.21E+01
Mercury	9.16E-07	1	0.039	1.02E-02
Molybdenum	3.92E-04	1	0.039	1.14E+01
Nickel	3.10E-04	1	0.039	2.03E+00
Phosphorus	---	1	0.039	2.79E+03
Potassium	4.36E+01	1	0.039	2.15E+04
Rhenium	---	1	0.039	2.02E-01
Rubidium	---	1	0.039	3.65E+00
Selenium	1.03E-05	1	0.039	5.10E-01
Silver	---	1	0.039	---
Sodium	5.72E-01	1	0.039	1.00E+03
Strontium	---	1	0.039	2.25E+02
Tellurium	---	1	0.039	2.00E-02
Thallium	2.40E-06	1	0.039	2.00E-03
Thorium	---	1	0.039	1.80E-02
Tin	9.14E-05	1	0.039	2.00E-02
Titanium	1.66E-02	1	0.039	8.05E+00
Uranium	7.84E-08	1	0.039	1.26E-02
Vanadium	1.54E-04	1	0.039	8.09E-01
Yttrium	---	1	0.039	6.80E-02
Zinc	5.92E-05	1	0.039	1.79E+01
Zirconium	---	1	0.039	2.00E-01

Baseline Case Concentration in Snowshoe Hare- Ajax Mine Project

Proportion of Diet (Forage)	Concentration in Vegetation (Browse)	Proportion of Diet (Browse)	Concentration in Vegetation (Berries)	Proportion of Diet (Berries)	$Qs_{(game)}$
(unitless)	(mg/kg DW)	(unitless)	(mg/kg DW)	(unitless)	(kg/day)
60%	4.16E+02	30%	7.32E+01	10%	3.60E-03
60%	4.19E-02	30%	8.35E-03	10%	3.60E-03
60%	1.23E+00	30%	6.43E-02	10%	3.60E-03
60%	9.16E+01	30%	1.34E+01	10%	3.60E-03
60%	1.33E-02	30%	---	10%	3.60E-03
60%	1.33E-02	30%	---	10%	3.60E-03
60%	2.92E+02	30%	---	10%	3.60E-03
60%	2.73E+00	30%	6.72E-03	10%	3.60E-03
60%	9.01E+04	30%	5.83E+03	10%	3.60E-03
60%	5.47E-02	30%	---	10%	3.60E-03
60%	5.91E+00	30%	1.00E-02	10%	3.60E-03
60%	9.07E+00	30%	6.26E-02	10%	3.60E-03
60%	2.37E+01	30%	1.28E+01	10%	3.60E-03
60%	1.21E-01	30%	---	10%	3.60E-03
60%	7.14E+02	30%	5.44E+01	10%	3.60E-03
60%	3.56E-01	30%	5.71E-03	10%	3.60E-03
60%	6.73E+00	30%	---	10%	3.60E-03
60%	2.25E+04	30%	2.22E+03	10%	3.60E-03
60%	3.24E+02	30%	3.59E+02	10%	3.60E-03
60%	5.67E-02	30%	2.91E-02	10%	3.60E-03
60%	3.93E+00	30%	1.23E-01	10%	3.60E-03
60%	8.23E+00	30%	2.19E+00	10%	3.60E-03
60%	1.26E+04	30%	---	10%	3.60E-03
60%	6.23E+04	30%	1.90E+04	10%	3.60E-03
60%	6.39E-01	30%	---	10%	3.60E-03
60%	1.02E+01	30%	---	10%	3.60E-03
60%	8.60E-01	30%	8.02E-01	10%	3.60E-03
60%	---	30%	---	10%	3.60E-03
60%	2.11E+03	30%	6.20E+01	10%	3.60E-03
60%	6.58E+02	30%	---	10%	3.60E-03
60%	2.67E-02	30%	---	10%	3.60E-03
60%	5.31E-03	30%	1.12E-03	10%	3.60E-03
60%	2.40E-02	30%	---	10%	3.60E-03
60%	5.00E-02	30%	2.60E-02	10%	3.60E-03
60%	2.21E+01	30%	1.61E+00	10%	3.60E-03
60%	2.47E-02	30%	6.86E-04	10%	3.60E-03
60%	2.02E+00	30%	5.40E-02	10%	3.60E-03
60%	1.64E-01	30%	---	10%	3.60E-03
60%	3.46E+02	30%	6.78E+00	10%	3.60E-03
60%	2.67E-01	30%	---	10%	3.60E-03

Baseline Case Concentration in Snowshoe Hare- Ajax Mine Project

Concentration in Soil	Bs	$Ba_{(game)}$	MF
(mg COPC/kg soil)	(unitless)	(day/kg FW tissue)	(unitless)
1.88E+04	1.00E+00	1.97E-04	1
4.64E-01	1.00E+00	1.32E-04	1
5.84E+00	1.00E+00	2.63E-04	1
2.00E+02	1.00E+00	1.97E-05	1
3.93E-01	1.00E+00	1.32E-04	1
2.00E-01	1.00E+00	5.26E-05	1
---	1.00E+00	7.89E-05	1
1.68E-01	1.00E+00	1.58E-05	1
1.54E+04	1.00E+00	9.21E-05	1
---	1.00E+00	2.63E-03	1
6.69E+01	1.00E+00	7.24E-04	1
1.57E+01	1.00E+00	2.63E-03	1
9.14E+01	1.00E+00	1.32E-03	1
---	1.00E+00	6.58E-05	1
3.40E+04	1.00E+00	2.63E-03	1
5.19E+00	1.00E+00	3.95E-05	1
9.64E+00	1.00E+00	1.32E-03	1
1.31E+04	1.00E+00	6.58E-04	1
7.98E+02	1.00E+00	5.26E-05	1
4.37E-02	1.00E+00	6.87E-04	1
1.12E+00	1.00E+00	7.89E-04	1
5.77E+01	1.00E+00	7.89E-04	1
1.08E+03	1.00E+00	7.24E-03	1
3.28E+03	1.00E+00	2.63E-02	1
---	1.00E+00	2.63E-04	1
---	1.00E+00	1.97E-03	1
4.09E-01	1.00E+00	2.98E-04	1
1.00E-01	1.00E+00	3.95E-04	1
1.15E+03	1.00E+00	7.24E-03	1
1.30E+02	1.00E+00	3.95E-05	1
---	1.00E+00	1.97E-03	1
8.59E-02	1.00E+00	5.26E-03	1
---	1.00E+00	7.89E-07	1
2.00E+00	1.00E+00	1.05E-02	1
1.01E+03	1.00E+00	3.95E-03	1
5.28E-01	1.00E+00	2.63E-05	1
1.15E+02	1.00E+00	3.29E-04	1
---	1.00E+00	3.95E-05	1
6.17E+01	1.00E+00	1.18E-05	1
---	1.00E+00	7.24E-04	1

Baseline Case Concentration in Snowshoe Hare- Ajax Mine Project

$Qw_{(game)}$	$F_{L(game)}$	*Max of Jacko Lake or PC02*	Kow	Ba_{beef}
		$C_{wctot(Lake)}$	$_{t(River)}$	
(L/day)	(unitless)	g COPC/L water colum	(unitless)	(day/kg FW tissue)
0.13	1	2.31E-01	7.30E-01	1.50E-03
0.13	1	1.40E-04	5.37E+00	1.00E-03
0.13	1	1.86E-03	4.79E+00	2.00E-03
0.13	1	5.67E-02	1.70E+00	1.50E-04
0.13	1	1.00E-04	2.69E-01	1.00E-03
0.13	1	5.00E-04		4.00E-04
0.13	1	7.12E-02	1.69E+00	6.00E-04
0.13	1	1.22E-05	-7.00E-02	1.20E-04
0.13	1	1.01E+02		7.00E-04
0.13	1	0.00E+00		2.00E-02
0.13	1	8.61E-04	1.70E+00	5.50E-03
0.13	1	3.87E-04	1.69E+00	2.00E-02
0.13	1	3.98E-03	2.69E-01	1.00E-02
0.13	1	0.00E+00		5.00E-04
0.13	1	3.51E-01		2.00E-02
0.13	1	1.30E-04	5.37E+00	3.00E-04
0.13	1	8.49E-03		1.00E-02
0.13	1	9.56E+01		5.00E-03
0.13	1	1.25E-01	1.70E+00	4.00E-04
0.13	1	1.00E-05	6.10E-01	5.22E-03
0.13	1	1.07E-02		6.00E-03
0.13	1	4.57E-03	1.00E+01	6.00E-03
0.13	1	1.34E-01		5.50E-02
0.13	1	1.91E+01		2.00E-01
0.13	1	0.00E+00		2.00E-03
0.13	1	0.00E+00		1.50E-02
0.13	1	6.90E-04	1.74E+00	2.27E-03
0.13	1	1.14E-05	1.70E+00	3.00E-03
0.13	1	8.42E+01		5.50E-02
0.13	1	9.32E-01		3.00E-04
0.13	1	0.00E+00		1.50E-02
0.13	1	1.07E-05		4.00E-02
0.13	1	0.00E+00		6.00E-06
0.13	1	1.00E-04		8.00E-02
0.13	1	1.60E-02		3.00E-02
0.13	1	2.29E-03		2.00E-04
0.13	1	3.64E-03		2.50E-03
0.13	1	0.00E+00		3.00E-04
0.13	1	4.48E-03	3.39E-01	9.00E-05
0.13	1	0.00E+00		5.50E-03

Baseline Case Concentration in Grouse- Ajax Mine Project

Parameter	A_{game}	$F_{(forage)}$	$Qp_{(game)}$
	(mg COPC/kg FW tissue)	(unitless)	(kg DW plant/day)
Aluminum	5.48E-03	1	0.00975
Antimony	2.58E-07	1	0.00975
Arsenic	1.29E-05	1	0.00975
Barium	7.19E-05	1	0.00975
Beryllium	#VALUE!	1	0.00975
Bismuth	#VALUE!	1	0.00975
Boron	#VALUE!	1	0.00975
Cadmium	1.53E-06	1	0.00975
Calcium	3.08E-01	1	0.00975
Cesium	#VALUE!	1	0.00975
Chromium	1.82E-04	1	0.00975
Cobalt	8.76E-04	1	0.00975
Copper	1.50E-03	1	0.00975
Gallium	#VALUE!	1	0.00975
Iron	1.25E-01	1	0.00975
Lead	6.30E-07	1	0.00975
Lithium	#VALUE!	1	0.00975
Magnesium	5.71E-01	1	0.00975
Manganese	9.94385E-04	1	0.00975
Mercury	1.78381E-06	1	0.00975
Molybdenum	1.14364E-04	1	0.00975
Nickel	2.92377E-04	1	0.00975
Phosphorus	#VALUE!	1	0.00975
Potassium	6.78753E+01	1	0.00975
Rhenium	#VALUE!	1	0.00975
Rubidium	#VALUE!	1	0.00975
Selenium	1.37796E-05	1	0.00975
Silver	#VALUE!	1	0.00975
Sodium	6.83083E-01	1	0.00975
Strontium	#VALUE!	1	0.00975
Tellurium	#VALUE!	1	0.00975
Thallium	1.39484E-06	1	0.00975
Thorium	#VALUE!	1	0.00975
Tin	3.70962E-05	1	0.00975
Titanium	5.69000E-03	1	0.00975
Uranium	4.44388E-08	1	0.00975
Vanadium	4.74526E-05	1	0.00975
Yttrium	#VALUE!	1	0.00975
Zinc	1.47607E-04	1	0.00975
Zirconium	#VALUE!	1	0.00975

Baseline Case Concentration in Grouse- Ajax Mine Project

Concentration in Vegetation (Forage)	Proportion of Diet (Forage)	Concentration in Vegetation (Browse)	Proportion of Diet (Browse)	Concentration in Vegetation (Berries)	Proportion of Diet (Berries)	$Qs_{(game)}$
(mg/kg DW)	(unitless)	(mg/kg DW)	(unitless)	(mg/kg DW)	(unitless)	(kg/day)
1.59E+02	0%	4.16E+02	65%	7.32E+01	35%	0.00011
1.00E-02	0%	4.19E-02	65%	8.35E-03	35%	0.00011
7.09E-02	0%	1.23E+00	65%	6.43E-02	35%	0.00011
5.93E+01	0%	9.16E+01	65%	1.34E+01	35%	0.00011
1.00E-02	0%	1.33E-02	65%	---	35%	0.00011
1.00E-02	0%	1.33E-02	65%	---	35%	0.00011
1.11E+02	0%	2.92E+02	65%	---	35%	0.00011
5.80E-02	0%	2.73E+00	65%	6.72E-03	35%	0.00011
1.22E+04	0%	9.01E+04	65%	5.83E+03	35%	0.00011
4.39E-02	0%	5.47E-02	65%	---	35%	0.00011
5.48E-01	0%	5.91E+00	65%	1.00E-02	35%	0.00011
1.11E+00	0%	9.07E+00	65%	6.26E-02	35%	0.00011
7.37E+00	0%	2.37E+01	65%	1.28E+01	35%	0.00011
8.20E-02	0%	1.21E-01	65%	---	35%	0.00011
2.20E+02	0%	7.14E+02	65%	5.44E+01	35%	0.00011
7.80E-02	0%	3.56E-01	65%	5.71E-03	35%	0.00011
1.76E+00	0%	6.73E+00	65%	---	35%	0.00011
3.44E+03	0%	2.25E+04	65%	2.22E+03	35%	0.00011
7.21E+01	0%	3.24E+02	65%	3.59E+02	35%	0.00011
1.02E-02	0%	5.67E-02	65%	2.91E-02	35%	0.00011
1.14E+01	0%	3.93E+00	65%	1.23E-01	35%	0.00011
2.03E+00	0%	8.23E+00	65%	2.19E+00	35%	0.00011
2.79E+03	0%	1.26E+04	65%	---	35%	0.00011
2.15E+04	0%	6.23E+04	65%	1.90E+04	35%	0.00011
2.02E-01	0%	6.39E-01	65%	---	35%	0.00011
3.65E+00	0%	1.02E+01	65%	---	35%	0.00011
5.10E-01	0%	8.60E-01	65%	8.02E-01	35%	0.00011
---	0%	---	65%	---	35%	0.00011
1.00E+03	0%	2.11E+03	65%	6.20E+01	35%	0.00011
2.25E+02	0%	6.58E+02	65%	---	35%	0.00011
2.00E-02	0%	2.67E-02	65%	---	35%	0.00011
2.00E-03	0%	5.31E-03	65%	1.12E-03	35%	0.00011
1.80E-02	0%	2.40E-02	65%	---	35%	0.00011
2.00E-02	0%	5.00E-02	65%	2.60E-02	35%	0.00011
8.05E+00	0%	2.21E+01	65%	1.61E+00	35%	0.00011
1.26E-02	0%	2.47E-02	65%	6.86E-04	35%	0.00011
8.09E-01	0%	2.02E+00	65%	5.40E-02	35%	0.00011
6.80E-02	0%	1.64E-01	65%	---	35%	0.00011
1.79E+01	0%	3.46E+02	65%	6.78E+00	35%	0.00011
2.00E-01	0%	2.67E-01	65%	---	35%	0.00011

Baseline Case Concentration in Grouse- Ajax Mine Project

Concentration in Soil Cs	Bs	Ba
(mg COPC/kg soil)	(unitless)	(day/kg FW tissue)
18777.000	1.00E+00	1.11E-03
0.464	1.00E+00	7.37E-04
5.844	1.00E+00	1.47E-03
200.200	1.00E+00	1.11E-04
0.393	1.00E+00	7.37E-04
0.200	1.00E+00	2.95E-04
---	1.00E+00	4.42E-04
0.168	1.00E+00	8.84E-05
15354.000	1.00E+00	5.16E-04
---	1.00E+00	1.47E-02
66.920	1.00E+00	4.05E-03
15.660	1.00E+00	1.47E-02
91.360	1.00E+00	7.37E-03
---	1.00E+00	3.68E-04
34030.000	1.00E+00	1.47E-02
5.193	1.00E+00	2.21E-04
9.636	1.00E+00	7.37E-03
13050.000	1.00E+00	3.68E-03
797.800	1.00E+00	2.95E-04
0.044	1.00E+00	3.85E-03
1.119	1.00E+00	4.42E-03
57.690	1.00E+00	4.42E-03
1080.000	1.00E+00	4.05E-02
3279.000	1.00E+00	1.47E-01
---	1.00E+00	1.47E-03
---	1.00E+00	1.11E-02
0.409	1.00E+00	1.67E-03
0.100	1.00E+00	2.21E-03
1148.000	1.00E+00	4.05E-02
130.400	1.00E+00	2.21E-04
---	1.00E+00	1.11E-02
0.086	1.00E+00	2.95E-02
---	1.00E+00	4.42E-06
2.000	1.00E+00	5.89E-02
1009.000	1.00E+00	2.21E-02
0.528	1.00E+00	1.47E-04
114.900	1.00E+00	1.84E-03
---	1.00E+00	2.21E-04
61.650	1.00E+00	6.63E-05
---	1.00E+00	4.05E-03

Baseline Case Concentration in Grouse- Ajax Mine Project

MF	$Qw_{(game)}$	$F_{L(game)}$	*Max of Jacko Lake or PC02*	Kow	Ba_{beef}
			$C_{wctot(Lake)}$		
(unitless)	(L/day)	(unitless)	(mg COPC/L water column)	(unitless)	(day/kg FW tissue)
1	0.04	1	2.31E-01		1.50E-03
1	0.04	1	1.40E-04	5.37E+00	1.00E-03
1	0.04	1	1.86E-03	4.79E+00	2.00E-03
1	0.04	1	5.67E-02	1.70E+00	1.50E-04
1	0.04	1	1.00E-04	2.69E-01	1.00E-03
1	0.04	1	5.00E-04		4.00E-04
1	0.04	1	7.12E-02	1.69E+00	6.00E-04
1	0.04	1	1.22E-05	1.20E-04	1.20E-04
1	0.04	1	1.01E+02		7.00E-04
1	0.04	1	0.00E+00		2.00E-02
1	0.04	1	8.61E-04	1.70E+00	5.50E-03
1	0.04	1	3.87E-04	1.69E+00	2.00E-02
1	0.04	1	3.98E-03	2.69E-01	1.00E-02
1	0.04	1	0.00E+00		5.00E-04
1	0.04	1	3.51E-01		2.00E-02
1	0.04	1	1.30E-04	5.37E+00	3.00E-04
1	0.04	1	8.49E-03		1.00E-02
1	0.04	1	9.56E+01		5.00E-03
1	0.04	1	1.25E-01	1.70E+00	4.00E-04
1	0.04	1	1.00E-05	6.10E-01	5.22E-03
1	0.04	1	1.07E-02		6.00E-03
1	0.04	1	4.57E-03	1.00E+01	6.00E-03
1	0.04	1	1.34E-01		5.50E-02
1	0.04	1	1.91E+01		2.00E-01
1	0.04	1	0.00E+00		2.00E-03
1	0.04	1	0.00E+00		1.50E-02
1	0.04	1	6.90E-04	1.74E+00	2.27E-03
1	0.04	1	1.14E-05	1.70E+00	3.00E-03
1	0.04	1	8.42E+01		5.50E-02
1	0.04	1	9.32E-01		3.00E-04
1	0.04	1	0.00E+00		1.50E-02
1	0.04	1	1.07E-05		4.00E-02
1	0.04	1	0.00E+00		6.00E-06
1	0.04	1	1.00E-04		8.00E-02
1	0.04	1	1.60E-02		3.00E-02
1	0.04	1	2.29E-03		2.00E-04
1	0.04	1	3.64E-03		2.50E-03
1	0.04	1	0.00E+00		3.00E-04
1	0.04	1	4.48E-03	3.39E-01	9.00E-05
1	0.04	1	0.00E+00		5.50E-03

Future Case Soil Concentration- Ajax Mine Project

		Human Health Area Soil	
Parameter	**Units**	**Aberdeen**	**Brocklehurst**
		mg/kg	**mg/kg**
Aluminum	mg/kg dw	1.53817E+04	1.77001E+04
Antimony	mg/kg dw	3.65178E-01	3.30178E-01
Arsenic	mg/kg dw	5.56556E+00	4.92034E+00
Barium	mg/kg dw	1.49494E+02	1.44003E+02
Beryllium	mg/kg dw	4.12292E-01	4.10010E-01
Bismuth	mg/kg dw	2.04319E-01	3.60150E-01
Boron	mg/kg dw	---	---
Cadmium	mg/kg dw	2.19E-01	3.25E-01
Calcium	mg/kg dw	1.44E+04	1.05E+04
Cesium	mg/kg dw	---	---
Chromium	mg/kg dw	4.90E+01	4.34E+01
Cobalt	mg/kg dw	1.20E+01	1.35E+01
Copper	mg/kg dw	4.43E+01	4.82E+01
Gallium	mg/kg dw	---	---
Iron	mg/kg dw	2.66E+04	2.84E+04
Lead	mg/kg dw	5.41E+00	1.25E+01
Lithium	mg/kg dw	8.89E+00	2.05E+01
Magnesium	mg/kg dw	1.05E+04	9.73E+03
Manganese	mg/kg dw	5.64E+02	4.83E+02
Mercury	mg/kg dw	4.22E-02	3.45E-02
Molybdenum	mg/kg dw	1.02E+00	1.51E+00
Nickel	mg/kg dw	4.38E+01	3.73E+01
Phosphorus	mg/kg dw	1.32E+03	2.58E+03
Potassium	mg/kg dw	2.43E+03	5.15E+03
Rhenium	mg/kg dw	---	---
Rubidium	mg/kg dw	---	---
Selenium	mg/kg dw	2.26E-01	4.20E-01
Silver	mg/kg dw	1.36E-01	4.50E-01
Sodium	mg/kg dw	5.10E+02	3.80E+02
Strontium	mg/kg dw	1.25E+02	6.95E+01
Tellurium	mg/kg dw	---	---
Thallium	mg/kg dw	1.04E-01	2.09E-01
Thorium	mg/kg dw	---	---
Tin	mg/kg dw	2.01E+00	2.00E+00
Titanium	mg/kg dw	8.29E+02	1.01E+03
Uranium	mg/kg dw	7.58E-01	1.39E+00
Vanadium	mg/kg dw	7.48E+01	4.70E+01
Yttrium	mg/kg dw	---	---
Zinc	mg/kg dw	6.02E+01	9.71E+01
Zirconium	mg/kg dw	---	---

Future Case Soil Concentration- Ajax Mine Project

Sahali	Knutsford	North Shore	West End/Downtown	Mine Site
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
1.14103E+04	1.53814E+04	1.40001E+04	1.45002E+04	1.87788E+04
3.50820E-01	3.64053E-01	3.90340E-01	5.57220E-01	4.69543E-01
4.40154E+00	5.56349E+00	5.65065E+00	4.17104E+00	5.85435E+00
1.23965E+02	1.49474E+02	1.42006E+02	1.41677E+02	2.00301E+02
3.02547E-01	4.12230E-01	2.80019E-01	3.95032E-01	3.93314E-01
2.00687E-01	2.03388E-01	2.30285E-01	2.22133E-01	2.04641E-01
---	---	---	---	---
2.18E-01	2.18E-01	1.90E-01	4.18E-01	1.69E-01
2.49E+04	1.44E+04	1.86E+04	1.49E+04	1.54E+04
---	---	---	---	---
4.10E+01	4.90E+01	4.78E+01	4.39E+01	6.70E+01
1.07E+01	1.20E+01	1.16E+01	1.39E+01	1.57E+01
4.67E+01	4.42E+01	6.22E+01	8.45E+01	9.17E+01
---	---	---	---	---
2.22E+04	2.66E+04	2.38E+04	2.29E+04	3.40E+04
7.43E+00	5.41E+00	6.65E+00	3.42E+01	5.21E+00
8.53E+00	8.88E+00	7.40E+00	8.75E+00	9.64E+00
1.01E+04	1.05E+04	9.02E+03	1.57E+04	1.31E+04
5.26E+02	5.64E+02	5.63E+02	5.43E+02	7.98E+02
3.05E-02	4.19E-02	4.63E-02	8.00E-02	4.53E-02
1.32E+00	1.02E+00	1.21E+00	1.40E+00	1.12E+00
3.82E+01	4.38E+01	4.48E+01	5.59E+01	5.78E+01
2.87E+03	1.32E+03	3.44E+03	2.50E+03	1.08E+03
3.35E+03	2.43E+03	2.83E+03	3.43E+03	3.28E+03
---	---	---	---	---
---	---	---	---	---
5.05E-01	2.26E-01	4.40E-01	4.30E-01	4.12E-01
1.00E-01	1.36E-01	3.50E-01	2.27E-01	1.00E-01
5.10E+02	5.10E+02	3.30E+02	7.98E+02	1.15E+03
1.16E+02	1.25E+02	8.82E+01	1.14E+02	1.30E+02
---	---	---	---	---
9.31E-02	1.03E-01	8.51E-02	1.03E-01	8.67E-02
---	---	---	---	---
2.00E+00	2.00E+00	2.00E+00	3.10E+00	2.01E+00
6.35E+02	8.29E+02	5.08E+02	8.31E+02	1.01E+03
7.57E-01	7.57E-01	5.89E-01	1.03E+00	5.30E-01
5.33E+01	7.48E+01	6.84E+01	6.15E+01	1.15E+02
---	---	---	---	---
9.52E+01	6.02E+01	8.85E+01	1.17E+02	6.17E+01
---	---	---	---	---

Future Case Soil Concentration- Ajax Mine Project

Added Concentration Due to Deposition

Aberdeen	Brocklehurst	Sahali	Knutsford
mg/kg	mg/kg	mg/kg	mg/kg
1.71E+00	6.11E-02	2.80E-01	1.36E+00
5.18E-03	1.78E-04	8.20E-04	4.05E-03
9.56E-03	3.40E-04	1.54E-03	7.49E-03
9.37E-02	3.30E-03	1.50E-02	7.38E-02
2.92E-04	1.02E-05	4.67E-05	2.30E-04
4.32E-03	1.50E-04	6.87E-04	3.39E-03
1.56E-02	5.63E-04	2.55E-03	1.24E-02
8.41E-04	3.93E-05	1.55E-04	6.61E-04
3.12E+00	1.13E-01	5.18E-01	2.49E+00
8.46E-04	3.00E-05	1.36E-04	6.67E-04
1.20E-01	4.22E-03	1.92E-02	9.43E-02
2.14E-02	7.49E-04	3.43E-03	1.68E-02
3.11E-01	1.06E-02	4.91E-02	2.43E-01
3.68E-03	1.31E-04	5.96E-04	2.91E-03
3.78E+00	1.33E-01	6.13E-01	2.98E+00
1.41E-02	5.44E-04	2.35E-03	1.11E-02
5.05E-03	1.77E-04	8.10E-04	3.97E-03
2.45E+00	8.55E-02	3.95E-01	1.93E+00
2.09E-01	7.39E-03	3.37E-02	1.65E-01
1.37E-03	6.06E-05	2.45E-04	1.07E-03
5.53E-03	1.99E-04	9.05E-04	4.39E-03
1.20E-01	4.23E-03	1.93E-02	9.44E-02
5.22E-01	1.80E-02	8.28E-02	4.09E-01
2.88E-01	9.99E-03	4.62E-02	2.26E-01
0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.60E-02	5.65E-04	2.57E-03	1.26E-02
2.39E-03	9.74E-05	4.10E-04	1.87E-03
8.18E-05	2.83E-06	1.30E-05	6.41E-05
6.18E-02	2.17E-03	1.00E-02	4.87E-02
6.03E-02	2.11E-03	9.66E-03	4.74E-02
3.56E-04	1.18E-05	5.51E-05	2.76E-04
7.66E-04	2.62E-05	1.21E-04	5.99E-04
1.10E-03	3.88E-05	1.77E-04	8.66E-04
5.01E-03	1.73E-04	7.96E-04	3.93E-03
1.16E-01	4.22E-03	1.92E-02	9.22E-02
2.21E-03	7.66E-05	3.51E-04	1.73E-03
1.17E-01	4.13E-03	1.89E-02	9.24E-02
2.22E-03	7.93E-05	3.61E-04	1.76E-03
1.85E-02	8.00E-04	3.28E-03	1.46E-02
4.49E-03	1.59E-04	7.25E-04	3.54E-03

Future Case Soil Concentration- Ajax Mine Project

				Garden Soil
North Shore	**West End/Downtown**	**Mine Soil**		**Aberdeen**
mg/kg	**mg/kg**	**mg/kg**		**mg/kg**
1.19E-01	1.80E-01	1.77E+00		1.28E+04
3.40E-04	5.53E-04	5.54E-03		3.55E-01
6.46E-04	1.04E-03	1.04E-02		4.06E+00
6.26E-03	1.02E-02	1.01E-01		1.24E+02
1.94E-05	3.16E-05	3.14E-04		3.20E-01
2.85E-04	4.66E-04	4.64E-03		2.04E-01
1.06E-03	1.74E-03	1.68E-02		---
7.21E-05	1.13E-04	1.04E-03		2.26E-01
2.19E-01	3.33E-01	3.23E+00		1.28E+04
5.67E-05	9.33E-05	9.13E-04		---
8.01E-03	1.31E-02	1.29E-01		4.76E+01
1.42E-03	2.32E-03	2.30E-02		1.05E+01
2.04E-02	3.26E-02	3.30E-01		3.51E+01
2.48E-04	4.08E-04	3.97E-03		---
2.58E-01	3.94E-01	3.91E+00		2.23E+04
1.02E-03	1.64E-03	1.59E-02		5.75E+00
3.37E-04	5.49E-04	5.41E-03		7.41E+00
1.66E-01	2.54E-01	2.53E+00		8.46E+03
1.40E-02	2.29E-02	2.25E-01		4.74E+02
1.12E-04	1.76E-04	1.65E-03		5.38E-02
3.79E-04	6.09E-04	5.90E-03		7.86E-01
8.03E-03	1.31E-02	1.29E-01		3.93E+01
3.43E-02	5.60E-02	5.60E-01		1.86E+03
1.94E-02	2.96E-02	2.98E-01		2.22E+03
0.00E+00	0.00E+00	0.00E+00		---
1.07E-03	1.76E-03	1.73E-02		---
1.82E-04	2.88E-04	2.76E-03		2.32E-01
5.41E-06	8.73E-06	8.72E-05		2.40E-01
4.22E-03	6.43E-03	6.39E-02		3.80E+02
4.01E-03	6.54E-03	6.47E-02		7.81E+01
2.28E-05	3.60E-05	3.74E-04		---
5.01E-05	8.10E-05	8.18E-04		8.98E-02
7.34E-05	1.21E-04	1.19E-03		---
3.30E-04	5.39E-04	5.37E-03		2.01E+00
8.17E-03	1.24E-02	1.20E-01		8.16E+02
1.46E-04	2.38E-04	2.37E-03		6.56E-01
7.84E-03	1.28E-02	1.26E-01		5.34E+01
1.51E-04	2.44E-04	2.38E-03		---
1.48E-03	2.35E-03	2.20E-02		6.11E+01
3.01E-04	4.96E-04	4.85E-03		---

Future Case Soil Concentration- Ajax Mine Project

Brocklehurst	Sahali	Knutsford	North Shore	West End/Downtown
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
1.77E+04	1.03E+04	1.28E+04	1.40E+04	1.01E+04
3.30E-01	3.41E-01	3.55E-01	3.90E-01	4.21E-01
4.92E+00	4.22E+00	4.06E+00	5.65E+00	3.97E+00
1.44E+02	1.31E+02	1.24E+02	1.42E+02	1.24E+02
4.10E-01	2.50E-01	3.20E-01	2.80E-01	2.55E-01
3.60E-01	2.01E-01	2.04E-01	2.30E-01	2.35E-01
---	---	---	---	---
3.25E-01	2.11E-01	2.26E-01	1.90E-01	4.31E-01
1.05E+04	3.87E+04	1.28E+04	1.86E+04	1.82E+04
---	---	---	---	---
4.34E+01	3.73E+01	4.76E+01	4.78E+01	3.32E+01
1.35E+01	8.91E+00	1.05E+01	1.16E+01	8.16E+00
4.82E+01	6.11E+01	3.51E+01	6.22E+01	4.65E+01
---	---	---	---	---
2.84E+04	1.89E+04	2.23E+04	2.38E+04	1.71E+04
1.25E+01	5.68E+00	5.75E+00	6.65E+00	1.64E+01
2.05E+01	6.50E+00	7.41E+00	7.40E+00	8.75E+00
9.73E+03	1.00E+04	8.46E+03	9.02E+03	7.23E+03
4.83E+02	5.67E+02	4.74E+02	5.63E+02	3.58E+02
3.45E-02	3.48E-02	5.38E-02	4.63E-02	6.73E-02
1.51E+00	1.84E+00	7.86E-01	1.21E+00	1.22E+00
3.73E+01	3.35E+01	3.93E+01	4.48E+01	2.66E+01
2.58E+03	4.72E+03	1.86E+03	3.44E+03	2.99E+03
5.15E+03	4.59E+03	2.22E+03	2.83E+03	4.19E+03
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---	---	---	---	---
4.20E-01	6.80E-01	2.32E-01	4.40E-01	4.80E-01
4.50E-01	1.00E-01	2.40E-01	3.50E-01	3.20E-01
3.80E+02	5.90E+02	3.80E+02	3.30E+02	3.55E+02
6.95E+01	1.73E+02	7.81E+01	8.82E+01	1.14E+02
---	---	---	---	---
2.09E-01	7.81E-02	8.98E-02	8.51E-02	9.91E-02
---	---	---	---	---
2.00E+00	2.00E+00	2.01E+00	2.00E+00	2.00E+00
1.01E+03	3.59E+02	8.16E+02	5.08E+02	5.40E+02
1.39E+00	7.77E-01	6.56E-01	5.89E-01	9.08E-01
4.70E+01	5.29E+01	5.34E+01	6.84E+01	3.28E+01
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9.71E+01	1.33E+02	6.11E+01	8.85E+01	1.09E+02
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Future Case Groundwater Concentrations- Ajax Mine Project

Parameter	Units	Future Conc	Future Concentration
		FUTURE EPC-DW	Concentration (Total)
Aluminum	mg/L	8.84E-01	8.84E-01
Antimony	mg/L	7.62E-04	5.48E-04
Arsenic	mg/L	3.19E-03	3.19E-03
Barium	mg/L	8.07E-02	8.07E-02
Beryllium	mg/L	1.82E-04	1.82E-04
Bismuth	mg/L	0.00E+00	---
Boron	mg/L	1.80E-01	3.87E-02
Cadmium	mg/L	3.47E-05	3.47E-05
Calcium	mg/L	0.00E+00	---
Cesium	mg/L	0.00E+00	---
Chromium	mg/L	3.25E-03	3.25E-03
Cobalt	mg/L	1.01E-03	1.01E-03
Copper	mg/L	9.19E-02	7.58E-03
Gallium	mg/L	0.00E+00	---
Iron	mg/L	3.32E+00	3.32E+00
Lead	mg/L	5.33E-04	3.41E-04
Lithium	mg/L	1.20E-02	7.75E-03
Magnesium	mg/L	0.00E+00	---
Manganese	mg/L	1.08E+00	1.08E+00
Mercury	mg/L	4.36E-05	4.36E-05
Molybdenum	mg/L	2.30E-02	2.25E-02
Nickel	mg/L	3.30E-03	3.30E-03
Phosphorus	mg/L	0.00E+00	---
Potassium	mg/L	0.00E+00	---
Rhenium	mg/L	0.00E+00	---
Rubidium	mg/L	0.00E+00	---
Selenium	mg/L	9.46E-04	9.46E-04
Silver	mg/L	1.89E-05	1.89E-05
Sodium	mg/L	0.00E+00	---
Strontium	mg/L	3.10E+00	7.07E-01
Tellurium	mg/L	0.00E+00	---
Thallium	mg/L	3.09E-05	3.09E-05
Thorium	mg/L	0.00E+00	---
Tin	mg/L	2.59E-04	2.59E-04
Titanium	mg/L	0.00E+00	---
Uranium	mg/L	2.51E-03	2.51E-03
Vanadium	mg/L	5.05E-03	5.05E-03
Yttrium	mg/L	0.00E+00	---
Zinc	mg/L	4.91E-02	8.63E-03
Zirconium	mg/L	0.00E+00	---

Future Case Groundwater Concentrations- Ajax Mine Project

Future Concentration in Concentration (Dissolved)
2.99E-03
7.62E-04
1.82E-03
3.71E-02
5.59E-05

1.80E-01
1.70E-05

2.57E-04
1.72E-04
9.19E-02

3.23E-01
5.33E-04
1.20E-02

5.14E-02
7.82E-06
2.30E-02
2.47E-03

9.46E-04
5.87E-06

3.10E+00

8.87E-06

6.14E-05

2.07E-03
2.34E-03

4.91E-02

Future Case Surface Water Concentrations- Ajax Mine Project

Parameter	Units	Jacko	PC02.3	PC02	Jacko	PC02.3	PC02
		Dissolved	Dissolved	Dissolved	Total	Total	Total
Aluminum	mg/L	6.39E-03	1.22E-02	6.66E-03	2.88E-02	8.84E-01	1.44E+00
Antimony	mg/L	1.01E-04	4.71E-04	3.84E-04	1.18E-04	5.48E-04	4.63E-04
Arsenic	mg/L	1.59E-03	3.17E-03	2.80E-03	1.59E-03	3.19E-03	2.92E-03
Barium	mg/L	7.60E-02	7.91E-02	6.35E-02	7.61E-02	8.07E-02	6.85E-02
Beryllium	mg/L	5.50E-05	6.06E-05	6.19E-05	1.65E-04	1.82E-04	1.86E-04
Bismuth	mg/L	---	---	---	---	---	---
Boron	mg/L	2.18E-02	3.50E-02	8.51E-02	2.51E-02	3.87E-02	9.25E-02
Cadmium	mg/L	8.91E-06	1.16E-05	1.01E-05	1.33E-05	3.47E-05	1.37E-05
Calcium	mg/L	---	---	---	---	---	---
Cesium	mg/L	---	---	---	---	---	---
Chromium	mg/L	4.81E-04	8.42E-04	5.04E-04	9.54E-04	3.25E-03	4.66E-03
Cobalt	mg/L	2.12E-04	4.28E-04	3.63E-04	6.37E-04	1.01E-03	8.96E-04
Copper	mg/L	2.99E-03	4.61E-03	3.73E-03	4.58E-03	7.58E-03	7.49E-03
Gallium	mg/L	---	---	---	---	---	---
Iron	mg/L	5.79E-02	2.60E-01	1.55E-01	1.06E-01	3.32E+00	2.63E+00
Lead	mg/L	7.30E-05	1.14E-04	7.41E-05	1.56E-04	3.41E-04	2.22E-04
Lithium	mg/L	6.02E-03	7.75E-03	9.87E-03	6.02E-03	7.75E-03	1.01E-02
Magnesium	mg/L	---	---	---	---	---	---
Manganese	mg/L	4.15E-02	3.31E-01	2.01E-01	9.16E-02	1.08E+00	3.44E-01
Mercury	mg/L	1.06E-05	1.45E-05	1.04E-05	3.17E-05	4.36E-05	3.11E-05
Molybdenum	mg/L	4.05E-03	2.19E-02	1.96E-02	4.50E-03	2.25E-02	2.06E-02
Nickel	mg/L	1.57E-03	2.61E-03	4.43E-03	1.78E-03	3.30E-03	6.88E-03
Phosphorus	mg/L	---	---	---	---	---	---
Potassium	mg/L	---	---	---	---	---	---
Rhenium	mg/L	---	---	---	---	---	---
Rubidium	mg/L	---	---	---	---	---	---
Selenium	mg/L	3.22E-04	9.41E-04	1.24E-03	3.22E-04	9.46E-04	1.24E-03
Silver	mg/L	5.65E-06	6.31E-06	6.30E-06	1.69E-05	1.89E-05	1.89E-05
Sodium	mg/L	---	---	---	---	---	---
Strontium	mg/L	4.10E-01	7.07E-01	1.21E+00	4.17E-01	7.07E-01	1.23E+00
Tellurium	mg/L	---	---	---	---	---	---
Thallium	mg/L	7.18E-06	1.03E-05	8.18E-06	2.15E-05	3.09E-05	2.45E-05
Thorium	mg/L	---	---	---	---	---	---
Tin	mg/L	6.86E-05	8.62E-05	7.16E-05	2.06E-04	2.59E-04	2.15E-04
Titanium	mg/L	---	---	---	---	---	---
Uranium	mg/L	1.35E-03	2.41E-03	3.79E-03	1.43E-03	2.51E-03	3.96E-03
Vanadium	mg/L	2.97E-03	4.04E-03	4.06E-03	3.23E-03	5.05E-03	5.42E-03
Yttrium	mg/L	---	---	---	---	---	---
Zinc	mg/L	3.37E-03	2.88E-03	2.41E-03	5.35E-03	8.63E-03	7.39E-03
Zirconium	mg/L	---	---	---	---	---	---

Future Case Public Water Concentrations-Ajax Mine Project

Parameter	Units	Concentration (Total)
Aluminum	mg/L	8.00E-03
Antimony	mg/L	2.00E-04
Arsenic	mg/L	5.00E-04
Barium	mg/L	1.00E-02
Beryllium	mg/L	1.00E-04
Bismuth	mg/L	1.00E-04
Boron	mg/L	1.10E-02
Cadmium	mg/L	1.00E-05
Calcium	mg/L	1.36E+01
Cesium	mg/L	---
Chromium	mg/L	5.00E-04
Cobalt	mg/L	5.00E-05
Copper	mg/L	3.43E-01
Gallium	mg/L	---
Iron	mg/L	2.00E-02
Lead	mg/L	3.00E-04
Lithium	mg/L	9.00E-04
Magnesium	mg/L	2.19E+00
Manganese	mg/L	1.30E-03
Mercury	mg/L	2.00E-05
Molybdenum	mg/L	7.00E-04
Nickel	mg/L	4.00E-04
Phosphorus	mg/L	2.70E-02
Potassium	mg/L	8.60E-01
Rhenium	mg/L	---
Rubidium	mg/L	---
Selenium	mg/L	5.00E-04
Silver	mg/L	5.00E-05
Sodium	mg/L	4.38E+00
Strontium	mg/L	8.00E-02
Tellurium	mg/L	2.00E-04
Thallium	mg/L	2.00E-05
Thorium	mg/L	1.00E-04
Tin	mg/L	2.00E-04
Titanium	mg/L	5.00E-03
Uranium	mg/L	7.00E-05
Vanadium	mg/L	2.00E-03
Yttrium	mg/L	---
Zinc	mg/L	5.00E-03
Zirconium	mg/L	1.00E-04

Future Case Concentration in Cattle- Ajax Mine Project

Parameter	A_{game} (mg COPC/kg FW tissue)
Aluminum	7.43E-01
Antimony	2.24E-03
Arsenic	4.14E-03
Barium	1.31E-02
Beryllium	2.03E-03
Bismuth	2.35E-03
Boron	---
Cadmium	1.00E-03
Calcium	3.06E+01
Cesium	---
Chromium	1.95E-01
Cobalt	4.02E-03
Copper	4.39E-01
Gallium	---
Iron	1.35E+01
Lead	4.04E-03
Lithium	1.02E-01
Magnesium	1.29E+02
Manganese	7.58E-02
Mercury	1.24E-03
Molybdenum	1.20E-02
Nickel	8.43E-02
Phosphorus	1.46E+03
Potassium	2.55E+03
Rhenium	---
Rubidium	---
Selenium	1.10E-01
Silver	---
Sodium	3.01E+02
Strontium	3.52E-02
Tellurium	---
Thallium	4.11E-04
Thorium	---
Tin	3.84E-02
Titanium	---
Uranium	4.58E-04
Vanadium	2.71E-02
Yttrium	---
Zinc	2.82E+01
Zirconium	---

Future Case Sediment Concentrations- Ajax Mine Project

Parameter	Units	Post-Closure Sediment PC02	Post-Closure Sediment Jacko
Aluminum	mg/kg dw	1.32E+04	6.63E+03
Antimony	mg/kg dw	3.44E-01	3.78E-01
Arsenic	mg/kg dw	4.47E+00	4.54E+00
Barium	mg/kg dw	1.52E+02	2.26E+02
Beryllium	mg/kg dw	---	---
Bismuth	mg/kg dw	---	---
Boron	mg/kg dw	---	---
Cadmium	mg/kg dw	---	---
Calcium	mg/kg dw	---	---
Cesium	mg/kg dw	---	---
Chromium	mg/kg dw	1.20E+02	3.51E+01
Cobalt	mg/kg dw	1.35E+01	9.18E+00
Copper	mg/kg dw	5.69E+01	7.50E+01
Gallium	mg/kg dw	---	---
Iron	mg/kg dw	---	---
Lead	mg/kg dw	4.93E+00	3.91E+00
Lithium	mg/kg dw	---	---
Magnesium	mg/kg dw	---	---
Manganese	mg/kg dw	9.65E+02	7.74E+02
Mercury	mg/kg dw	6.31E-02	5.58E-02
Molybdenum	mg/kg dw	1.73E+00	1.84E+01
Nickel	mg/kg dw	7.40E+01	4.03E+01
Phosphorus	mg/kg dw	---	---
Potassium	mg/kg dw	---	---
Rhenium	mg/kg dw	---	---
Rubidium	mg/kg dw	---	---
Selenium	mg/kg dw	7.27E-01	1.46E+00
Silver	mg/kg dw	---	---
Sodium	mg/kg dw	---	---
Strontium	mg/kg dw	---	---
Tellurium	mg/kg dw	---	---
Thallium	mg/kg dw	6.26E-02	5.00E-02
Thorium	mg/kg dw	---	---
Tin	mg/kg dw	---	---
Titanium	mg/kg dw	---	---
Uranium	mg/kg dw	1.09E+00	5.27E+00
Vanadium	mg/kg dw	6.70E+01	4.70E+01
Yttrium	mg/kg dw	---	---
Zinc	mg/kg dw	---	---
Zirconium	mg/kg dw	---	---

Future Case Concentrations in Root Vegetables- Ajax Mine Project

Parameter	Units	Aberdeen	Brocklehurst	Sahali
Aluminum	mg/kg ww	2.57E+02	1.14E+01	2.34E+01
Antimony	mg/kg ww	6.19E-03	2.00E-03	2.00E-03
Arsenic	mg/kg ww	6.20E-02	4.00E-03	9.30E-03
Barium	mg/kg ww	7.82E+00	3.66E+00	1.12E+00
Beryllium	mg/kg ww	5.90E-03	2.00E-03	2.00E-03
Bismuth	mg/kg ww	---	---	---
Boron	mg/kg ww	---	---	---
Cadmium	mg/kg ww	1.72E-02	7.40E-03	3.10E-03
Calcium	mg/kg ww	---	---	---
Cesium	mg/kg ww	---	---	---
Chromium	mg/kg ww	2.93E-01	3.60E-02	9.60E-02
Cobalt	mg/kg ww	1.84E-01	1.16E-02	1.65E-02
Copper	mg/kg ww	1.83E+00	9.86E-01	1.09E+00
Gallium	mg/kg ww	---	---	---
Iron	mg/kg ww	---	---	---
Lead	mg/kg ww	1.06E-01	1.06E-02	1.22E-02
Lithium	mg/kg ww	1.69E-01	2.00E-02	2.30E-02
Magnesium	mg/kg ww	---	---	---
Manganese	mg/kg ww	1.30E+01	3.01E+00	2.52E+00
Mercury	mg/kg ww	1.01E-03	1.00E-03	1.00E-03
Molybdenum	mg/kg ww	7.66E-02	4.89E-02	5.04E-02
Nickel	mg/kg ww	7.41E-01	3.10E-02	7.40E-02
Phosphorus	mg/kg ww	---	---	---
Potassium	mg/kg ww	---	---	---
Rhenium	mg/kg ww	---	---	---
Rubidium	mg/kg ww	---	---	---
Selenium	mg/kg ww	2.02E-02	2.00E-02	2.00E-02
Silver	mg/kg ww	---	---	---
Sodium	mg/kg ww	---	---	---
Strontium	mg/kg ww	5.35E+00	2.21E+00	1.58E+00
Tellurium	mg/kg ww	---	---	---
Thallium	mg/kg ww	2.29E-03	4.00E-04	9.11E-04
Thorium	mg/kg ww	---	---	---
Tin	mg/kg ww	9.32E-03	4.00E-03	4.90E-03
Titanium	mg/kg ww	2.12E+01	7.73E-01	1.63E+00
Uranium	mg/kg ww	1.34E-02	1.33E-03	1.82E-03
Vanadium	mg/kg ww	1.05E+00	2.53E-02	8.87E-02
Yttrium	mg/kg ww	---	---	---
Zinc	mg/kg ww	4.39E+00	2.62E+00	3.94E+00
Zirconium	mg/kg ww	---	---	---

Future Case Concentrations in Root Vegetables- Ajax Mine Project

Knutsford	North Shore	West End/Downtown
2.57E+02	1.74E+01	1.14E+01
6.19E-03	2.00E-03	2.00E-03
6.20E-02	1.60E-02	4.00E-03
7.82E+00	1.38E+00	3.66E+00
5.90E-03	2.00E-03	2.00E-03
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1.72E-02	3.08E-02	7.40E-03
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---	---	---
2.93E-01	7.45E-02	3.60E-02
1.84E-01	2.55E-02	1.16E-02
1.83E+00	7.46E-01	9.86E-01
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---	---	---
1.06E-01	9.85E-03	1.06E-02
1.69E-01	2.00E-02	2.00E-02
---	---	---
1.30E+01	2.25E+00	3.01E+00
1.01E-03	1.00E-03	1.00E-03
7.66E-02	2.02E-01	4.89E-02
7.41E-01	8.05E-02	3.10E-02
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---	---	---
---	---	---
2.02E-02	2.00E-02	2.00E-02
---	---	---
---	---	---
5.35E+00	2.35E+00	2.21E+00
---	---	---
2.29E-03	9.31E-04	4.00E-04
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9.32E-03	9.15E-03	4.00E-03
2.12E+01	7.45E-01	7.73E-01
1.34E-02	7.70E-04	1.33E-03
1.05E+00	6.24E-02	2.53E-02
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4.39E+00	2.94E+00	2.62E+00
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Future Case Concentrations in Leaf Vegetables-Ajax Mine Project

Parameter	Units	Aberdeen	Brocklehurst
Aluminum	mg/kg ww	2.53E+01	1.87E+01
Antimony	mg/kg ww	2.03E-03	2.00E-03
Arsenic	mg/kg ww	1.09E-02	5.50E-03
Barium	mg/kg ww	1.26E+00	1.50E+00
Beryllium	mg/kg ww	2.00E-03	2.00E-03
Bismuth	mg/kg ww	---	---
Boron	mg/kg ww	---	---
Cadmium	mg/kg ww	1.13E-02	2.01E-02
Calcium	mg/kg ww	---	---
Cesium	mg/kg ww	---	---
Chromium	mg/kg ww	1.10E-01	6.20E-02
Cobalt	mg/kg ww	1.98E-02	1.81E-02
Copper	mg/kg ww	9.59E-01	1.06E+00
Gallium	mg/kg ww	---	---
Iron	mg/kg ww	---	---
Lead	mg/kg ww	1.76E-02	1.43E-02
Lithium	mg/kg ww	2.00E-02	1.02E-01
Magnesium	mg/kg ww	---	---
Manganese	mg/kg ww	3.89E+00	1.37E+01
Mercury	mg/kg ww	1.01E-03	1.00E-03
Molybdenum	mg/kg ww	9.47E-01	7.39E-01
Nickel	mg/kg ww	1.06E-01	5.40E-02
Phosphorus	mg/kg ww	---	---
Potassium	mg/kg ww	---	---
Rhenium	mg/kg ww	---	---
Rubidium	mg/kg ww	---	---
Selenium	mg/kg ww	2.02E-02	3.60E-02
Silver	mg/kg ww	---	---
Sodium	mg/kg ww	---	---
Strontium	mg/kg ww	5.13E+00	4.04E+00
Tellurium	mg/kg ww	---	---
Thallium	mg/kg ww	4.03E-04	5.10E-04
Thorium	mg/kg ww	---	---
Tin	mg/kg ww	4.01E-03	4.00E-03
Titanium	mg/kg ww	1.78E+00	1.61E+00
Uranium	mg/kg ww	1.92E-03	2.24E-03
Vanadium	mg/kg ww	1.03E-01	5.24E-02
Yttrium	mg/kg ww	---	---
Zinc	mg/kg ww	6.87E+00	2.59E+00
Zirconium	mg/kg ww	---	---

Future Case Concentrations in Leaf Vegetables-Ajax Mine Project

Sahali	Knutsford	North Shore	West End/Downtown
5.53E+00	2.53E+01	1.74E+01	9.23E+00
2.00E-03	2.03E-03	2.00E-03	2.00E-03
1.00E-02	1.09E-02	6.20E-03	6.70E-03
4.97E-01	1.26E+00	5.20E-01	8.74E-01
2.00E-03	2.00E-03	2.00E-03	2.00E-03
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1.01E-02	1.13E-02	3.51E-02	1.36E-02
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---	---	---	---
2.70E-02	1.10E-01	4.50E-02	4.60E-02
5.80E-03	1.98E-02	1.72E-02	8.60E-03
1.14E+00	9.59E-01	1.10E+00	1.15E+00
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---	---	---	---
7.90E-03	1.76E-02	1.61E-02	1.26E-02
2.20E-02	2.00E-02	4.70E-02	3.98E-01
---	---	---	---
2.37E+00	3.89E+00	5.74E+00	4.60E+00
1.00E-03	1.01E-03	1.20E-03	1.00E-03
7.82E-01	9.47E-01	4.96E-01	8.10E-01
3.10E-02	1.06E-01	6.50E-02	3.50E-02
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---	---	---	---
---	---	---	---
---	---	---	---
2.00E-02	2.02E-02	2.00E-02	2.00E-02
---	---	---	---
---	---	---	---
3.65E+00	5.13E+00	1.77E+00	2.33E+00
---	---	---	---
4.01E-04	4.03E-04	4.70E-04	4.00E-04
---	---	---	---
4.40E-03	4.01E-03	4.40E-03	4.00E-03
5.53E-01	1.78E+00	7.42E-01	7.56E-01
4.00E-04	1.92E-03	1.84E-03	9.60E-04
2.82E-02	1.03E-01	3.74E-02	3.33E-02
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7.88E+00	6.87E+00	7.82E+00	4.19E+00
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Parameter	Units	Aberdeen	Brocklehurst	Sahali
Aluminum	mg/kg ww	3.20E+00	4.50E-01	4.00E-01
Antimony	mg/kg ww	2.03E-03	2.00E-03	2.00E-03
Arsenic	mg/kg ww	4.01E-03	4.00E-03	4.00E-03
Barium	mg/kg ww	3.06E-01	6.42E-01	4.00E-02
Beryllium	mg/kg ww	2.00E-03	2.00E-03	2.00E-03
Bismuth	mg/kg ww	---	---	---
Boron	mg/kg ww	---	---	---
Cadmium	mg/kg ww	2.35E-03	5.65E-03	2.00E-03
Calcium	mg/kg ww	---	---	---
Cesium	mg/kg ww	---	---	---
Chromium	mg/kg ww	1.55E-02	1.60E-02	1.40E-02
Cobalt	mg/kg ww	4.06E-03	1.69E-02	4.00E-03
Copper	mg/kg ww	5.15E-01	1.17E+00	7.71E-01
Gallium	mg/kg ww	---	---	---
Iron	mg/kg ww	---	---	---
Lead	mg/kg ww	4.01E-03	4.00E-03	4.00E-03
Lithium	mg/kg ww	2.00E-02	2.00E-02	2.00E-02
Magnesium	mg/kg ww	---	---	---
Manganese	mg/kg ww	6.42E-01	6.69E-01	6.26E-01
Mercury	mg/kg ww	1.01E-03	1.00E-03	1.00E-03
Molybdenum	mg/kg ww	1.02E-01	4.16E-02	1.21E-01
Nickel	mg/kg ww	1.90E-02	7.35E-02	1.00E-02
Phosphorus	mg/kg ww	---	---	---
Potassium	mg/kg ww	---	---	---
Rhenium	mg/kg ww	---	---	---
Rubidium	mg/kg ww	---	---	---
Selenium	mg/kg ww	2.02E-02	2.00E-02	2.00E-02
Silver	mg/kg ww	---	---	---
Sodium	mg/kg ww	---	---	---
Strontium	mg/kg ww	6.42E-01	7.84E-01	2.89E-01
Tellurium	mg/kg ww	---	---	---
Thallium	mg/kg ww	4.03E-04	4.00E-04	4.01E-04
Thorium	mg/kg ww	---	---	---
Tin	mg/kg ww	1.53E-02	1.02E-02	9.10E-03
Titanium	mg/kg ww	1.68E-01	2.50E-02	1.60E-02
Uranium	mg/kg ww	4.01E-04	4.00E-04	4.00E-04
Vanadium	mg/kg ww	8.12E-03	4.00E-03	4.00E-03
Yttrium	mg/kg ww	---	---	---
Zinc	mg/kg ww	6.15E-01	1.29E+00	1.81E+00
Zirconium	mg/kg ww	---	---	---

Knutsford	North Shore	West End/Downtown
3.20E+00	4.30004E-01	4.00E-01
2.03E-03	2.00174E-03	2.00E-03
4.01E-03	4.00046E-03	4.00E-03
3.06E-01	1.28006E-01	2.80E-02
2.00E-03	2.00E-03	2.00E-03
---	---	---
---	---	---
2.35E-03	4.20E-03	2.00E-03
---	---	---
---	---	---
1.55E-02	2.90E-02	1.00E-02
4.06E-03	5.50E-03	4.00E-03
5.15E-01	6.26E-01	2.37E-01
---	---	---
---	---	---
4.01E-03	4.00E-03	4.00E-03
2.00E-02	2.00E-02	2.00E-02
---	---	---
6.42E-01	5.48E-01	2.96E-01
1.01E-03	1.00E-03	1.00E-03
1.02E-01	7.19E-02	6.28E-02
1.90E-02	3.30E-02	1.00E-02
---	---	---
---	---	---
---	---	---
---	---	---
2.02E-02	2.00E-02	2.00E-02
---	---	---
---	---	---
6.42E-01	6.41E-01	2.06E-01
---	---	---
4.03E-04	4.00E-04	4.00E-04
---	---	---
1.53E-02	3.27E-02	4.00E-03
1.68E-01	2.10E-02	1.50E-02
4.01E-04	4.00E-04	4.00E-04
8.12E-03	4.00E-03	4.00E-03
---	---	---
6.15E-01	1.58E+00	6.80E-01
---	---	---

Future Case Vegetation Concentration- Ajax Mine Project

Parameter	Units	Browse	Forage	Berries	Traditional Plant	Browse and Forage
Aluminum	mg/kg ww	6.24E+01	7.47E+01	1.32E+01	2.55E+01	5.30E+01
Antimony	mg/kg ww	6.36E-03	4.45E-03	1.52E-03	2.11E-03	4.63E-03
Arsenic	mg/kg ww	1.85E-01	3.27E-02	1.16E-02	1.58E-02	9.08E-02
Barium	mg/kg ww	1.37E+01	2.65E+01	2.42E+00	7.23E+00	1.89E+01
Beryllium	mg/kg ww	2.00E-03	2.10E-03	---	---	2.10E-03
Bismuth	mg/kg ww	---	---	---	---	---
Boron	mg/kg ww	---	---	---	---	---
Cadmium	mg/kg ww	4.10E-01	2.16E-02	1.22E-03	5.29E-03	8.11E-02
Calcium	mg/kg ww	---	---	1.05E+03	---	---
Cesium	mg/kg ww	---	---	---	---	---
Chromium	mg/kg ww	8.89E-01	2.65E-01	1.81E-03	5.43E-02	5.19E-01
Cobalt	mg/kg ww	1.36E+00	1.40E-01	1.13E-02	3.71E-02	7.09E-01
Copper	mg/kg ww	3.56E+00	2.67E+00	2.31E+00	2.38E+00	2.95E+00
Gallium	mg/kg ww	---	---	---	---	---
Iron	mg/kg ww	---	---	9.80E+00	---	---
Lead	mg/kg ww	5.35E-02	2.41E-02	1.03E-03	5.65E-03	3.77E-02
Lithium	mg/kg ww	1.01E+00	6.49E-01	---	---	4.62E-01
Magnesium	mg/kg ww	---	---	3.99E+02	---	---
Manganese	mg/kg ww	4.87E+01	3.25E+01	6.46E+01	5.82E+01	3.77E+01
Mercury	mg/kg ww	8.67E-03	4.72E-03	3.02E-02	2.51E-02	6.48E-03
Molybdenum	mg/kg ww	5.93E-01	5.16E+00	2.23E-02	1.05E+00	4.43E+00
Nickel	mg/kg ww	1.24E+00	5.24E-01	3.95E-01	4.21E-01	8.81E-01
Phosphorus	mg/kg ww	---	---	---	---	---
Potassium	mg/kg ww	---	---	3.42E+03	---	---
Rhenium	mg/kg ww	---	---	---	---	---
Rubidium	mg/kg ww	---	---	---	---	---
Selenium	mg/kg ww	1.30E-01	1.23E-01	1.45E-01	1.41E-01	9.04E-02
Silver	mg/kg ww	---	---	---	---	---
Sodium	mg/kg ww	---	---	1.12E+01	---	---
Strontium	mg/kg ww	9.88E+01	5.72E+01	---	---	6.93E+01
Tellurium	mg/kg ww	---	---	---	---	---
Thallium	mg/kg ww	8.04E-04	1.01E-03	2.03E-04	3.64E-04	6.73E-04
Thorium	mg/kg ww	---	---	---	---	---
Tin	mg/kg ww	7.52E-03	6.42E-03	4.69E-03	5.04E-03	5.01E-03
Titanium	mg/kg ww	3.32E+00	3.12E+00	2.91E-01	8.57E-01	2.95E+00
Uranium	mg/kg ww	3.71E-03	4.68E-03	1.24E-04	1.03E-03	2.72E-03
Vanadium	mg/kg ww	3.03E-01	3.79E-01	9.73E-03	8.37E-02	2.62E-01
Yttrium	mg/kg ww	---	---	---	---	---
Zinc	mg/kg ww	5.20E+01	7.66E+00	1.22E+00	2.51E+00	3.61E+01
Zirconium	mg/kg ww	---	---	---	---	---

Future Case Concentrations in Fish (Whole Body and Fillet)- Ajax Mine Project

Parameter	Units	Whole Body (Combined PC02 and Jacko	Weight-Fillet	Post-Closure - Jacko - Whole Fish - EPC	Post-Closure - PC02 - Whole Fish - EPC
Aluminum	mg/kg ww	6.98E+01	5.28E+00	3.05E+01	1.26E+02
Antimony	mg/kg ww	2.00E-03	2.00E-03	2.00E-03	7.24E-03
Arsenic	mg/kg ww	6.81E-02	1.73E-02	7.37E-02	1.21E-01
Barium	mg/kg ww	1.33E+00	4.37E-02	2.02E+00	1.38E+00
Beryllium	mg/kg ww	2.00E-03	2.00E-03	2.00E-03	2.00E-03
Bismuth	mg/kg ww	---	---	---	---
Boron	mg/kg ww	2.06E-01	2.06E-01	2.06E-01	2.60E-01
Cadmium	mg/kg ww	1.75E-02	1.25E-02	1.60E-03	1.75E-02
Calcium	mg/kg ww	---	---	---	---
Cesium	mg/kg ww	---	---	---	---
Chromium	mg/kg ww	1.71E-01	1.92E-01	1.44E-01	5.22E-01
Cobalt	mg/kg ww	1.03E-01	1.24E-01	5.22E-02	1.86E-01
Copper	mg/kg ww	3.01E+00	9.30E-01	3.74E+00	3.35E+00
Gallium	mg/kg ww	---	---	---	---
Iron	mg/kg ww	---	---	---	---
Lead	mg/kg ww	2.53E-01	4.47E-01	2.46E-01	2.73E-02
Lithium	mg/kg ww	1.05E-01	1.05E-01	1.05E-01	1.20E-01
Magnesium	mg/kg ww	---	---	---	---
Manganese	mg/kg ww	2.02E+00	3.05E-01	2.31E+00	5.22E+00
Mercury	mg/kg ww	9.70E-02	6.01E-02	1.27E-01	4.09E-02
Molybdenum	mg/kg ww	2.91E-02	1.06E-01	3.13E-02	5.47E-02
Nickel	mg/kg ww	1.67E-01	2.48E+00	6.48E-02	1.18E-01
Phosphorus	mg/kg ww	---	---	---	---
Potassium	mg/kg ww	---	---	---	---
Rhenium	mg/kg ww	---	---	---	---
Rubidium	mg/kg ww	---	---	---	---
Selenium	mg/kg ww	1.99E+00	1.66E+00	1.15E+00	3.80E+00
Silver	mg/kg ww	6.40E-03	1.60E-03	2.10E-03	6.40E-03
Sodium	mg/kg ww	---	---	---	---
Strontium	mg/kg ww	1.60E+01	1.29E+00	1.70E+01	3.68E+01
Tellurium	mg/kg ww	---	---	---	---
Thallium	mg/kg ww	3.98E-03	3.05E-03	4.00E-04	3.98E-03
Thorium	mg/kg ww	---	---	---	---
Tin	mg/kg ww	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Titanium	mg/kg ww	---	---	---	---
Uranium	mg/kg ww	9.85E-03	6.96E-04	7.39E-03	2.67E-02
Vanadium	mg/kg ww	7.96E-02	3.43E-02	7.02E-02	2.24E-01
Yttrium	mg/kg ww	---	---	---	---
Zinc	mg/kg ww	2.48E+01	6.98E+00	2.33E+01	4.27E+01
Zirconium	mg/kg ww	---	---	---	---

Future Case Concentration in Small Mammals- Ajax Mine Project

Parameter	Units	Post-Closure Scaled Small Mammal Conc.
Aluminum	mg/kg ww	2.66E+02
Antimony	mg/kg ww	5.36E-03
Arsenic	mg/kg ww	2.33E-02
Barium	mg/kg ww	5.81E+00
Beryllium	mg/kg ww	2.00E-03
Bismuth	mg/kg ww	---
Boron	mg/kg ww	---
Cadmium	mg/kg ww	1.76E-02
Calcium	mg/kg ww	---
Cesium	mg/kg ww	---
Chromium	mg/kg ww	2.68E-01
Cobalt	mg/kg ww	6.87E-02
Copper	mg/kg ww	3.61E+00
Gallium	mg/kg ww	---
Iron	mg/kg ww	---
Lead	mg/kg ww	1.10E-01
Lithium	mg/kg ww	1.10E-01
Magnesium	mg/kg ww	---
Manganese	mg/kg ww	6.43E+00
Mercury	mg/kg ww	6.02E-03
Molybdenum	mg/kg ww	5.10E-01
Nickel	mg/kg ww	3.66E-01
Phosphorus	mg/kg ww	---
Potassium	mg/kg ww	---
Rhenium	mg/kg ww	---
Rubidium	mg/kg ww	---
Selenium	mg/kg ww	4.08E-01
Silver	mg/kg ww	---
Sodium	mg/kg ww	---
Strontium	mg/kg ww	2.32E+01
Tellurium	mg/kg ww	---
Thallium	mg/kg ww	6.76E-04
Thorium	mg/kg ww	---
Tin	mg/kg ww	---
Titanium	mg/kg ww	1.49E-01
Uranium	mg/kg ww	2.13E-03
Vanadium	mg/kg ww	1.86E-01
Yttrium	mg/kg ww	---
Zinc	mg/kg ww	2.90E+01
Zirconium	mg/kg ww	---

Future Case Concentration in Deer- Ajax Mine Project

Parameter	A_{game}	$F_{(forage)}$	$Qp_{(game)}$
	(mg COPC/kg FW tissue)	(unitless)	(kg DW plant/day)
Aluminum	9.99E-01	1	0.975
Antimony	2.58E-05	1	0.975
Arsenic	8.42E-04	1	0.975
Barium	6.33E-03	1	0.975
Beryllium	---	1	0.975
Bismuth	---	1	0.975
Boron	---	1	0.975
Cadmium	6.19E-05	1	0.975
Calcium	---	1	0.975
Cesium	---	1	0.975
Chromium	1.74E-02	1	0.975
Cobalt	4.90E-02	1	0.975
Copper	9.35E-02	1	0.975
Gallium	---	1	0.975
Iron	---	1	0.975
Lead	7.16E-05	1	0.975
Lithium	---	1	0.975
Magnesium	---	1	0.975
Manganese	4.24E-02	1	0.975
Mercury	7.92E-05	1	0.975
Molybdenum	2.77E-02	1	0.975
Nickel	2.29E-02	1	0.975
Phosphorus	---	1	0.975
Potassium	---	1	0.975
Rhenium	---	1	0.975
Rubidium	---	1	0.975
Selenium	7.73E-04	1	0.975
Silver	---	1	0.975
Sodium	---	1	0.975
Strontium	---	1	0.975
Tellurium	---	1	0.975
Thallium	1.67E-04	1	0.975
Thorium	---	1	0.975
Tin	5.87E-03	1	0.975
Titanium	1.06E+00	1	0.975
Uranium	7.25E-06	1	0.975
Vanadium	9.80E-03	1	0.975
Yttrium	---	1	0.975
Zinc	6.30E-03	1	0.975
Zirconium	---	1	0.975

Future Case Concentration in Deer- Ajax Mine Project

Concentration in Vegetation (Forage)	Proportion of Diet (Forage)	Concentration in Vegetation (Browse)
(mg/kg DW)	(unitless)	(mg/kg DW)
1.59E+02	65%	4.16E+02
1.00E-02	65%	4.24E-02
7.09E-02	65%	1.24E+00
5.93E+01	65%	9.16E+01
1.00E-02	65%	1.33E-02
1.00E-02	65%	---
1.11E+02	65%	---
5.80E-02	65%	2.74E+00
1.22E+04	65%	---
4.39E-02	65%	---
5.48E-01	65%	5.92E+00
1.11E+00	65%	9.08E+00
7.37E+00	65%	2.37E+01
8.20E-02	65%	---
2.20E+02	65%	---
7.80E-02	65%	3.57E-01
1.76E+00	65%	6.74E+00
3.44E+03	65%	---
7.21E+01	65%	3.25E+02
1.02E-02	65%	5.78E-02
1.14E+01	65%	3.95E+00
2.03E+00	65%	8.24E+00
2.79E+03	65%	---
2.15E+04	65%	---
2.02E-01	65%	---
3.65E+00	65%	---
5.10E-01	65%	8.66E-01
#VALUE!	65%	---
1.00E+03	65%	---
2.25E+02	65%	6.58E+02
2.00E-02	65%	---
2.00E-03	65%	5.36E-03
1.80E-02	65%	---
2.00E-02	65%	5.01E-02
8.05E+00	65%	2.21E+01
1.26E-02	65%	2.47E-02
8.09E-01	65%	2.02E+00
6.80E-02	65%	---
1.79E+01	65%	3.47E+02
2.00E-01	65%	---

Future Case Concentration in Deer- Ajax Mine Project

Proportion of Diet (Browse)	Concentration in Vegetation (Berries)	Proportion of Diet (Berries)	$Qs_{(game)}$
(unitless)	(mg/kg DW)	(unitless)	(kg/day)
35%	7.32E+01	0%	0.05
35%	8.45E-03	0%	0.05
35%	6.44E-02	0%	0.05
35%	1.34E+01	0%	0.05
35%	---	0%	0.05
35%	---	0%	0.05
35%	---	0%	0.05
35%	6.76E-03	0%	0.05
35%	5.84E+03	0%	0.05
35%	---	0%	0.05
35%	1.01E-02	0%	0.05
35%	6.27E-02	0%	0.05
35%	1.28E+01	0%	0.05
35%	---	0%	0.05
35%	5.45E+01	0%	0.05
35%	5.73E-03	0%	0.05
35%	---	0%	0.05
35%	2.22E+03	0%	0.05
35%	3.59E+02	0%	0.05
35%	1.68E-01	0%	0.05
35%	1.24E-01	0%	0.05
35%	2.20E+00	0%	0.05
35%	---	0%	0.05
35%	1.90E+04	0%	0.05
35%	---	0%	0.05
35%	---	0%	0.05
35%	8.07E-01	0%	0.05
35%	---	0%	0.05
35%	6.20E+01	0%	0.05
35%	---	0%	0.05
35%	---	0%	0.05
35%	1.13E-03	0%	0.05
35%	---	0%	0.05
35%	2.61E-02	0%	0.05
35%	1.61E+00	0%	0.05
35%	6.89E-04	0%	0.05
35%	5.41E-02	0%	0.05
35%	---	0%	0.05
35%	6.78E+00	0%	0.05
35%	---	0%	0.05

Future Case Concentration in Deer- Ajax Mine Project

Concentration in Soil	Bs	$Ba_{(game)}$	MF	$Qw_{(game)}$	$F_{L(game)}$
(mg COPC/kg soil)	(unitless)	(day/kg FW tissue)	(unitless)	(L/day)	(unitless)
18778.768	1.00E+00	7.89E-04	1	6.00	1
0.470	1.00E+00	5.26E-04	1	6.00	1
5.854	1.00E+00	1.05E-03	1	6.00	1
200.301	1.00E+00	7.89E-05	1	6.00	1
0.393	1.00E+00	5.26E-04	1	6.00	1
0.205	1.00E+00	2.11E-04	1	6.00	1
---	1.00E+00	3.16E-04	1	6.00	1
0.169	1.00E+00	6.32E-05	1	6.00	1
15357.228	1.00E+00	3.68E-04	1	6.00	1
---	1.00E+00	1.05E-02	1	6.00	1
67.049	1.00E+00	2.89E-03	1	6.00	1
15.683	1.00E+00	1.05E-02	1	6.00	1
91.690	1.00E+00	5.26E-03	1	6.00	1
---	1.00E+00	2.63E-04	1	6.00	1
34033.908	1.00E+00	1.05E-02	1	6.00	1
5.209	1.00E+00	1.58E-04	1	6.00	1
9.641	1.00E+00	5.26E-03	1	6.00	1
13052.531	1.00E+00	2.63E-03	1	6.00	1
798.025	1.00E+00	2.11E-04	1	6.00	1
0.045	1.00E+00	2.75E-03	1	6.00	1
1.125	1.00E+00	3.16E-03	1	6.00	1
57.819	1.00E+00	3.16E-03	1	6.00	1
1080.560	1.00E+00	2.89E-02	1	6.00	1
3279.298	1.00E+00	1.05E-01	1	6.00	1
---	1.00E+00	1.05E-03	1	6.00	1
---	1.00E+00	7.89E-03	1	6.00	1
0.412	1.00E+00	1.19E-03	1	6.00	1
0.100	1.00E+00	1.58E-03	1	6.00	1
1148.064	1.00E+00	2.89E-02	1	6.00	1
130.465	1.00E+00	1.58E-04	1	6.00	1
---	1.00E+00	7.89E-03	1	6.00	1
0.087	1.00E+00	2.11E-02	1	6.00	1
---	1.00E+00	3.16E-06	1	6.00	1
2.005	1.00E+00	4.21E-02	1	6.00	1
1009.120	1.00E+00	1.58E-02	1	6.00	1
0.530	1.00E+00	1.05E-04	1	6.00	1
115.026	1.00E+00	1.32E-03	1	6.00	1
---	1.00E+00	1.58E-04	1	6.00	1
61.672	1.00E+00	4.74E-05	1	6.00	1
---	1.00E+00	2.89E-03	1	6.00	1

Future Case Concentration in Deer- Ajax Mine Project

Maximum from PC02 or Jacko Lake $C_{wctot(Lake)}$	Kow	Ba_{beef}
mg COPC/L water column	(unitless)	(day/kg FW tissue)
1.44E+00	7.30E-01	1.50E-03
4.63E-04	5.37E+00	1.00E-03
2.92E-03	4.79E+00	2.00E-03
7.61E-02	1.70E+00	1.50E-04
1.86E-04	2.69E-01	1.00E-03
0.00E+00		4.00E-04
9.25E-02	1.69E+00	6.00E-04
1.37E-05	-7.00E-02	1.20E-04
0.00E+00		7.00E-04
0.00E+00		2.00E-02
4.66E-03	1.70E+00	5.50E-03
8.96E-04	1.69E+00	2.00E-02
7.49E-03	2.69E-01	1.00E-02
0.00E+00		5.00E-04
2.63E+00		2.00E-02
2.22E-04	5.37E+00	3.00E-04
1.01E-02		1.00E-02
0.00E+00		5.00E-03
3.44E-01	1.70E+00	4.00E-04
3.17E-05	6.10E-01	5.22E-03
2.06E-02		6.00E-03
6.88E-03	1.00E+01	6.00E-03
0.00E+00		5.50E-02
0.00E+00		2.00E-01
0.00E+00		2.00E-03
0.00E+00		1.50E-02
1.24E-03	1.74E+00	2.27E-03
1.89E-05	1.70E+00	3.00E-03
0.00E+00		5.50E-02
1.23E+00		3.00E-04
0.00E+00		1.50E-02
2.45E-05		4.00E-02
0.00E+00		6.00E-06
2.15E-04		8.00E-02
0.00E+00		3.00E-02
3.96E-03		2.00E-04
5.42E-03		2.50E-03
0.00E+00		3.00E-04
7.39E-03	3.39E-01	9.00E-05
0.00E+00		5.50E-03

Future Case Concentration in Snowshoe Hare- Ajax Mine Project

Parameter	A_{game}	$F_{(forage)}$	$Qp_{(game)}$
	(mg COPC/kg FW tissue)	(unitless)	(kg DW plant/day)
Aluminum	6.10E-02	1	0.039
Antimony	1.36E-06	1	0.039
Arsenic	4.03E-05	1	0.039
Barium	2.64E-04	1	0.039
Beryllium	---	1	0.039
Bismuth	---	1	0.039
Boron	---	1	0.039
Cadmium	2.15E-06	1	0.039
Calcium	---	1	0.039
Cesium	---	1	0.039
Chromium	9.39E-04	1	0.039
Cobalt	2.00E-03	1	0.039
Copper	4.90E-03	1	0.039
Gallium	---	1	0.039
Iron	---	1	0.039
Lead	3.92E-06	1	0.039
Lithium	---	1	0.039
Magnesium	---	1	0.039
Manganese	2.65335E-03	1	0.039
Mercury	8.37592E-06	1	0.039
Molybdenum	1.01515E-03	1	0.039
Nickel	1.19543E-03	1	0.039
Phosphorus	---	1	0.039
Potassium	---	1	0.039
Rhenium	---	1	0.039
Rubidium	---	1	0.039
Selenium	3.95277E-05	1	0.039
Silver	---	1	0.039
Sodium	---	1	0.039
Strontium	---	1	0.039
Tellurium	---	1	0.039
Thallium	9.22349E-06	1	0.039
Thorium	---	1	0.039
Tin	3.62395E-04	1	0.039
Titanium	6.47235E-02	1	0.039
Uranium	3.17538E-07	1	0.039
Vanadium	6.02662E-04	1	0.039
Yttrium	---	1	0.039
Zinc	2.26185E-04	1	0.039
Zirconium	---	1	0.039

Future Case Concentration in Snowshoe Hare- Ajax Mine Project

Concentration in Vegetation (Forage)	Proportion of Diet (Forage)	Concentration in Vegetation (Browse)	Proportion of Diet (Browse)	Concentration in Vegetation (Berries)	Proportion of Diet (Berries)
(mg/kg DW)	(unitless)	(mg/kg DW)	(unitless)	(mg/kg DW)	(unitless)
1.59E+02	60%	4.16E+02	30%	7.32E+01	10%
1.00E-02	60%	4.24E-02	30%	8.45E-03	10%
7.09E-02	60%	1.24E+00	30%	6.44E-02	10%
5.93E+01	60%	9.16E+01	30%	1.34E+01	10%
1.00E-02	60%	1.33E-02	30%	---	10%
1.00E-02	60%	---	30%	---	10%
1.11E+02	60%	---	30%	---	10%
5.80E-02	60%	2.74E+00	30%	6.76E-03	10%
1.22E+04	60%	---	30%	5.84E+03	10%
4.39E-02	60%	---	30%	---	10%
5.48E-01	60%	5.92E+00	30%	1.01E-02	10%
1.11E+00	60%	9.08E+00	30%	6.27E-02	10%
7.37E+00	60%	2.37E+01	30%	1.28E+01	10%
8.20E-02	60%	---	30%	---	10%
2.20E+02	60%	---	30%	5.45E+01	10%
7.80E-02	60%	3.57E-01	30%	5.73E-03	10%
1.76E+00	60%	6.74E+00	30%	---	10%
3.44E+03	60%	---	30%	2.22E+03	10%
7.21E+01	60%	3.25E+02	30%	3.59E+02	10%
1.02E-02	60%	5.78E-02	30%	1.68E-01	10%
1.14E+01	60%	3.95E+00	30%	1.24E-01	10%
2.03E+00	60%	8.24E+00	30%	2.20E+00	10%
2.79E+03	60%	---	30%	---	10%
2.15E+04	60%	---	30%	1.90E+04	10%
2.02E-01	60%	---	30%	---	10%
3.65E+00	60%	---	30%	---	10%
5.10E-01	60%	8.66E-01	30%	8.07E-01	10%
#VALUE!	60%	---	30%	---	10%
1.00E+03	60%	---	30%	6.20E+01	10%
2.25E+02	60%	6.58E+02	30%	---	10%
2.00E-02	60%	---	30%	---	10%
2.00E-03	60%	5.36E-03	30%	1.13E-03	10%
1.80E-02	60%	---	30%	---	10%
2.00E-02	60%	5.01E-02	30%	2.61E-02	10%
8.05E+00	60%	2.21E+01	30%	1.61E+00	10%
1.26E-02	60%	2.47E-02	30%	6.89E-04	10%
8.09E-01	60%	2.02E+00	30%	5.41E-02	10%
6.80E-02	60%	---	30%	---	10%
1.79E+01	60%	3.47E+02	30%	6.78E+00	10%
2.00E-01	60%	---	30%	---	10%

Future Case Concentration in Snowshoe Hare- Ajax Mine Project

$Qs_{(game)}$	Concentration in Soil	Bs	$Ba_{(game)}$	MF	$Qw_{(game)}$
(kg/day)	(mg COPC/kg soil)	(unitless)	(day/kg FW tissue)	(unitless)	(L/day)
3.60E-03	18778.768	1.00E+00	7.89E-04	1	0.13
3.60E-03	0.470	1.00E+00	5.26E-04	1	0.13
3.60E-03	5.854	1.00E+00	1.05E-03	1	0.13
3.60E-03	200.301	1.00E+00	7.89E-05	1	0.13
3.60E-03	0.393	1.00E+00	5.26E-04	1	0.13
3.60E-03	0.205	1.00E+00	2.11E-04	1	0.13
3.60E-03	---	1.00E+00	3.16E-04	1	0.13
3.60E-03	0.169	1.00E+00	6.32E-05	1	0.13
3.60E-03	15357.228	1.00E+00	3.68E-04	1	0.13
3.60E-03	---	1.00E+00	1.05E-02	1	0.13
3.60E-03	67.049	1.00E+00	2.89E-03	1	0.13
3.60E-03	15.683	1.00E+00	1.05E-02	1	0.13
3.60E-03	91.690	1.00E+00	5.26E-03	1	0.13
3.60E-03	---	1.00E+00	2.63E-04	1	0.13
3.60E-03	34033.908	1.00E+00	1.05E-02	1	0.13
3.60E-03	5.209	1.00E+00	1.58E-04	1	0.13
3.60E-03	9.641	1.00E+00	5.26E-03	1	0.13
3.60E-03	13052.531	1.00E+00	2.63E-03	1	0.13
3.60E-03	798.025	1.00E+00	2.11E-04	1	0.13
3.60E-03	0.045	1.00E+00	2.75E-03	1	0.13
3.60E-03	1.125	1.00E+00	3.16E-03	1	0.13
3.60E-03	57.819	1.00E+00	3.16E-03	1	0.13
3.60E-03	1080.560	1.00E+00	2.89E-02	1	0.13
3.60E-03	3279.298	1.00E+00	1.05E-01	1	0.13
3.60E-03	---	1.00E+00	1.05E-03	1	0.13
3.60E-03	---	1.00E+00	7.89E-03	1	0.13
3.60E-03	0.412	1.00E+00	1.19E-03	1	0.13
3.60E-03	0.100	1.00E+00	1.58E-03	1	0.13
3.60E-03	1148.064	1.00E+00	2.89E-02	1	0.13
3.60E-03	130.465	1.00E+00	1.58E-04	1	0.13
3.60E-03	---	1.00E+00	7.89E-03	1	0.13
3.60E-03	0.087	1.00E+00	2.11E-02	1	0.13
3.60E-03	---	1.00E+00	3.16E-06	1	0.13
3.60E-03	2.005	1.00E+00	4.21E-02	1	0.13
3.60E-03	1009.120	1.00E+00	1.58E-02	1	0.13
3.60E-03	0.530	1.00E+00	1.05E-04	1	0.13
3.60E-03	115.026	1.00E+00	1.32E-03	1	0.13
3.60E-03	---	1.00E+00	1.58E-04	1	0.13
3.60E-03	61.672	1.00E+00	4.74E-05	1	0.13
3.60E-03	---	1.00E+00	2.89E-03	1	0.13

Future Case Concentration in Snowshoe Hare- Ajax Mine Project

$F_{L(game)}$	*Maximum conc in Jacko lake or PC02*	Kow	Ba_{beef}
	$C_{wctot(Lake)}$		
(unitless)	(mg COPC/L water column)	(unitless)	(day/kg FW tissue)
1	1.44E+00	7.30E-01	1.50E-03
1	4.63E-04	5.37E+00	1.00E-03
1	2.92E-03	4.79E+00	2.00E-03
1	7.61E-02	1.70E+00	1.50E-04
1	1.86E-04	2.69E-01	1.00E-03
1	0.00E+00		4.00E-04
1	9.25E-02	1.69E+00	6.00E-04
1	1.37E-05	-7.00E-02	1.20E-04
1	0.00E+00		7.00E-04
1	0.00E+00		2.00E-02
1	4.66E-03	1.70E+00	5.50E-03
1	8.96E-04	1.69E+00	2.00E-02
1	7.49E-03	2.69E-01	1.00E-02
1	0.00E+00		5.00E-04
1	2.63E+00		2.00E-02
1	2.22E-04	5.37E+00	3.00E-04
1	1.01E-02		1.00E-02
1	0.00E+00		5.00E-03
1	3.44E-01	1.70E+00	4.00E-04
1	3.17E-05	6.10E-01	5.22E-03
1	2.06E-02		6.00E-03
1	6.88E-03	1.00E+01	6.00E-03
1	0.00E+00		5.50E-02
1	0.00E+00		2.00E-01
1	0.00E+00		2.00E-03
1	0.00E+00		1.50E-02
1	1.24E-03	1.74E+00	2.27E-03
1	1.89E-05	1.70E+00	3.00E-03
1	0.00E+00		5.50E-02
1	1.23E+00		3.00E-04
1	0.00E+00		1.50E-02
1	2.45E-05		4.00E-02
1	0.00E+00		6.00E-06
1	2.15E-04		8.00E-02
1	0.00E+00		3.00E-02
1	3.96E-03		2.00E-04
1	5.42E-03		2.50E-03
1	0.00E+00		3.00E-04
1	7.39E-03	3.39E-01	9.00E-05
1	0.00E+00		5.50E-03

Future Case Concentration in Grouse- Ajax Mine Project

Concentration of COPC in Grouse(A_{game}) Ruffed Grouse Forage

Parameter	A_{game}	$F_{(forage)}$	$Qp_{(game)}$	Concentration in Vegetation (Forage)
	(mg COPC/kg FW tissue)	(unitless)	(kg DW plant/day)	(mg/kg DW)
Aluminum	5.53E-03	1	0.00975	1.59E+02
Antimony	2.70E-07	1	0.00975	1.00E-02
Arsenic	1.30E-05	1	0.00975	7.09E-02
Barium	7.20E-05	1	0.00975	5.93E+01
Beryllium	---	1	0.00975	1.00E-02
Bismuth	---	1	0.00975	1.00E-02
Boron	---	1	0.00975	1.11E+02
Cadmium	1.54E-06	1	0.00975	5.80E-02
Calcium	---	1	0.00975	1.22E+04
Cesium	---	1	0.00975	4.39E-02
Chromium	1.83E-04	1	0.00975	5.48E-01
Cobalt	8.77E-04	1	0.00975	1.11E+00
Copper	1.51E-03	1	0.00975	7.37E+00
Gallium	---	1	0.00975	8.20E-02
Iron	---	1	0.00975	2.20E+02
Lead	6.32E-07	1	0.00975	7.80E-02
Lithium	---	1	0.00975	1.76E+00
Magnesium	---	1	0.00975	3.44E+03
Manganese	9.97E-04	1	0.00975	7.21E+01
Mercury	3.63882E-06	1	0.00975	1.02E-02
Molybdenum	1.16587E-04	1	0.00975	1.14E+01
Nickel	2.93279E-04	1	0.00975	2.03E+00
Phosphorus	---	1	0.00975	2.79E+03
Potassium	---	1	0.00975	2.15E+04
Rhenium	---	1	0.00975	2.02E-01
Rubidium	---	1	0.00975	3.65E+00
Selenium	1.39126E-05	1	0.00975	5.10E-01
Silver	---	1	0.00975	#VALUE!
Sodium	---	1	0.00975	1.00E+03
Strontium	---	1	0.00975	2.25E+02
Tellurium	---	1	0.00975	2.00E-02
Thallium	1.42315E-06	1	0.00975	2.00E-03
Thorium	---	1	0.00975	1.80E-02
Tin	3.74461E-05	1	0.00975	2.00E-02
Titanium	5.67756E-03	1	0.00975	8.05E+00
Uranium	5.36898E-08	1	0.00975	1.26E-02
Vanadium	4.76262E-05	1	0.00975	8.09E-01
Yttrium	---	1	0.00975	6.80E-02
Zinc	1.47644E-04	1	0.00975	1.79E+01
Zirconium	---	1	0.00975	2.00E-01

Future Case Concentration in Grouse- Ajax Mine Project

Forage	Browse	Browse	Berries	Berries	
Proportion of Diet (Forage)	**Concentration in Vegetation (Browse)**	**Proportion of Diet (Browse)**	**Concentration in Vegetation (Berries)**	**Proportion of Diet (Berries)**	**$Qs_{(game)}$**
(unitless)	**(mg/kg DW)**	**(unitless)**	**(mg/kg DW)**	**(unitless)**	**(kg/day)**
0%	4.16E+02	65%	7.32E+01	35%	0.00011
0%	4.24E-02	65%	8.45E-03	35%	0.00011
0%	1.24E+00	65%	6.44E-02	35%	0.00011
0%	9.16E+01	65%	1.34E+01	35%	0.00011
0%	1.33E-02	65%	---	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	2.74E+00	65%	6.76E-03	35%	0.00011
0%	---	65%	5.84E+03	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	5.92E+00	65%	1.01E-02	35%	0.00011
0%	9.08E+00	65%	6.27E-02	35%	0.00011
0%	2.37E+01	65%	1.28E+01	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	---	65%	5.45E+01	35%	0.00011
0%	3.57E-01	65%	5.73E-03	35%	0.00011
0%	6.74E+00	65%	---	35%	0.00011
0%	---	65%	2.22E+03	35%	0.00011
0%	3.25E+02	65%	3.59E+02	35%	0.00011
0%	5.78E-02	65%	1.68E-01	35%	0.00011
0%	3.95E+00	65%	1.24E-01	35%	0.00011
0%	8.24E+00	65%	2.20E+00	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	---	65%	1.90E+04	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	8.66E-01	65%	8.07E-01	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	---	65%	6.20E+01	35%	0.00011
0%	6.58E+02	65%	---	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	5.36E-03	65%	1.13E-03	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	5.01E-02	65%	2.61E-02	35%	0.00011
0%	2.21E+01	65%	1.61E+00	35%	0.00011
0%	2.47E-02	65%	6.89E-04	35%	0.00011
0%	2.02E+00	65%	5.41E-02	35%	0.00011
0%	---	65%	---	35%	0.00011
0%	3.47E+02	65%	6.78E+00	35%	0.00011
0%	---	65%	---	35%	0.00011

Future Case Concentration in Grouse- Ajax Mine Project

Concentration in Soil Cs	Bs
(mg COPC/kg soil)	(unitless)
18778.768	1.00E+00
0.470	1.00E+00
5.854	1.00E+00
200.301	1.00E+00
0.393	1.00E+00
0.205	1.00E+00
---	1.00E+00
0.169	1.00E+00
15357.228	1.00E+00
---	1.00E+00
67.049	1.00E+00
15.683	1.00E+00
91.690	1.00E+00
---	1.00E+00
34033.908	1.00E+00
5.209	1.00E+00
9.641	1.00E+00
13052.531	1.00E+00
798.025	1.00E+00
0.045	1.00E+00
1.125	1.00E+00
57.819	1.00E+00
1080.560	1.00E+00
3279.298	1.00E+00
---	1.00E+00
---	1.00E+00
0.412	1.00E+00
0.100	1.00E+00
1148.064	1.00E+00
130.465	1.00E+00
---	1.00E+00
0.087	1.00E+00
---	1.00E+00
2.005	1.00E+00
1009.120	1.00E+00
0.530	1.00E+00
115.026	1.00E+00
---	1.00E+00
61.672	1.00E+00
---	1.00E+00

Future Case Concentration in Grouse- Ajax Mine Project

Ba	MF	$Qw_{(game)}$	$F_{L(game)}$	*Maximum Concentration in Jacko Lake or PC02.3* $C_{wctot(Lake)}$	Kow	Ba_{beef}
(day/kg FW tissue)	(unitless)	(L/day)	(unitless)	(mg COPC/L water column)	(unitless)	(day/kg FW tissue)
1.11E-03	1	0.04	1	1.44E+00		1.50E-03
7.37E-04	1	0.04	1	4.63E-04	5.37E+00	1.00E-03
1.47E-03	1	0.04	1	2.92E-03	4.79E+00	2.00E-03
1.11E-04	1	0.04	1	7.61E-02	1.70E+00	1.50E-04
7.37E-04	1	0.04	1	1.86E-04	2.69E-01	1.00E-03
2.95E-04	1	0.04	1	0.00E+00		4.00E-04
4.42E-04	1	0.04	1	9.25E-02	1.69E+00	6.00E-04
8.84E-05	1	0.04	1	1.37E-05	1.20E-04	1.20E-04
5.16E-04	1	0.04	1	0.00E+00		7.00E-04
1.47E-02	1	0.04	1	0.00E+00		2.00E-02
4.05E-03	1	0.04	1	4.66E-03	1.70E+00	5.50E-03
1.47E-02	1	0.04	1	8.96E-04	1.69E+00	2.00E-02
7.37E-03	1	0.04	1	7.49E-03	2.69E-01	1.00E-02
3.68E-04	1	0.04	1	0.00E+00		5.00E-04
1.47E-02	1	0.04	1	2.63E+00		2.00E-02
2.21E-04	1	0.04	1	2.22E-04	5.37E+00	3.00E-04
7.37E-03	1	0.04	1	1.01E-02		1.00E-02
3.68E-03	1	0.04	1	0.00E+00		5.00E-03
2.95E-04	1	0.04	1	3.44E-01	1.70E+00	4.00E-04
3.85E-03	1	0.04	1	3.17E-05	6.10E-01	5.22E-03
4.42E-03	1	0.04	1	2.06E-02		6.00E-03
4.42E-03	1	0.04	1	6.88E-03	1.00E+01	6.00E-03
4.05E-02	1	0.04	1	0.00E+00		5.50E-02
1.47E-01	1	0.04	1	0.00E+00		2.00E-01
1.47E-03	1	0.04	1	0.00E+00		2.00E-03
1.11E-02	1	0.04	1	0.00E+00		1.50E-02
1.67E-03	1	0.04	1	1.24E-03	1.74E+00	2.27E-03
2.21E-03	1	0.04	1	1.89E-05	1.70E+00	3.00E-03
4.05E-02	1	0.04	1	0.00E+00		5.50E-02
2.21E-04	1	0.04	1	1.23E+00		3.00E-04
1.11E-02	1	0.04	1	0.00E+00		1.50E-02
2.95E-02	1	0.04	1	2.45E-05		4.00E-02
4.42E-06	1	0.04	1	0.00E+00		6.00E-06
5.89E-02	1	0.04	1	2.15E-04		8.00E-02
2.21E-02	1	0.04	1	0.00E+00		3.00E-02
1.47E-04	1	0.04	1	3.96E-03		2.00E-04
1.84E-03	1	0.04	1	5.42E-03		2.50E-03
2.21E-04	1	0.04	1	0.00E+00		3.00E-04
6.63E-05	1	0.04	1	7.39E-03	3.39E-01	9.00E-05
4.05E-03	1	0.04	1	0.00E+00		5.50E-03

Metal Inhalation EPCs - Ajax Mine Project

Metal	Description:	Aberdeen	Brocklehurst	Sahali	Knutsford	North Shore	West End/ Downtown	MPOI
	24-h PM2.5 UCLM kg/m3	**1.33E-09**	**1.01E-10**	**1.61E-10**	**8.75E-10**	**1.11E-10**	**1.23E-10**	**4.64E-09**
	Max Metal Concentration (mg/kg dw)							
Aluminum	1.97E+04	2.61E-05	1.99E-06	3.17E-06	1.72E-05	2.19E-06	2.42E-06	9.13E-05
Antimony	1.23E+01	1.63E-08	1.24E-09	1.97E-09	1.07E-08	1.36E-09	1.51E-09	5.68E-08
Arsenic	2.93E+01	3.89E-08	2.96E-09	4.72E-09	2.56E-08	3.25E-09	3.60E-09	1.36E-07
Barium	1.67E+02	2.22E-07	1.69E-08	2.69E-08	1.46E-07	1.86E-08	2.06E-08	7.75E-07
Chromium	2.08E+02	2.76E-07	2.10E-08	3.36E-08	1.82E-07	2.31E-08	2.56E-08	9.66E-07
Cobalt	3.94E+01	5.22E-08	3.98E-09	6.34E-09	3.44E-08	4.37E-09	4.84E-09	1.82E-07
Copper	1.57E+03	2.08E-06	1.59E-07	2.53E-07	1.37E-06	1.74E-07	1.93E-07	7.28E-06
Lead	2.42E+01	3.20E-08	2.44E-09	3.89E-09	2.11E-08	2.68E-09	2.97E-09	1.12E-07
Manganese	3.62E+02	4.80E-07	3.66E-08	5.83E-08	3.17E-07	4.02E-08	4.46E-08	1.68E-06
Mercury	2.59E+00	3.44E-09	2.62E-10	4.17E-10	2.27E-09	2.88E-10	3.19E-10	1.20E-08
Molybdenum	3.13E+01	4.15E-08	3.16E-09	5.04E-09	2.74E-08	3.47E-09	3.85E-09	1.45E-07
Nickel	2.12E+02	2.81E-07	2.14E-08	3.41E-08	1.85E-07	2.35E-08	2.61E-08	9.82E-07
Selenium	5.01E+00	6.64E-09	5.06E-10	8.06E-10	4.38E-09	5.56E-10	6.16E-10	2.32E-08
Thallium	2.50E+00	3.32E-09	2.53E-10	4.03E-10	2.19E-09	2.78E-10	3.08E-10	1.16E-08
Uranium	4.55E+00	6.04E-09	4.60E-10	7.33E-10	3.98E-09	5.05E-10	5.60E-10	2.11E-08

Notes:

Baseline metal concentrations in air assumed to be zero.

PM2.5 represents Ore, Wasterock and tailings dust.

Titanium not detected in coal dust; therefore, one half of the detection limit was used in calculations.

MPOI (Maximum Point of Impingement): the location of the maximum predicted concentration

dw: dry weight

	Description:	Aberdeen	Brocklehurst	Sahali	Knutsford	North Shore	West End/ Downtown	MPOI
	Annual PM2.5 kg/m3	1.00E-11	7.87E-13	1.33E-12	7.86E-12	8.96E-13	1.01E-12	3.28E-11
	Max Metal Concentration (mg/kg dw)							
Aluminum	1.97E+04	1.98E-07	1.55E-08	2.62E-08	1.55E-07	1.77E-08	1.98E-08	6.47E-07
Antimony	1.23E+01	1.23E-10	9.65E-12	1.63E-11	9.63E-11	1.10E-11	1.23E-11	4.03E-10
Arsenic	2.93E+01	2.94E-10	2.31E-11	3.90E-11	2.30E-10	2.63E-11	2.95E-11	9.62E-10
Barium	1.67E+02	1.68E-09	1.32E-10	2.23E-10	1.31E-09	1.50E-10	1.68E-10	5.49E-09
Chromium	2.08E+02	2.09E-09	1.64E-10	2.77E-10	1.64E-09	1.87E-10	2.10E-10	6.84E-09
Cobalt	3.94E+01	3.95E-10	3.10E-11	5.24E-11	3.09E-10	3.53E-11	3.96E-11	1.29E-09
Copper	1.57E+03	1.58E-08	1.24E-09	2.09E-09	1.23E-08	1.41E-09	1.58E-09	5.16E-08
Lead	2.42E+01	2.42E-10	1.90E-11	3.21E-11	1.90E-10	2.16E-11	2.43E-11	7.93E-10
Manganese	3.62E+02	3.63E-09	2.85E-10	4.82E-10	2.85E-09	3.25E-10	3.65E-10	1.19E-08
Mercury	2.59E+00	2.60E-11	2.04E-12	3.45E-12	2.04E-11	2.32E-12	2.61E-12	8.51E-11
Molybdenum	3.13E+01	3.14E-10	2.46E-11	4.17E-11	2.46E-10	2.81E-11	3.15E-11	1.03E-09
Nickel	2.12E+02	2.12E-09	1.67E-10	2.82E-10	1.66E-09	1.90E-10	2.13E-10	6.96E-09
Selenium	5.01E+00	5.02E-11	3.94E-12	6.67E-12	3.94E-11	4.49E-12	5.04E-12	1.65E-10
Thallium	2.50E+00	2.51E-11	1.97E-12	3.33E-12	1.96E-11	2.24E-12	2.52E-12	8.21E-11
Uranium	4.55E+00	4.57E-11	3.58E-12	6.06E-12	3.58E-11	4.08E-12	4.58E-12	1.50E-10

Notes:
Baseline metal concentrations in air assumed to be zero.
PM2.5 represents Ore, Wasterock and tailings dust.
Titanium not detected in coal dust; therefore, one half of the detection limit was used in calculations.
MPOI (Maximum Point of Impingement): the location of the maximum predicted concentration
dw: dry weight

Aberdeen				
CAC	Averaging Period	Concentration (µg/m3)		
		Baseline	Project-alone	Future case
SO2	1-hour	1.25E+01	1.22E+00	1.26E+01
NO2	1-hour	6.57E+01	8.50E+01	1.00E+02
	annual	2.14E+01	5.53E+00	2.33E+01
CO	8-hour	1.60E+03	3.19E+02	1.62E+03
PM2.5	24-hour	2.89E+01	1.81E+01	2.92E+01
	annual	7.66E+00	6.14E-01	7.74E+00
PM10	24-hour	6.96E+01	7.18E+01	9.48E+01
	annual	6.45E+00	2.47E+00	6.74E+00

MPOI (Pro-rated)				
CAC	Averaging Period	Concentration (µg/m3)		
		Baseline	Project-alone	Future case
SO2	1-hour	3.73E+00	1.29E+00	3.90E+00
NO2	1-hour	3.17E+01	1.16E+02	1.46E+02
	annual	2.40E+00	1.75E+00	4.12E+00
CO	8-hour	5.97E+02	8.36E+02	1.10E+03
PM2.5	24-hour	1.65E+00	6.15E+00	7.38E+00
	annual	6.10E-01	4.21E-01	1.28E+00
PM10	24-hour	3.39E+00	6.76E+01	7.03E+01
	annual	5.65E-01	8.42E+00	8.99E+00

Brocklehurst				
CAC	Averaging Period	Concentration (µg/m3)		
		Baseline	Project-alone	Future case
SO2	1-hour	1.38E+01	4.66E-01	1.38E+01
NO2	1-hour	6.31E+01	8.33E+01	6.33E+01
	annual	2.20E+01	7.18E-01	2.25E+01
CO	8-hour	1.45E+03	3.72E+01	1.45E+03
PM2.5	24-hour	3.37E+01	6.15E+00	3.40E+01
	annual	1.06E+01	4.60E-02	1.07E+01
PM10	24-hour	6.19E+01	2.86E+00	6.29E+01
	annual	9.89E+00	1.38E-01	1.00E+01

Sahali				
CAC	Averaging Period	Concentration (µg/m3)		
		Baseline	Project-alone	Future case
SO2	1-hour	1.43E+01	1.38E-01	1.43E+01
NO2	1-hour	7.75E+01	4.80E+01	7.87E+01
	annual	2.36E+01	1.17E+00	2.42E+01
CO	8-hour	2.09E+03	5.50E+01	2.09E+03
PM2.5	24-hour	3.30E+01	1.74E+00	3.31E+01
	annual	8.44E+00	7.94E-02	8.51E+00
PM10	24-hour	7.84E+01	4.23E+00	7.95E+01
	annual	7.69E+00	2.71E-01	7.89E+00

Knutsford				
CAC	Averaging Period	Concentration (µg/m3)		
		Baseline	Project-alone	Future case
SO2	1-hour	3.74E+00	4.36E-02	3.74E+00
NO2	1-hour	3.64E+01	2.12E+01	8.60E+01
	annual	1.67E+01	4.89E+00	2.11E+01
CO	8-hour	8.14E+02	1.82E+02	8.14E+02
PM2.5	24-hour	8.36E+00	4.85E-01	9.40E+00
	annual	4.28E+00	4.80E-01	4.62E+00
PM10	24-hour	2.27E+01	1.46E+01	2.95E+01
	annual	1.08E+00	1.95E+00	2.66E+00

North Shore				
CAC	Averaging Period	Concentration (µg/m3)		
		Baseline	Project-alone	Future case
SO2	1-hour	3.74E+00	7.13E-02	1.58E+01
NO2	1-hour	6.49E+01	3.05E+01	6.73E+01
	annual	2.30E+01	8.11E-01	2.34E+01
CO	8-hour	1.51E+03	3.61E+01	1.52E+03
PM2.5	24-hour	3.47E+01	6.59E-01	3.47E+01
	annual	1.09E+01	5.31E-02	1.09E+01
PM10	24-hour	8.93E+01	2.73E+00	9.02E+01
	annual	1.07E+01	1.72E-01	1.08E+01

West End/Downtown				
CAC	Averaging Period	Concentration (µg/m3)		
		Baseline	Project-alone	Future case
SO2	1-hour	1.46E+01	2.85E-01	1.46E+01
NO2	1-hour	6.73E+01	2.63E+01	6.80E+01
	annual	2.13E+01	9.00E-01	2.20E+01
CO	8-hour	1.57E+03	4.25E+01	1.57E+03
PM2.5	24-hour	3.11E+01	2.93E+00	3.26E+01
	annual	7.74E+00	5.98E-02	7.79E+00
PM10	24-hour	7.85E+01	3.53E+00	7.93E+01
	annual	6.14E+00	1.97E-01	6.33E+00

Upper Aberdeen				
CAC	Averaging Period	Concentration (µg/m^3)		
		Baseline	Project-alone	Future case
SO_2	1-hour	1.03E+01	5.82E-01	1.04E+01
NO_2	1-hour	5.40E+01	8.50E+01	1.00E+02
	annual	1.93E+01	5.53E+00	2.33E+01
CO	8-hour	1.48E+03	3.19E+02	1.48E+03
$PM_{2.5}$	24-hour	2.01E+01	7.76E+00	2.17E+01
	annual	6.63E+00	6.14E-01	6.84E+00
PM_{10}	24-hour	4.25E+01	7.18E+01	9.48E+01
	annual	4.63E+00	2.47E+00	5.87E+00

APPENDIX F
SAMPLE CALCULATIONS

Example Calculations

Applicable equations and sample calculations for the evaluation of potential health risks have been provided below:

EXPOSURE POINT CALCULATION

WORKED EXAMPLE FOR FUTURE CASE COPPER CONCENTRATIONS IN SOIL AT DISCRETE RECEPTOR 108 (DAYCARE-MAXIMUM LOCATION IN ABERDEEN) (NEW AJAX MINE KAMLOOPS) DUE TO CONTRIBUTIONS FROM ORE ONLY. THE TOTAL FUTURE CONCENTRATION IN SOIL DEPENDS ON DEPOSITION CONTRIBUTIONS FROM THE FOUR SOURCES: WASTE ROCK, ORE, TAILINGS and DIESEL ENGINES. THE SUM OF THE CONCENTRATION CHANGES FROM THESE FOUR SOURCES IS THE TOTAL CONCENTRATION CHANGE. THIS EXAMPLE ONLY SHOWS THE CALCULATION FOR ORE. THE SAME TYPE OF CALCULATION WAS ALSO COMPLETED FOR THE OTHER SOURCES IN ORDER TO ESTIMATE THE OVERALL SOIL CONCENTRATIONS UNDER FUTURE CONDITIONS.

(1) Calculation of Total Ore Dust Deposited at Discrete-108 (Day Care) at End of Operations:

$$Total\ Ore\ Dust\ Deposited = Deposition\ Rate \times Operational\ Duration$$

Where:

Predicted Ore Dust Deposition Rate	=	380.29 mg/m^2/yr
Operational Duration	=	25 yrs

Result:

Total Ore Dust Deposited at End of Operations	=	9,507.25 mg/m^2

(2) Calculation of Total Copper Deposited at Day Care at End of Operations:

$$Total\ Copper\ Deposited = Total\ Ore\ Dust\ Deposited \times \mathrm{Copper}\ Concentration\ in\ Raw\ Ore\ x \frac{1\,kg}{1\,000\,000\,mg}$$

Where:

Total Ore Dust Deposited at End of Operations	=	9,507.25 mg/m^2
Copper Concentration in Raw Ore (95% UCLM)	=	1,571 mg/kg

Result:

Total Copper Deposition at End of Operations	=	14.9 mg/m^2

(3) Calculation of Weight of Copper in Upper Soil Horizon at Day Care at Baseline:

$$Weight\ of\ Copper_{\ Baseline} = Baseline\ Copper\ Concentration \times Weight\ of\ Surface\ Horizon$$

And:

$$Weight\ of\ Surface\ Horizon = Area\ of\ Soil\ Plot \text{ x } Surface\ Horizon\ Thickness \text{ x } Soil\ Bulk\ Density$$

Where:

Measured Baseline Case Copper Concentration (95% UCLM)	=	43.96 mg/kg
Area of Soil Plot	=	1 m^2
Surface Horizon Thickness	=	0.1 m
Soil Bulk Density	=	1000 kg/m^3

Result:

Weight of Surface Horizon	=	100 kg
Weight of Copper at Baseline	=	4,396 mg

(4) Calculation of Weight of Copper in Upper Soil Horizon at Day Care at End of Operations:

$$Weight\ of\ Copper_{Final} = Weight\ of\ Copper_{Baseline} + (Total\ Copper\ Deposition \text{ x } Area\ of\ Soil\ Plot)$$

Weight of Copper at Baseline	=	4,396 mg
Total Copper Deposition due to Ore at End of Operations	=	14.9 mg/m^2
Area of Soil Plot (m^2)	=	1 m^2

Result:

Weight of Copper at End of Operations	=	4,410.9 mg

(5) Calculation of Copper Concentration in Surface Soil at Day Care at End of Operations:

$$Concentration\ of\ Copper_{Final} = \frac{Weight\ of\ Copper\ Final}{Weight\ of\ Surface\ Horizon}$$

Where:

Weight of Copper at End of Operations due to Ore	=	4,410.9 mg
Weight of Surface Horizon	=	100 kg

Result:

Concentration of Copper at End of Operations due to contributions from Ore = 44.109 mg/kg

Worked Example for Exposure Point Concentration in Fish fillet using the Proportioning Approach

Calculation of Predicted Future Case Arsenic Concentration in Fish Tissue Using Predicted Future Case Arsenic Concentration in Water:

$$EPC_{fish} = EPC_{water} \text{ x } UP$$

Where:

EPC $_{fish}$	=	Exposure point concentration for arsenic in fish tissue (mg/kg)
EPC $_{water}$	=	Exposure point concentration for arsenic in surface water (mg/L water)
UP	=	Uptake Factor from surface water to fish tissue (mg/kg tissue / mg/L water)

Values:

EPC $_{water}$	=	1.59E-03 (mg/L)
UP	=	5.0E+01 (L/kg)
EPC $_{fish}$	=	7.95E-02 (mg/kg)

(2) Calculation of Predicted Baseline Case Arsenic Concentration in Fish Tissue Using Baseline Case Arsenic Concentration in Water:

Values:

EPC $_{water}$	=	1.33E-03 (mg/L)
UP	=	5.0E+01 (L/kg)
EPC $_{fish}$	=	6.6E-02 (mg/kg)

(3) Calculation of Expected Magnitude of Change in Arsenic Concentrations in Fish Tissue Based on Predicted Change in Arsenic Concentrations in Water:

$$Expected\ \ Magnitude\ Change = \frac{EPC_{fish\text{-}future}}{EPC_{fish\ -\ baseline}}$$

EPC $_{fish}$ (predicted future)	=	7.95E-02 (mg/kg)
EPC $_{fish}$ (predicted baseline)	=	6.6E-02 (mg/kg)
Expected magnitude change	=	1.20E+00

(4) Calculation of Predicted Future Case Arsenic Concentration in Trout Muscle Tissue Based on Measured Baseline Case Arsenic Concentrations and Expected Magnitude Change (Proportioning Approach):

EPC_{fish} (measured baseline)	=	1.44E-01 mg/kg
Expected magnitude change	=	1.20E+00
EPC_{fish} (predicted future)	**=**	**1.73E-01 mg/kg**

Worked Example for Uptake into Deer (similar calculation for wild hare, grouse and cattle)

Concentration of chromium in deer under baseline conditions:

$$A_{beef} = \left(\sum \left(\mathrm{F_i} \cdot Qp_i \cdot P_i\right) + \left(Qs \cdot Cs \cdot Bs\right) + \left(Qw \cdot F_W \cdot Cw\right)\right) \cdot Ba_{deer} \cdot MF$$

Where:

F_{forage}	=	Fraction of plant type (forage) grown on contaminated soil and ingested by the deer (unitless)
Qp	=	Quantity of plant eaten by the deer per day (kg DW plant / day)
P_{forage}	=	Concentration of CoC in forage eaten by the deer (mg/kg DW)
F_{browse}	=	Fraction of plant type (browse) grown on contaminated soil and ingested by the deer (unitless)
P_{browse}	=	Concentration of CoC in browse eaten by the deer (mg/kg DW)
Q_s	=	Quantity of soil eaten by the animal (deer) each day (kg/day)
C_s	=	Average soil concentration over exposure duration (mg CoC/kg soil)
B_s	=	Soil bioavailability factor (unitless)
Q_w	=	Quantity of water ingested by the deer per day (L/day)
F_W	=	Fraction of water contaminated and ingested by the deer (unitless)
C_w	=	CoC concentration in water (maximum concentration of water taken either Jacko Lake or Petersen Creek at PCO2 (mg/L)
Ba_{deerf}	=	CoC biotransfer factor for deer (day/kg FW tissue)
MF	=	Metabolism factor (unitless)
A_{deer}	=	CoC concentration in deer (mg CoC / kg FW tissue)

F_{forage}	=	0.65
Qp	=	0.975 kg DW plant/day
P_{forage}	=	5.48E-01 mg/kg
F_{browse}	=	0.35
P_{browse}	=	5.91E+00 mg/kg
Q_s	=	0.05 kg/day
C_s	=	66.920 mg COC/kg soil)
B_s	=	1.00E+00 (unitless)
Q_w	=	6.00 (L/day)
F_L	=	1 (unitless)
C_w	=	8.61E-04 mg/L
Ba_{deer}	=	Ba_{beef} *(10% fat content in game/19% fat content in beef)
	=	2.89E-03 (day/kg FW tissue)

MF	=	1 (unitless)
A_{deer}	=	1.73E-02 mg/kg

HUMAN HEALTH RISK

CALCULATION OF INHALATION HEALTH RISKS

CR Worked Example

Inhalation Non-Carcinogenic Human Health Risks for All Life Stages exposed to SO_2 (1-hour) at the location of the maximum concentration in Aberdeen (Discrete Receptor 52 (Day Care)(Future Case)

$$CR = \frac{EPC_{Future\ Case}}{Air\ Quality\ Criteria}$$

Where:

$EPC_{Future\ Case}$	= Exposure point concentration (µg/m^3)
Air Quality Criteria	= units are µg/m^3
CR	= Concentration Ratio (dimensionless)

$EPC_{future\ case}$	= 12.6 µg/m^3
Air Quality Criteria	= 200 µg/m^3
CR	= 0.063

CR Worked Example

Inhalation Non-Carcinogenic Human Health Risks for All Life Stages exposed to arsenic in air (24-hour) at Discrete Receptor 9 in Aberdeen (Future Case).

$$CR = \frac{EPC_{Future\ Case}}{TRV}$$

Where:

$EPC_{Future\ Case}$	= Exposure point concentration (mg/m^3)
TRV	= Toxic Reference Value- Reference Concentrations (mg/m^3)
CR	= Concentration Ratio (dimensionless)

$EPC_{future\ case}$	= 3.89E-08 mg/m^3
TRV	= 0.001 mg/m^3
CR	= 3.89E-05

Lifetime Daily Averaged Concentration- Carcinogenic risk

Step 1- Calculate lifetime averaged daily dose

$$LADC_{inhal}\left({}^{mg}/_{m^3}\right) = C_{PM2.5} \times C_{COC\ in\ dust} \times \frac{Years_{operation}}{Years_{lifetime}}$$

$LADC_{inhal}$	= Lifetime averaged daily dose (inhalation) (mg/m^3)
$C_{PM2.5}$	= Concentration of $PM_{2.5}$ in air (kg/m^3)
$C_{COC\ in\ dust}$	= Concentration of CoC in dust (mg/m^3)
$Years_{operation}$	= Years of mine operation (construction through closure) (years)
$Years_{lifetime}$	= Lifetime of receptor (years)

$C_{PM2.5}$	= 1.326E-09 kg/m^3
$C_{COC\ in\ dust}$	= 29.3 mg/kg dw
$Years_{operation}$	= 23 years
$Years_{lifetime}$	= 80 years
$LADC_{inhal}$	= 1.117E-08 mg/m^3

Step 2- Calculate Incremental Lifetime Cancer Risk

$$IILCR = LADC\ x\ IUR$$

IILCR	= Incremental Increase in Lifetime Cancer Risk

$LADC_{inhal}$	= Lifetime averaged daily dose (inhalation) (mg/m^3)
IUR_{inhal}	= Incremental Unit Risk (mg/m^3)

$LADC_{inhal}$	= 1.117E-08 mg/m^3
IUR	= 4.30E+00 mg/m^3
IILCR	= 4.80E-08

CALCULATION OF HEALTH RISKS FROM INGESTION OF SOIL

HQ Worked Example

Non- Carcinogenic Human Health Risks for the toddler exposed to chromium in soil for Aberdeen (Future Case) :

$$CDI_{Ingestion} = \frac{C_{soil} \times IR_{soil} \times AF_{GIT} \times D_1 \times D_2}{BW}$$

Where:

C_{soil}	=	CoC concentration in soil (mg/kg)
IR_{soil}	=	Soil Ingestion Rate (kg/day)
AF_{GIT}	=	Absorption Factor from the Gastrointestinal Tract (unitless)
D_1	=	Days per week exposed/ 7 days (unitless)
D_2	=	Weeks per year exposed/ 52 weeks (unitless)
BW	=	Average body weight of receptor (kg)
$CDI_{Ingestion}$	=	Chronic daily intake from ingestion (mg/kg/day)

C_{soil}	=	48.9 mg/kg dry weight
IR_{soil}	=	0.00008 kg/day
AF_{GIT}	=	1
D_1	=	7 days per week/7 days
D_2	=	52 weeks per year/52
BW	=	16.5 kg
$CDI_{Ingestion}$	=	2.38E-04 mg/kg/day

$$CDI_{dermal} = \frac{C_{soil} \times ((SA_{hands} * MA_{hands}) + (SA_{body} * M_{body})) \times AF_{skin} \times EV \times D_1 \times D_2}{BW}$$

Where:

C_{soil}	=	CoC concentration in soil (mg/kg)
SA_{hands}	=	Skin surface area of hands (cm^2)
MA_{hands}	=	Soil loading of hands (kg/cm^2-event)
$SA_{arms\ and\ legs}$	=	Skin surface area of arms and legs (cm^2)
$MA_{arms\ and\ legs}$	=	Soil loading of hands (kg/cm^2-event)
CF	=	Conversion Factor
AF_{skin}	=	Dermal Absorption Factor (unitless)
EV	=	Event frequency (events/day)
D_1	=	Days per week exposed/ 7 days
D_2	=	Weeks per year exposed/ 52 weeks
BW	=	Average body weight of receptor (kg)

CDI_{dermal}	=	Chronic daily intake from dermal contact (mg/kg/day)

C_{soil}	=	48.9 mg/kg dry weight
SA_{hands}	=	430 cm^2
MA_{hands}	=	0.0001 kg/cm^2-event
$SA_{arms\ and\ legs}$	=	2,580 cm^2
$MA_{arms\ and\ legs}$	=	0.00001 kg/cm^2-event
AF_{skin}	=	0.1
EV	=	1 event/day
D_1	=	7 days per week/ 7 days
D_2	=	52 weeks per year/52 weeks
BW	=	16.5 kg
CDI_{dermal}	=	2.04E-05 mg/kg/day

$$HQ_{Total} = \frac{CDI_{Ingestion} + CDI_{dermal}}{TRV}$$

$CDI_{Ingestion}$	=	Chronic daily intake from ingestion (mg/kg/day)
CDI_{dermal}	=	Chronic daily intake from dermal (mg/kg/day)
TRV_{oral}	=	oral TRV (mg/kg/day)
HQ_{total}	=	0.2574

$CDI_{ingestion}$	=	2.38E-04 mg/kg/day
CDI_{dermal}	=	2.04E-05 mg/kg/day
TRV_{oral}	=	1.50 mg/kg/day
HQ_{total}	=	1.72E-04

CALCULATION OF HEALTH RISKS FROM INGESTION OF FOOD

HQ Worked Example

Non-Carcinogenic Human Health Risk for toddlers exposed to chromium in food for Aberdeen (Future Case):

Ingestion of Deer (one component of total wild meat ingestion)

$$HQ_{meat} = \frac{C_{meat} \times IR_{meat} \times AF_{GIT} \times D_1 \times D_2 \times F_{site}}{BW * TRV}$$

Where:

C_{meat}	=	CoC concentration in game (mg/kg)
IR_{meat}	=	Game Ingestion Rate (kg/day)
AF_{GIT}	=	Absorption Factor from the Gastrointestinal Tract (unitless)
D_1	=	Days per week exposed/7 days (unitless)

D_2	=	Weeks per year exposed/ 52 weeks (unitless)
F_{site}	=	Fraction of total meat ingestion from Site (unitless)
BW	=	Average body weight of receptor (kg)
TRV	=	Toxicity Reference Value (oral) (mg/kg-bw-day)
HQ_{meat}	=	Hazard Quotient for Ingestion of Wild Meat (dimensionless)

C_{meat}	=	1.74E-02 mg/kg
IR_{meat}	=	0.00688 kg/day
AF_{GIT}	=	1
D_1	=	7 days per week / 7 days
D_2	=	52 weeks per year / 52 weeks
F_{site}	=	1(Assumed)
BW	=	16.5 kg
TRV	=	1.50 mg/kg/day
HQ_{meat}	=	3.26E-06

Ingestion of Fish

$$HQ_{fish} = \frac{C_{fish} \times IR_{fish} \times AF_{GIT} \times D_1 \times D_2 \times F_{site}}{BW * TRV}$$

Where:

C_{fish}	=	CoC concentration in fish (mg/kg)
IR_{fish}	=	Fish Ingestion Rate (kg/day)
AF_{GIT}	=	Absorption Factor from the Gastrointestinal Tract (unitless)
D_1	=	Days per week exposed/7 days (unitless)
D_2	=	Weeks per year exposed/ 52 weeks (unitless)
F_{site}	=	Fraction of total fish ingestion from Site (unitless)
BW	=	Average body weight of receptor (kg)
TRV	=	Toxicity Reference Value (oral) (mg/kg-bw-day)
HQ_{fish}	=	Hazard Quotient for Ingestion of fish (dimensionless)

C_{fish}	=	4.00E-02 mg/kg
IR_{fish}	=	0.0056 kg/day
AF_{GIT}	=	1
D_1	=	7 days per week/ 7 days
D_2	=	52 weeks per year/ 52 weeks
F_{site}	=	1(Assumed)
BW	=	16.5
TRV	=	1.5 mg/kg-bw-day
HQ_{fish}	=	

Ingestion of Vegetation (root vegetables only)

$$HQ_{vegetation} = \frac{C_{vegetation} \times IR_{vegetation} \times AF_{GIT} \times D_1 \times D_2 \times F_{site}}{BW * TRV}$$

Where:

$C_{vegetation}$	=	CoC concentration in vegetation (as country foods) (mg/kg)
$IR_{vegetation}$	=	Vegetation Ingestion Rate (kg/day)
AF_{GIT}	=	Absorption Factor from the Gastrointestinal Tract (unitless)
D_1	=	Days per week exposed/7 days (unitless)
D_2	=	Weeks per year exposed/ 52 weeks (unitless)
F_{site}	=	Fraction of total vegetation ingestion from Site (unitless)
BW	=	Average body weight of receptor (kg)
TRV	=	Toxicity Reference Value (oral) (mg/kg-bw-day)
$HQ_{vegetation}$	=	Hazard Quotient for Ingestion of vegetation (dimensionless)

$C_{vegetation}$	=	2.93E-01 mg/kg
$IR_{vegetation}$	=	0.0105 kg/day
AF_{GIT}	=	1
D_1	=	7 days per week/ 7 days
D_2	=	52 weeks per year/ 52 weeks
F_{site}	=	1(Assumed)
BW	=	16.5
TRV	=	1.5 mg/kg-bw-day
$HQ_{vegetation}$	=	1.24E-04

ECOLOGICAL HEALTH RISK

RQ Worked Example

Health Risks to the American Mink exposed to antimony in water (Petersen Creek-Future Case):

Calculation of Average Daily Dose

$$ADD_{antimony} = IF \times AF \times EPC_{antimony}$$

Where:

$ADD_{antimony}$	=	Average daily dose of antimony from water ingestion (mg/kg body weight/day)
IF	=	Intake factor (L water/kg body weight/day) (see equation below)
AF	=	Absorption Factor for antimony from the gastrointestinal tract (unitless)
$EPC_{antimony}$	=	Exposure point concentration for antimony in water (mg/L water)

And:

$$IF = \frac{(IR \times f_{site})}{BW}$$

Where:

IR	=	Water Ingestion Rate (L/day)
f_{site}	=	Fraction of time American mink spends at the site
BW	=	Average body weight of American mink (kg)

Values:

IR	=	9.0E-02 L/day
f_{site}	=	100%
BW	=	0.85 kg
IF	=	0.11 L/kg body weight/day
AF	=	1 (assumed 100% absorption)
$EPC_{antimony}$	=	4.6 E-04 mg/L
$ADD_{antimony}$	**=**	**4.9E-05 mg/kg/day**

Calculation of Risk Quotient

$$RQ_{water} = \frac{ADD_{antimony}}{TRV}$$

Where:

$ADD_{antimony}$	=	Average daily dose of antimony from water ingestion (mg/kg/day)
TRV	=	Oral Toxicity Reference Value (mg/kg/day)
RQ_{water}	=	Risk Quotient for water ingestion (unitless)

Values:

$ADD_{ingestion}$	=	**4.9E-05** mg/kg/day
TRV	=	4.7E-01 mg/kg/day
RQ_{water}	**=**	**1.0E-04**

CALCULATION OF HEALTH RISKS FROM INGESTION OF FISH

RQ Worked Example

Health Risks to the American Mink exposed to antimony in fish (Petersen Creek-Future Case):

Calculation of Average Daily Dose

$$ADD_{antimony} = IF \text{ x } AF \text{ x } EPC_{antimony}$$

Where:

$ADD_{antimony}$	=	Average daily dose of antimony from fish ingestion (mg/kg/day)
IF	=	Intake factor (kg fish/kg body weight/day) (see equation below)
AF	=	Absorption Factor for antimony from the gastrointestinal tract (unitless)
$EPC_{antimony}$	=	Exposure point concentration for in fish (mg/kg tissue)

And:

$$IF = \frac{(IR \times f_{site})}{BW}$$

Where:

IR	=	Fish Ingestion Rate (kg/day)
f_{site}	=	Fraction of time American mink spends at the site
BW	=	Average body weight of American mink (kg)

Values:

IR	=	2.2E-01 kg/kg day
f_{site}	=	100%
BW	=	0.85 kg
IF	=	2.6E-01 kg fish/kg body weight/day
AF	=	1 (assumed 100% absorption)
$EPC_{antimony}$	=	7.2E-03 mg/kg
$ADD_{antimony}$	**=**	**1.9E-03 mg/kg/day**

Calculation of Risk Quotient

$$RQ_{fish} = \frac{ADD_{antimony}}{TRV}$$

Where:

$ADD_{antimony}$	=	Average daily dose of antimony from fish ingestion (mg/kg/day)
TRV	=	Oral Toxicity Reference Value (mg/kg/day)
RQ_{fish}	=	Risk Quotient for water ingestion (dimensionless)

Values:

$ADD_{ingestion}$	=	1.9E-03 mg/kg/day

TRV	=	4.7E-01 mg/kg/day
RQ $_{fish}$	**=**	**4.0E-03**

1.0 BACKGROUND INFORMATION FOR RISK CALCULATIONS

Below I have included the background information required to reproduce the risk calculations for Ajax. This information includes:

- Receptor Selection and Characterization
- Pathway Identification
- Major Exposure Assumptions
- Toxicological Reference Values

You should be able to use the information below along with the example calculation sheet to reproduce the risk characterization results.

1.1.1 Receptor Selection and Characterization

A human receptor is a hypothetical person, inclusive of all life stages (i.e. infant, toddler, child, adolescent and adult) who is potentially exposed to a COPC while in the RSA. General physical and behavioural characteristics specific to the receptor (e.g. body weight, inhalation rate, food consumption rate and drinking water intake rate) are used to estimate the level of contaminant exposure (i.e. dose) received by each receptor. The HHRA is based on receptor groups with the greatest potential for exposure to COPCs, and those who have the greatest sensitivity, or potential for developing adverse health effects from these exposures.

Project workers at the mine are protected by occupational health and safety regulations and are not specifically considered in the HHRA. Air quality monitoring at the mine during operation will help determine if further mitigation measures or personal protective equipment are required to protect the health of workers.

Based on current and anticipated future land use in the Project area there are three major types of human receptors:

- Residential Receptors
- Residential Farm Receptors
- Aboriginal Receptors
- Recreational Receptor

Seven representative human receptor locations were selected based on land use and include:

- Aberdeen- Residential receptors
- Glenfair- Residential receptors
- Riverside- Residential receptors and Aboriginal receptors. The nearest Aboriginal land is located north of Riverside, downwind of the Project. The data from Riverside is used to estimate exposure for the Aboriginal receptor.
- McDonald-Residential receptors
- Crestline- Residential receptors

- Knutsford- Farm receptors. Knutsford contains a number of cattle ranches. Due to the lack of baseline data for this area, soil data and backyard produce data from Aberdeen was used to estimate exposure for the Residential Farm receptor.
- The Mine Site- Recreational Receptor that may be present near the project tenure area (e.g., someone fishing in Jacko Lake). This receptor is evaluated for inhalation exposures only, as other exposures are assumed to be the same as or less than those of the Residential receptor.

Receptor characteristics have been selected based on receptor category (Residential, Farm, Aboriginal or Recreational) and life stage. General receptor characteristics including age duration for each life stage, body weight, skin surface area, soil ingestion rate and water ingestion rate were selected based on recommendations in Health Canada (2012) and are considered applicable to the four receptor categories. Other receptor parameters such as the ingestion rates of fish, backyard produce, wild meat and local cattle vary among the Residential, Farm and Aboriginal receptor groups and were selected based on available literature values and intake assumptions. Additional receptor parameters beyond those presented in Table 4.1-1 are not required for the recreational exposure as this receptor is evaluated for inhalation exposures only. Detailed information related to selected receptor parameters that vary among receptor categories are provided in Table 4.1-2, Table 4.1-3 and Table 4.1-4 for the Residential, Farm and Aboriginal receptor categories, respectively. Some noteworthy assumptions used in the selection of these parameters include:

- During the infant life stage, humans are only expected to consume milk/formula and are not expected to consume solid foods such as local cattle and backyard produce;
- Ingestions rates of cattle are not provided by Canadian regulators. Instead the ingestion rate of cattle was estimated from the total intake rate of meat for the general Canadian population provided in Richardson (1997). Ingestion of local cattle was assumed to account for 10% or the total meat intake rate for Residential and Aboriginal receptors, and 50% of the total meat intake rate for Farm Receptors;
- Fish ingestion rates for Aboriginals and the general population were adopted from Health Canada (2009). The major fishing location within the LSA is Jacko Lake, and fish (i.e. trout) from this stocked lake can only be obtained using rod and reel—nets are prohibited. In addition the fish collected from Jacko lake as well as Peterson Creek were generally small (<250 g). While Jacko Lake is a popular fishing spot it is unlikely that Aboriginals, Farm Receptors or Residents obtain a substantial portion of their fish intake from Jacko Lake or Peterson Creek. If Aboriginals or Residents were to obtain a substantial portion of their fish intake from the general Kamloops area, it is more likely they would obtain it from the Thompson River, where the principal target species is salmon and devices such as nets and fishing wheels are permitted. As a result, Aboriginals and Residents are assumed to obtain 10% of their total fish intake from Jacko Lake.
- Wild meat ingestion rates for the Aboriginal receptor were adopted from Health Canada (2004), and Aboriginals are assumed to obtain 100% of their wild meat intake from the LSA. Health Canada does not provide wild meat intake rates for the general population. Instead it was assumed that the intake rate of wild meat for the Residential and the Farm receptor was 10% of the daily intake rate of meat for the general Canadian population, as provided in Richardson (1997);

- The intakes of three types of wild meat are assessed in this risk assessment: deer, snow shoe hare and grouse. These species were identified to be potentially present in the LSA and testimonials from local hunters indicate that these species are hunted in the area. It was assumed that intake rates of deer, snowshoe hare and grouse account for 80%, 10% and 10% of the total intake of wild meat, respectively;
- The intake rates for traditional plants for the Aboriginal are based on information provided in Chan et al. 2011. Based on Chan et al (2011), the site is located in Ecozone 3, which corresponds to the Montane Cordillera/Plateau. The mean grams of each traditional plant consumed per day by an Aboriginal in Ecozone 3 (Chan, 2011) was combined with information from Richardson (1997) about the relative amounts of leafy vegetables consumed by each age group, to estimate overall intake of traditional plants for each age group. The information in Chan et. al (2011) was also used to determine that intake of traditional plants is comprised of 80% berries and 20% leafy plants (forage).
- Intake rates of backyard produce including root vegetables and other vegetables were adopted from Health Canada (2010). Residential and Aboriginal receptors are assumed to obtain 10% of their intakes of root vegetables and other vegetables from backyard gardens; and,
- The intake rate of fruits was adopted from Richardson (1997). As with vegetables, Residential, Farm and Aboriginal receptors are assumed to obtain 10% of their intake of fruits from backyard gardens.

Table 4.1-1 Human Receptor Characteristics

Assumed Receptor Characteristic	Infant	Toddler	Child	Teen	Adult
Age group duration (yrs)	0.5	4.5	7	8	60
Body weight (kg)	8.2	16.5	32.9	59.7	70.7
Incidental soil ingestion rate (g/d)	0.02	0.08	0.02	0.02	0.02
Inhalation rate (m^3/d)[a]	2.1	9.3	14.5	15.8	15.8
Water ingestion rate (L/d)	0.3	0.6	0.8	1	1.5
Skin Surface Area					
Hands (cm^2)	320	430	590	800	890
Upper & Lower Arms (cm^2)	550	890	1480	2230	2500
Upper & Lower Legs (cm^2)	910	1690	3070	4970	5720
Totals(cm^2)	1780	3010	5140	8000	9110
Soil Loading to Skin					
Hands (g/cm^2)	1.0E-04	1.0E-04	1.0E-04	1.0E-04	1.0E-04
Other Surfaces (g/cm^2)	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05
Averaged Loading (g/cm^2)	2.6E-05	2.3E-05	2.0E-05	1.9E-05	1.9E-05

Table 4.1-2 Residential Receptor Characteristics

Units (g/day)	Infant	Toddler	Child	Teen	Adult
Local Cattle					
Meat Ingestion Rate	0[a]	86	123	170	182
Percentage of Total Meat Intake Rate Accounted for by Cattle= 10%					
Ingestion Rate for Cattle	0[a]	8.6	12.3	17	18.2
Local Wild Meat					
Percentage of Total Meat Intake Accounted for by Wild Meat= 10%					
Ingestion Rate of Wild Meat	0[a]	8.6	12.3	17	18.2
Percentage Breakdown for Wild Meat- 80% Deer, 10% Snowshoe Hare, 10% Grouse					
Ingestion Rate of Deer	0[a]	6.88	9.84	13.6	14.56
Ingestion Rate of Snowshoe Hare	0[a]	0.86	1.23	1.7	1.82
Ingestion Rate of Grouse	0[a]	0.86	1.23	1.7	1.82
Local Fish					
Total Fish Intake Rate	0[a]	56	90	104	111
Percentage of Total Fish Intake from the LSA= 10%					
Intake Rate of Fish from LSA	0[a]	5.6	9	10.4	11.1
Local Root Vegetables					
Intake Rate of Root Vegetables	0[a]	105	161	227	188
Percentage of Root Vegetables from Backyard Gardens= 10%					
Intake Rate of Root Vegetables from Backyard Gardens	0[a]	10.5	16.1	22.7	18.8
Local Other Vegetables					
Intake Rate of Other Vegetables	0[a]	67	98	120	137
Percentage of Other Vegetables from Backyard Gardens= 10%					
Intake Rate of Other Vegetables from Backyard Gardens	0[a]	6.7	9.8	12	13.7
Local Fruits					
Intake Rate of Fruits	0[a]	234	268	258	247
Percentage of Fruits from Backyard Gardens= 10%					
Intake Rate of Fruits from Backyard Gardens	0[a]	23.4	26.8	25.8	24.7

Notes:

[a] Humans are only expected to consume milk during the infant life stage

Table 4.1-3 Residential Farm Receptor Characteristics

Units (g/day)	Infant	Toddler	Child	Teen	Adult
Local Cattle					
Meat Ingestion Rate	0[a]	86	123	170	182

Units (g/day)	Infant	Toddler	Child	Teen	Adult
Percentage of Total Meat Intake Rate Accounted for by Cattle= 50%					
Ingestion Rate for Cattle	0[a]	43	61.5	85	91
Local Wild Meat					
Percentage of Total Meat Intake Accounted for by Wild Meat= 10%					
Ingestion Rate of Wild Meat	0[a]	8.6	12.3	17	18.2
Percentage Breakdown for Wild Meat- 80% Deer, 10% Snowshoe Hare, 10% Grouse					
Ingestion Rate of Deer	0[a]	6.88	9.84	13.6	14.56
Ingestion Rate of Snowshoe Hare	0[a]	0.86	1.23	1.7	1.82
Ingestion Rate of Grouse	0[a]	0.86	1.23	1.7	1.82
Local Fish					
Total Fish Intake Rate	0[a]	56	90	104	111
Percentage of Total Fish Intake from the LSA= 10%					
Intake Rate of Fish from LSA	0[a]	5.6	9.0	10.4	11.1
Local Root Vegetables					
Intake Rate of Root Vegetables	0[a]	105	161	227	188
Percentage of Root Vegetables from Backyard Gardens= 10%					
Intake Rate of Root Vegetables from Backyard Gardens	0[a]	10.5	16.1	22.7	18.8
Local Other Vegetables					
Intake Rate of Other Vegetables	0[a]	67	98	120	137
Percentage of Other Vegetables from Backyard Gardens= 10%					
Intake Rate of Other Vegetables from Backyard Gardens	0[a]	6.7	9.8	12.0	13.7
Local Fruits					
Intake Rate of Fruits	0[a]	234	268	258	247
Percentage of Fruits from Backyard Gardens= 10%					
Intake Rate of Fruits from Backyard Gardens	0[a]	23.4	26.8	25.8	24.7

Notes:

[a] Humans are only expected to consume milk during the infant life stage

Table 4.1-4 Aboriginal Receptor Characteristics

Units (g/day)	Infant	Toddler	Child	Teen	Adult
Local Cattle					
Meat Ingestion Rate	0[a]	86	123	170	182
Percentage of Total Meat Intake Rate Accounted for by Cattle= 10%					
Ingestion Rate for Cattle	0[a]	8.6	12.3	17	18.2
Local Wild Meat					

Units (g/day)	Infant	Toddler	Child	Teen	Adult
Ingestion Rate of Wild Meat from LSA	0[a]	85	125	175	270
Percentage Breakdown for Wild Meat- 80% Deer, 10% Snowshoe Hare, 10% Grouse					
Ingestion Rate of Deer	0[a]	68	100	140	216
Ingestion Rate of Snowshoe Hare	0[a]	8.5	12.5	17.5	27
Ingestion Rate of Grouse	0[a]	8.5	12.5	17.5	27
Local Fish					
Intake Rate of Fish from LSA	0[a]	95	170	200	220
Percentage of Total Fish Intake from the LSA= 10%					
Intake Rate of Fish from LSA	0[a]	9.5	17	20.0	22.0
Local Root Vegetables					
Intake Rate of Root Vegetables	0[a]	105	161	227	188
Percentage of Root Vegetables from Backyard Gardens= 10%					
Intake Rate of Root Vegetables from Backyard Gardens	0[a]	10.5	16.1	22.7	18.8
Local Other Vegetables					
Intake Rate of Other Vegetables	0[a]	67	98	120	137
Percentage of Other Vegetables from Backyard Gardens= 10%					
Intake Rate of Other Vegetables from Backyard Gardens	0[a]	6.7	9.8	12	13.7
Local Fruits					
Intake Rate of Fruits	0[a]	234	268	258	247
Percentage of Fruits from Backyard Gardens= 10%					
Intake Rate of Fruits from Backyard Gardens	0[a]	23.4	26.8	25.8	24.7
Traditional Plants[b]	0	2.3	3.4	4.1	4.7

Notes:

[a] Humans are only expected to consume milk during the infant life stage

[b] Based on information provided in Chan et al. (2011)

It was assumed that each receptor group is present in the HHERA RSA, on average, seven days per week, every week, and each year. This is considered conservative, as it does not account for time away for trips, vacations, work, etc.

Exposure to COPCs is assessed for specific life stages for each applicable COPC.

1.1.2 Exposure Pathway Screening and Conceptual Site Model

Exposure pathway screening and development of the HHRA CSM outlines the linkages, or exposure pathways by which people might be exposed to COPCs under existing and future conditions.

In the exposure assessment, the likelihood that human receptors may come into contact with a COPC is evaluated by examining the potential for movement of a COPC from its source to the eventual point of receptor exposure. The potential exposure media for human receptors and a pathway-specific rationale for inclusion or exclusion from this HHRA are shown in Table 4.1-5.

Table 4.1-5 Exposure Pathway Screening Summary

Exposure Pathway	Receptor Category	Inclusion in the HHRA	Rationale for Selection or Exclusion
Inhalation of COPCs from air emissions	Residential	Yes	COPCs will be released to the air during operation of the Project. People who live within the LSA or who engage in traditional or recreational activities in the LSA could potentially inhale COPCs released to the air as a result of Project activities.
	Farm	Yes	
	Aboriginal	Yes	
Dermal contact with soil	Residential	Yes	Dermal absorption of COPCs through contact with soil was assessed, as dispersed dust from project-activities may affect soil quality via dust dispersion and deposition.
	Farm	Yes	
	Aboriginal	Yes	
Incidental soil ingestion	Residential	Yes	The potential for incidental ingestion of soil exists for all receptor categories.
	Farm	Yes	
	Aboriginal	Yes	
Surface Water Ingestion	Residential	No	Watercourses may receive COPC inputs via air deposition, runoff, and seepage, however receptors including Aboriginal receptors are not expected to use surface water as a potable source. Residential receptors and Aboriginal receptors are expected to use the Kamloops municipal distribution system as a potable source, while Residential Farm receptors are assumed to use groundwater.
	Farm	No	
	Aboriginal	No	
Groundwater Ingestion or Contact	Residential	No	Groundwater may receive COPC inputs via seepage and infiltration from surface water. Groundwater is used as drinking water in the Knutsford area which contains the Farm receptor. The Residential receptor and Aboriginal receptor are assumed to obtain their drinking water from the Kamloops municipal distribution system.
	Farm	Yes	
	Aboriginal	No	
Ingestion of Cattle	Residential	Yes	COPCs can accumulate in cattle as a result of Project activities due to deposition in soil, uptake into plants from soil and changes in water quality in surface water and groundwater. All three receptor groups are assumed to eat local cattle, though the percentage of the total daily intake of meat accounted for by cattle varies, with the Farm receptor having the largest percentage.
	Farm	Yes	
	Aboriginal	Yes	

Exposure Pathway	Receptor Category	Inclusion in the HHRA	Rationale for Selection or Exclusion
Ingestion of Wild Meat	Residential	Yes	COPCs can accumulate in wild meat, as a result of Project activities, due to deposition on soil, uptake into plants from soil and changes in surface water quality. All three receptor groups are assumed to eat wild meat, though the Aboriginal receptor has a considerably higher intake than the Residential and Residential Farm receptor.
	Farm	Yes	
	Aboriginal	Yes	
Ingestion of Garden Produce	Residential	Yes	COPCs can accumulate in garden produce (root vegetables, other vegetables and fruits), as a result of Project activities, due to deposition on soil and then uptake into the plant. All three receptor groups are assumed to consume garden produce.
	Farm	Yes	
	Aboriginal	Yes	
Ingestion of Traditional Plants	Residential	No	COPCs can accumulate in traditional plants as a result of Project activities due to deposition on soil and then uptake into the plant. Aboriginals could potentially consume traditional plants from the LSA; Residential and Farm receptors are not expected to consume traditional plants.
	Farm	No	
	Aboriginal	Yes	
Ingestion of Fish	Residential	Yes	COPCs can accumulate in fish, as a result of Project activities, due to change in surface water quality followed by uptake into fish. All three receptor groups are expected to consume fish from the LSA, however, the Aboriginal receptor is expected to consume a considerably higher level of local fish than either the Residential or Farm receptor.
	Farm	Yes	
	Aboriginal	Yes	

1.1.3 Selection of Toxicological Reference Values (TRVs)

A hierarchy for the selection of toxicological information for threshold and non-threshold chemicals consistent with guidance from the BC MOE was used. Based on this guidance, the following sources were consulted in the selection of air quality criteria for assessing inhalation exposures to CACs and in the selection of TRVs for assessing exposures to the COPCs.

The selection of human health-based ambient air quality criteria (AAQOs) for CACs used the following selection hierarchy:

- BC MOE human health-based AAQOs
- Canadian Council of Ministers of the Environment (CCME),
- United States Environmental Protection Agency (USEPA); and
- World Health Organization (WHO)

The ambient air quality criteria for the CACs used in this HHRA are summarized in Table 4.2-1.

Table 4.2-6 Air Quality Criteria for CACs

CAC	Averaging Period	Air Quality Criteria (TRV) (µg/m³)	Reference

SO_2	1-hour	200	BC Interim AQO (2014)
NO_2	1-hour	188	BC Interim AQO (2014)
	annual	40	WHO (2005)
CO	1-hour	14,300	BC Objective (2013)
$PM_{2.5}$	24-hour	25	BC Objective (2013)
	annual	8	BC Objective (2013)
PM_{10}	24-hour	50	BC Objective (2013)

The selection of TRVs for assessing exposures to the COPCs used the following selection hierarchy:

- USEPA Integrated Risk Information System (IRIS);
- Health Canada;
- US Agency for Toxic Substances and Disease Registry (ATSDR);
- California Environmental Protection Agency (Cal EPA);
- Rijksinstituut Voor Volksgezondheid En Milieu (RIVM) – The Netherlands National Institute for Public Health and the Environment;
- Texas Commission on Environmental Quality (TCEQ 2013);
- Ontario Ministry of the Environment (OMOE); and,
- Joint FAO/WHO Expert Committee on Food Additives (JECFA)

The oral TRVs and oral slope factors used in this HHRA are summarized in Table 4.2-2 and Table 4.2-3. The inhalation TRVs and UR are provided Table 4.2-4 and Table 4.2-5.

An inhalation TRV for thallium was not available in the literature. A reference concentration (RfC) for an adult was extrapolated from the reference dose (RfD) using Equation 1; this route to route extrapolation approach is supported by the US EPA.

$$extrapolated\ RfC\ \left(\frac{mg}{m^3}\right) = RfD\left(\frac{mg}{kg} - day\right) \times \frac{70.7\ kg}{\frac{15.8\ m^3}{day}} \quad \text{(Equation 1)}$$

The extrapolated RfC is 6.26E-05 mg/m³.

Table 4.2-7 Non-carcinogenic Oral Toxicological Reference Values

Compound	Oral TRV Infant (mg/kg-d)	Oral TRV Toddler (mg/kg-d)	Oral TRV Child (mg/kg-d)	Oral TRV Teen (mg/kg-d)	Oral TRV Adult (mg/kg-d)	Health Effect	Reference
Aluminum	1.00	1.00	1.00	1.00	1.00	bone toxicity, lung toxicity, and	ATSDR (2008)

Compound	Oral TRV Infant (mg/kg-d)	Oral TRV Toddler (mg/kg-d)	Oral TRV Child (mg/kg-d)	Oral TRV Teen (mg/kg-d)	Oral TRV Adult (mg/kg-d)	Health Effect	Reference
						neurotoxicity	
Antimony	0.0004	0.0004	0.0004	0.0004	0.0004	cellular necrosis, decreased blood glucose levels and altered and cholesterol levels	USEPA (1991)
Arsenic	0.0003	0.0003	0.0003	0.0003	0.0003	hyperpigmentation, keratosis and possible vascular complications	USEPA (1993)
Chromium	1.5	1.5	1.5	1.5	1.5	No effects observed	US EPA (1998)
Cobalt	0.001	0.001	0.001	0.001	0.001	cardiomyopathy	OMOE (2011a) modified from ATSDR (2004)
Copper	0.0910	0.0910	0.110	0.126	0.141	hepatotoxicity, gastrointestinal effects	Health Canada (2010a)
Lead	0.0006	0.0006	0.0006	0.0013	0.0013	developmental neurotoxicity, increased systolic blood pressure	WHO (2011)
Manganese	0.14	0.14	0.14	0.14	0.14	CNS effects	US EPA (1996)
Mercury	0.0003	0.0003	0.0003	0.0003	0.0003	nephrotoxicity	Health Canada (2010a)
Molybdenum	0.005	0.005	0.005	0.005	0.005	Increased uric acid levels	US EPA (1993)
Nickel	0.02	0.02	0.02	0.02	0.02	Decreased body weight and organ weight	US EAP (2010a)
Selenium	0.005	0.005	0.005	0.005	0.005	clinical selenosis	US EPA (1991)
Thallium	0.000014	0.000014	0.000014	0.000014	0.000014	Death, tachycardia, progressive hypotension, weakened reflexes, peripheral cyanosis, gastroenteritis, salivation, nausea, and vomiting	MOE (Cal EPA DW 1999)
Uranium	0.003	0.003	0.003	0.003	0.003	Body weight loss and nephrotoxicity	US EPA (1989)

Table 4.2-8 Carcinogenic Oral Toxicological Reference Values

Compound	Oral SF $(mg/kg\text{-}d)^{-1}$	Health Effect	Reference

Arsenic	1.5	lung cancer	US EPA 1998

Table 4.2-9 Non-carcinogenic Inhalation Toxicological Reference Values

Compound	Inhalation TRV (mg/m^3)	Health Effect	Reference
Aluminum (As Aluminum Oxide)	0.120	not listed (Particulate Exposure)	OMOE (2012)
Antimony	0.025	not listed	OMOE (2012)
Arsenic	0.001	lung cancer	RIVM (2001)
Chromium	0.0001	lactate dehydrogenase in bronchioalveolar lavage fluid (assumes chromium VI)	USEPA IRIS (1998)
Cobalt	0.0001	Respiratory Effects	OMOE (2012)
Copper	0.001	lung and immune system effects	RIVM (2001)
Lead	0.0005	neurological effects in children	OMOE (2012)
Manganese	0.00005	neurological effects	USEPA IRIS (1996)
Mercury	0.00006	reproductive system damage, behavioural problems and learning disabilities	Health Canada (2009)
Molybdenum	0.012	Not provided	RIVM (2001)
Nickel	0.0001	carcinogenic and non-carcinogenic effects	OMOE (2012)
Selenium	0.02	alimentary, cardiovascular, nervous system effects	Cal EPA (2014)
Thallium	6.26E-05	Extrapolated from RfD	Stantec (2015)
Uranium	0.0001	kidney toxicity	OMOE (2011d, 2012)

Notes:
[a] RIVM acknowledged that lung cancer can occur at concentrations greater than 0.01 mg/m^3, however they concluded that arsenic is non-genotoxic and the mechanism for carcinogenicity is based on a threshold effect. RIVM derived a tolerable air concentration of 0.001 mg/m^3 based on the threshold concentration for cancer (0.01 mg/m^3) and an uncertainty factor of 10 applied for intrahuman variability

Table 4.2-10 Carcinogenic Inhalation Toxicological Reference Values

Compound	Inhalation UR $(mg/m^3)^{-1}$	Health Endpoint	Reference
Arsenic	4.3	bladder, lung, and liver cancer	USEPA IRIS (1996)

Chromium	11	lung cancer	Health Canada (2010a)
Nickel	1.3	lung and nasal cancer	Health Canada (2010a)

APPENDIX G
MODELLING INPUTS & OUTPUTS – HHRA

Total Daily Intake Rates for an Adult in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.35E-03	3.72E-04	7.44E-02	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	7.98E-02
Antimony (Sb)	1.02E-07	8.72E-08	2.71E-06	5.15E-07	3.14E-07	5.06E-09	---	4.24E-06	7.97E-06
Arsenic (As)	1.57E-06	4.04E-07	2.00E-05	1.03E-06	2.26E-06	1.72E-07	---	1.06E-05	3.60E-05
Chromium (Cr)	1.38E-05	1.18E-05	1.04E-04	4.99E-05	6.28E-06	3.58E-06	---	1.06E-05	2.00E-04
Cobalt (Co)	3.39E-06	2.91E-07	5.42E-05	1.03E-06	9.20E-06	1.01E-05	---	1.06E-06	7.93E-05
Copper (Cu)	1.24E-05	6.39E-06	8.48E-04	1.07E-04	8.32E-05	1.93E-05	---	7.28E-03	8.35E-03
Lead (Pb)	1.53E-06	7.84E-08	3.30E-05	1.03E-06	4.95E-05	1.47E-08	---	6.36E-06	9.15E-05
Manganese (Mn)	1.60E-04	1.37E-05	4.43E-03	1.83E-05	3.64E-05	8.72E-06	---	2.76E-05	4.70E-03
Mercury (Hg)	1.16E-08	4.61E-08	8.09E-07	3.09E-07	8.93E-06	1.60E-08	---	4.24E-07	1.05E-05
Molybdenum (Mo)	2.87E-07	2.46E-08	2.38E-04	3.06E-06	8.98E-06	5.67E-06	---	1.49E-05	2.71E-04
Nickel (Ni)	1.24E-05	3.70E-05	2.24E-04	2.16E-05	2.40E-04	4.72E-06	---	8.49E-06	5.48E-04
Selenium (Se)	6.34E-08	5.42E-09	1.62E-05	2.78E-05	1.47E-04	1.58E-07	---	1.06E-05	2.02E-04
Thallium (Tl)	2.91E-08	2.49E-09	8.21E-07	1.03E-07	4.79E-07	3.38E-08	---	4.24E-07	1.89E-06
Uranium (U)	2.14E-07	1.83E-08	4.08E-06	1.03E-07	8.79E-08	1.27E-09	---	1.49E-06	5.98E-06

Total Daily Intake Rates for a Child in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	9.35E-03	4.89E-04	1.36E-01	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	1.47E-01
Antimony (Sb)	2.19E-07	1.14E-07	5.21E-06	7.48E-07	5.47E-07	7.35E-09	---	4.86E-06	1.17E-05
Arsenic (As)	3.38E-06	5.29E-07	3.68E-05	1.50E-06	3.94E-06	2.50E-07	---	1.22E-05	5.85E-05
Chromium (Cr)	2.97E-05	1.55E-05	1.88E-04	7.25E-05	1.09E-05	5.20E-06	---	1.22E-05	3.34E-04
Cobalt (Co)	7.29E-06	3.81E-07	9.92E-05	1.50E-06	1.60E-05	1.47E-05	---	1.22E-06	1.40E-04
Copper (Cu)	2.67E-05	8.38E-06	1.59E-03	1.56E-04	1.45E-04	2.80E-05	---	8.34E-03	1.03E-02
Lead (Pb)	3.28E-06	1.03E-07	6.04E-05	1.50E-06	8.62E-05	2.14E-08	---	7.29E-06	1.59E-04
Manganese (Mn)	3.43E-04	1.79E-05	8.04E-03	2.65E-05	6.35E-05	1.27E-05	---	3.16E-05	8.54E-03
Mercury (Hg)	2.48E-08	6.04E-08	1.60E-06	4.49E-07	1.56E-05	2.33E-08	---	4.86E-07	1.82E-05
Molybdenum (Mo)	6.18E-07	3.23E-08	4.00E-04	4.45E-06	1.56E-05	8.23E-06	---	1.70E-05	4.46E-04
Nickel (Ni)	2.66E-05	4.86E-05	4.09E-04	3.14E-05	4.19E-04	6.85E-06	---	9.73E-06	9.50E-04
Selenium (Se)	1.36E-07	7.11E-09	3.20E-05	4.04E-05	2.56E-04	2.30E-07	---	1.22E-05	3.41E-04
Thallium (Tl)	6.25E-08	3.27E-09	1.56E-06	1.50E-07	8.34E-07	4.91E-08	---	4.86E-07	3.14E-06
Uranium (U)	4.59E-07	2.40E-08	7.46E-06	1.50E-07	1.53E-07	1.85E-09	---	1.70E-06	9.95E-06

Total Daily Intake Rates for an Infant in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.75E-02	8.74E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.87E-02
Antimony (Sb)	8.78E-07	2.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.40E-06
Arsenic (As)	1.36E-05	9.47E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	3.28E-05
Chromium (Cr)	1.19E-04	2.78E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.65E-04
Cobalt (Co)	2.93E-05	6.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	3.18E-05
Copper (Cu)	1.07E-04	1.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.27E-02
Lead (Pb)	1.32E-05	1.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	2.43E-05
Manganese (Mn)	1.38E-03	3.21E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.46E-03
Mercury (Hg)	9.96E-08	1.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.39E-07
Molybdenum (Mo)	2.48E-06	5.77E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.81E-05
Nickel (Ni)	1.07E-04	8.69E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	2.08E-04
Selenium (Se)	5.46E-07	1.27E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.89E-05
Thallium (Tl)	2.51E-07	5.84E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.88E-07
Uranium (U)	1.84E-06	4.29E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	4.45E-06

Total Daily Intake Rates for a Teen in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.15E-03	3.92E-04	1.04E-01	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.10E-01
Antimony (Sb)	1.21E-07	9.17E-08	3.59E-06	5.70E-07	3.48E-07	5.59E-09	---	3.35E-06	8.07E-06
Arsenic (As)	1.86E-06	4.24E-07	2.75E-05	1.14E-06	2.51E-06	1.91E-07	---	8.38E-06	4.20E-05
Chromium (Cr)	1.64E-05	1.24E-05	1.40E-04	5.52E-05	6.97E-06	3.96E-06	---	8.38E-06	2.43E-04
Cobalt (Co)	4.02E-06	3.06E-07	7.57E-05	1.14E-06	1.02E-05	1.12E-05	---	8.38E-07	1.03E-04
Copper (Cu)	1.47E-05	6.72E-06	1.11E-03	1.18E-04	9.23E-05	2.13E-05	---	5.75E-03	7.10E-03
Lead (Pb)	1.81E-06	8.25E-08	4.56E-05	1.14E-06	5.49E-05	1.63E-08	---	5.03E-06	1.09E-04
Manganese (Mn)	1.89E-04	1.44E-05	6.00E-03	2.02E-05	4.04E-05	9.65E-06	---	2.18E-05	6.30E-03
Mercury (Hg)	1.37E-08	4.85E-08	1.01E-06	3.42E-07	9.91E-06	1.77E-08	---	3.35E-07	1.17E-05
Molybdenum (Mo)	3.40E-07	2.59E-08	2.62E-04	3.39E-06	9.96E-06	6.27E-06	---	1.17E-05	2.93E-04
Nickel (Ni)	1.46E-05	3.89E-05	3.11E-04	2.39E-05	2.67E-04	5.22E-06	---	6.70E-06	6.66E-04
Selenium (Se)	7.50E-08	5.70E-09	2.03E-05	3.08E-05	1.63E-04	1.75E-07	---	8.38E-06	2.23E-04
Thallium (Tl)	3.44E-08	2.62E-09	1.12E-06	1.14E-07	5.31E-07	3.74E-08	---	3.35E-07	2.17E-06
Uranium (U)	2.53E-07	1.92E-08	5.65E-06	1.14E-07	9.76E-08	1.41E-09	---	1.17E-06	7.31E-06

Total Daily Intake Rates for a Toddler in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	7.46E-02	6.41E-04	1.78E-01	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	2.55E-01
Antimony (Sb)	1.75E-06	1.50E-07	7.53E-06	1.04E-06	6.79E-07	1.02E-08	---	7.27E-06	1.84E-05
Arsenic (As)	2.69E-05	6.95E-07	4.95E-05	2.08E-06	4.89E-06	3.49E-07	---	1.82E-05	1.03E-04
Chromium (Cr)	2.37E-04	2.04E-05	2.53E-04	1.01E-04	1.36E-05	7.24E-06	---	1.82E-05	6.50E-04
Cobalt (Co)	5.82E-05	5.00E-07	1.31E-04	2.08E-06	1.99E-05	2.05E-05	---	1.82E-06	2.34E-04
Copper (Cu)	2.13E-04	1.10E-05	2.27E-03	2.17E-04	1.80E-04	3.90E-05	---	1.25E-02	1.54E-02
Lead (Pb)	2.62E-05	1.35E-07	8.03E-05	2.08E-06	1.07E-04	2.99E-08	---	1.09E-05	2.27E-04
Manganese (Mn)	2.74E-03	2.35E-05	1.08E-02	3.70E-05	7.87E-05	1.77E-05	---	4.73E-05	1.37E-02
Mercury (Hg)	1.98E-07	7.94E-08	2.46E-06	6.25E-07	1.93E-05	3.25E-08	---	7.27E-07	2.34E-05
Molybdenum (Mo)	4.93E-06	4.24E-08	5.74E-04	6.20E-06	1.94E-05	1.15E-05	---	2.55E-05	6.42E-04
Nickel (Ni)	2.12E-04	6.37E-05	5.40E-04	4.38E-05	5.19E-04	9.56E-06	---	1.45E-05	1.40E-03
Selenium (Se)	1.09E-06	9.34E-09	4.92E-05	5.63E-05	3.18E-04	3.21E-07	---	1.82E-05	4.43E-04
Thallium (Tl)	4.98E-07	4.29E-09	2.17E-06	2.08E-07	1.04E-06	6.85E-08	---	7.27E-07	4.72E-06
Uranium (U)	3.66E-06	3.15E-08	9.87E-06	2.08E-07	1.90E-07	2.58E-09	---	2.55E-06	1.65E-05

Non-carcinogenic risk estimates for an Adult in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.35E-03	3.72E-04	7.44E-02	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	7.98E-02
Antimony (Sb)	2.55E-04	2.18E-04	6.77E-03	1.29E-03	7.85E-04	1.26E-05	---	1.06E-02	1.99E-02
Arsenic (As)	5.24E-03	1.35E-03	6.66E-02	3.43E-03	7.54E-03	5.75E-04	---	3.54E-02	1.20E-01
Chromium (Cr)	9.22E-06	7.89E-06	6.96E-05	3.33E-05	4.19E-06	2.39E-06	---	7.07E-06	1.34E-04
Cobalt (Co)	3.39E-03	2.91E-04	5.42E-02	1.03E-03	9.20E-03	1.01E-02	---	1.06E-03	7.93E-02
Copper (Cu)	8.82E-05	4.53E-05	6.02E-03	7.59E-04	5.90E-04	1.37E-04	---	5.16E-02	5.92E-02
Lead (Pb)	1.17E-03	6.03E-05	2.54E-02	7.92E-04	3.80E-02	1.13E-05	---	4.90E-03	7.04E-02
Manganese (Mn)	1.14E-03	9.76E-05	3.17E-02	1.31E-04	2.60E-04	6.23E-05	---	1.97E-04	3.36E-02
Mercury (Hg)	3.85E-05	1.54E-04	2.70E-03	1.03E-03	4.47E-02	5.35E-05	---	1.41E-03	5.01E-02
Molybdenum (Mo)	5.75E-05	4.92E-06	4.76E-02	6.13E-04	1.80E-03	1.13E-03	---	2.97E-03	5.41E-02
Nickel (Ni)	6.18E-04	1.85E-03	1.12E-02	1.08E-03	1.20E-02	2.36E-04	---	4.24E-04	2.74E-02
Selenium (Se)	1.27E-05	1.08E-06	3.24E-03	5.56E-03	2.94E-02	3.17E-05	---	2.12E-03	4.04E-02
Thallium (Tl)	2.08E-03	1.78E-04	5.86E-02	7.36E-03	3.42E-02	2.42E-03	---	3.03E-02	1.35E-01
Uranium (U)	7.12E-05	6.10E-06	1.36E-03	3.43E-05	2.93E-05	4.25E-07	---	4.95E-04	1.99E-03

Non-carcinogenic risk estimates for a Child in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	9.35E-03	4.89E-04	1.36E-01	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	1.47E-01
Antimony (Sb)	5.47E-04	2.86E-04	1.30E-02	1.87E-03	1.37E-03	1.84E-05	---	1.22E-02	2.93E-02
Arsenic (As)	1.13E-02	1.76E-03	1.23E-01	4.98E-03	1.31E-02	8.35E-04	---	4.05E-02	1.95E-01
Chromium (Cr)	1.98E-05	1.04E-05	1.26E-04	4.84E-05	7.29E-06	3.46E-06	---	8.11E-06	2.23E-04
Cobalt (Co)	7.29E-03	3.81E-04	9.92E-02	1.50E-03	1.60E-02	1.47E-02	---	1.22E-03	1.40E-01
Copper (Cu)	2.43E-04	7.62E-05	1.45E-02	1.41E-03	1.32E-03	2.55E-04	---	7.58E-02	9.36E-02
Lead (Pb)	5.47E-03	1.71E-04	1.01E-01	2.49E-03	1.44E-01	3.57E-05	---	1.22E-02	2.65E-01
Manganese (Mn)	2.45E-03	1.28E-04	5.74E-02	1.90E-04	4.53E-04	9.05E-05	---	2.26E-04	6.10E-02
Mercury (Hg)	8.28E-05	2.01E-04	5.34E-03	1.50E-03	7.78E-02	7.76E-05	---	1.62E-03	8.66E-02
Molybdenum (Mo)	1.24E-04	6.45E-06	8.00E-02	8.90E-04	3.13E-03	1.65E-03	---	3.40E-03	8.92E-02
Nickel (Ni)	1.33E-03	2.43E-03	2.04E-02	1.57E-03	2.09E-02	3.43E-04	---	4.86E-04	4.75E-02
Selenium (Se)	2.72E-05	1.42E-06	6.41E-03	8.08E-03	5.13E-02	4.60E-05	---	2.43E-03	6.83E-02
Thallium (Tl)	4.46E-03	2.33E-04	1.11E-01	1.07E-02	5.96E-02	3.51E-03	---	3.47E-02	2.24E-01
Uranium (U)	1.53E-04	8.00E-06	2.49E-03	4.98E-05	5.11E-05	6.17E-07	---	5.67E-04	3.32E-03

Non-carcinogenic risk for estimates an Infant in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.75E-02	8.74E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.87E-02
Antimony (Sb)	2.20E-03	5.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.10E-02
Arsenic (As)	4.52E-02	3.16E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	1.09E-01
Chromium (Cr)	7.95E-05	1.85E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	1.10E-04
Cobalt (Co)	2.93E-02	6.82E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	3.18E-02
Copper (Cu)	1.18E-03	1.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.39E-01
Lead (Pb)	2.19E-02	3.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	4.05E-02
Manganese (Mn)	9.83E-03	2.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	1.04E-02
Mercury (Hg)	3.32E-04	3.61E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	3.13E-03
Molybdenum (Mo)	4.96E-04	1.15E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.63E-03
Nickel (Ni)	5.33E-03	4.34E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	1.04E-02
Selenium (Se)	1.09E-04	2.55E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.77E-03
Thallium (Tl)	1.79E-02	4.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	7.06E-02
Uranium (U)	6.14E-04	1.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	1.48E-03

Non-carcinogenic risk estimates for a Teen in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.15E-03	3.92E-04	1.04E-01	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.10E-01
Antimony (Sb)	3.02E-04	2.29E-04	8.96E-03	1.42E-03	8.71E-04	1.40E-05	---	8.38E-03	2.02E-02
Arsenic (As)	6.20E-03	1.41E-03	9.15E-02	3.80E-03	8.36E-03	6.36E-04	---	2.79E-02	1.40E-01
Chromium (Cr)	1.09E-05	8.30E-06	9.33E-05	3.68E-05	4.65E-06	2.64E-06	---	5.58E-06	1.62E-04
Cobalt (Co)	4.02E-03	3.06E-04	7.57E-02	1.14E-03	1.02E-02	1.12E-02	---	8.38E-04	1.03E-01
Copper (Cu)	1.17E-04	5.33E-05	8.78E-03	9.40E-04	7.33E-04	1.69E-04	---	4.56E-02	5.64E-02
Lead (Pb)	1.39E-03	6.34E-05	3.51E-02	8.76E-04	4.22E-02	1.25E-05	---	3.87E-03	8.35E-02
Manganese (Mn)	1.35E-03	1.03E-04	4.29E-02	1.44E-04	2.89E-04	6.89E-05	---	1.56E-04	4.50E-02
Mercury (Hg)	4.56E-05	1.62E-04	3.38E-03	1.14E-03	4.96E-02	5.91E-05	---	1.12E-03	5.55E-02
Molybdenum (Mo)	6.81E-05	5.17E-06	5.23E-02	6.78E-04	1.99E-03	1.25E-03	---	2.35E-03	5.87E-02
Nickel (Ni)	7.32E-04	1.95E-03	1.55E-02	1.20E-03	1.33E-02	2.61E-04	---	3.35E-04	3.33E-02
Selenium (Se)	1.50E-05	1.14E-06	4.05E-03	6.15E-03	3.26E-02	3.51E-05	---	1.68E-03	4.46E-02
Thallium (Tl)	2.46E-03	1.87E-04	7.97E-02	8.14E-03	3.80E-02	2.67E-03	---	2.39E-02	1.55E-01
Uranium (U)	8.44E-05	6.41E-06	1.88E-03	3.80E-05	3.25E-05	4.70E-07	---	3.91E-04	2.44E-03

Non-carcinogenic risk estimates for a Toddler in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	7.46E-02	6.41E-04	1.78E-01	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	2.55E-01
Antimony (Sb)	4.36E-03	3.75E-04	1.88E-02	2.61E-03	1.70E-03	2.56E-05	---	1.82E-02	4.61E-02
Arsenic (As)	8.98E-02	2.32E-03	1.65E-01	6.95E-03	1.63E-02	1.16E-03	---	6.06E-02	3.42E-01
Chromium (Cr)	1.58E-04	1.36E-05	1.68E-04	6.74E-05	9.05E-06	4.83E-06	---	1.21E-05	4.33E-04
Cobalt (Co)	5.82E-02	5.00E-04	1.31E-01	2.08E-03	1.99E-02	2.05E-02	---	1.82E-03	2.34E-01
Copper (Cu)	2.34E-03	1.21E-04	2.50E-02	2.38E-03	1.98E-03	4.29E-04	---	1.37E-01	1.69E-01
Lead (Pb)	4.36E-02	2.25E-04	1.34E-01	3.47E-03	1.78E-01	4.98E-05	---	1.82E-02	3.78E-01
Manganese (Mn)	1.95E-02	1.68E-04	7.69E-02	2.64E-04	5.62E-04	1.26E-04	---	3.38E-04	9.79E-02
Mercury (Hg)	6.60E-04	2.65E-04	8.20E-03	2.08E-03	9.66E-02	1.08E-04	---	2.42E-03	1.10E-01
Molybdenum (Mo)	9.85E-04	8.47E-06	1.15E-01	1.24E-03	3.88E-03	2.30E-03	---	5.09E-03	1.28E-01
Nickel (Ni)	1.06E-02	3.19E-03	2.70E-02	2.19E-03	2.60E-02	4.78E-04	---	7.27E-04	7.01E-02
Selenium (Se)	2.17E-04	1.87E-06	9.84E-03	1.13E-02	6.36E-02	6.42E-05	---	3.64E-03	8.86E-02
Thallium (Tl)	3.56E-02	3.06E-04	1.55E-01	1.49E-02	7.39E-02	4.89E-03	---	5.19E-02	3.37E-01
Uranium (U)	1.22E-03	1.05E-05	3.29E-03	6.95E-05	6.34E-05	8.60E-07	---	8.48E-04	5.51E-03

Lifetime Average Daily Dose for a Resident in Aberdeen under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	9.03E-03	4.03E-04	8.81E-02	2.10E-04	1.78E-04	2.26E-04	---	1.49E-04	9.83E-02
Antimony (Sb)	2.11E-07	9.43E-08	3.27E-06	5.67E-07	3.56E-07	5.57E-09	---	3.73E-06	8.23E-06
Arsenic (As)	3.26E-06	4.36E-07	2.37E-05	1.13E-06	2.57E-06	1.90E-07	---	9.32E-06	4.06E-05
Barium (Ba)	8.77E-05	3.91E-05	2.88E-03	3.69E-06	5.76E-06	1.44E-06	---	1.86E-04	3.20E-03
Chromium (Cr)	2.87E-05	1.28E-05	1.23E-04	5.50E-05	7.13E-06	3.94E-06	---	9.32E-06	2.40E-04
Cobalt (Co)	7.04E-06	3.14E-07	6.42E-05	1.13E-06	1.04E-05	1.11E-05	---	9.32E-07	9.53E-05
Copper (Cu)	2.58E-05	6.91E-06	1.01E-03	1.18E-04	9.44E-05	2.12E-05	---	6.39E-03	7.67E-03
Lead (Pb)	3.17E-06	8.48E-08	3.91E-05	1.13E-06	5.61E-05	1.62E-08	---	5.59E-06	1.05E-04
Manganese (Mn)	3.31E-04	1.48E-05	5.24E-03	2.01E-05	4.13E-05	9.61E-06	---	2.42E-05	5.68E-03
Mercury (Hg)	2.40E-08	4.98E-08	9.87E-07	3.40E-07	1.01E-05	1.77E-08	---	3.73E-07	1.19E-05
Molybdenum (Mo)	5.96E-07	2.66E-08	2.72E-04	3.37E-06	1.02E-05	6.25E-06	---	1.30E-05	3.05E-04
Nickel (Ni)	2.56E-05	4.00E-05	2.65E-04	2.38E-05	2.73E-04	5.20E-06	---	7.46E-06	6.40E-04
Selenium (Se)	1.31E-07	5.87E-09	1.97E-05	3.06E-05	1.67E-04	1.75E-07	---	9.32E-06	2.27E-04
Thallium (Tl)	6.03E-08	2.69E-09	9.86E-07	1.13E-07	5.44E-07	3.73E-08	---	3.73E-07	2.12E-06
Uranium (U)	4.43E-07	1.98E-08	4.83E-06	1.13E-07	9.98E-08	1.40E-09	---	1.30E-06	6.81E-06
Vanadium (V)	4.38E-05	1.96E-05	3.58E-04	7.66E-06	4.10E-06	2.22E-06	---	3.73E-05	4.72E-04

Total Daily Intake Rates for an Adult in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.35E-03	3.72E-04	7.44E-02	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	8.05E-02
Antimony (Sb)	1.03E-07	8.84E-08	2.75E-06	5.78E-07	3.14E-07	5.35E-09	---	4.24E-06	8.08E-06
Arsenic (As)	1.57E-06	4.04E-07	2.00E-05	1.07E-06	2.71E-06	1.75E-07	---	1.06E-05	3.66E-05
Chromium (Cr)	1.39E-05	1.19E-05	1.05E-04	5.02E-05	3.02E-05	3.62E-06	---	1.06E-05	2.25E-04
Cobalt (Co)	3.40E-06	2.91E-07	5.43E-05	1.03E-06	1.95E-05	1.02E-05	---	1.06E-06	8.98E-05
Copper (Cu)	1.25E-05	6.43E-06	8.51E-04	1.13E-04	1.46E-04	1.94E-05	---	7.28E-03	8.43E-03
Lead (Pb)	1.53E-06	7.86E-08	3.30E-05	1.04E-06	7.02E-05	1.49E-08	---	6.36E-06	1.12E-04
Manganese (Mn)	1.60E-04	1.37E-05	4.44E-03	1.95E-05	4.78E-05	8.83E-06	---	2.76E-05	4.71E-03
Mercury (Hg)	1.19E-08	4.76E-08	8.20E-07	3.20E-07	9.44E-06	1.66E-08	---	4.24E-07	1.11E-05
Molybdenum (Mo)	2.89E-07	2.47E-08	2.40E-04	3.08E-06	1.66E-05	5.73E-06	---	1.49E-05	2.80E-04
Nickel (Ni)	1.24E-05	3.71E-05	2.24E-04	2.17E-05	3.89E-04	4.76E-06	---	8.49E-06	6.98E-04
Selenium (Se)	6.40E-08	5.48E-09	1.64E-05	2.82E-05	2.60E-04	1.61E-07	---	1.06E-05	3.16E-04
Thallium (Tl)	2.93E-08	2.51E-09	8.28E-07	1.06E-07	4.79E-07	3.46E-08	---	4.24E-07	1.90E-06
Uranium (U)	2.14E-07	1.84E-08	4.08E-06	1.18E-07	1.09E-07	1.50E-09	---	1.49E-06	6.03E-06

Total Daily Intake Rates for a Child in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	9.35E-03	4.89E-04	1.36E-01	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	1.48E-01
Antimony (Sb)	2.22E-07	1.16E-07	5.29E-06	8.39E-07	5.47E-07	7.76E-09	---	4.86E-06	1.19E-05
Arsenic (As)	3.38E-06	5.30E-07	3.69E-05	1.55E-06	4.72E-06	2.54E-07	---	1.22E-05	5.95E-05
Chromium (Cr)	2.98E-05	1.56E-05	1.89E-04	7.30E-05	5.26E-05	5.25E-06	---	1.22E-05	3.77E-04
Cobalt (Co)	7.31E-06	3.82E-07	9.94E-05	1.50E-06	3.40E-05	1.48E-05	---	1.22E-06	1.59E-04
Copper (Cu)	2.69E-05	8.44E-06	1.60E-03	1.64E-04	2.54E-04	2.82E-05	---	8.34E-03	1.04E-02
Lead (Pb)	3.29E-06	1.03E-07	6.05E-05	1.51E-06	1.22E-04	2.16E-08	---	7.29E-06	1.95E-04
Manganese (Mn)	3.43E-04	1.79E-05	8.05E-03	2.84E-05	8.33E-05	1.28E-05	---	3.16E-05	8.56E-03
Mercury (Hg)	2.57E-08	6.25E-08	1.62E-06	4.64E-07	1.65E-05	2.41E-08	---	4.86E-07	1.91E-05
Molybdenum (Mo)	6.21E-07	3.24E-08	4.03E-04	4.48E-06	2.90E-05	8.32E-06	---	1.70E-05	4.62E-04
Nickel (Ni)	2.66E-05	4.87E-05	4.10E-04	3.15E-05	6.78E-04	6.91E-06	---	9.73E-06	1.21E-03
Selenium (Se)	1.38E-07	7.19E-09	3.24E-05	4.10E-05	4.53E-04	2.33E-07	---	1.22E-05	5.39E-04
Thallium (Tl)	6.30E-08	3.29E-09	1.57E-06	1.54E-07	8.34E-07	5.03E-08	---	4.86E-07	3.16E-06
Uranium (U)	4.61E-07	2.41E-08	7.46E-06	1.71E-07	1.90E-07	2.18E-09	---	1.70E-06	1.00E-05

Total Daily Intake Rates for an Infant in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.75E-02	8.74E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.87E-02
Antimony (Sb)	8.91E-07	2.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.42E-06
Arsenic (As)	1.36E-05	9.49E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	3.28E-05
Chromium (Cr)	1.20E-04	2.78E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.66E-04
Cobalt (Co)	2.93E-05	6.83E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	3.18E-05
Copper (Cu)	1.08E-04	1.51E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.27E-02
Lead (Pb)	1.32E-05	1.85E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	2.44E-05
Manganese (Mn)	1.38E-03	3.21E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.46E-03
Mercury (Hg)	1.03E-07	1.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.46E-07
Molybdenum (Mo)	2.49E-06	5.81E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.82E-05
Nickel (Ni)	1.07E-04	8.71E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	2.09E-04
Selenium (Se)	5.52E-07	1.29E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.89E-05
Thallium (Tl)	2.53E-07	5.89E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.90E-07
Uranium (U)	1.85E-06	4.31E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	4.45E-06

Total Daily Intake Rates for a Teen in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.15E-03	3.92E-04	1.04E-01	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.11E-01
Antimony (Sb)	1.22E-07	9.30E-08	3.64E-06	6.39E-07	3.48E-07	5.91E-09	---	3.35E-06	8.20E-06
Arsenic (As)	1.86E-06	4.25E-07	2.75E-05	1.18E-06	3.01E-06	1.93E-07	---	8.38E-06	4.26E-05
Chromium (Cr)	1.64E-05	1.25E-05	1.40E-04	5.56E-05	3.35E-05	4.00E-06	---	8.38E-06	2.71E-04
Cobalt (Co)	4.03E-06	3.06E-07	7.58E-05	1.14E-06	2.17E-05	1.12E-05	---	8.38E-07	1.15E-04
Copper (Cu)	1.48E-05	6.76E-06	1.11E-03	1.25E-04	1.62E-04	2.15E-05	---	5.75E-03	7.19E-03
Lead (Pb)	1.81E-06	8.27E-08	4.56E-05	1.15E-06	7.79E-05	1.65E-08	---	5.03E-06	1.32E-04
Manganese (Mn)	1.89E-04	1.44E-05	6.00E-03	2.16E-05	5.30E-05	9.77E-06	---	2.18E-05	6.31E-03
Mercury (Hg)	1.41E-08	5.01E-08	1.03E-06	3.54E-07	1.05E-05	1.84E-08	---	3.35E-07	1.23E-05
Molybdenum (Mo)	3.42E-07	2.60E-08	2.64E-04	3.41E-06	1.85E-05	6.34E-06	---	1.17E-05	3.04E-04
Nickel (Ni)	1.47E-05	3.90E-05	3.11E-04	2.40E-05	4.32E-04	5.26E-06	---	6.70E-06	8.33E-04
Selenium (Se)	7.58E-08	5.76E-09	2.05E-05	3.12E-05	2.89E-04	1.78E-07	---	8.38E-06	3.49E-04
Thallium (Tl)	3.47E-08	2.64E-09	1.13E-06	1.17E-07	5.31E-07	3.83E-08	---	3.35E-07	2.18E-06
Uranium (U)	2.54E-07	1.93E-08	5.66E-06	1.31E-07	1.21E-07	1.66E-09	---	1.17E-06	7.36E-06

Total Daily Intake Rates for a Toddler in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	7.46E-02	6.41E-04	1.78E-01	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	2.56E-01
Antimony (Sb)	1.77E-06	1.52E-07	7.64E-06	1.17E-06	6.79E-07	1.08E-08	---	7.27E-06	1.87E-05
Arsenic (As)	2.70E-05	6.96E-07	4.96E-05	2.16E-06	5.86E-06	3.54E-07	---	1.82E-05	1.04E-04
Chromium (Cr)	2.38E-04	2.04E-05	2.53E-04	1.02E-04	6.53E-05	7.32E-06	---	1.82E-05	7.04E-04
Cobalt (Co)	5.83E-05	5.01E-07	1.31E-04	2.09E-06	4.22E-05	2.06E-05	---	1.82E-06	2.57E-04
Copper (Cu)	2.15E-04	1.11E-05	2.28E-03	2.29E-04	3.16E-04	3.93E-05	---	1.25E-02	1.56E-02
Lead (Pb)	2.62E-05	1.35E-07	8.04E-05	2.11E-06	1.52E-04	3.01E-08	---	1.09E-05	2.72E-04
Manganese (Mn)	2.74E-03	2.35E-05	1.08E-02	3.95E-05	1.03E-04	1.79E-05	---	4.73E-05	1.37E-02
Mercury (Hg)	2.05E-07	8.20E-08	2.50E-06	6.47E-07	2.04E-05	3.37E-08	---	7.27E-07	2.46E-05
Molybdenum (Mo)	4.95E-06	4.26E-08	5.78E-04	6.24E-06	3.60E-05	1.16E-05	---	2.55E-05	6.62E-04
Nickel (Ni)	2.12E-04	6.39E-05	5.41E-04	4.39E-05	8.42E-04	9.64E-06	---	1.45E-05	1.73E-03
Selenium (Se)	1.10E-06	9.44E-09	4.98E-05	5.72E-05	5.63E-04	3.25E-07	---	1.82E-05	6.89E-04
Thallium (Tl)	5.02E-07	4.32E-09	2.19E-06	2.14E-07	1.04E-06	7.01E-08	---	7.27E-07	4.75E-06
Uranium (U)	3.67E-06	3.16E-08	9.89E-06	2.39E-07	2.36E-07	3.04E-09	---	2.55E-06	1.66E-05

Non-carcinogenic risk estimates for an Adult in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.35E-03	3.72E-04	7.44E-02	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	8.05E-02
Antimony (Sb)	2.58E-04	2.21E-04	6.87E-03	1.44E-03	7.85E-04	1.34E-05	---	1.06E-02	2.02E-02
Arsenic (As)	5.25E-03	1.35E-03	6.67E-02	3.55E-03	9.04E-03	5.83E-04	---	3.54E-02	1.22E-01
Chromium (Cr)	9.24E-06	7.91E-06	6.98E-05	3.35E-05	2.01E-05	2.41E-06	---	7.07E-06	1.50E-04
Cobalt (Co)	3.40E-03	2.91E-04	5.43E-02	1.03E-03	1.95E-02	1.02E-02	---	1.06E-03	8.98E-02
Copper (Cu)	8.88E-05	4.56E-05	6.04E-03	8.02E-04	1.04E-03	1.38E-04	---	5.16E-02	5.98E-02
Lead (Pb)	1.18E-03	6.05E-05	2.54E-02	8.00E-04	5.40E-02	1.14E-05	---	4.90E-03	8.64E-02
Manganese (Mn)	1.14E-03	9.76E-05	3.17E-02	1.39E-04	3.42E-04	6.31E-05	---	1.97E-04	3.37E-02
Mercury (Hg)	3.98E-05	1.59E-04	2.73E-03	1.07E-03	4.72E-02	5.54E-05	---	1.41E-03	5.27E-02
Molybdenum (Mo)	5.78E-05	4.95E-06	4.79E-02	6.17E-04	3.33E-03	1.15E-03	---	2.97E-03	5.60E-02
Nickel (Ni)	6.20E-04	1.86E-03	1.12E-02	1.08E-03	1.95E-02	2.38E-04	---	4.24E-04	3.49E-02
Selenium (Se)	1.28E-05	1.10E-06	3.27E-03	5.65E-03	5.21E-02	3.21E-05	---	2.12E-03	6.31E-02
Thallium (Tl)	2.09E-03	1.79E-04	5.91E-02	7.55E-03	3.42E-02	2.47E-03	---	3.03E-02	1.36E-01
Uranium (U)	7.15E-05	6.12E-06	1.36E-03	3.93E-05	3.64E-05	5.01E-07	---	4.95E-04	2.01E-03

Non-carcinogenic risk estimates for a Child in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	9.35E-03	4.89E-04	1.36E-01	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	1.48E-01
Antimony (Sb)	5.55E-04	2.90E-04	1.32E-02	2.10E-03	1.37E-03	1.94E-05	---	1.22E-02	2.97E-02
Arsenic (As)	1.13E-02	1.77E-03	1.23E-01	5.16E-03	1.57E-02	8.46E-04	---	4.05E-02	1.98E-01
Chromium (Cr)	1.99E-05	1.04E-05	1.26E-04	4.86E-05	3.51E-05	3.50E-06	---	8.11E-06	2.51E-04
Cobalt (Co)	7.31E-03	3.82E-04	9.94E-02	1.50E-03	3.40E-02	1.48E-02	---	1.22E-03	1.59E-01
Copper (Cu)	2.45E-04	7.67E-05	1.45E-02	1.49E-03	2.31E-03	2.57E-04	---	7.58E-02	9.47E-02
Lead (Pb)	5.48E-03	1.72E-04	1.01E-01	2.52E-03	2.04E-01	3.60E-05	---	1.22E-02	3.25E-01
Manganese (Mn)	2.45E-03	1.28E-04	5.75E-02	2.03E-04	5.95E-04	9.16E-05	---	2.26E-04	6.12E-02
Mercury (Hg)	8.55E-05	2.08E-04	5.41E-03	1.55E-03	8.23E-02	8.05E-05	---	1.62E-03	9.12E-02
Molybdenum (Mo)	1.24E-04	6.49E-06	8.06E-02	8.96E-04	5.80E-03	1.66E-03	---	3.40E-03	9.24E-02
Nickel (Ni)	1.33E-03	2.43E-03	2.05E-02	1.58E-03	3.39E-02	3.46E-04	---	4.86E-04	6.06E-02
Selenium (Se)	2.75E-05	1.44E-06	6.48E-03	8.20E-03	9.07E-02	4.66E-05	---	2.43E-03	1.08E-01
Thallium (Tl)	4.50E-03	2.35E-04	1.12E-01	1.10E-02	5.96E-02	3.59E-03	---	3.47E-02	2.26E-01
Uranium (U)	1.54E-04	8.02E-06	2.49E-03	5.71E-05	6.35E-05	7.27E-07	---	5.67E-04	3.34E-03

Non-carcinogenic risk for estimates an Infant in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.75E-02	8.74E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.87E-02
Antimony (Sb)	2.23E-03	5.19E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.10E-02
Arsenic (As)	4.52E-02	3.16E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	1.09E-01
Chromium (Cr)	7.97E-05	1.86E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	1.10E-04
Cobalt (Co)	2.93E-02	6.83E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	3.18E-02
Copper (Cu)	1.19E-03	1.66E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.39E-01
Lead (Pb)	2.20E-02	3.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	4.06E-02
Manganese (Mn)	9.83E-03	2.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	1.04E-02
Mercury (Hg)	3.43E-04	3.73E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	3.15E-03
Molybdenum (Mo)	4.98E-04	1.16E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.63E-03
Nickel (Ni)	5.34E-03	4.36E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	1.04E-02
Selenium (Se)	1.10E-04	2.57E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.77E-03
Thallium (Tl)	1.80E-02	4.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	7.07E-02
Uranium (U)	6.16E-04	1.44E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	1.48E-03

Non-carcinogenic risk estimates for a Teen in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.15E-03	3.92E-04	1.04E-01	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.11E-01
Antimony (Sb)	3.06E-04	2.32E-04	9.10E-03	1.60E-03	8.71E-04	1.48E-05	---	8.38E-03	2.05E-02
Arsenic (As)	6.22E-03	1.42E-03	9.17E-02	3.93E-03	1.00E-02	6.45E-04	---	2.79E-02	1.42E-01
Chromium (Cr)	1.09E-05	8.32E-06	9.35E-05	3.71E-05	2.23E-05	2.67E-06	---	5.58E-06	1.80E-04
Cobalt (Co)	4.03E-03	3.06E-04	7.58E-02	1.14E-03	2.17E-02	1.12E-02	---	8.38E-04	1.15E-01
Copper (Cu)	1.18E-04	5.37E-05	8.81E-03	9.92E-04	1.29E-03	1.71E-04	---	4.56E-02	5.70E-02
Lead (Pb)	1.39E-03	6.36E-05	3.51E-02	8.85E-04	5.99E-02	1.27E-05	---	3.87E-03	1.01E-01
Manganese (Mn)	1.35E-03	1.03E-04	4.29E-02	1.54E-04	3.79E-04	6.98E-05	---	1.56E-04	4.51E-02
Mercury (Hg)	4.71E-05	1.67E-04	3.43E-03	1.18E-03	5.24E-02	6.13E-05	---	1.12E-03	5.84E-02
Molybdenum (Mo)	6.84E-05	5.20E-06	5.27E-02	6.82E-04	3.69E-03	1.27E-03	---	2.35E-03	6.08E-02
Nickel (Ni)	7.34E-04	1.95E-03	1.56E-02	1.20E-03	2.16E-02	2.63E-04	---	3.35E-04	4.16E-02
Selenium (Se)	1.52E-05	1.15E-06	4.10E-03	6.25E-03	5.78E-02	3.55E-05	---	1.68E-03	6.98E-02
Thallium (Tl)	2.48E-03	1.88E-04	8.04E-02	8.36E-03	3.80E-02	2.74E-03	---	2.39E-02	1.56E-01
Uranium (U)	8.46E-05	6.43E-06	1.89E-03	4.35E-05	4.04E-05	5.54E-07	---	3.91E-04	2.45E-03

Non-carcinogenic risk estimates for a Toddler in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	7.46E-02	6.41E-04	1.78E-01	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	2.56E-01
Antimony (Sb)	4.43E-03	3.81E-04	1.91E-02	2.92E-03	1.70E-03	2.71E-05	---	1.82E-02	4.67E-02
Arsenic (As)	8.99E-02	2.32E-03	1.65E-01	7.19E-03	1.95E-02	1.18E-03	---	6.06E-02	3.46E-01
Chromium (Cr)	1.58E-04	1.36E-05	1.69E-04	6.78E-05	4.35E-05	4.88E-06	---	1.21E-05	4.69E-04
Cobalt (Co)	5.83E-02	5.01E-04	1.31E-01	2.09E-03	4.22E-02	2.06E-02	---	1.82E-03	2.57E-01
Copper (Cu)	2.36E-03	1.22E-04	2.51E-02	2.51E-03	3.47E-03	4.32E-04	---	1.37E-01	1.71E-01
Lead (Pb)	4.37E-02	2.26E-04	1.34E-01	3.51E-03	2.53E-01	5.02E-05	---	1.82E-02	4.53E-01
Manganese (Mn)	1.95E-02	1.68E-04	7.69E-02	2.82E-04	7.38E-04	1.28E-04	---	3.38E-04	9.81E-02
Mercury (Hg)	6.82E-04	2.73E-04	8.32E-03	2.16E-03	1.02E-01	1.12E-04	---	2.42E-03	1.16E-01
Molybdenum (Mo)	9.91E-04	8.52E-06	1.16E-01	1.25E-03	7.20E-03	2.32E-03	---	5.09E-03	1.32E-01
Nickel (Ni)	1.06E-02	3.20E-03	2.71E-02	2.20E-03	4.21E-02	4.82E-04	---	7.27E-04	8.64E-02
Selenium (Se)	2.20E-04	1.89E-06	9.96E-03	1.14E-02	1.13E-01	6.50E-05	---	3.64E-03	1.38E-01
Thallium (Tl)	3.59E-02	3.08E-04	1.57E-01	1.53E-02	7.39E-02	5.01E-03	---	5.19E-02	3.39E-01
Uranium (U)	1.22E-03	1.05E-05	3.30E-03	7.96E-05	7.88E-05	1.01E-06	---	8.48E-04	5.54E-03

Carcinogenic Risk for a Resident at the Aberdeen Location under Project-Alone Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	Total Ingestion Exposure
	unitless	unitless	unitless	unitless	unitless	unitless	unitless	unitless
Arsenic (As)	8.42E-09	1.13E-09	8.40E-08	5.93E-08	7.66E-07	4.04E-09	---	9.23E-07

Notes:

Bold ILCR exceeds benchmark of 1 in 100,000

Lifetime Average Daily Dose for a Resident in Aberdeen under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	9.03E-03	4.03E-04	8.81E-02	2.11E-04	9.41E-04	2.28E-04	---	1.49E-04	9.91E-02
Antimony (Sb)	2.14E-07	9.56E-08	3.32E-06	6.36E-07	3.56E-07	5.89E-09	---	3.73E-06	8.35E-06
Arsenic (As)	3.27E-06	4.37E-07	2.38E-05	1.17E-06	3.08E-06	1.93E-07	---	9.32E-06	4.12E-05
Barium (Ba)	8.77E-05	3.91E-05	2.88E-03	3.71E-06	7.79E-06	1.44E-06	---	1.86E-04	3.21E-03
Chromium (Cr)	2.88E-05	1.28E-05	1.23E-04	5.53E-05	3.43E-05	3.98E-06	---	9.32E-06	2.68E-04
Cobalt (Co)	7.05E-06	3.15E-07	6.44E-05	1.14E-06	2.22E-05	1.12E-05	---	9.32E-07	1.07E-04
Copper (Cu)	2.60E-05	6.96E-06	1.02E-03	1.24E-04	1.66E-04	2.14E-05	---	6.39E-03	7.76E-03
Lead (Pb)	3.18E-06	8.50E-08	3.92E-05	1.15E-06	7.97E-05	1.64E-08	---	5.59E-06	1.29E-04
Manganese (Mn)	3.31E-04	1.48E-05	5.24E-03	2.15E-05	5.43E-05	9.73E-06	---	2.42E-05	5.69E-03
Mercury (Hg)	2.48E-08	5.15E-08	1.00E-06	3.52E-07	1.07E-05	1.83E-08	---	3.73E-07	1.25E-05
Molybdenum (Mo)	5.99E-07	2.68E-08	2.74E-04	3.40E-06	1.89E-05	6.31E-06	---	1.30E-05	3.16E-04
Nickel (Ni)	2.57E-05	4.01E-05	2.66E-04	2.39E-05	4.42E-04	5.24E-06	---	7.46E-06	8.10E-04
Selenium (Se)	1.33E-07	5.93E-09	2.00E-05	3.11E-05	2.95E-04	1.77E-07	---	9.32E-06	3.56E-04
Thallium (Tl)	6.08E-08	2.71E-09	9.94E-07	1.16E-07	5.44E-07	3.82E-08	---	3.73E-07	2.13E-06
Uranium (U)	4.45E-07	1.98E-08	4.84E-06	1.30E-07	1.24E-07	1.65E-09	---	1.30E-06	6.86E-06
Vanadium (V)	4.39E-05	1.96E-05	3.58E-04	7.68E-06	6.12E-06	2.24E-06	---	3.73E-05	4.75E-04

Total Daily Intake Rates for an Adult in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.01E-03	4.29E-04	6.81E-03	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	1.30E-02
Antimony (Sb)	9.34E-08	7.99E-08	1.62E-06	5.15E-07	3.14E-07	5.06E-09	---	4.24E-06	6.87E-06
Arsenic (As)	1.39E-06	3.57E-07	3.53E-06	1.03E-06	2.26E-06	1.72E-07	---	1.06E-05	1.93E-05
Chromium (Cr)	1.23E-05	1.05E-05	2.72E-05	4.99E-05	6.28E-06	3.58E-06	---	1.06E-05	1.20E-04
Cobalt (Co)	3.82E-06	3.27E-07	1.25E-05	1.03E-06	9.20E-06	1.01E-05	---	1.06E-06	3.80E-05
Copper (Cu)	1.36E-05	7.00E-06	8.77E-04	1.07E-04	8.32E-05	1.93E-05	---	7.28E-03	8.38E-03
Lead (Pb)	3.54E-06	1.82E-07	6.99E-06	1.03E-06	4.95E-05	1.47E-08	---	6.36E-06	6.76E-05
Manganese (Mn)	1.37E-04	1.17E-05	3.69E-03	1.83E-05	3.64E-05	8.72E-06	---	2.76E-05	3.93E-03
Mercury (Hg)	9.73E-09	3.88E-08	8.09E-07	3.09E-07	8.93E-06	1.60E-08	---	4.24E-07	1.05E-05
Molybdenum (Mo)	4.27E-07	3.66E-08	1.71E-04	3.06E-06	8.98E-06	5.67E-06	---	1.49E-05	2.04E-04
Nickel (Ni)	1.06E-05	3.16E-05	4.44E-05	2.16E-05	2.40E-04	4.72E-06	---	8.49E-06	3.62E-04
Selenium (Se)	1.19E-07	1.02E-08	1.93E-05	2.78E-05	1.47E-04	1.58E-07	---	1.06E-05	2.05E-04
Thallium (Tl)	5.91E-08	5.06E-09	3.45E-07	1.03E-07	4.79E-07	3.38E-08	---	4.24E-07	1.45E-06
Uranium (U)	3.93E-07	3.37E-08	9.27E-07	1.03E-07	8.79E-08	1.27E-09	---	1.49E-06	3.03E-06

Total Daily Intake Rates for a Child in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	1.08E-02	5.62E-04	1.15E-02	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	2.39E-02
Antimony (Sb)	2.01E-07	1.05E-07	3.20E-06	7.48E-07	5.47E-07	7.35E-09	---	4.86E-06	9.67E-06
Arsenic (As)	2.99E-06	4.69E-07	6.85E-06	1.50E-06	3.94E-06	2.50E-07	---	1.22E-05	2.82E-05
Chromium (Cr)	2.64E-05	1.38E-05	4.91E-05	7.25E-05	1.09E-05	5.20E-06	---	1.22E-05	1.90E-04
Cobalt (Co)	8.21E-06	4.29E-07	2.48E-05	1.50E-06	1.60E-05	1.47E-05	---	1.22E-06	6.69E-05
Copper (Cu)	2.93E-05	9.19E-06	1.75E-03	1.56E-04	1.45E-04	2.80E-05	---	8.34E-03	1.05E-02
Lead (Pb)	7.60E-06	2.38E-07	1.27E-05	1.50E-06	8.62E-05	2.14E-08	---	7.29E-06	1.16E-04
Manganese (Mn)	2.94E-04	1.53E-05	6.10E-03	2.65E-05	6.35E-05	1.27E-05	---	3.16E-05	6.54E-03
Mercury (Hg)	2.09E-08	5.09E-08	1.60E-06	4.49E-07	1.56E-05	2.33E-08	---	4.86E-07	1.82E-05
Molybdenum (Mo)	9.18E-07	4.80E-08	2.78E-04	4.45E-06	1.56E-05	8.23E-06	---	1.70E-05	3.24E-04
Nickel (Ni)	2.27E-05	4.15E-05	9.11E-05	3.14E-05	4.19E-04	6.85E-06	---	9.73E-06	6.22E-04
Selenium (Se)	2.55E-07	1.33E-08	3.68E-05	4.04E-05	2.56E-04	2.30E-07	---	1.22E-05	3.46E-04
Thallium (Tl)	1.27E-07	6.64E-09	6.73E-07	1.50E-07	8.34E-07	4.91E-08	---	4.86E-07	2.33E-06
Uranium (U)	8.45E-07	4.42E-08	1.64E-06	1.50E-07	1.53E-07	1.85E-09	---	1.70E-06	4.54E-06

Total Daily Intake Rates for an Infant in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.32E-02	1.01E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	4.45E-02
Antimony (Sb)	8.05E-07	1.88E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.31E-06
Arsenic (As)	1.20E-05	8.39E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	3.11E-05
Chromium (Cr)	1.06E-04	2.47E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.49E-04
Cobalt (Co)	3.29E-05	7.67E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	3.55E-05
Copper (Cu)	1.18E-04	1.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.27E-02
Lead (Pb)	3.05E-05	4.26E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	4.19E-05
Manganese (Mn)	1.18E-03	2.74E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.25E-03
Mercury (Hg)	8.39E-08	9.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.07E-07
Molybdenum (Mo)	3.68E-06	8.58E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.94E-05
Nickel (Ni)	9.10E-05	7.42E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	1.80E-04
Selenium (Se)	1.02E-06	2.39E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.93E-05
Thallium (Tl)	5.10E-07	1.19E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	1.25E-06
Uranium (U)	3.39E-06	7.90E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	6.03E-06

Total Daily Intake Rates for a Teen in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.93E-03	4.51E-04	8.29E-03	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.54E-02
Antimony (Sb)	1.11E-07	8.40E-08	2.03E-06	5.70E-07	3.48E-07	5.59E-09	---	3.35E-06	6.49E-06
Arsenic (As)	1.65E-06	3.76E-07	4.36E-06	1.14E-06	2.51E-06	1.91E-07	---	8.38E-06	1.86E-05
Chromium (Cr)	1.45E-05	1.10E-05	3.31E-05	5.52E-05	6.97E-06	3.96E-06	---	8.38E-06	1.33E-04
Cobalt (Co)	4.52E-06	3.44E-07	1.54E-05	1.14E-06	1.02E-05	1.12E-05	---	8.38E-07	4.36E-05
Copper (Cu)	1.61E-05	7.36E-06	1.09E-03	1.18E-04	9.23E-05	2.13E-05	---	5.75E-03	7.09E-03
Lead (Pb)	4.19E-06	1.91E-07	8.63E-06	1.14E-06	5.49E-05	1.63E-08	---	5.03E-06	7.41E-05
Manganese (Mn)	1.62E-04	1.23E-05	4.19E-03	2.02E-05	4.04E-05	9.65E-06	---	2.18E-05	4.45E-03
Mercury (Hg)	1.15E-08	4.08E-08	1.01E-06	3.42E-07	9.91E-06	1.77E-08	---	3.35E-07	1.17E-05
Molybdenum (Mo)	5.06E-07	3.84E-08	1.85E-04	3.39E-06	9.96E-06	6.27E-06	---	1.17E-05	2.17E-04
Nickel (Ni)	1.25E-05	3.32E-05	5.44E-05	2.39E-05	2.67E-04	5.22E-06	---	6.70E-06	4.03E-04
Selenium (Se)	1.41E-07	1.07E-08	2.35E-05	3.08E-05	1.63E-04	1.75E-07	---	8.38E-06	2.26E-04
Thallium (Tl)	7.00E-08	5.32E-09	4.27E-07	1.14E-07	5.31E-07	3.74E-08	---	3.35E-07	1.52E-06
Uranium (U)	4.66E-07	3.54E-08	1.13E-06	1.14E-07	9.76E-08	1.41E-09	---	1.17E-06	3.02E-06

Total Daily Intake Rates for a Toddler in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.58E-02	7.38E-04	1.55E-02	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	1.03E-01
Antimony (Sb)	1.60E-06	1.38E-07	4.92E-06	1.04E-06	6.79E-07	1.02E-08	---	7.27E-06	1.57E-05
Arsenic (As)	2.39E-05	6.15E-07	1.05E-05	2.08E-06	4.89E-06	3.49E-07	---	1.82E-05	6.04E-05
Chromium (Cr)	2.10E-04	1.81E-05	7.08E-05	1.01E-04	1.36E-05	7.24E-06	---	1.82E-05	4.39E-04
Cobalt (Co)	6.55E-05	5.63E-07	3.87E-05	2.08E-06	1.99E-05	2.05E-05	---	1.82E-06	1.49E-04
Copper (Cu)	2.34E-04	1.21E-05	2.72E-03	2.17E-04	1.80E-04	3.90E-05	---	1.25E-02	1.59E-02
Lead (Pb)	6.06E-05	3.13E-07	1.82E-05	2.08E-06	1.07E-04	2.99E-08	---	1.09E-05	1.99E-04
Manganese (Mn)	2.34E-03	2.01E-05	8.43E-03	3.70E-05	7.87E-05	1.77E-05	---	4.73E-05	1.10E-02
Mercury (Hg)	1.67E-07	6.68E-08	2.46E-06	6.25E-07	1.93E-05	3.25E-08	---	7.27E-07	2.34E-05
Molybdenum (Mo)	7.32E-06	6.30E-08	3.90E-04	6.20E-06	1.94E-05	1.15E-05	---	2.55E-05	4.60E-04
Nickel (Ni)	1.81E-04	5.44E-05	1.46E-04	4.38E-05	5.19E-04	9.56E-06	---	1.45E-05	9.68E-04
Selenium (Se)	2.04E-06	1.75E-08	5.57E-05	5.63E-05	3.18E-04	3.21E-07	---	1.82E-05	4.51E-04
Thallium (Tl)	1.01E-06	8.71E-09	1.03E-06	2.08E-07	1.04E-06	6.85E-08	---	7.27E-07	4.09E-06
Uranium (U)	6.74E-06	5.80E-08	2.32E-06	2.08E-07	1.90E-07	2.58E-09	---	2.55E-06	1.21E-05

Non-carcinogenic risk estimates for an Adult in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.01E-03	4.29E-04	6.81E-03	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	1.30E-02
Antimony (Sb)	2.33E-04	2.00E-04	4.05E-03	1.29E-03	7.85E-04	1.26E-05	---	1.06E-02	1.72E-02
Arsenic (As)	4.64E-03	1.19E-03	1.18E-02	3.43E-03	7.54E-03	5.75E-04	---	3.54E-02	6.45E-02
Chromium (Cr)	8.18E-06	7.01E-06	1.81E-05	3.33E-05	4.19E-06	2.39E-06	---	7.07E-06	8.02E-05
Cobalt (Co)	3.82E-03	3.27E-04	1.25E-02	1.03E-03	9.20E-03	1.01E-02	---	1.06E-03	3.80E-02
Copper (Cu)	9.67E-05	4.97E-05	6.22E-03	7.59E-04	5.90E-04	1.37E-04	---	5.16E-02	5.95E-02
Lead (Pb)	2.72E-03	1.40E-04	5.37E-03	7.92E-04	3.80E-02	1.13E-05	---	4.90E-03	5.20E-02
Manganese (Mn)	9.76E-04	8.35E-05	2.63E-02	1.31E-04	2.60E-04	6.23E-05	---	1.97E-04	2.81E-02
Mercury (Hg)	3.24E-05	1.29E-04	2.70E-03	1.03E-03	4.47E-02	5.35E-05	---	1.41E-03	5.00E-02
Molybdenum (Mo)	8.54E-05	7.31E-06	3.41E-02	6.13E-04	1.80E-03	1.13E-03	---	2.97E-03	4.08E-02
Nickel (Ni)	5.28E-04	1.58E-03	2.22E-03	1.08E-03	1.20E-02	2.36E-04	---	4.24E-04	1.81E-02
Selenium (Se)	2.38E-05	2.03E-06	3.86E-03	5.56E-03	2.94E-02	3.17E-05	---	2.12E-03	4.10E-02
Thallium (Tl)	4.22E-03	3.61E-04	2.46E-02	7.36E-03	3.42E-02	2.42E-03	---	3.03E-02	1.04E-01
Uranium (U)	1.31E-04	1.12E-05	3.09E-04	3.43E-05	2.93E-05	4.25E-07	---	4.95E-04	1.01E-03

Non-carcinogenic risk estimates for a Child in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	1.08E-02	5.62E-04	1.15E-02	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	2.39E-02
Antimony (Sb)	5.02E-04	2.62E-04	8.01E-03	1.87E-03	1.37E-03	1.84E-05	---	1.22E-02	2.42E-02
Arsenic (As)	9.97E-03	1.56E-03	2.28E-02	4.98E-03	1.31E-02	8.35E-04	---	4.05E-02	9.39E-02
Chromium (Cr)	1.76E-05	9.19E-06	3.27E-05	4.84E-05	7.29E-06	3.46E-06	---	8.11E-06	1.27E-04
Cobalt (Co)	8.21E-03	4.29E-04	2.48E-02	1.50E-03	1.60E-02	1.47E-02	---	1.22E-03	6.69E-02
Copper (Cu)	2.66E-04	8.35E-05	1.59E-02	1.41E-03	1.32E-03	2.55E-04	---	7.58E-02	9.51E-02
Lead (Pb)	1.27E-02	3.97E-04	2.12E-02	2.49E-03	1.44E-01	3.57E-05	---	1.22E-02	1.93E-01
Manganese (Mn)	2.10E-03	1.10E-04	4.36E-02	1.90E-04	4.53E-04	9.05E-05	---	2.26E-04	4.67E-02
Mercury (Hg)	6.97E-05	1.70E-04	5.34E-03	1.50E-03	7.78E-02	7.76E-05	---	1.62E-03	8.66E-02
Molybdenum (Mo)	1.84E-04	9.59E-06	5.56E-02	8.90E-04	3.13E-03	1.65E-03	---	3.40E-03	6.49E-02
Nickel (Ni)	1.13E-03	2.07E-03	4.56E-03	1.57E-03	2.09E-02	3.43E-04	---	4.86E-04	3.11E-02
Selenium (Se)	5.11E-05	2.67E-06	7.36E-03	8.08E-03	5.13E-02	4.60E-05	---	2.43E-03	6.92E-02
Thallium (Tl)	9.08E-03	4.74E-04	4.81E-02	1.07E-02	5.96E-02	3.51E-03	---	3.47E-02	1.66E-01
Uranium (U)	2.82E-04	1.47E-05	5.48E-04	4.98E-05	5.11E-05	6.17E-07	---	5.67E-04	1.51E-03

Non-carcinogenic risk for estimates an Infant in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.32E-02	1.01E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	4.45E-02
Antimony (Sb)	2.01E-03	4.69E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.08E-02
Arsenic (As)	4.00E-02	2.80E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	1.04E-01
Chromium (Cr)	7.06E-05	1.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	9.92E-05
Cobalt (Co)	3.29E-02	7.67E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	3.55E-02
Copper (Cu)	1.29E-03	1.81E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.39E-01
Lead (Pb)	5.08E-02	7.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	6.98E-02
Manganese (Mn)	8.41E-03	1.96E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	8.95E-03
Mercury (Hg)	2.80E-04	3.04E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	3.02E-03
Molybdenum (Mo)	7.37E-04	1.72E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.88E-03
Nickel (Ni)	4.55E-03	3.71E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	8.99E-03
Selenium (Se)	2.05E-04	4.77E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.87E-03
Thallium (Tl)	3.64E-02	8.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	8.95E-02
Uranium (U)	1.13E-03	2.63E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	2.01E-03

Non-carcinogenic risk estimates for a Teen in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.93E-03	4.51E-04	8.29E-03	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.54E-02
Antimony (Sb)	2.76E-04	2.10E-04	5.07E-03	1.42E-03	8.71E-04	1.40E-05	---	8.38E-03	1.62E-02
Arsenic (As)	5.49E-03	1.25E-03	1.45E-02	3.80E-03	8.36E-03	6.36E-04	---	2.79E-02	6.20E-02
Chromium (Cr)	9.69E-06	7.37E-06	2.20E-05	3.68E-05	4.65E-06	2.64E-06	---	5.58E-06	8.88E-05
Cobalt (Co)	4.52E-03	3.44E-04	1.54E-02	1.14E-03	1.02E-02	1.12E-02	---	8.38E-04	4.36E-02
Copper (Cu)	1.28E-04	5.84E-05	8.68E-03	9.40E-04	7.33E-04	1.69E-04	---	4.56E-02	5.63E-02
Lead (Pb)	3.22E-03	1.47E-04	6.64E-03	8.76E-04	4.22E-02	1.25E-05	---	3.87E-03	5.70E-02
Manganese (Mn)	1.16E-03	8.78E-05	2.99E-02	1.44E-04	2.89E-04	6.89E-05	---	1.56E-04	3.18E-02
Mercury (Hg)	3.84E-05	1.36E-04	3.38E-03	1.14E-03	4.96E-02	5.91E-05	---	1.12E-03	5.54E-02
Molybdenum (Mo)	1.01E-04	7.69E-06	3.70E-02	6.78E-04	1.99E-03	1.25E-03	---	2.35E-03	4.34E-02
Nickel (Ni)	6.25E-04	1.66E-03	2.72E-03	1.20E-03	1.33E-02	2.61E-04	---	3.35E-04	2.01E-02
Selenium (Se)	2.81E-05	2.14E-06	4.70E-03	6.15E-03	3.26E-02	3.51E-05	---	1.68E-03	4.52E-02
Thallium (Tl)	5.00E-03	3.80E-04	3.05E-02	8.14E-03	3.80E-02	2.67E-03	---	2.39E-02	1.09E-01
Uranium (U)	1.55E-04	1.18E-05	3.76E-04	3.80E-05	3.25E-05	4.70E-07	---	3.91E-04	1.01E-03

Non-carcinogenic risk estimates for a Toddler in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	8.58E-02	7.38E-04	1.55E-02	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	1.03E-01
Antimony (Sb)	4.00E-03	3.44E-04	1.23E-02	2.61E-03	1.70E-03	2.56E-05	---	1.82E-02	3.92E-02
Arsenic (As)	7.95E-02	2.05E-03	3.48E-02	6.95E-03	1.63E-02	1.16E-03	---	6.06E-02	2.01E-01
Chromium (Cr)	1.40E-04	1.21E-05	4.72E-05	6.74E-05	9.05E-06	4.83E-06	---	1.21E-05	2.93E-04
Cobalt (Co)	6.55E-02	5.63E-04	3.87E-02	2.08E-03	1.99E-02	2.05E-02	---	1.82E-03	1.49E-01
Copper (Cu)	2.57E-03	1.33E-04	2.99E-02	2.38E-03	1.98E-03	4.29E-04	---	1.37E-01	1.74E-01
Lead (Pb)	1.01E-01	5.21E-04	3.04E-02	3.47E-03	1.78E-01	4.98E-05	---	1.82E-02	3.32E-01
Manganese (Mn)	1.67E-02	1.44E-04	6.02E-02	2.64E-04	5.62E-04	1.26E-04	---	3.38E-04	7.84E-02
Mercury (Hg)	5.56E-04	2.23E-04	8.20E-03	2.08E-03	9.66E-02	1.08E-04	---	2.42E-03	1.10E-01
Molybdenum (Mo)	1.46E-03	1.26E-05	7.80E-02	1.24E-03	3.88E-03	2.30E-03	---	5.09E-03	9.20E-02
Nickel (Ni)	9.04E-03	2.72E-03	7.29E-03	2.19E-03	2.60E-02	4.78E-04	---	7.27E-04	4.84E-02
Selenium (Se)	4.07E-04	3.50E-06	1.11E-02	1.13E-02	6.36E-02	6.42E-05	---	3.64E-03	9.01E-02
Thallium (Tl)	7.24E-02	6.22E-04	7.35E-02	1.49E-02	7.39E-02	4.89E-03	---	5.19E-02	2.92E-01
Uranium (U)	2.25E-03	1.93E-05	7.74E-04	6.95E-05	6.34E-05	8.60E-07	---	8.48E-04	4.02E-03

Lifetime Average Daily Dose for a Resident in Brocklehurst under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	1.04E-02	4.64E-04	7.82E-03	2.10E-04	1.78E-04	2.26E-04	---	1.49E-04	1.94E-02
Antimony (Sb)	1.94E-07	8.64E-08	1.97E-06	5.67E-07	3.56E-07	5.57E-09	---	3.73E-06	6.91E-06
Arsenic (As)	2.89E-06	3.87E-07	4.27E-06	1.13E-06	2.57E-06	1.90E-07	---	9.32E-06	2.08E-05
Barium (Ba)	8.45E-05	3.77E-05	1.77E-03	3.69E-06	5.76E-06	1.44E-06	---	1.86E-04	2.09E-03
Chromium (Cr)	2.55E-05	1.14E-05	3.20E-05	5.50E-05	7.13E-06	3.94E-06	---	9.32E-06	1.44E-04
Cobalt (Co)	7.92E-06	3.54E-07	1.53E-05	1.13E-06	1.04E-05	1.11E-05	---	9.32E-07	4.72E-05
Copper (Cu)	2.83E-05	7.57E-06	1.07E-03	1.18E-04	9.44E-05	2.12E-05	---	6.39E-03	7.74E-03
Lead (Pb)	7.34E-06	1.96E-07	8.24E-06	1.13E-06	5.61E-05	1.62E-08	---	5.59E-06	7.86E-05
Manganese (Mn)	2.83E-04	1.26E-05	4.19E-03	2.01E-05	4.13E-05	9.61E-06	---	2.42E-05	4.58E-03
Mercury (Hg)	2.02E-08	4.20E-08	9.87E-07	3.40E-07	1.01E-05	1.77E-08	---	3.73E-07	1.19E-05
Molybdenum (Mo)	8.86E-07	3.95E-08	1.93E-04	3.37E-06	1.02E-05	6.25E-06	---	1.30E-05	2.27E-04
Nickel (Ni)	2.19E-05	3.42E-05	5.49E-05	2.38E-05	2.73E-04	5.20E-06	---	7.46E-06	4.20E-04
Selenium (Se)	2.46E-07	1.10E-08	2.32E-05	3.06E-05	1.67E-04	1.75E-07	---	9.32E-06	2.31E-04
Thallium (Tl)	1.23E-07	5.47E-09	4.18E-07	1.13E-07	5.44E-07	3.73E-08	---	3.73E-07	1.61E-06
Uranium (U)	8.16E-07	3.64E-08	1.08E-06	1.13E-07	9.98E-08	1.40E-09	---	1.30E-06	3.45E-06
Vanadium (V)	2.76E-05	1.23E-05	2.11E-05	7.66E-06	4.10E-06	2.22E-06	---	3.73E-05	1.12E-04

Total Daily Intake Rates for an Adult in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.01E-03	4.29E-04	6.81E-03	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	1.36E-02
Antimony (Sb)	9.34E-08	8.00E-08	1.62E-06	5.78E-07	3.14E-07	5.35E-09	---	4.24E-06	6.93E-06
Arsenic (As)	1.39E-06	3.57E-07	3.53E-06	1.07E-06	2.71E-06	1.75E-07	---	1.06E-05	1.98E-05
Chromium (Cr)	1.23E-05	1.05E-05	2.72E-05	5.02E-05	3.02E-05	3.62E-06	---	1.06E-05	1.45E-04
Cobalt (Co)	3.82E-06	3.27E-07	1.25E-05	1.03E-06	1.95E-05	1.02E-05	---	1.06E-06	4.84E-05
Copper (Cu)	1.36E-05	7.00E-06	8.77E-04	1.13E-04	1.46E-04	1.94E-05	---	7.28E-03	8.45E-03
Lead (Pb)	3.54E-06	1.82E-07	6.99E-06	1.04E-06	7.02E-05	1.49E-08	---	6.36E-06	8.84E-05
Manganese (Mn)	1.37E-04	1.17E-05	3.69E-03	1.95E-05	4.78E-05	8.83E-06	---	2.76E-05	3.94E-03
Mercury (Hg)	9.75E-09	3.89E-08	8.10E-07	3.20E-07	9.44E-06	1.66E-08	---	4.24E-07	1.11E-05
Molybdenum (Mo)	4.27E-07	3.66E-08	1.71E-04	3.08E-06	1.66E-05	5.73E-06	---	1.49E-05	2.12E-04
Nickel (Ni)	1.06E-05	3.16E-05	4.44E-05	2.17E-05	3.89E-04	4.76E-06	---	8.49E-06	5.11E-04
Selenium (Se)	1.19E-07	1.02E-08	1.93E-05	2.82E-05	2.60E-04	1.61E-07	---	1.06E-05	3.19E-04
Thallium (Tl)	5.91E-08	5.06E-09	3.45E-07	1.06E-07	4.79E-07	3.46E-08	---	4.24E-07	1.45E-06
Uranium (U)	3.93E-07	3.37E-08	9.27E-07	1.18E-07	1.09E-07	1.50E-09	---	1.49E-06	3.07E-06

Total Daily Intake Rates for a Child in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	1.08E-02	5.62E-04	1.15E-02	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	2.51E-02
Antimony (Sb)	2.01E-07	1.05E-07	3.21E-06	8.39E-07	5.47E-07	7.76E-09	---	4.86E-06	9.77E-06
Arsenic (As)	2.99E-06	4.69E-07	6.85E-06	1.55E-06	4.72E-06	2.54E-07	---	1.22E-05	2.90E-05
Chromium (Cr)	2.64E-05	1.38E-05	4.91E-05	7.30E-05	5.26E-05	5.25E-06	---	1.22E-05	2.32E-04
Cobalt (Co)	8.21E-06	4.29E-07	2.48E-05	1.50E-06	3.40E-05	1.48E-05	---	1.22E-06	8.50E-05
Copper (Cu)	2.93E-05	9.19E-06	1.75E-03	1.64E-04	2.54E-04	2.82E-05	---	8.34E-03	1.06E-02
Lead (Pb)	7.60E-06	2.38E-07	1.27E-05	1.51E-06	1.22E-04	2.16E-08	---	7.29E-06	1.52E-04
Manganese (Mn)	2.94E-04	1.53E-05	6.10E-03	2.84E-05	8.33E-05	1.28E-05	---	3.16E-05	6.56E-03
Mercury (Hg)	2.09E-08	5.10E-08	1.60E-06	4.64E-07	1.65E-05	2.41E-08	---	4.86E-07	1.91E-05
Molybdenum (Mo)	9.18E-07	4.80E-08	2.78E-04	4.48E-06	2.90E-05	8.32E-06	---	1.70E-05	3.38E-04
Nickel (Ni)	2.27E-05	4.15E-05	9.11E-05	3.15E-05	6.78E-04	6.91E-06	---	9.73E-06	8.82E-04
Selenium (Se)	2.55E-07	1.33E-08	3.68E-05	4.10E-05	4.53E-04	2.33E-07	---	1.22E-05	5.44E-04
Thallium (Tl)	1.27E-07	6.64E-09	6.74E-07	1.54E-07	8.34E-07	5.03E-08	---	4.86E-07	2.33E-06
Uranium (U)	8.45E-07	4.42E-08	1.64E-06	1.71E-07	1.90E-07	2.18E-09	---	1.70E-06	4.60E-06

Total Daily Intake Rates for an Infant in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.32E-02	1.01E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	4.45E-02
Antimony (Sb)	8.05E-07	1.88E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.31E-06
Arsenic (As)	1.20E-05	8.39E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	3.11E-05
Chromium (Cr)	1.06E-04	2.47E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.49E-04
Cobalt (Co)	3.29E-05	7.67E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	3.55E-05
Copper (Cu)	1.18E-04	1.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.27E-02
Lead (Pb)	3.05E-05	4.26E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	4.19E-05
Manganese (Mn)	1.18E-03	2.74E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.25E-03
Mercury (Hg)	8.41E-08	9.13E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.07E-07
Molybdenum (Mo)	3.68E-06	8.58E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.94E-05
Nickel (Ni)	9.10E-05	7.42E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	1.80E-04
Selenium (Se)	1.02E-06	2.39E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.93E-05
Thallium (Tl)	5.10E-07	1.19E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	1.25E-06
Uranium (U)	3.39E-06	7.90E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	6.03E-06

Total Daily Intake Rates for a Teen in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.93E-03	4.51E-04	8.29E-03	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.62E-02
Antimony (Sb)	1.11E-07	8.41E-08	2.03E-06	6.39E-07	3.48E-07	5.91E-09	---	3.35E-06	6.57E-06
Arsenic (As)	1.65E-06	3.76E-07	4.36E-06	1.18E-06	3.01E-06	1.93E-07	---	8.38E-06	1.91E-05
Chromium (Cr)	1.45E-05	1.11E-05	3.31E-05	5.56E-05	3.35E-05	4.00E-06	---	8.38E-06	1.60E-04
Cobalt (Co)	4.52E-06	3.44E-07	1.54E-05	1.14E-06	2.17E-05	1.12E-05	---	8.38E-07	5.51E-05
Copper (Cu)	1.62E-05	7.36E-06	1.09E-03	1.25E-04	1.62E-04	2.15E-05	---	5.75E-03	7.17E-03
Lead (Pb)	4.19E-06	1.91E-07	8.63E-06	1.15E-06	7.79E-05	1.65E-08	---	5.03E-06	9.71E-05
Manganese (Mn)	1.62E-04	1.23E-05	4.19E-03	2.16E-05	5.30E-05	9.77E-06	---	2.18E-05	4.47E-03
Mercury (Hg)	1.15E-08	4.09E-08	1.01E-06	3.54E-07	1.05E-05	1.84E-08	---	3.35E-07	1.23E-05
Molybdenum (Mo)	5.06E-07	3.85E-08	1.85E-04	3.41E-06	1.85E-05	6.34E-06	---	1.17E-05	2.26E-04
Nickel (Ni)	1.25E-05	3.32E-05	5.44E-05	2.40E-05	4.32E-04	5.26E-06	---	6.70E-06	5.68E-04
Selenium (Se)	1.41E-07	1.07E-08	2.35E-05	3.12E-05	2.89E-04	1.78E-07	---	8.38E-06	3.52E-04
Thallium (Tl)	7.00E-08	5.32E-09	4.28E-07	1.17E-07	5.31E-07	3.83E-08	---	3.35E-07	1.52E-06
Uranium (U)	4.66E-07	3.54E-08	1.13E-06	1.31E-07	1.21E-07	1.66E-09	---	1.17E-06	3.06E-06

Total Daily Intake Rates for a Toddler in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.58E-02	7.38E-04	1.55E-02	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	1.05E-01
Antimony (Sb)	1.60E-06	1.38E-07	4.92E-06	1.17E-06	6.79E-07	1.08E-08	---	7.27E-06	1.58E-05
Arsenic (As)	2.39E-05	6.15E-07	1.05E-05	2.16E-06	5.86E-06	3.54E-07	---	1.82E-05	6.15E-05
Chromium (Cr)	2.10E-04	1.81E-05	7.08E-05	1.02E-04	6.53E-05	7.32E-06	---	1.82E-05	4.92E-04
Cobalt (Co)	6.55E-05	5.63E-07	3.87E-05	2.09E-06	4.22E-05	2.06E-05	---	1.82E-06	1.71E-04
Copper (Cu)	2.34E-04	1.21E-05	2.72E-03	2.29E-04	3.16E-04	3.93E-05	---	1.25E-02	1.60E-02
Lead (Pb)	6.06E-05	3.13E-07	1.82E-05	2.11E-06	1.52E-04	3.01E-08	---	1.09E-05	2.44E-04
Manganese (Mn)	2.34E-03	2.01E-05	8.43E-03	3.95E-05	1.03E-04	1.79E-05	---	4.73E-05	1.10E-02
Mercury (Hg)	1.67E-07	6.70E-08	2.46E-06	6.47E-07	2.04E-05	3.37E-08	---	7.27E-07	2.45E-05
Molybdenum (Mo)	7.32E-06	6.30E-08	3.90E-04	6.24E-06	3.60E-05	1.16E-05	---	2.55E-05	4.77E-04
Nickel (Ni)	1.81E-04	5.44E-05	1.46E-04	4.39E-05	8.42E-04	9.64E-06	---	1.45E-05	1.29E-03
Selenium (Se)	2.04E-06	1.75E-08	5.57E-05	5.72E-05	5.63E-04	3.25E-07	---	1.82E-05	6.96E-04
Thallium (Tl)	1.01E-06	8.72E-09	1.03E-06	2.14E-07	1.04E-06	7.01E-08	---	7.27E-07	4.10E-06
Uranium (U)	6.74E-06	5.80E-08	2.32E-06	2.39E-07	2.36E-07	3.04E-09	---	2.55E-06	1.21E-05

Non-carcinogenic risk estimates for an Adult in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.01E-03	4.29E-04	6.81E-03	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	1.36E-02
Antimony (Sb)	2.34E-04	2.00E-04	4.05E-03	1.44E-03	7.85E-04	1.34E-05	---	1.06E-02	1.73E-02
Arsenic (As)	4.64E-03	1.19E-03	1.18E-02	3.55E-03	9.04E-03	5.83E-04	---	3.54E-02	6.61E-02
Chromium (Cr)	8.19E-06	7.01E-06	1.81E-05	3.35E-05	2.01E-05	2.41E-06	---	7.07E-06	9.64E-05
Cobalt (Co)	3.82E-03	3.27E-04	1.25E-02	1.03E-03	1.95E-02	1.02E-02	---	1.06E-03	4.84E-02
Copper (Cu)	9.67E-05	4.97E-05	6.22E-03	8.02E-04	1.04E-03	1.38E-04	---	5.16E-02	5.99E-02
Lead (Pb)	2.72E-03	1.40E-04	5.37E-03	8.00E-04	5.40E-02	1.14E-05	---	4.90E-03	6.80E-02
Manganese (Mn)	9.76E-04	8.35E-05	2.63E-02	1.39E-04	3.42E-04	6.31E-05	---	1.97E-04	2.81E-02
Mercury (Hg)	3.25E-05	1.30E-04	2.70E-03	1.07E-03	4.72E-02	5.54E-05	---	1.41E-03	5.26E-02
Molybdenum (Mo)	8.54E-05	7.31E-06	3.42E-02	6.17E-04	3.33E-03	1.15E-03	---	2.97E-03	4.23E-02
Nickel (Ni)	5.28E-04	1.58E-03	2.22E-03	1.08E-03	1.95E-02	2.38E-04	---	4.24E-04	2.55E-02
Selenium (Se)	2.38E-05	2.03E-06	3.86E-03	5.65E-03	5.21E-02	3.21E-05	---	2.12E-03	6.37E-02
Thallium (Tl)	4.22E-03	3.62E-04	2.46E-02	7.55E-03	3.42E-02	2.47E-03	---	3.03E-02	1.04E-01
Uranium (U)	1.31E-04	1.12E-05	3.09E-04	3.93E-05	3.64E-05	5.01E-07	---	4.95E-04	1.02E-03

Non-carcinogenic risk estimates for a Child in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	1.08E-02	5.62E-04	1.15E-02	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	2.51E-02
Antimony (Sb)	5.02E-04	2.62E-04	8.01E-03	2.10E-03	1.37E-03	1.94E-05	---	1.22E-02	2.44E-02
Arsenic (As)	9.97E-03	1.56E-03	2.28E-02	5.16E-03	1.57E-02	8.46E-04	---	4.05E-02	9.67E-02
Chromium (Cr)	1.76E-05	9.19E-06	3.27E-05	4.86E-05	3.51E-05	3.50E-06	---	8.11E-06	1.55E-04
Cobalt (Co)	8.21E-03	4.29E-04	2.48E-02	1.50E-03	3.40E-02	1.48E-02	---	1.22E-03	8.50E-02
Copper (Cu)	2.66E-04	8.35E-05	1.59E-02	1.49E-03	2.31E-03	2.57E-04	---	7.58E-02	9.62E-02
Lead (Pb)	1.27E-02	3.97E-04	2.12E-02	2.52E-03	2.04E-01	3.60E-05	---	1.22E-02	2.53E-01
Manganese (Mn)	2.10E-03	1.10E-04	4.36E-02	2.03E-04	5.95E-04	9.16E-05	---	2.26E-04	4.69E-02
Mercury (Hg)	6.98E-05	1.70E-04	5.34E-03	1.55E-03	8.23E-02	8.05E-05	---	1.62E-03	9.11E-02
Molybdenum (Mo)	1.84E-04	9.59E-06	5.56E-02	8.96E-04	5.80E-03	1.66E-03	---	3.40E-03	6.76E-02
Nickel (Ni)	1.13E-03	2.07E-03	4.56E-03	1.58E-03	3.39E-02	3.46E-04	---	4.86E-04	4.41E-02
Selenium (Se)	5.11E-05	2.67E-06	7.36E-03	8.20E-03	9.07E-02	4.66E-05	---	2.43E-03	1.09E-01
Thallium (Tl)	9.08E-03	4.74E-04	4.81E-02	1.10E-02	5.96E-02	3.59E-03	---	3.47E-02	1.67E-01
Uranium (U)	2.82E-04	1.47E-05	5.48E-04	5.71E-05	6.35E-05	7.27E-07	---	5.67E-04	1.53E-03

Non-carcinogenic risk for estimates an Infant in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.32E-02	1.01E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	4.45E-02
Antimony (Sb)	2.01E-03	4.69E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.08E-02
Arsenic (As)	4.00E-02	2.80E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	1.04E-01
Chromium (Cr)	7.06E-05	1.64E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	9.92E-05
Cobalt (Co)	3.29E-02	7.67E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	3.55E-02
Copper (Cu)	1.29E-03	1.81E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.39E-01
Lead (Pb)	5.08E-02	7.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	6.98E-02
Manganese (Mn)	8.41E-03	1.96E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	8.95E-03
Mercury (Hg)	2.80E-04	3.04E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	3.02E-03
Molybdenum (Mo)	7.37E-04	1.72E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.88E-03
Nickel (Ni)	4.55E-03	3.71E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	8.99E-03
Selenium (Se)	2.05E-04	4.77E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.87E-03
Thallium (Tl)	3.64E-02	8.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	8.95E-02
Uranium (U)	1.13E-03	2.63E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	2.01E-03

Non-carcinogenic risk estimates for a Teen in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.93E-03	4.51E-04	8.29E-03	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.62E-02
Antimony (Sb)	2.77E-04	2.10E-04	5.07E-03	1.60E-03	8.71E-04	1.48E-05	---	8.38E-03	1.64E-02
Arsenic (As)	5.49E-03	1.25E-03	1.45E-02	3.93E-03	1.00E-02	6.45E-04	---	2.79E-02	6.38E-02
Chromium (Cr)	9.69E-06	7.37E-06	2.20E-05	3.71E-05	2.23E-05	2.67E-06	---	5.58E-06	1.07E-04
Cobalt (Co)	4.52E-03	3.44E-04	1.54E-02	1.14E-03	2.17E-02	1.12E-02	---	8.38E-04	5.51E-02
Copper (Cu)	1.28E-04	5.85E-05	8.68E-03	9.92E-04	1.29E-03	1.71E-04	---	4.56E-02	5.69E-02
Lead (Pb)	3.22E-03	1.47E-04	6.64E-03	8.85E-04	5.99E-02	1.27E-05	---	3.87E-03	7.47E-02
Manganese (Mn)	1.16E-03	8.78E-05	2.99E-02	1.54E-04	3.79E-04	6.98E-05	---	1.56E-04	3.19E-02
Mercury (Hg)	3.85E-05	1.36E-04	3.38E-03	1.18E-03	5.24E-02	6.13E-05	---	1.12E-03	5.83E-02
Molybdenum (Mo)	1.01E-04	7.69E-06	3.70E-02	6.82E-04	3.69E-03	1.27E-03	---	2.35E-03	4.51E-02
Nickel (Ni)	6.25E-04	1.66E-03	2.72E-03	1.20E-03	2.16E-02	2.63E-04	---	3.35E-04	2.84E-02
Selenium (Se)	2.81E-05	2.14E-06	4.70E-03	6.25E-03	5.78E-02	3.55E-05	---	1.68E-03	7.04E-02
Thallium (Tl)	5.00E-03	3.80E-04	3.05E-02	8.36E-03	3.80E-02	2.74E-03	---	2.39E-02	1.09E-01
Uranium (U)	1.55E-04	1.18E-05	3.76E-04	4.35E-05	4.04E-05	5.54E-07	---	3.91E-04	1.02E-03

Non-carcinogenic risk estimates for a Toddler in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	8.58E-02	7.38E-04	1.55E-02	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	1.05E-01
Antimony (Sb)	4.00E-03	3.44E-04	1.23E-02	2.92E-03	1.70E-03	2.71E-05	---	1.82E-02	3.95E-02
Arsenic (As)	7.95E-02	2.05E-03	3.48E-02	7.19E-03	1.95E-02	1.18E-03	---	6.06E-02	2.05E-01
Chromium (Cr)	1.40E-04	1.21E-05	4.72E-05	6.78E-05	4.35E-05	4.88E-06	---	1.21E-05	3.28E-04
Cobalt (Co)	6.55E-02	5.63E-04	3.87E-02	2.09E-03	4.22E-02	2.06E-02	---	1.82E-03	1.71E-01
Copper (Cu)	2.57E-03	1.33E-04	2.99E-02	2.51E-03	3.47E-03	4.32E-04	---	1.37E-01	1.76E-01
Lead (Pb)	1.01E-01	5.21E-04	3.04E-02	3.51E-03	2.53E-01	5.02E-05	---	1.82E-02	4.07E-01
Manganese (Mn)	1.67E-02	1.44E-04	6.02E-02	2.82E-04	7.38E-04	1.28E-04	---	3.38E-04	7.86E-02
Mercury (Hg)	5.57E-04	2.23E-04	8.21E-03	2.16E-03	1.02E-01	1.12E-04	---	2.42E-03	1.16E-01
Molybdenum (Mo)	1.46E-03	1.26E-05	7.80E-02	1.25E-03	7.20E-03	2.32E-03	---	5.09E-03	9.54E-02
Nickel (Ni)	9.04E-03	2.72E-03	7.30E-03	2.20E-03	4.21E-02	4.82E-04	---	7.27E-04	6.46E-02
Selenium (Se)	4.07E-04	3.50E-06	1.11E-02	1.14E-02	1.13E-01	6.50E-05	---	3.64E-03	1.39E-01
Thallium (Tl)	7.24E-02	6.23E-04	7.35E-02	1.53E-02	7.39E-02	5.01E-03	---	5.19E-02	2.93E-01
Uranium (U)	2.25E-03	1.93E-05	7.74E-04	7.96E-05	7.88E-05	1.01E-06	---	8.48E-04	4.05E-03

Carcinogenic Risk for a Resident at the Brocklehurst Location under Project-Alone Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	Total Ingestion Exposure
	unitless	unitless	unitless	unitless	unitless	unitless	unitless	unitless
Arsenic (As)	2.99E-10	4.00E-11	4.42E-10	5.93E-08	7.66E-07	4.04E-09	---	8.30E-07

Notes:

Bold ILCR exceeds benchmark of 1 in 100,000

Lifetime Average Daily Dose for a Resident in Brocklehurst under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	1.04E-02	4.64E-04	7.82E-03	2.11E-04	9.41E-04	2.28E-04	---	1.49E-04	2.02E-02
Antimony (Sb)	1.94E-07	8.65E-08	1.97E-06	6.36E-07	3.56E-07	5.89E-09	---	3.73E-06	6.98E-06
Arsenic (As)	2.89E-06	3.87E-07	4.27E-06	1.17E-06	3.08E-06	1.93E-07	---	9.32E-06	2.13E-05
Barium (Ba)	8.45E-05	3.77E-05	1.77E-03	3.71E-06	7.79E-06	1.44E-06	---	1.86E-04	2.09E-03
Chromium (Cr)	2.55E-05	1.14E-05	3.20E-05	5.53E-05	3.43E-05	3.98E-06	---	9.32E-06	1.72E-04
Cobalt (Co)	7.92E-06	3.54E-07	1.53E-05	1.14E-06	2.22E-05	1.12E-05	---	9.32E-07	5.90E-05
Copper (Cu)	2.83E-05	7.58E-06	1.07E-03	1.24E-04	1.66E-04	2.14E-05	---	6.39E-03	7.81E-03
Lead (Pb)	7.34E-06	1.96E-07	8.24E-06	1.15E-06	7.97E-05	1.64E-08	---	5.59E-06	1.02E-04
Manganese (Mn)	2.83E-04	1.26E-05	4.19E-03	2.15E-05	5.43E-05	9.73E-06	---	2.42E-05	4.60E-03
Mercury (Hg)	2.02E-08	4.21E-08	9.88E-07	3.52E-07	1.07E-05	1.83E-08	---	3.73E-07	1.25E-05
Molybdenum (Mo)	8.86E-07	3.95E-08	1.93E-04	3.40E-06	1.89E-05	6.31E-06	---	1.30E-05	2.35E-04
Nickel (Ni)	2.19E-05	3.42E-05	5.49E-05	2.39E-05	4.42E-04	5.24E-06	---	7.46E-06	5.90E-04
Selenium (Se)	2.47E-07	1.10E-08	2.32E-05	3.11E-05	2.95E-04	1.77E-07	---	9.32E-06	3.59E-04
Thallium (Tl)	1.23E-07	5.47E-09	4.18E-07	1.16E-07	5.44E-07	3.82E-08	---	3.73E-07	1.62E-06
Uranium (U)	8.16E-07	3.64E-08	1.08E-06	1.30E-07	1.24E-07	1.65E-09	---	1.30E-06	3.50E-06
Vanadium (V)	2.76E-05	1.23E-05	2.11E-05	7.68E-06	6.12E-06	2.24E-06	---	3.73E-05	1.14E-04

Total Daily Intake Rates for an Aboriginal Adult in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.10E-03	3.51E-04	4.96E-03	1.90E-04	3.11E-04	3.04E-03	1.70E-03	1.70E-04	1.48E-02
Antimony (Sb)	1.57E-07	1.35E-07	1.62E-06	5.15E-07	6.22E-07	7.50E-08	1.39E-07	4.24E-06	7.50E-06
Arsenic (As)	1.18E-06	3.03E-07	3.76E-06	1.03E-06	4.48E-06	2.56E-06	1.05E-06	1.06E-05	2.50E-05
Chromium (Cr)	1.24E-05	1.06E-05	2.20E-05	4.99E-05	1.24E-05	5.31E-05	3.62E-06	1.06E-05	1.75E-04
Cobalt (Co)	3.93E-06	3.36E-07	6.15E-06	1.03E-06	1.82E-05	1.50E-04	2.47E-06	1.06E-06	1.83E-04
Copper (Cu)	2.39E-05	1.23E-05	5.68E-04	1.07E-04	1.65E-04	2.86E-04	1.59E-04	7.28E-03	8.60E-03
Lead (Pb)	9.67E-06	4.96E-07	6.66E-06	1.03E-06	9.80E-05	2.19E-07	3.77E-07	6.36E-06	1.23E-04
Manganese (Mn)	1.54E-04	1.31E-05	1.80E-03	1.83E-05	7.22E-05	1.29E-04	3.89E-03	2.76E-05	6.09E-03
Mercury (Hg)	2.26E-08	9.01E-08	8.09E-07	3.09E-07	1.77E-05	2.38E-07	1.62E-06	4.24E-07	2.12E-05
Molybdenum (Mo)	3.95E-07	3.38E-08	1.92E-04	3.06E-06	1.78E-05	8.41E-05	6.98E-05	1.49E-05	3.82E-04
Nickel (Ni)	1.58E-05	4.74E-05	1.85E-05	2.16E-05	4.76E-04	7.00E-05	2.81E-05	8.49E-06	6.86E-04
Selenium (Se)	1.22E-07	1.04E-08	1.62E-05	2.78E-05	2.92E-04	2.35E-06	9.34E-06	1.06E-05	3.58E-04
Thallium (Tl)	2.90E-08	2.49E-09	3.24E-07	1.03E-07	9.49E-07	5.02E-07	2.41E-08	4.24E-07	2.36E-06
Uranium (U)	2.91E-07	2.49E-08	6.79E-07	1.03E-07	1.74E-07	1.89E-08	6.90E-08	1.49E-06	2.85E-06

Total Daily Intake Rates for an Aboriginal Child in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.81E-03	4.61E-04	8.65E-03	2.77E-04	5.17E-04	3.03E-03	2.61E-03	1.95E-04	2.46E-02
Antimony (Sb)	3.38E-07	1.77E-07	3.20E-06	7.48E-07	1.03E-06	7.47E-08	2.14E-07	4.86E-06	1.07E-05
Arsenic (As)	2.53E-06	3.97E-07	7.21E-06	1.50E-06	7.44E-06	2.54E-06	1.62E-06	1.22E-05	3.54E-05
Chromium (Cr)	2.67E-05	1.39E-05	3.95E-05	7.25E-05	2.07E-05	5.28E-05	5.57E-06	1.22E-05	2.44E-04
Cobalt (Co)	8.44E-06	4.41E-07	1.15E-05	1.50E-06	3.03E-05	1.49E-04	3.80E-06	1.22E-06	2.06E-04
Copper (Cu)	5.14E-05	1.61E-05	1.02E-03	1.56E-04	2.74E-04	2.85E-04	2.44E-04	8.34E-03	1.04E-02
Lead (Pb)	2.08E-05	6.51E-07	1.22E-05	1.50E-06	1.63E-04	2.18E-07	5.79E-07	7.29E-06	2.06E-04
Manganese (Mn)	3.30E-04	1.72E-05	3.08E-03	2.65E-05	1.20E-04	1.29E-04	5.97E-03	3.16E-05	9.71E-03
Mercury (Hg)	4.86E-08	1.18E-07	1.60E-06	4.49E-07	2.94E-05	2.37E-07	2.49E-06	4.86E-07	3.48E-05
Molybdenum (Mo)	8.49E-07	4.44E-08	3.16E-04	4.45E-06	2.96E-05	8.37E-05	1.07E-04	1.70E-05	5.59E-04
Nickel (Ni)	3.40E-05	6.21E-05	3.37E-05	3.14E-05	7.91E-04	6.97E-05	4.31E-05	9.73E-06	1.07E-03
Selenium (Se)	2.61E-07	1.37E-08	3.20E-05	4.04E-05	4.84E-04	2.34E-06	1.44E-05	1.22E-05	5.86E-04
Thallium (Tl)	6.24E-08	3.26E-09	6.41E-07	1.50E-07	1.58E-06	4.99E-07	3.70E-08	4.86E-07	3.45E-06
Uranium (U)	6.26E-07	3.27E-08	1.26E-06	1.50E-07	2.89E-07	1.88E-08	1.06E-07	1.70E-06	4.19E-06

Total Daily Intake Rates for an Aboriginal Infant in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.54E-02	8.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-04	3.65E-02
Antimony (Sb)	1.36E-06	3.16E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.32E-06	8.99E-06
Arsenic (As)	1.02E-05	7.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-05	2.92E-05
Chromium (Cr)	1.07E-04	2.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-05	1.50E-04
Cobalt (Co)	3.39E-05	7.89E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-06	3.65E-05
Copper (Cu)	2.06E-04	2.88E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-02	1.28E-02
Lead (Pb)	8.33E-05	1.17E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-05	9.55E-05
Manganese (Mn)	1.32E-03	3.08E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.76E-05	1.40E-03
Mercury (Hg)	1.95E-07	2.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.32E-07	1.14E-06
Molybdenum (Mo)	3.41E-06	7.94E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-05	2.91E-05
Nickel (Ni)	1.36E-04	1.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-05	2.62E-04
Selenium (Se)	1.05E-06	2.44E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-05	1.94E-05
Thallium (Tl)	2.50E-07	5.83E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.32E-07	9.88E-07
Uranium (U)	2.51E-06	5.85E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-06	5.13E-06

Total Daily Intake Rates for an Aboriginal Teen in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.86E-03	3.69E-04	6.36E-03	2.11E-04	3.35E-04	2.33E-03	1.76E-03	1.34E-04	1.64E-02
Antimony (Sb)	1.86E-07	1.42E-07	2.03E-06	5.70E-07	6.70E-07	5.76E-08	1.44E-07	3.35E-06	7.15E-06
Arsenic (As)	1.40E-06	3.19E-07	4.60E-06	1.14E-06	4.82E-06	1.96E-06	1.09E-06	8.38E-06	2.37E-05
Chromium (Cr)	1.47E-05	1.12E-05	2.73E-05	5.52E-05	1.34E-05	4.07E-05	3.76E-06	8.38E-06	1.75E-04
Cobalt (Co)	4.65E-06	3.54E-07	7.87E-06	1.14E-06	1.96E-05	1.15E-04	2.56E-06	8.38E-07	1.52E-04
Copper (Cu)	2.83E-05	1.29E-05	7.08E-04	1.18E-04	1.78E-04	2.20E-04	1.64E-04	5.75E-03	7.18E-03
Lead (Pb)	1.14E-05	5.22E-07	8.29E-06	1.14E-06	1.06E-04	1.68E-07	3.91E-07	5.03E-06	1.33E-04
Manganese (Mn)	1.82E-04	1.38E-05	2.20E-03	2.02E-05	7.77E-05	9.93E-05	4.03E-03	2.18E-05	6.64E-03
Mercury (Hg)	2.68E-08	9.48E-08	1.01E-06	3.42E-07	1.91E-05	1.83E-07	1.68E-06	3.35E-07	2.27E-05
Molybdenum (Mo)	4.68E-07	3.56E-08	2.09E-04	3.39E-06	1.92E-05	6.46E-05	7.24E-05	1.17E-05	3.80E-04
Nickel (Ni)	1.87E-05	4.98E-05	2.31E-05	2.39E-05	5.13E-04	5.37E-05	2.91E-05	6.70E-06	7.18E-04
Selenium (Se)	1.44E-07	1.09E-08	2.03E-05	3.08E-05	3.14E-04	1.80E-06	9.68E-06	8.38E-06	3.85E-04
Thallium (Tl)	3.44E-08	2.61E-09	4.05E-07	1.14E-07	1.02E-06	3.85E-07	2.50E-08	3.35E-07	2.32E-06
Uranium (U)	3.45E-07	2.62E-08	8.72E-07	1.14E-07	1.88E-07	1.45E-08	7.15E-08	1.17E-06	2.80E-06

Total Daily Intake Rates for an Aboriginal Toddler in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	7.03E-02	6.05E-04	1.16E-02	3.86E-04	5.76E-04	4.10E-03	3.56E-03	2.91E-04	9.14E-02
Antimony (Sb)	2.70E-06	2.32E-07	4.92E-06	1.04E-06	1.15E-06	1.01E-07	2.91E-07	7.27E-06	1.77E-05
Arsenic (As)	2.02E-05	5.22E-07	1.09E-05	2.08E-06	8.29E-06	3.45E-06	2.21E-06	1.82E-05	6.59E-05
Chromium (Cr)	2.13E-04	1.83E-05	5.58E-05	1.01E-04	2.30E-05	7.16E-05	7.59E-06	1.82E-05	5.09E-04
Cobalt (Co)	6.73E-05	5.79E-07	1.65E-05	2.08E-06	3.37E-05	2.02E-04	5.18E-06	1.82E-06	3.30E-04
Copper (Cu)	4.10E-04	2.11E-05	1.43E-03	2.17E-04	3.05E-04	3.86E-04	3.32E-04	1.25E-02	1.56E-02
Lead (Pb)	1.66E-04	8.55E-07	1.75E-05	2.08E-06	1.81E-04	2.95E-07	7.89E-07	1.09E-05	3.79E-04
Manganese (Mn)	2.63E-03	2.26E-05	4.20E-03	3.70E-05	1.34E-04	1.75E-04	8.14E-03	4.73E-05	1.54E-02
Mercury (Hg)	3.87E-07	1.55E-07	2.46E-06	6.25E-07	3.28E-05	3.21E-07	3.39E-06	7.27E-07	4.08E-05
Molybdenum (Mo)	6.77E-06	5.82E-08	4.49E-04	6.20E-06	3.29E-05	1.13E-04	1.46E-04	2.55E-05	7.80E-04
Nickel (Ni)	2.71E-04	8.16E-05	4.81E-05	4.38E-05	8.81E-04	9.44E-05	5.88E-05	1.45E-05	1.49E-03
Selenium (Se)	2.08E-06	1.79E-08	4.92E-05	5.63E-05	5.39E-04	3.17E-06	1.96E-05	1.82E-05	6.88E-04
Thallium (Tl)	4.98E-07	4.28E-09	9.84E-07	2.08E-07	1.76E-06	6.77E-07	5.05E-08	7.27E-07	4.91E-06
Uranium (U)	4.99E-06	4.29E-08	1.80E-06	2.08E-07	3.22E-07	2.55E-08	1.44E-07	2.55E-06	1.01E-05

Non-carcinogenic risk estimates for an Aboriginal Adult in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.10E-03	3.51E-04	4.96E-03	1.90E-04	3.11E-04	3.04E-03	1.70E-03	1.70E-04	1.48E-02
Antimony (Sb)	3.94E-04	3.37E-04	4.05E-03	1.29E-03	1.56E-03	1.88E-04	3.48E-04	1.06E-02	1.88E-02
Arsenic (As)	3.93E-03	1.01E-03	1.25E-02	3.43E-03	1.49E-02	8.53E-03	3.51E-03	3.54E-02	8.32E-02
Chromium (Cr)	8.28E-06	7.09E-06	1.47E-05	3.33E-05	8.30E-06	3.54E-05	2.41E-06	7.07E-06	1.16E-04
Cobalt (Co)	3.93E-03	3.36E-04	6.15E-03	1.03E-03	1.82E-02	1.50E-01	2.47E-03	1.06E-03	1.83E-01
Copper (Cu)	1.70E-04	8.71E-05	4.03E-03	7.59E-04	1.17E-03	2.03E-03	1.12E-03	5.16E-02	6.10E-02
Lead (Pb)	7.43E-03	3.82E-04	5.12E-03	7.92E-04	7.54E-02	1.68E-04	2.90E-04	4.90E-03	9.45E-02
Manganese (Mn)	1.10E-03	9.39E-05	1.28E-02	1.31E-04	5.16E-04	9.24E-04	2.78E-02	1.97E-04	4.35E-02
Mercury (Hg)	7.53E-05	3.00E-04	2.70E-03	1.03E-03	8.85E-02	7.93E-04	5.40E-03	1.41E-03	1.00E-01
Molybdenum (Mo)	7.90E-05	6.76E-06	3.84E-02	6.13E-04	3.56E-03	1.68E-02	1.40E-02	2.97E-03	7.64E-02
Nickel (Ni)	7.91E-04	2.37E-03	9.26E-04	1.08E-03	2.38E-02	3.50E-03	1.40E-03	4.24E-04	3.43E-02
Selenium (Se)	2.43E-05	2.08E-06	3.24E-03	5.56E-03	5.83E-02	4.70E-04	1.87E-03	2.12E-03	7.16E-02
Thallium (Tl)	2.07E-03	1.78E-04	2.31E-02	7.36E-03	6.78E-02	3.59E-02	1.72E-03	3.03E-02	1.68E-01
Uranium (U)	9.71E-05	8.31E-06	2.26E-04	3.43E-05	5.81E-05	6.30E-06	2.30E-05	4.95E-04	9.49E-04

Non-carcinogenic risk estimates for an Aboriginal Child in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	8.81E-03	4.61E-04	8.65E-03	2.77E-04	5.17E-04	3.03E-03	2.61E-03	1.95E-04	2.46E-02
Antimony (Sb)	8.46E-04	4.42E-04	8.01E-03	1.87E-03	2.58E-03	1.87E-04	5.34E-04	1.22E-02	2.66E-02
Arsenic (As)	8.45E-03	1.32E-03	2.40E-02	4.98E-03	2.48E-02	8.48E-03	5.40E-03	4.05E-02	1.18E-01
Chromium (Cr)	1.78E-05	9.30E-06	2.63E-05	4.84E-05	1.38E-05	3.52E-05	3.71E-06	8.11E-06	1.63E-04
Cobalt (Co)	8.44E-03	4.41E-04	1.15E-02	1.50E-03	3.03E-02	1.49E-01	3.80E-03	1.22E-03	2.06E-01
Copper (Cu)	4.67E-04	1.46E-04	9.26E-03	1.41E-03	2.49E-03	2.59E-03	2.22E-03	7.58E-02	9.44E-02
Lead (Pb)	3.46E-02	1.09E-03	2.03E-02	2.49E-03	2.71E-01	3.63E-04	9.65E-04	1.22E-02	3.43E-01
Manganese (Mn)	2.36E-03	1.23E-04	2.20E-02	1.90E-04	8.56E-04	9.19E-04	4.27E-02	2.26E-04	6.94E-02
Mercury (Hg)	1.62E-04	3.94E-04	5.34E-03	1.50E-03	1.47E-01	7.89E-04	8.29E-03	1.62E-03	1.65E-01
Molybdenum (Mo)	1.70E-04	8.87E-06	6.33E-02	8.90E-04	5.91E-03	1.67E-02	2.14E-02	3.40E-03	1.12E-01
Nickel (Ni)	1.70E-03	3.11E-03	1.69E-03	1.57E-03	3.95E-02	3.48E-03	2.16E-03	4.86E-04	5.37E-02
Selenium (Se)	5.23E-05	2.73E-06	6.41E-03	8.08E-03	9.68E-02	4.68E-04	2.87E-03	2.43E-03	1.17E-01
Thallium (Tl)	4.46E-03	2.33E-04	4.58E-02	1.07E-02	1.13E-01	3.57E-02	2.64E-03	3.47E-02	2.47E-01
Uranium (U)	2.09E-04	1.09E-05	4.21E-04	4.98E-05	9.65E-05	6.27E-06	3.53E-05	5.67E-04	1.40E-03

Non-carcinogenic risk for estimates an Aboriginal Infant in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.54E-02	8.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-04	3.65E-02
Antimony (Sb)	3.39E-03	7.91E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-02	2.25E-02
Arsenic (As)	3.39E-02	2.37E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.10E-02	9.72E-02
Chromium (Cr)	7.14E-05	1.66E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-05	1.00E-04
Cobalt (Co)	3.39E-02	7.89E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-03	3.65E-02
Copper (Cu)	2.27E-03	3.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-01	1.40E-01
Lead (Pb)	1.39E-01	1.94E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-02	1.59E-01
Manganese (Mn)	9.46E-03	2.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E-04	1.00E-02
Mercury (Hg)	6.49E-04	7.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-03	3.79E-03
Molybdenum (Mo)	6.81E-04	1.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.12E-03	5.82E-03
Nickel (Ni)	6.82E-03	5.56E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.32E-04	1.31E-02
Selenium (Se)	2.10E-04	4.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.66E-03	3.87E-03
Thallium (Tl)	1.79E-02	4.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.23E-02	7.06E-02
Uranium (U)	8.37E-04	1.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.54E-04	1.71E-03

Non-carcinogenic risk estimates for an Aboriginal Teen in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.86E-03	3.69E-04	6.36E-03	2.11E-04	3.35E-04	2.33E-03	1.76E-03	1.34E-04	1.64E-02
Antimony (Sb)	4.66E-04	3.54E-04	5.07E-03	1.42E-03	1.68E-03	1.44E-04	3.61E-04	8.38E-03	1.79E-02
Arsenic (As)	4.66E-03	1.06E-03	1.53E-02	3.80E-03	1.61E-02	6.54E-03	3.64E-03	2.79E-02	7.90E-02
Chromium (Cr)	9.81E-06	7.45E-06	1.82E-05	3.68E-05	8.93E-06	2.72E-05	2.50E-06	5.58E-06	1.16E-04
Cobalt (Co)	4.65E-03	3.54E-04	7.87E-03	1.14E-03	1.96E-02	1.15E-01	2.56E-03	8.38E-04	1.52E-01
Copper (Cu)	2.25E-04	1.02E-04	5.62E-03	9.40E-04	1.41E-03	1.74E-03	1.31E-03	4.56E-02	5.69E-02
Lead (Pb)	8.80E-03	4.01E-04	6.38E-03	8.76E-04	8.12E-02	1.29E-04	3.01E-04	3.87E-03	1.02E-01
Manganese (Mn)	1.30E-03	9.87E-05	1.57E-02	1.44E-04	5.55E-04	7.09E-04	2.88E-02	1.56E-04	4.74E-02
Mercury (Hg)	8.92E-05	3.16E-04	3.38E-03	1.14E-03	9.53E-02	6.09E-04	5.60E-03	1.12E-03	1.08E-01
Molybdenum (Mo)	9.36E-05	7.11E-06	4.17E-02	6.78E-04	3.83E-03	1.29E-02	1.45E-02	2.35E-03	7.61E-02
Nickel (Ni)	9.36E-04	2.49E-03	1.16E-03	1.20E-03	2.56E-02	2.69E-03	1.46E-03	3.35E-04	3.59E-02
Selenium (Se)	2.88E-05	2.19E-06	4.05E-03	6.15E-03	6.28E-02	3.61E-04	1.94E-03	1.68E-03	7.70E-02
Thallium (Tl)	2.46E-03	1.87E-04	2.90E-02	8.14E-03	7.30E-02	2.75E-02	1.78E-03	2.39E-02	1.66E-01
Uranium (U)	1.15E-04	8.74E-06	2.91E-04	3.80E-05	6.25E-05	4.84E-06	2.38E-05	3.91E-04	9.34E-04

Non-carcinogenic risk estimates for an Aboriginal Toddler in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	7.03E-02	6.05E-04	1.16E-02	3.86E-04	5.76E-04	4.10E-03	3.56E-03	2.91E-04	9.14E-02
Antimony (Sb)	6.75E-03	5.80E-04	1.23E-02	2.61E-03	2.88E-03	2.53E-04	7.28E-04	1.82E-02	4.43E-02
Arsenic (As)	6.74E-02	1.74E-03	3.65E-02	6.95E-03	2.76E-02	1.15E-02	7.36E-03	6.06E-02	2.20E-01
Chromium (Cr)	1.42E-04	1.22E-05	3.72E-05	6.74E-05	1.54E-05	4.77E-05	5.06E-06	1.21E-05	3.39E-04
Cobalt (Co)	6.73E-02	5.79E-04	1.65E-02	2.08E-03	3.37E-02	2.02E-01	5.18E-03	1.82E-03	3.30E-01
Copper (Cu)	4.50E-03	2.32E-04	1.57E-02	2.38E-03	3.35E-03	4.24E-03	3.65E-03	1.37E-01	1.71E-01
Lead (Pb)	2.76E-01	1.42E-03	2.92E-02	3.47E-03	3.02E-01	4.92E-04	1.32E-03	1.82E-02	6.32E-01
Manganese (Mn)	1.88E-02	1.62E-04	3.00E-02	2.64E-04	9.54E-04	1.25E-03	5.82E-02	3.38E-04	1.10E-01
Mercury (Hg)	1.29E-03	5.17E-04	8.20E-03	2.08E-03	1.64E-01	1.07E-03	1.13E-02	2.42E-03	1.91E-01
Molybdenum (Mo)	1.35E-03	1.16E-05	8.98E-02	1.24E-03	6.59E-03	2.27E-02	2.92E-02	5.09E-03	1.56E-01
Nickel (Ni)	1.36E-02	4.08E-03	2.41E-03	2.19E-03	4.40E-02	4.72E-03	2.94E-03	7.27E-04	7.47E-02
Selenium (Se)	4.17E-04	3.59E-06	9.84E-03	1.13E-02	1.08E-01	6.34E-04	3.91E-03	3.64E-03	1.38E-01
Thallium (Tl)	3.56E-02	3.06E-04	7.03E-02	1.49E-02	1.25E-01	4.84E-02	3.61E-03	5.19E-02	3.50E-01
Uranium (U)	1.66E-03	1.43E-05	6.01E-04	6.95E-05	1.07E-04	8.50E-06	4.82E-05	8.48E-04	3.36E-03

Lifetime Average Daily Dose for an Aboriginal Resident in Kamloops Indian Reserve #1 under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.51E-03	3.80E-04	5.76E-03	2.10E-04	3.44E-04	3.01E-03	1.88E-03	1.49E-04	2.02E-02
Antimony (Sb)	3.27E-07	1.46E-07	1.97E-06	5.67E-07	6.89E-07	7.43E-08	1.54E-07	3.73E-06	7.66E-06
Arsenic (As)	2.45E-06	3.28E-07	4.53E-06	1.13E-06	4.96E-06	2.53E-06	1.17E-06	9.32E-06	2.64E-05
Barium (Ba)	8.31E-05	3.71E-05	1.36E-03	3.69E-06	1.11E-05	1.92E-05	5.33E-04	1.86E-04	2.23E-03
Chromium (Cr)	2.58E-05	1.15E-05	2.58E-05	5.50E-05	1.38E-05	5.25E-05	4.01E-06	9.32E-06	1.98E-04
Cobalt (Co)	8.15E-06	3.64E-07	7.33E-06	1.13E-06	2.02E-05	1.48E-04	2.73E-06	9.32E-07	1.89E-04
Copper (Cu)	4.96E-05	1.33E-05	6.66E-04	1.18E-04	1.83E-04	2.83E-04	1.75E-04	6.39E-03	7.88E-03
Lead (Pb)	2.00E-05	5.37E-07	7.88E-06	1.13E-06	1.09E-04	2.16E-07	4.17E-07	5.59E-06	1.44E-04
Manganese (Mn)	3.19E-04	1.42E-05	2.07E-03	2.01E-05	7.99E-05	1.28E-04	4.30E-03	2.42E-05	6.96E-03
Mercury (Hg)	4.69E-08	9.75E-08	9.87E-07	3.40E-07	1.96E-05	2.35E-07	1.79E-06	3.73E-07	2.35E-05
Molybdenum (Mo)	8.20E-07	3.66E-08	2.18E-04	3.37E-06	1.97E-05	8.32E-05	7.72E-05	1.30E-05	4.15E-04
Nickel (Ni)	3.28E-05	5.12E-05	2.19E-05	2.38E-05	5.27E-04	6.93E-05	3.10E-05	7.46E-06	7.65E-04
Selenium (Se)	2.52E-07	1.13E-08	1.97E-05	3.06E-05	3.23E-04	2.33E-06	1.03E-05	9.32E-06	3.95E-04
Thallium (Tl)	6.02E-08	2.69E-09	3.95E-07	1.13E-07	1.05E-06	4.97E-07	2.66E-08	3.73E-07	2.52E-06
Uranium (U)	6.04E-07	2.70E-08	8.09E-07	1.13E-07	1.93E-07	1.87E-08	7.63E-08	1.30E-06	3.15E-06
Vanadium (V)	3.61E-05	1.61E-05	1.70E-05	7.66E-06	7.92E-06	2.96E-05	6.17E-06	3.73E-05	1.58E-04

Total Daily Intake Rates for an Aboriginal Adult in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.10E-03	3.51E-04	4.96E-03	1.91E-04	1.64E-03	3.08E-03	1.70E-03	1.70E-04	1.62E-02
Antimony (Sb)	1.58E-07	1.35E-07	1.62E-06	5.78E-07	6.22E-07	7.93E-08	1.41E-07	4.24E-06	7.58E-06
Arsenic (As)	1.18E-06	3.03E-07	3.76E-06	1.07E-06	5.37E-06	2.59E-06	1.06E-06	1.06E-05	2.59E-05
Chromium (Cr)	1.24E-05	1.06E-05	2.20E-05	5.02E-05	5.99E-05	5.36E-05	3.63E-06	1.06E-05	2.23E-04
Cobalt (Co)	3.93E-06	3.36E-07	6.15E-06	1.03E-06	3.87E-05	1.51E-04	2.48E-06	1.06E-06	2.05E-04
Copper (Cu)	2.39E-05	1.23E-05	5.68E-04	1.13E-04	2.89E-04	2.88E-04	1.59E-04	7.28E-03	8.73E-03
Lead (Pb)	9.67E-06	4.96E-07	6.66E-06	1.04E-06	1.39E-04	2.21E-07	3.77E-07	6.36E-06	1.64E-04
Manganese (Mn)	1.54E-04	1.31E-05	1.80E-03	1.95E-05	9.48E-05	1.31E-04	3.89E-03	2.76E-05	6.12E-03
Mercury (Hg)	2.26E-08	9.03E-08	8.10E-07	3.20E-07	1.87E-05	2.47E-07	1.68E-06	4.24E-07	2.23E-05
Molybdenum (Mo)	3.95E-07	3.38E-08	1.92E-04	3.08E-06	3.30E-05	8.50E-05	7.01E-05	1.49E-05	3.98E-04
Nickel (Ni)	1.58E-05	4.74E-05	1.85E-05	2.17E-05	7.72E-04	7.06E-05	2.81E-05	8.49E-06	9.82E-04
Selenium (Se)	1.22E-07	1.04E-08	1.62E-05	2.82E-05	5.16E-04	2.38E-06	9.40E-06	1.06E-05	5.83E-04
Thallium (Tl)	2.91E-08	2.49E-09	3.24E-07	1.06E-07	9.49E-07	5.14E-07	2.43E-08	4.24E-07	2.37E-06
Uranium (U)	2.91E-07	2.49E-08	6.80E-07	1.18E-07	2.17E-07	2.23E-08	6.91E-08	1.49E-06	2.91E-06

Total Daily Intake Rates for an Aboriginal Child in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.81E-03	4.61E-04	8.65E-03	2.78E-04	2.73E-03	3.06E-03	2.62E-03	1.95E-04	2.68E-02
Antimony (Sb)	3.39E-07	1.77E-07	3.21E-06	8.39E-07	1.03E-06	7.89E-08	2.16E-07	4.86E-06	1.08E-05
Arsenic (As)	2.54E-06	3.97E-07	7.21E-06	1.55E-06	8.92E-06	2.58E-06	1.62E-06	1.22E-05	3.70E-05
Chromium (Cr)	2.67E-05	1.40E-05	3.95E-05	7.30E-05	9.94E-05	5.34E-05	5.58E-06	1.22E-05	3.24E-04
Cobalt (Co)	8.44E-06	4.41E-07	1.15E-05	1.50E-06	6.43E-05	1.50E-04	3.80E-06	1.22E-06	2.41E-04
Copper (Cu)	5.14E-05	1.61E-05	1.02E-03	1.64E-04	4.80E-04	2.87E-04	2.44E-04	8.34E-03	1.06E-02
Lead (Pb)	2.08E-05	6.51E-07	1.22E-05	1.51E-06	2.31E-04	2.19E-07	5.80E-07	7.29E-06	2.74E-04
Manganese (Mn)	3.30E-04	1.72E-05	3.08E-03	2.84E-05	1.57E-04	1.30E-04	5.97E-03	3.16E-05	9.75E-03
Mercury (Hg)	4.87E-08	1.18E-07	1.60E-06	4.64E-07	3.11E-05	2.45E-07	2.58E-06	4.86E-07	3.66E-05
Molybdenum (Mo)	8.49E-07	4.44E-08	3.17E-04	4.48E-06	5.48E-05	8.46E-05	1.08E-04	1.70E-05	5.86E-04
Nickel (Ni)	3.40E-05	6.22E-05	3.38E-05	3.15E-05	1.28E-03	7.02E-05	4.32E-05	9.73E-06	1.57E-03
Selenium (Se)	2.62E-07	1.37E-08	3.21E-05	4.10E-05	8.57E-04	2.37E-06	1.44E-05	1.22E-05	9.59E-04
Thallium (Tl)	6.25E-08	3.26E-09	6.41E-07	1.54E-07	1.58E-06	5.11E-07	3.74E-08	4.86E-07	3.47E-06
Uranium (U)	6.26E-07	3.27E-08	1.26E-06	1.71E-07	3.60E-07	2.22E-08	1.06E-07	1.70E-06	4.28E-06

Total Daily Intake Rates for an Aboriginal Infant in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.54E-02	8.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-04	3.65E-02
Antimony (Sb)	1.36E-06	3.17E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.32E-06	8.99E-06
Arsenic (As)	1.02E-05	7.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-05	2.92E-05
Chromium (Cr)	1.07E-04	2.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-05	1.50E-04
Cobalt (Co)	3.39E-05	7.89E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-06	3.65E-05
Copper (Cu)	2.06E-04	2.88E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.25E-02	1.28E-02
Lead (Pb)	8.33E-05	1.17E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E-05	9.55E-05
Manganese (Mn)	1.32E-03	3.09E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.76E-05	1.40E-03
Mercury (Hg)	1.95E-07	2.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.32E-07	1.14E-06
Molybdenum (Mo)	3.41E-06	7.94E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-05	2.91E-05
Nickel (Ni)	1.36E-04	1.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-05	2.62E-04
Selenium (Se)	1.05E-06	2.45E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-05	1.94E-05
Thallium (Tl)	2.51E-07	5.84E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.32E-07	9.88E-07
Uranium (U)	2.51E-06	5.85E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-06	5.13E-06

Total Daily Intake Rates for an Aboriginal Teen in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.86E-03	3.69E-04	6.36E-03	2.12E-04	1.77E-03	2.36E-03	1.76E-03	1.34E-04	1.78E-02
Antimony (Sb)	1.87E-07	1.42E-07	2.03E-06	6.39E-07	6.70E-07	6.09E-08	1.46E-07	3.35E-06	7.22E-06
Arsenic (As)	1.40E-06	3.19E-07	4.60E-06	1.18E-06	5.78E-06	1.99E-06	1.09E-06	8.38E-06	2.47E-05
Chromium (Cr)	1.47E-05	1.12E-05	2.73E-05	5.56E-05	6.45E-05	4.12E-05	3.76E-06	8.38E-06	2.27E-04
Cobalt (Co)	4.65E-06	3.54E-07	7.87E-06	1.14E-06	4.17E-05	1.16E-04	2.57E-06	8.38E-07	1.75E-04
Copper (Cu)	2.83E-05	1.29E-05	7.09E-04	1.25E-04	3.11E-04	2.21E-04	1.65E-04	5.75E-03	7.32E-03
Lead (Pb)	1.14E-05	5.22E-07	8.29E-06	1.15E-06	1.50E-04	1.69E-07	3.92E-07	5.03E-06	1.77E-04
Manganese (Mn)	1.82E-04	1.38E-05	2.20E-03	2.16E-05	1.02E-04	1.01E-04	4.03E-03	2.18E-05	6.67E-03
Mercury (Hg)	2.68E-08	9.50E-08	1.01E-06	3.54E-07	2.01E-05	1.89E-07	1.74E-06	3.35E-07	2.39E-05
Molybdenum (Mo)	4.68E-07	3.56E-08	2.09E-04	3.41E-06	3.55E-05	6.52E-05	7.27E-05	1.17E-05	3.98E-04
Nickel (Ni)	1.87E-05	4.98E-05	2.32E-05	2.40E-05	8.31E-04	5.42E-05	2.92E-05	6.70E-06	1.04E-03
Selenium (Se)	1.44E-07	1.10E-08	2.03E-05	3.12E-05	5.55E-04	1.83E-06	9.75E-06	8.38E-06	6.27E-04
Thallium (Tl)	3.44E-08	2.62E-09	4.06E-07	1.17E-07	1.02E-06	3.95E-07	2.52E-08	3.35E-07	2.34E-06
Uranium (U)	3.45E-07	2.62E-08	8.72E-07	1.31E-07	2.33E-07	1.71E-08	7.17E-08	1.17E-06	2.87E-06

Total Daily Intake Rates for an Aboriginal Toddler in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	7.03E-02	6.05E-04	1.16E-02	3.87E-04	3.04E-03	4.15E-03	3.56E-03	2.91E-04	9.39E-02
Antimony (Sb)	2.70E-06	2.32E-07	4.93E-06	1.17E-06	1.15E-06	1.07E-07	2.95E-07	7.27E-06	1.79E-05
Arsenic (As)	2.02E-05	5.22E-07	1.09E-05	2.16E-06	9.94E-06	3.50E-06	2.21E-06	1.82E-05	6.77E-05
Chromium (Cr)	2.13E-04	1.83E-05	5.58E-05	1.02E-04	1.11E-04	7.24E-05	7.60E-06	1.82E-05	5.98E-04
Cobalt (Co)	6.73E-05	5.79E-07	1.66E-05	2.09E-06	7.17E-05	2.03E-04	5.19E-06	1.82E-06	3.69E-04
Copper (Cu)	4.10E-04	2.12E-05	1.43E-03	2.29E-04	5.35E-04	3.89E-04	3.33E-04	1.25E-02	1.58E-02
Lead (Pb)	1.66E-04	8.55E-07	1.75E-05	2.11E-06	2.58E-04	2.98E-07	7.91E-07	1.09E-05	4.56E-04
Manganese (Mn)	2.63E-03	2.26E-05	4.20E-03	3.95E-05	1.75E-04	1.77E-04	8.14E-03	4.73E-05	1.54E-02
Mercury (Hg)	3.88E-07	1.56E-07	2.46E-06	6.47E-07	3.46E-05	3.33E-07	3.52E-06	7.27E-07	4.29E-05
Molybdenum (Mo)	6.77E-06	5.83E-08	4.49E-04	6.24E-06	6.10E-05	1.15E-04	1.47E-04	2.55E-05	8.10E-04
Nickel (Ni)	2.71E-04	8.16E-05	4.81E-05	4.39E-05	1.43E-03	9.52E-05	5.89E-05	1.45E-05	2.04E-03
Selenium (Se)	2.09E-06	1.79E-08	4.92E-05	5.72E-05	9.54E-04	3.21E-06	1.97E-05	1.82E-05	1.10E-03
Thallium (Tl)	4.98E-07	4.28E-09	9.85E-07	2.14E-07	1.76E-06	6.93E-07	5.10E-08	7.27E-07	4.93E-06
Uranium (U)	5.00E-06	4.30E-08	1.80E-06	2.39E-07	4.01E-07	3.01E-08	1.45E-07	2.55E-06	1.02E-05

Non-carcinogenic risk estimates for an Aboriginal Adult in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.10E-03	3.51E-04	4.96E-03	1.91E-04	1.64E-03	3.08E-03	1.70E-03	1.70E-04	1.62E-02
Antimony (Sb)	3.94E-04	3.37E-04	4.05E-03	1.44E-03	1.56E-03	1.98E-04	3.52E-04	1.06E-02	1.89E-02
Arsenic (As)	3.93E-03	1.01E-03	1.25E-02	3.55E-03	1.79E-02	8.65E-03	3.52E-03	3.54E-02	8.65E-02
Chromium (Cr)	8.28E-06	7.09E-06	1.47E-05	3.35E-05	3.99E-05	3.58E-05	2.42E-06	7.07E-06	1.49E-04
Cobalt (Co)	3.93E-03	3.36E-04	6.15E-03	1.03E-03	3.87E-02	1.51E-01	2.48E-03	1.06E-03	2.05E-01
Copper (Cu)	1.70E-04	8.71E-05	4.03E-03	8.02E-04	2.05E-03	2.04E-03	1.13E-03	5.16E-02	6.19E-02
Lead (Pb)	7.44E-03	3.82E-04	5.12E-03	8.00E-04	1.07E-01	1.70E-04	2.90E-04	4.90E-03	1.26E-01
Manganese (Mn)	1.10E-03	9.39E-05	1.28E-02	1.39E-04	6.77E-04	9.36E-04	2.78E-02	1.97E-04	4.37E-02
Mercury (Hg)	7.55E-05	3.01E-04	2.70E-03	1.07E-03	9.36E-02	8.22E-04	5.60E-03	1.41E-03	1.06E-01
Molybdenum (Mo)	7.91E-05	6.77E-06	3.84E-02	6.17E-04	6.60E-03	1.70E-02	1.40E-02	2.97E-03	7.97E-02
Nickel (Ni)	7.91E-04	2.37E-03	9.26E-04	1.08E-03	3.86E-02	3.53E-03	1.41E-03	4.24E-04	4.91E-02
Selenium (Se)	2.43E-05	2.08E-06	3.24E-03	5.65E-03	1.03E-01	4.77E-04	1.88E-03	2.12E-03	1.17E-01
Thallium (Tl)	2.08E-03	1.78E-04	2.31E-02	7.55E-03	6.78E-02	3.67E-02	1.74E-03	3.03E-02	1.69E-01
Uranium (U)	9.71E-05	8.32E-06	2.27E-04	3.93E-05	7.22E-05	7.43E-06	2.30E-05	4.95E-04	9.69E-04

Non-carcinogenic risk estimates for an Aboriginal Child in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	8.81E-03	4.61E-04	8.65E-03	2.78E-04	2.73E-03	3.06E-03	2.62E-03	1.95E-04	2.68E-02
Antimony (Sb)	8.47E-04	4.42E-04	8.02E-03	2.10E-03	2.58E-03	1.97E-04	5.41E-04	1.22E-02	2.69E-02
Arsenic (As)	8.45E-03	1.32E-03	2.40E-02	5.16E-03	2.97E-02	8.60E-03	5.41E-03	4.05E-02	1.23E-01
Chromium (Cr)	1.78E-05	9.30E-06	2.63E-05	4.86E-05	6.63E-05	3.56E-05	3.72E-06	8.11E-06	2.16E-04
Cobalt (Co)	8.44E-03	4.41E-04	1.15E-02	1.50E-03	6.43E-02	1.50E-01	3.80E-03	1.22E-03	2.41E-01
Copper (Cu)	4.67E-04	1.46E-04	9.26E-03	1.49E-03	4.37E-03	2.61E-03	2.22E-03	7.58E-02	9.64E-02
Lead (Pb)	3.46E-02	1.09E-03	2.03E-02	2.52E-03	3.85E-01	3.66E-04	9.67E-04	1.22E-02	4.57E-01
Manganese (Mn)	2.36E-03	1.23E-04	2.20E-02	2.03E-04	1.12E-03	9.31E-04	4.27E-02	2.26E-04	6.97E-02
Mercury (Hg)	1.62E-04	3.95E-04	5.35E-03	1.55E-03	1.55E-01	8.18E-04	8.60E-03	1.62E-03	1.74E-01
Molybdenum (Mo)	1.70E-04	8.88E-06	6.33E-02	8.96E-04	1.10E-02	1.69E-02	2.16E-02	3.40E-03	1.17E-01
Nickel (Ni)	1.70E-03	3.11E-03	1.69E-03	1.58E-03	6.41E-02	3.51E-03	2.16E-03	4.86E-04	7.83E-02
Selenium (Se)	5.23E-05	2.73E-06	6.41E-03	8.20E-03	1.71E-01	4.74E-04	2.89E-03	2.43E-03	1.92E-01
Thallium (Tl)	4.46E-03	2.33E-04	4.58E-02	1.10E-02	1.13E-01	3.65E-02	2.67E-03	3.47E-02	2.48E-01
Uranium (U)	2.09E-04	1.09E-05	4.21E-04	5.71E-05	1.20E-04	7.39E-06	3.54E-05	5.67E-04	1.43E-03

Non-carcinogenic risk for estimates an Aboriginal Infant in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.54E-02	8.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-04	3.65E-02
Antimony (Sb)	3.40E-03	7.92E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-02	2.25E-02
Arsenic (As)	3.39E-02	2.37E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.10E-02	9.73E-02
Chromium (Cr)	7.14E-05	1.66E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.22E-05	1.00E-04
Cobalt (Co)	3.39E-02	7.89E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-03	3.65E-02
Copper (Cu)	2.27E-03	3.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-01	1.40E-01
Lead (Pb)	1.39E-01	1.94E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-02	1.59E-01
Manganese (Mn)	9.46E-03	2.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E-04	1.00E-02
Mercury (Hg)	6.51E-04	7.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-03	3.80E-03
Molybdenum (Mo)	6.82E-04	1.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.12E-03	5.82E-03
Nickel (Ni)	6.82E-03	5.56E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.32E-04	1.31E-02
Selenium (Se)	2.10E-04	4.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.66E-03	3.87E-03
Thallium (Tl)	1.79E-02	4.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.23E-02	7.06E-02
Uranium (U)	8.38E-04	1.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.54E-04	1.71E-03

Non-carcinogenic risk estimates for an Aboriginal Teen in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.86E-03	3.69E-04	6.36E-03	2.12E-04	1.77E-03	2.36E-03	1.76E-03	1.34E-04	1.78E-02
Antimony (Sb)	4.67E-04	3.55E-04	5.07E-03	1.60E-03	1.68E-03	1.52E-04	3.65E-04	8.38E-03	1.81E-02
Arsenic (As)	4.66E-03	1.06E-03	1.53E-02	3.93E-03	1.93E-02	6.64E-03	3.65E-03	2.79E-02	8.25E-02
Chromium (Cr)	9.81E-06	7.46E-06	1.82E-05	3.71E-05	4.30E-05	2.75E-05	2.51E-06	5.58E-06	1.51E-04
Cobalt (Co)	4.65E-03	3.54E-04	7.87E-03	1.14E-03	4.17E-02	1.16E-01	2.57E-03	8.38E-04	1.75E-01
Copper (Cu)	2.25E-04	1.03E-04	5.62E-03	9.92E-04	2.47E-03	1.76E-03	1.31E-03	4.56E-02	5.81E-02
Lead (Pb)	8.81E-03	4.02E-04	6.38E-03	8.85E-04	1.15E-01	1.30E-04	3.01E-04	3.87E-03	1.36E-01
Manganese (Mn)	1.30E-03	9.87E-05	1.57E-02	1.54E-04	7.29E-04	7.19E-04	2.88E-02	1.56E-04	4.76E-02
Mercury (Hg)	8.94E-05	3.17E-04	3.38E-03	1.18E-03	1.01E-01	6.31E-04	5.80E-03	1.12E-03	1.13E-01
Molybdenum (Mo)	9.36E-05	7.12E-06	4.17E-02	6.82E-04	7.10E-03	1.30E-02	1.45E-02	2.35E-03	7.96E-02
Nickel (Ni)	9.37E-04	2.49E-03	1.16E-03	1.20E-03	4.15E-02	2.71E-03	1.46E-03	3.35E-04	5.18E-02
Selenium (Se)	2.88E-05	2.19E-06	4.06E-03	6.25E-03	1.11E-01	3.66E-04	1.95E-03	1.68E-03	1.25E-01
Thallium (Tl)	2.46E-03	1.87E-04	2.90E-02	8.36E-03	7.30E-02	2.82E-02	1.80E-03	2.39E-02	1.67E-01
Uranium (U)	1.15E-04	8.74E-06	2.91E-04	4.35E-05	7.78E-05	5.70E-06	2.39E-05	3.91E-04	9.56E-04

Non-carcinogenic risk estimates for an Aboriginal Toddler in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	7.03E-02	6.05E-04	1.16E-02	3.87E-04	3.04E-03	4.15E-03	3.56E-03	2.91E-04	9.39E-02
Antimony (Sb)	6.75E-03	5.81E-04	1.23E-02	2.92E-03	2.88E-03	2.67E-04	7.37E-04	1.82E-02	4.46E-02
Arsenic (As)	6.74E-02	1.74E-03	3.65E-02	7.19E-03	3.31E-02	1.17E-02	7.37E-03	6.06E-02	2.26E-01
Chromium (Cr)	1.42E-04	1.22E-05	3.72E-05	6.78E-05	7.39E-05	4.82E-05	5.07E-06	1.21E-05	3.99E-04
Cobalt (Co)	6.73E-02	5.79E-04	1.66E-02	2.09E-03	7.17E-02	2.03E-01	5.19E-03	1.82E-03	3.69E-01
Copper (Cu)	4.50E-03	2.32E-04	1.57E-02	2.51E-03	5.88E-03	4.27E-03	3.66E-03	1.37E-01	1.74E-01
Lead (Pb)	2.76E-01	1.42E-03	2.92E-02	3.51E-03	4.29E-01	4.96E-04	1.32E-03	1.82E-02	7.59E-01
Manganese (Mn)	1.88E-02	1.62E-04	3.00E-02	2.82E-04	1.25E-03	1.26E-03	5.82E-02	3.38E-04	1.10E-01
Mercury (Hg)	1.29E-03	5.18E-04	8.21E-03	2.16E-03	1.73E-01	1.11E-03	1.17E-02	2.42E-03	2.01E-01
Molybdenum (Mo)	1.35E-03	1.17E-05	8.99E-02	1.25E-03	1.22E-02	2.29E-02	2.94E-02	5.09E-03	1.62E-01
Nickel (Ni)	1.36E-02	4.08E-03	2.41E-03	2.20E-03	7.14E-02	4.76E-03	2.95E-03	7.27E-04	1.02E-01
Selenium (Se)	4.17E-04	3.59E-06	9.85E-03	1.14E-02	1.91E-01	6.43E-04	3.94E-03	3.64E-03	2.21E-01
Thallium (Tl)	3.56E-02	3.06E-04	7.04E-02	1.53E-02	1.25E-01	4.95E-02	3.64E-03	5.19E-02	3.52E-01
Uranium (U)	1.67E-03	1.43E-05	6.01E-04	7.96E-05	1.34E-04	1.00E-05	4.83E-05	8.48E-04	3.40E-03

Carcinogenic Risk for an Aboriginal at the Kamloops Indian Reserve #1 Location under Project-Alone Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	Total Ingestion Exposure
	unitless	unitless	unitless	unitless	unitless	unitless	unitless	unitless
Arsenic (As)	9.16E-10	1.23E-10	1.78E-09	5.93E-08	1.48E-06	5.38E-08	3.10E-09	1.60E-06

Notes:

Bold ILCR exceeds benchmark of 1 in 100,000

Lifetime Average Daily Dose for an Aboriginal Resident in Kamloops Indian Reserve #1 under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.51E-03	3.80E-04	5.76E-03	2.11E-04	1.82E-03	3.05E-03	1.88E-03	1.49E-04	2.18E-02
Antimony (Sb)	3.27E-07	1.46E-07	1.98E-06	6.36E-07	6.89E-07	7.85E-08	1.56E-07	3.73E-06	7.74E-06
Arsenic (As)	2.45E-06	3.28E-07	4.53E-06	1.17E-06	5.95E-06	2.57E-06	1.17E-06	9.32E-06	2.75E-05
Barium (Ba)	8.31E-05	3.71E-05	1.36E-03	3.71E-06	1.51E-05	1.93E-05	5.34E-04	1.86E-04	2.24E-03
Chromium (Cr)	2.58E-05	1.15E-05	2.58E-05	5.53E-05	6.63E-05	5.31E-05	4.01E-06	9.32E-06	2.51E-04
Cobalt (Co)	8.15E-06	3.64E-07	7.34E-06	1.14E-06	4.29E-05	1.49E-04	2.74E-06	9.32E-07	2.13E-04
Copper (Cu)	4.96E-05	1.33E-05	6.66E-04	1.24E-04	3.20E-04	2.85E-04	1.76E-04	6.39E-03	8.03E-03
Lead (Pb)	2.01E-05	5.37E-07	7.88E-06	1.15E-06	1.54E-04	2.18E-07	4.17E-07	5.59E-06	1.90E-04
Manganese (Mn)	3.19E-04	1.42E-05	2.07E-03	2.15E-05	1.05E-04	1.30E-04	4.30E-03	2.42E-05	6.98E-03
Mercury (Hg)	4.70E-08	9.77E-08	9.88E-07	3.52E-07	2.07E-05	2.44E-07	1.86E-06	3.73E-07	2.47E-05
Molybdenum (Mo)	8.20E-07	3.66E-08	2.18E-04	3.40E-06	3.65E-05	8.41E-05	7.76E-05	1.30E-05	4.33E-04
Nickel (Ni)	3.28E-05	5.12E-05	2.19E-05	2.39E-05	8.54E-04	6.99E-05	3.11E-05	7.46E-06	1.09E-03
Selenium (Se)	2.53E-07	1.13E-08	1.97E-05	3.11E-05	5.71E-04	2.36E-06	1.04E-05	9.32E-06	6.44E-04
Thallium (Tl)	6.03E-08	2.69E-09	3.95E-07	1.16E-07	1.05E-06	5.09E-07	2.69E-08	3.73E-07	2.53E-06
Uranium (U)	6.05E-07	2.70E-08	8.09E-07	1.30E-07	2.40E-07	2.21E-08	7.64E-08	1.30E-06	3.21E-06
Vanadium (V)	3.61E-05	1.61E-05	1.70E-05	7.68E-06	1.18E-05	2.99E-05	6.18E-06	3.73E-05	1.62E-04

Total Daily Intake Rates for an Adult in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.35E-03	3.72E-04	7.44E-02	9.52E-04	1.57E-04	2.05E-04	---	6.36E-05	8.05E-02
Antimony (Sb)	1.02E-07	8.72E-08	2.71E-06	2.57E-06	3.14E-07	5.06E-09	---	2.25E-06	8.04E-06
Arsenic (As)	1.57E-06	4.04E-07	2.00E-05	5.15E-06	2.26E-06	1.72E-07	---	1.97E-05	4.93E-05
Chromium (Cr)	1.38E-05	1.18E-05	1.04E-04	2.50E-04	6.28E-06	3.58E-06	---	2.33E-06	3.92E-04
Cobalt (Co)	3.39E-06	2.91E-07	5.42E-05	5.15E-06	9.20E-06	1.01E-05	---	2.55E-06	8.49E-05
Copper (Cu)	1.24E-05	6.39E-06	8.48E-04	5.35E-04	8.32E-05	1.93E-05	---	6.98E-05	1.58E-03
Lead (Pb)	1.53E-06	7.84E-08	3.30E-05	5.15E-06	4.95E-05	1.47E-08	---	1.14E-06	9.04E-05
Manganese (Mn)	1.60E-04	1.37E-05	4.43E-03	9.14E-05	3.64E-05	8.72E-06	---	7.85E-04	5.53E-03
Mercury (Hg)	1.16E-08	4.61E-08	8.09E-07	1.54E-06	8.93E-06	1.60E-08	---	2.12E-07	1.16E-05
Molybdenum (Mo)	2.87E-07	2.46E-08	2.38E-04	1.53E-05	8.98E-06	5.67E-06	---	3.31E-04	5.99E-04
Nickel (Ni)	1.24E-05	3.70E-05	2.24E-04	1.08E-04	2.40E-04	4.72E-06	---	4.05E-05	6.67E-04
Selenium (Se)	6.34E-08	5.42E-09	1.62E-05	1.39E-04	1.47E-04	1.58E-07	---	2.33E-06	3.05E-04
Thallium (Tl)	2.91E-08	2.49E-09	8.21E-07	5.15E-07	4.79E-07	3.38E-08	---	2.12E-07	2.09E-06
Uranium (U)	2.14E-07	1.83E-08	4.08E-06	5.15E-07	8.79E-08	1.27E-09	---	2.89E-05	3.38E-05

Total Daily Intake Rates for a Child in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	9.35E-03	4.89E-04	1.36E-01	1.38E-03	2.74E-04	2.98E-04	---	7.29E-05	1.48E-01
Antimony (Sb)	2.19E-07	1.14E-07	5.21E-06	3.74E-06	5.47E-07	7.35E-09	---	2.57E-06	1.24E-05
Arsenic (As)	3.38E-06	5.29E-07	3.68E-05	7.48E-06	3.94E-06	2.50E-07	---	2.26E-05	7.50E-05
Chromium (Cr)	2.97E-05	1.55E-05	1.88E-04	3.63E-04	1.09E-05	5.20E-06	---	2.67E-06	6.15E-04
Cobalt (Co)	7.29E-06	3.81E-07	9.92E-05	7.48E-06	1.60E-05	1.47E-05	---	2.92E-06	1.48E-04
Copper (Cu)	2.67E-05	8.38E-06	1.59E-03	7.78E-04	1.45E-04	2.80E-05	---	8.00E-05	2.66E-03
Lead (Pb)	3.28E-06	1.03E-07	6.04E-05	7.48E-06	8.62E-05	2.14E-08	---	1.30E-06	1.59E-04
Manganese (Mn)	3.43E-04	1.79E-05	8.04E-03	1.33E-04	6.35E-05	1.27E-05	---	9.00E-04	9.51E-03
Mercury (Hg)	2.48E-08	6.04E-08	1.60E-06	2.24E-06	1.56E-05	2.33E-08	---	2.43E-07	1.98E-05
Molybdenum (Mo)	6.18E-07	3.23E-08	4.00E-04	2.22E-05	1.56E-05	8.23E-06	---	3.79E-04	8.26E-04
Nickel (Ni)	2.66E-05	4.86E-05	4.09E-04	1.57E-04	4.19E-04	6.85E-06	---	4.64E-05	1.11E-03
Selenium (Se)	1.36E-07	7.11E-09	3.20E-05	2.02E-04	2.56E-04	2.30E-07	---	2.67E-06	4.93E-04
Thallium (Tl)	6.25E-08	3.27E-09	1.56E-06	7.48E-07	8.34E-07	4.91E-08	---	2.43E-07	3.50E-06
Uranium (U)	4.59E-07	2.40E-08	7.46E-06	7.48E-07	1.53E-07	1.85E-09	---	3.31E-05	4.20E-05

Total Daily Intake Rates for an Infant in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.75E-02	8.74E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-04	3.85E-02
Antimony (Sb)	8.78E-07	2.05E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.87E-06	4.96E-06
Arsenic (As)	1.36E-05	9.47E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-05	4.85E-05
Chromium (Cr)	1.19E-04	2.78E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.02E-06	1.51E-04
Cobalt (Co)	2.93E-05	6.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.39E-06	3.43E-05
Copper (Cu)	1.07E-04	1.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.20E-04	2.43E-04
Lead (Pb)	1.32E-05	1.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.96E-06	1.53E-05
Manganese (Mn)	1.38E-03	3.21E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.35E-03	2.76E-03
Mercury (Hg)	9.96E-08	1.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-07	5.74E-07
Molybdenum (Mo)	2.48E-06	5.77E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.71E-04	5.73E-04
Nickel (Ni)	1.07E-04	8.69E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.99E-05	2.63E-04
Selenium (Se)	5.46E-07	1.27E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.02E-06	4.58E-06
Thallium (Tl)	2.51E-07	5.84E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-07	6.22E-07
Uranium (U)	1.84E-06	4.29E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.99E-05	5.18E-05

Total Daily Intake Rates for a Teen in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.15E-03	3.92E-04	1.04E-01	1.05E-03	1.74E-04	2.27E-04	---	5.03E-05	1.11E-01
Antimony (Sb)	1.21E-07	9.17E-08	3.59E-06	2.85E-06	3.48E-07	5.59E-09	---	1.77E-06	8.77E-06
Arsenic (As)	1.86E-06	4.24E-07	2.75E-05	5.70E-06	2.51E-06	1.91E-07	---	1.56E-05	5.37E-05
Chromium (Cr)	1.64E-05	1.24E-05	1.40E-04	2.76E-04	6.97E-06	3.96E-06	---	1.84E-06	4.58E-04
Cobalt (Co)	4.02E-06	3.06E-07	7.57E-05	5.70E-06	1.02E-05	1.12E-05	---	2.01E-06	1.09E-04
Copper (Cu)	1.47E-05	6.72E-06	1.11E-03	5.92E-04	9.23E-05	2.13E-05	---	5.51E-05	1.89E-03
Lead (Pb)	1.81E-06	8.25E-08	4.56E-05	5.70E-06	5.49E-05	1.63E-08	---	8.98E-07	1.09E-04
Manganese (Mn)	1.89E-04	1.44E-05	6.00E-03	1.01E-04	4.04E-05	9.65E-06	---	6.20E-04	6.98E-03
Mercury (Hg)	1.37E-08	4.85E-08	1.01E-06	1.71E-06	9.91E-06	1.77E-08	---	1.68E-07	1.29E-05
Molybdenum (Mo)	3.40E-07	2.59E-08	2.62E-04	1.69E-05	9.96E-06	6.27E-06	---	2.61E-04	5.57E-04
Nickel (Ni)	1.46E-05	3.89E-05	3.11E-04	1.20E-04	2.67E-04	5.22E-06	---	3.20E-05	7.87E-04
Selenium (Se)	7.50E-08	5.70E-09	2.03E-05	1.54E-04	1.63E-04	1.75E-07	---	1.84E-06	3.39E-04
Thallium (Tl)	3.44E-08	2.62E-09	1.12E-06	5.70E-07	5.31E-07	3.74E-08	---	1.68E-07	2.46E-06
Uranium (U)	2.53E-07	1.92E-08	5.65E-06	5.70E-07	9.76E-08	1.41E-09	---	2.28E-05	2.94E-05

Total Daily Intake Rates for a Toddler in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	7.46E-02	6.41E-04	1.78E-01	1.93E-03	3.39E-04	4.15E-04	---	1.09E-04	2.56E-01
Antimony (Sb)	1.75E-06	1.50E-07	7.53E-06	5.21E-06	6.79E-07	1.02E-08	---	3.85E-06	1.92E-05
Arsenic (As)	2.69E-05	6.95E-07	4.95E-05	1.04E-05	4.89E-06	3.49E-07	---	3.38E-05	1.27E-04
Chromium (Cr)	2.37E-04	2.04E-05	2.53E-04	5.06E-04	1.36E-05	7.24E-06	---	4.00E-06	1.04E-03
Cobalt (Co)	5.82E-05	5.00E-07	1.31E-04	1.04E-05	1.99E-05	2.05E-05	---	4.36E-06	2.45E-04
Copper (Cu)	2.13E-04	1.10E-05	2.27E-03	1.08E-03	1.80E-04	3.90E-05	---	1.20E-04	3.92E-03
Lead (Pb)	2.62E-05	1.35E-07	8.03E-05	1.04E-05	1.07E-04	2.99E-08	---	1.95E-06	2.26E-04
Manganese (Mn)	2.74E-03	2.35E-05	1.08E-02	1.85E-04	7.87E-05	1.77E-05	---	1.35E-03	1.51E-02
Mercury (Hg)	1.98E-07	7.94E-08	2.46E-06	3.13E-06	1.93E-05	3.25E-08	---	3.64E-07	2.56E-05
Molybdenum (Mo)	4.93E-06	4.24E-08	5.74E-04	3.10E-05	1.94E-05	1.15E-05	---	5.67E-04	1.21E-03
Nickel (Ni)	2.12E-04	6.37E-05	5.40E-04	2.19E-04	5.19E-04	9.56E-06	---	6.95E-05	1.63E-03
Selenium (Se)	1.09E-06	9.34E-09	4.92E-05	2.81E-04	3.18E-04	3.21E-07	---	4.00E-06	6.54E-04
Thallium (Tl)	4.98E-07	4.29E-09	2.17E-06	1.04E-06	1.04E-06	6.85E-08	---	3.64E-07	5.19E-06
Uranium (U)	3.66E-06	3.15E-08	9.87E-06	1.04E-06	1.90E-07	2.58E-09	---	4.96E-05	6.44E-05

Non-carcinogenic risk estimates for an Adult in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.35E-03	3.72E-04	7.44E-02	9.52E-04	1.57E-04	2.05E-04	---	6.36E-05	8.05E-02
Antimony (Sb)	2.55E-04	2.18E-04	6.77E-03	6.44E-03	7.85E-04	1.26E-05	---	5.62E-03	2.01E-02
Arsenic (As)	5.24E-03	1.35E-03	6.66E-02	1.72E-02	7.54E-03	5.75E-04	---	6.58E-02	1.64E-01
Chromium (Cr)	9.22E-06	7.89E-06	6.96E-05	1.66E-04	4.19E-06	2.39E-06	---	1.56E-06	2.61E-04
Cobalt (Co)	3.39E-03	2.91E-04	5.42E-02	5.15E-03	9.20E-03	1.01E-02	---	2.55E-03	8.49E-02
Copper (Cu)	8.82E-05	4.53E-05	6.02E-03	3.80E-03	5.90E-04	1.37E-04	---	4.95E-04	1.12E-02
Lead (Pb)	1.17E-03	6.03E-05	2.54E-02	3.96E-03	3.80E-02	1.13E-05	---	8.75E-04	6.95E-02
Manganese (Mn)	1.14E-03	9.76E-05	3.17E-02	6.53E-04	2.60E-04	6.23E-05	---	5.61E-03	3.95E-02
Mercury (Hg)	3.85E-05	1.54E-04	2.70E-03	5.15E-03	4.47E-02	5.35E-05	---	7.07E-04	5.35E-02
Molybdenum (Mo)	5.75E-05	4.92E-06	4.76E-02	3.06E-03	1.80E-03	1.13E-03	---	6.62E-02	1.20E-01
Nickel (Ni)	6.18E-04	1.85E-03	1.12E-02	5.41E-03	1.20E-02	2.36E-04	---	2.03E-03	3.33E-02
Selenium (Se)	1.27E-05	1.08E-06	3.24E-03	2.78E-02	2.94E-02	3.17E-05	---	4.67E-04	6.10E-02
Thallium (Tl)	2.08E-03	1.78E-04	5.86E-02	3.68E-02	3.42E-02	2.42E-03	---	1.52E-02	1.49E-01
Uranium (U)	7.12E-05	6.10E-06	1.36E-03	1.72E-04	2.93E-05	4.25E-07	---	9.64E-03	1.13E-02

Non-carcinogenic risk estimates for a Child in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	9.35E-03	4.89E-04	1.36E-01	1.38E-03	2.74E-04	2.98E-04	---	7.29E-05	1.48E-01
Antimony (Sb)	5.47E-04	2.86E-04	1.30E-02	9.35E-03	1.37E-03	1.84E-05	---	6.44E-03	3.10E-02
Arsenic (As)	1.13E-02	1.76E-03	1.23E-01	2.49E-02	1.31E-02	8.35E-04	---	7.54E-02	2.50E-01
Chromium (Cr)	1.98E-05	1.04E-05	1.26E-04	2.42E-04	7.29E-06	3.46E-06	---	1.78E-06	4.10E-04
Cobalt (Co)	7.29E-03	3.81E-04	9.92E-02	7.48E-03	1.60E-02	1.47E-02	---	2.92E-03	1.48E-01
Copper (Cu)	2.43E-04	7.62E-05	1.45E-02	7.07E-03	1.32E-03	2.55E-04	---	7.28E-04	2.42E-02
Lead (Pb)	5.47E-03	1.71E-04	1.01E-01	1.25E-02	1.44E-01	3.57E-05	---	2.17E-03	2.65E-01
Manganese (Mn)	2.45E-03	1.28E-04	5.74E-02	9.48E-04	4.53E-04	9.05E-05	---	6.43E-03	6.79E-02
Mercury (Hg)	8.28E-05	2.01E-04	5.34E-03	7.48E-03	7.78E-02	7.76E-05	---	8.11E-04	9.18E-02
Molybdenum (Mo)	1.24E-04	6.45E-06	8.00E-02	4.45E-03	3.13E-03	1.65E-03	---	7.59E-02	1.65E-01
Nickel (Ni)	1.33E-03	2.43E-03	2.04E-02	7.85E-03	2.09E-02	3.43E-04	---	2.32E-03	5.56E-02
Selenium (Se)	2.72E-05	1.42E-06	6.41E-03	4.04E-02	5.13E-02	4.60E-05	---	5.35E-04	9.87E-02
Thallium (Tl)	4.46E-03	2.33E-04	1.11E-01	5.34E-02	5.96E-02	3.51E-03	---	1.74E-02	2.50E-01
Uranium (U)	1.53E-04	8.00E-06	2.49E-03	2.49E-04	5.11E-05	6.17E-07	---	1.10E-02	1.40E-02

Non-carcinogenic risk for estimates an Infant in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.75E-02	8.74E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-04	3.85E-02
Antimony (Sb)	2.20E-03	5.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	9.69E-03	1.24E-02
Arsenic (As)	4.52E-02	3.16E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.13E-01	1.62E-01
Chromium (Cr)	7.95E-05	1.85E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.68E-06	1.01E-04
Cobalt (Co)	2.93E-02	6.82E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.39E-03	3.43E-02
Copper (Cu)	1.18E-03	1.65E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.32E-03	2.67E-03
Lead (Pb)	2.19E-02	3.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.27E-03	2.55E-02
Manganese (Mn)	9.83E-03	2.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	9.67E-03	1.97E-02
Mercury (Hg)	3.32E-04	3.61E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-03	1.91E-03
Molybdenum (Mo)	4.96E-04	1.15E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.14E-01	1.15E-01
Nickel (Ni)	5.33E-03	4.34E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.49E-03	1.32E-02
Selenium (Se)	1.09E-04	2.55E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.05E-04	9.17E-04
Thallium (Tl)	1.79E-02	4.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.61E-02	4.45E-02
Uranium (U)	6.14E-04	1.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.66E-02	1.73E-02

Non-carcinogenic risk estimates for a Teen in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.15E-03	3.92E-04	1.04E-01	1.05E-03	1.74E-04	2.27E-04	---	5.03E-05	1.11E-01
Antimony (Sb)	3.02E-04	2.29E-04	8.96E-03	7.12E-03	8.71E-04	1.40E-05	---	4.43E-03	2.19E-02
Arsenic (As)	6.20E-03	1.41E-03	9.15E-02	1.90E-02	8.36E-03	6.36E-04	---	5.19E-02	1.79E-01
Chromium (Cr)	1.09E-05	8.30E-06	9.33E-05	1.84E-04	4.65E-06	2.64E-06	---	1.23E-06	3.05E-04
Cobalt (Co)	4.02E-03	3.06E-04	7.57E-02	5.70E-03	1.02E-02	1.12E-02	---	2.01E-03	1.09E-01
Copper (Cu)	1.17E-04	5.33E-05	8.78E-03	4.70E-03	7.33E-04	1.69E-04	---	4.38E-04	1.50E-02
Lead (Pb)	1.39E-03	6.34E-05	3.51E-02	4.38E-03	4.22E-02	1.25E-05	---	6.90E-04	8.38E-02
Manganese (Mn)	1.35E-03	1.03E-04	4.29E-02	7.22E-04	2.89E-04	6.89E-05	---	4.43E-03	4.98E-02
Mercury (Hg)	4.56E-05	1.62E-04	3.38E-03	5.70E-03	4.96E-02	5.91E-05	---	5.58E-04	5.95E-02
Molybdenum (Mo)	6.81E-05	5.17E-06	5.23E-02	3.39E-03	1.99E-03	1.25E-03	---	5.23E-02	1.11E-01
Nickel (Ni)	7.32E-04	1.95E-03	1.55E-02	5.98E-03	1.33E-02	2.61E-04	---	1.60E-03	3.94E-02
Selenium (Se)	1.50E-05	1.14E-06	4.05E-03	3.08E-02	3.26E-02	3.51E-05	---	3.69E-04	6.79E-02
Thallium (Tl)	2.46E-03	1.87E-04	7.97E-02	4.07E-02	3.80E-02	2.67E-03	---	1.20E-02	1.76E-01
Uranium (U)	8.44E-05	6.41E-06	1.88E-03	1.90E-04	3.25E-05	4.70E-07	---	7.61E-03	9.81E-03

Non-carcinogenic risk estimates for a Toddler in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	7.46E-02	6.41E-04	1.78E-01	1.93E-03	3.39E-04	4.15E-04	---	1.09E-04	2.56E-01
Antimony (Sb)	4.36E-03	3.75E-04	1.88E-02	1.30E-02	1.70E-03	2.56E-05	---	9.63E-03	4.79E-02
Arsenic (As)	8.98E-02	2.32E-03	1.65E-01	3.47E-02	1.63E-02	1.16E-03	---	1.13E-01	4.22E-01
Chromium (Cr)	1.58E-04	1.36E-05	1.68E-04	3.37E-04	9.05E-06	4.83E-06	---	2.67E-06	6.94E-04
Cobalt (Co)	5.82E-02	5.00E-04	1.31E-01	1.04E-02	1.99E-02	2.05E-02	---	4.36E-03	2.45E-01
Copper (Cu)	2.34E-03	1.21E-04	2.50E-02	1.19E-02	1.98E-03	4.29E-04	---	1.32E-03	4.31E-02
Lead (Pb)	4.36E-02	2.25E-04	1.34E-01	1.74E-02	1.78E-01	4.98E-05	---	3.25E-03	3.76E-01
Manganese (Mn)	1.95E-02	1.68E-04	7.69E-02	1.32E-03	5.62E-04	1.26E-04	---	9.61E-03	1.08E-01
Mercury (Hg)	6.60E-04	2.65E-04	8.20E-03	1.04E-02	9.66E-02	1.08E-04	---	1.21E-03	1.17E-01
Molybdenum (Mo)	9.85E-04	8.47E-06	1.15E-01	6.20E-03	3.88E-03	2.30E-03	---	1.13E-01	2.42E-01
Nickel (Ni)	1.06E-02	3.19E-03	2.70E-02	1.09E-02	2.60E-02	4.78E-04	---	3.47E-03	8.16E-02
Selenium (Se)	2.17E-04	1.87E-06	9.84E-03	5.63E-02	6.36E-02	6.42E-05	---	8.00E-04	1.31E-01
Thallium (Tl)	3.56E-02	3.06E-04	1.55E-01	7.45E-02	7.39E-02	4.89E-03	---	2.60E-02	3.70E-01
Uranium (U)	1.22E-03	1.05E-05	3.29E-03	3.47E-04	6.34E-05	8.60E-07	---	1.65E-02	2.15E-02

Lifetime Average Daily Dose for a Resident in Knutsford under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	9.03E-03	4.03E-04	8.81E-02	1.05E-03	1.78E-04	2.26E-04	---	5.59E-05	9.91E-02
Antimony (Sb)	2.11E-07	9.43E-08	3.27E-06	2.84E-06	3.56E-07	5.57E-09	---	1.97E-06	8.75E-06
Arsenic (As)	3.26E-06	4.36E-07	2.37E-05	5.67E-06	2.57E-06	1.90E-07	---	1.73E-05	5.32E-05
Barium (Ba)	8.77E-05	3.91E-05	2.88E-03	1.84E-05	5.76E-06	1.44E-06	---	5.48E-04	3.58E-03
Chromium (Cr)	2.87E-05	1.28E-05	1.23E-04	2.75E-04	7.13E-06	3.94E-06	---	2.05E-06	4.53E-04
Cobalt (Co)	7.04E-06	3.14E-07	6.42E-05	5.67E-06	1.04E-05	1.11E-05	---	2.24E-06	1.01E-04
Copper (Cu)	2.58E-05	6.91E-06	1.01E-03	5.90E-04	9.44E-05	2.12E-05	---	6.14E-05	1.81E-03
Lead (Pb)	3.17E-06	8.48E-08	3.91E-05	5.67E-06	5.61E-05	1.62E-08	---	9.99E-07	1.05E-04
Manganese (Mn)	3.31E-04	1.48E-05	5.24E-03	1.01E-04	4.13E-05	9.61E-06	---	6.90E-04	6.42E-03
Mercury (Hg)	2.40E-08	4.98E-08	9.87E-07	1.70E-06	1.01E-05	1.77E-08	---	1.86E-07	1.31E-05
Molybdenum (Mo)	5.96E-07	2.66E-08	2.72E-04	1.69E-05	1.02E-05	6.25E-06	---	2.91E-04	5.97E-04
Nickel (Ni)	2.56E-05	4.00E-05	2.65E-04	1.19E-04	2.73E-04	5.20E-06	---	3.56E-05	7.63E-04
Selenium (Se)	1.31E-07	5.87E-09	1.97E-05	1.53E-04	1.67E-04	1.75E-07	---	2.05E-06	3.42E-04
Thallium (Tl)	6.03E-08	2.69E-09	9.86E-07	5.67E-07	5.44E-07	3.73E-08	---	1.86E-07	2.38E-06
Uranium (U)	4.43E-07	1.98E-08	4.83E-06	5.67E-07	9.98E-08	1.40E-09	---	2.54E-05	3.14E-05
Vanadium (V)	4.38E-05	1.96E-05	3.58E-04	3.83E-05	4.10E-06	2.22E-06	---	3.36E-05	4.99E-04

Total Daily Intake Rates for an Adult in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.35E-03	3.72E-04	7.44E-02	9.57E-04	8.29E-04	2.07E-04	---	1.88E-02	9.98E-02
Antimony (Sb)	1.03E-07	8.82E-08	2.75E-06	2.89E-06	3.14E-07	5.35E-09	---	1.62E-05	2.23E-05
Arsenic (As)	1.57E-06	4.04E-07	2.00E-05	5.33E-06	2.71E-06	1.75E-07	---	6.76E-05	9.78E-05
Chromium (Cr)	1.39E-05	1.19E-05	1.05E-04	2.51E-04	3.02E-05	3.62E-06	---	6.90E-05	4.84E-04
Cobalt (Co)	3.40E-06	2.91E-07	5.43E-05	5.17E-06	1.95E-05	1.02E-05	---	2.14E-05	1.14E-04
Copper (Cu)	1.25E-05	6.42E-06	8.51E-04	5.65E-04	1.46E-04	1.94E-05	---	1.95E-03	3.55E-03
Lead (Pb)	1.53E-06	7.86E-08	3.30E-05	5.20E-06	7.02E-05	1.49E-08	---	1.13E-05	1.21E-04
Manganese (Mn)	1.60E-04	1.37E-05	4.44E-03	9.76E-05	4.78E-05	8.83E-06	---	2.28E-02	2.76E-02
Mercury (Hg)	1.19E-08	4.73E-08	8.20E-07	1.60E-06	9.44E-06	1.66E-08	---	9.24E-07	1.29E-05
Molybdenum (Mo)	2.89E-07	2.47E-08	2.40E-04	1.54E-05	1.66E-05	5.73E-06	---	4.87E-04	7.65E-04
Nickel (Ni)	1.24E-05	3.71E-05	2.24E-04	1.08E-04	3.89E-04	4.76E-06	---	7.00E-05	8.46E-04
Selenium (Se)	6.39E-08	5.47E-09	1.64E-05	1.41E-04	2.60E-04	1.61E-07	---	2.01E-05	4.38E-04
Thallium (Tl)	2.92E-08	2.50E-09	8.28E-07	5.29E-07	4.79E-07	3.46E-08	---	6.55E-07	2.56E-06
Uranium (U)	2.14E-07	1.83E-08	4.08E-06	5.90E-07	1.09E-07	1.50E-09	---	5.32E-05	5.82E-05

Total Daily Intake Rates for a Child in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	9.35E-03	4.89E-04	1.36E-01	1.39E-03	1.44E-03	3.01E-04	---	2.15E-02	1.70E-01
Antimony (Sb)	2.21E-07	1.16E-07	5.29E-06	4.19E-06	5.47E-07	7.76E-09	---	1.85E-05	2.89E-05
Arsenic (As)	3.38E-06	5.30E-07	3.69E-05	7.74E-06	4.72E-06	2.54E-07	---	7.75E-05	1.31E-04
Chromium (Cr)	2.98E-05	1.56E-05	1.89E-04	3.65E-04	5.26E-05	5.25E-06	---	7.90E-05	7.36E-04
Cobalt (Co)	7.31E-06	3.82E-07	9.94E-05	7.51E-06	3.40E-05	1.48E-05	---	2.45E-05	1.88E-04
Copper (Cu)	2.69E-05	8.42E-06	1.60E-03	8.21E-04	2.54E-04	2.82E-05	---	2.23E-03	4.97E-03
Lead (Pb)	3.29E-06	1.03E-07	6.05E-05	7.56E-06	1.22E-04	2.16E-08	---	1.30E-05	2.07E-04
Manganese (Mn)	3.43E-04	1.79E-05	8.05E-03	1.42E-04	8.33E-05	1.28E-05	---	2.62E-02	3.48E-02
Mercury (Hg)	2.55E-08	6.20E-08	1.62E-06	2.32E-06	1.65E-05	2.41E-08	---	1.06E-06	2.16E-05
Molybdenum (Mo)	6.20E-07	3.24E-08	4.03E-04	2.24E-05	2.90E-05	8.32E-06	---	5.59E-04	1.02E-03
Nickel (Ni)	2.66E-05	4.87E-05	4.10E-04	1.58E-04	6.78E-04	6.91E-06	---	8.02E-05	1.41E-03
Selenium (Se)	1.37E-07	7.17E-09	3.24E-05	2.05E-04	4.53E-04	2.33E-07	---	2.30E-05	7.14E-04
Thallium (Tl)	6.29E-08	3.28E-09	1.57E-06	7.68E-07	8.34E-07	5.03E-08	---	7.51E-07	4.04E-06
Uranium (U)	4.60E-07	2.41E-08	7.46E-06	8.57E-07	1.90E-07	2.18E-09	---	6.10E-05	7.00E-05

Total Daily Intake Rates for an Infant in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.75E-02	8.74E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.23E-02	7.07E-02
Antimony (Sb)	8.88E-07	2.07E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.79E-05	2.90E-05
Arsenic (As)	1.36E-05	9.49E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.17E-04	1.31E-04
Chromium (Cr)	1.19E-04	2.78E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.19E-04	2.66E-04
Cobalt (Co)	2.93E-05	6.83E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.69E-05	6.69E-05
Copper (Cu)	1.08E-04	1.51E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.36E-03	3.49E-03
Lead (Pb)	1.32E-05	1.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.95E-05	3.29E-05
Manganese (Mn)	1.38E-03	3.21E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.94E-02	4.08E-02
Mercury (Hg)	1.02E-07	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.59E-06	1.81E-06
Molybdenum (Mo)	2.49E-06	5.80E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.41E-04	8.43E-04
Nickel (Ni)	1.07E-04	8.71E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.21E-04	3.14E-04
Selenium (Se)	5.51E-07	1.28E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.46E-05	3.52E-05
Thallium (Tl)	2.52E-07	5.88E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.13E-06	1.39E-06
Uranium (U)	1.85E-06	4.30E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	9.17E-05	9.36E-05

Total Daily Intake Rates for a Teen in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.15E-03	3.92E-04	1.04E-01	1.06E-03	9.20E-04	2.29E-04	---	1.48E-02	1.27E-01
Antimony (Sb)	1.22E-07	9.27E-08	3.64E-06	3.20E-06	3.48E-07	5.91E-09	---	1.28E-05	2.02E-05
Arsenic (As)	1.86E-06	4.25E-07	2.75E-05	5.89E-06	3.01E-06	1.93E-07	---	5.34E-05	9.23E-05
Chromium (Cr)	1.64E-05	1.25E-05	1.40E-04	2.78E-04	3.35E-05	4.00E-06	---	5.45E-05	5.39E-04
Cobalt (Co)	4.03E-06	3.06E-07	7.58E-05	5.72E-06	2.17E-05	1.12E-05	---	1.69E-05	1.36E-04
Copper (Cu)	1.48E-05	6.75E-06	1.11E-03	6.25E-04	1.62E-04	2.15E-05	---	1.54E-03	3.48E-03
Lead (Pb)	1.81E-06	8.26E-08	4.56E-05	5.76E-06	7.79E-05	1.65E-08	---	8.93E-06	1.40E-04
Manganese (Mn)	1.89E-04	1.44E-05	6.00E-03	1.08E-04	5.30E-05	9.77E-06	---	1.80E-02	2.44E-02
Mercury (Hg)	1.40E-08	4.97E-08	1.03E-06	1.77E-06	1.05E-05	1.84E-08	---	7.30E-07	1.41E-05
Molybdenum (Mo)	3.42E-07	2.60E-08	2.64E-04	1.71E-05	1.85E-05	6.34E-06	---	3.85E-04	6.91E-04
Nickel (Ni)	1.47E-05	3.90E-05	3.11E-04	1.20E-04	4.32E-04	5.26E-06	---	5.52E-05	9.77E-04
Selenium (Se)	7.57E-08	5.75E-09	2.05E-05	1.56E-04	2.89E-04	1.78E-07	---	1.58E-05	4.82E-04
Thallium (Tl)	3.46E-08	2.63E-09	1.13E-06	5.85E-07	5.31E-07	3.83E-08	---	5.17E-07	2.84E-06
Uranium (U)	2.54E-07	1.93E-08	5.66E-06	6.53E-07	1.21E-07	1.66E-09	---	4.20E-05	4.87E-05

Total Daily Intake Rates for a Toddler in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	7.46E-02	6.41E-04	1.78E-01	1.94E-03	1.79E-03	4.20E-04	---	3.21E-02	2.90E-01
Antimony (Sb)	1.77E-06	1.52E-07	7.64E-06	5.85E-06	6.79E-07	1.08E-08	---	2.77E-05	4.38E-05
Arsenic (As)	2.70E-05	6.96E-07	4.96E-05	1.08E-05	5.86E-06	3.54E-07	---	1.16E-04	2.10E-04
Chromium (Cr)	2.37E-04	2.04E-05	2.53E-04	5.09E-04	6.53E-05	7.32E-06	---	1.18E-04	1.21E-03
Cobalt (Co)	5.83E-05	5.01E-07	1.31E-04	1.05E-05	4.22E-05	2.06E-05	---	3.66E-05	3.00E-04
Copper (Cu)	2.14E-04	1.11E-05	2.28E-03	1.14E-03	3.16E-04	3.93E-05	---	3.34E-03	7.35E-03
Lead (Pb)	2.62E-05	1.35E-07	8.04E-05	1.05E-05	1.52E-04	3.01E-08	---	1.94E-05	2.89E-04
Manganese (Mn)	2.74E-03	2.35E-05	1.08E-02	1.98E-04	1.03E-04	1.79E-05	---	3.91E-02	5.30E-02
Mercury (Hg)	2.03E-07	8.14E-08	2.50E-06	3.24E-06	2.04E-05	3.37E-08	---	1.58E-06	2.80E-05
Molybdenum (Mo)	4.95E-06	4.25E-08	5.78E-04	3.12E-05	3.60E-05	1.16E-05	---	8.35E-04	1.50E-03
Nickel (Ni)	2.12E-04	6.39E-05	5.41E-04	2.20E-04	8.42E-04	9.64E-06	---	1.20E-04	2.01E-03
Selenium (Se)	1.10E-06	9.42E-09	4.98E-05	2.86E-04	5.63E-04	3.25E-07	---	3.44E-05	9.34E-04
Thallium (Tl)	5.01E-07	4.31E-09	2.19E-06	1.07E-06	1.04E-06	7.01E-08	---	1.12E-06	6.00E-06
Uranium (U)	3.67E-06	3.16E-08	9.89E-06	1.19E-06	2.36E-07	3.04E-09	---	9.12E-05	1.06E-04

Non-carcinogenic risk estimates for an Adult in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.35E-03	3.72E-04	7.44E-02	9.57E-04	8.29E-04	2.07E-04	---	1.88E-02	9.98E-02
Antimony (Sb)	2.57E-04	2.20E-04	6.87E-03	7.22E-03	7.85E-04	1.34E-05	---	4.04E-02	5.58E-02
Arsenic (As)	5.25E-03	1.35E-03	6.67E-02	1.78E-02	9.04E-03	5.83E-04	---	2.25E-01	3.26E-01
Chromium (Cr)	9.24E-06	7.91E-06	6.98E-05	1.67E-04	2.01E-05	2.41E-06	---	4.60E-05	3.23E-04
Cobalt (Co)	3.40E-03	2.91E-04	5.43E-02	5.17E-03	1.95E-02	1.02E-02	---	2.14E-02	1.14E-01
Copper (Cu)	8.87E-05	4.55E-05	6.04E-03	4.01E-03	1.04E-03	1.38E-04	---	1.38E-02	2.52E-02
Lead (Pb)	1.18E-03	6.05E-05	2.54E-02	4.00E-03	5.40E-02	1.14E-05	---	8.70E-03	9.34E-02
Manganese (Mn)	1.14E-03	9.76E-05	3.17E-02	6.97E-04	3.42E-04	6.31E-05	---	1.63E-01	1.97E-01
Mercury (Hg)	3.95E-05	1.58E-04	2.73E-03	5.33E-03	4.72E-02	5.54E-05	---	3.08E-03	5.86E-02
Molybdenum (Mo)	5.77E-05	4.94E-06	4.79E-02	3.08E-03	3.33E-03	1.15E-03	---	9.75E-02	1.53E-01
Nickel (Ni)	6.19E-04	1.85E-03	1.12E-02	5.42E-03	1.95E-02	2.38E-04	---	3.50E-03	4.23E-02
Selenium (Se)	1.28E-05	1.09E-06	3.27E-03	2.82E-02	5.21E-02	3.21E-05	---	4.01E-03	8.76E-02
Thallium (Tl)	2.09E-03	1.79E-04	5.91E-02	3.78E-02	3.42E-02	2.47E-03	---	4.68E-02	1.83E-01
Uranium (U)	7.14E-05	6.11E-06	1.36E-03	1.97E-04	3.64E-05	5.01E-07	---	1.77E-02	1.94E-02

Non-carcinogenic risk estimates for a Child in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	9.35E-03	4.89E-04	1.36E-01	1.39E-03	1.44E-03	3.01E-04	---	2.15E-02	1.70E-01
Antimony (Sb)	5.53E-04	2.89E-04	1.32E-02	1.05E-02	1.37E-03	1.94E-05	---	4.63E-02	7.23E-02
Arsenic (As)	1.13E-02	1.77E-03	1.23E-01	2.58E-02	1.57E-02	8.46E-04	---	2.58E-01	4.37E-01
Chromium (Cr)	1.98E-05	1.04E-05	1.26E-04	2.43E-04	3.51E-05	3.50E-06	---	5.27E-05	4.91E-04
Cobalt (Co)	7.31E-03	3.82E-04	9.94E-02	7.51E-03	3.40E-02	1.48E-02	---	2.45E-02	1.88E-01
Copper (Cu)	2.44E-04	7.66E-05	1.45E-02	7.46E-03	2.31E-03	2.57E-04	---	2.03E-02	4.52E-02
Lead (Pb)	5.48E-03	1.72E-04	1.01E-01	1.26E-02	2.04E-01	3.60E-05	---	2.16E-02	3.45E-01
Manganese (Mn)	2.45E-03	1.28E-04	5.75E-02	1.01E-03	5.95E-04	9.16E-05	---	1.87E-01	2.49E-01
Mercury (Hg)	8.49E-05	2.07E-04	5.41E-03	7.74E-03	8.23E-02	8.05E-05	---	3.53E-03	9.93E-02
Molybdenum (Mo)	1.24E-04	6.48E-06	8.06E-02	4.48E-03	5.80E-03	1.66E-03	---	1.12E-01	2.04E-01
Nickel (Ni)	1.33E-03	2.43E-03	2.05E-02	7.88E-03	3.39E-02	3.46E-04	---	4.01E-03	7.04E-02
Selenium (Se)	2.75E-05	1.43E-06	6.48E-03	4.10E-02	9.07E-02	4.66E-05	---	4.60E-03	1.43E-01
Thallium (Tl)	4.49E-03	2.35E-04	1.12E-01	5.48E-02	5.96E-02	3.59E-03	---	5.36E-02	2.88E-01
Uranium (U)	1.53E-04	8.02E-06	2.49E-03	2.86E-04	6.35E-05	7.27E-07	---	2.03E-02	2.33E-02

Non-carcinogenic risk for estimates an Infant in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.75E-02	8.74E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.23E-02	7.07E-02
Antimony (Sb)	2.22E-03	5.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.97E-02	7.25E-02
Arsenic (As)	4.52E-02	3.16E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.89E-01	4.37E-01
Chromium (Cr)	7.96E-05	1.86E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.93E-05	1.77E-04
Cobalt (Co)	2.93E-02	6.83E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.69E-02	6.69E-02
Copper (Cu)	1.18E-03	1.66E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.69E-02	3.83E-02
Lead (Pb)	2.20E-02	3.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.25E-02	5.48E-02
Manganese (Mn)	9.83E-03	2.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.81E-01	2.91E-01
Mercury (Hg)	3.41E-04	3.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.31E-03	6.02E-03
Molybdenum (Mo)	4.98E-04	1.16E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.68E-01	1.69E-01
Nickel (Ni)	5.34E-03	4.35E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.03E-03	1.57E-02
Selenium (Se)	1.10E-04	2.57E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.92E-03	7.04E-03
Thallium (Tl)	1.80E-02	4.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.07E-02	9.91E-02
Uranium (U)	6.16E-04	1.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.06E-02	3.12E-02

Non-carcinogenic risk estimates for a Teen in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.15E-03	3.92E-04	1.04E-01	1.06E-03	9.20E-04	2.29E-04	---	1.48E-02	1.27E-01
Antimony (Sb)	3.05E-04	2.32E-04	9.10E-03	7.99E-03	8.71E-04	1.48E-05	---	3.19E-02	5.04E-02
Arsenic (As)	6.21E-03	1.42E-03	9.17E-02	1.96E-02	1.00E-02	6.45E-04	---	1.78E-01	3.08E-01
Chromium (Cr)	1.09E-05	8.31E-06	9.35E-05	1.85E-04	2.23E-05	2.67E-06	---	3.63E-05	3.59E-04
Cobalt (Co)	4.03E-03	3.06E-04	7.58E-02	5.72E-03	2.17E-02	1.12E-02	---	1.69E-02	1.36E-01
Copper (Cu)	1.18E-04	5.36E-05	8.81E-03	4.96E-03	1.29E-03	1.71E-04	---	1.22E-02	2.76E-02
Lead (Pb)	1.39E-03	6.36E-05	3.51E-02	4.43E-03	5.99E-02	1.27E-05	---	6.87E-03	1.08E-01
Manganese (Mn)	1.35E-03	1.03E-04	4.29E-02	7.71E-04	3.79E-04	6.98E-05	---	1.29E-01	1.74E-01
Mercury (Hg)	4.68E-05	1.66E-04	3.43E-03	5.89E-03	5.24E-02	6.13E-05	---	2.43E-03	6.44E-02
Molybdenum (Mo)	6.84E-05	5.20E-06	5.27E-02	3.41E-03	3.69E-03	1.27E-03	---	7.70E-02	1.38E-01
Nickel (Ni)	7.33E-04	1.95E-03	1.56E-02	6.00E-03	2.16E-02	2.63E-04	---	2.76E-03	4.89E-02
Selenium (Se)	1.51E-05	1.15E-06	4.10E-03	3.12E-02	5.78E-02	3.55E-05	---	3.17E-03	9.63E-02
Thallium (Tl)	2.47E-03	1.88E-04	8.04E-02	4.18E-02	3.80E-02	2.74E-03	---	3.70E-02	2.03E-01
Uranium (U)	8.46E-05	6.43E-06	1.89E-03	2.18E-04	4.04E-05	5.54E-07	---	1.40E-02	1.62E-02

Non-carcinogenic risk estimates for a Toddler in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	7.46E-02	6.41E-04	1.78E-01	1.94E-03	1.79E-03	4.20E-04	---	3.21E-02	2.90E-01
Antimony (Sb)	4.41E-03	3.79E-04	1.91E-02	1.46E-02	1.70E-03	2.71E-05	---	6.93E-02	1.10E-01
Arsenic (As)	8.99E-02	2.32E-03	1.65E-01	3.60E-02	1.95E-02	1.18E-03	---	3.86E-01	7.01E-01
Chromium (Cr)	1.58E-04	1.36E-05	1.69E-04	3.39E-04	4.35E-05	4.88E-06	---	7.88E-05	8.07E-04
Cobalt (Co)	5.83E-02	5.01E-04	1.31E-01	1.05E-02	4.22E-02	2.06E-02	---	3.66E-02	3.00E-01
Copper (Cu)	2.36E-03	1.22E-04	2.51E-02	1.26E-02	3.47E-03	4.32E-04	---	3.67E-02	8.07E-02
Lead (Pb)	4.37E-02	2.26E-04	1.34E-01	1.76E-02	2.53E-01	5.02E-05	---	3.23E-02	4.81E-01
Manganese (Mn)	1.95E-02	1.68E-04	7.69E-02	1.41E-03	7.38E-04	1.28E-04	---	2.80E-01	3.78E-01
Mercury (Hg)	6.77E-04	2.71E-04	8.32E-03	1.08E-02	1.02E-01	1.12E-04	---	5.28E-03	1.28E-01
Molybdenum (Mo)	9.89E-04	8.51E-06	1.16E-01	6.24E-03	7.20E-03	2.32E-03	---	1.67E-01	2.99E-01
Nickel (Ni)	1.06E-02	3.19E-03	2.71E-02	1.10E-02	4.21E-02	4.82E-04	---	5.99E-03	1.00E-01
Selenium (Se)	2.19E-04	1.88E-06	9.96E-03	5.72E-02	1.13E-01	6.50E-05	---	6.88E-03	1.87E-01
Thallium (Tl)	3.58E-02	3.08E-04	1.57E-01	7.65E-02	7.39E-02	5.01E-03	---	8.02E-02	4.28E-01
Uranium (U)	1.22E-03	1.05E-05	3.30E-03	3.98E-04	7.88E-05	1.01E-06	---	3.04E-02	3.54E-02

Carcinogenic Risk for a Resident at the Knutsford Location under Project-Alone Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	Total Ingestion Exposure
	unitless	unitless	unitless	unitless	unitless	unitless	unitless	unitless
Arsenic (As)	6.59E-09	8.82E-10	8.40E-08	2.96E-07	7.66E-07	4.04E-09	---	1.16E-06

Notes:

Bold ILCR exceeds benchmark of 1 in 100,000

Lifetime Average Daily Dose for a Resident in Knutsford under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	9.03E-03	4.03E-04	8.81E-02	1.05E-03	9.41E-04	2.28E-04	---	1.65E-02	1.16E-01
Antimony (Sb)	2.14E-07	9.53E-08	3.32E-06	3.18E-06	3.56E-07	5.89E-09	---	1.42E-05	2.14E-05
Arsenic (As)	3.26E-06	4.37E-07	2.38E-05	5.87E-06	3.08E-06	1.93E-07	---	5.94E-05	9.60E-05
Barium (Ba)	8.77E-05	3.91E-05	2.88E-03	1.86E-05	7.79E-06	1.44E-06	---	1.50E-03	4.54E-03
Chromium (Cr)	2.87E-05	1.28E-05	1.23E-04	2.77E-04	3.43E-05	3.98E-06	---	6.06E-05	5.40E-04
Cobalt (Co)	7.05E-06	3.15E-07	6.44E-05	5.70E-06	2.22E-05	1.12E-05	---	1.88E-05	1.30E-04
Copper (Cu)	2.59E-05	6.95E-06	1.02E-03	6.22E-04	1.66E-04	2.14E-05	---	1.71E-03	3.57E-03
Lead (Pb)	3.17E-06	8.50E-08	3.92E-05	5.73E-06	7.97E-05	1.64E-08	---	9.93E-06	1.38E-04
Manganese (Mn)	3.31E-04	1.48E-05	5.24E-03	1.08E-04	5.43E-05	9.73E-06	---	2.01E-02	2.58E-02
Mercury (Hg)	2.46E-08	5.11E-08	1.00E-06	1.76E-06	1.07E-05	1.83E-08	---	8.12E-07	1.44E-05
Molybdenum (Mo)	5.99E-07	2.67E-08	2.74E-04	1.70E-05	1.89E-05	6.31E-06	---	4.28E-04	7.45E-04
Nickel (Ni)	2.57E-05	4.01E-05	2.66E-04	1.20E-04	4.42E-04	5.24E-06	---	6.15E-05	9.60E-04
Selenium (Se)	1.33E-07	5.91E-09	2.00E-05	1.56E-04	2.95E-04	1.77E-07	---	1.76E-05	4.89E-04
Thallium (Tl)	6.07E-08	2.71E-09	9.94E-07	5.82E-07	5.44E-07	3.82E-08	---	5.76E-07	2.80E-06
Uranium (U)	4.44E-07	1.98E-08	4.84E-06	6.50E-07	1.24E-07	1.65E-09	---	4.67E-05	5.28E-05
Vanadium (V)	4.39E-05	1.96E-05	3.58E-04	3.84E-05	6.12E-06	2.24E-06	---	9.42E-05	5.63E-04

Total Daily Intake Rates for an Adult in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.96E-03	3.39E-04	8.15E-03	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	1.32E-02
Antimony (Sb)	1.10E-07	9.44E-08	1.62E-06	5.15E-07	3.14E-07	5.06E-09	---	4.24E-06	6.90E-06
Arsenic (As)	1.60E-06	4.10E-07	6.84E-06	1.03E-06	2.26E-06	1.72E-07	---	1.06E-05	2.29E-05
Chromium (Cr)	1.35E-05	1.16E-05	3.87E-05	4.99E-05	6.28E-06	3.58E-06	---	1.06E-05	1.34E-04
Cobalt (Co)	3.28E-06	2.81E-07	1.20E-05	1.03E-06	9.20E-06	1.01E-05	---	1.06E-06	3.70E-05
Copper (Cu)	1.76E-05	9.04E-06	6.30E-04	1.07E-04	8.32E-05	1.93E-05	---	7.28E-03	8.14E-03
Lead (Pb)	1.88E-06	9.66E-08	7.14E-06	1.03E-06	4.95E-05	1.47E-08	---	6.36E-06	6.60E-05
Manganese (Mn)	1.59E-04	1.36E-05	1.90E-03	1.83E-05	3.64E-05	8.72E-06	---	2.76E-05	2.17E-03
Mercury (Hg)	1.31E-08	5.21E-08	8.48E-07	3.09E-07	8.93E-06	1.60E-08	---	4.24E-07	1.06E-05
Molybdenum (Mo)	3.42E-07	2.93E-08	1.75E-04	3.06E-06	8.98E-06	5.67E-06	---	1.49E-05	2.08E-04
Nickel (Ni)	1.27E-05	3.80E-05	4.55E-05	2.16E-05	2.40E-04	4.72E-06	---	8.49E-06	3.71E-04
Selenium (Se)	1.24E-07	1.07E-08	1.62E-05	2.78E-05	1.47E-04	1.58E-07	---	1.06E-05	2.02E-04
Thallium (Tl)	2.40E-08	2.06E-09	4.78E-07	1.03E-07	4.79E-07	3.38E-08	---	4.24E-07	1.54E-06
Uranium (U)	1.67E-07	1.43E-08	7.01E-07	1.03E-07	8.79E-08	1.27E-09	---	1.49E-06	2.56E-06

Total Daily Intake Rates for a Child in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.51E-03	4.45E-04	1.40E-02	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	2.40E-02
Antimony (Sb)	2.37E-07	1.24E-07	3.20E-06	7.48E-07	5.47E-07	7.35E-09	---	4.86E-06	9.73E-06
Arsenic (As)	3.43E-06	5.38E-07	1.29E-05	1.50E-06	3.94E-06	2.50E-07	---	1.22E-05	3.47E-05
Chromium (Cr)	2.91E-05	1.52E-05	7.35E-05	7.25E-05	1.09E-05	5.20E-06	---	1.22E-05	2.19E-04
Cobalt (Co)	7.05E-06	3.68E-07	2.21E-05	1.50E-06	1.60E-05	1.47E-05	---	1.22E-06	6.29E-05
Copper (Cu)	3.78E-05	1.19E-05	1.20E-03	1.56E-04	1.45E-04	2.80E-05	---	8.34E-03	9.92E-03
Lead (Pb)	4.04E-06	1.27E-07	1.29E-05	1.50E-06	8.62E-05	2.14E-08	---	7.29E-06	1.12E-04
Manganese (Mn)	3.42E-04	1.79E-05	3.26E-03	2.65E-05	6.35E-05	1.27E-05	---	3.16E-05	3.75E-03
Mercury (Hg)	2.81E-08	6.84E-08	1.66E-06	4.49E-07	1.56E-05	2.33E-08	---	4.86E-07	1.83E-05
Molybdenum (Mo)	7.36E-07	3.84E-08	3.05E-04	4.45E-06	1.56E-05	8.23E-06	---	1.70E-05	3.51E-04
Nickel (Ni)	2.72E-05	4.98E-05	8.56E-05	3.14E-05	4.19E-04	6.85E-06	---	9.73E-06	6.29E-04
Selenium (Se)	2.67E-07	1.40E-08	3.20E-05	4.04E-05	2.56E-04	2.30E-07	---	1.22E-05	3.41E-04
Thallium (Tl)	5.17E-08	2.70E-09	9.21E-07	1.50E-07	8.34E-07	4.91E-08	---	4.86E-07	2.49E-06
Uranium (U)	3.58E-07	1.87E-08	1.25E-06	1.50E-07	1.53E-07	1.85E-09	---	1.70E-06	3.63E-06

Total Daily Intake Rates for an Infant in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.41E-02	7.96E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.52E-02
Antimony (Sb)	9.51E-07	2.22E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.49E-06
Arsenic (As)	1.38E-05	9.63E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	3.30E-05
Chromium (Cr)	1.17E-04	2.72E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.62E-04
Cobalt (Co)	2.83E-05	6.59E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	3.08E-05
Copper (Cu)	1.52E-04	2.12E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.27E-02
Lead (Pb)	1.62E-05	2.27E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	2.74E-05
Manganese (Mn)	1.37E-03	3.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.45E-03
Mercury (Hg)	1.13E-07	1.22E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.67E-07
Molybdenum (Mo)	2.95E-06	6.88E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.86E-05
Nickel (Ni)	1.09E-04	8.91E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	2.13E-04
Selenium (Se)	1.07E-06	2.50E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.94E-05
Thallium (Tl)	2.07E-07	4.83E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.44E-07
Uranium (U)	1.44E-06	3.35E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	4.03E-06

Total Daily Intake Rates for a Teen in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.69E-03	3.56E-04	1.03E-02	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.61E-02
Antimony (Sb)	1.31E-07	9.93E-08	2.03E-06	5.70E-07	3.48E-07	5.59E-09	---	3.35E-06	6.53E-06
Arsenic (As)	1.89E-06	4.32E-07	9.04E-06	1.14E-06	2.51E-06	1.91E-07	---	8.38E-06	2.36E-05
Chromium (Cr)	1.60E-05	1.22E-05	4.99E-05	5.52E-05	6.97E-06	3.96E-06	---	8.38E-06	1.53E-04
Cobalt (Co)	3.89E-06	2.95E-07	1.55E-05	1.14E-06	1.02E-05	1.12E-05	---	8.38E-07	4.31E-05
Copper (Cu)	2.08E-05	9.50E-06	7.75E-04	1.18E-04	9.23E-05	2.13E-05	---	5.75E-03	6.78E-03
Lead (Pb)	2.23E-06	1.02E-07	8.71E-06	1.14E-06	5.49E-05	1.63E-08	---	5.03E-06	7.21E-05
Manganese (Mn)	1.89E-04	1.43E-05	2.25E-03	2.02E-05	4.04E-05	9.65E-06	---	2.18E-05	2.54E-03
Mercury (Hg)	1.55E-08	5.48E-08	1.05E-06	3.42E-07	9.91E-06	1.77E-08	---	3.35E-07	1.17E-05
Molybdenum (Mo)	4.05E-07	3.08E-08	2.07E-04	3.39E-06	9.96E-06	6.27E-06	---	1.17E-05	2.39E-04
Nickel (Ni)	1.50E-05	3.99E-05	5.79E-05	2.39E-05	2.67E-04	5.22E-06	---	6.70E-06	4.15E-04
Selenium (Se)	1.47E-07	1.12E-08	2.03E-05	3.08E-05	1.63E-04	1.75E-07	---	8.38E-06	2.23E-04
Thallium (Tl)	2.85E-08	2.16E-09	6.21E-07	1.14E-07	5.31E-07	3.74E-08	---	3.35E-07	1.67E-06
Uranium (U)	1.97E-07	1.50E-08	8.35E-07	1.14E-07	9.76E-08	1.41E-09	---	1.17E-06	2.43E-06

Total Daily Intake Rates for a Toddler in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	6.79E-02	5.84E-04	1.87E-02	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	8.86E-02
Antimony (Sb)	1.89E-06	1.63E-07	4.92E-06	1.04E-06	6.79E-07	1.02E-08	---	7.27E-06	1.60E-05
Arsenic (As)	2.74E-05	7.07E-07	1.83E-05	2.08E-06	4.89E-06	3.49E-07	---	1.82E-05	7.19E-05
Chromium (Cr)	2.32E-04	1.99E-05	1.07E-04	1.01E-04	1.36E-05	7.24E-06	---	1.82E-05	4.99E-04
Cobalt (Co)	5.62E-05	4.84E-07	3.10E-05	2.08E-06	1.99E-05	2.05E-05	---	1.82E-06	1.32E-04
Copper (Cu)	3.02E-04	1.56E-05	1.81E-03	2.17E-04	1.80E-04	3.90E-05	---	1.25E-02	1.50E-02
Lead (Pb)	3.22E-05	1.66E-07	1.85E-05	2.08E-06	1.07E-04	2.99E-08	---	1.09E-05	1.71E-04
Manganese (Mn)	2.73E-03	2.35E-05	4.54E-03	3.70E-05	7.87E-05	1.77E-05	---	4.73E-05	7.47E-03
Mercury (Hg)	2.24E-07	8.98E-08	2.54E-06	6.25E-07	1.93E-05	3.25E-08	---	7.27E-07	2.36E-05
Molybdenum (Mo)	5.87E-06	5.05E-08	4.32E-04	6.20E-06	1.94E-05	1.15E-05	---	2.55E-05	5.00E-04
Nickel (Ni)	2.17E-04	6.54E-05	1.24E-04	4.38E-05	5.19E-04	9.56E-06	---	1.45E-05	9.94E-04
Selenium (Se)	2.13E-06	1.83E-08	4.92E-05	5.63E-05	3.18E-04	3.21E-07	---	1.82E-05	4.44E-04
Thallium (Tl)	4.12E-07	3.54E-09	1.35E-06	2.08E-07	1.04E-06	6.85E-08	---	7.27E-07	3.81E-06
Uranium (U)	2.86E-06	2.46E-08	1.80E-06	2.08E-07	1.90E-07	2.58E-09	---	2.55E-06	7.63E-06

Non-carcinogenic risk estimates for an Adult in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.96E-03	3.39E-04	8.15E-03	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	1.32E-02
Antimony (Sb)	2.76E-04	2.36E-04	4.05E-03	1.29E-03	7.85E-04	1.26E-05	---	1.06E-02	1.73E-02
Arsenic (As)	5.33E-03	1.37E-03	2.28E-02	3.43E-03	7.54E-03	5.75E-04	---	3.54E-02	7.64E-02
Chromium (Cr)	9.01E-06	7.72E-06	2.58E-05	3.33E-05	4.19E-06	2.39E-06	---	7.07E-06	8.94E-05
Cobalt (Co)	3.28E-03	2.81E-04	1.20E-02	1.03E-03	9.20E-03	1.01E-02	---	1.06E-03	3.70E-02
Copper (Cu)	1.25E-04	6.41E-05	4.47E-03	7.59E-04	5.90E-04	1.37E-04	---	5.16E-02	5.78E-02
Lead (Pb)	1.45E-03	7.43E-05	5.49E-03	7.92E-04	3.80E-02	1.13E-05	---	4.90E-03	5.08E-02
Manganese (Mn)	1.14E-03	9.74E-05	1.36E-02	1.31E-04	2.60E-04	6.23E-05	---	1.97E-04	1.55E-02
Mercury (Hg)	4.36E-05	1.74E-04	2.83E-03	1.03E-03	4.47E-02	5.35E-05	---	1.41E-03	5.02E-02
Molybdenum (Mo)	6.85E-05	5.86E-06	3.50E-02	6.13E-04	1.80E-03	1.13E-03	---	2.97E-03	4.16E-02
Nickel (Ni)	6.34E-04	1.90E-03	2.28E-03	1.08E-03	1.20E-02	2.36E-04	---	4.24E-04	1.86E-02
Selenium (Se)	2.49E-05	2.13E-06	3.24E-03	5.56E-03	2.94E-02	3.17E-05	---	2.12E-03	4.04E-02
Thallium (Tl)	1.72E-03	1.47E-04	3.42E-02	7.36E-03	3.42E-02	2.42E-03	---	3.03E-02	1.10E-01
Uranium (U)	5.55E-05	4.75E-06	2.34E-04	3.43E-05	2.93E-05	4.25E-07	---	4.95E-04	8.53E-04

Non-carcinogenic risk estimates for a Child in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	8.51E-03	4.45E-04	1.40E-02	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	2.40E-02
Antimony (Sb)	5.93E-04	3.10E-04	8.01E-03	1.87E-03	1.37E-03	1.84E-05	---	1.22E-02	2.43E-02
Arsenic (As)	1.14E-02	1.79E-03	4.30E-02	4.98E-03	1.31E-02	8.35E-04	---	4.05E-02	1.16E-01
Chromium (Cr)	1.94E-05	1.01E-05	4.90E-05	4.84E-05	7.29E-06	3.46E-06	---	8.11E-06	1.46E-04
Cobalt (Co)	7.05E-03	3.68E-04	2.21E-02	1.50E-03	1.60E-02	1.47E-02	---	1.22E-03	6.29E-02
Copper (Cu)	3.44E-04	1.08E-04	1.09E-02	1.41E-03	1.32E-03	2.55E-04	---	7.58E-02	9.02E-02
Lead (Pb)	6.74E-03	2.11E-04	2.15E-02	2.49E-03	1.44E-01	3.57E-05	---	1.22E-02	1.87E-01
Manganese (Mn)	2.44E-03	1.28E-04	2.33E-02	1.90E-04	4.53E-04	9.05E-05	---	2.26E-04	2.68E-02
Mercury (Hg)	9.36E-05	2.28E-04	5.54E-03	1.50E-03	7.78E-02	7.76E-05	---	1.62E-03	8.69E-02
Molybdenum (Mo)	1.47E-04	7.69E-06	6.10E-02	8.90E-04	3.13E-03	1.65E-03	---	3.40E-03	7.02E-02
Nickel (Ni)	1.36E-03	2.49E-03	4.28E-03	1.57E-03	2.09E-02	3.43E-04	---	4.86E-04	3.15E-02
Selenium (Se)	5.35E-05	2.80E-06	6.41E-03	8.08E-03	5.13E-02	4.60E-05	---	2.43E-03	6.83E-02
Thallium (Tl)	3.69E-03	1.93E-04	6.58E-02	1.07E-02	5.96E-02	3.51E-03	---	3.47E-02	1.78E-01
Uranium (U)	1.19E-04	6.24E-06	4.17E-04	4.98E-05	5.11E-05	6.17E-07	---	5.67E-04	1.21E-03

Non-carcinogenic risk for estimates an Infant in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.41E-02	7.96E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.52E-02
Antimony (Sb)	2.38E-03	5.54E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.12E-02
Arsenic (As)	4.59E-02	3.21E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	1.10E-01
Chromium (Cr)	7.77E-05	1.81E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	1.08E-04
Cobalt (Co)	2.83E-02	6.59E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	3.08E-02
Copper (Cu)	1.67E-03	2.33E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.40E-01
Lead (Pb)	2.70E-02	3.78E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	4.57E-02
Manganese (Mn)	9.81E-03	2.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	1.04E-02
Mercury (Hg)	3.76E-04	4.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	3.22E-03
Molybdenum (Mo)	5.90E-04	1.38E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.73E-03
Nickel (Ni)	5.46E-03	4.46E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	1.07E-02
Selenium (Se)	2.15E-04	5.00E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.88E-03
Thallium (Tl)	1.48E-02	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	6.74E-02
Uranium (U)	4.79E-04	1.12E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	1.34E-03

Non-carcinogenic risk estimates for a Teen in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.69E-03	3.56E-04	1.03E-02	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.61E-02
Antimony (Sb)	3.27E-04	2.48E-04	5.07E-03	1.42E-03	8.71E-04	1.40E-05	---	8.38E-03	1.63E-02
Arsenic (As)	6.31E-03	1.44E-03	3.01E-02	3.80E-03	8.36E-03	6.36E-04	---	2.79E-02	7.86E-02
Chromium (Cr)	1.07E-05	8.11E-06	3.33E-05	3.68E-05	4.65E-06	2.64E-06	---	5.58E-06	1.02E-04
Cobalt (Co)	3.89E-03	2.95E-04	1.55E-02	1.14E-03	1.02E-02	1.12E-02	---	8.38E-04	4.31E-02
Copper (Cu)	1.65E-04	7.54E-05	6.15E-03	9.40E-04	7.33E-04	1.69E-04	---	4.56E-02	5.38E-02
Lead (Pb)	1.71E-03	7.81E-05	6.70E-03	8.76E-04	4.22E-02	1.25E-05	---	3.87E-03	5.55E-02
Manganese (Mn)	1.35E-03	1.02E-04	1.60E-02	1.44E-04	2.89E-04	6.89E-05	---	1.56E-04	1.82E-02
Mercury (Hg)	5.16E-05	1.83E-04	3.51E-03	1.14E-03	4.96E-02	5.91E-05	---	1.12E-03	5.56E-02
Molybdenum (Mo)	8.11E-05	6.16E-06	4.15E-02	6.78E-04	1.99E-03	1.25E-03	---	2.35E-03	4.78E-02
Nickel (Ni)	7.50E-04	2.00E-03	2.90E-03	1.20E-03	1.33E-02	2.61E-04	---	3.35E-04	2.08E-02
Selenium (Se)	2.95E-05	2.24E-06	4.05E-03	6.15E-03	3.26E-02	3.51E-05	---	1.68E-03	4.46E-02
Thallium (Tl)	2.03E-03	1.55E-04	4.44E-02	8.14E-03	3.80E-02	2.67E-03	---	2.39E-02	1.19E-01
Uranium (U)	6.58E-05	5.00E-06	2.78E-04	3.80E-05	3.25E-05	4.70E-07	---	3.91E-04	8.11E-04

Non-carcinogenic risk estimates for a Toddler in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	6.79E-02	5.84E-04	1.87E-02	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	8.86E-02
Antimony (Sb)	4.73E-03	4.07E-04	1.23E-02	2.61E-03	1.70E-03	2.56E-05	---	1.82E-02	3.99E-02
Arsenic (As)	9.13E-02	2.36E-03	6.11E-02	6.95E-03	1.63E-02	1.16E-03	---	6.06E-02	2.40E-01
Chromium (Cr)	1.55E-04	1.33E-05	7.12E-05	6.74E-05	9.05E-06	4.83E-06	---	1.21E-05	3.32E-04
Cobalt (Co)	5.62E-02	4.84E-04	3.10E-02	2.08E-03	1.99E-02	2.05E-02	---	1.82E-03	1.32E-01
Copper (Cu)	3.31E-03	1.71E-04	1.99E-02	2.38E-03	1.98E-03	4.29E-04	---	1.37E-01	1.65E-01
Lead (Pb)	5.37E-02	2.77E-04	3.08E-02	3.47E-03	1.78E-01	4.98E-05	---	1.82E-02	2.85E-01
Manganese (Mn)	1.95E-02	1.68E-04	3.24E-02	2.64E-04	5.62E-04	1.26E-04	---	3.38E-04	5.34E-02
Mercury (Hg)	7.47E-04	2.99E-04	8.47E-03	2.08E-03	9.66E-02	1.08E-04	---	2.42E-03	1.11E-01
Molybdenum (Mo)	1.17E-03	1.01E-05	8.63E-02	1.24E-03	3.88E-03	2.30E-03	---	5.09E-03	1.00E-01
Nickel (Ni)	1.09E-02	3.27E-03	6.22E-03	2.19E-03	2.60E-02	4.78E-04	---	7.27E-04	4.97E-02
Selenium (Se)	4.27E-04	3.67E-06	9.84E-03	1.13E-02	6.36E-02	6.42E-05	---	3.64E-03	8.88E-02
Thallium (Tl)	2.94E-02	2.53E-04	9.64E-02	1.49E-02	7.39E-02	4.89E-03	---	5.19E-02	2.72E-01
Uranium (U)	9.52E-04	8.19E-06	6.01E-04	6.95E-05	6.34E-05	8.60E-07	---	8.48E-04	2.54E-03

Lifetime Average Daily Dose for a Resident in North Shore under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.22E-03	3.67E-04	9.43E-03	2.10E-04	1.78E-04	2.26E-04	---	1.49E-04	1.88E-02
Antimony (Sb)	2.29E-07	1.02E-07	1.97E-06	5.67E-07	3.56E-07	5.57E-09	---	3.73E-06	6.96E-06
Arsenic (As)	3.32E-06	4.44E-07	8.20E-06	1.13E-06	2.57E-06	1.90E-07	---	9.32E-06	2.52E-05
Barium (Ba)	8.33E-05	3.72E-05	6.04E-04	3.69E-06	5.76E-06	1.44E-06	---	1.86E-04	9.22E-04
Chromium (Cr)	2.81E-05	1.25E-05	4.64E-05	5.50E-05	7.13E-06	3.94E-06	---	9.32E-06	1.62E-04
Cobalt (Co)	6.81E-06	3.04E-07	1.43E-05	1.13E-06	1.04E-05	1.11E-05	---	9.32E-07	4.50E-05
Copper (Cu)	3.65E-05	9.77E-06	7.57E-04	1.18E-04	9.44E-05	2.12E-05	---	6.39E-03	7.43E-03
Lead (Pb)	3.90E-06	1.04E-07	8.39E-06	1.13E-06	5.61E-05	1.62E-08	---	5.59E-06	7.53E-05
Manganese (Mn)	3.30E-04	1.47E-05	2.19E-03	2.01E-05	4.13E-05	9.61E-06	---	2.42E-05	2.63E-03
Mercury (Hg)	2.71E-08	5.64E-08	1.03E-06	3.40E-07	1.01E-05	1.77E-08	---	3.73E-07	1.20E-05
Molybdenum (Mo)	7.10E-07	3.17E-08	2.03E-04	3.37E-06	1.02E-05	6.25E-06	---	1.30E-05	2.36E-04
Nickel (Ni)	2.63E-05	4.11E-05	5.44E-05	2.38E-05	2.73E-04	5.20E-06	---	7.46E-06	4.31E-04
Selenium (Se)	2.58E-07	1.15E-08	1.97E-05	3.06E-05	1.67E-04	1.75E-07	---	9.32E-06	2.27E-04
Thallium (Tl)	4.99E-08	2.23E-09	5.77E-07	1.13E-07	5.44E-07	3.73E-08	---	3.73E-07	1.70E-06
Uranium (U)	3.46E-07	1.54E-08	8.20E-07	1.13E-07	9.98E-08	1.40E-09	---	1.30E-06	2.70E-06
Vanadium (V)	4.01E-05	1.79E-05	2.96E-05	7.66E-06	4.10E-06	2.22E-06	---	3.73E-05	1.39E-04

Total Daily Intake Rates for an Adult in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.96E-03	3.39E-04	8.15E-03	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	1.38E-02
Antimony (Sb)	1.10E-07	9.45E-08	1.62E-06	5.78E-07	3.14E-07	5.35E-09	---	4.24E-06	6.96E-06
Arsenic (As)	1.60E-06	4.10E-07	6.84E-06	1.07E-06	2.71E-06	1.75E-07	---	1.06E-05	2.34E-05
Chromium (Cr)	1.35E-05	1.16E-05	3.87E-05	5.02E-05	3.02E-05	3.62E-06	---	1.06E-05	1.58E-04
Cobalt (Co)	3.28E-06	2.81E-07	1.20E-05	1.03E-06	1.95E-05	1.02E-05	---	1.06E-06	4.74E-05
Copper (Cu)	1.76E-05	9.04E-06	6.30E-04	1.13E-04	1.46E-04	1.94E-05	---	7.28E-03	8.21E-03
Lead (Pb)	1.88E-06	9.66E-08	7.14E-06	1.04E-06	7.02E-05	1.49E-08	---	6.36E-06	8.68E-05
Manganese (Mn)	1.59E-04	1.36E-05	1.90E-03	1.95E-05	4.78E-05	8.83E-06	---	2.76E-05	2.18E-03
Mercury (Hg)	1.31E-08	5.23E-08	8.49E-07	3.20E-07	9.44E-06	1.66E-08	---	4.24E-07	1.11E-05
Molybdenum (Mo)	3.42E-07	2.93E-08	1.75E-04	3.08E-06	1.66E-05	5.73E-06	---	1.49E-05	2.16E-04
Nickel (Ni)	1.27E-05	3.80E-05	4.55E-05	2.17E-05	3.89E-04	4.76E-06	---	8.49E-06	5.21E-04
Selenium (Se)	1.25E-07	1.07E-08	1.62E-05	2.82E-05	2.60E-04	1.61E-07	---	1.06E-05	3.16E-04
Thallium (Tl)	2.41E-08	2.06E-09	4.78E-07	1.06E-07	4.79E-07	3.46E-08	---	4.24E-07	1.55E-06
Uranium (U)	1.67E-07	1.43E-08	7.01E-07	1.18E-07	1.09E-07	1.50E-09	---	1.49E-06	2.60E-06

Total Daily Intake Rates for a Child in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.51E-03	4.45E-04	1.40E-02	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	2.52E-02
Antimony (Sb)	2.37E-07	1.24E-07	3.21E-06	8.39E-07	5.47E-07	7.76E-09	---	4.86E-06	9.82E-06
Arsenic (As)	3.44E-06	5.38E-07	1.29E-05	1.55E-06	4.72E-06	2.54E-07	---	1.22E-05	3.56E-05
Chromium (Cr)	2.91E-05	1.52E-05	7.35E-05	7.30E-05	5.26E-05	5.25E-06	---	1.22E-05	2.61E-04
Cobalt (Co)	7.05E-06	3.68E-07	2.21E-05	1.50E-06	3.40E-05	1.48E-05	---	1.22E-06	8.10E-05
Copper (Cu)	3.78E-05	1.19E-05	1.20E-03	1.64E-04	2.54E-04	2.82E-05	---	8.34E-03	1.00E-02
Lead (Pb)	4.04E-06	1.27E-07	1.29E-05	1.51E-06	1.22E-04	2.16E-08	---	7.29E-06	1.48E-04
Manganese (Mn)	3.42E-04	1.79E-05	3.26E-03	2.84E-05	8.33E-05	1.28E-05	---	3.16E-05	3.77E-03
Mercury (Hg)	2.82E-08	6.85E-08	1.66E-06	4.64E-07	1.65E-05	2.41E-08	---	4.86E-07	1.92E-05
Molybdenum (Mo)	7.36E-07	3.84E-08	3.05E-04	4.48E-06	2.90E-05	8.32E-06	---	1.70E-05	3.65E-04
Nickel (Ni)	2.72E-05	4.98E-05	8.56E-05	3.15E-05	6.78E-04	6.91E-06	---	9.73E-06	8.89E-04
Selenium (Se)	2.68E-07	1.40E-08	3.21E-05	4.10E-05	4.53E-04	2.33E-07	---	1.22E-05	5.39E-04
Thallium (Tl)	5.17E-08	2.70E-09	9.21E-07	1.54E-07	8.34E-07	5.03E-08	---	4.86E-07	2.50E-06
Uranium (U)	3.58E-07	1.87E-08	1.25E-06	1.71E-07	1.90E-07	2.18E-09	---	1.70E-06	3.69E-06

Total Daily Intake Rates for an Infant in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.41E-02	7.96E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.52E-02
Antimony (Sb)	9.52E-07	2.22E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.49E-06
Arsenic (As)	1.38E-05	9.63E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	3.30E-05
Chromium (Cr)	1.17E-04	2.72E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.62E-04
Cobalt (Co)	2.83E-05	6.59E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	3.08E-05
Copper (Cu)	1.52E-04	2.12E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.27E-02
Lead (Pb)	1.62E-05	2.27E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	2.74E-05
Manganese (Mn)	1.37E-03	3.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.45E-03
Mercury (Hg)	1.13E-07	1.23E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.67E-07
Molybdenum (Mo)	2.95E-06	6.88E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.86E-05
Nickel (Ni)	1.09E-04	8.91E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	2.13E-04
Selenium (Se)	1.07E-06	2.50E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.94E-05
Thallium (Tl)	2.07E-07	4.83E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.44E-07
Uranium (U)	1.44E-06	3.35E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	4.03E-06

Total Daily Intake Rates for a Teen in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.69E-03	3.56E-04	1.03E-02	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.68E-02
Antimony (Sb)	1.31E-07	9.94E-08	2.03E-06	6.39E-07	3.48E-07	5.91E-09	---	3.35E-06	6.60E-06
Arsenic (As)	1.89E-06	4.32E-07	9.04E-06	1.18E-06	3.01E-06	1.93E-07	---	8.38E-06	2.41E-05
Chromium (Cr)	1.60E-05	1.22E-05	4.99E-05	5.56E-05	3.35E-05	4.00E-06	---	8.38E-06	1.80E-04
Cobalt (Co)	3.89E-06	2.95E-07	1.55E-05	1.14E-06	2.17E-05	1.12E-05	---	8.38E-07	5.46E-05
Copper (Cu)	2.08E-05	9.51E-06	7.75E-04	1.25E-04	1.62E-04	2.15E-05	---	5.75E-03	6.86E-03
Lead (Pb)	2.23E-06	1.02E-07	8.71E-06	1.15E-06	7.79E-05	1.65E-08	---	5.03E-06	9.52E-05
Manganese (Mn)	1.89E-04	1.43E-05	2.25E-03	2.16E-05	5.30E-05	9.77E-06	---	2.18E-05	2.56E-03
Mercury (Hg)	1.55E-08	5.49E-08	1.05E-06	3.54E-07	1.05E-05	1.84E-08	---	3.35E-07	1.23E-05
Molybdenum (Mo)	4.05E-07	3.08E-08	2.08E-04	3.41E-06	1.85E-05	6.34E-06	---	1.17E-05	2.48E-04
Nickel (Ni)	1.50E-05	3.99E-05	5.79E-05	2.40E-05	4.32E-04	5.26E-06	---	6.70E-06	5.81E-04
Selenium (Se)	1.47E-07	1.12E-08	2.03E-05	3.12E-05	2.89E-04	1.78E-07	---	8.38E-06	3.49E-04
Thallium (Tl)	2.85E-08	2.17E-09	6.21E-07	1.17E-07	5.31E-07	3.83E-08	---	3.35E-07	1.67E-06
Uranium (U)	1.97E-07	1.50E-08	8.36E-07	1.31E-07	1.21E-07	1.66E-09	---	1.17E-06	2.47E-06

Total Daily Intake Rates for a Toddler in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	6.79E-02	5.84E-04	1.87E-02	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	9.01E-02
Antimony (Sb)	1.89E-06	1.63E-07	4.93E-06	1.17E-06	6.79E-07	1.08E-08	---	7.27E-06	1.61E-05
Arsenic (As)	2.74E-05	7.07E-07	1.83E-05	2.16E-06	5.86E-06	3.54E-07	---	1.82E-05	7.30E-05
Chromium (Cr)	2.32E-04	1.99E-05	1.07E-04	1.02E-04	6.53E-05	7.32E-06	---	1.82E-05	5.51E-04
Cobalt (Co)	5.62E-05	4.84E-07	3.10E-05	2.09E-06	4.22E-05	2.06E-05	---	1.82E-06	1.54E-04
Copper (Cu)	3.02E-04	1.56E-05	1.81E-03	2.29E-04	3.16E-04	3.93E-05	---	1.25E-02	1.52E-02
Lead (Pb)	3.22E-05	1.66E-07	1.85E-05	2.11E-06	1.52E-04	3.01E-08	---	1.09E-05	2.16E-04
Manganese (Mn)	2.73E-03	2.35E-05	4.54E-03	3.95E-05	1.03E-04	1.79E-05	---	4.73E-05	7.50E-03
Mercury (Hg)	2.25E-07	9.00E-08	2.55E-06	6.47E-07	2.04E-05	3.37E-08	---	7.27E-07	2.47E-05
Molybdenum (Mo)	5.87E-06	5.05E-08	4.32E-04	6.24E-06	3.60E-05	1.16E-05	---	2.55E-05	5.17E-04
Nickel (Ni)	2.17E-04	6.54E-05	1.24E-04	4.39E-05	8.42E-04	9.64E-06	---	1.45E-05	1.32E-03
Selenium (Se)	2.13E-06	1.84E-08	4.92E-05	5.72E-05	5.63E-04	3.25E-07	---	1.82E-05	6.90E-04
Thallium (Tl)	4.12E-07	3.55E-09	1.35E-06	2.14E-07	1.04E-06	7.01E-08	---	7.27E-07	3.81E-06
Uranium (U)	2.86E-06	2.46E-08	1.80E-06	2.39E-07	2.36E-07	3.04E-09	---	2.55E-06	7.71E-06

Non-carcinogenic risk estimates for an Adult in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.96E-03	3.39E-04	8.15E-03	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	1.38E-02
Antimony (Sb)	2.76E-04	2.36E-04	4.05E-03	1.44E-03	7.85E-04	1.34E-05	---	1.06E-02	1.74E-02
Arsenic (As)	5.33E-03	1.37E-03	2.28E-02	3.55E-03	9.04E-03	5.83E-04	---	3.54E-02	7.80E-02
Chromium (Cr)	9.02E-06	7.72E-06	2.58E-05	3.35E-05	2.01E-05	2.41E-06	---	7.07E-06	1.06E-04
Cobalt (Co)	3.28E-03	2.81E-04	1.20E-02	1.03E-03	1.95E-02	1.02E-02	---	1.06E-03	4.74E-02
Copper (Cu)	1.25E-04	6.41E-05	4.47E-03	8.02E-04	1.04E-03	1.38E-04	---	5.16E-02	5.82E-02
Lead (Pb)	1.45E-03	7.43E-05	5.49E-03	8.00E-04	5.40E-02	1.14E-05	---	4.90E-03	6.67E-02
Manganese (Mn)	1.14E-03	9.74E-05	1.36E-02	1.39E-04	3.42E-04	6.31E-05	---	1.97E-04	1.56E-02
Mercury (Hg)	4.37E-05	1.74E-04	2.83E-03	1.07E-03	4.72E-02	5.54E-05	---	1.41E-03	5.28E-02
Molybdenum (Mo)	6.85E-05	5.86E-06	3.50E-02	6.17E-04	3.33E-03	1.15E-03	---	2.97E-03	4.31E-02
Nickel (Ni)	6.34E-04	1.90E-03	2.28E-03	1.08E-03	1.95E-02	2.38E-04	---	4.24E-04	2.60E-02
Selenium (Se)	2.49E-05	2.13E-06	3.24E-03	5.65E-03	5.21E-02	3.21E-05	---	2.12E-03	6.31E-02
Thallium (Tl)	1.72E-03	1.47E-04	3.42E-02	7.55E-03	3.42E-02	2.47E-03	---	3.03E-02	1.11E-01
Uranium (U)	5.56E-05	4.76E-06	2.34E-04	3.93E-05	3.64E-05	5.01E-07	---	4.95E-04	8.65E-04

Non-carcinogenic risk estimates for a Child in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	8.51E-03	4.45E-04	1.40E-02	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	2.52E-02
Antimony (Sb)	5.93E-04	3.10E-04	8.02E-03	2.10E-03	1.37E-03	1.94E-05	---	1.22E-02	2.46E-02
Arsenic (As)	1.15E-02	1.79E-03	4.30E-02	5.16E-03	1.57E-02	8.46E-04	---	4.05E-02	1.19E-01
Chromium (Cr)	1.94E-05	1.01E-05	4.90E-05	4.86E-05	3.51E-05	3.50E-06	---	8.11E-06	1.74E-04
Cobalt (Co)	7.05E-03	3.68E-04	2.21E-02	1.50E-03	3.40E-02	1.48E-02	---	1.22E-03	8.10E-02
Copper (Cu)	3.44E-04	1.08E-04	1.09E-02	1.49E-03	2.31E-03	2.57E-04	---	7.58E-02	9.13E-02
Lead (Pb)	6.74E-03	2.11E-04	2.15E-02	2.52E-03	2.04E-01	3.60E-05	---	1.22E-02	2.47E-01
Manganese (Mn)	2.44E-03	1.28E-04	2.33E-02	2.03E-04	5.95E-04	9.16E-05	---	2.26E-04	2.70E-02
Mercury (Hg)	9.38E-05	2.28E-04	5.55E-03	1.55E-03	8.23E-02	8.05E-05	---	1.62E-03	9.14E-02
Molybdenum (Mo)	1.47E-04	7.69E-06	6.10E-02	8.96E-04	5.80E-03	1.66E-03	---	3.40E-03	7.29E-02
Nickel (Ni)	1.36E-03	2.49E-03	4.28E-03	1.58E-03	3.39E-02	3.46E-04	---	4.86E-04	4.45E-02
Selenium (Se)	5.35E-05	2.80E-06	6.41E-03	8.20E-03	9.07E-02	4.66E-05	---	2.43E-03	1.08E-01
Thallium (Tl)	3.69E-03	1.93E-04	6.58E-02	1.10E-02	5.96E-02	3.59E-03	---	3.47E-02	1.79E-01
Uranium (U)	1.19E-04	6.24E-06	4.17E-04	5.71E-05	6.35E-05	7.27E-07	---	5.67E-04	1.23E-03

Non-carcinogenic risk for estimates an Infant in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.41E-02	7.96E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.52E-02
Antimony (Sb)	2.38E-03	5.55E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.12E-02
Arsenic (As)	4.59E-02	3.21E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	1.10E-01
Chromium (Cr)	7.77E-05	1.81E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	1.08E-04
Cobalt (Co)	2.83E-02	6.59E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	3.08E-02
Copper (Cu)	1.67E-03	2.33E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.40E-01
Lead (Pb)	2.70E-02	3.78E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	4.57E-02
Manganese (Mn)	9.81E-03	2.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	1.04E-02
Mercury (Hg)	3.77E-04	4.09E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	3.22E-03
Molybdenum (Mo)	5.90E-04	1.38E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.73E-03
Nickel (Ni)	5.46E-03	4.46E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	1.07E-02
Selenium (Se)	2.15E-04	5.00E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.88E-03
Thallium (Tl)	1.48E-02	3.45E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	6.74E-02
Uranium (U)	4.79E-04	1.12E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	1.34E-03

Non-carcinogenic risk estimates for a Teen in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.69E-03	3.56E-04	1.03E-02	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.68E-02
Antimony (Sb)	3.27E-04	2.48E-04	5.07E-03	1.60E-03	8.71E-04	1.48E-05	---	8.38E-03	1.65E-02
Arsenic (As)	6.31E-03	1.44E-03	3.01E-02	3.93E-03	1.00E-02	6.45E-04	---	2.79E-02	8.04E-02
Chromium (Cr)	1.07E-05	8.11E-06	3.33E-05	3.71E-05	2.23E-05	2.67E-06	---	5.58E-06	1.20E-04
Cobalt (Co)	3.89E-03	2.95E-04	1.55E-02	1.14E-03	2.17E-02	1.12E-02	---	8.38E-04	5.46E-02
Copper (Cu)	1.65E-04	7.54E-05	6.15E-03	9.92E-04	1.29E-03	1.71E-04	---	4.56E-02	5.44E-02
Lead (Pb)	1.71E-03	7.82E-05	6.70E-03	8.85E-04	5.99E-02	1.27E-05	---	3.87E-03	7.32E-02
Manganese (Mn)	1.35E-03	1.02E-04	1.60E-02	1.54E-04	3.79E-04	6.98E-05	---	1.56E-04	1.83E-02
Mercury (Hg)	5.17E-05	1.83E-04	3.52E-03	1.18E-03	5.24E-02	6.13E-05	---	1.12E-03	5.85E-02
Molybdenum (Mo)	8.11E-05	6.16E-06	4.15E-02	6.82E-04	3.69E-03	1.27E-03	---	2.35E-03	4.96E-02
Nickel (Ni)	7.51E-04	2.00E-03	2.90E-03	1.20E-03	2.16E-02	2.63E-04	---	3.35E-04	2.90E-02
Selenium (Se)	2.95E-05	2.24E-06	4.06E-03	6.25E-03	5.78E-02	3.55E-05	---	1.68E-03	6.98E-02
Thallium (Tl)	2.04E-03	1.55E-04	4.44E-02	8.36E-03	3.80E-02	2.74E-03	---	2.39E-02	1.20E-01
Uranium (U)	6.58E-05	5.00E-06	2.79E-04	4.35E-05	4.04E-05	5.54E-07	---	3.91E-04	8.25E-04

Non-carcinogenic risk estimates for a Toddler in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	6.79E-02	5.84E-04	1.87E-02	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	9.01E-02
Antimony (Sb)	4.73E-03	4.07E-04	1.23E-02	2.92E-03	1.70E-03	2.71E-05	---	1.82E-02	4.03E-02
Arsenic (As)	9.13E-02	2.36E-03	6.11E-02	7.19E-03	1.95E-02	1.18E-03	---	6.06E-02	2.43E-01
Chromium (Cr)	1.55E-04	1.33E-05	7.12E-05	6.78E-05	4.35E-05	4.88E-06	---	1.21E-05	3.67E-04
Cobalt (Co)	5.62E-02	4.84E-04	3.10E-02	2.09E-03	4.22E-02	2.06E-02	---	1.82E-03	1.54E-01
Copper (Cu)	3.32E-03	1.71E-04	1.99E-02	2.51E-03	3.47E-03	4.32E-04	---	1.37E-01	1.67E-01
Lead (Pb)	5.37E-02	2.77E-04	3.08E-02	3.51E-03	2.53E-01	5.02E-05	---	1.82E-02	3.60E-01
Manganese (Mn)	1.95E-02	1.68E-04	3.24E-02	2.82E-04	7.38E-04	1.28E-04	---	3.38E-04	5.36E-02
Mercury (Hg)	7.48E-04	3.00E-04	8.48E-03	2.16E-03	1.02E-01	1.12E-04	---	2.42E-03	1.16E-01
Molybdenum (Mo)	1.17E-03	1.01E-05	8.64E-02	1.25E-03	7.20E-03	2.32E-03	---	5.09E-03	1.03E-01
Nickel (Ni)	1.09E-02	3.27E-03	6.22E-03	2.20E-03	4.21E-02	4.82E-04	---	7.27E-04	6.58E-02
Selenium (Se)	4.27E-04	3.67E-06	9.85E-03	1.14E-02	1.13E-01	6.50E-05	---	3.64E-03	1.38E-01
Thallium (Tl)	2.95E-02	2.53E-04	9.65E-02	1.53E-02	7.39E-02	5.01E-03	---	5.19E-02	2.72E-01
Uranium (U)	9.52E-04	8.19E-06	6.02E-04	7.96E-05	7.88E-05	1.01E-06	---	8.48E-04	2.57E-03

Carcinogenic Risk for a Resident at the North Shore Location under Project-Alone Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	Total Ingestion Exposure
	unitless	unitless	unitless	unitless	unitless	unitless	unitless	unitless
Arsenic (As)	5.69E-10	7.62E-11	1.41E-09	5.93E-08	7.66E-07	4.04E-09	---	8.32E-07

Notes:

Bold ILCR exceeds benchmark of 1 in 100,000

Lifetime Average Daily Dose for a Resident in North Shore under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.22E-03	3.67E-04	9.43E-03	2.11E-04	9.41E-04	2.28E-04	---	1.49E-04	1.95E-02
Antimony (Sb)	2.29E-07	1.02E-07	1.98E-06	6.36E-07	3.56E-07	5.89E-09	---	3.73E-06	7.03E-06
Arsenic (As)	3.32E-06	4.44E-07	8.20E-06	1.17E-06	3.08E-06	1.93E-07	---	9.32E-06	2.57E-05
Barium (Ba)	8.33E-05	3.72E-05	6.04E-04	3.71E-06	7.79E-06	1.44E-06	---	1.86E-04	9.24E-04
Chromium (Cr)	2.81E-05	1.25E-05	4.64E-05	5.53E-05	3.43E-05	3.98E-06	---	9.32E-06	1.90E-04
Cobalt (Co)	6.81E-06	3.04E-07	1.43E-05	1.14E-06	2.22E-05	1.12E-05	---	9.32E-07	5.68E-05
Copper (Cu)	3.65E-05	9.78E-06	7.57E-04	1.24E-04	1.66E-04	2.14E-05	---	6.39E-03	7.51E-03
Lead (Pb)	3.90E-06	1.05E-07	8.39E-06	1.15E-06	7.97E-05	1.64E-08	---	5.59E-06	9.89E-05
Manganese (Mn)	3.30E-04	1.47E-05	2.19E-03	2.15E-05	5.43E-05	9.73E-06	---	2.42E-05	2.65E-03
Mercury (Hg)	2.72E-08	5.65E-08	1.03E-06	3.52E-07	1.07E-05	1.83E-08	---	3.73E-07	1.26E-05
Molybdenum (Mo)	7.10E-07	3.17E-08	2.03E-04	3.40E-06	1.89E-05	6.31E-06	---	1.30E-05	2.45E-04
Nickel (Ni)	2.63E-05	4.11E-05	5.44E-05	2.39E-05	4.42E-04	5.24E-06	---	7.46E-06	6.00E-04
Selenium (Se)	2.58E-07	1.15E-08	1.97E-05	3.11E-05	2.95E-04	1.77E-07	---	9.32E-06	3.56E-04
Thallium (Tl)	4.99E-08	2.23E-09	5.78E-07	1.16E-07	5.44E-07	3.82E-08	---	3.73E-07	1.70E-06
Uranium (U)	3.46E-07	1.54E-08	8.20E-07	1.30E-07	1.24E-07	1.65E-09	---	1.30E-06	2.74E-06
Vanadium (V)	4.01E-05	1.79E-05	2.96E-05	7.68E-06	6.12E-06	2.24E-06	---	3.73E-05	1.41E-04

Total Daily Intake Rates for an Adult in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.23E-03	2.76E-04	7.43E-03	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	1.17E-02
Antimony (Sb)	9.90E-08	8.48E-08	1.62E-06	5.15E-07	3.14E-07	5.06E-09	---	4.24E-06	6.88E-06
Arsenic (As)	1.24E-06	3.20E-07	5.81E-06	1.03E-06	2.26E-06	1.72E-07	---	1.06E-05	2.14E-05
Chromium (Cr)	1.16E-05	9.92E-06	3.57E-05	4.99E-05	6.28E-06	3.58E-06	---	1.06E-05	1.28E-04
Cobalt (Co)	3.03E-06	2.59E-07	6.91E-06	1.03E-06	9.20E-06	1.01E-05	---	1.06E-06	3.16E-05
Copper (Cu)	1.32E-05	6.78E-06	7.80E-04	1.07E-04	8.32E-05	1.93E-05	---	7.28E-03	8.29E-03
Lead (Pb)	2.10E-06	1.08E-07	6.17E-06	1.03E-06	4.95E-05	1.47E-08	---	6.36E-06	6.52E-05
Manganese (Mn)	1.49E-04	1.27E-05	1.35E-03	1.83E-05	3.64E-05	8.72E-06	---	2.76E-05	1.60E-03
Mercury (Hg)	8.55E-09	3.41E-08	8.09E-07	3.09E-07	8.93E-06	1.60E-08	---	4.24E-07	1.05E-05
Molybdenum (Mo)	3.73E-07	3.20E-08	2.07E-04	3.06E-06	8.98E-06	5.67E-06	---	1.49E-05	2.40E-04
Nickel (Ni)	1.08E-05	3.23E-05	2.92E-05	2.16E-05	2.40E-04	4.72E-06	---	8.49E-06	3.47E-04
Selenium (Se)	1.43E-07	1.22E-08	1.62E-05	2.78E-05	1.47E-04	1.58E-07	---	1.06E-05	2.02E-04
Thallium (Tl)	2.63E-08	2.25E-09	4.59E-07	1.03E-07	4.79E-07	3.38E-08	---	4.24E-07	1.53E-06
Uranium (U)	2.14E-07	1.83E-08	7.01E-07	1.03E-07	8.79E-08	1.27E-09	---	1.49E-06	2.61E-06

Total Daily Intake Rates for a Child in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	6.94E-03	3.62E-04	1.34E-02	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	2.18E-02
Antimony (Sb)	2.13E-07	1.11E-07	3.20E-06	7.48E-07	5.47E-07	7.35E-09	---	4.86E-06	9.69E-06
Arsenic (As)	2.67E-06	4.19E-07	1.08E-05	1.50E-06	3.94E-06	2.50E-07	---	1.22E-05	3.17E-05
Chromium (Cr)	2.49E-05	1.30E-05	6.64E-05	7.25E-05	1.09E-05	5.20E-06	---	1.22E-05	2.05E-04
Cobalt (Co)	6.51E-06	3.40E-07	1.31E-05	1.50E-06	1.60E-05	1.47E-05	---	1.22E-06	5.33E-05
Copper (Cu)	2.84E-05	8.89E-06	1.50E-03	1.56E-04	1.45E-04	2.80E-05	---	8.34E-03	1.02E-02
Lead (Pb)	4.52E-06	1.42E-07	1.16E-05	1.50E-06	8.62E-05	2.14E-08	---	7.29E-06	1.11E-04
Manganese (Mn)	3.20E-04	1.67E-05	2.45E-03	2.65E-05	6.35E-05	1.27E-05	---	3.16E-05	2.92E-03
Mercury (Hg)	1.84E-08	4.47E-08	1.60E-06	4.49E-07	1.56E-05	2.33E-08	---	4.86E-07	1.82E-05
Molybdenum (Mo)	8.02E-07	4.19E-08	3.56E-04	4.45E-06	1.56E-05	8.23E-06	---	1.70E-05	4.02E-04
Nickel (Ni)	2.32E-05	4.24E-05	5.36E-05	3.14E-05	4.19E-04	6.85E-06	---	9.73E-06	5.86E-04
Selenium (Se)	3.07E-07	1.60E-08	3.20E-05	4.04E-05	2.56E-04	2.30E-07	---	1.22E-05	3.41E-04
Thallium (Tl)	5.65E-08	2.95E-09	8.90E-07	1.50E-07	8.34E-07	4.91E-08	---	4.86E-07	2.47E-06
Uranium (U)	4.60E-07	2.40E-08	1.34E-06	1.50E-07	1.53E-07	1.85E-09	---	1.70E-06	3.83E-06

Total Daily Intake Rates for an Infant in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	2.78E-02	6.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	2.88E-02
Antimony (Sb)	8.54E-07	1.99E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.37E-06
Arsenic (As)	1.07E-05	7.50E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	2.98E-05
Chromium (Cr)	9.99E-05	2.33E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.41E-04
Cobalt (Co)	2.61E-05	6.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	2.85E-05
Copper (Cu)	1.14E-04	1.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.27E-02
Lead (Pb)	1.81E-05	2.53E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	2.93E-05
Manganese (Mn)	1.28E-03	2.99E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.36E-03
Mercury (Hg)	7.37E-08	8.00E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	8.85E-07
Molybdenum (Mo)	3.22E-06	7.50E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.89E-05
Nickel (Ni)	9.30E-05	7.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	1.84E-04
Selenium (Se)	1.23E-06	2.87E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.96E-05
Thallium (Tl)	2.27E-07	5.29E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.64E-07
Uranium (U)	1.85E-06	4.30E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	4.45E-06

Total Daily Intake Rates for a Teen in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.82E-03	2.91E-04	1.02E-02	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.50E-02
Antimony (Sb)	1.17E-07	8.91E-08	2.03E-06	5.70E-07	3.48E-07	5.59E-09	---	3.35E-06	6.51E-06
Arsenic (As)	1.47E-06	3.36E-07	7.27E-06	1.14E-06	2.51E-06	1.91E-07	---	8.38E-06	2.13E-05
Chromium (Cr)	1.37E-05	1.04E-05	4.80E-05	5.52E-05	6.97E-06	3.96E-06	---	8.38E-06	1.47E-04
Cobalt (Co)	3.59E-06	2.73E-07	9.17E-06	1.14E-06	1.02E-05	1.12E-05	---	8.38E-07	3.64E-05
Copper (Cu)	1.56E-05	7.13E-06	9.77E-04	1.18E-04	9.23E-05	2.13E-05	---	5.75E-03	6.98E-03
Lead (Pb)	2.49E-06	1.13E-07	7.96E-06	1.14E-06	5.49E-05	1.63E-08	---	5.03E-06	7.16E-05
Manganese (Mn)	1.76E-04	1.34E-05	1.71E-03	2.02E-05	4.04E-05	9.65E-06	---	2.18E-05	1.99E-03
Mercury (Hg)	1.01E-08	3.59E-08	1.01E-06	3.42E-07	9.91E-06	1.77E-08	---	3.35E-07	1.17E-05
Molybdenum (Mo)	4.42E-07	3.36E-08	2.29E-04	3.39E-06	9.96E-06	6.27E-06	---	1.17E-05	2.60E-04
Nickel (Ni)	1.28E-05	3.40E-05	3.87E-05	2.39E-05	2.67E-04	5.22E-06	---	6.70E-06	3.88E-04
Selenium (Se)	1.69E-07	1.29E-08	2.03E-05	3.08E-05	1.63E-04	1.75E-07	---	8.38E-06	2.23E-04
Thallium (Tl)	3.12E-08	2.37E-09	5.99E-07	1.14E-07	5.31E-07	3.74E-08	---	3.35E-07	1.65E-06
Uranium (U)	2.53E-07	1.93E-08	9.45E-07	1.14E-07	9.76E-08	1.41E-09	---	1.17E-06	2.60E-06

Total Daily Intake Rates for a Toddler in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.53E-02	4.76E-04	1.77E-02	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	7.49E-02
Antimony (Sb)	1.70E-06	1.46E-07	4.92E-06	1.04E-06	6.79E-07	1.02E-08	---	7.27E-06	1.58E-05
Arsenic (As)	2.13E-05	5.50E-07	1.57E-05	2.08E-06	4.89E-06	3.49E-07	---	1.82E-05	6.30E-05
Chromium (Cr)	1.99E-04	1.71E-05	9.19E-05	1.01E-04	1.36E-05	7.24E-06	---	1.82E-05	4.48E-04
Cobalt (Co)	5.19E-05	4.46E-07	1.85E-05	2.08E-06	1.99E-05	2.05E-05	---	1.82E-06	1.15E-04
Copper (Cu)	2.26E-04	1.17E-05	2.25E-03	2.17E-04	1.80E-04	3.90E-05	---	1.25E-02	1.54E-02
Lead (Pb)	3.60E-05	1.86E-07	1.66E-05	2.08E-06	1.07E-04	2.99E-08	---	1.09E-05	1.73E-04
Manganese (Mn)	2.55E-03	2.19E-05	3.45E-03	3.70E-05	7.87E-05	1.77E-05	---	4.73E-05	6.21E-03
Mercury (Hg)	1.47E-07	5.87E-08	2.46E-06	6.25E-07	1.93E-05	3.25E-08	---	7.27E-07	2.34E-05
Molybdenum (Mo)	6.40E-06	5.50E-08	5.21E-04	6.20E-06	1.94E-05	1.15E-05	---	2.55E-05	5.90E-04
Nickel (Ni)	1.85E-04	5.57E-05	7.39E-05	4.38E-05	5.19E-04	9.56E-06	---	1.45E-05	9.02E-04
Selenium (Se)	2.45E-06	2.11E-08	4.92E-05	5.63E-05	3.18E-04	3.21E-07	---	1.82E-05	4.44E-04
Thallium (Tl)	4.51E-07	3.88E-09	1.31E-06	2.08E-07	1.04E-06	6.85E-08	---	7.27E-07	3.80E-06
Uranium (U)	3.67E-06	3.15E-08	1.89E-06	2.08E-07	1.90E-07	2.58E-09	---	2.55E-06	8.53E-06

Non-carcinogenic risk estimates for an Adult in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.23E-03	2.76E-04	7.43E-03	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	1.17E-02
Antimony (Sb)	2.48E-04	2.12E-04	4.05E-03	1.29E-03	7.85E-04	1.26E-05	---	1.06E-02	1.72E-02
Arsenic (As)	4.15E-03	1.07E-03	1.94E-02	3.43E-03	7.54E-03	5.75E-04	---	3.54E-02	7.15E-02
Chromium (Cr)	7.72E-06	6.61E-06	2.38E-05	3.33E-05	4.19E-06	2.39E-06	---	7.07E-06	8.50E-05
Cobalt (Co)	3.03E-03	2.59E-04	6.91E-03	1.03E-03	9.20E-03	1.01E-02	---	1.06E-03	3.16E-02
Copper (Cu)	9.36E-05	4.81E-05	5.53E-03	7.59E-04	5.90E-04	1.37E-04	---	5.16E-02	5.88E-02
Lead (Pb)	1.62E-03	8.30E-05	4.75E-03	7.92E-04	3.80E-02	1.13E-05	---	4.90E-03	5.02E-02
Manganese (Mn)	1.06E-03	9.10E-05	9.63E-03	1.31E-04	2.60E-04	6.23E-05	---	1.97E-04	1.14E-02
Mercury (Hg)	2.85E-05	1.14E-04	2.70E-03	1.03E-03	4.47E-02	5.35E-05	---	1.41E-03	5.00E-02
Molybdenum (Mo)	7.47E-05	6.39E-06	4.14E-02	6.13E-04	1.80E-03	1.13E-03	---	2.97E-03	4.80E-02
Nickel (Ni)	5.40E-04	1.62E-03	1.46E-03	1.08E-03	1.20E-02	2.36E-04	---	4.24E-04	1.74E-02
Selenium (Se)	2.86E-05	2.45E-06	3.24E-03	5.56E-03	2.94E-02	3.17E-05	---	2.12E-03	4.04E-02
Thallium (Tl)	1.88E-03	1.61E-04	3.28E-02	7.36E-03	3.42E-02	2.42E-03	---	3.03E-02	1.09E-01
Uranium (U)	7.13E-05	6.11E-06	2.34E-04	3.43E-05	2.93E-05	4.25E-07	---	4.95E-04	8.70E-04

Non-carcinogenic risk estimates for a Child in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	6.94E-03	3.62E-04	1.34E-02	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	2.18E-02
Antimony (Sb)	5.32E-04	2.78E-04	8.01E-03	1.87E-03	1.37E-03	1.84E-05	---	1.22E-02	2.42E-02
Arsenic (As)	8.92E-03	1.40E-03	3.60E-02	4.98E-03	1.31E-02	8.35E-04	---	4.05E-02	1.06E-01
Chromium (Cr)	1.66E-05	8.67E-06	4.43E-05	4.84E-05	7.29E-06	3.46E-06	---	8.11E-06	1.37E-04
Cobalt (Co)	6.51E-03	3.40E-04	1.31E-02	1.50E-03	1.60E-02	1.47E-02	---	1.22E-03	5.33E-02
Copper (Cu)	2.58E-04	8.08E-05	1.36E-02	1.41E-03	1.32E-03	2.55E-04	---	7.58E-02	9.28E-02
Lead (Pb)	7.53E-03	2.36E-04	1.93E-02	2.49E-03	1.44E-01	3.57E-05	---	1.22E-02	1.85E-01
Manganese (Mn)	2.28E-03	1.19E-04	1.75E-02	1.90E-04	4.53E-04	9.05E-05	---	2.26E-04	2.09E-02
Mercury (Hg)	6.12E-05	1.49E-04	5.34E-03	1.50E-03	7.78E-02	7.76E-05	---	1.62E-03	8.66E-02
Molybdenum (Mo)	1.60E-04	8.39E-06	7.12E-02	8.90E-04	3.13E-03	1.65E-03	---	3.40E-03	8.05E-02
Nickel (Ni)	1.16E-03	2.12E-03	2.68E-03	1.57E-03	2.09E-02	3.43E-04	---	4.86E-04	2.93E-02
Selenium (Se)	6.14E-05	3.21E-06	6.41E-03	8.08E-03	5.13E-02	4.60E-05	---	2.43E-03	6.83E-02
Thallium (Tl)	4.04E-03	2.11E-04	6.36E-02	1.07E-02	5.96E-02	3.51E-03	---	3.47E-02	1.76E-01
Uranium (U)	1.53E-04	8.01E-06	4.45E-04	4.98E-05	5.11E-05	6.17E-07	---	5.67E-04	1.28E-03

Non-carcinogenic risk for estimates an Infant in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	2.78E-02	6.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	2.88E-02
Antimony (Sb)	2.13E-03	4.97E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.09E-02
Arsenic (As)	3.58E-02	2.50E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	9.92E-02
Chromium (Cr)	6.66E-05	1.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	9.43E-05
Cobalt (Co)	2.61E-02	6.08E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	2.85E-02
Copper (Cu)	1.25E-03	1.75E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.39E-01
Lead (Pb)	3.02E-02	4.22E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	4.89E-02
Manganese (Mn)	9.16E-03	2.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	9.72E-03
Mercury (Hg)	2.46E-04	2.67E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	2.95E-03
Molybdenum (Mo)	6.44E-04	1.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.78E-03
Nickel (Ni)	4.65E-03	3.79E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	9.18E-03
Selenium (Se)	2.46E-04	5.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.91E-03
Thallium (Tl)	1.62E-02	3.78E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	6.88E-02
Uranium (U)	6.15E-04	1.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	1.48E-03

Non-carcinogenic risk estimates for a Teen in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.82E-03	2.91E-04	1.02E-02	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.50E-02
Antimony (Sb)	2.93E-04	2.23E-04	5.07E-03	1.42E-03	8.71E-04	1.40E-05	---	8.38E-03	1.63E-02
Arsenic (As)	4.91E-03	1.12E-03	2.42E-02	3.80E-03	8.36E-03	6.36E-04	---	2.79E-02	7.10E-02
Chromium (Cr)	9.15E-06	6.95E-06	3.20E-05	3.68E-05	4.65E-06	2.64E-06	---	5.58E-06	9.78E-05
Cobalt (Co)	3.59E-03	2.73E-04	9.17E-03	1.14E-03	1.02E-02	1.12E-02	---	8.38E-04	3.64E-02
Copper (Cu)	1.24E-04	5.66E-05	7.75E-03	9.40E-04	7.33E-04	1.69E-04	---	4.56E-02	5.54E-02
Lead (Pb)	1.91E-03	8.73E-05	6.12E-03	8.76E-04	4.22E-02	1.25E-05	---	3.87E-03	5.51E-02
Manganese (Mn)	1.26E-03	9.57E-05	1.22E-02	1.44E-04	2.89E-04	6.89E-05	---	1.56E-04	1.42E-02
Mercury (Hg)	3.38E-05	1.20E-04	3.38E-03	1.14E-03	4.96E-02	5.91E-05	---	1.12E-03	5.54E-02
Molybdenum (Mo)	8.84E-05	6.72E-06	4.57E-02	6.78E-04	1.99E-03	1.25E-03	---	2.35E-03	5.21E-02
Nickel (Ni)	6.39E-04	1.70E-03	1.93E-03	1.20E-03	1.33E-02	2.61E-04	---	3.35E-04	1.94E-02
Selenium (Se)	3.38E-05	2.57E-06	4.05E-03	6.15E-03	3.26E-02	3.51E-05	---	1.68E-03	4.46E-02
Thallium (Tl)	2.23E-03	1.69E-04	4.28E-02	8.14E-03	3.80E-02	2.67E-03	---	2.39E-02	1.18E-01
Uranium (U)	8.45E-05	6.42E-06	3.15E-04	3.80E-05	3.25E-05	4.70E-07	---	3.91E-04	8.68E-04

Non-carcinogenic risk estimates for a Toddler in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.53E-02	4.76E-04	1.77E-02	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	7.49E-02
Antimony (Sb)	4.24E-03	3.65E-04	1.23E-02	2.61E-03	1.70E-03	2.56E-05	---	1.82E-02	3.94E-02
Arsenic (As)	7.11E-02	1.83E-03	5.22E-02	6.95E-03	1.63E-02	1.16E-03	---	6.06E-02	2.10E-01
Chromium (Cr)	1.32E-04	1.14E-05	6.13E-05	6.74E-05	9.05E-06	4.83E-06	---	1.21E-05	2.98E-04
Cobalt (Co)	5.19E-02	4.46E-04	1.85E-02	2.08E-03	1.99E-02	2.05E-02	---	1.82E-03	1.15E-01
Copper (Cu)	2.49E-03	1.28E-04	2.47E-02	2.38E-03	1.98E-03	4.29E-04	---	1.37E-01	1.69E-01
Lead (Pb)	6.00E-02	3.10E-04	2.77E-02	3.47E-03	1.78E-01	4.98E-05	---	1.82E-02	2.88E-01
Manganese (Mn)	1.82E-02	1.57E-04	2.47E-02	2.64E-04	5.62E-04	1.26E-04	---	3.38E-04	4.43E-02
Mercury (Hg)	4.88E-04	1.96E-04	8.20E-03	2.08E-03	9.66E-02	1.08E-04	---	2.42E-03	1.10E-01
Molybdenum (Mo)	1.28E-03	1.10E-05	1.04E-01	1.24E-03	3.88E-03	2.30E-03	---	5.09E-03	1.18E-01
Nickel (Ni)	9.25E-03	2.78E-03	3.69E-03	2.19E-03	2.60E-02	4.78E-04	---	7.27E-04	4.51E-02
Selenium (Se)	4.90E-04	4.21E-06	9.84E-03	1.13E-02	6.36E-02	6.42E-05	---	3.64E-03	8.89E-02
Thallium (Tl)	3.22E-02	2.77E-04	9.35E-02	1.49E-02	7.39E-02	4.89E-03	---	5.19E-02	2.72E-01
Uranium (U)	1.22E-03	1.05E-05	6.29E-04	6.95E-05	6.34E-05	8.60E-07	---	8.48E-04	2.84E-03

Lifetime Average Daily Dose for a Resident in Sahali under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	6.70E-03	2.99E-04	8.76E-03	2.10E-04	1.78E-04	2.26E-04	---	1.49E-04	1.65E-02
Antimony (Sb)	2.05E-07	9.17E-08	1.97E-06	5.67E-07	3.56E-07	5.57E-09	---	3.73E-06	6.93E-06
Arsenic (As)	2.58E-06	3.46E-07	6.91E-06	1.13E-06	2.57E-06	1.90E-07	---	9.32E-06	2.30E-05
Barium (Ba)	7.27E-05	3.25E-05	4.79E-04	3.69E-06	5.76E-06	1.44E-06	---	1.86E-04	7.81E-04
Chromium (Cr)	2.40E-05	1.07E-05	4.25E-05	5.50E-05	7.13E-06	3.94E-06	---	9.32E-06	1.53E-04
Cobalt (Co)	6.28E-06	2.80E-07	8.28E-06	1.13E-06	1.04E-05	1.11E-05	---	9.32E-07	3.85E-05
Copper (Cu)	2.74E-05	7.33E-06	9.41E-04	1.18E-04	9.44E-05	2.12E-05	---	6.39E-03	7.60E-03
Lead (Pb)	4.36E-06	1.17E-07	7.37E-06	1.13E-06	5.61E-05	1.62E-08	---	5.59E-06	7.47E-05
Manganese (Mn)	3.09E-04	1.38E-05	1.59E-03	2.01E-05	4.13E-05	9.61E-06	---	2.42E-05	2.01E-03
Mercury (Hg)	1.77E-08	3.69E-08	9.87E-07	3.40E-07	1.01E-05	1.77E-08	---	3.73E-07	1.19E-05
Molybdenum (Mo)	7.75E-07	3.46E-08	2.39E-04	3.37E-06	1.02E-05	6.25E-06	---	1.30E-05	2.72E-04
Nickel (Ni)	2.24E-05	3.50E-05	3.46E-05	2.38E-05	2.73E-04	5.20E-06	---	7.46E-06	4.01E-04
Selenium (Se)	2.96E-07	1.32E-08	1.97E-05	3.06E-05	1.67E-04	1.75E-07	---	9.32E-06	2.27E-04
Thallium (Tl)	5.46E-08	2.44E-09	5.56E-07	1.13E-07	5.44E-07	3.73E-08	---	3.73E-07	1.68E-06
Uranium (U)	4.44E-07	1.98E-08	8.44E-07	1.13E-07	9.98E-08	1.40E-09	---	1.30E-06	2.83E-06
Vanadium (V)	3.12E-05	1.39E-05	3.59E-05	7.66E-06	4.10E-06	2.22E-06	---	3.73E-05	1.32E-04

Total Daily Intake Rates for an Adult in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.23E-03	2.76E-04	7.43E-03	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	1.23E-02
Antimony (Sb)	9.92E-08	8.50E-08	1.62E-06	5.78E-07	3.14E-07	5.35E-09	---	4.24E-06	6.95E-06
Arsenic (As)	1.25E-06	3.20E-07	5.81E-06	1.07E-06	2.71E-06	1.75E-07	---	1.06E-05	2.19E-05
Chromium (Cr)	1.16E-05	9.92E-06	3.57E-05	5.02E-05	3.02E-05	3.62E-06	---	1.06E-05	1.52E-04
Cobalt (Co)	3.03E-06	2.59E-07	6.91E-06	1.03E-06	1.95E-05	1.02E-05	---	1.06E-06	4.20E-05
Copper (Cu)	1.32E-05	6.78E-06	7.80E-04	1.13E-04	1.46E-04	1.94E-05	---	7.28E-03	8.36E-03
Lead (Pb)	2.10E-06	1.08E-07	6.17E-06	1.04E-06	7.02E-05	1.49E-08	---	6.36E-06	8.60E-05
Manganese (Mn)	1.49E-04	1.27E-05	1.35E-03	1.95E-05	4.78E-05	8.83E-06	---	2.76E-05	1.61E-03
Mercury (Hg)	8.62E-09	3.44E-08	8.12E-07	3.20E-07	9.44E-06	1.66E-08	---	4.24E-07	1.11E-05
Molybdenum (Mo)	3.74E-07	3.20E-08	2.07E-04	3.08E-06	1.66E-05	5.73E-06	---	1.49E-05	2.48E-04
Nickel (Ni)	1.08E-05	3.23E-05	2.92E-05	2.17E-05	3.89E-04	4.76E-06	---	8.49E-06	4.97E-04
Selenium (Se)	1.43E-07	1.22E-08	1.62E-05	2.82E-05	2.60E-04	1.61E-07	---	1.06E-05	3.16E-04
Thallium (Tl)	2.63E-08	2.25E-09	4.60E-07	1.06E-07	4.79E-07	3.46E-08	---	4.24E-07	1.53E-06
Uranium (U)	2.14E-07	1.83E-08	7.01E-07	1.18E-07	1.09E-07	1.50E-09	---	1.49E-06	2.65E-06

Total Daily Intake Rates for a Child in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	6.94E-03	3.62E-04	1.34E-02	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	2.29E-02
Antimony (Sb)	2.13E-07	1.11E-07	3.21E-06	8.39E-07	5.47E-07	7.76E-09	---	4.86E-06	9.79E-06
Arsenic (As)	2.68E-06	4.19E-07	1.08E-05	1.55E-06	4.72E-06	2.54E-07	---	1.22E-05	3.26E-05
Chromium (Cr)	2.49E-05	1.30E-05	6.65E-05	7.30E-05	5.26E-05	5.25E-06	---	1.22E-05	2.47E-04
Cobalt (Co)	6.51E-06	3.40E-07	1.31E-05	1.50E-06	3.40E-05	1.48E-05	---	1.22E-06	7.14E-05
Copper (Cu)	2.84E-05	8.90E-06	1.50E-03	1.64E-04	2.54E-04	2.82E-05	---	8.34E-03	1.03E-02
Lead (Pb)	4.52E-06	1.42E-07	1.16E-05	1.51E-06	1.22E-04	2.16E-08	---	7.29E-06	1.47E-04
Manganese (Mn)	3.20E-04	1.67E-05	2.45E-03	2.84E-05	8.33E-05	1.28E-05	---	3.16E-05	2.94E-03
Mercury (Hg)	1.85E-08	4.51E-08	1.61E-06	4.64E-07	1.65E-05	2.41E-08	---	4.86E-07	1.91E-05
Molybdenum (Mo)	8.03E-07	4.20E-08	3.56E-04	4.48E-06	2.90E-05	8.32E-06	---	1.70E-05	4.16E-04
Nickel (Ni)	2.32E-05	4.24E-05	5.36E-05	3.15E-05	6.78E-04	6.91E-06	---	9.73E-06	8.46E-04
Selenium (Se)	3.07E-07	1.61E-08	3.21E-05	4.10E-05	4.53E-04	2.33E-07	---	1.22E-05	5.39E-04
Thallium (Tl)	5.66E-08	2.96E-09	8.92E-07	1.54E-07	8.34E-07	5.03E-08	---	4.86E-07	2.48E-06
Uranium (U)	4.60E-07	2.40E-08	1.34E-06	1.71E-07	1.90E-07	2.18E-09	---	1.70E-06	3.89E-06

Total Daily Intake Rates for an Infant in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	2.78E-02	6.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	2.88E-02
Antimony (Sb)	8.56E-07	1.99E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.37E-06
Arsenic (As)	1.07E-05	7.50E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	2.98E-05
Chromium (Cr)	9.99E-05	2.33E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.42E-04
Cobalt (Co)	2.61E-05	6.09E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	2.86E-05
Copper (Cu)	1.14E-04	1.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.27E-02
Lead (Pb)	1.81E-05	2.53E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	2.94E-05
Manganese (Mn)	1.28E-03	2.99E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.36E-03
Mercury (Hg)	7.43E-08	8.07E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	8.87E-07
Molybdenum (Mo)	3.22E-06	7.51E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.89E-05
Nickel (Ni)	9.31E-05	7.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	1.84E-04
Selenium (Se)	1.23E-06	2.87E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.96E-05
Thallium (Tl)	2.27E-07	5.29E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.64E-07
Uranium (U)	1.85E-06	4.30E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	4.45E-06

Total Daily Intake Rates for a Teen in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.82E-03	2.91E-04	1.02E-02	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.58E-02
Antimony (Sb)	1.18E-07	8.93E-08	2.03E-06	6.39E-07	3.48E-07	5.91E-09	---	3.35E-06	6.58E-06
Arsenic (As)	1.47E-06	3.36E-07	7.28E-06	1.18E-06	3.01E-06	1.93E-07	---	8.38E-06	2.18E-05
Chromium (Cr)	1.37E-05	1.04E-05	4.80E-05	5.56E-05	3.35E-05	4.00E-06	---	8.38E-06	1.74E-04
Cobalt (Co)	3.59E-06	2.73E-07	9.17E-06	1.14E-06	2.17E-05	1.12E-05	---	8.38E-07	4.79E-05
Copper (Cu)	1.56E-05	7.13E-06	9.77E-04	1.25E-04	1.62E-04	2.15E-05	---	5.75E-03	7.05E-03
Lead (Pb)	2.49E-06	1.14E-07	7.96E-06	1.15E-06	7.79E-05	1.65E-08	---	5.03E-06	9.47E-05
Manganese (Mn)	1.76E-04	1.34E-05	1.71E-03	2.16E-05	5.30E-05	9.77E-06	---	2.18E-05	2.00E-03
Mercury (Hg)	1.02E-08	3.62E-08	1.02E-06	3.54E-07	1.05E-05	1.84E-08	---	3.35E-07	1.22E-05
Molybdenum (Mo)	4.43E-07	3.36E-08	2.29E-04	3.41E-06	1.85E-05	6.34E-06	---	1.17E-05	2.69E-04
Nickel (Ni)	1.28E-05	3.40E-05	3.87E-05	2.40E-05	4.32E-04	5.26E-06	---	6.70E-06	5.54E-04
Selenium (Se)	1.69E-07	1.29E-08	2.03E-05	3.12E-05	2.89E-04	1.78E-07	---	8.38E-06	3.49E-04
Thallium (Tl)	3.12E-08	2.37E-09	6.00E-07	1.17E-07	5.31E-07	3.83E-08	---	3.35E-07	1.66E-06
Uranium (U)	2.54E-07	1.93E-08	9.45E-07	1.31E-07	1.21E-07	1.66E-09	---	1.17E-06	2.64E-06

Total Daily Intake Rates for a Toddler in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	5.53E-02	4.76E-04	1.77E-02	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	7.64E-02
Antimony (Sb)	1.70E-06	1.46E-07	4.93E-06	1.17E-06	6.79E-07	1.08E-08	---	7.27E-06	1.59E-05
Arsenic (As)	2.13E-05	5.51E-07	1.57E-05	2.16E-06	5.86E-06	3.54E-07	---	1.82E-05	6.41E-05
Chromium (Cr)	1.99E-04	1.71E-05	9.20E-05	1.02E-04	6.53E-05	7.32E-06	---	1.82E-05	5.00E-04
Cobalt (Co)	5.19E-05	4.47E-07	1.85E-05	2.09E-06	4.22E-05	2.06E-05	---	1.82E-06	1.38E-04
Copper (Cu)	2.26E-04	1.17E-05	2.25E-03	2.29E-04	3.16E-04	3.93E-05	---	1.25E-02	1.55E-02
Lead (Pb)	3.60E-05	1.86E-07	1.66E-05	2.11E-06	1.52E-04	3.01E-08	---	1.09E-05	2.18E-04
Manganese (Mn)	2.55E-03	2.19E-05	3.45E-03	3.95E-05	1.03E-04	1.79E-05	---	4.73E-05	6.23E-03
Mercury (Hg)	1.48E-07	5.92E-08	2.47E-06	6.47E-07	2.04E-05	3.37E-08	---	7.27E-07	2.45E-05
Molybdenum (Mo)	6.40E-06	5.51E-08	5.21E-04	6.24E-06	3.60E-05	1.16E-05	---	2.55E-05	6.07E-04
Nickel (Ni)	1.85E-04	5.57E-05	7.39E-05	4.39E-05	8.42E-04	9.64E-06	---	1.45E-05	1.22E-03
Selenium (Se)	2.45E-06	2.11E-08	4.92E-05	5.72E-05	5.63E-04	3.25E-07	---	1.82E-05	6.90E-04
Thallium (Tl)	4.51E-07	3.88E-09	1.31E-06	2.14E-07	1.04E-06	7.01E-08	---	7.27E-07	3.81E-06
Uranium (U)	3.67E-06	3.16E-08	1.89E-06	2.39E-07	2.36E-07	3.04E-09	---	2.55E-06	8.61E-06

Non-carcinogenic risk estimates for an Adult in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.23E-03	2.76E-04	7.43E-03	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	1.23E-02
Antimony (Sb)	2.48E-04	2.12E-04	4.06E-03	1.44E-03	7.85E-04	1.34E-05	---	1.06E-02	1.74E-02
Arsenic (As)	4.15E-03	1.07E-03	1.94E-02	3.55E-03	9.04E-03	5.83E-04	---	3.54E-02	7.31E-02
Chromium (Cr)	7.73E-06	6.61E-06	2.38E-05	3.35E-05	2.01E-05	2.41E-06	---	7.07E-06	1.01E-04
Cobalt (Co)	3.03E-03	2.59E-04	6.91E-03	1.03E-03	1.95E-02	1.02E-02	---	1.06E-03	4.20E-02
Copper (Cu)	9.37E-05	4.81E-05	5.53E-03	8.02E-04	1.04E-03	1.38E-04	---	5.16E-02	5.93E-02
Lead (Pb)	1.62E-03	8.30E-05	4.75E-03	8.00E-04	5.40E-02	1.14E-05	---	4.90E-03	6.62E-02
Manganese (Mn)	1.06E-03	9.10E-05	9.63E-03	1.39E-04	3.42E-04	6.31E-05	---	1.97E-04	1.15E-02
Mercury (Hg)	2.87E-05	1.15E-04	2.71E-03	1.07E-03	4.72E-02	5.54E-05	---	1.41E-03	5.26E-02
Molybdenum (Mo)	7.47E-05	6.40E-06	4.15E-02	6.17E-04	3.33E-03	1.15E-03	---	2.97E-03	4.96E-02
Nickel (Ni)	5.40E-04	1.62E-03	1.46E-03	1.08E-03	1.95E-02	2.38E-04	---	4.24E-04	2.48E-02
Selenium (Se)	2.86E-05	2.45E-06	3.24E-03	5.65E-03	5.21E-02	3.21E-05	---	2.12E-03	6.31E-02
Thallium (Tl)	1.88E-03	1.61E-04	3.29E-02	7.55E-03	3.42E-02	2.47E-03	---	3.03E-02	1.09E-01
Uranium (U)	7.14E-05	6.11E-06	2.34E-04	3.93E-05	3.64E-05	5.01E-07	---	4.95E-04	8.83E-04

Non-carcinogenic risk estimates for a Child in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	6.94E-03	3.62E-04	1.34E-02	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	2.29E-02
Antimony (Sb)	5.33E-04	2.79E-04	8.03E-03	2.10E-03	1.37E-03	1.94E-05	---	1.22E-02	2.45E-02
Arsenic (As)	8.92E-03	1.40E-03	3.60E-02	5.16E-03	1.57E-02	8.46E-04	---	4.05E-02	1.09E-01
Chromium (Cr)	1.66E-05	8.68E-06	4.43E-05	4.86E-05	3.51E-05	3.50E-06	---	8.11E-06	1.65E-04
Cobalt (Co)	6.51E-03	3.40E-04	1.31E-02	1.50E-03	3.40E-02	1.48E-02	---	1.22E-03	7.14E-02
Copper (Cu)	2.58E-04	8.09E-05	1.37E-02	1.49E-03	2.31E-03	2.57E-04	---	7.58E-02	9.39E-02
Lead (Pb)	7.53E-03	2.36E-04	1.93E-02	2.52E-03	2.04E-01	3.60E-05	---	1.22E-02	2.46E-01
Manganese (Mn)	2.28E-03	1.19E-04	1.75E-02	2.03E-04	5.95E-04	9.16E-05	---	2.26E-04	2.10E-02
Mercury (Hg)	6.17E-05	1.50E-04	5.36E-03	1.55E-03	8.23E-02	8.05E-05	---	1.62E-03	9.11E-02
Molybdenum (Mo)	1.61E-04	8.39E-06	7.13E-02	8.96E-04	5.80E-03	1.66E-03	---	3.40E-03	8.32E-02
Nickel (Ni)	1.16E-03	2.12E-03	2.68E-03	1.58E-03	3.39E-02	3.46E-04	---	4.86E-04	4.23E-02
Selenium (Se)	6.14E-05	3.21E-06	6.41E-03	8.20E-03	9.07E-02	4.66E-05	---	2.43E-03	1.08E-01
Thallium (Tl)	4.04E-03	2.11E-04	6.37E-02	1.10E-02	5.96E-02	3.59E-03	---	3.47E-02	1.77E-01
Uranium (U)	1.53E-04	8.01E-06	4.45E-04	5.71E-05	6.35E-05	7.27E-07	---	5.67E-04	1.30E-03

Non-carcinogenic risk for estimates an Infant in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	2.78E-02	6.48E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	2.88E-02
Antimony (Sb)	2.14E-03	4.98E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.09E-02
Arsenic (As)	3.58E-02	2.50E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	9.93E-02
Chromium (Cr)	6.66E-05	1.55E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	9.43E-05
Cobalt (Co)	2.61E-02	6.09E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	2.86E-02
Copper (Cu)	1.25E-03	1.75E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.39E-01
Lead (Pb)	3.02E-02	4.22E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	4.89E-02
Manganese (Mn)	9.16E-03	2.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	9.72E-03
Mercury (Hg)	2.48E-04	2.69E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	2.96E-03
Molybdenum (Mo)	6.44E-04	1.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.78E-03
Nickel (Ni)	4.65E-03	3.80E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	9.18E-03
Selenium (Se)	2.47E-04	5.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.91E-03
Thallium (Tl)	1.62E-02	3.78E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	6.89E-02
Uranium (U)	6.15E-04	1.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	1.48E-03

Non-carcinogenic risk estimates for a Teen in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.82E-03	2.91E-04	1.02E-02	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.58E-02
Antimony (Sb)	2.94E-04	2.23E-04	5.08E-03	1.60E-03	8.71E-04	1.48E-05	---	8.38E-03	1.65E-02
Arsenic (As)	4.92E-03	1.12E-03	2.43E-02	3.93E-03	1.00E-02	6.45E-04	---	2.79E-02	7.28E-02
Chromium (Cr)	9.15E-06	6.95E-06	3.20E-05	3.71E-05	2.23E-05	2.67E-06	---	5.58E-06	1.16E-04
Cobalt (Co)	3.59E-03	2.73E-04	9.17E-03	1.14E-03	2.17E-02	1.12E-02	---	8.38E-04	4.79E-02
Copper (Cu)	1.24E-04	5.66E-05	7.75E-03	9.92E-04	1.29E-03	1.71E-04	---	4.56E-02	5.60E-02
Lead (Pb)	1.91E-03	8.73E-05	6.12E-03	8.85E-04	5.99E-02	1.27E-05	---	3.87E-03	7.28E-02
Manganese (Mn)	1.26E-03	9.57E-05	1.22E-02	1.54E-04	3.79E-04	6.98E-05	---	1.56E-04	1.43E-02
Mercury (Hg)	3.40E-05	1.21E-04	3.39E-03	1.18E-03	5.24E-02	6.13E-05	---	1.12E-03	5.83E-02
Molybdenum (Mo)	8.85E-05	6.73E-06	4.58E-02	6.82E-04	3.69E-03	1.27E-03	---	2.35E-03	5.38E-02
Nickel (Ni)	6.39E-04	1.70E-03	1.94E-03	1.20E-03	2.16E-02	2.63E-04	---	3.35E-04	2.77E-02
Selenium (Se)	3.39E-05	2.57E-06	4.06E-03	6.25E-03	5.78E-02	3.55E-05	---	1.68E-03	6.98E-02
Thallium (Tl)	2.23E-03	1.69E-04	4.29E-02	8.36E-03	3.80E-02	2.74E-03	---	2.39E-02	1.18E-01
Uranium (U)	8.45E-05	6.42E-06	3.15E-04	4.35E-05	4.04E-05	5.54E-07	---	3.91E-04	8.81E-04

Non-carcinogenic risk estimates for a Toddler in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	5.53E-02	4.76E-04	1.77E-02	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	7.64E-02
Antimony (Sb)	4.25E-03	3.66E-04	1.23E-02	2.92E-03	1.70E-03	2.71E-05	---	1.82E-02	3.98E-02
Arsenic (As)	7.11E-02	1.84E-03	5.22E-02	7.19E-03	1.95E-02	1.18E-03	---	6.06E-02	2.14E-01
Chromium (Cr)	1.32E-04	1.14E-05	6.13E-05	6.78E-05	4.35E-05	4.88E-06	---	1.21E-05	3.33E-04
Cobalt (Co)	5.19E-02	4.47E-04	1.85E-02	2.09E-03	4.22E-02	2.06E-02	---	1.82E-03	1.38E-01
Copper (Cu)	2.49E-03	1.28E-04	2.47E-02	2.51E-03	3.47E-03	4.32E-04	---	1.37E-01	1.71E-01
Lead (Pb)	6.00E-02	3.10E-04	2.77E-02	3.51E-03	2.53E-01	5.02E-05	---	1.82E-02	3.63E-01
Manganese (Mn)	1.82E-02	1.57E-04	2.47E-02	2.82E-04	7.38E-04	1.28E-04	---	3.38E-04	4.45E-02
Mercury (Hg)	4.92E-04	1.97E-04	8.23E-03	2.16E-03	1.02E-01	1.12E-04	---	2.42E-03	1.16E-01
Molybdenum (Mo)	1.28E-03	1.10E-05	1.04E-01	1.25E-03	7.20E-03	2.32E-03	---	5.09E-03	1.21E-01
Nickel (Ni)	9.25E-03	2.79E-03	3.69E-03	2.20E-03	4.21E-02	4.82E-04	---	7.27E-04	6.12E-02
Selenium (Se)	4.90E-04	4.21E-06	9.85E-03	1.14E-02	1.13E-01	6.50E-05	---	3.64E-03	1.38E-01
Thallium (Tl)	3.22E-02	2.77E-04	9.36E-02	1.53E-02	7.39E-02	5.01E-03	---	5.19E-02	2.72E-01
Uranium (U)	1.22E-03	1.05E-05	6.29E-04	7.96E-05	7.88E-05	1.01E-06	---	8.48E-04	2.87E-03

Carcinogenic Risk for a Resident at the Sahali Location under Project-Alone Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	Total Ingestion Exposure
	unitless	unitless	unitless	unitless	unitless	unitless	unitless	unitless
Arsenic (As)	1.35E-09	1.81E-10	3.77E-09	5.93E-08	7.66E-07	4.04E-09	---	8.35E-07

Notes:

Bold ILCR exceeds benchmark of 1 in 100,000

Lifetime Average Daily Dose for a Resident in Sahali under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	6.70E-03	2.99E-04	8.76E-03	2.11E-04	9.41E-04	2.28E-04	---	1.49E-04	1.73E-02
Antimony (Sb)	2.06E-07	9.19E-08	1.98E-06	6.36E-07	3.56E-07	5.89E-09	---	3.73E-06	7.00E-06
Arsenic (As)	2.58E-06	3.46E-07	6.91E-06	1.17E-06	3.08E-06	1.93E-07	---	9.32E-06	2.36E-05
Barium (Ba)	7.27E-05	3.25E-05	4.79E-04	3.71E-06	7.79E-06	1.44E-06	---	1.86E-04	7.83E-04
Chromium (Cr)	2.40E-05	1.07E-05	4.25E-05	5.53E-05	3.43E-05	3.98E-06	---	9.32E-06	1.80E-04
Cobalt (Co)	6.28E-06	2.80E-07	8.29E-06	1.14E-06	2.22E-05	1.12E-05	---	9.32E-07	5.03E-05
Copper (Cu)	2.74E-05	7.34E-06	9.41E-04	1.24E-04	1.66E-04	2.14E-05	---	6.39E-03	7.68E-03
Lead (Pb)	4.36E-06	1.17E-07	7.38E-06	1.15E-06	7.97E-05	1.64E-08	---	5.59E-06	9.83E-05
Manganese (Mn)	3.09E-04	1.38E-05	1.59E-03	2.15E-05	5.43E-05	9.73E-06	---	2.42E-05	2.02E-03
Mercury (Hg)	1.79E-08	3.72E-08	9.90E-07	3.52E-07	1.07E-05	1.83E-08	---	3.73E-07	1.25E-05
Molybdenum (Mo)	7.75E-07	3.46E-08	2.39E-04	3.40E-06	1.89E-05	6.31E-06	---	1.30E-05	2.81E-04
Nickel (Ni)	2.24E-05	3.50E-05	3.46E-05	2.39E-05	4.42E-04	5.24E-06	---	7.46E-06	5.71E-04
Selenium (Se)	2.97E-07	1.32E-08	1.97E-05	3.11E-05	2.95E-04	1.77E-07	---	9.32E-06	3.56E-04
Thallium (Tl)	5.46E-08	2.44E-09	5.57E-07	1.16E-07	5.44E-07	3.82E-08	---	3.73E-07	1.68E-06
Uranium (U)	4.44E-07	1.98E-08	8.44E-07	1.30E-07	1.24E-07	1.65E-09	---	1.30E-06	2.87E-06
Vanadium (V)	3.13E-05	1.39E-05	3.59E-05	7.68E-06	6.12E-06	2.24E-06	---	3.73E-05	1.34E-04

Total Daily Intake Rates for an Adult in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.10E-03	3.51E-04	4.96E-03	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	1.01E-02
Antimony (Sb)	1.57E-07	1.35E-07	1.62E-06	5.15E-07	3.14E-07	5.06E-09	---	4.24E-06	6.99E-06
Arsenic (As)	1.18E-06	3.03E-07	3.76E-06	1.03E-06	2.26E-06	1.72E-07	---	1.06E-05	1.93E-05
Chromium (Cr)	1.24E-05	1.06E-05	2.20E-05	4.99E-05	6.28E-06	3.58E-06	---	1.06E-05	1.15E-04
Cobalt (Co)	3.93E-06	3.36E-07	6.15E-06	1.03E-06	9.20E-06	1.01E-05	---	1.06E-06	3.18E-05
Copper (Cu)	2.39E-05	1.23E-05	5.68E-04	1.07E-04	8.32E-05	1.93E-05	---	7.28E-03	8.09E-03
Lead (Pb)	9.67E-06	4.96E-07	6.66E-06	1.03E-06	4.95E-05	1.47E-08	---	6.36E-06	7.37E-05
Manganese (Mn)	1.54E-04	1.31E-05	1.80E-03	1.83E-05	3.64E-05	8.72E-06	---	2.76E-05	2.05E-03
Mercury (Hg)	2.26E-08	9.01E-08	8.09E-07	3.09E-07	8.93E-06	1.60E-08	---	4.24E-07	1.06E-05
Molybdenum (Mo)	3.95E-07	3.38E-08	1.92E-04	3.06E-06	8.98E-06	5.67E-06	---	1.49E-05	2.25E-04
Nickel (Ni)	1.58E-05	4.74E-05	1.85E-05	2.16E-05	2.40E-04	4.72E-06	---	8.49E-06	3.57E-04
Selenium (Se)	1.22E-07	1.04E-08	1.62E-05	2.78E-05	1.47E-04	1.58E-07	---	1.06E-05	2.02E-04
Thallium (Tl)	2.90E-08	2.49E-09	3.24E-07	1.03E-07	4.79E-07	3.38E-08	---	4.24E-07	1.40E-06
Uranium (U)	2.91E-07	2.49E-08	6.79E-07	1.03E-07	8.79E-08	1.27E-09	---	1.49E-06	2.67E-06

Total Daily Intake Rates for a Child in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.81E-03	4.61E-04	8.65E-03	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	1.90E-02
Antimony (Sb)	3.38E-07	1.77E-07	3.20E-06	7.48E-07	5.47E-07	7.35E-09	---	4.86E-06	9.88E-06
Arsenic (As)	2.53E-06	3.97E-07	7.21E-06	1.50E-06	3.94E-06	2.50E-07	---	1.22E-05	2.80E-05
Chromium (Cr)	2.67E-05	1.39E-05	3.95E-05	7.25E-05	1.09E-05	5.20E-06	---	1.22E-05	1.81E-04
Cobalt (Co)	8.44E-06	4.41E-07	1.15E-05	1.50E-06	1.60E-05	1.47E-05	---	1.22E-06	5.38E-05
Copper (Cu)	5.14E-05	1.61E-05	1.02E-03	1.56E-04	1.45E-04	2.80E-05	---	8.34E-03	9.75E-03
Lead (Pb)	2.08E-05	6.51E-07	1.22E-05	1.50E-06	8.62E-05	2.14E-08	---	7.29E-06	1.29E-04
Manganese (Mn)	3.30E-04	1.72E-05	3.08E-03	2.65E-05	6.35E-05	1.27E-05	---	3.16E-05	3.57E-03
Mercury (Hg)	4.86E-08	1.18E-07	1.60E-06	4.49E-07	1.56E-05	2.33E-08	---	4.86E-07	1.83E-05
Molybdenum (Mo)	8.49E-07	4.44E-08	3.16E-04	4.45E-06	1.56E-05	8.23E-06	---	1.70E-05	3.63E-04
Nickel (Ni)	3.40E-05	6.21E-05	3.37E-05	3.14E-05	4.19E-04	6.85E-06	---	9.73E-06	5.96E-04
Selenium (Se)	2.61E-07	1.37E-08	3.20E-05	4.04E-05	2.56E-04	2.30E-07	---	1.22E-05	3.41E-04
Thallium (Tl)	6.24E-08	3.26E-09	6.41E-07	1.50E-07	8.34E-07	4.91E-08	---	4.86E-07	2.23E-06
Uranium (U)	6.26E-07	3.27E-08	1.26E-06	1.50E-07	1.53E-07	1.85E-09	---	1.70E-06	3.93E-06

Total Daily Intake Rates for an Infant in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.54E-02	8.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.65E-02
Antimony (Sb)	1.36E-06	3.16E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.99E-06
Arsenic (As)	1.02E-05	7.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	2.92E-05
Chromium (Cr)	1.07E-04	2.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.50E-04
Cobalt (Co)	3.39E-05	7.89E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	3.65E-05
Copper (Cu)	2.06E-04	2.88E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.28E-02
Lead (Pb)	8.33E-05	1.17E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	9.55E-05
Manganese (Mn)	1.32E-03	3.08E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.40E-03
Mercury (Hg)	1.95E-07	2.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	1.14E-06
Molybdenum (Mo)	3.41E-06	7.94E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.91E-05
Nickel (Ni)	1.36E-04	1.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	2.62E-04
Selenium (Se)	1.05E-06	2.44E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.94E-05
Thallium (Tl)	2.50E-07	5.83E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.88E-07
Uranium (U)	2.51E-06	5.85E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	5.13E-06

Total Daily Intake Rates for a Teen in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.86E-03	3.69E-04	6.36E-03	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.23E-02
Antimony (Sb)	1.86E-07	1.42E-07	2.03E-06	5.70E-07	3.48E-07	5.59E-09	---	3.35E-06	6.63E-06
Arsenic (As)	1.40E-06	3.19E-07	4.60E-06	1.14E-06	2.51E-06	1.91E-07	---	8.38E-06	1.85E-05
Chromium (Cr)	1.47E-05	1.12E-05	2.73E-05	5.52E-05	6.97E-06	3.96E-06	---	8.38E-06	1.28E-04
Cobalt (Co)	4.65E-06	3.54E-07	7.87E-06	1.14E-06	1.02E-05	1.12E-05	---	8.38E-07	3.62E-05
Copper (Cu)	2.83E-05	1.29E-05	7.08E-04	1.18E-04	9.23E-05	2.13E-05	---	5.75E-03	6.73E-03
Lead (Pb)	1.14E-05	5.22E-07	8.29E-06	1.14E-06	5.49E-05	1.63E-08	---	5.03E-06	8.13E-05
Manganese (Mn)	1.82E-04	1.38E-05	2.20E-03	2.02E-05	4.04E-05	9.65E-06	---	2.18E-05	2.48E-03
Mercury (Hg)	2.68E-08	9.48E-08	1.01E-06	3.42E-07	9.91E-06	1.77E-08	---	3.35E-07	1.17E-05
Molybdenum (Mo)	4.68E-07	3.56E-08	2.09E-04	3.39E-06	9.96E-06	6.27E-06	---	1.17E-05	2.40E-04
Nickel (Ni)	1.87E-05	4.98E-05	2.31E-05	2.39E-05	2.67E-04	5.22E-06	---	6.70E-06	3.94E-04
Selenium (Se)	1.44E-07	1.09E-08	2.03E-05	3.08E-05	1.63E-04	1.75E-07	---	8.38E-06	2.23E-04
Thallium (Tl)	3.44E-08	2.61E-09	4.05E-07	1.14E-07	5.31E-07	3.74E-08	---	3.35E-07	1.46E-06
Uranium (U)	3.45E-07	2.62E-08	8.72E-07	1.14E-07	9.76E-08	1.41E-09	---	1.17E-06	2.63E-06

Total Daily Intake Rates for a Toddler in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	7.03E-02	6.05E-04	1.16E-02	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	8.39E-02
Antimony (Sb)	2.70E-06	2.32E-07	4.92E-06	1.04E-06	6.79E-07	1.02E-08	---	7.27E-06	1.69E-05
Arsenic (As)	2.02E-05	5.22E-07	1.09E-05	2.08E-06	4.89E-06	3.49E-07	---	1.82E-05	5.72E-05
Chromium (Cr)	2.13E-04	1.83E-05	5.58E-05	1.01E-04	1.36E-05	7.24E-06	---	1.82E-05	4.27E-04
Cobalt (Co)	6.73E-05	5.79E-07	1.65E-05	2.08E-06	1.99E-05	2.05E-05	---	1.82E-06	1.29E-04
Copper (Cu)	4.10E-04	2.11E-05	1.43E-03	2.17E-04	1.80E-04	3.90E-05	---	1.25E-02	1.48E-02
Lead (Pb)	1.66E-04	8.55E-07	1.75E-05	2.08E-06	1.07E-04	2.99E-08	---	1.09E-05	3.04E-04
Manganese (Mn)	2.63E-03	2.26E-05	4.20E-03	3.70E-05	7.87E-05	1.77E-05	---	4.73E-05	7.04E-03
Mercury (Hg)	3.87E-07	1.55E-07	2.46E-06	6.25E-07	1.93E-05	3.25E-08	---	7.27E-07	2.37E-05
Molybdenum (Mo)	6.77E-06	5.82E-08	4.49E-04	6.20E-06	1.94E-05	1.15E-05	---	2.55E-05	5.18E-04
Nickel (Ni)	2.71E-04	8.16E-05	4.81E-05	4.38E-05	5.19E-04	9.56E-06	---	1.45E-05	9.88E-04
Selenium (Se)	2.08E-06	1.79E-08	4.92E-05	5.63E-05	3.18E-04	3.21E-07	---	1.82E-05	4.44E-04
Thallium (Tl)	4.98E-07	4.28E-09	9.84E-07	2.08E-07	1.04E-06	6.85E-08	---	7.27E-07	3.53E-06
Uranium (U)	4.99E-06	4.29E-08	1.80E-06	2.08E-07	1.90E-07	2.58E-09	---	2.55E-06	9.79E-06

Non-carcinogenic risk estimates for an Adult in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.10E-03	3.51E-04	4.96E-03	1.90E-04	1.57E-04	2.05E-04	---	1.70E-04	1.01E-02
Antimony (Sb)	3.94E-04	3.37E-04	4.05E-03	1.29E-03	7.85E-04	1.26E-05	---	1.06E-02	1.75E-02
Arsenic (As)	3.93E-03	1.01E-03	1.25E-02	3.43E-03	7.54E-03	5.75E-04	---	3.54E-02	6.44E-02
Chromium (Cr)	8.28E-06	7.09E-06	1.47E-05	3.33E-05	4.19E-06	2.39E-06	---	7.07E-06	7.70E-05
Cobalt (Co)	3.93E-03	3.36E-04	6.15E-03	1.03E-03	9.20E-03	1.01E-02	---	1.06E-03	3.18E-02
Copper (Cu)	1.70E-04	8.71E-05	4.03E-03	7.59E-04	5.90E-04	1.37E-04	---	5.16E-02	5.74E-02
Lead (Pb)	7.43E-03	3.82E-04	5.12E-03	7.92E-04	3.80E-02	1.13E-05	---	4.90E-03	5.67E-02
Manganese (Mn)	1.10E-03	9.39E-05	1.28E-02	1.31E-04	2.60E-04	6.23E-05	---	1.97E-04	1.47E-02
Mercury (Hg)	7.53E-05	3.00E-04	2.70E-03	1.03E-03	4.47E-02	5.35E-05	---	1.41E-03	5.02E-02
Molybdenum (Mo)	7.90E-05	6.76E-06	3.84E-02	6.13E-04	1.80E-03	1.13E-03	---	2.97E-03	4.50E-02
Nickel (Ni)	7.91E-04	2.37E-03	9.26E-04	1.08E-03	1.20E-02	2.36E-04	---	4.24E-04	1.78E-02
Selenium (Se)	2.43E-05	2.08E-06	3.24E-03	5.56E-03	2.94E-02	3.17E-05	---	2.12E-03	4.04E-02
Thallium (Tl)	2.07E-03	1.78E-04	2.31E-02	7.36E-03	3.42E-02	2.42E-03	---	3.03E-02	9.97E-02
Uranium (U)	9.71E-05	8.31E-06	2.26E-04	3.43E-05	2.93E-05	4.25E-07	---	4.95E-04	8.91E-04

Non-carcinogenic risk estimates for a Child in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	8.81E-03	4.61E-04	8.65E-03	2.77E-04	2.74E-04	2.98E-04	---	1.95E-04	1.90E-02
Antimony (Sb)	8.46E-04	4.42E-04	8.01E-03	1.87E-03	1.37E-03	1.84E-05	---	1.22E-02	2.47E-02
Arsenic (As)	8.45E-03	1.32E-03	2.40E-02	4.98E-03	1.31E-02	8.35E-04	---	4.05E-02	9.33E-02
Chromium (Cr)	1.78E-05	9.30E-06	2.63E-05	4.84E-05	7.29E-06	3.46E-06	---	8.11E-06	1.21E-04
Cobalt (Co)	8.44E-03	4.41E-04	1.15E-02	1.50E-03	1.60E-02	1.47E-02	---	1.22E-03	5.38E-02
Copper (Cu)	4.67E-04	1.46E-04	9.26E-03	1.41E-03	1.32E-03	2.55E-04	---	7.58E-02	8.87E-02
Lead (Pb)	3.46E-02	1.09E-03	2.03E-02	2.49E-03	1.44E-01	3.57E-05	---	1.22E-02	2.14E-01
Manganese (Mn)	2.36E-03	1.23E-04	2.20E-02	1.90E-04	4.53E-04	9.05E-05	---	2.26E-04	2.55E-02
Mercury (Hg)	1.62E-04	3.94E-04	5.34E-03	1.50E-03	7.78E-02	7.76E-05	---	1.62E-03	8.69E-02
Molybdenum (Mo)	1.70E-04	8.87E-06	6.33E-02	8.90E-04	3.13E-03	1.65E-03	---	3.40E-03	7.25E-02
Nickel (Ni)	1.70E-03	3.11E-03	1.69E-03	1.57E-03	2.09E-02	3.43E-04	---	4.86E-04	2.98E-02
Selenium (Se)	5.23E-05	2.73E-06	6.41E-03	8.08E-03	5.13E-02	4.60E-05	---	2.43E-03	6.83E-02
Thallium (Tl)	4.46E-03	2.33E-04	4.58E-02	1.07E-02	5.96E-02	3.51E-03	---	3.47E-02	1.59E-01
Uranium (U)	2.09E-04	1.09E-05	4.21E-04	4.98E-05	5.11E-05	6.17E-07	---	5.67E-04	1.31E-03

Non-carcinogenic risk for estimates an Infant in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.54E-02	8.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.65E-02
Antimony (Sb)	3.39E-03	7.91E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.25E-02
Arsenic (As)	3.39E-02	2.37E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	9.72E-02
Chromium (Cr)	7.14E-05	1.66E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	1.00E-04
Cobalt (Co)	3.39E-02	7.89E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	3.65E-02
Copper (Cu)	2.27E-03	3.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.40E-01
Lead (Pb)	1.39E-01	1.94E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	1.59E-01
Manganese (Mn)	9.46E-03	2.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	1.00E-02
Mercury (Hg)	6.49E-04	7.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	3.79E-03
Molybdenum (Mo)	6.81E-04	1.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.82E-03
Nickel (Ni)	6.82E-03	5.56E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	1.31E-02
Selenium (Se)	2.10E-04	4.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.87E-03
Thallium (Tl)	1.79E-02	4.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	7.06E-02
Uranium (U)	8.37E-04	1.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	1.71E-03

Non-carcinogenic risk estimates for a Teen in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.86E-03	3.69E-04	6.36E-03	2.11E-04	1.74E-04	2.27E-04	---	1.34E-04	1.23E-02
Antimony (Sb)	4.66E-04	3.54E-04	5.07E-03	1.42E-03	8.71E-04	1.40E-05	---	8.38E-03	1.66E-02
Arsenic (As)	4.66E-03	1.06E-03	1.53E-02	3.80E-03	8.36E-03	6.36E-04	---	2.79E-02	6.18E-02
Chromium (Cr)	9.81E-06	7.45E-06	1.82E-05	3.68E-05	4.65E-06	2.64E-06	---	5.58E-06	8.51E-05
Cobalt (Co)	4.65E-03	3.54E-04	7.87E-03	1.14E-03	1.02E-02	1.12E-02	---	8.38E-04	3.62E-02
Copper (Cu)	2.25E-04	1.02E-04	5.62E-03	9.40E-04	7.33E-04	1.69E-04	---	4.56E-02	5.34E-02
Lead (Pb)	8.80E-03	4.01E-04	6.38E-03	8.76E-04	4.22E-02	1.25E-05	---	3.87E-03	6.25E-02
Manganese (Mn)	1.30E-03	9.87E-05	1.57E-02	1.44E-04	2.89E-04	6.89E-05	---	1.56E-04	1.77E-02
Mercury (Hg)	8.92E-05	3.16E-04	3.38E-03	1.14E-03	4.96E-02	5.91E-05	---	1.12E-03	5.57E-02
Molybdenum (Mo)	9.36E-05	7.11E-06	4.17E-02	6.78E-04	1.99E-03	1.25E-03	---	2.35E-03	4.81E-02
Nickel (Ni)	9.36E-04	2.49E-03	1.16E-03	1.20E-03	1.33E-02	2.61E-04	---	3.35E-04	1.97E-02
Selenium (Se)	2.88E-05	2.19E-06	4.05E-03	6.15E-03	3.26E-02	3.51E-05	---	1.68E-03	4.46E-02
Thallium (Tl)	2.46E-03	1.87E-04	2.90E-02	8.14E-03	3.80E-02	2.67E-03	---	2.39E-02	1.04E-01
Uranium (U)	1.15E-04	8.74E-06	2.91E-04	3.80E-05	3.25E-05	4.70E-07	---	3.91E-04	8.76E-04

Non-carcinogenic risk estimates for a Toddler in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	7.03E-02	6.05E-04	1.16E-02	3.86E-04	3.39E-04	4.15E-04	---	2.91E-04	8.39E-02
Antimony (Sb)	6.75E-03	5.80E-04	1.23E-02	2.61E-03	1.70E-03	2.56E-05	---	1.82E-02	4.21E-02
Arsenic (As)	6.74E-02	1.74E-03	3.65E-02	6.95E-03	1.63E-02	1.16E-03	---	6.06E-02	1.91E-01
Chromium (Cr)	1.42E-04	1.22E-05	3.72E-05	6.74E-05	9.05E-06	4.83E-06	---	1.21E-05	2.85E-04
Cobalt (Co)	6.73E-02	5.79E-04	1.65E-02	2.08E-03	1.99E-02	2.05E-02	---	1.82E-03	1.29E-01
Copper (Cu)	4.50E-03	2.32E-04	1.57E-02	2.38E-03	1.98E-03	4.29E-04	---	1.37E-01	1.62E-01
Lead (Pb)	2.76E-01	1.42E-03	2.92E-02	3.47E-03	1.78E-01	4.98E-05	---	1.82E-02	5.07E-01
Manganese (Mn)	1.88E-02	1.62E-04	3.00E-02	2.64E-04	5.62E-04	1.26E-04	---	3.38E-04	5.03E-02
Mercury (Hg)	1.29E-03	5.17E-04	8.20E-03	2.08E-03	9.66E-02	1.08E-04	---	2.42E-03	1.11E-01
Molybdenum (Mo)	1.35E-03	1.16E-05	8.98E-02	1.24E-03	3.88E-03	2.30E-03	---	5.09E-03	1.04E-01
Nickel (Ni)	1.36E-02	4.08E-03	2.41E-03	2.19E-03	2.60E-02	4.78E-04	---	7.27E-04	4.94E-02
Selenium (Se)	4.17E-04	3.59E-06	9.84E-03	1.13E-02	6.36E-02	6.42E-05	---	3.64E-03	8.88E-02
Thallium (Tl)	3.56E-02	3.06E-04	7.03E-02	1.49E-02	7.39E-02	4.89E-03	---	5.19E-02	2.52E-01
Uranium (U)	1.66E-03	1.43E-05	6.01E-04	6.95E-05	6.34E-05	8.60E-07	---	8.48E-04	3.26E-03

Lifetime Average Daily Dose for a Resident in West End/Downtown under Baseline Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.51E-03	3.80E-04	5.76E-03	2.10E-04	1.78E-04	2.26E-04	---	1.49E-04	1.54E-02
Antimony (Sb)	3.27E-07	1.46E-07	1.97E-06	5.67E-07	3.56E-07	5.57E-09	---	3.73E-06	7.10E-06
Arsenic (As)	2.45E-06	3.28E-07	4.53E-06	1.13E-06	2.57E-06	1.90E-07	---	9.32E-06	2.05E-05
Barium (Ba)	8.31E-05	3.71E-05	1.36E-03	3.69E-06	5.76E-06	1.44E-06	---	1.86E-04	1.67E-03
Chromium (Cr)	2.58E-05	1.15E-05	2.58E-05	5.50E-05	7.13E-06	3.94E-06	---	9.32E-06	1.38E-04
Cobalt (Co)	8.15E-06	3.64E-07	7.33E-06	1.13E-06	1.04E-05	1.11E-05	---	9.32E-07	3.95E-05
Copper (Cu)	4.96E-05	1.33E-05	6.66E-04	1.18E-04	9.44E-05	2.12E-05	---	6.39E-03	7.36E-03
Lead (Pb)	2.00E-05	5.37E-07	7.88E-06	1.13E-06	5.61E-05	1.62E-08	---	5.59E-06	9.13E-05
Manganese (Mn)	3.19E-04	1.42E-05	2.07E-03	2.01E-05	4.13E-05	9.61E-06	---	2.42E-05	2.50E-03
Mercury (Hg)	4.69E-08	9.75E-08	9.87E-07	3.40E-07	1.01E-05	1.77E-08	---	3.73E-07	1.20E-05
Molybdenum (Mo)	8.20E-07	3.66E-08	2.18E-04	3.37E-06	1.02E-05	6.25E-06	---	1.30E-05	2.51E-04
Nickel (Ni)	3.28E-05	5.12E-05	2.19E-05	2.38E-05	2.73E-04	5.20E-06	---	7.46E-06	4.15E-04
Selenium (Se)	2.52E-07	1.13E-08	1.97E-05	3.06E-05	1.67E-04	1.75E-07	---	9.32E-06	2.27E-04
Thallium (Tl)	6.02E-08	2.69E-09	3.95E-07	1.13E-07	5.44E-07	3.73E-08	---	3.73E-07	1.52E-06
Uranium (U)	6.04E-07	2.70E-08	8.09E-07	1.13E-07	9.98E-08	1.40E-09	---	1.30E-06	2.96E-06
Vanadium (V)	3.61E-05	1.61E-05	1.70E-05	7.66E-06	4.10E-06	2.22E-06	---	3.73E-05	1.20E-04

Total Daily Intake Rates for an Adult in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.10E-03	3.51E-04	4.96E-03	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	1.08E-02
Antimony (Sb)	1.58E-07	1.35E-07	1.62E-06	5.78E-07	3.14E-07	5.35E-09	---	4.24E-06	7.05E-06
Arsenic (As)	1.18E-06	3.03E-07	3.76E-06	1.07E-06	2.71E-06	1.75E-07	---	1.06E-05	1.98E-05
Chromium (Cr)	1.24E-05	1.06E-05	2.20E-05	5.02E-05	3.02E-05	3.62E-06	---	1.06E-05	1.40E-04
Cobalt (Co)	3.93E-06	3.36E-07	6.15E-06	1.03E-06	1.95E-05	1.02E-05	---	1.06E-06	4.22E-05
Copper (Cu)	2.39E-05	1.23E-05	5.68E-04	1.13E-04	1.46E-04	1.94E-05	---	7.28E-03	8.16E-03
Lead (Pb)	9.67E-06	4.96E-07	6.66E-06	1.04E-06	7.02E-05	1.49E-08	---	6.36E-06	9.45E-05
Manganese (Mn)	1.54E-04	1.31E-05	1.80E-03	1.95E-05	4.78E-05	8.83E-06	---	2.76E-05	2.07E-03
Mercury (Hg)	2.26E-08	9.03E-08	8.10E-07	3.20E-07	9.44E-06	1.66E-08	---	4.24E-07	1.11E-05
Molybdenum (Mo)	3.95E-07	3.38E-08	1.92E-04	3.08E-06	1.66E-05	5.73E-06	---	1.49E-05	2.33E-04
Nickel (Ni)	1.58E-05	4.74E-05	1.85E-05	2.17E-05	3.89E-04	4.76E-06	---	8.49E-06	5.06E-04
Selenium (Se)	1.22E-07	1.04E-08	1.62E-05	2.82E-05	2.60E-04	1.61E-07	---	1.06E-05	3.16E-04
Thallium (Tl)	2.91E-08	2.49E-09	3.24E-07	1.06E-07	4.79E-07	3.46E-08	---	4.24E-07	1.40E-06
Uranium (U)	2.91E-07	2.49E-08	6.80E-07	1.18E-07	1.09E-07	1.50E-09	---	1.49E-06	2.71E-06

Total Daily Intake Rates for a Child in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.81E-03	4.61E-04	8.65E-03	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	2.01E-02
Antimony (Sb)	3.39E-07	1.77E-07	3.21E-06	8.39E-07	5.47E-07	7.76E-09	---	4.86E-06	9.98E-06
Arsenic (As)	2.54E-06	3.97E-07	7.21E-06	1.55E-06	4.72E-06	2.54E-07	---	1.22E-05	2.88E-05
Chromium (Cr)	2.67E-05	1.40E-05	3.95E-05	7.30E-05	5.26E-05	5.25E-06	---	1.22E-05	2.23E-04
Cobalt (Co)	8.44E-06	4.41E-07	1.15E-05	1.50E-06	3.40E-05	1.48E-05	---	1.22E-06	7.19E-05
Copper (Cu)	5.14E-05	1.61E-05	1.02E-03	1.64E-04	2.54E-04	2.82E-05	---	8.34E-03	9.87E-03
Lead (Pb)	2.08E-05	6.51E-07	1.22E-05	1.51E-06	1.22E-04	2.16E-08	---	7.29E-06	1.65E-04
Manganese (Mn)	3.30E-04	1.72E-05	3.08E-03	2.84E-05	8.33E-05	1.28E-05	---	3.16E-05	3.59E-03
Mercury (Hg)	4.87E-08	1.18E-07	1.60E-06	4.64E-07	1.65E-05	2.41E-08	---	4.86E-07	1.92E-05
Molybdenum (Mo)	8.49E-07	4.44E-08	3.17E-04	4.48E-06	2.90E-05	8.32E-06	---	1.70E-05	3.76E-04
Nickel (Ni)	3.40E-05	6.22E-05	3.38E-05	3.15E-05	6.78E-04	6.91E-06	---	9.73E-06	8.56E-04
Selenium (Se)	2.62E-07	1.37E-08	3.21E-05	4.10E-05	4.53E-04	2.33E-07	---	1.22E-05	5.39E-04
Thallium (Tl)	6.25E-08	3.26E-09	6.41E-07	1.54E-07	8.34E-07	5.03E-08	---	4.86E-07	2.23E-06
Uranium (U)	6.26E-07	3.27E-08	1.26E-06	1.71E-07	1.90E-07	2.18E-09	---	1.70E-06	3.99E-06

Total Daily Intake Rates for an Infant in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	3.54E-02	8.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.65E-02
Antimony (Sb)	1.36E-06	3.17E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-06	8.99E-06
Arsenic (As)	1.02E-05	7.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	2.92E-05
Chromium (Cr)	1.07E-04	2.50E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.50E-04
Cobalt (Co)	3.39E-05	7.89E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-06	3.65E-05
Copper (Cu)	2.06E-04	2.88E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.25E-02	1.28E-02
Lead (Pb)	8.33E-05	1.17E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.10E-05	9.55E-05
Manganese (Mn)	1.32E-03	3.09E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	4.76E-05	1.40E-03
Mercury (Hg)	1.95E-07	2.12E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	1.14E-06
Molybdenum (Mo)	3.41E-06	7.94E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-05	2.91E-05
Nickel (Ni)	1.36E-04	1.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.46E-05	2.62E-04
Selenium (Se)	1.05E-06	2.45E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-05	1.94E-05
Thallium (Tl)	2.51E-07	5.84E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-07	9.88E-07
Uranium (U)	2.51E-06	5.85E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.56E-06	5.13E-06

Total Daily Intake Rates for a Teen in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	4.86E-03	3.69E-04	6.36E-03	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.31E-02
Antimony (Sb)	1.87E-07	1.42E-07	2.03E-06	6.39E-07	3.48E-07	5.91E-09	---	3.35E-06	6.70E-06
Arsenic (As)	1.40E-06	3.19E-07	4.60E-06	1.18E-06	3.01E-06	1.93E-07	---	8.38E-06	1.91E-05
Chromium (Cr)	1.47E-05	1.12E-05	2.73E-05	5.56E-05	3.35E-05	4.00E-06	---	8.38E-06	1.55E-04
Cobalt (Co)	4.65E-06	3.54E-07	7.87E-06	1.14E-06	2.17E-05	1.12E-05	---	8.38E-07	4.78E-05
Copper (Cu)	2.83E-05	1.29E-05	7.09E-04	1.25E-04	1.62E-04	2.15E-05	---	5.75E-03	6.80E-03
Lead (Pb)	1.14E-05	5.22E-07	8.29E-06	1.15E-06	7.79E-05	1.65E-08	---	5.03E-06	1.04E-04
Manganese (Mn)	1.82E-04	1.38E-05	2.20E-03	2.16E-05	5.30E-05	9.77E-06	---	2.18E-05	2.50E-03
Mercury (Hg)	2.68E-08	9.50E-08	1.01E-06	3.54E-07	1.05E-05	1.84E-08	---	3.35E-07	1.23E-05
Molybdenum (Mo)	4.68E-07	3.56E-08	2.09E-04	3.41E-06	1.85E-05	6.34E-06	---	1.17E-05	2.49E-04
Nickel (Ni)	1.87E-05	4.98E-05	2.32E-05	2.40E-05	4.32E-04	5.26E-06	---	6.70E-06	5.60E-04
Selenium (Se)	1.44E-07	1.10E-08	2.03E-05	3.12E-05	2.89E-04	1.78E-07	---	8.38E-06	3.49E-04
Thallium (Tl)	3.44E-08	2.62E-09	4.06E-07	1.17E-07	5.31E-07	3.83E-08	---	3.35E-07	1.46E-06
Uranium (U)	3.45E-07	2.62E-08	8.72E-07	1.31E-07	1.21E-07	1.66E-09	---	1.17E-06	2.67E-06

Total Daily Intake Rates for a Toddler in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	7.03E-02	6.05E-04	1.16E-02	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	8.54E-02
Antimony (Sb)	2.70E-06	2.32E-07	4.93E-06	1.17E-06	6.79E-07	1.08E-08	---	7.27E-06	1.70E-05
Arsenic (As)	2.02E-05	5.22E-07	1.09E-05	2.16E-06	5.86E-06	3.54E-07	---	1.82E-05	5.82E-05
Chromium (Cr)	2.13E-04	1.83E-05	5.58E-05	1.02E-04	6.53E-05	7.32E-06	---	1.82E-05	4.80E-04
Cobalt (Co)	6.73E-05	5.79E-07	1.66E-05	2.09E-06	4.22E-05	2.06E-05	---	1.82E-06	1.51E-04
Copper (Cu)	4.10E-04	2.12E-05	1.43E-03	2.29E-04	3.16E-04	3.93E-05	---	1.25E-02	1.49E-02
Lead (Pb)	1.66E-04	8.55E-07	1.75E-05	2.11E-06	1.52E-04	3.01E-08	---	1.09E-05	3.49E-04
Manganese (Mn)	2.63E-03	2.26E-05	4.20E-03	3.95E-05	1.03E-04	1.79E-05	---	4.73E-05	7.07E-03
Mercury (Hg)	3.88E-07	1.56E-07	2.46E-06	6.47E-07	2.04E-05	3.37E-08	---	7.27E-07	2.48E-05
Molybdenum (Mo)	6.77E-06	5.83E-08	4.49E-04	6.24E-06	3.60E-05	1.16E-05	---	2.55E-05	5.35E-04
Nickel (Ni)	2.71E-04	8.16E-05	4.81E-05	4.39E-05	8.42E-04	9.64E-06	---	1.45E-05	1.31E-03
Selenium (Se)	2.09E-06	1.79E-08	4.92E-05	5.72E-05	5.63E-04	3.25E-07	---	1.82E-05	6.90E-04
Thallium (Tl)	4.98E-07	4.28E-09	9.85E-07	2.14E-07	1.04E-06	7.01E-08	---	7.27E-07	3.53E-06
Uranium (U)	5.00E-06	4.30E-08	1.80E-06	2.39E-07	2.36E-07	3.04E-09	---	2.55E-06	9.87E-06

Non-carcinogenic risk estimates for an Adult in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.10E-03	3.51E-04	4.96E-03	1.91E-04	8.29E-04	2.07E-04	---	1.70E-04	1.08E-02
Antimony (Sb)	3.94E-04	3.37E-04	4.05E-03	1.44E-03	7.85E-04	1.34E-05	---	1.06E-02	1.76E-02
Arsenic (As)	3.93E-03	1.01E-03	1.25E-02	3.55E-03	9.04E-03	5.83E-04	---	3.54E-02	6.60E-02
Chromium (Cr)	8.28E-06	7.09E-06	1.47E-05	3.35E-05	2.01E-05	2.41E-06	---	7.07E-06	9.32E-05
Cobalt (Co)	3.93E-03	3.36E-04	6.15E-03	1.03E-03	1.95E-02	1.02E-02	---	1.06E-03	4.22E-02
Copper (Cu)	1.70E-04	8.71E-05	4.03E-03	8.02E-04	1.04E-03	1.38E-04	---	5.16E-02	5.79E-02
Lead (Pb)	7.44E-03	3.82E-04	5.12E-03	8.00E-04	5.40E-02	1.14E-05	---	4.90E-03	7.27E-02
Manganese (Mn)	1.10E-03	9.39E-05	1.28E-02	1.39E-04	3.42E-04	6.31E-05	---	1.97E-04	1.48E-02
Mercury (Hg)	7.55E-05	3.01E-04	2.70E-03	1.07E-03	4.72E-02	5.54E-05	---	1.41E-03	5.28E-02
Molybdenum (Mo)	7.91E-05	6.77E-06	3.84E-02	6.17E-04	3.33E-03	1.15E-03	---	2.97E-03	4.65E-02
Nickel (Ni)	7.91E-04	2.37E-03	9.26E-04	1.08E-03	1.95E-02	2.38E-04	---	4.24E-04	2.53E-02
Selenium (Se)	2.43E-05	2.08E-06	3.24E-03	5.65E-03	5.21E-02	3.21E-05	---	2.12E-03	6.31E-02
Thallium (Tl)	2.08E-03	1.78E-04	2.31E-02	7.55E-03	3.42E-02	2.47E-03	---	3.03E-02	9.99E-02
Uranium (U)	9.71E-05	8.32E-06	2.27E-04	3.93E-05	3.64E-05	5.01E-07	---	4.95E-04	9.03E-04

Non-carcinogenic risk estimates for a Child in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	8.81E-03	4.61E-04	8.65E-03	2.78E-04	1.44E-03	3.01E-04	---	1.95E-04	2.01E-02
Antimony (Sb)	8.47E-04	4.42E-04	8.02E-03	2.10E-03	1.37E-03	1.94E-05	---	1.22E-02	2.50E-02
Arsenic (As)	8.45E-03	1.32E-03	2.40E-02	5.16E-03	1.57E-02	8.46E-04	---	4.05E-02	9.61E-02
Chromium (Cr)	1.78E-05	9.30E-06	2.63E-05	4.86E-05	3.51E-05	3.50E-06	---	8.11E-06	1.49E-04
Cobalt (Co)	8.44E-03	4.41E-04	1.15E-02	1.50E-03	3.40E-02	1.48E-02	---	1.22E-03	7.19E-02
Copper (Cu)	4.67E-04	1.46E-04	9.26E-03	1.49E-03	2.31E-03	2.57E-04	---	7.58E-02	8.98E-02
Lead (Pb)	3.46E-02	1.09E-03	2.03E-02	2.52E-03	2.04E-01	3.60E-05	---	1.22E-02	2.75E-01
Manganese (Mn)	2.36E-03	1.23E-04	2.20E-02	2.03E-04	5.95E-04	9.16E-05	---	2.26E-04	2.56E-02
Mercury (Hg)	1.62E-04	3.95E-04	5.35E-03	1.55E-03	8.23E-02	8.05E-05	---	1.62E-03	9.14E-02
Molybdenum (Mo)	1.70E-04	8.88E-06	6.33E-02	8.96E-04	5.80E-03	1.66E-03	---	3.40E-03	7.52E-02
Nickel (Ni)	1.70E-03	3.11E-03	1.69E-03	1.58E-03	3.39E-02	3.46E-04	---	4.86E-04	4.28E-02
Selenium (Se)	5.23E-05	2.73E-06	6.41E-03	8.20E-03	9.07E-02	4.66E-05	---	2.43E-03	1.08E-01
Thallium (Tl)	4.46E-03	2.33E-04	4.58E-02	1.10E-02	5.96E-02	3.59E-03	---	3.47E-02	1.59E-01
Uranium (U)	2.09E-04	1.09E-05	4.21E-04	5.71E-05	6.35E-05	7.27E-07	---	5.67E-04	1.33E-03

Non-carcinogenic risk for estimates an Infant in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	3.54E-02	8.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.93E-04	3.65E-02
Antimony (Sb)	3.40E-03	7.92E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	2.25E-02
Arsenic (As)	3.39E-02	2.37E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	6.10E-02	9.73E-02
Chromium (Cr)	7.14E-05	1.66E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.22E-05	1.00E-04
Cobalt (Co)	3.39E-02	7.89E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-03	3.65E-02
Copper (Cu)	2.27E-03	3.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.38E-01	1.40E-01
Lead (Pb)	1.39E-01	1.94E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	1.83E-02	1.59E-01
Manganese (Mn)	9.46E-03	2.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.40E-04	1.00E-02
Mercury (Hg)	6.51E-04	7.07E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	2.44E-03	3.80E-03
Molybdenum (Mo)	6.82E-04	1.59E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.12E-03	5.82E-03
Nickel (Ni)	6.82E-03	5.56E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	7.32E-04	1.31E-02
Selenium (Se)	2.10E-04	4.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	3.66E-03	3.87E-03
Thallium (Tl)	1.79E-02	4.17E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	5.23E-02	7.06E-02
Uranium (U)	8.38E-04	1.95E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	---	8.54E-04	1.71E-03

Non-carcinogenic risk estimates for a Teen in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	4.86E-03	3.69E-04	6.36E-03	2.12E-04	9.20E-04	2.29E-04	---	1.34E-04	1.31E-02
Antimony (Sb)	4.67E-04	3.55E-04	5.07E-03	1.60E-03	8.71E-04	1.48E-05	---	8.38E-03	1.68E-02
Arsenic (As)	4.66E-03	1.06E-03	1.53E-02	3.93E-03	1.00E-02	6.45E-04	---	2.79E-02	6.36E-02
Chromium (Cr)	9.81E-06	7.46E-06	1.82E-05	3.71E-05	2.23E-05	2.67E-06	---	5.58E-06	1.03E-04
Cobalt (Co)	4.65E-03	3.54E-04	7.87E-03	1.14E-03	2.17E-02	1.12E-02	---	8.38E-04	4.78E-02
Copper (Cu)	2.25E-04	1.03E-04	5.62E-03	9.92E-04	1.29E-03	1.71E-04	---	4.56E-02	5.40E-02
Lead (Pb)	8.81E-03	4.02E-04	6.38E-03	8.85E-04	5.99E-02	1.27E-05	---	3.87E-03	8.03E-02
Manganese (Mn)	1.30E-03	9.87E-05	1.57E-02	1.54E-04	3.79E-04	6.98E-05	---	1.56E-04	1.79E-02
Mercury (Hg)	8.94E-05	3.17E-04	3.38E-03	1.18E-03	5.24E-02	6.13E-05	---	1.12E-03	5.85E-02
Molybdenum (Mo)	9.36E-05	7.12E-06	4.17E-02	6.82E-04	3.69E-03	1.27E-03	---	2.35E-03	4.98E-02
Nickel (Ni)	9.37E-04	2.49E-03	1.16E-03	1.20E-03	2.16E-02	2.63E-04	---	3.35E-04	2.80E-02
Selenium (Se)	2.88E-05	2.19E-06	4.06E-03	6.25E-03	5.78E-02	3.55E-05	---	1.68E-03	6.98E-02
Thallium (Tl)	2.46E-03	1.87E-04	2.90E-02	8.36E-03	3.80E-02	2.74E-03	---	2.39E-02	1.05E-01
Uranium (U)	1.15E-04	8.74E-06	2.91E-04	4.35E-05	4.04E-05	5.54E-07	---	3.91E-04	8.90E-04

Non-carcinogenic risk estimates for a Toddler in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless	Unitless
Aluminum (Al)	7.03E-02	6.05E-04	1.16E-02	3.87E-04	1.79E-03	4.20E-04	---	2.91E-04	8.54E-02
Antimony (Sb)	6.75E-03	5.81E-04	1.23E-02	2.92E-03	1.70E-03	2.71E-05	---	1.82E-02	4.25E-02
Arsenic (As)	6.74E-02	1.74E-03	3.65E-02	7.19E-03	1.95E-02	1.18E-03	---	6.06E-02	1.94E-01
Chromium (Cr)	1.42E-04	1.22E-05	3.72E-05	6.78E-05	4.35E-05	4.88E-06	---	1.21E-05	3.20E-04
Cobalt (Co)	6.73E-02	5.79E-04	1.66E-02	2.09E-03	4.22E-02	2.06E-02	---	1.82E-03	1.51E-01
Copper (Cu)	4.50E-03	2.32E-04	1.57E-02	2.51E-03	3.47E-03	4.32E-04	---	1.37E-01	1.64E-01
Lead (Pb)	2.76E-01	1.42E-03	2.92E-02	3.51E-03	2.53E-01	5.02E-05	---	1.82E-02	5.82E-01
Manganese (Mn)	1.88E-02	1.62E-04	3.00E-02	2.82E-04	7.38E-04	1.28E-04	---	3.38E-04	5.05E-02
Mercury (Hg)	1.29E-03	5.18E-04	8.21E-03	2.16E-03	1.02E-01	1.12E-04	---	2.42E-03	1.17E-01
Molybdenum (Mo)	1.35E-03	1.17E-05	8.99E-02	1.25E-03	7.20E-03	2.32E-03	---	5.09E-03	1.07E-01
Nickel (Ni)	1.36E-02	4.08E-03	2.41E-03	2.20E-03	4.21E-02	4.82E-04	---	7.27E-04	6.55E-02
Selenium (Se)	4.17E-04	3.59E-06	9.85E-03	1.14E-02	1.13E-01	6.50E-05	---	3.64E-03	1.38E-01
Thallium (Tl)	3.56E-02	3.06E-04	7.04E-02	1.53E-02	7.39E-02	5.01E-03	---	5.19E-02	2.52E-01
Uranium (U)	1.67E-03	1.43E-05	6.01E-04	7.96E-05	7.88E-05	1.01E-06	---	8.48E-04	3.29E-03

Carcinogenic Risk for a Resident at the West End/Downtown Location under Project-Alone Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	Total Ingestion Exposure
	unitless	unitless	unitless	unitless	unitless	unitless	unitless	unitless
Arsenic (As)	9.16E-10	1.23E-10	1.78E-09	5.93E-08	7.66E-07	4.04E-09	---	8.32E-07

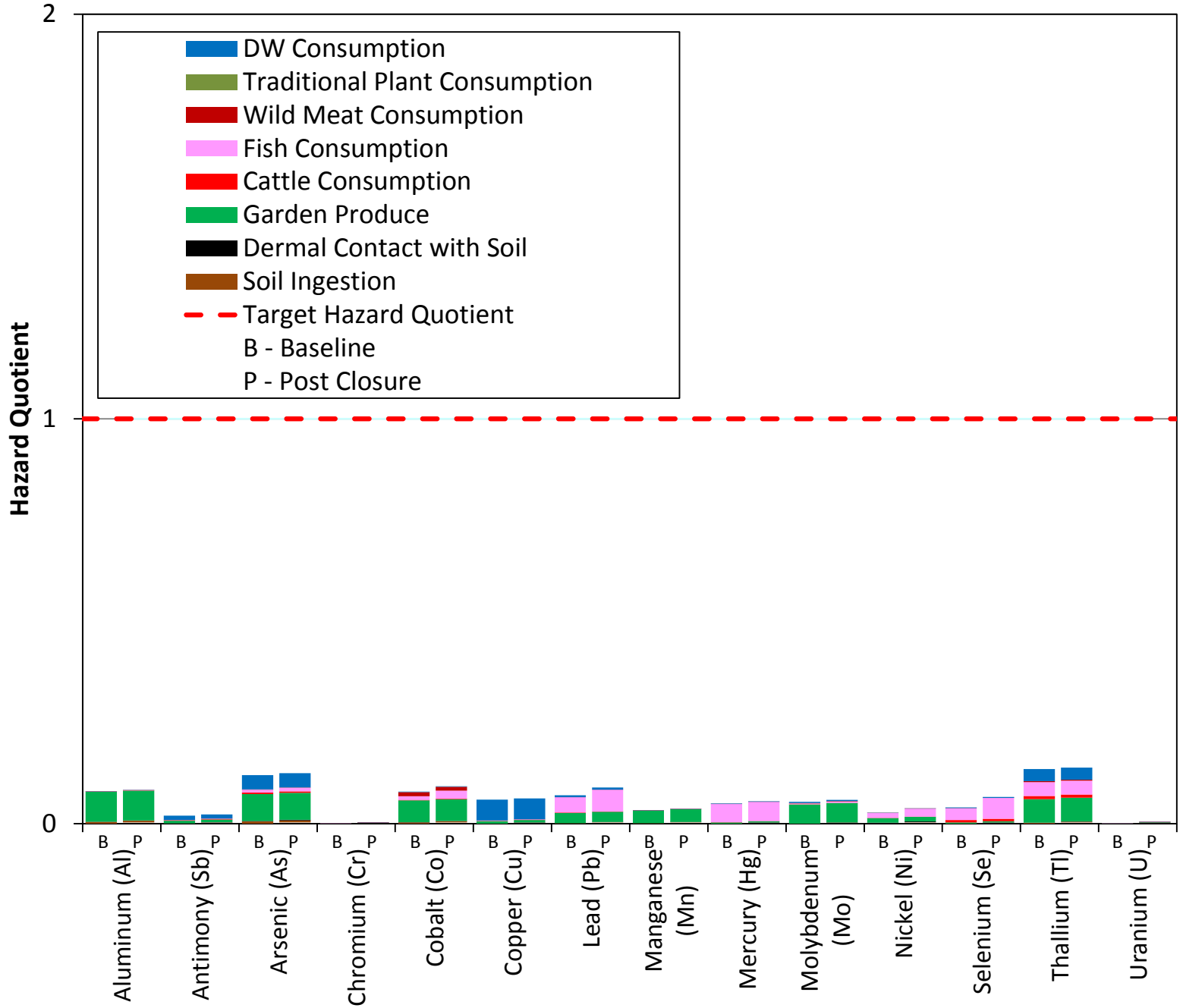
Notes:

Bold ILCR exceeds benchmark of 1 in 100,000

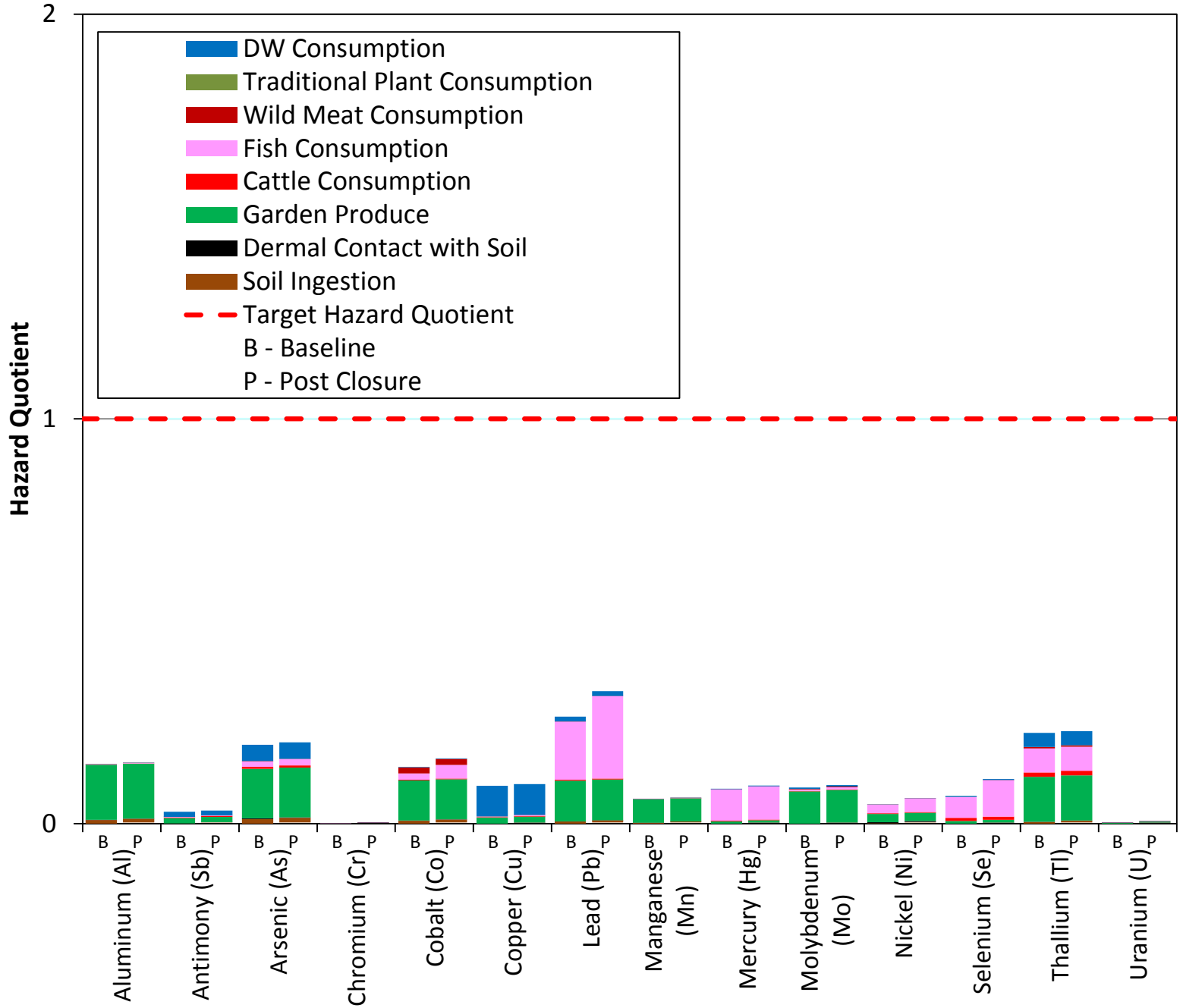
Lifetime Average Daily Dose for a Resident in West End/Downtown under Post-Closure Conditions

Chemical	Soil Ingestion	Dermal Contact with Soil	Garden Produce	Cattle Consumption	Fish Consumption	Wild Meat Consumption	Traditional Plant Consumption	DW Consumption	Total Ingestion Exposure
	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day	mg/kg-day
Aluminum (Al)	8.51E-03	3.80E-04	5.76E-03	2.11E-04	9.41E-04	2.28E-04	---	1.49E-04	1.62E-02
Antimony (Sb)	3.27E-07	1.46E-07	1.98E-06	6.36E-07	3.56E-07	5.89E-09	---	3.73E-06	7.18E-06
Arsenic (As)	2.45E-06	3.28E-07	4.53E-06	1.17E-06	3.08E-06	1.93E-07	---	9.32E-06	2.11E-05
Barium (Ba)	8.31E-05	3.71E-05	1.36E-03	3.71E-06	7.79E-06	1.44E-06	---	1.86E-04	1.68E-03
Chromium (Cr)	2.58E-05	1.15E-05	2.58E-05	5.53E-05	3.43E-05	3.98E-06	---	9.32E-06	1.66E-04
Cobalt (Co)	8.15E-06	3.64E-07	7.34E-06	1.14E-06	2.22E-05	1.12E-05	---	9.32E-07	5.13E-05
Copper (Cu)	4.96E-05	1.33E-05	6.66E-04	1.24E-04	1.66E-04	2.14E-05	---	6.39E-03	7.43E-03
Lead (Pb)	2.01E-05	5.37E-07	7.88E-06	1.15E-06	7.97E-05	1.64E-08	---	5.59E-06	1.15E-04
Manganese (Mn)	3.19E-04	1.42E-05	2.07E-03	2.15E-05	5.43E-05	9.73E-06	---	2.42E-05	2.52E-03
Mercury (Hg)	4.70E-08	9.77E-08	9.88E-07	3.52E-07	1.07E-05	1.83E-08	---	3.73E-07	1.26E-05
Molybdenum (Mo)	8.20E-07	3.66E-08	2.18E-04	3.40E-06	1.89E-05	6.31E-06	---	1.30E-05	2.60E-04
Nickel (Ni)	3.28E-05	5.12E-05	2.19E-05	2.39E-05	4.42E-04	5.24E-06	---	7.46E-06	5.84E-04
Selenium (Se)	2.53E-07	1.13E-08	1.97E-05	3.11E-05	2.95E-04	1.77E-07	---	9.32E-06	3.56E-04
Thallium (Tl)	6.03E-08	2.69E-09	3.95E-07	1.16E-07	5.44E-07	3.82E-08	---	3.73E-07	1.53E-06
Uranium (U)	6.05E-07	2.70E-08	8.09E-07	1.30E-07	1.24E-07	1.65E-09	---	1.30E-06	3.00E-06
Vanadium (V)	3.61E-05	1.61E-05	1.70E-05	7.68E-06	6.12E-06	2.24E-06	---	3.73E-05	1.22E-04

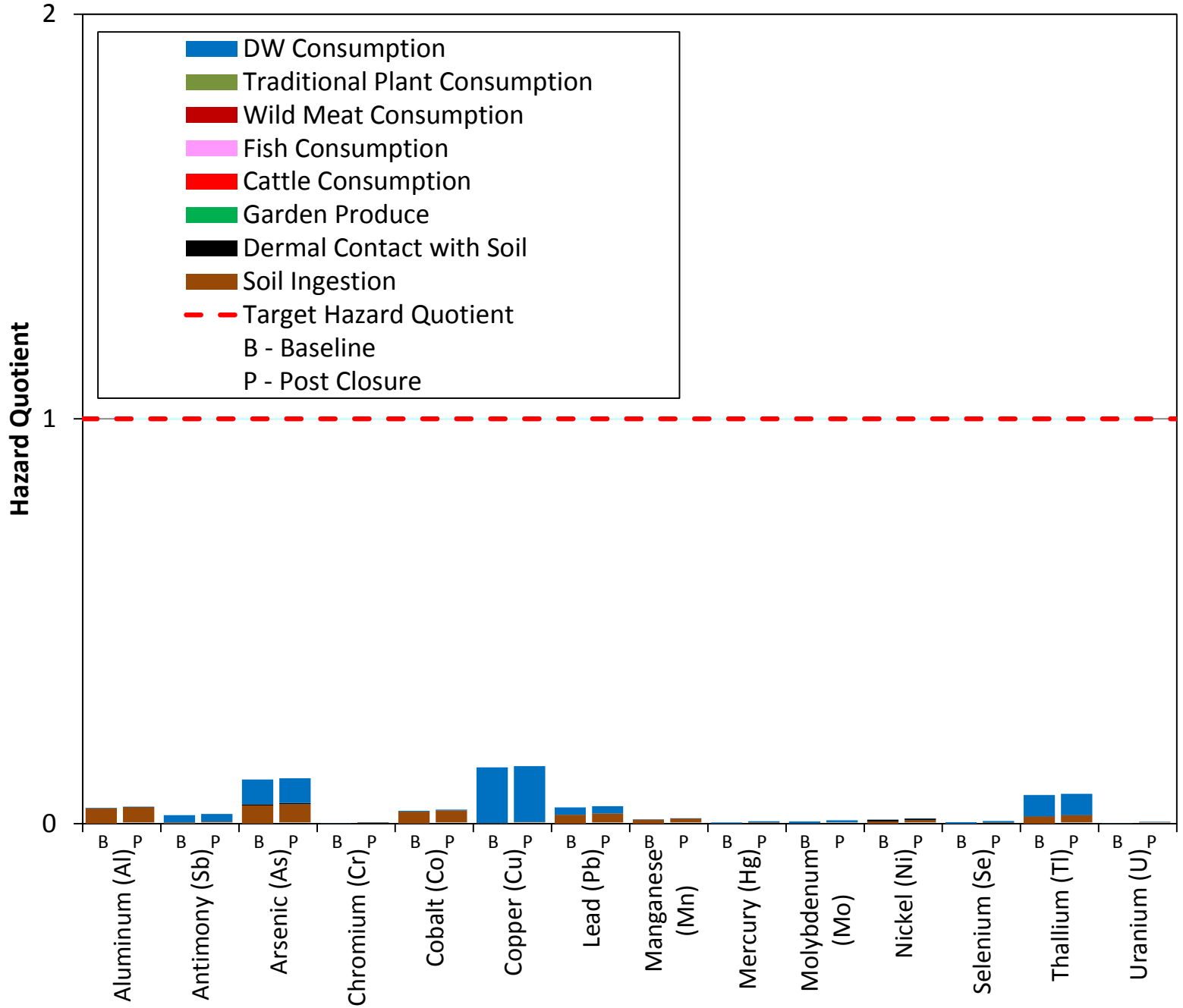
Non-carcinogenic risk estimates for a Adult in Aberdeen



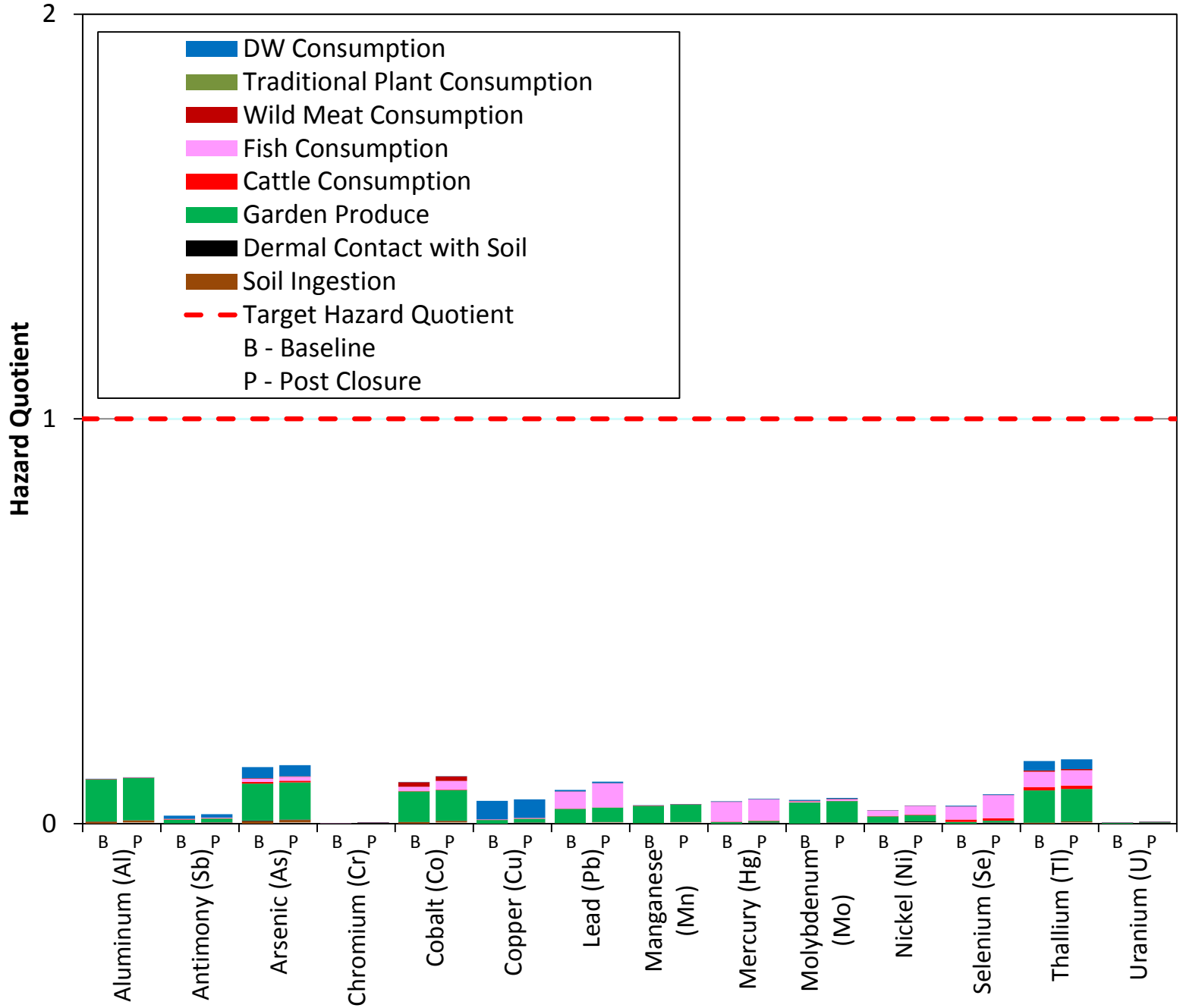
Non-carcinogenic risk estimates for a Child in Aberdeen



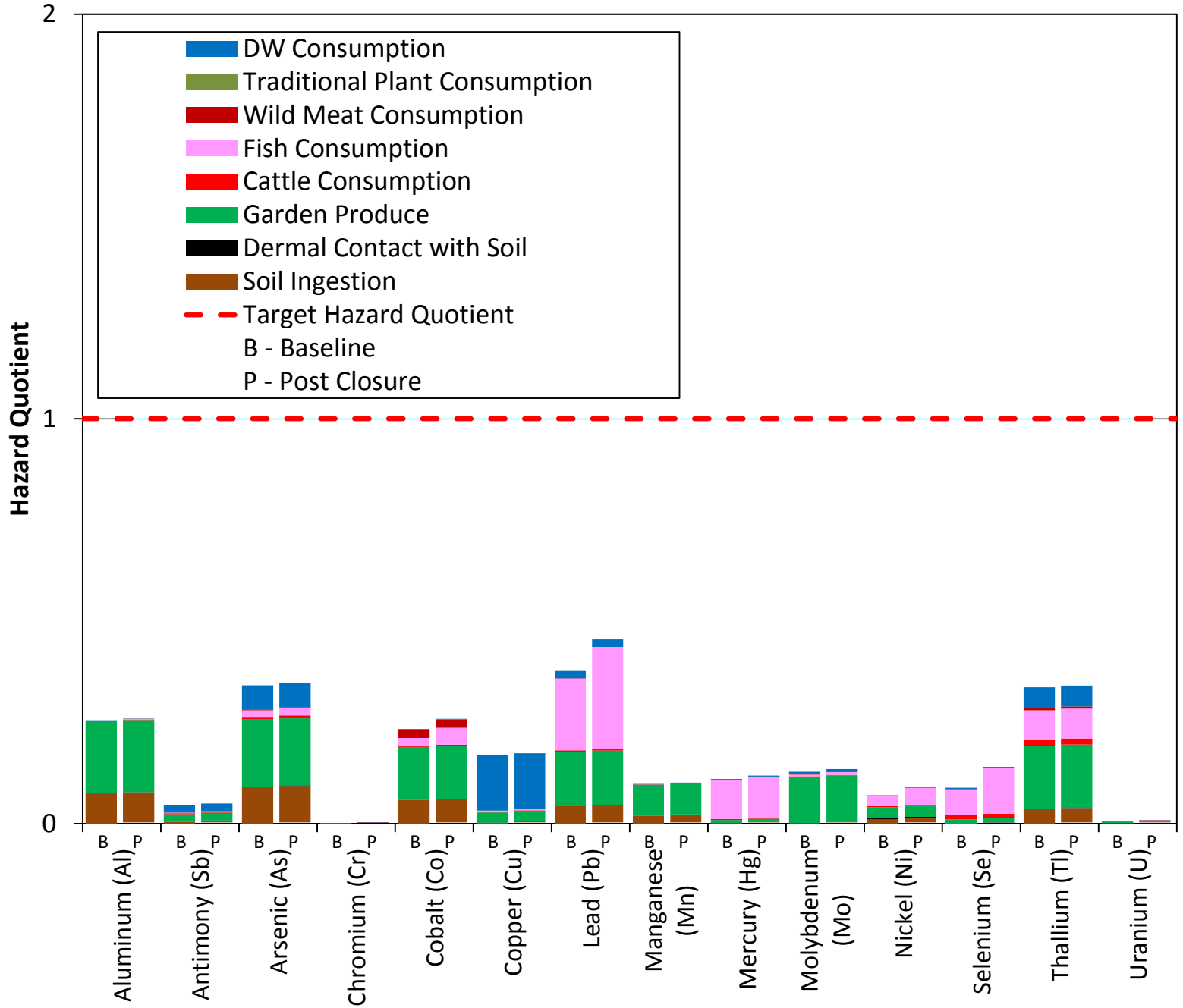
Non-carcinogenic risk estimates for a Infant in Aberdeen



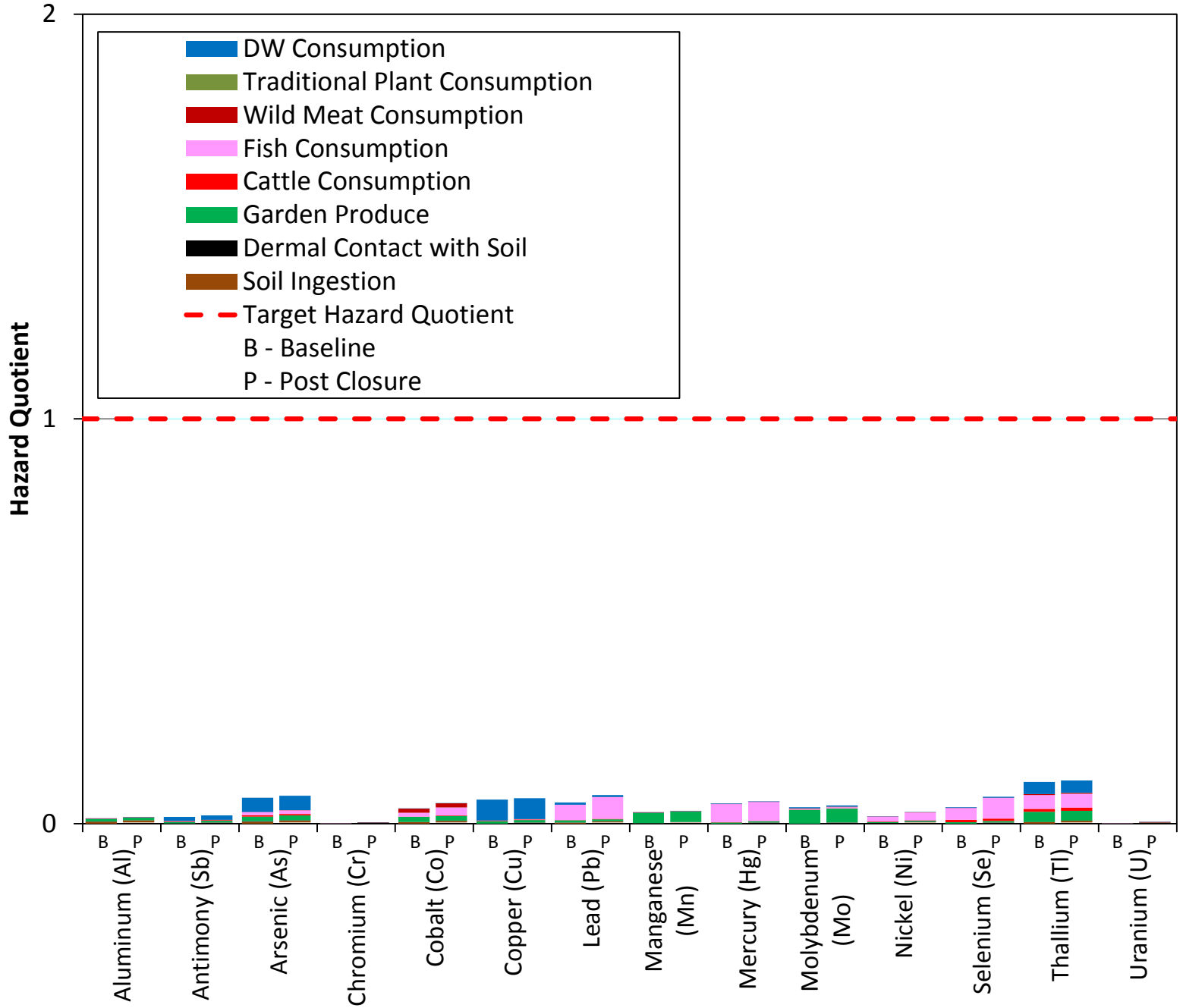
Non-carcinogenic risk estimates for a Teen in Aberdeen



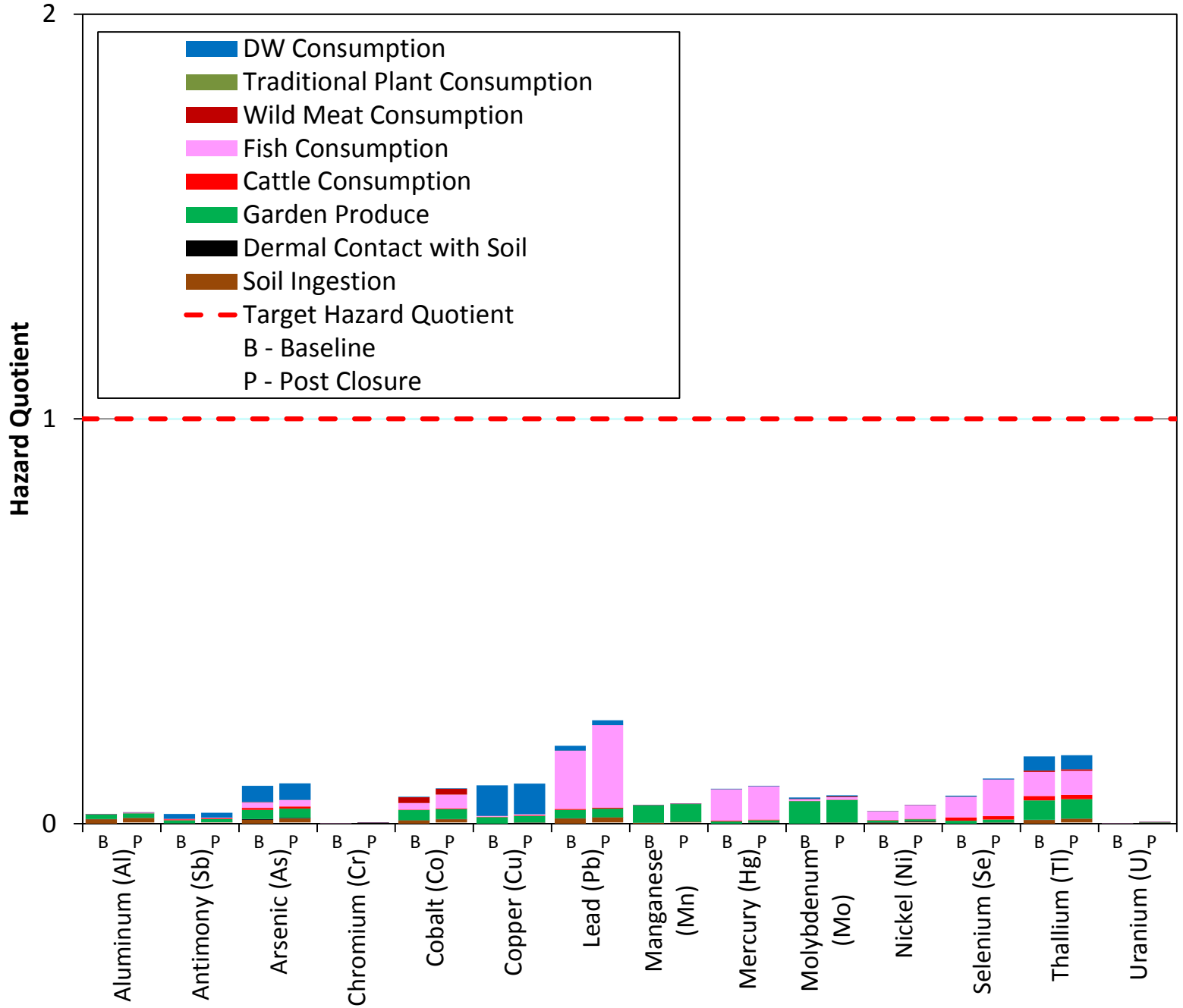
Non-carcinogenic risk estimates for a Toddler in Aberdeen



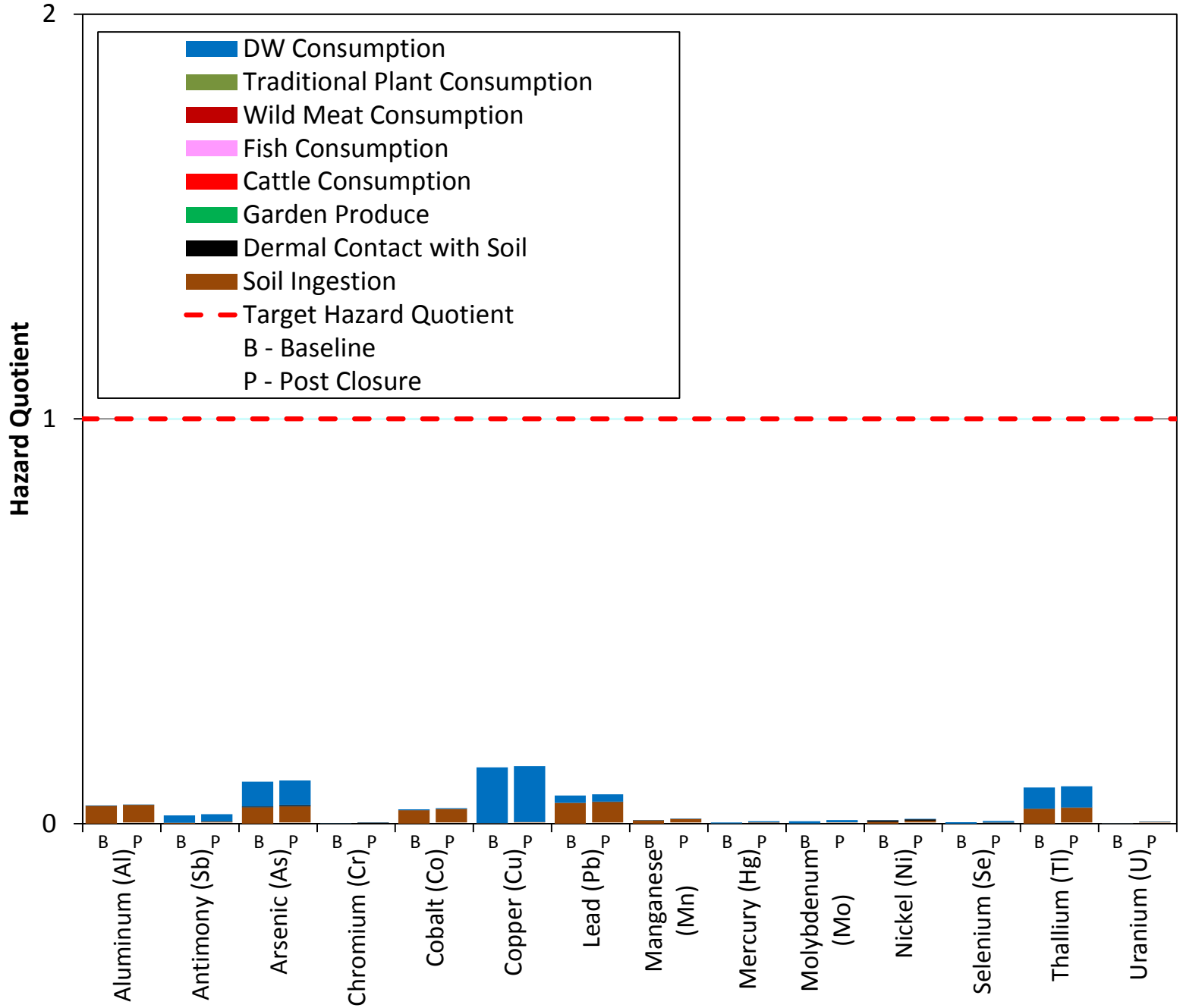
Non-carcinogenic risk estimates for a Adult in Brocklehurst



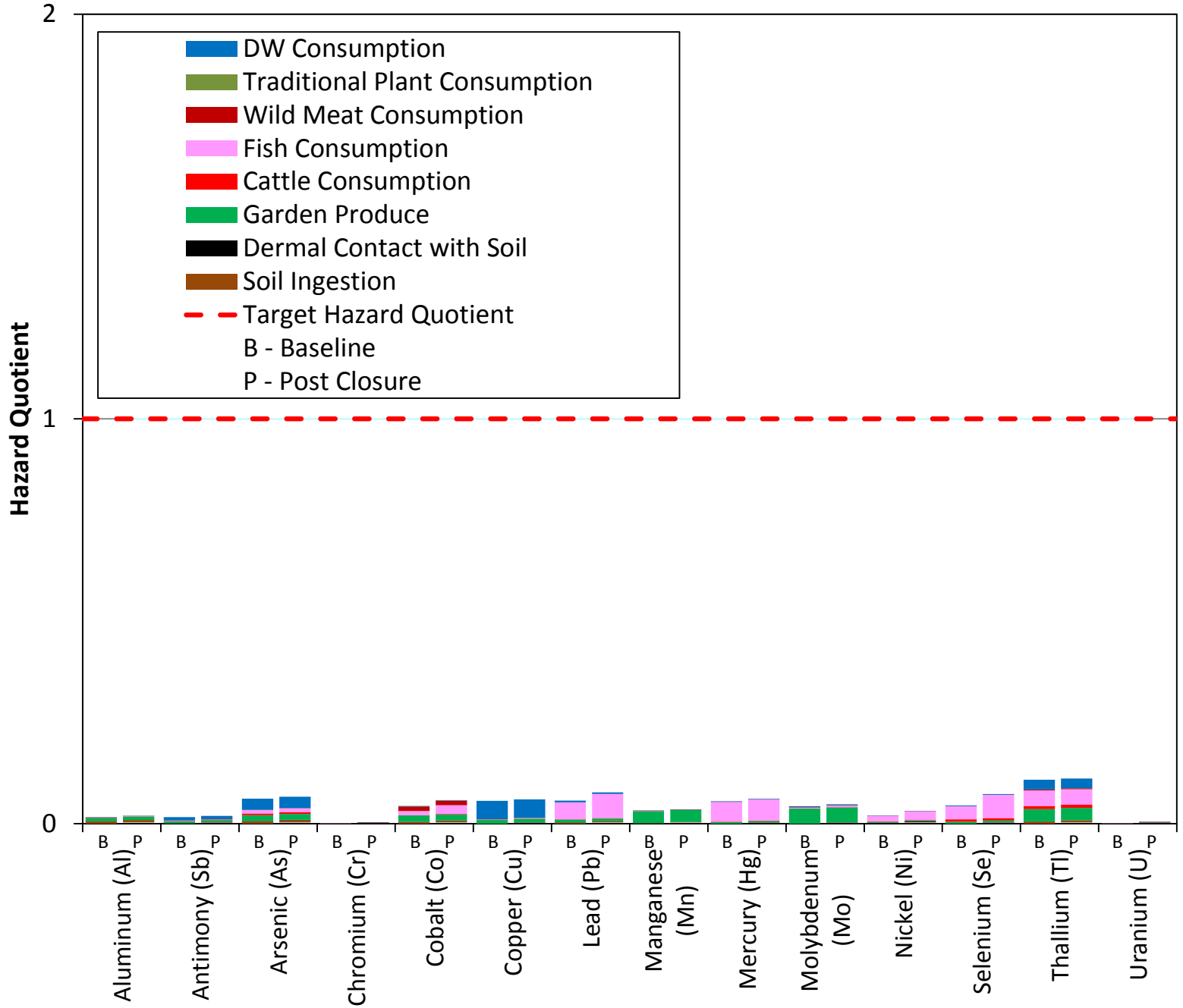
Non-carcinogenic risk estimates for a Child in Brocklehurst



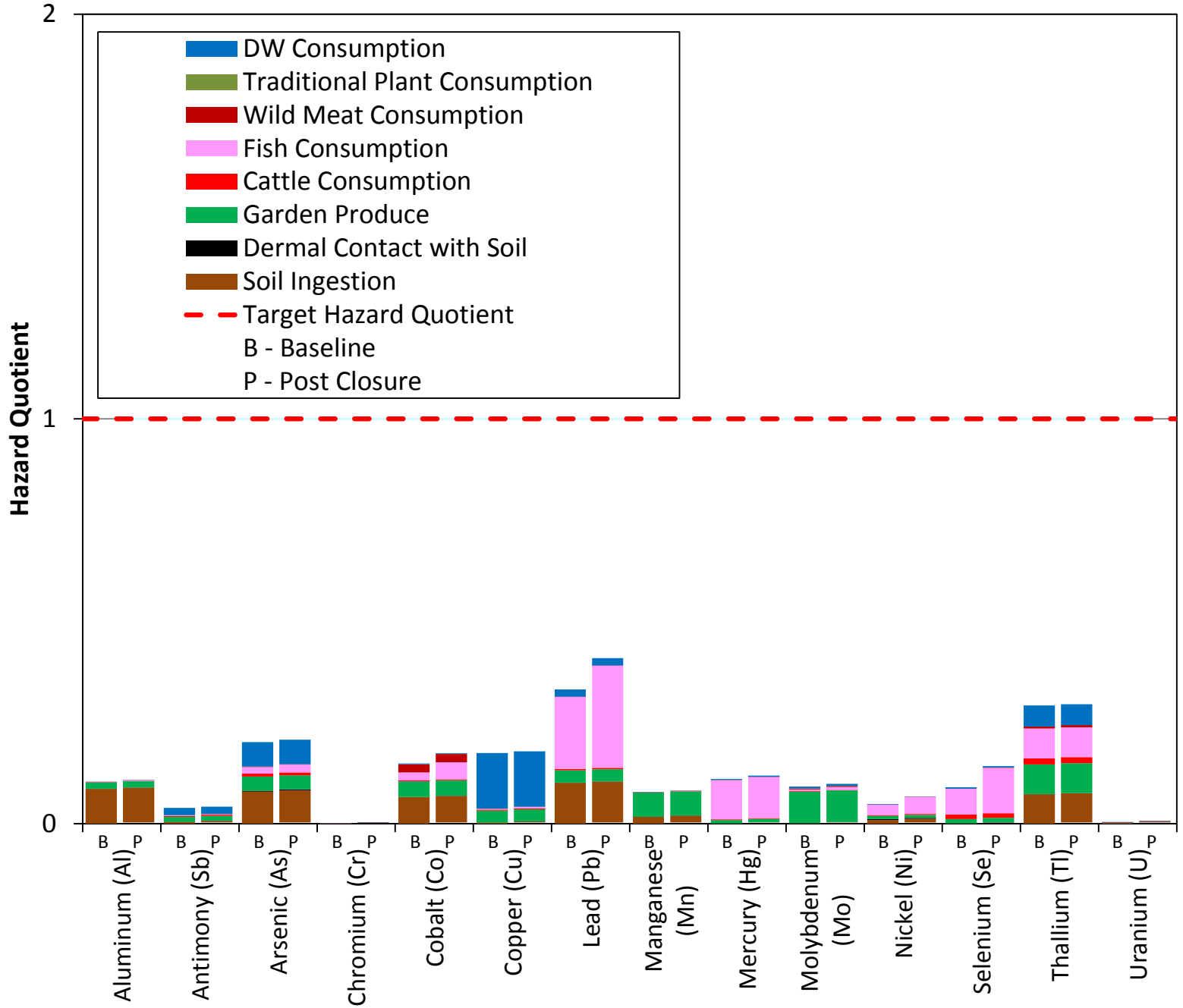
Non-carcinogenic risk estimates for a Infant in Brocklehurst



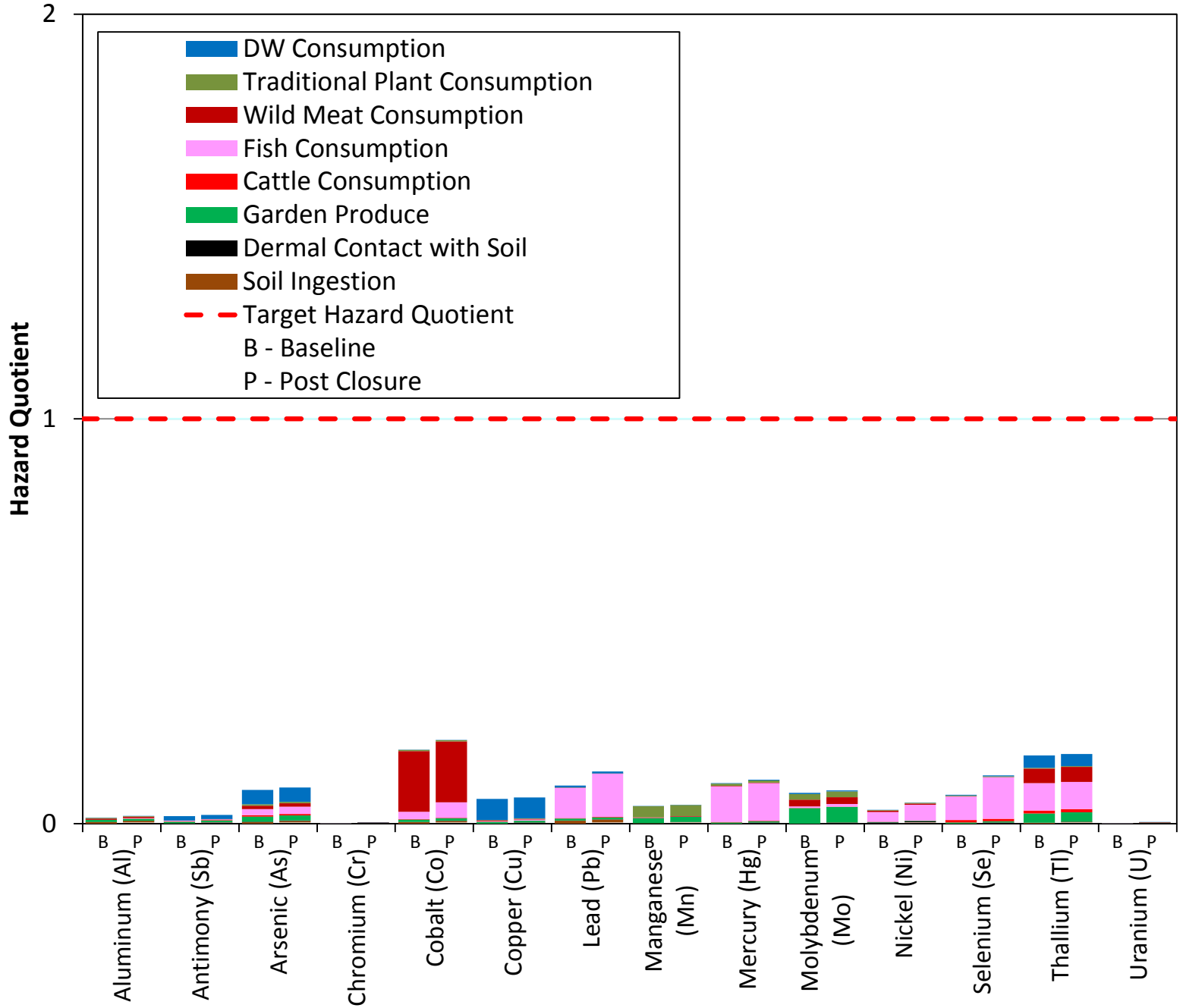
Non-carcinogenic risk estimates for a Teen in Brocklehurst



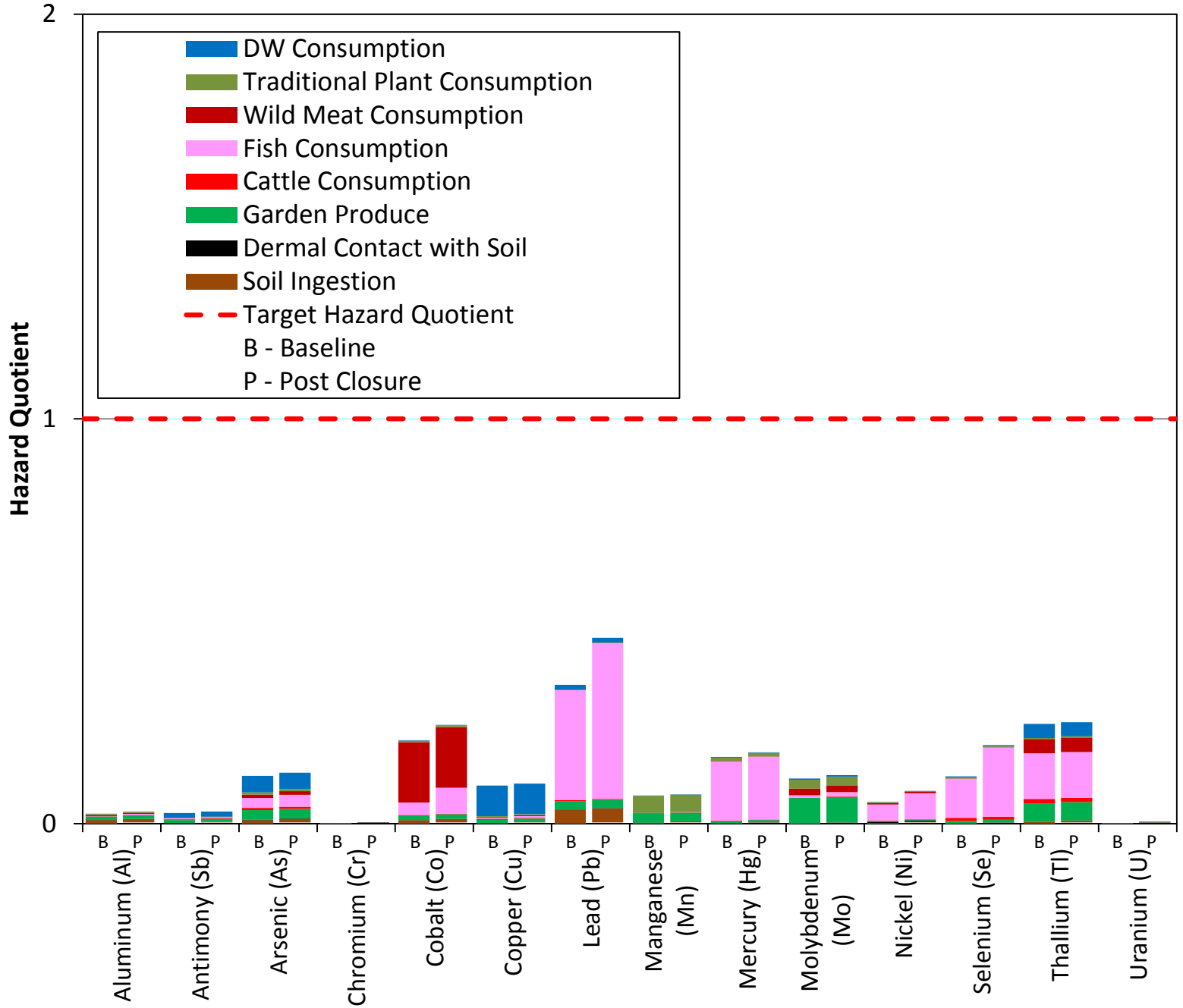
Non-carcinogenic risk estimates for a Toddler in Brocklehurst



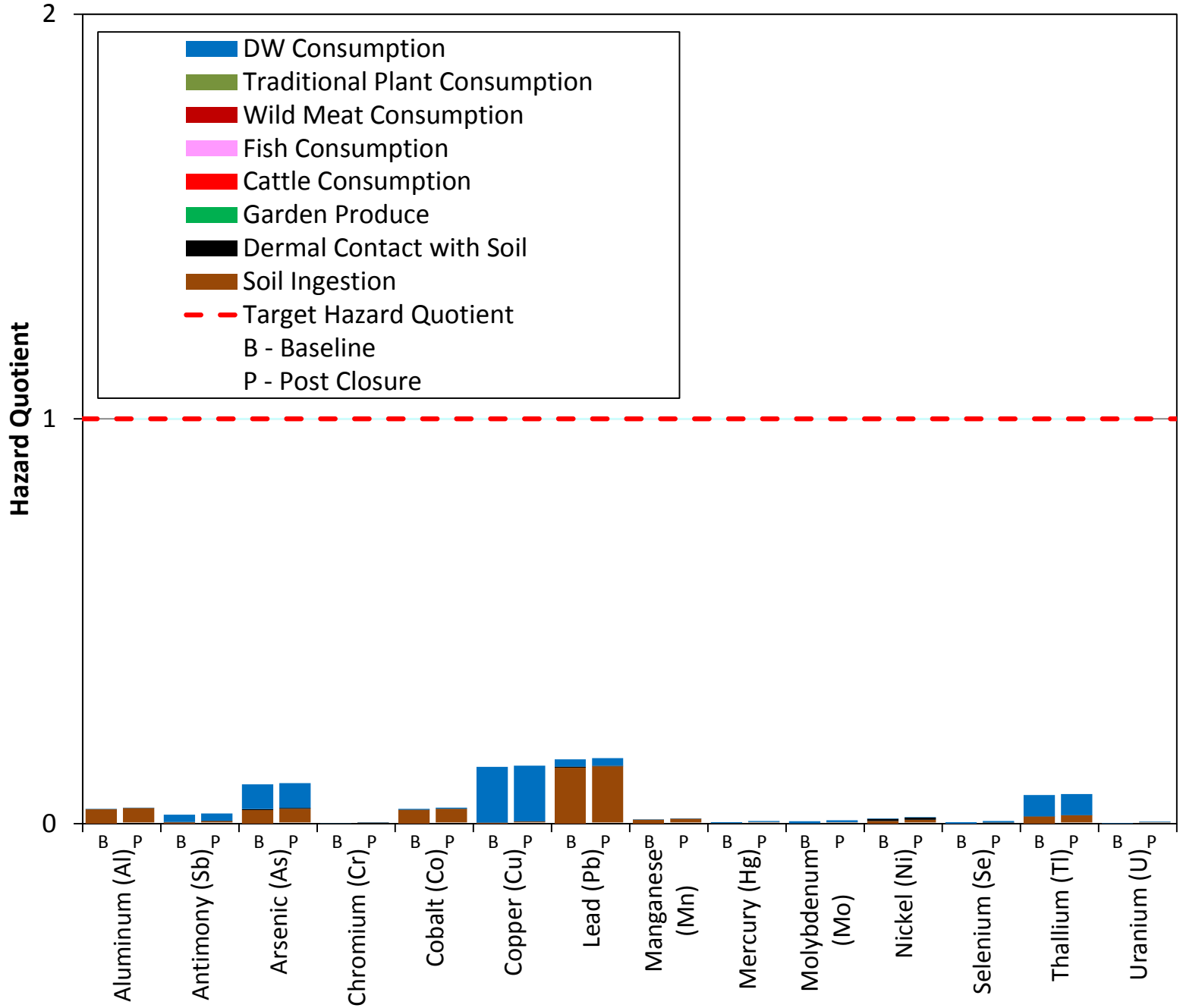
Non-carcinogenic risk estimates for an Aboriginal Adult in Kamloops Indian Reserve #1



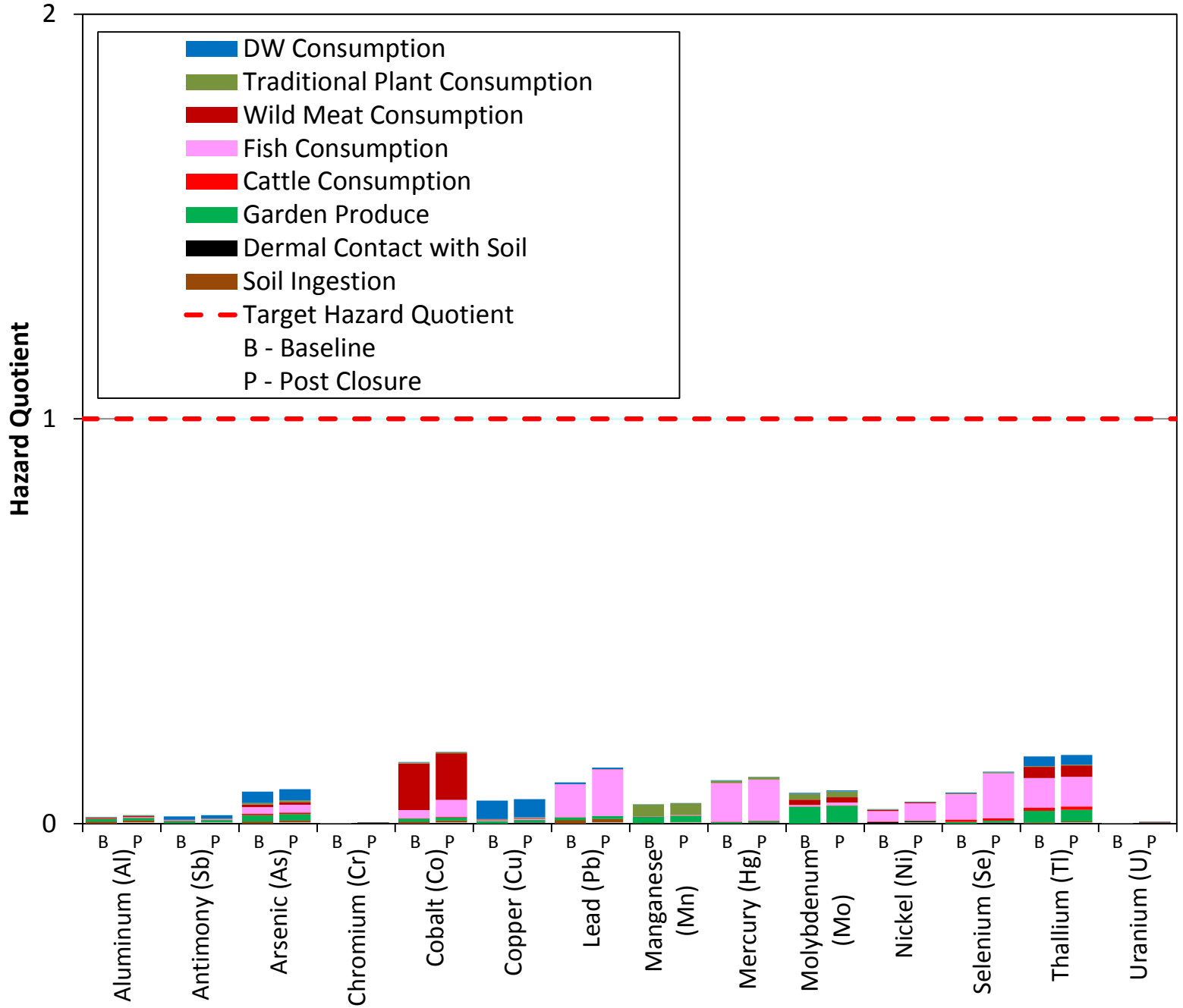
Non-carcinogenic risk estimates for an Aboriginal Child in Kamloops Indian Reserve #1



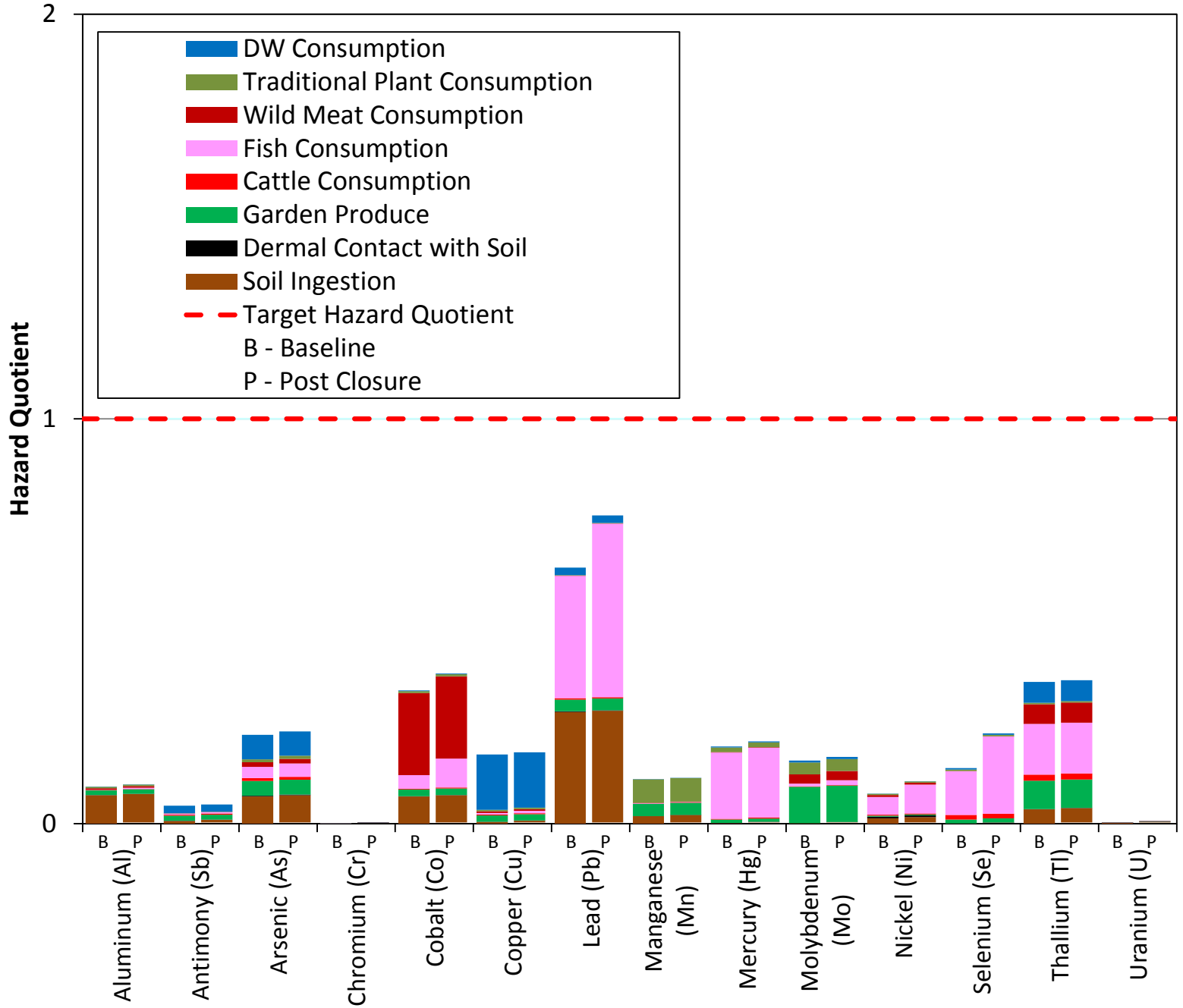
Non-carcinogenic risk estimates for an Aboriginal Infant in Kamloops Indian Reserve #1



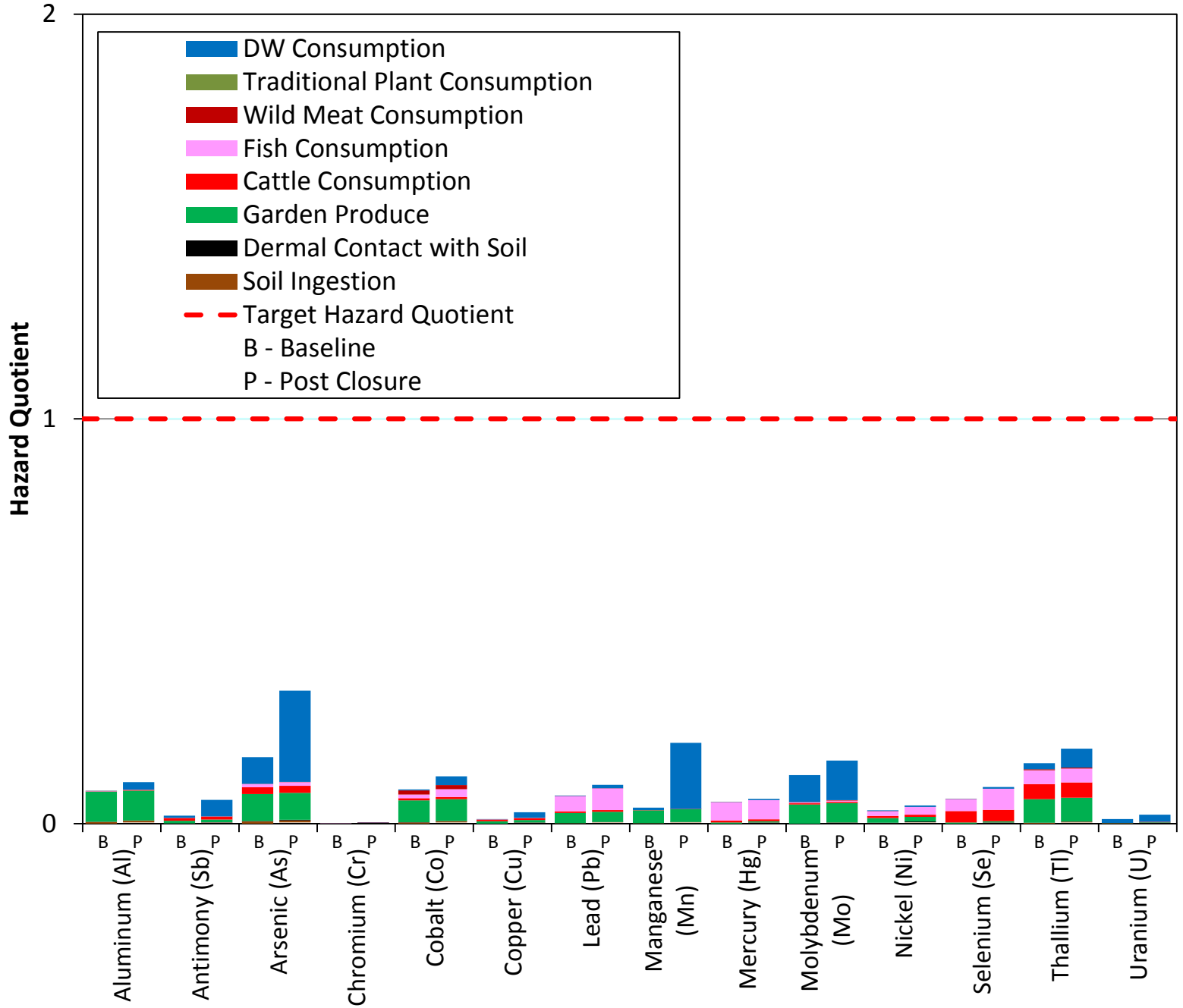
Non-carcinogenic risk estimates for an Aboriginal Teen in Kamloops Indian Reserve #1



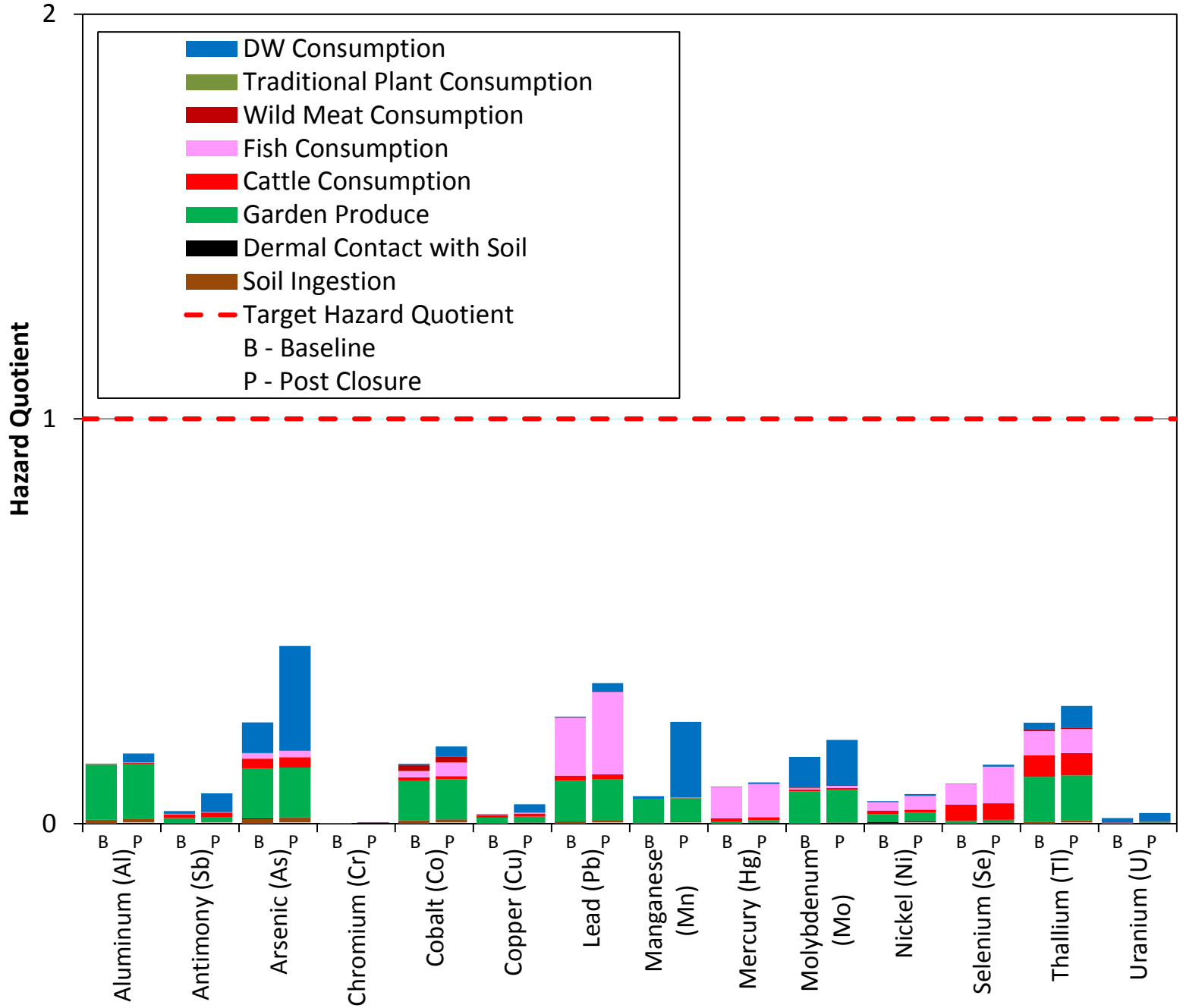
Non-carcinogenic risk estimates for an Aboriginal Toddler in Kamloops Indian Reserve #1



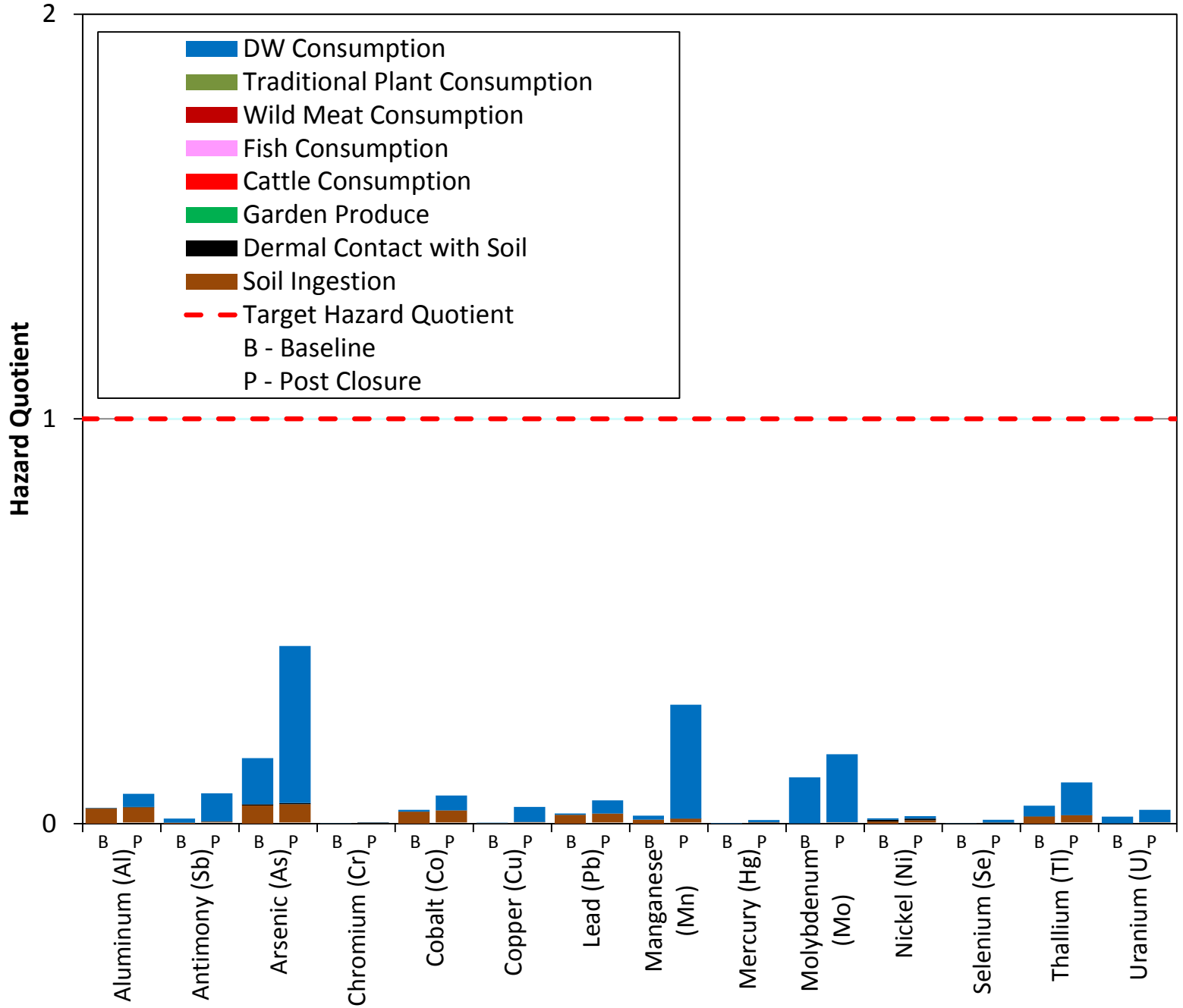
Non-carcinogenic risk estimates for a Adult in Knutsford



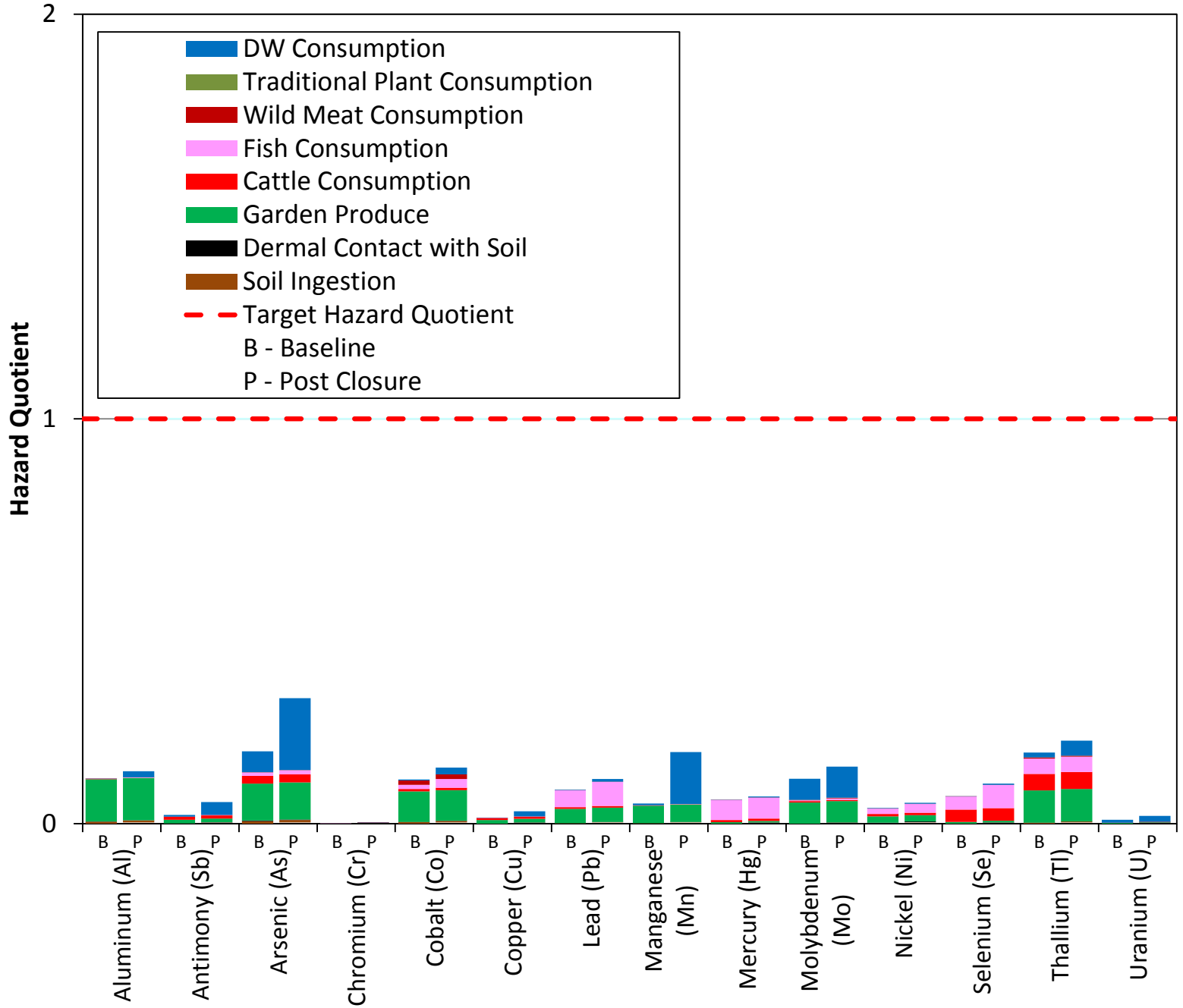
Non-carcinogenic risk estimates for a Child in Knutsford



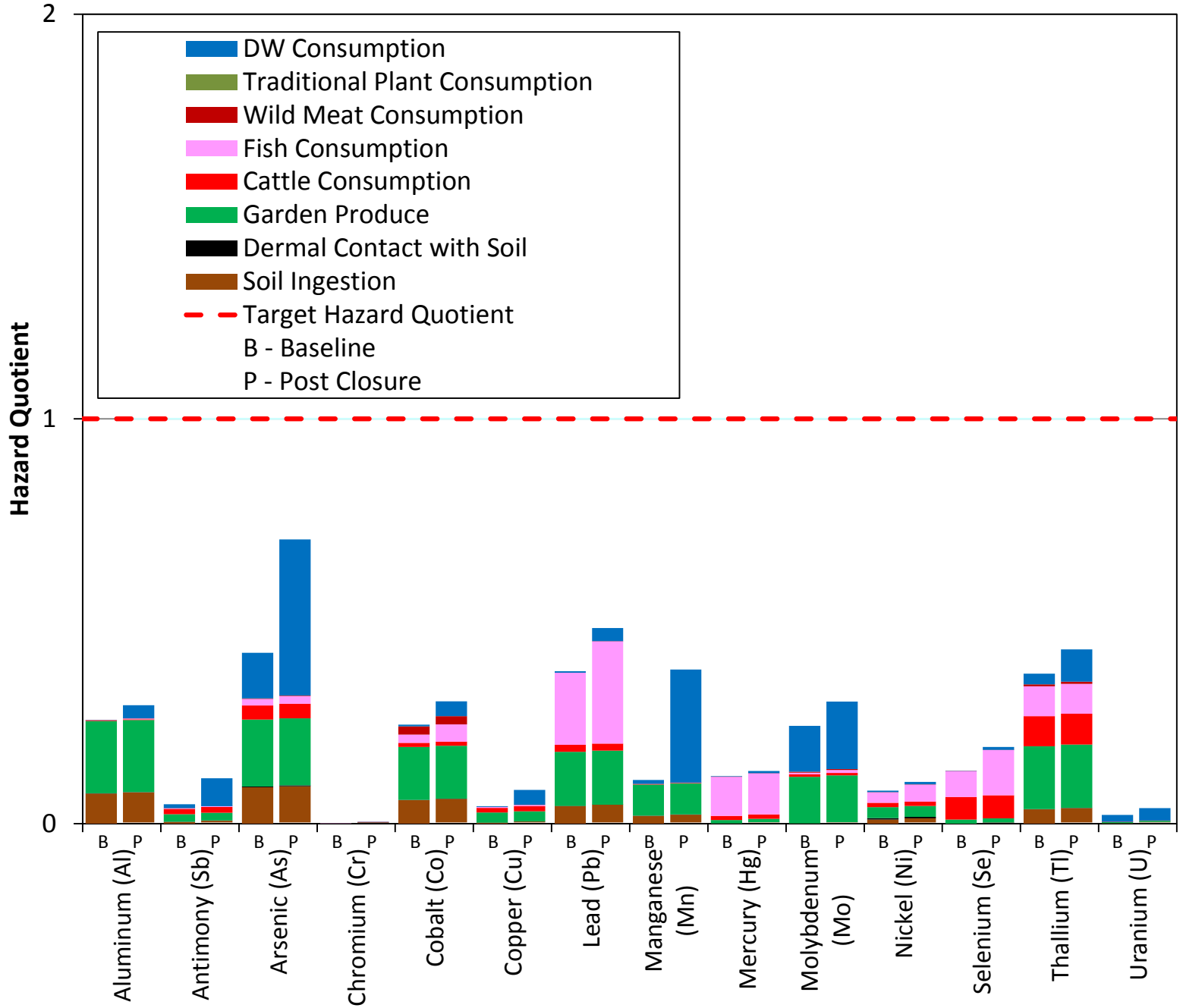
Non-carcinogenic risk estimates for a Infant in Knutsford



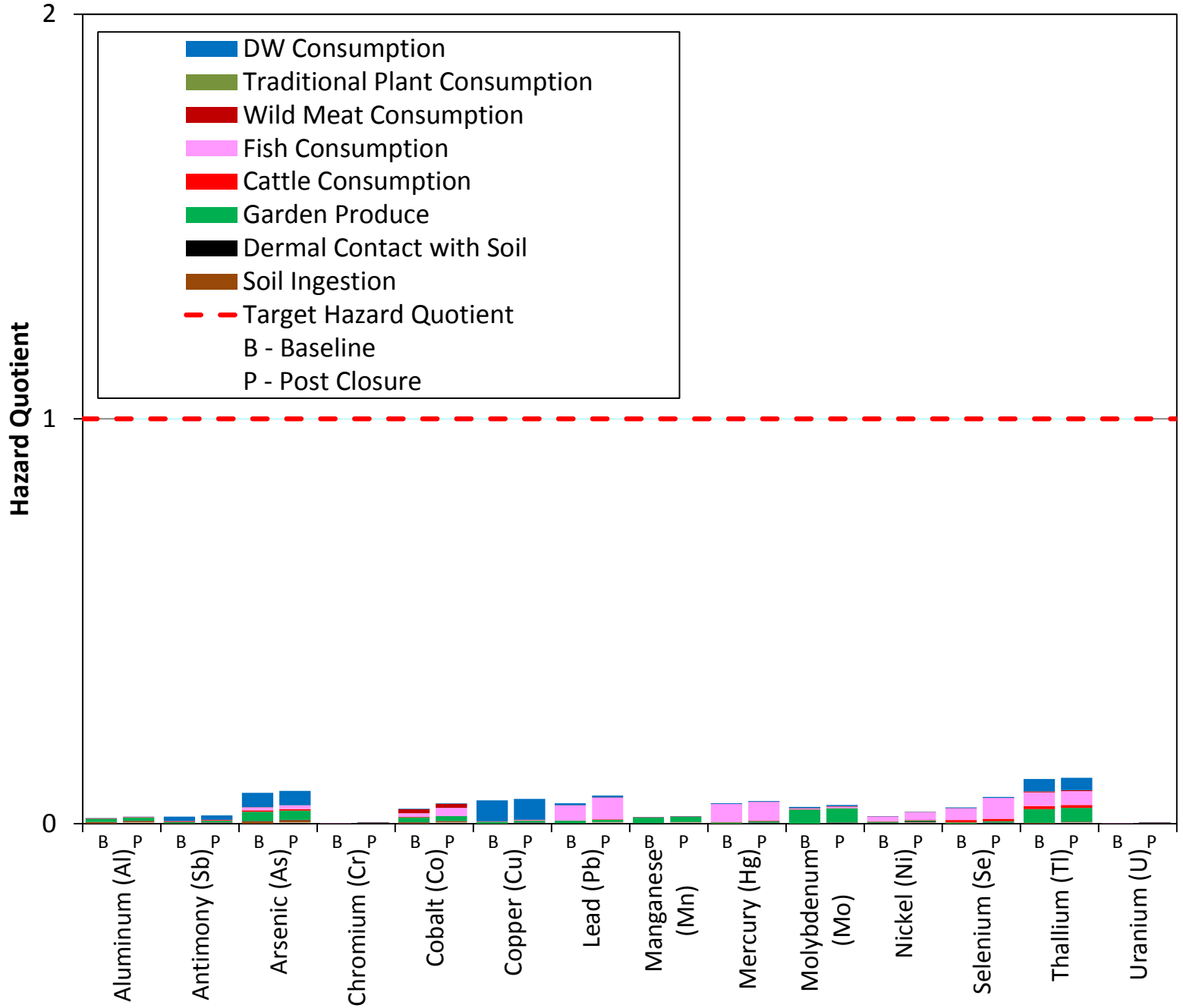
Non-carcinogenic risk estimates for a Teen in Knutsford



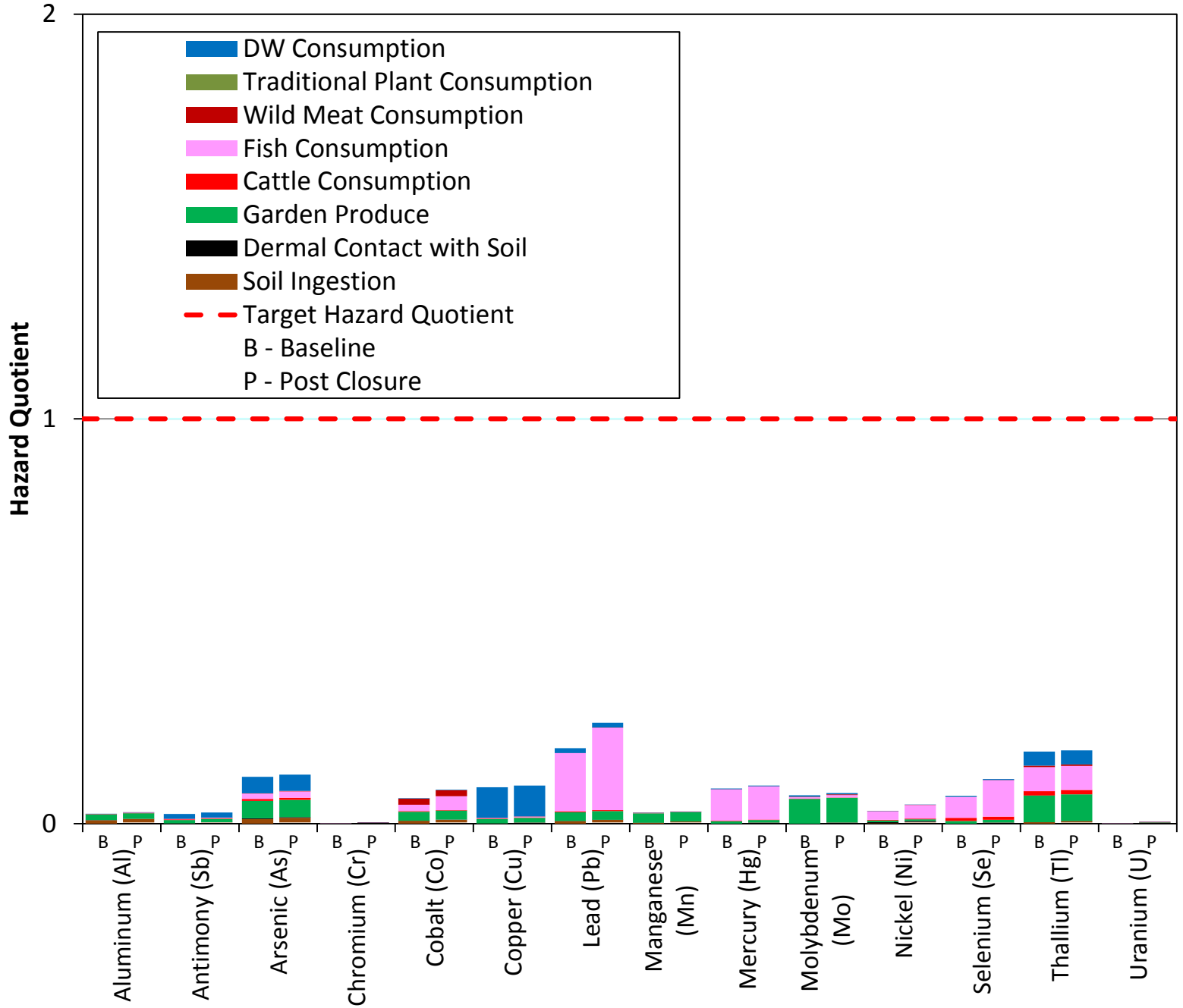
Non-carcinogenic risk estimates for a Toddler in Knutsford



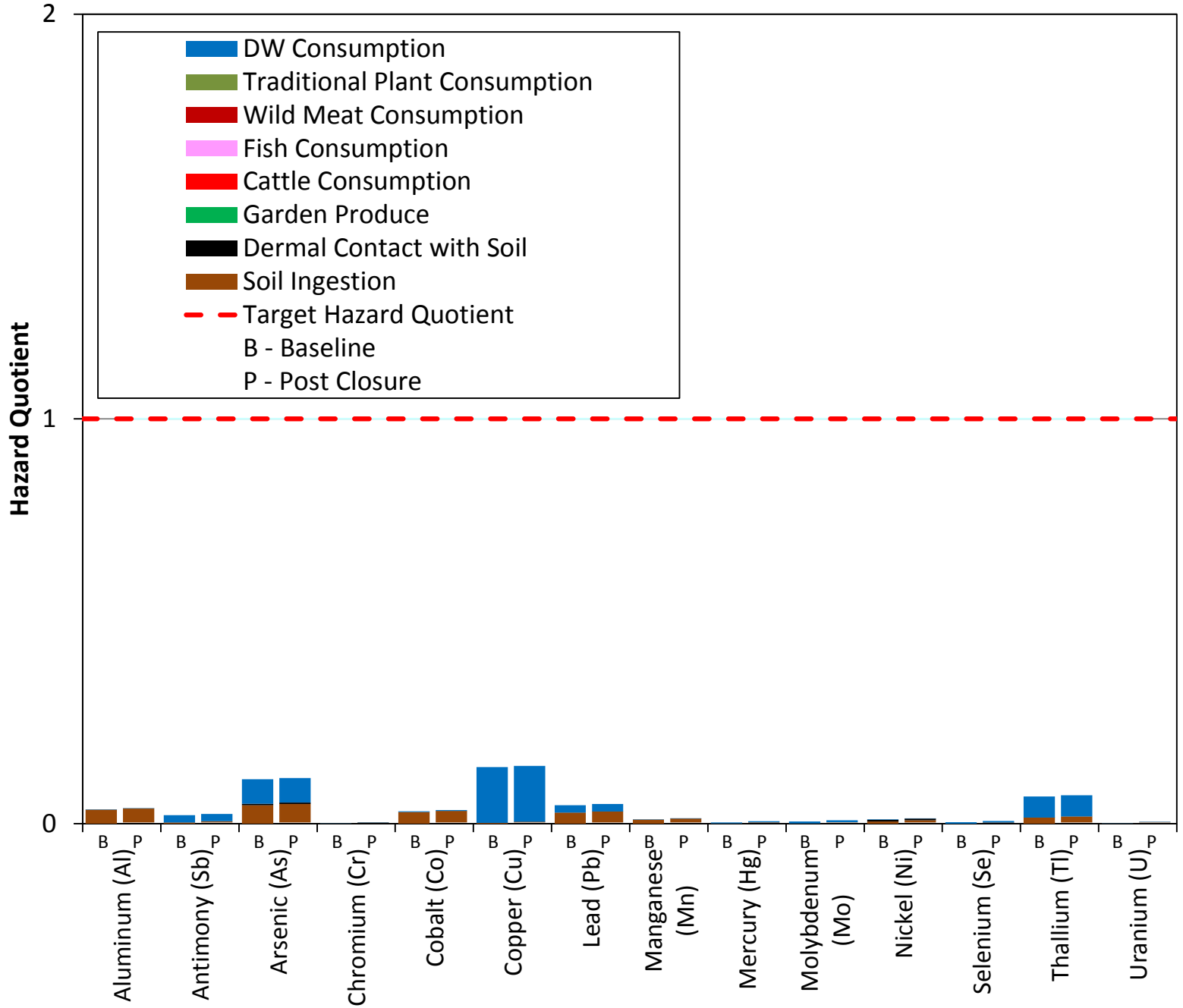
Non-carcinogenic risk estimates for a Adult in North Shore



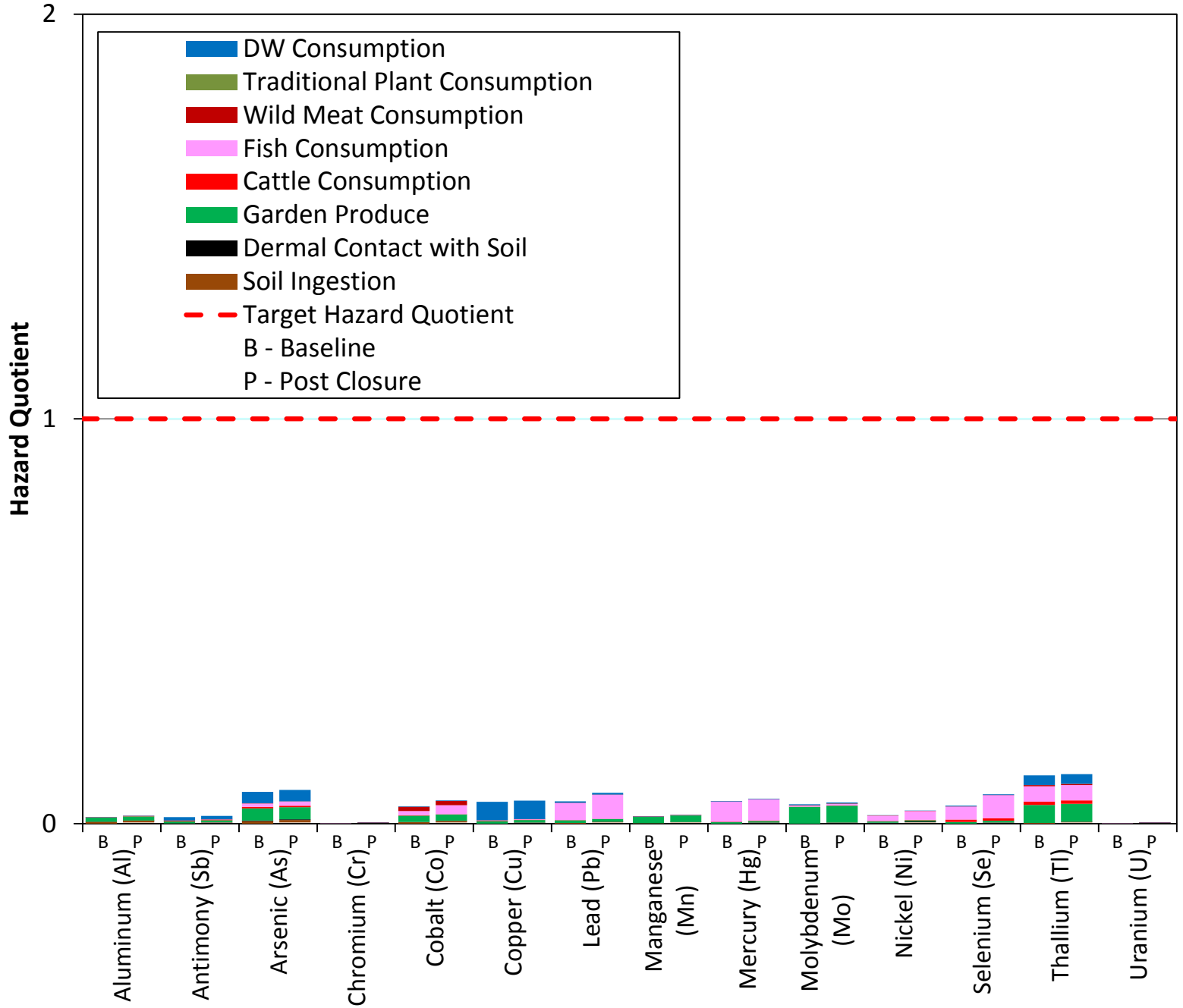
Non-carcinogenic risk estimates for a Child in North Shore



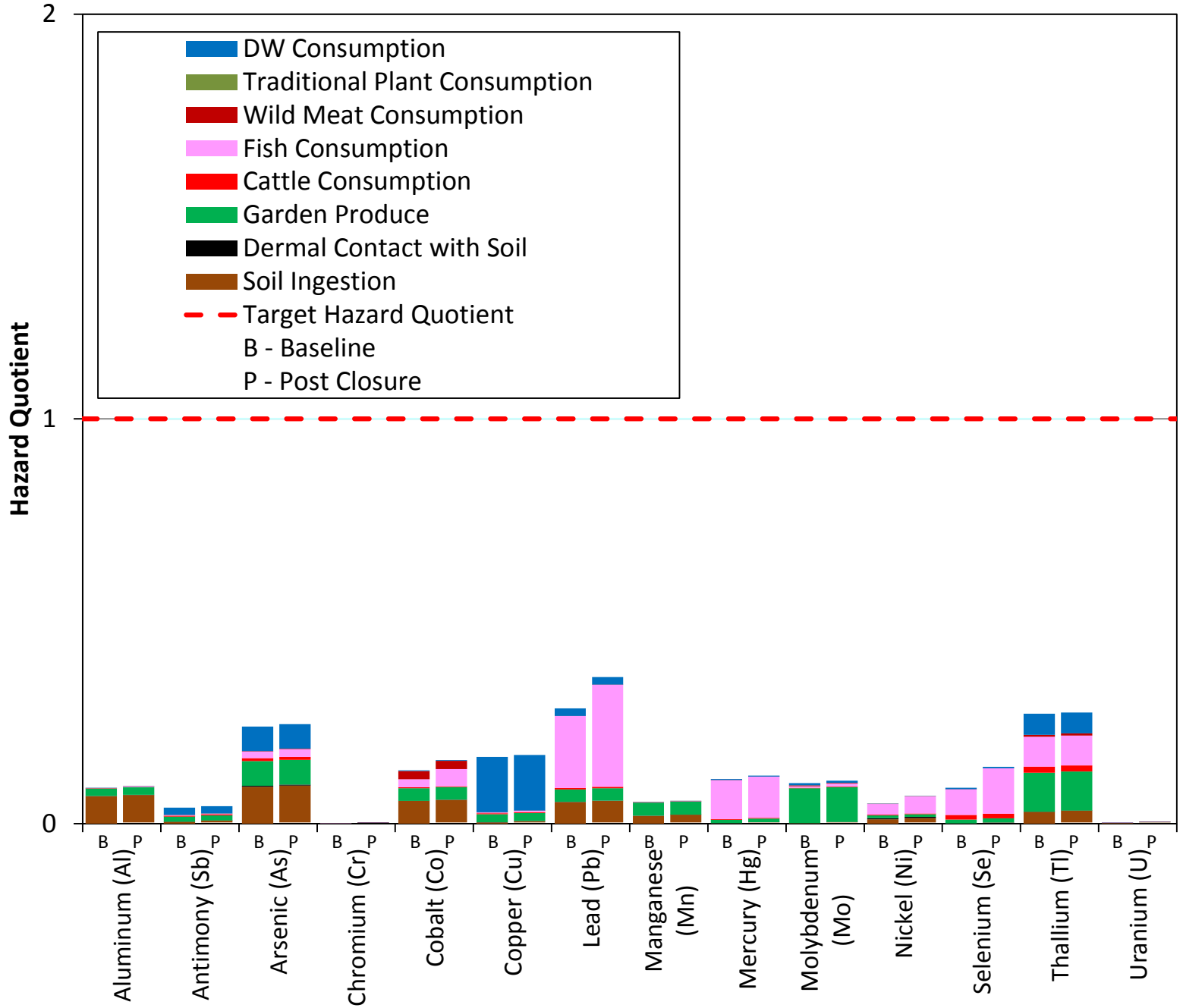
Non-carcinogenic risk estimates for a Infant in North Shore



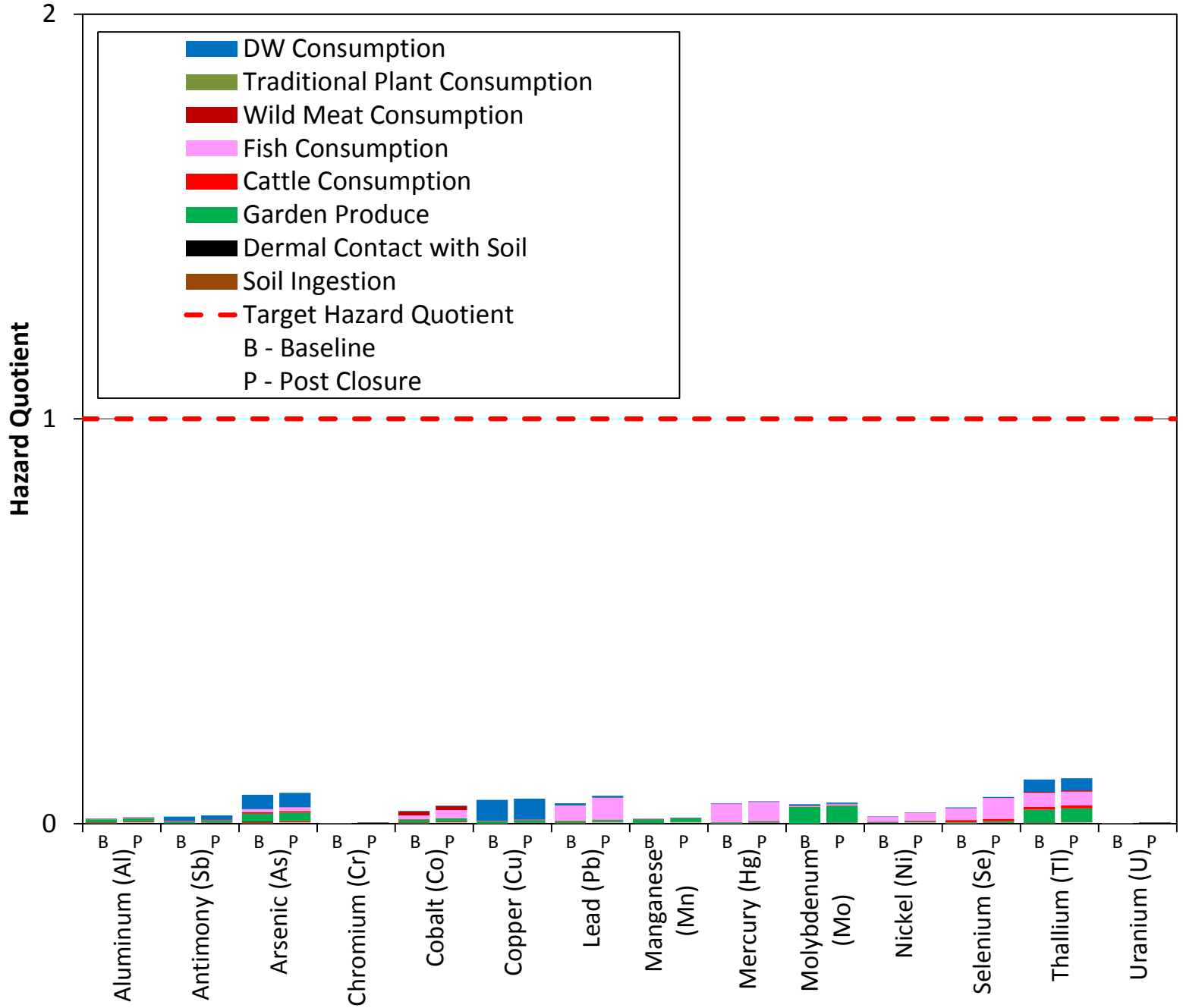
Non-carcinogenic risk estimates for a Teen in North Shore



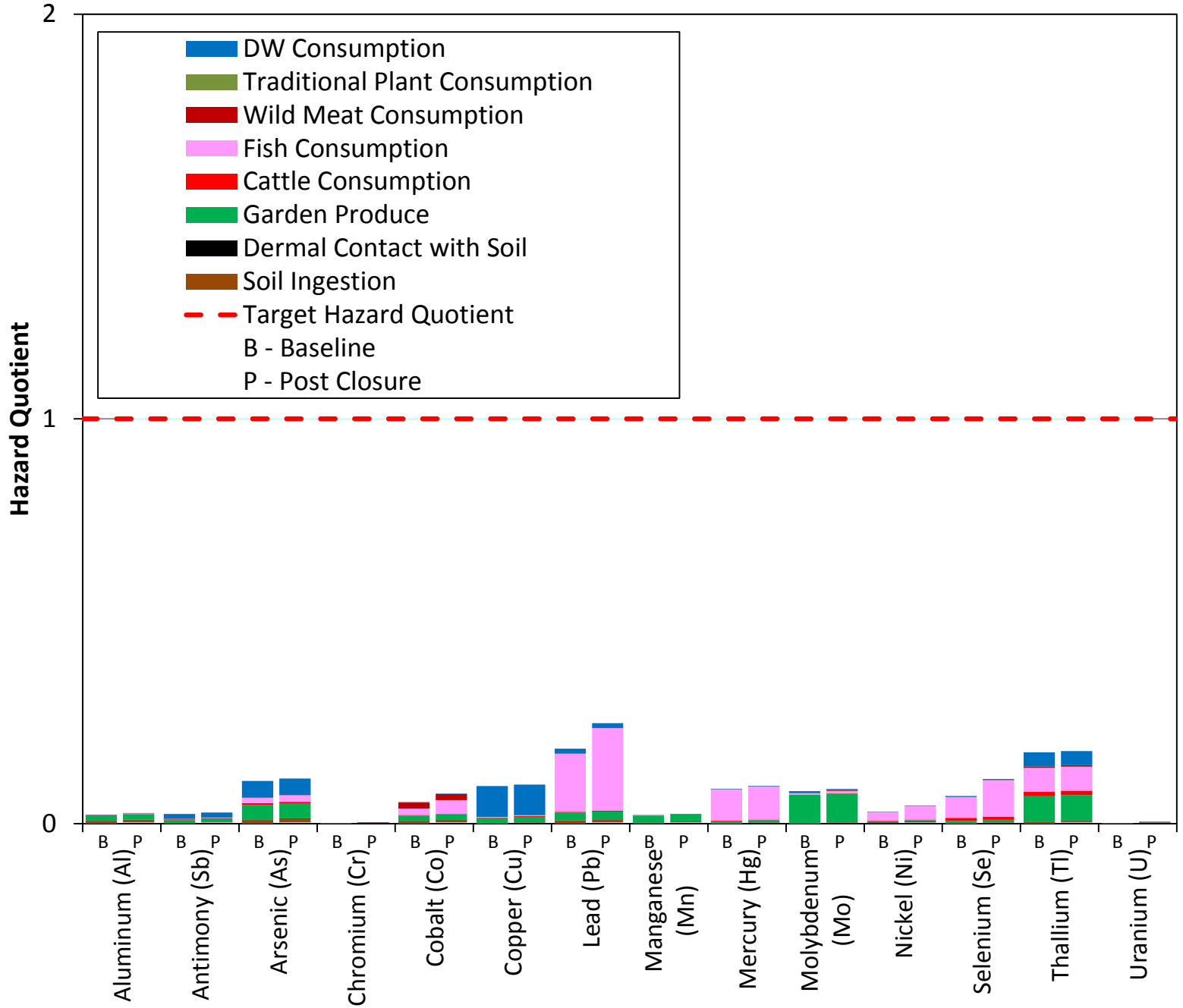
Non-carcinogenic risk estimates for a Toddler in North Shore



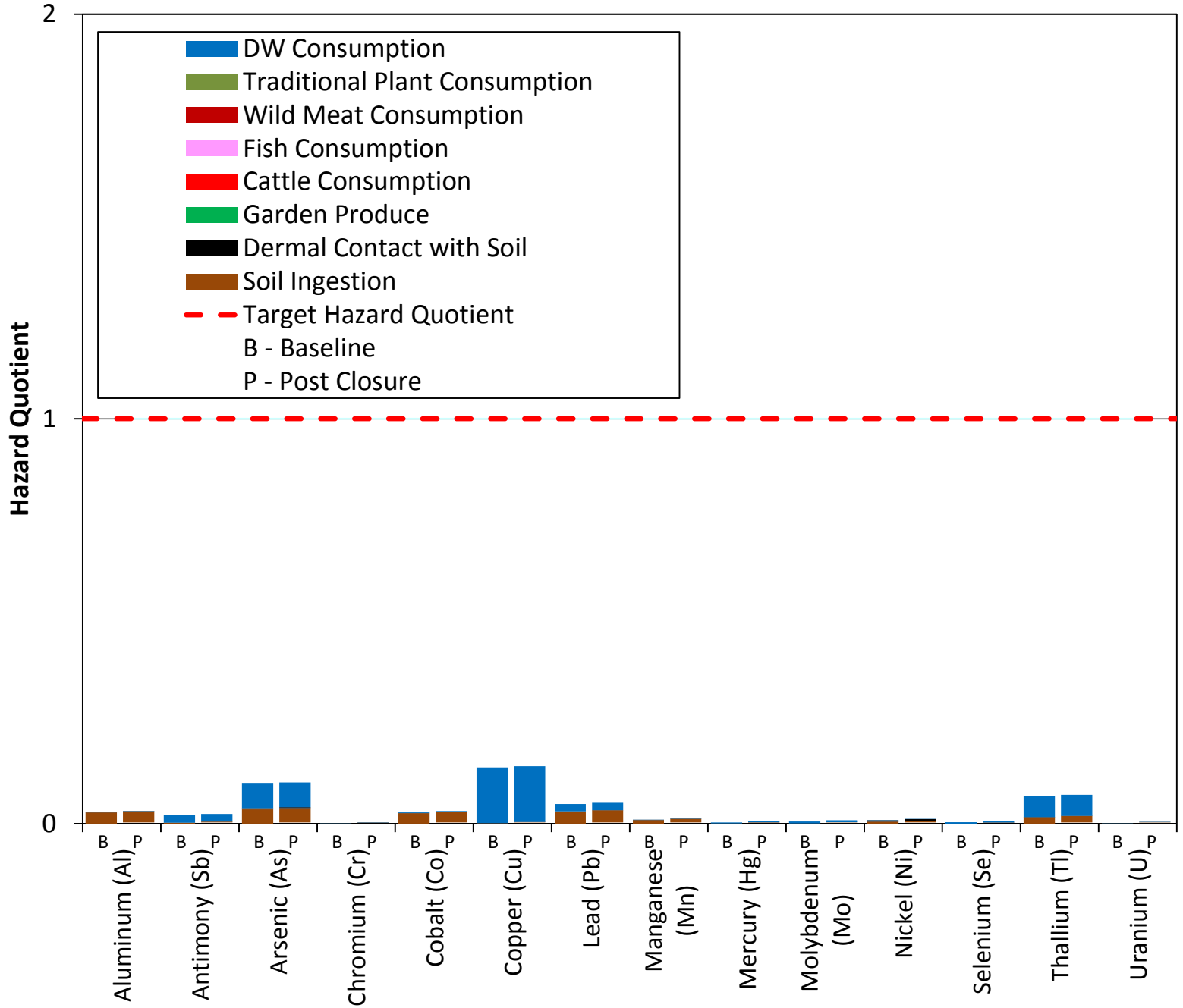
Non-carcinogenic risk estimates for a Adult in Sahali



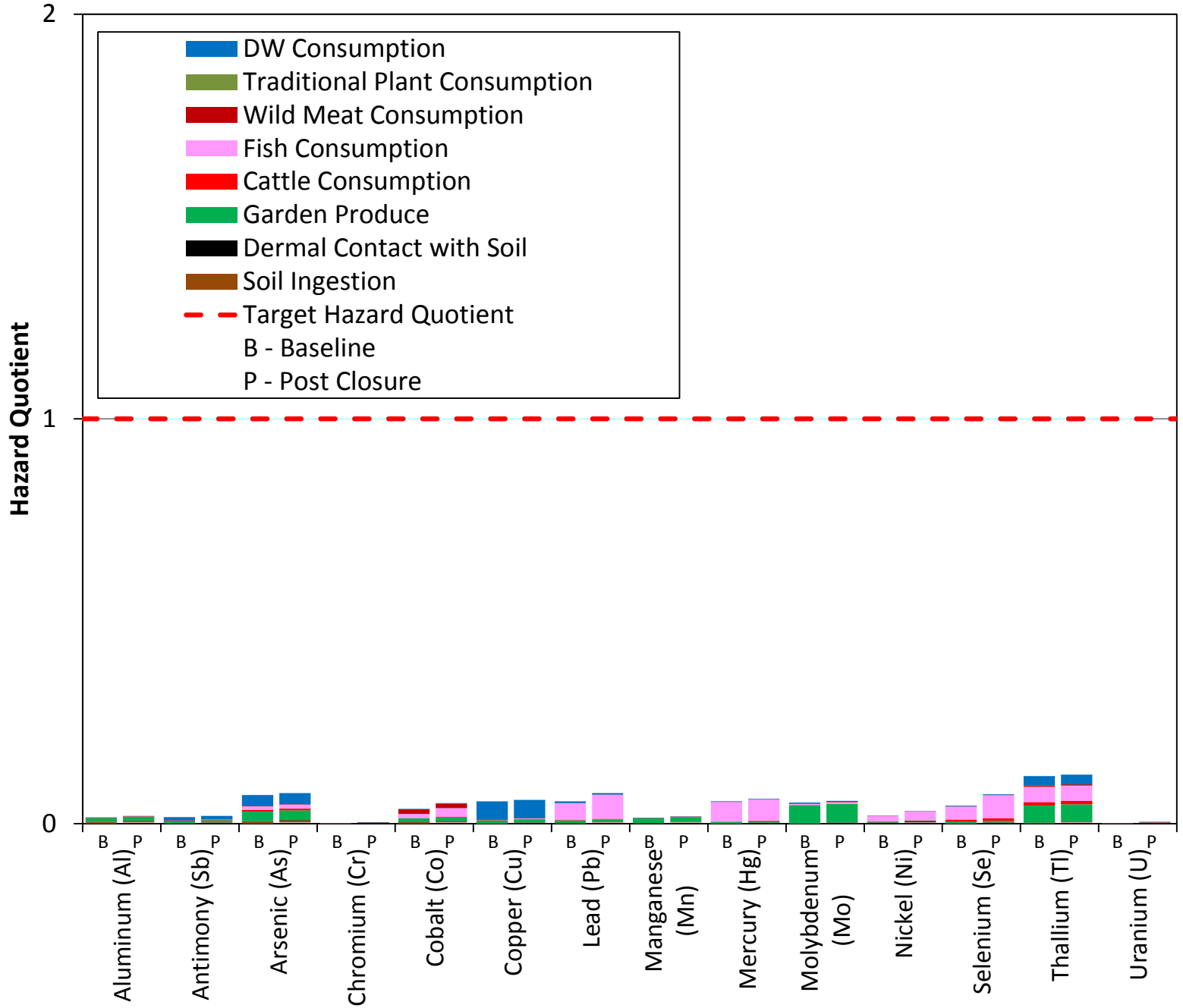
Non-carcinogenic risk estimates for a Child in Sahali



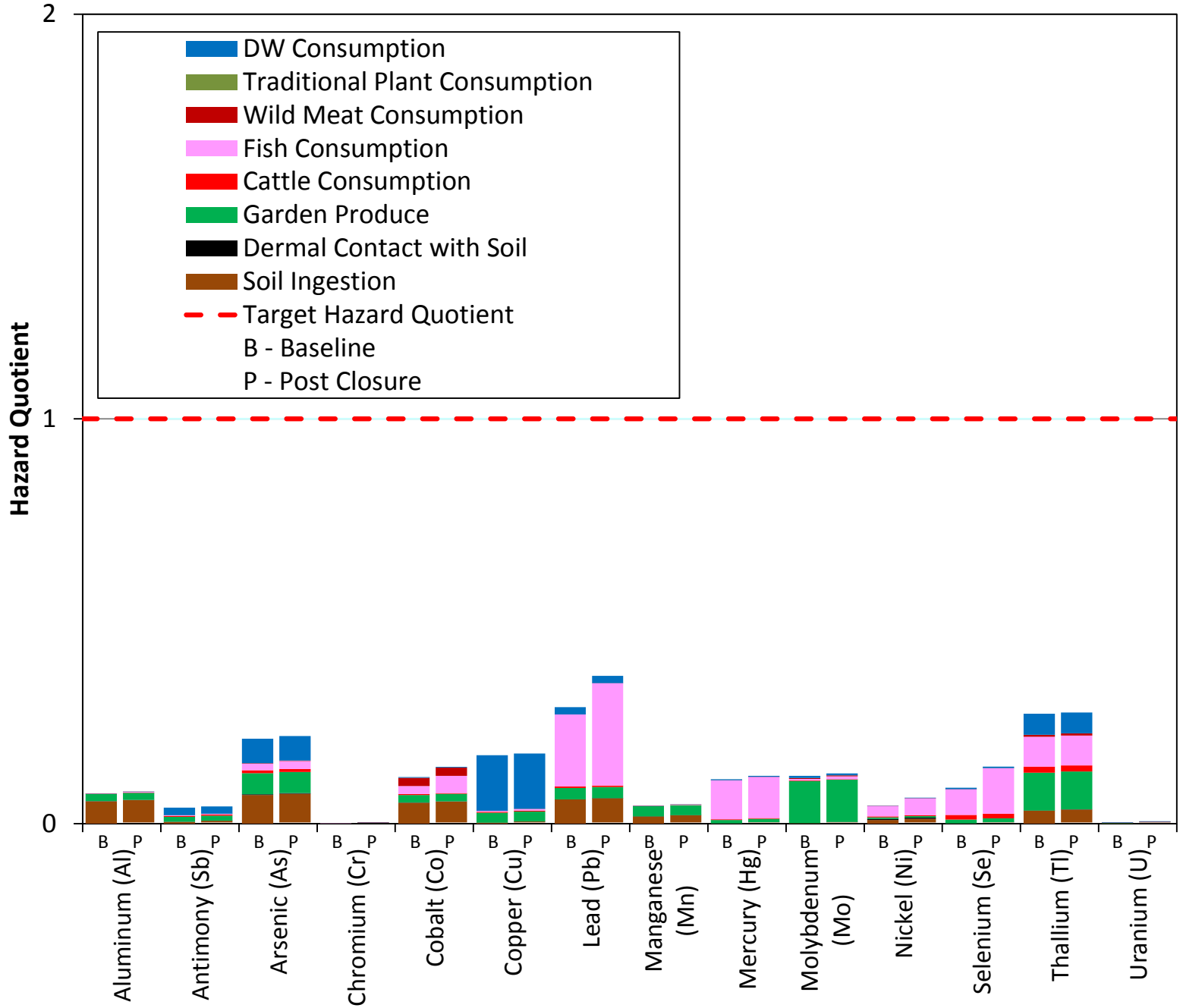
Non-carcinogenic risk estimates for a Infant in Sahali



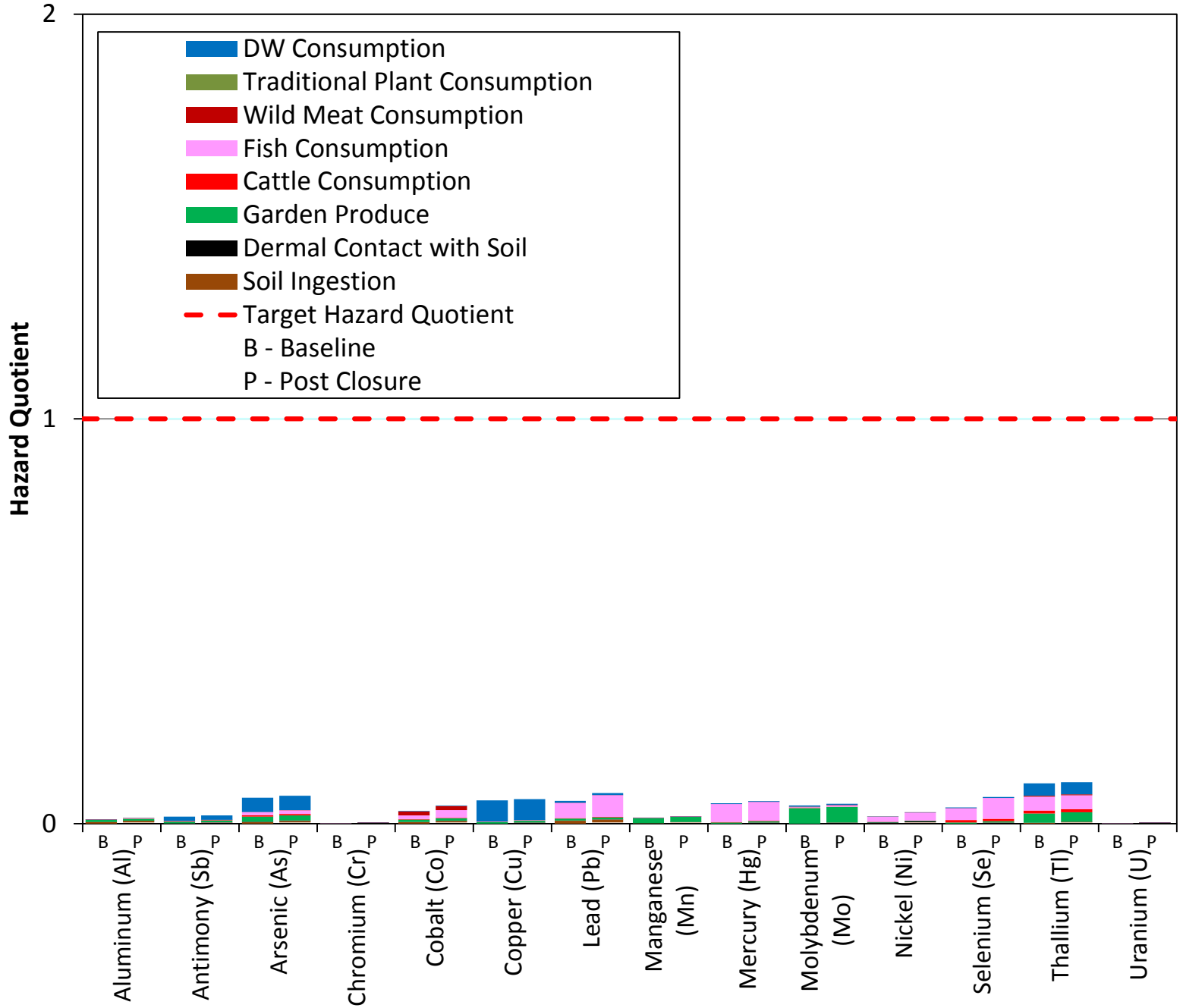
Non-carcinogenic risk estimates for a Teen in Sahali



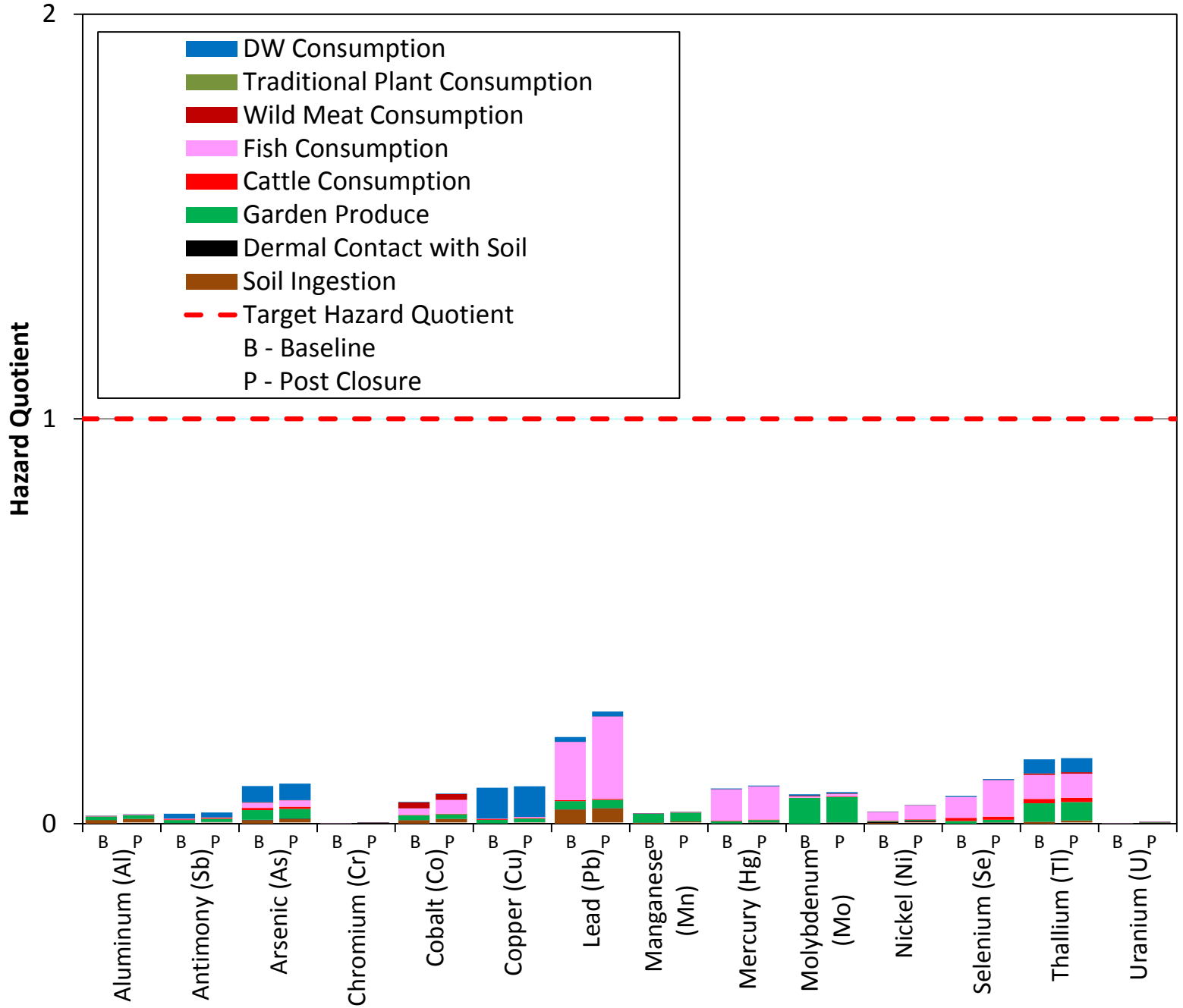
Non-carcinogenic risk estimates for a Toddler in Sahali



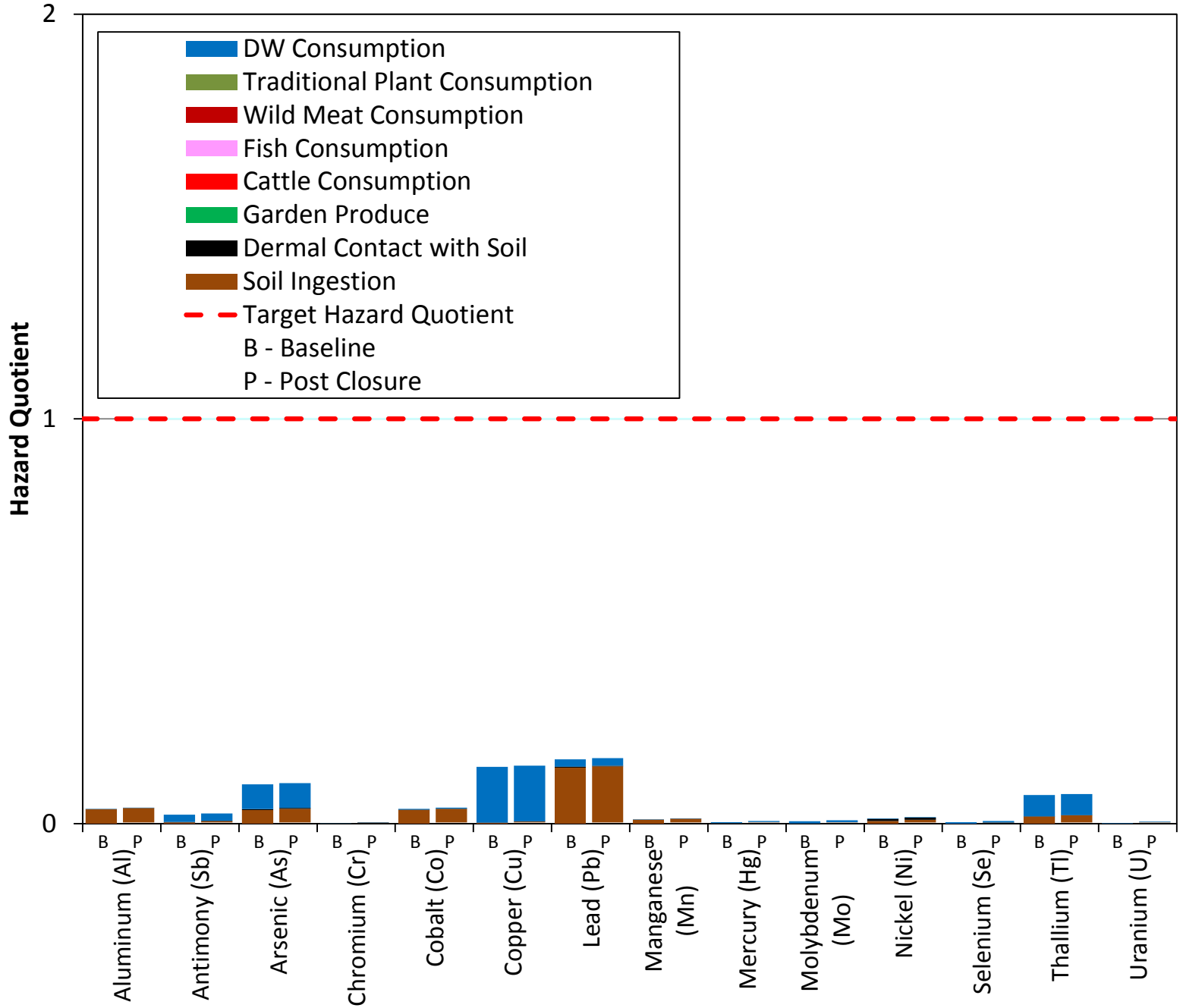
Non-carcinogenic risk estimates for a Adult in West End/Downtown



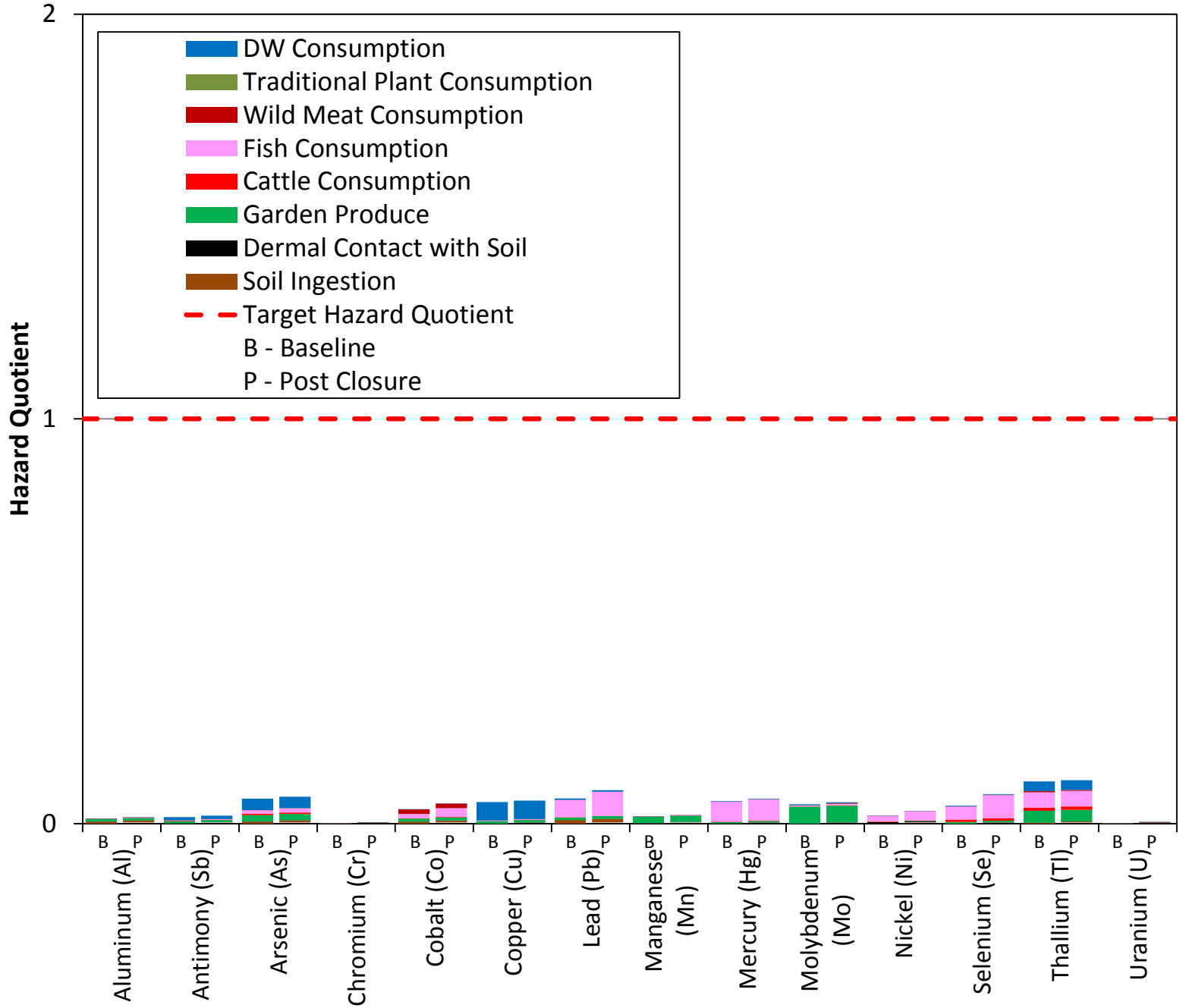
Non-carcinogenic risk estimates for a Child in West End/Downtown



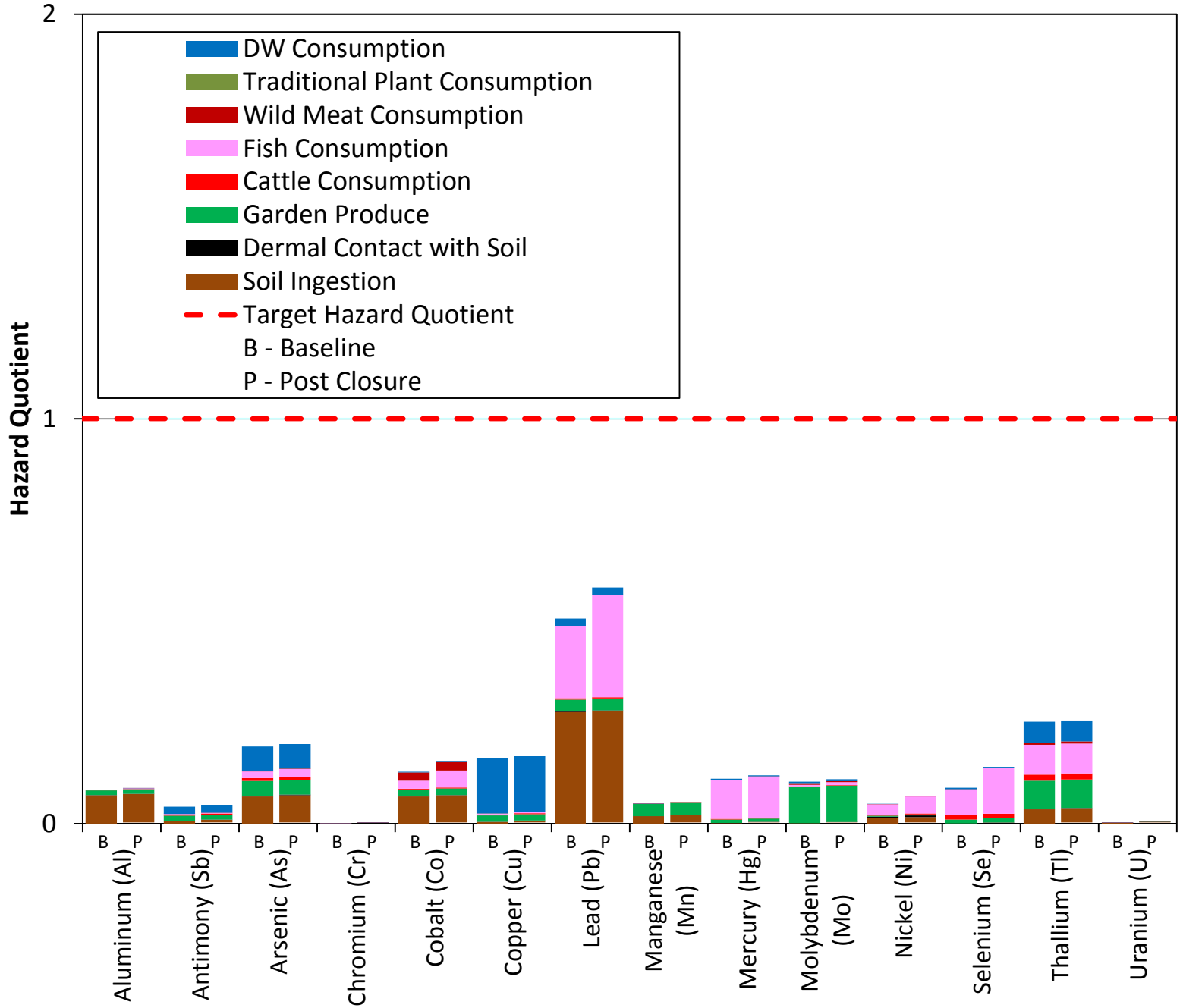
Non-carcinogenic risk estimates for a Infant in West End/Downtown



Non-carcinogenic risk estimates for a Teen in West End/Downtown



Non-carcinogenic risk estimates for a Toddler in West End/Downtown



Predicted Lifetime Average Exposure Ratios for Metal Inhalation: Pro Rated

	Description:	Aberdeen	Brocklehurst	Sahali	Knutsford	North Shore	West End/ Downtown	MPOI (Pro-rated)		IUR	IUR
	24-h PM2.5 UCLM kg/m3	1.33E-09	1.01E-10	1.61E-10	8.75E-10	1.11E-10	1.23E-10	4.64E-09			**Reference**
	Max Metal Concentration (mg/kg dw)										
Arsenic	2.93E+01	4.80E-08	3.66E-09	5.83E-09	3.17E-08	4.02E-09	4.46E-09	7.18E-09		4.30E+00	US EPA IRIS 1998
Chromium	2.08E+02	8.74E-07	6.66E-08	1.06E-07	5.77E-07	7.32E-08	8.11E-08	1.31E-07		1.10E+01	HC 2010
Nickel	2.12E+02	1.05E-07	8.00E-09	1.27E-08	6.93E-08	8.79E-09	9.74E-09	1.57E-08		1.30E+00	HC 2010

Notes:
Baseline metal concentrations in air assumed to be zero.
PM2.5 represents Ore, Wasterock and tailings dust.
Lifetime average exposure ratios are based on exposure to metals from annual PM2.5 concentrations, corrected for 23 years operations relative to 80 year human lifespan, and using regulatory threshold of incremental risk of $1E^{-5}$.
MPOI: Maximum Point of Impingement (the location of the maximum predicted concentration)
IUR: Incremental Unit Risk
dw: dry weight

Metal	Description:	Aberdeen	Brocklehurst	Sahali	Knutsford	North Shore	West End/ Downtown
	Description:	**Aberdeen**	**Crestline**	**Glenfair**	**Knutsford**	**MacDonald**	**Riverside**
	Annual PM2.5 kg/m3	1.00E-11	7.87E-13	1.33E-12	7.86E-12	8.96E-13	1.01E-12
	Max Metal Concentration (mg/kg dw)						
Arsenic	2.93E+01	3.63E-10	2.85E-11	4.82E-11	2.85E-10	3.25E-11	3.65E-11
Chromium	2.08E+02	6.61E-09	5.19E-10	8.77E-10	5.18E-09	5.91E-10	6.63E-10
Nickel	2.12E+02	7.94E-10	6.23E-11	1.05E-10	6.22E-10	7.10E-11	7.97E-11

Notes:

Baseline metal concentrations in air assumed to be zero.

PM2.5 represents Ore, Wasterock and tailings dust.

Lifetime average exposure ratios are based on exposure to metals from annual PM2.5 concentrations, corrected for 23 years operations relative to 80 year human lifespan, and using regulatory threshold of incremental risk of 1E-5.

MPOI: Maximum Point of Impingement (the location of the maximum predicted concentration)

IUR: Incremental Unit Risk

dw: dry weight

Aberdeen				
CAC	Averaging Period	CR		
		Baseline	Project-alone	Future case
SO2	1-hour	6.27E-02	6.12E-03	6.28E-02
NO2	1-hour	3.50E-01	4.52E-01	5.34E-01
	annual	5.35E-01	1.38E-01	5.83E-01
CO	8-hour	1.12E-01	2.23E-02	1.13E-01
PM2.5	24-hour	1.16E+00	7.23E-01	1.17E+00
	annual	9.58E-01	7.67E-02	9.67E-01
PM10	24-hour	**1.39E+00**	**1.44E+00**	**1.90E+00**
	annual	3.23E-01	1.23E-01	3.37E-01

MPOI (Pro-rated)				
CAC	Averaging Period	CR		
		Baseline	Project-alone	Future case
SO2	1-hour	1.87E-02	6.43E-03	1.95E-02
NO2	1-hour	1.69E-01	6.18E-01	7.78E-01
	annual	6.01E-02	4.37E-02	1.03E-01
CO	8-hour	4.18E-02	5.84E-02	7.66E-02
PM2.5	24-hour	6.58E-02	2.46E-01	2.95E-01
	annual	7.63E-02	3.76E-02	1.14E-01
PM10	24-hour	6.79E-02	**1.35E+00**	**1.41E+00**
	annual	2.83E-02	4.21E-01	4.49E-01

Brocklehurst				
CAC	Averaging Period	CR		
		Baseline	Project-alone	Future case
SO2	1-hour	6.90E-02	2.33E-03	6.91E-02
NO2	1-hour	3.36E-01	4.43E-01	3.37E-01
	annual	5.51E-01	1.80E-02	5.63E-01
CO	8-hour	1.01E-01	2.60E-03	1.02E-01
PM2.5	24-hour	**1.35E+00**	2.46E-01	**1.36E+00**
	annual	**1.33E+00**	5.75E-03	**1.33E+00**
PM10	24-hour	**1.24E+00**	5.71E-02	**1.26E+00**
	annual	4.95E-01	6.89E-03	5.01E-01

Sahali				
CAC	Averaging Period	CR		
		Baseline	Project-alone	Future case
SO2	1-hour	7.14E-02	6.92E-04	7.14E-02
NO2	1-hour	4.12E-01	2.55E-01	4.19E-01
	annual	5.89E-01	2.92E-02	6.05E-01
CO	8-hour	1.46E-01	3.84E-03	1.46E-01
PM2.5	24-hour	**1.32E+00**	6.94E-02	**1.32E+00**
	annual	**1.05E+00**	9.92E-03	**1.06E+00**
PM10	24-hour	**1.57E+00**	8.46E-02	**1.59E+00**
	annual	3.84E-01	1.35E-02	3.95E-01

Knutsford				
CAC	Averaging Period	CR		
		Baseline	Project-alone	Future case
SO2	1-hour	1.87E-02	2.18E-04	1.87E-02
NO2	1-hour	1.94E-01	1.13E-01	4.58E-01
	annual	4.17E-01	1.22E-01	5.27E-01
CO	8-hour	5.69E-02	1.27E-02	5.69E-02
PM2.5	24-hour	3.34E-01	1.94E-02	3.76E-01
	annual	5.35E-01	6.00E-02	5.78E-01
PM10	24-hour	4.54E-01	2.91E-01	5.90E-01
	annual	5.42E-02	9.76E-02	1.33E-01

North Shore				
CAC	Averaging Period	CR		
		Baseline	Project-alone	Future case
SO2	1-hour	1.87E-02	3.56E-04	7.88E-02
NO2	1-hour	3.45E-01	1.62E-01	3.58E-01
	annual	5.74E-01	2.03E-02	5.86E-01
CO	8-hour	1.06E-01	2.53E-03	1.06E-01
PM2.5	24-hour	**1.39E+00**	2.64E-02	**1.39E+00**
	annual	**1.36E+00**	6.64E-03	**1.37E+00**
PM10	24-hour	**1.79E+00**	5.46E-02	**1.80E+00**
	annual	5.34E-01	8.61E-03	5.41E-01

West End/Downtown				
CAC	Averaging Period	CR		
		Baseline	Project-alone	Future case
SO2	1-hour	7.30E-02	1.42E-03	7.30E-02
NO2	1-hour	3.58E-01	1.40E-01	3.62E-01
	annual	5.33E-01	2.25E-02	5.49E-01
CO	8-hour	1.10E-01	2.97E-03	1.10E-01
PM2.5	24-hour	**1.24E+00**	1.17E-01	**1.30E+00**
	annual	9.67E-01	7.47E-03	9.74E-01
PM10	24-hour	**1.57E+00**	7.06E-02	**1.59E+00**
	annual	3.07E-01	9.86E-03	3.16E-01

Upper Aberdeen				
CAC	Averaging Period	CR		
		Baseline	Project-alone	Future case
SO_2	1-hour	5.17E-02	2.91E-03	5.18E-02
NO_2	1-hour	2.87E-01	4.52E-01	5.34E-01
	annual	4.83E-01	1.38E-01	5.83E-01
CO	8-hour	1.04E-01	2.23E-02	1.04E-01
$PM_{2.5}$	24-hour	8.05E-01	3.10E-01	8.69E-01
	annual	8.29E-01	7.67E-02	8.55E-01
PM_{10}	24-hour	8.50E-01	**1.44E+00**	**1.90E+00**
	annual	2.31E-01	1.23E-01	2.94E-01

APPENDIX H
MODELLING INPUTS & OUTPUTS – ERA

APPENDIX H.1
ECOLOGICAL TOXICOLOGICAL REFERENCE VALUES

H.1-01 Toxicity Reference Values for the American Mink

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Reference Dose - Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	Mouse	0.03	USEPA (1988)	neurobehavioural effects	Golub et al., 2000	chronic LOAEL	1.0E+02	1	1.0E+02	American Mink	0.433	1	4.3E+01
Antimony	Rat	0.35	USEPA (1988)	reproduction	Rossi et al. (1987), in USEPA Eco-SSL (2005)	chronic LOAEL	5.9E-01	1	5.9E-01	American Mink	0.801	1	4.7E-01
Arsenic	Dog	15	Estimated	growth	Neiger and Osweiler (1989), in USEPA Eco-SSL (2005)	subchronic LOAEL	1.7E+00	3	5.5E-01	American Mink	--	1	5.5E-01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2008)	geometric mean of NOAEL	2.4E+00	1	2.4E+00	American Mink	--	1	2.4E+00
Cobalt	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	7.3E+00	1	7.3E+00	American Mink	--	1	7.3E+00
Copper	Pig	100	Estimated	mortality	Allcroft et al., (1961), in USEPA Eco-SSL (2007)	subchronic LOAEL	9.3E+00	3	3.1E+00	American Mink	--	1	3.1E+00
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	4.1E+01	1	4.1E+01	American Mink	--	1	4.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	5.2E+01	1	5.2E+01	American Mink	--	1	5.2E+01
Mercury	Mink	1	USEPA (1993e)	reproduction	Aulerich et al. (1974), Sample (1996)	chronic NOAEL	1.0E+00	1	1.0E+00	American Mink	--	1	1.0E+00
Methyl Mercury	Rat	0.35	USEPA (1988)	reproduction	Verschuuren et al. (1976), Sample (1996)	chronic LOAEL	1.6E-01	1	1.6E-01	American Mink	0.801	1	1.3E-01
Molybdenum	Mouse	0.03	USEPA (1988)	reproduction	Schroeder & Mitchner (1971), Sample et al. (1996)	chronic LOAEL	2.6E+00	1	2.6E+00	American Mink	0.433	1	1.1E+00
Nickel	Mouse	--	Mouse is selected as most sensitive species in study. Body weight scaling is omitted.	reproduction	Pandey and Srivastava (2000), in USEPA Eco-SSL (2007)	subchronic LOAEL	2.4E+00	3	8.1E-01	American Mink	--	1	8.1E-01
Selenium	Rat	0.35	USEPA (1988)	reproduction	Rosenfeld & Beath (1954), Sample et al. (1996)	chronic LOAEL	3.3E-01	1	3.3E-01	American Mink	0.801	1	2.6E-01
Thallium	Rat	0.35	USEPA (1988)	reproduction	Formigli et al. (1986), in Sample et al. (1996)	subchronic LOAEL	7.4E-01	3	2.5E-01	American Mink	0.801	1	2.0E-01
Uranium	Mouse	0.03	USEPA (1988)	reproduction	Paternain et al. (1989), Sample et al. (1996)	chronic LOAEL	6.1E+00	1	6.1E+00	American Mink	0.433	1	2.7E+00

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-02 Toxicity Reference Values for the American Robin

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Chronic LOAEL- Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	No suitable study identified												--
Antimony	No suitable study identified												--
Arsenic	Mallard duck	1	Heinz et al. (1989)	mortality	USFWS (1964) in Sample et al. (1996)	chronic LOAEL	1.3E+01	1	1.3E+01	American Robin	--	3	4.3E+00
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	2.7E+00	1	2.7E+00	American Robin	--	1	2.7E+00
Cobalt	multiple	--	--	growth	USEPA Eco-SSL (2005)	geometric mean of subchronic NOAEL	7.6E+00	3	2.5E+00	American Robin	--	1	2.5E+00
Copper	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.9E+01	1	1.9E+01	American Robin	--	1	1.9E+01
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.1E+01	1	1.1E+01	American Robin	--	1	1.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.8E+02	1	1.8E+02	American Robin	--	1	1.8E+02
Mercury	Japanese quail	0.15	Vos et al. (1971)	reproduction	Hill & Schaffner (1976) in Sample et al. (1996)	chronic LOAEL	9.0E-01	1	9.0E-01	American Robin	--	3	3.0E-01
Methyl Mercury	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz (1979) in Sample et al. (1996)	chronic LOAEL	6.4E-02	1	6.4E-02	American Robin	--	3	2.1E-02
Molybdenum	Chicken	1.5	USEPA (1988)	reproduction	Lepore and Miller (1965) in Sample et al. (1996)	chronic LOAEL	3.5E+01	1	3.5E+01	American Robin	--	3	1.2E+01
Nickel	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	6.7E+00	1	6.7E+00	American Robin	--	1	6.7E+00
Selenium	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz et al. (1987) in Sample et al. (1996)	chronic LOAEL	1.0E+00	1	1.0E+00	American Robin	--	3	3.3E-01
Thallium	Starling	0.07	Bonser and Rayner (1996)	mortality	Schafer (1972) in Shafer et al. (1983)	acute LD50	3.5E+01	100	3.5E-01	American Robin	0.967	3	1.1E-01
Uranium	Black Duck	1.25	Dunning (1984)	various, including mortality	Haseltine and Sileo (1983) in Sample et al. (1996)	subchronic NOAEL	1.6E+02	3	5.3E+01	American Robin	--	1	5.3E+01

Notes:
1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.
2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-03 Toxicity Reference Values for the Bald Eagle

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Chronic LOAEL- Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	No suitable study identified												--
Antimony	No suitable study identified												--
Arsenic	Mallard duck	1	Heinz et al. (1989)	mortality	USFWS (1964) in Sample et al. (1996)	chronic LOAEL	1.3E+01	1	1.3E+01	Inland Bald Eagle	0.687	3	2.9E+00
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	2.7E+00	1	2.7E+00	Inland Bald Eagle	--	1	2.7E+00
Cobalt	multiple	--	--	growth	USEPA Eco-SSL (2005)	geometric mean of subchronic NOAEL	7.6E+00	3	2.5E+00	Inland Bald Eagle	--	1	2.5E+00
Copper	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.9E+01	1	1.9E+01	Inland Bald Eagle	--	1	1.9E+01
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.1E+01	1	1.1E+01	Inland Bald Eagle	--	1	1.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.8E+02	1	1.8E+02	Inland Bald Eagle	--	1	1.8E+02
Mercury	Japanese quail	0.15	Vos et al. (1971)	reproduction	Hill & Schaffner (1976) in Sample et al. (1996)	chronic LOAEL	9.0E-01	1	9.0E-01	Inland Bald Eagle	0.427	3	1.3E-01
Methyl Mercury	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz (1979) in Sample et al. (1996)	chronic LOAEL	6.4E-02	1	6.4E-02	Inland Bald Eagle	0.687	3	1.5E-02
Molybdenum	Chicken	1.5	USEPA (1988)	reproduction	Lepore and Miller (1965) in Sample et al. (1996)	chronic LOAEL	3.5E+01	1	3.5E+01	Inland Bald Eagle	0.760	3	8.9E+00
Nickel	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	6.7E+00	1	6.7E+00	Inland Bald Eagle	--	1	6.7E+00
Selenium	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz et al. (1987) in Sample et al. (1996)	chronic LOAEL	1.0E+00	1	1.0E+00	Inland Bald Eagle	0.687	3	2.3E-01
Thallium	Starling	0.07	Bonser and Rayner (1996)	mortality	Schafer (1972) in Shafer et al. (1983)	acute LD50	3.5E+01	100	3.5E-01	Inland Bald Eagle	0.353	3	4.1E-02
Uranium	Black Duck	1.25	Dunning (1984)	various, including mortality	Haseltine and Sileo (1983) in Sample et al. (1996)	subchronic NOAEL	1.6E+02	3	5.3E+01	Inland Bald Eagle	0.726	1	3.9E+01

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-04 Toxicity Reference Values for the Black Bear

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Reference Dose - Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	Mouse	0.03	USEPA (1988)	neurobehavioural effects	Golub et al., 2000	chronic LOAEL	1.0E+02	1	1.0E+02	Black Bear	0.145	1	1.4E+01
Antimony	Rat	0.35	USEPA (1988)	reproduction	Rossi et al. (1987), in USEPA Eco-SSL (2005)	chronic LOAEL	5.9E-01	1	5.9E-01	Black Bear	0.268	1	1.6E-01
Arsenic	Dog	15	Estimated	growth	Neiger and Osweiler (1989), in USEPA Eco-SSL (2005)	subchronic LOAEL	1.7E+00	3	5.5E-01	Black Bear	0.685	1	3.8E-01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2008)	geometric mean of NOAEL	2.4E+00	1	2.4E+00	Black Bear	--	1	2.4E+00
Cobalt	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	7.3E+00	1	7.3E+00	Black Bear	--	1	7.3E+00
Copper	Pig	100	Estimated	mortality	Allcroft et al., (1961), in USEPA Eco-SSL (2007)	subchronic LOAEL	9.3E+00	3	3.1E+00	Black Bear	--	1	3.1E+00
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	4.1E+01	1	4.1E+01	Black Bear	--	1	4.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	5.2E+01	1	5.2E+01	Black Bear	--	1	5.2E+01
Mercury	Mink	1	USEPA (1993e)	reproduction	Aulerich et al. (1974), Sample (1996)	chronic NOAEL	1.0E+00	1	1.0E+00	Black Bear	0.348	1	3.5E-01
Methyl Mercury	Rat	0.35	USEPA (1988)	reproduction	Verschuuren et al. (1976), Sample (1996)	chronic LOAEL	1.6E-01	1	1.6E-01	Black Bear	0.268	1	4.3E-02
Molybdenum	Mouse	0.03	USEPA (1988)	reproduction	Schroeder & Mitchner (1971), Sample et al. (1996)	chronic LOAEL	2.6E+00	1	2.6E+00	Black Bear	0.145	1	3.8E-01
Nickel	Mouse	--	Mouse is selected as most sensitive species in study. Body weight scaling is omitted.	reproduction	Pandey and Srivastava (2000), in USEPA Eco-SSL (2007)	subchronic LOAEL	2.4E+00	3	8.1E-01	Black Bear	--	1	8.1E-01
Selenium	Rat	0.35	USEPA (1988)	reproduction	Rosenfeld & Beath (1954), Sample et al. (1996)	chronic LOAEL	3.3E-01	1	3.3E-01	Black Bear	0.268	1	8.8E-02
Thallium	Rat	0.35	USEPA (1988)	reproduction	Formigli et al. (1986), in Sample et al. (1996)	subchronic LOAEL	7.4E-01	3	2.5E-01	Black Bear	0.268	1	6.6E-02
Uranium	Mouse	0.03	USEPA (1988)	reproduction	Paternain et al. (1989), Sample et al. (1996)	chronic LOAEL	6.1E+00	1	6.1E+00	Black Bear	0.145	1	8.9E-01

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-05 Toxicity Reference Values for the Canada Goose

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Chronic LOAEL- Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	No suitable study identified												--
Antimony	No suitable study identified												--
Arsenic	Mallard duck	1	Heinz et al. (1989)	mortality	USFWS (1964) in Sample et al. (1996)	chronic LOAEL	1.3E+01	1	1.3E+01	Canada Goose	0.721	3	3.1E+00
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	2.7E+00	1	2.7E+00	Canada Goose	--	1	2.7E+00
Cobalt	multiple	--	--	growth	USEPA Eco-SSL (2005)	geometric mean of subchronic NOAEL	7.6E+00	3	2.5E+00	Canada Goose	--	1	2.5E+00
Copper	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.9E+01	1	1.9E+01	Canada Goose	--	1	1.9E+01
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.1E+01	1	1.1E+01	Canada Goose	--	1	1.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.8E+02	1	1.8E+02	Canada Goose	--	1	1.8E+02
Mercury	Japanese quail	0.15	Vos et al. (1971)	reproduction	Hill & Schaffner (1976) in Sample et al. (1996)	chronic LOAEL	9.0E-01	1	9.0E-01	Canada Goose	0.449	3	1.3E-01
Methyl Mercury	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz (1979) in Sample et al. (1996)	chronic LOAEL	6.4E-02	1	6.4E-02	Canada Goose	0.721	3	1.5E-02
Molybdenum	Chicken	1.5	USEPA (1988)	reproduction	Lepore and Miller (1965) in Sample et al. (1996)	chronic LOAEL	3.5E+01	1	3.5E+01	Canada Goose	0.798	3	9.4E+00
Nickel	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	6.7E+00	1	6.7E+00	Canada Goose	--	1	6.7E+00
Selenium	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz et al. (1987) in Sample et al. (1996)	chronic LOAEL	1.0E+00	1	1.0E+00	Canada Goose	0.721	3	2.4E-01
Thallium	Starling	0.07	Bonser and Rayner (1996)	mortality	Schafer (1972) in Shafer et al. (1983)	acute LD50	3.5E+01	100	3.5E-01	Canada Goose	0.371	3	4.3E-02
Uranium	Black Duck	1.25	Dunning (1984)	various, including mortality	Haseltine and Sileo (1983) in Sample et al. (1996)	subchronic NOAEL	1.6E+02	3	5.3E+01	Canada Goose	0.762	1	4.1E+01

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-06 Toxicity Reference Values for the Domestic Cattle

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Reference Dose - Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	Mouse	0.03	USEPA (1988)	neurobehavioural effects	Golub et al., 2000	chronic LOAEL	1.0E+02	1	1.0E+02	Domestic Cattle	0.079	1	7.9E+00
Antimony	Rat	0.35	USEPA (1988)	reproduction	Rossi et al. (1987), in USEPA Eco-SSL (2005)	chronic LOAEL	5.9E-01	1	5.9E-01	Domestic Cattle	0.147	1	8.7E-02
Arsenic	Dog	15	Estimated	growth	Neiger and Osweiler (1989), in USEPA Eco-SSL (2005)	subchronic LOAEL	1.7E+00	3	5.5E-01	Domestic Cattle	0.375	1	2.1E-01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2008)	geometric mean of NOAEL	2.4E+00	1	2.4E+00	Domestic Cattle	--	1	2.4E+00
Cobalt	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	7.3E+00	1	7.3E+00	Domestic Cattle	--	1	7.3E+00
Copper	Pig	100	Estimated	mortality	Allcroft et al., (1961), in USEPA Eco-SSL (2007)	subchronic LOAEL	9.3E+00	3	3.1E+00	Domestic Cattle	0.603	1	1.9E+00
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	4.1E+01	1	4.1E+01	Domestic Cattle	--	1	4.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	5.2E+01	1	5.2E+01	Domestic Cattle	--	1	5.2E+01
Mercury	Mink	1	USEPA (1993e)	reproduction	Aulerich et al. (1974), Sample (1996)	chronic NOAEL	1.0E+00	1	1.0E+00	Domestic Cattle	0.191	1	1.9E-01
Methyl Mercury	Rat	0.35	USEPA (1988)	reproduction	Verschuuren et al. (1976), Sample (1996)	chronic LOAEL	1.6E-01	1	1.6E-01	Domestic Cattle	0.147	1	2.3E-02
Molybdenum	Mouse	0.03	USEPA (1988)	reproduction	Schroeder & Mitchner (1971), Sample et al. (1996)	chronic LOAEL	2.6E+00	1	2.6E+00	Domestic Cattle	0.079	1	2.1E-01
Nickel	Mouse	--	Mouse is selected as most sensitive species in study. Body weight scaling is omitted.	reproduction	Pandey and Srivastava (2000), in USEPA Eco-SSL (2007)	subchronic LOAEL	2.4E+00	3	8.1E-01	Domestic Cattle	--	1	8.1E-01
Selenium	Rat	0.35	USEPA (1988)	reproduction	Rosenfeld & Beath (1954), Sample et al. (1996)	chronic LOAEL	3.3E-01	1	3.3E-01	Domestic Cattle	0.147	1	4.8E-02
Thallium	Rat	0.35	USEPA (1988)	reproduction	Formigli et al. (1986), in Sample et al. (1996)	subchronic LOAEL	7.4E-01	3	2.5E-01	Domestic Cattle	0.147	1	3.6E-02
Uranium	Mouse	0.03	USEPA (1988)	reproduction	Paternain et al. (1989), Sample et al. (1996)	chronic LOAEL	6.1E+00	1	6.1E+00	Domestic Cattle	0.079	1	4.9E-01

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-07 Toxicity Reference Values for the Great Blue Heron

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Chronic LOAEL- Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	No suitable study identified												--
Antimony	No suitable study identified												--
Arsenic	Mallard duck	1	Heinz et al. (1989)	mortality	USFWS (1964) in Sample et al. (1996)	chronic LOAEL	1.3E+01	1	1.3E+01	Great Blue Heron	0.818	3	3.5E+00
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	2.7E+00	1	2.7E+00	Great Blue Heron	--	1	2.7E+00
Cobalt	multiple	--	--	growth	USEPA Eco-SSL (2005)	geometric mean of subchronic NOAEL	7.6E+00	3	2.5E+00	Great Blue Heron	--	1	2.5E+00
Copper	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.9E+01	1	1.9E+01	Great Blue Heron	--	1	1.9E+01
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.1E+01	1	1.1E+01	Great Blue Heron	--	1	1.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.8E+02	1	1.8E+02	Great Blue Heron	--	1	1.8E+02
Mercury	Japanese quail	0.15	Vos et al. (1971)	reproduction	Hill & Schaffner (1976) in Sample et al. (1996)	chronic LOAEL	9.0E-01	1	9.0E-01	Great Blue Heron	0.509	3	1.5E-01
Methyl Mercury	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz (1979) in Sample et al. (1996)	chronic LOAEL	6.4E-02	1	6.4E-02	Great Blue Heron	0.818	3	1.7E-02
Molybdenum	Chicken	1.5	USEPA (1988)	reproduction	Lepore and Miller (1965) in Sample et al. (1996)	chronic LOAEL	3.5E+01	1	3.5E+01	Great Blue Heron	0.906	3	1.1E+01
Nickel	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	6.7E+00	1	6.7E+00	Great Blue Heron	--	1	6.7E+00
Selenium	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz et al. (1987) in Sample et al. (1996)	chronic LOAEL	1.0E+00	1	1.0E+00	Great Blue Heron	0.818	3	2.7E-01
Thallium	Starling	0.07	Bonser and Rayner (1996)	mortality	Schafer (1972) in Shafer et al. (1983)	acute LD50	3.5E+01	100	3.5E-01	Great Blue Heron	0.421	3	4.9E-02
Uranium	Black Duck	1.25	Dunning (1984)	various, including mortality	Haseltine and Sileo (1983) in Sample et al. (1996)	subchronic NOAEL	1.6E+02	3	5.3E+01	Great Blue Heron	0.865	1	4.6E+01

Notes:
1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.
2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-08 Toxicity Reference Values for the Mallard

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Chronic LOAEL- Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	No suitable study identified												--
Antimony	No suitable study identified												--
Arsenic	Mallard duck	1	Heinz et al. (1989)	mortality	USFWS (1964) in Sample et al. (1996)	chronic LOAEL	1.3E+01	1	1.3E+01	Mallard	0.964	3	4.1E+00
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	2.7E+00	1	2.7E+00	Mallard	--	1	2.7E+00
Cobalt	multiple	--	--	growth	USEPA Eco-SSL (2005)	geometric mean of subchronic NOAEL	7.6E+00	3	2.5E+00	Mallard	--	1	2.5E+00
Copper	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.9E+01	1	1.9E+01	Mallard	--	1	1.9E+01
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.1E+01	1	1.1E+01	Mallard	--	1	1.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.8E+02	1	1.8E+02	Mallard	--	1	1.8E+02
Mercury	Japanese quail	0.15	Vos et al. (1971)	reproduction	Hill & Schaffner (1976) in Sample et al. (1996)	chronic LOAEL	9.0E-01	1	9.0E-01	Mallard	0.600	3	1.8E-01
Methyl Mercury	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz (1979) in Sample et al. (1996)	chronic LOAEL	6.4E-02	1	6.4E-02	Mallard	0.964	3	2.1E-02
Molybdenum	Chicken	1.5	USEPA (1988)	reproduction	Lepore and Miller (1965) in Sample et al. (1996)	chronic LOAEL	3.5E+01	1	3.5E+01	Mallard	--	3	1.2E+01
Nickel	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	6.7E+00	1	6.7E+00	Mallard	--	1	6.7E+00
Selenium	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz et al. (1987) in Sample et al. (1996)	chronic LOAEL	1.0E+00	1	1.0E+00	Mallard	0.964	3	3.2E-01
Thallium	Starling	0.07	Bonser and Rayner (1996)	mortality	Schafer (1972) in Shafer et al. (1983)	acute LD50	3.5E+01	100	3.5E-01	Mallard	0.496	3	5.7E-02
Uranium	Black Duck	1.25	Dunning (1984)	various, including mortality	Haseltine and Sileo (1983) in Sample et al. (1996)	subchronic NOAEL	1.6E+02	3	5.3E+01	Mallard	--	1	5.3E+01

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-09 Toxicity Reference Values for the Meadow Vole

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Reference Dose - Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	Mouse	0.03	USEPA (1988)	neurobehavioural effects	Golub et al., 2000	chronic LOAEL	1.0E+02	1	1.0E+02	Meadow Vole	0.919	1	9.2E+01
Antimony	Rat	0.35	USEPA (1988)	reproduction	Rossi et al. (1987), in USEPA Eco-SSL (2005)	chronic LOAEL	5.9E-01	1	5.9E-01	Meadow Vole	--	1	5.9E-01
Arsenic	Dog	15	Estimated	growth	Neiger and Osweiler (1989), in USEPA Eco-SSL (2005)	subchronic LOAEL	1.7E+00	3	5.5E-01	Meadow Vole	--	1	5.5E-01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2008)	geometric mean of NOAEL	2.4E+00	1	2.4E+00	Meadow Vole	--	1	2.4E+00
Cobalt	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	7.3E+00	1	7.3E+00	Meadow Vole	--	1	7.3E+00
Copper	Pig	100	Estimated	mortality	Allcroft et al., (1961), in USEPA Eco-SSL (2007)	subchronic LOAEL	9.3E+00	3	3.1E+00	Meadow Vole	--	1	3.1E+00
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	4.1E+01	1	4.1E+01	Meadow Vole	--	1	4.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	5.2E+01	1	5.2E+01	Meadow Vole	--	1	5.2E+01
Mercury	Mink	1	USEPA (1993e)	reproduction	Aulerich et al. (1974), Sample (1996)	chronic NOAEL	1.0E+00	1	1.0E+00	Meadow Vole	--	1	1.0E+00
Methyl Mercury	Rat	0.35	USEPA (1988)	reproduction	Verschuuren et al. (1976), Sample (1996)	chronic LOAEL	1.6E-01	1	1.6E-01	Meadow Vole	--	1	1.6E-01
Molybdenum	Mouse	0.03	USEPA (1988)	reproduction	Schroeder & Mitchner (1971), Sample et al. (1996)	chronic LOAEL	2.6E+00	1	2.6E+00	Meadow Vole	0.919	1	2.4E+00
Nickel	Mouse	--	Mouse is selected as most sensitive species in study. Body weight scaling is omitted.	reproduction	Pandey and Srivastava (2000), in USEPA Eco-SSL (2007)	subchronic LOAEL	2.4E+00	3	8.1E-01	Meadow Vole	--	1	8.1E-01
Selenium	Rat	0.35	USEPA (1988)	reproduction	Rosenfeld & Beath (1954), Sample et al. (1996)	chronic LOAEL	3.3E-01	1	3.3E-01	Meadow Vole	--	1	3.3E-01
Thallium	Rat	0.35	USEPA (1988)	reproduction	Formigli et al. (1986), in Sample et al. (1996)	subchronic LOAEL	7.4E-01	3	2.5E-01	Meadow Vole	--	1	2.5E-01
Uranium	Mouse	0.03	USEPA (1988)	reproduction	Paternain et al. (1989), Sample et al. (1996)	chronic LOAEL	6.1E+00	1	6.1E+00	Meadow Vole	0.919	1	5.6E+00

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-10 Toxicity Reference Values for the Moose

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Reference Dose - Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	Mouse	0.03	USEPA (1988)	neurobehavioural effects	Golub et al., 2000	chronic LOAEL	1.0E+02	1	1.0E+02	Moose	0.091	1	9.1E+00
Antimony	Rat	0.35	USEPA (1988)	reproduction	Rossi et al. (1987), in USEPA Eco-SSL (2005)	chronic LOAEL	5.9E-01	1	5.9E-01	Moose	0.168	1	1.0E-01
Arsenic	Dog	15	Estimated	growth	Neiger and Osweiler (1989), in USEPA Eco-SSL (2005)	subchronic LOAEL	1.7E+00	3	5.5E-01	Moose	0.431	1	2.4E-01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2008)	geometric mean of NOAEL	2.4E+00	1	2.4E+00	Moose	--	1	2.4E+00
Cobalt	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	7.3E+00	1	7.3E+00	Moose	--	1	7.3E+00
Copper	Pig	100	Estimated	mortality	Allcroft et al., (1961), in USEPA Eco-SSL (2007)	subchronic LOAEL	9.3E+00	3	3.1E+00	Moose	0.692	1	2.2E+00
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	4.1E+01	1	4.1E+01	Moose	--	1	4.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	5.2E+01	1	5.2E+01	Moose	--	1	5.2E+01
Mercury	Mink	1	USEPA (1993e)	reproduction	Aulerich et al. (1974), Sample (1996)	chronic NOAEL	1.0E+00	1	1.0E+00	Moose	0.219	1	2.2E-01
Methyl Mercury	Rat	0.35	USEPA (1988)	reproduction	Verschuuren et al. (1976), Sample (1996)	chronic LOAEL	1.6E-01	1	1.6E-01	Moose	0.168	1	2.7E-02
Molybdenum	Mouse	0.03	USEPA (1988)	reproduction	Schroeder & Mitchner (1971), Sample et al. (1996)	chronic LOAEL	2.6E+00	1	2.6E+00	Moose	0.091	1	2.4E-01
Nickel	Mouse	--	Mouse is selected as most sensitive species in study. Body weight scaling is omitted.	reproduction	Pandey and Srivastava (2000), in USEPA Eco-SSL (2007)	subchronic LOAEL	2.4E+00	3	8.1E-01	Moose	--	1	8.1E-01
Selenium	Rat	0.35	USEPA (1988)	reproduction	Rosenfeld & Beath (1954), Sample et al. (1996)	chronic LOAEL	3.3E-01	1	3.3E-01	Moose	0.168	1	5.6E-02
Thallium	Rat	0.35	USEPA (1988)	reproduction	Formigli et al. (1986), in Sample et al. (1996)	subchronic LOAEL	7.4E-01	3	2.5E-01	Moose	0.168	1	4.2E-02
Uranium	Mouse	0.03	USEPA (1988)	reproduction	Paternain et al. (1989), Sample et al. (1996)	chronic LOAEL	6.1E+00	1	6.1E+00	Moose	0.091	1	5.6E-01

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-11 Toxicity Reference Values for the Mule Deer

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Reference Dose - Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	Mouse	0.03	USEPA (1988)	neurobehavioural effects	Golub et al., 2000	chronic LOAEL	1.0E+02	1	1.0E+02	Mule Deer	0.133	1	1.3E+01
Antimony	Rat	0.35	USEPA (1988)	reproduction	Rossi et al. (1987), in USEPA Eco-SSL (2005)	chronic LOAEL	5.9E-01	1	5.9E-01	Mule Deer	0.245	1	1.5E-01
Arsenic	Dog	15	Estimated	growth	Neiger and Osweiler (1989), in USEPA Eco-SSL (2005)	subchronic LOAEL	1.7E+00	3	5.5E-01	Mule Deer	0.628	1	3.5E-01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2008)	geometric mean of NOAEL	2.4E+00	1	2.4E+00	Mule Deer	--	1	2.4E+00
Cobalt	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	7.3E+00	1	7.3E+00	Mule Deer	--	1	7.3E+00
Copper	Pig	100	Estimated	mortality	Allcroft et al., (1961), in USEPA Eco-SSL (2007)	subchronic LOAEL	9.3E+00	3	3.1E+00	Mule Deer	--	1	3.1E+00
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	4.1E+01	1	4.1E+01	Mule Deer	--	1	4.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	5.2E+01	1	5.2E+01	Mule Deer	--	1	5.2E+01
Mercury	Mink	1	USEPA (1993e)	reproduction	Aulerich et al. (1974), Sample (1996)	chronic NOAEL	1.0E+00	1	1.0E+00	Mule Deer	0.319	1	3.2E-01
Methyl Mercury	Rat	0.35	USEPA (1988)	reproduction	Verschuuren et al. (1976), Sample (1996)	chronic LOAEL	1.6E-01	1	1.6E-01	Mule Deer	0.245	1	3.9E-02
Molybdenum	Mouse	0.03	USEPA (1988)	reproduction	Schroeder & Mitchner (1971), Sample et al. (1996)	chronic LOAEL	2.6E+00	1	2.6E+00	Mule Deer	0.133	1	3.5E-01
Nickel	Mouse	--	Mouse is selected as most sensitive species in study. Body weight scaling is omitted.	reproduction	Pandey and Srivastava (2000), in USEPA Eco-SSL (2007)	subchronic LOAEL	2.4E+00	3	8.1E-01	Mule Deer	--	1	8.1E-01
Selenium	Rat	0.35	USEPA (1988)	reproduction	Rosenfeld & Beath (1954), Sample et al. (1996)	chronic LOAEL	3.3E-01	1	3.3E-01	Mule Deer	0.245	1	8.1E-02
Thallium	Rat	0.35	USEPA (1988)	reproduction	Formigli et al. (1986), in Sample et al. (1996)	subchronic LOAEL	7.4E-01	3	2.5E-01	Mule Deer	0.245	1	6.1E-02
Uranium	Mouse	0.03	USEPA (1988)	reproduction	Paternain et al. (1989), Sample et al. (1996)	chronic LOAEL	6.1E+00	1	6.1E+00	Mule Deer	0.133	1	8.1E-01

Notes:
1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.
2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-12 Toxicity Reference Values for the Muskrat

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Reference Dose - Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	Mouse	0.03	USEPA (1988)	neurobehavioural effects	Golub et al., 2000	chronic LOAEL	1.0E+02	1	1.0E+02	Muskrat	0.400	1	4.0E+01
Antimony	Rat	0.35	USEPA (1988)	reproduction	Rossi et al. (1987), in USEPA Eco-SSL (2005)	chronic LOAEL	5.9E-01	1	5.9E-01	Muskrat	0.740	1	4.4E-01
Arsenic	Dog	15	Estimated	growth	Neiger and Osweiler (1989), in USEPA Eco-SSL (2005)	subchronic LOAEL	1.7E+00	3	5.5E-01	Muskrat	--	1	5.5E-01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2008)	geometric mean of NOAEL	2.4E+00	1	2.4E+00	Muskrat	--	1	2.4E+00
Cobalt	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	7.3E+00	1	7.3E+00	Muskrat	--	1	7.3E+00
Copper	Pig	100	Estimated	mortality	Allcroft et al., (1961), in USEPA Eco-SSL (2007)	subchronic LOAEL	9.3E+00	3	3.1E+00	Muskrat	--	1	3.1E+00
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	4.1E+01	1	4.1E+01	Muskrat	--	1	4.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	5.2E+01	1	5.2E+01	Muskrat	--	1	5.2E+01
Mercury	Mink	1	USEPA (1993e)	reproduction	Aulerich et al. (1974), Sample (1996)	chronic NOAEL	1.0E+00	1	1.0E+00	Muskrat	0.962	1	9.7E-01
Methyl Mercury	Rat	0.35	USEPA (1988)	reproduction	Verschuuren et al. (1976), Sample (1996)	chronic LOAEL	1.6E-01	1	1.6E-01	Muskrat	0.740	1	1.2E-01
Molybdenum	Mouse	0.03	USEPA (1988)	reproduction	Schroeder & Mitchner (1971), Sample et al. (1996)	chronic LOAEL	2.6E+00	1	2.6E+00	Muskrat	0.400	1	1.0E+00
Nickel	Mouse	--	Mouse is selected as most sensitive species in study. Body weight scaling is omitted.	reproduction	Pandey and Srivastava (2000), in USEPA Eco-SSL (2007)	subchronic LOAEL	2.4E+00	3	8.1E-01	Muskrat	--	1	8.1E-01
Selenium	Rat	0.35	USEPA (1988)	reproduction	Rosenfeld & Beath (1954), Sample et al. (1996)	chronic LOAEL	3.3E-01	1	3.3E-01	Muskrat	0.740	1	2.4E-01
Thallium	Rat	0.35	USEPA (1988)	reproduction	Formigli et al. (1986), in Sample et al. (1996)	subchronic LOAEL	7.4E-01	3	2.5E-01	Muskrat	0.740	1	1.8E-01
Uranium	Mouse	0.03	USEPA (1988)	reproduction	Paternain et al. (1989), Sample et al. (1996)	chronic LOAEL	6.1E+00	1	6.1E+00	Muskrat	0.400	1	2.5E+00

Notes:
1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.
2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-13 Toxicity Reference Values for the Red Fox

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Reference Dose - Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	Mouse	0.03	USEPA (1988)	neurobehavioural effects	Golub et al., 2000	chronic LOAEL	1.0E+02	1	1.0E+02	Red Fox	0.286	1	2.9E+01
Antimony	Rat	0.35	USEPA (1988)	reproduction	Rossi et al. (1987), in USEPA Eco-SSL (2005)	chronic LOAEL	5.9E-01	1	5.9E-01	Red Fox	0.528	1	3.1E-01
Arsenic	Dog	15	Estimated	growth	Neiger and Osweiler (1989), in USEPA Eco-SSL (2005)	subchronic LOAEL	1.7E+00	3	5.5E-01	Red Fox	--	1	5.5E-01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2008)	geometric mean of NOAEL	2.4E+00	1	2.4E+00	Red Fox	--	1	2.4E+00
Cobalt	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	7.3E+00	1	7.3E+00	Red Fox	--	1	7.3E+00
Copper	Pig	100	Estimated	mortality	Allcroft et al., (1961), in USEPA Eco-SSL (2007)	subchronic LOAEL	9.3E+00	3	3.1E+00	Red Fox	--	1	3.1E+00
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	4.1E+01	1	4.1E+01	Red Fox	--	1	4.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	5.2E+01	1	5.2E+01	Red Fox	--	1	5.2E+01
Mercury	Mink	1	USEPA (1993e)	reproduction	Aulerich et al. (1974), Sample (1996)	chronic NOAEL	1.0E+00	1	1.0E+00	Red Fox	0.687	1	6.9E-01
Methyl Mercury	Rat	0.35	USEPA (1988)	reproduction	Verschuuren et al. (1976), Sample (1996)	chronic LOAEL	1.6E-01	1	1.6E-01	Red Fox	0.528	1	8.4E-02
Molybdenum	Mouse	0.03	USEPA (1988)	reproduction	Schroeder & Mitchner (1971), Sample et al. (1996)	chronic LOAEL	2.6E+00	1	2.6E+00	Red Fox	0.286	1	7.4E-01
Nickel	Mouse	--	Mouse is selected as most sensitive species in study. Body weight scaling is omitted.	reproduction	Pandey and Srivastava (2000), in USEPA Eco-SSL (2007)	subchronic LOAEL	2.4E+00	3	8.1E-01	Red Fox	--	1	8.1E-01
Selenium	Rat	0.35	USEPA (1988)	reproduction	Rosenfeld & Beath (1954), Sample et al. (1996)	chronic LOAEL	3.3E-01	1	3.3E-01	Red Fox	0.528	1	1.7E-01
Thallium	Rat	0.35	USEPA (1988)	reproduction	Formigli et al. (1986), in Sample et al. (1996)	subchronic LOAEL	7.4E-01	3	2.5E-01	Red Fox	0.528	1	1.3E-01
Uranium	Mouse	0.03	USEPA (1988)	reproduction	Paternain et al. (1989), Sample et al. (1996)	chronic LOAEL	6.1E+00	1	6.1E+00	Red Fox	0.286	1	1.8E+00

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-14 Toxicity Reference Values for the Ruffed Grouse

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Chronic LOAEL- Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	No suitable study identified												--
Antimony	No suitable study identified												--
Arsenic	Mallard duck	1	Heinz et al. (1989)	mortality	USFWS (1964) in Sample et al. (1996)	chronic LOAEL	1.3E+01	1	1.3E+01	Ruffed Grouse	--	1	1.3E+01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	2.7E+00	1	2.7E+00	Ruffed Grouse	--	1	2.7E+00
Cobalt	multiple	--	--	growth	USEPA Eco-SSL (2005)	geometric mean of subchronic NOAEL	7.6E+00	3	2.5E+00	Ruffed Grouse	--	1	2.5E+00
Copper	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.9E+01	1	1.9E+01	Ruffed Grouse	--	1	1.9E+01
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.1E+01	1	1.1E+01	Ruffed Grouse	--	1	1.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	1.8E+02	1	1.8E+02	Ruffed Grouse	--	1	1.8E+02
Mercury	Japanese quail	0.15	Vos et al. (1971)	reproduction	Hill & Schaffner (1976) in Sample et al. (1996)	chronic LOAEL	9.0E-01	1	9.0E-01	Ruffed Grouse	0.740	1	6.7E-01
Methyl Mercury	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz (1979) in Sample et al. (1996)	chronic LOAEL	6.4E-02	1	6.4E-02	Ruffed Grouse	--	1	6.4E-02
Molybdenum	Chicken	1.5	USEPA (1988)	reproduction	Lepore and Miller (1965) in Sample et al. (1996)	chronic LOAEL	3.5E+01	1	3.5E+01	Ruffed Grouse	--	1	3.5E+01
Nickel	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	6.7E+00	1	6.7E+00	Ruffed Grouse	--	1	6.7E+00
Selenium	Mallard Duck	1	Heinz et al. (1989)	reproduction	Heinz et al. (1987) in Sample et al. (1996)	chronic LOAEL	1.0E+00	1	1.0E+00	Ruffed Grouse	--	1	1.0E+00
Thallium	Starling	0.07	Bonser and Rayner (1996)	mortality	Schafer (1972) in Shafer et al. (1983)	acute LD50	3.5E+01	100	3.5E-01	Ruffed Grouse	0.612	1	2.1E-01
Uranium	Black Duck	1.25	Dunning (1984)	various, including mortality	Haseltine and Sileo (1983) in Sample et al. (1996)	subchronic NOAEL	1.6E+02	3	5.3E+01	Ruffed Grouse	--	1	5.3E+01

Notes:
1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.
2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

H.1-15 Toxicity Reference Values for the Snowshoe Hare

Constituent	Test Species	Test Species Body Weight (kg wet)	Body Weight Reference	Effect	Reference	Endpoint	Daily Dose (mg/kg-day)	Total Uncertainty Factor[1]	Reference Dose - Test Species[2] (mg/kg-day)	Receptor Species	Body Weight Scaling Factor	Sensitive Species Factor	Toxicity Reference Value (mg/kg-day)
Inorganics													
Aluminum	Mouse	0.03	USEPA (1988)	neurobehavioural effects	Golub et al., 2000	chronic LOAEL	1.0E+02	1	1.0E+02	Snowshoe Hare	0.386	1	3.9E+01
Antimony	Rat	0.35	USEPA (1988)	reproduction	Rossi et al. (1987), in USEPA Eco-SSL (2005)	chronic LOAEL	5.9E-01	1	5.9E-01	Snowshoe Hare	0.714	1	4.2E-01
Arsenic	Dog	15	Estimated	growth	Neiger and Osweiler (1989), in USEPA Eco-SSL (2005)	subchronic LOAEL	1.7E+00	3	5.5E-01	Snowshoe Hare	--	1	5.5E-01
Chromium	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2008)	geometric mean of NOAEL	2.4E+00	1	2.4E+00	Snowshoe Hare	--	1	2.4E+00
Cobalt	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2005)	geometric mean of NOAEL	7.3E+00	1	7.3E+00	Snowshoe Hare	--	1	7.3E+00
Copper	Pig	100	Estimated	mortality	Allcroft et al., (1961), in USEPA Eco-SSL (2007)	subchronic LOAEL	9.3E+00	3	3.1E+00	Snowshoe Hare	--	1	3.1E+00
Lead	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	4.1E+01	1	4.1E+01	Snowshoe Hare	--	1	4.1E+01
Manganese	multiple	--	--	growth, reproduction	USEPA Eco-SSL (2007)	geometric mean of NOAEL	5.2E+01	1	5.2E+01	Snowshoe Hare	--	1	5.2E+01
Mercury	Mink	1	USEPA (1993e)	reproduction	Aulerich et al. (1974), Sample (1996)	chronic NOAEL	1.0E+00	1	1.0E+00	Snowshoe Hare	0.928	1	9.4E-01
Methyl Mercury	Rat	0.35	USEPA (1988)	reproduction	Verschuuren et al. (1976), Sample (1996)	chronic LOAEL	1.6E-01	1	1.6E-01	Snowshoe Hare	0.714	1	1.1E-01
Molybdenum	Mouse	0.03	USEPA (1988)	reproduction	Schroeder & Mitchner (1971), Sample et al. (1996)	chronic LOAEL	2.6E+00	1	2.6E+00	Snowshoe Hare	0.386	1	1.0E+00
Nickel	Mouse	--	Mouse is selected as most sensitive species in study. Body weight scaling is omitted.	reproduction	Pandey and Srivastava (2000), in USEPA Eco-SSL (2007)	subchronic LOAEL	2.4E+00	3	8.1E-01	Snowshoe Hare	--	1	8.1E-01
Selenium	Rat	0.35	USEPA (1988)	reproduction	Rosenfeld & Beath (1954), Sample et al. (1996)	chronic LOAEL	3.3E-01	1	3.3E-01	Snowshoe Hare	0.714	1	2.4E-01
Thallium	Rat	0.35	USEPA (1988)	reproduction	Formigli et al. (1986), in Sample et al. (1996)	subchronic LOAEL	7.4E-01	3	2.5E-01	Snowshoe Hare	0.714	1	1.8E-01
Uranium	Mouse	0.03	USEPA (1988)	reproduction	Paternain et al. (1989), Sample et al. (1996)	chronic LOAEL	6.1E+00	1	6.1E+00	Snowshoe Hare	0.386	1	2.4E+00

Notes:

1 - The following uncertainty factors have been used to convert to chronic LOAEL/NOAEL:100 for acute LD50; 30 for sub-chronic LD50; 3 for subchronic LOAEL or NOAEL; 1 for chronic LOAEL or NOAEL.

2 - The chronic LOAEL is calculated as the Daily Dose divided by the Total Uncertainty Factor.

APPENDIX H.2
AVERAGE DAILY DOSE

H.2-01 Summary of Average Daily Doses (mg/kg-day) for Ecological Receptors at the Ajax Mine - Jacko Lake, Baseline Case

Constituent	American Mink	American Robin	Bald Eagle	Black Bear	Canada Goose	Domestic Cattle	Great Blue Heron	Mallard	Meadow Vole	Moose	Mule Deer	Muskrat	Red Fox	Ruffed Grouse	Snowshoe Hare
Inorganics															
Aluminum	1.0E-01	6.7E+00	1.8E+00	1.6E+00	2.9E+00	4.2E-01	3.2E-01	8.4E+00	2.4E+00	2.9E-01	5.8E-01	2.3E-01	4.1E+00	1.3E-02	1.9E+00
Antimony	3.5E-04	3.2E-02	6.0E-04	2.2E-03	4.4E-03	5.7E-04	4.4E-04	3.8E-03	4.6E-03	4.5E-04	6.0E-04	6.8E-04	1.7E-03	1.5E-05	2.1E-03
Arsenic	1.1E-02	9.3E-02	6.6E-03	1.8E-02	4.8E-02	6.4E-03	1.8E-02	4.4E-01	5.0E-02	9.1E-03	9.1E-03	9.2E-03	8.6E-03	3.5E-04	3.0E-02
Chromium	5.2E-03	1.7E+00	3.7E-02	1.9E-01	5.3E-01	6.9E-02	5.6E-02	1.8E+00	5.5E-01	5.8E-02	7.0E-02	6.2E-02	1.1E-01	1.8E-03	2.6E-01
Cobalt	4.3E-03	2.2E-01	9.8E-03	4.7E-02	1.4E-01	1.9E-02	6.3E-03	7.3E-02	1.4E-01	5.5E-02	4.7E-02	2.7E-02	2.3E-02	2.4E-03	1.3E-01
Copper	3.7E-01	2.6E+00	3.7E-01	6.9E-01	1.2E+00	1.7E-01	5.6E-01	1.3E+01	1.3E+00	1.7E-01	2.5E-01	2.3E-01	6.4E-01	8.5E-03	8.1E-01
Lead	3.0E-02	2.2E-01	1.8E-02	2.1E-02	4.3E-02	5.5E-03	2.4E-02	1.3E-01	4.4E-02	4.2E-03	5.2E-03	8.2E-03	2.3E-02	1.2E-04	2.0E-02
Manganese	3.3E-02	3.1E+00	7.1E-02	9.4E-01	9.8E-01	1.5E-01	1.3E-01	5.7E+00	1.6E+00	4.1E-01	2.8E-01	2.2E+00	2.3E-01	1.4E-02	8.6E-01
Mercury	2.1E-02	1.7E-02	6.7E-03	4.3E-03	1.3E-03	2.0E-04	1.4E-02	1.7E-02	5.4E-03	2.0E-03	4.3E-04	1.7E-02	1.5E-03	4.1E-05	1.7E-03
Molybdenum	3.1E-03	8.3E-02	3.7E-02	3.2E-01	1.1E+00	1.7E-01	6.4E-02	2.5E+00	5.4E-01	2.5E-02	2.4E-01	5.3E-02	7.5E-02	1.0E-03	6.0E-01
Nickel	7.0E-03	4.3E+00	4.2E-02	3.0E-01	5.4E-01	7.0E-02	4.6E-02	1.4E+00	6.0E-01	6.9E-02	8.4E-02	7.9E-02	1.8E-01	2.8E-03	2.9E-01
Selenium	1.1E-01	8.9E-02	6.1E-02	3.6E-02	2.9E-02	4.5E-03	8.6E-02	5.0E-01	3.8E-02	4.8E-03	8.6E-03	7.4E-03	6.1E-02	3.5E-04	2.8E-02
Thallium	7.0E-05	8.6E-04	8.9E-05	2.8E-04	8.2E-04	1.1E-04	1.0E-04	5.3E-03	7.8E-04	5.1E-04	1.1E-04	4.3E-03	1.6E-04	1.9E-06	3.9E-04
Uranium	1.1E-03	4.4E-03	1.2E-03	1.5E-03	4.7E-03	6.7E-04	2.9E-03	5.8E-02	4.6E-03	2.7E-03	6.3E-04	2.1E-02	7.5E-04	9.7E-06	2.2E-03

H.2-02 Summary of Average Daily Doses (mg/kg-day) for Ecological Receptors at the Ajax Mine - Jacko Lake, Future Case

Constituent	American Mink	American Robin	Bald Eagle	Black Bear	Canada Goose	Domestic Cattle	Great Blue Heron	Mallard	Meadow Vole	Moose	Mule Deer	Muskrat	Red Fox	Ruffed Grouse	Snowshoe Hare
Inorganics															
Aluminum	5.3E-01	6.7E+00	1.9E+00	1.7E+00	2.9E+00	4.2E-01	6.0E-01	8.7E+00	2.4E+00	3.0E-01	5.8E-01	3.1E-01	4.1E+00	1.3E-02	1.9E+00
Antimony	3.5E-04	3.3E-02	6.1E-04	2.3E-03	4.4E-03	5.8E-04	4.4E-04	3.8E-03	4.6E-03	4.5E-04	6.1E-04	6.8E-04	1.8E-03	1.5E-05	2.2E-03
Arsenic	1.3E-02	9.3E-02	7.3E-03	1.8E-02	4.8E-02	6.4E-03	2.0E-02	4.6E-01	5.0E-02	9.1E-03	9.1E-03	9.6E-03	8.7E-03	3.5E-04	3.0E-02
Chromium	2.5E-02	1.7E+00	4.3E-02	1.9E-01	5.3E-01	6.9E-02	6.9E-02	1.8E+00	5.5E-01	5.8E-02	7.0E-02	6.3E-02	1.1E-01	1.8E-03	2.6E-01
Cobalt	9.1E-03	2.2E-01	1.2E-02	4.7E-02	1.4E-01	1.9E-02	1.1E-02	1.1E-01	1.4E-01	5.7E-02	4.7E-02	4.9E-02	2.3E-02	2.4E-03	1.3E-01
Copper	6.5E-01	2.6E+00	4.6E-01	7.1E-01	1.2E+00	1.7E-01	7.7E-01	1.4E+01	1.3E+00	1.7E-01	2.5E-01	3.1E-01	6.4E-01	8.5E-03	8.1E-01
Lead	4.2E-02	2.2E-01	2.2E-02	2.1E-02	4.3E-02	5.5E-03	3.2E-02	1.5E-01	4.4E-02	4.4E-03	5.2E-03	9.5E-03	2.3E-02	1.2E-04	2.0E-02
Manganese	4.6E-02	3.1E+00	7.6E-02	9.5E-01	9.8E-01	1.5E-01	1.4E-01	6.3E+00	1.6E+00	4.8E-01	2.8E-01	2.9E+00	2.4E-01	1.4E-02	8.6E-01
Mercury	2.2E-02	1.8E-02	7.1E-03	4.5E-03	1.4E-03	2.0E-04	1.4E-02	1.8E-02	5.6E-03	2.1E-03	4.4E-04	1.8E-02	1.5E-03	4.2E-05	1.7E-03
Molybdenum	5.7E-03	8.3E-02	3.8E-02	3.3E-01	1.1E+00	1.8E-01	7.1E-02	2.7E+00	5.4E-01	2.7E-02	2.4E-01	6.9E-02	7.6E-02	1.0E-03	6.1E-01
Nickel	1.1E-02	4.3E+00	4.5E-02	3.0E-01	5.4E-01	7.0E-02	5.6E-02	1.6E+00	6.0E-01	7.3E-02	8.4E-02	1.1E-01	1.8E-01	2.8E-03	2.9E-01
Selenium	2.0E-01	8.9E-02	8.8E-02	3.9E-02	2.9E-02	4.5E-03	1.4E-01	5.0E-01	3.8E-02	4.8E-03	8.7E-03	8.3E-03	6.2E-02	3.5E-04	2.8E-02
Thallium	7.1E-05	8.7E-04	9.0E-05	2.8E-04	8.3E-04	1.1E-04	1.1E-04	5.3E-03	7.9E-04	5.1E-04	1.1E-04	4.3E-03	1.6E-04	1.9E-06	4.0E-04
Uranium	1.4E-03	4.5E-03	1.5E-03	1.6E-03	4.8E-03	6.8E-04	3.9E-03	7.7E-02	4.6E-03	3.4E-03	6.5E-04	2.7E-02	7.7E-04	1.0E-05	2.2E-03

H.2-03 Summary of Average Daily Doses (mg/kg-day) for Ecological Receptors at the Ajax Mine - Peterson Creek, Baseline Case

Constituent	American Mink	American Robin	Bald Eagle	Black Bear	Canada Goose	Domestic Cattle	Great Blue Heron	Mallard	Meadow Vole	Moose	Mule Deer	Muskrat	Red Fox	Ruffed Grouse	Snowshoe Hare
Inorganics															
Aluminum	7.8E-01	6.7E+00	2.0E+00	1.7E+00	3.0E+00	4.2E-01	1.2E+00	2.5E+01	2.5E+00	3.2E-01	5.9E-01	5.3E-01	4.1E+00	1.3E-02	2.0E+00
Antimony	5.3E-04	3.2E-02	6.7E-04	2.3E-03	4.4E-03	5.7E-04	6.1E-04	4.9E-03	4.6E-03	4.8E-04	6.1E-04	8.8E-04	1.7E-03	1.5E-05	2.1E-03
Arsenic	2.0E-02	9.3E-02	9.8E-03	1.8E-02	4.8E-02	6.5E-03	3.0E-02	6.7E-01	5.0E-02	9.5E-03	9.1E-03	1.4E-02	8.7E-03	3.5E-04	3.0E-02
Chromium	3.3E-02	1.7E+00	6.8E-02	1.9E-01	5.3E-01	6.9E-02	1.9E-01	5.0E+00	5.5E-01	8.2E-02	7.0E-02	2.5E-01	1.1E-01	1.8E-03	2.6E-01
Cobalt	2.5E-02	2.2E-01	1.8E-02	4.7E-02	1.4E-01	1.9E-02	2.7E-02	2.0E-01	1.4E-01	6.0E-02	4.7E-02	7.4E-02	2.3E-02	2.4E-03	1.3E-01
Copper	6.8E-01	2.6E+00	4.7E-01	7.1E-01	1.2E+00	1.8E-01	9.0E-01	1.9E+01	1.3E+00	1.8E-01	2.5E-01	3.5E-01	6.4E-01	8.5E-03	8.1E-01
Lead	4.8E-03	2.2E-01	1.1E-02	2.0E-02	4.3E-02	5.5E-03	1.2E-02	2.8E-01	4.4E-02	5.0E-03	5.2E-03	1.4E-02	2.3E-02	1.2E-04	2.0E-02
Manganese	7.7E-02	3.1E+00	9.5E-02	9.5E-01	9.8E-01	1.5E-01	2.4E-01	1.5E+01	1.6E+00	1.2E+00	2.9E-01	9.7E+00	2.4E-01	1.4E-02	8.6E-01
Mercury	1.0E-02	1.7E-02	3.5E-03	3.9E-03	1.3E-03	2.0E-04	6.8E-03	2.5E-02	5.4E-03	2.9E-03	4.3E-04	2.5E-02	1.5E-03	4.1E-05	1.7E-03
Molybdenum	8.5E-03	8.4E-02	3.6E-02	3.3E-01	1.1E+00	1.8E-01	1.3E-02	3.7E-01	5.4E-01	3.3E-02	2.4E-01	1.2E-01	7.6E-02	1.0E-03	6.0E-01
Nickel	2.7E-02	4.3E+00	6.0E-02	3.0E-01	5.4E-01	7.0E-02	1.4E-01	3.8E+00	6.0E-01	9.7E-02	8.4E-02	3.2E-01	1.8E-01	2.8E-03	2.9E-01
Selenium	5.5E-01	8.9E-02	1.9E-01	5.3E-02	2.9E-02	4.5E-03	3.7E-01	5.1E-01	3.8E-02	4.8E-03	8.7E-03	1.2E-02	6.1E-02	3.5E-04	2.8E-02
Thallium	1.0E-03	8.6E-04	3.9E-04	3.2E-04	8.2E-04	1.1E-04	7.8E-04	9.0E-03	7.8E-04	7.8E-04	1.1E-04	7.0E-03	1.6E-04	1.9E-06	3.9E-04
Uranium	4.3E-03	4.6E-03	1.7E-03	1.8E-03	4.8E-03	7.3E-04	3.2E-03	5.1E-02	4.8E-03	5.9E-03	7.3E-04	5.2E-02	8.8E-04	1.2E-05	2.2E-03

H.2-04 Summary of Average Daily Doses (mg/kg-day) for Ecological Receptors at the Ajax Mine - Peterson Creek, Future Case

Constituent	American Mink	American Robin	Bald Eagle	Black Bear	Canada Goose	Domestic Cattle	Great Blue Heron	Mallard	Meadow Vole	Moose	Mule Deer	Muskrat	Red Fox	Ruffed Grouse	Snowshoe Hare
Inorganics															
Aluminum	3.4E+00	6.9E+00	2.8E+00	1.8E+00	3.0E+00	4.7E-01	2.9E+00	2.6E+01	2.6E+00	4.0E-01	6.7E-01	7.8E-01	4.2E+00	1.5E-02	2.0E+00
Antimony	1.9E-03	3.3E-02	1.1E-03	2.4E-03	4.4E-03	6.1E-04	1.5E-03	5.5E-03	4.7E-03	5.6E-04	6.3E-04	1.5E-03	1.8E-03	1.6E-05	2.2E-03
Arsenic	3.2E-02	9.3E-02	1.3E-02	1.8E-02	4.8E-02	6.5E-03	3.8E-02	6.7E-01	5.0E-02	9.7E-03	9.2E-03	1.5E-02	8.8E-03	3.5E-04	3.0E-02
Chromium	1.4E-01	1.7E+00	9.9E-02	2.0E-01	5.3E-01	6.9E-02	2.6E-01	5.0E+00	5.5E-01	8.3E-02	7.0E-02	2.5E-01	1.1E-01	1.8E-03	2.6E-01
Cobalt	4.8E-02	2.2E-01	2.5E-02	4.8E-02	1.4E-01	1.9E-02	4.2E-02	2.4E-01	1.4E-01	6.5E-02	4.7E-02	1.2E-01	2.3E-02	2.4E-03	1.3E-01
Copper	8.7E-01	2.6E+00	5.3E-01	7.2E-01	1.2E+00	1.8E-01	1.0E+00	1.9E+01	1.3E+00	1.8E-01	2.5E-01	4.3E-01	6.4E-01	8.5E-03	8.1E-01
Lead	7.1E-03	2.2E-01	1.1E-02	2.0E-02	4.3E-02	5.5E-03	1.3E-02	2.8E-01	4.4E-02	5.1E-03	5.2E-03	1.5E-02	2.3E-02	1.2E-04	2.0E-02
Manganese	1.7E-01	3.2E+00	1.3E-01	9.7E-01	9.9E-01	2.0E-01	3.0E-01	2.3E+01	1.7E+00	2.3E+00	3.0E-01	2.0E+01	2.6E-01	1.5E-02	8.7E-01
Mercury	1.1E-02	1.8E-02	3.7E-03	4.1E-03	1.4E-03	2.0E-04	7.0E-03	2.6E-02	5.6E-03	3.0E-03	4.4E-04	2.6E-02	1.5E-03	4.2E-05	1.7E-03
Molybdenum	1.6E-02	8.5E-02	3.9E-02	3.3E-01	1.1E+00	1.8E-01	2.0E-02	5.5E-01	5.5E-01	4.4E-02	2.4E-01	2.2E-01	7.7E-02	1.1E-03	6.1E-01
Nickel	3.1E-02	4.3E+00	6.1E-02	3.0E-01	5.4E-01	7.0E-02	1.4E-01	3.9E+00	6.0E-01	1.0E-01	8.5E-02	3.7E-01	1.8E-01	2.8E-03	2.9E-01
Selenium	9.8E-01	8.9E-02	3.3E-01	7.0E-02	2.9E-02	4.6E-03	6.5E-01	5.1E-01	3.9E-02	4.9E-03	8.8E-03	1.6E-02	6.2E-02	3.5E-04	2.8E-02
Thallium	1.0E-03	8.7E-04	3.9E-04	3.2E-04	8.3E-04	1.1E-04	7.8E-04	9.0E-03	7.9E-04	7.9E-04	1.1E-04	7.0E-03	1.7E-04	1.9E-06	4.0E-04
Uranium	7.3E-03	4.8E-03	2.7E-03	2.0E-03	4.9E-03	7.6E-04	5.6E-03	8.8E-02	5.1E-03	9.8E-03	8.3E-04	8.9E-02	1.0E-03	1.4E-05	2.3E-03

APPENDIX H.3
ECOLOGICAL RISK ESTIMATES

H.3-01 Jacko Lake Baseline Risk Quotients for the American Mink

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	4.3E+01	---	---	---	---	1.2E-05	---	---	---	2.3E-03	2.3E-03
Antimony	4.7E-01	---	---	---	---	2.1E-05	---	---	---	7.3E-04	7.5E-04
Arsenic	5.5E-01	---	---	---	---	1.7E-04	---	---	---	1.9E-02	1.9E-02
Chromium	2.4E+00	---	---	---	---	5.0E-06	---	---	---	2.2E-03	2.2E-03
Cobalt	7.3E+00	---	---	---	---	1.0E-06	---	---	---	5.8E-04	5.8E-04
Copper	3.1E+00	---	---	---	---	3.1E-05	---	---	---	1.2E-01	1.2E-01
Lead	4.1E+01	---	---	---	---	2.3E-07	---	---	---	7.3E-04	7.3E-04
Manganese	5.2E+01	---	---	---	---	5.1E-05	---	---	---	5.9E-04	6.4E-04
Mercury	1.0E+00	---	---	---	---	7.0E-07	---	---	---	1.6E-01	1.6E-01
Molybdenum	1.1E+00	---	---	---	---	1.5E-04	---	---	---	2.6E-03	2.7E-03
Nickel	8.1E-01	---	---	---	---	6.7E-05	---	---	---	8.5E-03	8.6E-03
Selenium	2.6E-01	---	---	---	---	4.9E-05	---	---	---	4.2E-01	4.2E-01
Thallium	2.0E-01	---	---	---	---	3.6E-06	---	---	---	3.5E-04	3.5E-04
Uranium	2.7E+00	---	---	---	---	3.1E-05	---	---	---	3.9E-04	4.2E-04

H.3-02 Jacko Lake Post Closure Risk Quotients for the American Mink

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	4.3E+01	---	---	---	---	4.7E-05	---	---	---	1.2E-02	1.2E-02
Antimony	4.7E-01	---	---	---	---	2.1E-05	---	---	---	7.3E-04	7.5E-04
Arsenic	5.5E-01	---	---	---	---	2.0E-04	---	---	---	2.3E-02	2.3E-02
Chromium	2.4E+00	---	---	---	---	2.8E-05	---	---	---	1.0E-02	1.0E-02
Cobalt	7.3E+00	---	---	---	---	6.1E-06	---	---	---	1.2E-03	1.2E-03
Copper	3.1E+00	---	---	---	---	1.0E-04	---	---	---	2.1E-01	2.1E-01
Lead	4.1E+01	---	---	---	---	2.7E-07	---	---	---	1.0E-03	1.0E-03
Manganese	5.2E+01	---	---	---	---	1.3E-04	---	---	---	7.7E-04	9.0E-04
Mercury	1.0E+00	---	---	---	---	2.2E-06	---	---	---	1.7E-01	1.7E-01
Molybdenum	1.1E+00	---	---	---	---	2.8E-04	---	---	---	4.8E-03	5.1E-03
Nickel	8.1E-01	---	---	---	---	1.5E-04	---	---	---	1.4E-02	1.4E-02
Selenium	2.6E-01	---	---	---	---	8.6E-05	---	---	---	7.5E-01	7.5E-01
Thallium	2.0E-01	---	---	---	---	7.7E-06	---	---	---	3.5E-04	3.6E-04
Uranium	2.7E+00	---	---	---	---	3.8E-05	---	---	---	4.8E-04	5.2E-04

H.3-03 Peterson Creek Baseline Risk Quotients for the American Mink

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	4.3E+01	---	---	---	---	5.6E-04	---	---	---	1.7E-02	1.8E-02
Antimony	4.7E-01	---	---	---	---	2.7E-05	---	---	---	1.1E-03	1.1E-03
Arsenic	5.5E-01	---	---	---	---	3.6E-04	---	---	---	3.6E-02	3.6E-02
Chromium	2.4E+00	---	---	---	---	3.8E-05	---	---	---	1.4E-02	1.4E-02
Cobalt	7.3E+00	---	---	---	---	5.6E-06	---	---	---	3.5E-03	3.5E-03
Copper	3.1E+00	---	---	---	---	1.4E-04	---	---	---	2.2E-01	2.2E-01
Lead	4.1E+01	---	---	---	---	2.8E-07	---	---	---	1.2E-04	1.2E-04
Manganese	5.2E+01	---	---	---	---	2.6E-04	---	---	---	1.2E-03	1.5E-03
Mercury	1.0E+00	---	---	---	---	1.0E-06	---	---	---	8.0E-02	8.0E-02
Molybdenum	1.1E+00	---	---	---	---	1.0E-03	---	---	---	6.5E-03	7.5E-03
Nickel	8.1E-01	---	---	---	---	6.0E-04	---	---	---	3.3E-02	3.4E-02
Selenium	2.6E-01	---	---	---	---	2.8E-04	---	---	---	**2.1E+00**	**2.1E+00**
Thallium	2.0E-01	---	---	---	---	5.7E-06	---	---	---	5.2E-03	5.2E-03
Uranium	2.7E+00	---	---	---	---	9.1E-05	---	---	---	1.5E-03	1.6E-03

H.3-04 Peterson Creek Post Closure Risk Quotients for the American Mink

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	4.3E+01	---	---	---	---	3.5E-03	---	---	---	7.5E-02	7.9E-02
Antimony	4.7E-01	---	---	---	---	1.0E-04	---	---	---	4.0E-03	4.1E-03
Arsenic	5.5E-01	---	---	---	---	5.6E-04	---	---	---	5.7E-02	5.7E-02
Chromium	2.4E+00	---	---	---	---	2.1E-04	---	---	---	5.6E-02	5.7E-02
Cobalt	7.3E+00	---	---	---	---	1.3E-05	---	---	---	6.6E-03	6.6E-03
Copper	3.1E+00	---	---	---	---	2.5E-04	---	---	---	2.8E-01	2.8E-01
Lead	4.1E+01	---	---	---	---	5.8E-07	---	---	---	1.7E-04	1.7E-04
Manganese	5.2E+01	---	---	---	---	7.1E-04	---	---	---	2.6E-03	3.3E-03
Mercury	1.0E+00	---	---	---	---	3.3E-06	---	---	---	8.3E-02	8.3E-02
Molybdenum	1.1E+00	---	---	---	---	1.9E-03	---	---	---	1.3E-02	1.5E-02
Nickel	8.1E-01	---	---	---	---	9.0E-04	---	---	---	3.8E-02	3.9E-02
Selenium	2.6E-01	---	---	---	---	5.0E-04	---	---	---	**3.7E+00**	**3.7E+00**
Thallium	2.0E-01	---	---	---	---	1.3E-05	---	---	---	5.2E-03	5.2E-03
Uranium	2.7E+00	---	---	---	---	1.6E-04	---	---	---	2.6E-03	2.8E-03

H.3-05 Jacko Lake Baseline Risk Quotients for the American Robin

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	4.3E+00	8.3E-03	1.1E-03	1.2E-02	---	2.6E-05	---	---	---	---	2.2E-02
Chromium	2.7E+00	1.5E-01	2.9E-04	4.8E-01	---	5.3E-06	---	---	---	---	6.3E-01
Cobalt	2.5E+00	3.7E-02	1.9E-03	4.7E-02	---	3.4E-06	---	---	---	---	8.6E-02
Copper	1.9E+01	3.0E-02	5.3E-02	5.9E-02	---	6.2E-06	---	---	---	---	1.4E-01
Lead	1.1E+01	2.9E-03	4.0E-05	1.7E-02	---	1.0E-06	---	---	---	---	2.0E-02
Manganese	1.8E+02	1.4E-03	1.5E-02	7.4E-04	---	1.7E-05	---	---	---	---	1.7E-02
Mercury	3.0E-01	8.8E-04	4.1E-02	1.5E-02	---	2.8E-06	---	---	---	---	5.7E-02
Molybdenum	1.2E+01	5.8E-04	8.0E-04	5.6E-03	---	1.7E-05	---	---	---	---	7.0E-03
Nickel	6.7E+00	5.2E-02	2.5E-02	5.7E-01	---	9.5E-06	---	---	---	---	6.4E-01
Selenium	3.3E-01	7.4E-03	1.8E-01	7.5E-02	---	4.5E-05	---	---	---	---	2.7E-01
Thallium	1.1E-01	4.7E-03	7.7E-04	2.2E-03	---	7.5E-06	---	---	---	---	7.7E-03
Uranium	5.3E+01	6.0E-05	9.8E-07	2.0E-05	---	1.8E-06	---	---	---	---	8.3E-05

H.3-06 Jacko Lake Post Closure Risk Quotients for the American Robin

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	4.3E+00	8.3E-03	1.1E-03	1.2E-02	---	3.1E-05	---	---	---	---	2.2E-02
Chromium	2.7E+00	1.5E-01	2.9E-04	4.8E-01	---	3.0E-05	---	---	---	---	6.3E-01
Cobalt	2.5E+00	3.7E-02	1.9E-03	4.7E-02	---	2.1E-05	---	---	---	---	8.6E-02
Copper	1.9E+01	3.0E-02	5.3E-02	5.9E-02	---	2.1E-05	---	---	---	---	1.4E-01
Lead	1.1E+01	2.9E-03	4.0E-05	1.7E-02	---	1.2E-06	---	---	---	---	2.0E-02
Manganese	1.8E+02	1.4E-03	1.5E-02	7.4E-04	---	4.3E-05	---	---	---	---	1.7E-02
Mercury	3.0E-01	9.2E-04	4.3E-02	1.6E-02	---	8.8E-06	---	---	---	---	6.0E-02
Molybdenum	1.2E+01	5.8E-04	8.0E-04	5.7E-03	---	3.2E-05	---	---	---	---	7.1E-03
Nickel	6.7E+00	5.2E-02	2.5E-02	5.7E-01	---	2.2E-05	---	---	---	---	6.4E-01
Selenium	3.3E-01	7.5E-03	1.9E-01	7.6E-02	---	8.0E-05	---	---	---	---	2.7E-01
Thallium	1.1E-01	4.7E-03	7.7E-04	2.3E-03	---	1.6E-05	---	---	---	---	7.8E-03
Uranium	5.3E+01	6.0E-05	9.9E-07	2.0E-05	---	2.2E-06	---	---	---	---	8.4E-05

H.3-07 Peterson Creek Baseline Risk Quotients for the American Robin

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	4.3E+00	8.3E-03	1.1E-03	1.2E-02	---	5.4E-05	---	---	---	---	2.2E-02
Chromium	2.7E+00	1.5E-01	2.9E-04	4.8E-01	---	4.0E-05	---	---	---	---	6.3E-01
Cobalt	2.5E+00	3.7E-02	1.9E-03	4.7E-02	---	1.9E-05	---	---	---	---	8.6E-02
Copper	1.9E+01	3.0E-02	5.3E-02	5.9E-02	---	2.7E-05	---	---	---	---	1.4E-01
Lead	1.1E+01	2.9E-03	4.0E-05	1.7E-02	---	1.2E-06	---	---	---	---	2.0E-02
Manganese	1.8E+02	1.4E-03	1.5E-02	7.4E-04	---	8.7E-05	---	---	---	---	1.7E-02
Mercury	3.0E-01	8.8E-04	4.1E-02	1.5E-02	---	4.2E-06	---	---	---	---	5.7E-02
Molybdenum	1.2E+01	5.8E-04	8.0E-04	5.6E-03	---	1.1E-04	---	---	---	---	7.1E-03
Nickel	6.7E+00	5.2E-02	2.5E-02	5.7E-01	---	8.5E-05	---	---	---	---	6.4E-01
Selenium	3.3E-01	7.4E-03	1.8E-01	7.5E-02	---	2.6E-04	---	---	---	---	2.7E-01
Thallium	1.1E-01	4.7E-03	7.7E-04	2.2E-03	---	1.2E-05	---	---	---	---	7.7E-03
Uranium	5.3E+01	6.0E-05	9.8E-07	2.0E-05	---	5.4E-06	---	---	---	---	8.7E-05

H.3-08 Peterson Creek Post Closure Risk Quotients for the American Robin

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	4.3E+00	8.3E-03	1.1E-03	1.2E-02	---	8.5E-05	---	---	---	---	2.2E-02
Chromium	2.7E+00	1.5E-01	2.9E-04	4.8E-01	---	2.2E-04	---	---	---	---	6.3E-01
Cobalt	2.5E+00	3.7E-02	1.9E-03	4.7E-02	---	4.4E-05	---	---	---	---	8.6E-02
Copper	1.9E+01	3.0E-02	5.3E-02	5.9E-02	---	5.1E-05	---	---	---	---	1.4E-01
Lead	1.1E+01	2.9E-03	4.0E-05	1.7E-02	---	2.6E-06	---	---	---	---	2.0E-02
Manganese	1.8E+02	1.4E-03	1.5E-02	7.4E-04	---	2.4E-04	---	---	---	---	1.8E-02
Mercury	3.0E-01	9.2E-04	4.3E-02	1.6E-02	---	1.3E-05	---	---	---	---	6.0E-02
Molybdenum	1.2E+01	5.8E-04	8.0E-04	5.7E-03	---	2.2E-04	---	---	---	---	7.3E-03
Nickel	6.7E+00	5.2E-02	2.5E-02	5.7E-01	---	1.3E-04	---	---	---	---	6.4E-01
Selenium	3.3E-01	7.5E-03	1.9E-01	7.6E-02	---	4.6E-04	---	---	---	---	2.7E-01
Thallium	1.1E-01	4.7E-03	7.7E-04	2.3E-03	---	2.7E-05	---	---	---	---	7.8E-03
Uranium	5.3E+01	6.0E-05	9.9E-07	2.0E-05	---	9.3E-06	---	---	---	---	9.1E-05

H.3-09 Jacko Lake Baseline Risk Quotients for the Bald Eagle

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	2.9E+00	3.9E-04	---	---	5.1E-04	1.1E-05	2.2E-04	---	---	1.1E-03	2.2E-03
Chromium	2.7E+00	4.9E-03	---	---	6.5E-03	1.5E-06	2.0E-03	---	---	6.0E-04	1.4E-02
Cobalt	2.5E+00	1.2E-03	---	---	1.8E-03	9.9E-07	4.0E-04	---	---	5.1E-04	3.9E-03
Copper	1.9E+01	9.6E-04	---	---	1.3E-02	1.8E-06	5.7E-04	---	---	6.1E-03	2.0E-02
Lead	1.1E+01	9.3E-05	---	---	6.5E-04	2.9E-07	4.7E-05	---	---	8.4E-04	1.6E-03
Manganese	1.8E+02	4.4E-05	---	---	2.3E-04	5.0E-06	6.3E-05	---	---	5.2E-05	4.0E-04
Mercury	1.3E-01	6.7E-05	---	---	2.9E-03	1.9E-06	6.6E-05	---	---	4.3E-01	4.4E-01
Molybdenum	8.9E+00	2.4E-05	---	---	3.7E-03	6.3E-06	2.9E-04	---	---	1.0E-04	4.1E-03
Nickel	6.7E+00	1.7E-03	---	---	3.5E-03	2.7E-06	7.8E-04	---	---	3.2E-04	6.3E-03
Selenium	2.3E-01	3.5E-04	---	---	1.1E-01	1.9E-05	9.6E-04	---	---	1.5E-01	2.7E-01
Thallium	4.1E-02	4.1E-04	---	---	1.1E-03	5.9E-06	1.9E-04	---	---	5.2E-04	2.2E-03
Uranium	3.9E+01	2.7E-06	---	---	3.6E-06	7.2E-07	1.5E-05	---	---	8.1E-06	3.0E-05

H.3-10 Jacko Lake Post Closure Risk Quotients for the Bald Eagle

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	2.9E+00	3.9E-04	---	---	5.2E-04	1.3E-05	2.3E-04	---	---	1.3E-03	2.5E-03
Chromium	2.7E+00	4.9E-03	---	---	6.5E-03	8.6E-06	2.0E-03	---	---	2.9E-03	1.6E-02
Cobalt	2.5E+00	1.2E-03	---	---	1.8E-03	6.0E-06	5.5E-04	---	---	1.1E-03	4.6E-03
Copper	1.9E+01	9.7E-04	---	---	1.3E-02	5.9E-06	6.1E-04	---	---	1.1E-02	2.5E-02
Lead	1.1E+01	9.3E-05	---	---	6.6E-04	3.4E-07	5.4E-05	---	---	1.2E-03	2.0E-03
Manganese	1.8E+02	4.4E-05	---	---	2.3E-04	1.2E-05	6.5E-05	---	---	6.8E-05	4.2E-04
Mercury	1.3E-01	6.9E-05	---	---	3.0E-03	5.9E-06	6.6E-05	---	---	4.6E-01	4.6E-01
Molybdenum	8.9E+00	2.5E-05	---	---	3.7E-03	1.2E-05	3.1E-04	---	---	1.9E-04	4.2E-03
Nickel	6.7E+00	1.7E-03	---	---	3.5E-03	6.4E-06	9.1E-04	---	---	5.1E-04	6.6E-03
Selenium	2.3E-01	3.5E-04	---	---	1.2E-01	3.4E-05	9.6E-04	---	---	2.7E-01	3.8E-01
Thallium	4.1E-02	4.2E-04	---	---	1.1E-03	1.3E-05	1.9E-04	---	---	5.2E-04	2.2E-03
Uranium	3.9E+01	2.7E-06	---	---	3.6E-06	8.8E-07	2.1E-05	---	---	1.0E-05	3.8E-05

H.3-11 Peterson Creek Baseline Risk Quotients for the Bald Eagle

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	2.9E+00	3.9E-04	---	---	5.1E-04	2.3E-05	3.4E-04	---	---	2.1E-03	3.3E-03
Chromium	2.7E+00	4.9E-03	---	---	6.5E-03	1.2E-05	1.0E-02	---	---	3.8E-03	2.5E-02
Cobalt	2.5E+00	1.2E-03	---	---	1.8E-03	5.5E-06	1.2E-03	---	---	3.1E-03	7.2E-03
Copper	1.9E+01	9.6E-04	---	---	1.3E-02	7.7E-06	6.9E-04	---	---	1.1E-02	2.6E-02
Lead	1.1E+01	9.3E-05	---	---	6.5E-04	3.6E-07	1.0E-04	---	---	1.3E-04	9.8E-04
Manganese	1.8E+02	4.4E-05	---	---	2.3E-04	2.5E-05	1.2E-04	---	---	1.1E-04	5.3E-04
Mercury	1.3E-01	6.7E-05	---	---	2.9E-03	2.8E-06	1.1E-04	---	---	2.1E-01	2.2E-01
Molybdenum	8.9E+00	2.4E-05	---	---	3.7E-03	4.3E-05	3.3E-05	---	---	2.5E-04	4.0E-03
Nickel	6.7E+00	1.7E-03	---	---	3.5E-03	2.5E-05	2.5E-03	---	---	1.2E-03	8.9E-03
Selenium	2.3E-01	3.5E-04	---	---	1.1E-01	1.1E-04	7.2E-04	---	---	7.3E-01	8.5E-01
Thallium	4.1E-02	4.1E-04	---	---	1.1E-03	9.4E-06	3.5E-04	---	---	7.8E-03	9.6E-03
Uranium	3.9E+01	2.7E-06	---	---	3.6E-06	2.1E-06	3.2E-06	---	---	3.2E-05	4.4E-05

H.3-12 Peterson Creek Post Closure Risk Quotients for the Bald Eagle

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	2.9E+00	3.9E-04	---	---	5.2E-04	3.6E-05	3.4E-04	---	---	3.3E-03	4.6E-03
Chromium	2.7E+00	4.9E-03	---	---	6.5E-03	6.3E-05	1.0E-02	---	---	1.6E-02	3.7E-02
Cobalt	2.5E+00	1.2E-03	---	---	1.8E-03	1.3E-05	1.2E-03	---	---	5.8E-03	1.0E-02
Copper	1.9E+01	9.7E-04	---	---	1.3E-02	1.5E-05	7.0E-04	---	---	1.4E-02	2.9E-02
Lead	1.1E+01	9.3E-05	---	---	6.6E-04	7.3E-07	1.0E-04	---	---	2.0E-04	1.1E-03
Manganese	1.8E+02	4.4E-05	---	---	2.3E-04	6.9E-05	1.2E-04	---	---	2.3E-04	7.0E-04
Mercury	1.3E-01	6.9E-05	---	---	3.0E-03	8.7E-06	1.1E-04	---	---	2.2E-01	2.2E-01
Molybdenum	8.9E+00	2.5E-05	---	---	3.7E-03	8.3E-05	4.4E-05	---	---	4.9E-04	4.3E-03
Nickel	6.7E+00	1.7E-03	---	---	3.5E-03	3.7E-05	2.5E-03	---	---	1.4E-03	9.1E-03
Selenium	2.3E-01	3.5E-04	---	---	1.2E-01	1.9E-04	7.2E-04	---	---	**1.3E+00**	**1.4E+00**
Thallium	4.1E-02	4.2E-04	---	---	1.1E-03	2.2E-05	3.5E-04	---	---	7.8E-03	9.6E-03
Uranium	3.9E+01	2.7E-06	---	---	3.6E-06	3.7E-06	6.3E-06	---	---	5.5E-05	7.1E-05

H.3-13 Jacko Lake Baseline Risk Quotients for the Black Bear

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	1.4E+01	2.7E-02	4.0E-02	8.9E-03	3.7E-02	2.1E-05	---	---	---	2.7E-04	1.1E-01
Antimony	1.6E-01	6.1E-03	2.6E-03	4.7E-03	6.7E-04	3.5E-05	---	---	---	8.4E-05	1.4E-02
Arsenic	3.8E-01	3.2E-02	8.2E-03	3.5E-03	1.2E-03	1.4E-04	---	---	---	1.1E-03	4.6E-02
Chromium	2.4E+00	5.8E-02	6.7E-03	1.4E-02	2.2E-03	2.8E-06	---	---	---	8.3E-05	8.1E-02
Cobalt	7.3E+00	4.4E-03	1.3E-03	4.2E-04	1.9E-04	5.7E-07	---	---	---	2.2E-05	6.4E-03
Copper	3.1E+00	6.1E-02	1.3E-01	9.0E-03	2.3E-02	1.8E-05	---	---	---	4.6E-03	2.2E-01
Lead	4.1E+01	2.6E-04	3.8E-05	1.2E-04	5.4E-05	1.3E-07	---	---	---	2.8E-05	5.0E-04
Manganese	5.2E+01	1.6E-03	1.6E-02	6.6E-05	2.5E-04	2.9E-05	---	---	---	2.3E-05	1.8E-02
Mercury	3.5E-01	2.6E-04	9.1E-03	3.4E-04	3.3E-04	1.1E-06	---	---	---	1.9E-02	2.9E-02
Molybdenum	3.8E-01	6.2E-03	8.2E-01	4.5E-03	2.7E-02	2.5E-04	---	---	---	3.0E-04	8.6E-01
Nickel	8.1E-01	1.5E-01	8.7E-02	1.2E-01	9.0E-03	3.8E-05	---	---	---	3.3E-04	3.7E-01
Selenium	8.8E-02	9.6E-03	2.5E-01	7.3E-03	9.2E-02	8.2E-05	---	---	---	4.9E-02	4.0E-01
Thallium	6.6E-02	2.7E-03	1.2E-03	9.8E-05	2.0E-04	6.1E-06	---	---	---	4.0E-05	4.3E-03
Uranium	8.9E-01	1.2E-03	3.3E-04	3.1E-05	4.8E-05	5.2E-05	---	---	---	4.5E-05	1.7E-03

H.3-14 Jacko Lake Post Closure Risk Quotients for the Black Bear

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	1.4E+01	2.7E-02	4.0E-02	8.9E-03	3.7E-02	8.0E-05	---	---	---	1.4E-03	1.1E-01
Antimony	1.6E-01	6.1E-03	2.6E-03	4.7E-03	6.8E-04	3.5E-05	---	---	---	8.4E-05	1.4E-02
Arsenic	3.8E-01	3.2E-02	8.2E-03	3.5E-03	1.2E-03	1.7E-04	---	---	---	1.3E-03	4.7E-02
Chromium	2.4E+00	5.8E-02	6.7E-03	1.4E-02	2.2E-03	1.6E-05	---	---	---	4.0E-04	8.1E-02
Cobalt	7.3E+00	4.4E-03	1.3E-03	4.2E-04	1.9E-04	3.5E-06	---	---	---	4.8E-05	6.4E-03
Copper	3.1E+00	6.1E-02	1.3E-01	9.0E-03	2.3E-02	5.9E-05	---	---	---	8.0E-03	2.3E-01
Lead	4.1E+01	2.7E-04	3.8E-05	1.2E-04	5.4E-05	1.5E-07	---	---	---	4.0E-05	5.2E-04
Manganese	5.2E+01	1.6E-03	1.6E-02	6.6E-05	2.5E-04	7.1E-05	---	---	---	3.0E-05	1.8E-02
Mercury	3.5E-01	2.7E-04	9.4E-03	3.5E-04	3.4E-04	3.6E-06	---	---	---	2.0E-02	3.0E-02
Molybdenum	3.8E-01	6.2E-03	8.3E-01	4.6E-03	2.7E-02	4.8E-04	---	---	---	5.5E-04	8.7E-01
Nickel	8.1E-01	1.5E-01	8.8E-02	1.2E-01	9.0E-03	8.8E-05	---	---	---	5.3E-04	3.7E-01
Selenium	8.8E-02	9.7E-03	2.5E-01	7.3E-03	9.2E-02	1.5E-04	---	---	---	8.7E-02	4.4E-01
Thallium	6.6E-02	2.7E-03	1.2E-03	9.9E-05	2.0E-04	1.3E-05	---	---	---	4.0E-05	4.3E-03
Uranium	8.9E-01	1.2E-03	3.3E-04	3.2E-05	4.8E-05	6.4E-05	---	---	---	5.5E-05	1.8E-03

H.3-15 Peterson Creek Baseline Risk Quotients for the Black Bear

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	1.4E+01	2.7E-02	4.0E-02	8.9E-03	3.7E-02	9.5E-04	---	---	---	2.0E-03	1.2E-01
Antimony	1.6E-01	6.1E-03	2.6E-03	4.7E-03	6.7E-04	4.5E-05	---	---	---	1.3E-04	1.4E-02
Arsenic	3.8E-01	3.2E-02	8.2E-03	3.5E-03	1.2E-03	2.9E-04	---	---	---	2.0E-03	4.7E-02
Chromium	2.4E+00	5.8E-02	6.7E-03	1.4E-02	2.2E-03	2.2E-05	---	---	---	5.4E-04	8.1E-02
Cobalt	7.3E+00	4.4E-03	1.3E-03	4.2E-04	1.9E-04	3.2E-06	---	---	---	1.3E-04	6.5E-03
Copper	3.1E+00	6.1E-02	1.3E-01	9.0E-03	2.3E-02	7.7E-05	---	---	---	8.4E-03	2.3E-01
Lead	4.1E+01	2.6E-04	3.8E-05	1.2E-04	5.4E-05	1.6E-07	---	---	---	4.5E-06	4.8E-04
Manganese	5.2E+01	1.6E-03	1.6E-02	6.6E-05	2.5E-04	1.5E-04	---	---	---	4.8E-05	1.8E-02
Mercury	3.5E-01	2.6E-04	9.1E-03	3.4E-04	3.3E-04	1.7E-06	---	---	---	9.2E-03	1.9E-02
Molybdenum	3.8E-01	6.2E-03	8.2E-01	4.5E-03	2.7E-02	1.7E-03	---	---	---	7.5E-04	8.6E-01
Nickel	8.1E-01	1.5E-01	8.7E-02	1.2E-01	9.0E-03	3.4E-04	---	---	---	1.3E-03	3.7E-01
Selenium	8.8E-02	9.6E-03	2.5E-01	7.3E-03	9.2E-02	4.7E-04	---	---	---	2.4E-01	5.9E-01
Thallium	6.6E-02	2.7E-03	1.2E-03	9.8E-05	2.0E-04	9.7E-06	---	---	---	6.0E-04	4.8E-03
Uranium	8.9E-01	1.2E-03	3.3E-04	3.1E-05	4.8E-05	1.5E-04	---	---	---	1.8E-04	2.0E-03

H.3-16 Peterson Creek Post Closure Risk Quotients for the Black Bear

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	1.4E+01	2.7E-02	4.0E-02	8.9E-03	3.7E-02	6.0E-03	---	---	---	8.7E-03	1.3E-01
Antimony	1.6E-01	6.1E-03	2.6E-03	4.7E-03	6.8E-04	1.8E-04	---	---	---	4.6E-04	1.5E-02
Arsenic	3.8E-01	3.2E-02	8.2E-03	3.5E-03	1.2E-03	4.6E-04	---	---	---	3.2E-03	4.9E-02
Chromium	2.4E+00	5.8E-02	6.7E-03	1.4E-02	2.2E-03	1.2E-04	---	---	---	2.2E-03	8.3E-02
Cobalt	7.3E+00	4.4E-03	1.3E-03	4.2E-04	1.9E-04	7.3E-06	---	---	---	2.5E-04	6.6E-03
Copper	3.1E+00	6.1E-02	1.3E-01	9.0E-03	2.3E-02	1.4E-04	---	---	---	1.1E-02	2.3E-01
Lead	4.1E+01	2.7E-04	3.8E-05	1.2E-04	5.4E-05	3.3E-07	---	---	---	6.7E-06	4.8E-04
Manganese	5.2E+01	1.6E-03	1.6E-02	6.6E-05	2.5E-04	4.0E-04	---	---	---	1.0E-04	1.9E-02
Mercury	3.5E-01	2.7E-04	9.4E-03	3.5E-04	3.4E-04	5.3E-06	---	---	---	9.5E-03	2.0E-02
Molybdenum	3.8E-01	6.2E-03	8.3E-01	4.6E-03	2.7E-02	3.3E-03	---	---	---	1.5E-03	8.7E-01
Nickel	8.1E-01	1.5E-01	8.8E-02	1.2E-01	9.0E-03	5.1E-04	---	---	---	1.5E-03	3.7E-01
Selenium	8.8E-02	9.7E-03	2.5E-01	7.3E-03	9.2E-02	8.4E-04	---	---	---	4.3E-01	7.9E-01
Thallium	6.6E-02	2.7E-03	1.2E-03	9.9E-05	2.0E-04	2.2E-05	---	---	---	6.0E-04	4.9E-03
Uranium	8.9E-01	1.2E-03	3.3E-04	3.2E-05	4.8E-05	2.7E-04	---	---	---	3.0E-04	2.2E-03

H.3-17 Jacko Lake Baseline Risk Quotients for the Canada Goose

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	3.1E+00	1.3E-02	2.3E-03	9.4E-05	---	1.1E-05	---	---	---	---	1.6E-02
Chromium	2.7E+00	1.8E-01	2.1E-02	2.7E-03	---	1.6E-06	---	---	---	---	2.0E-01
Cobalt	2.5E+00	4.3E-02	1.2E-02	2.6E-04	---	1.0E-06	---	---	---	---	5.5E-02
Copper	1.9E+01	3.5E-02	3.1E-02	3.3E-04	---	1.9E-06	---	---	---	---	6.6E-02
Lead	1.1E+01	3.3E-03	4.7E-04	9.6E-05	---	3.0E-07	---	---	---	---	3.9E-03
Manganese	1.8E+02	1.6E-03	3.9E-03	4.1E-06	---	5.3E-06	---	---	---	---	5.5E-03
Mercury	1.3E-01	2.3E-03	7.4E-03	1.9E-04	---	1.9E-06	---	---	---	---	9.8E-03
Molybdenum	9.4E+00	8.4E-04	1.2E-01	3.9E-05	---	6.4E-06	---	---	---	---	1.2E-01
Nickel	6.7E+00	6.0E-02	1.7E-02	3.1E-03	---	2.9E-06	---	---	---	---	8.0E-02
Selenium	2.4E-01	1.2E-02	1.1E-01	5.8E-04	---	1.9E-05	---	---	---	---	1.2E-01
Thallium	4.3E-02	1.4E-02	5.0E-03	3.3E-05	---	5.9E-06	---	---	---	---	1.9E-02
Uranium	4.1E+01	9.1E-05	2.5E-05	1.5E-07	---	7.2E-07	---	---	---	---	1.2E-04

H.3-18 Jacko Lake Post Closure Risk Quotients for the Canada Goose

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	3.1E+00	1.3E-02	2.3E-03	9.4E-05	---	1.3E-05	---	---	---	---	1.6E-02
Chromium	2.7E+00	1.8E-01	2.1E-02	2.7E-03	---	9.0E-06	---	---	---	---	2.0E-01
Cobalt	2.5E+00	4.3E-02	1.2E-02	2.6E-04	---	6.3E-06	---	---	---	---	5.5E-02
Copper	1.9E+01	3.5E-02	3.1E-02	3.3E-04	---	6.2E-06	---	---	---	---	6.6E-02
Lead	1.1E+01	3.4E-03	4.7E-04	9.7E-05	---	3.6E-07	---	---	---	---	3.9E-03
Manganese	1.8E+02	1.6E-03	3.9E-03	4.1E-06	---	1.3E-05	---	---	---	---	5.5E-03
Mercury	1.3E-01	2.4E-03	7.5E-03	2.0E-04	---	5.9E-06	---	---	---	---	1.0E-02
Molybdenum	9.4E+00	8.4E-04	1.2E-01	3.9E-05	---	1.2E-05	---	---	---	---	1.2E-01
Nickel	6.7E+00	6.0E-02	1.7E-02	3.2E-03	---	6.7E-06	---	---	---	---	8.0E-02
Selenium	2.4E-01	1.2E-02	1.1E-01	5.8E-04	---	3.4E-05	---	---	---	---	1.2E-01
Thallium	4.3E-02	1.4E-02	5.1E-03	3.3E-05	---	1.3E-05	---	---	---	---	1.9E-02
Uranium	4.1E+01	9.2E-05	2.5E-05	1.5E-07	---	8.8E-07	---	---	---	---	1.2E-04

H.3-19 Peterson Creek Baseline Risk Quotients for the Canada Goose

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	3.1E+00	1.3E-02	2.3E-03	9.4E-05	---	2.3E-05	---	---	---	---	1.6E-02
Chromium	2.7E+00	1.8E-01	2.1E-02	2.7E-03	---	1.2E-05	---	---	---	---	2.0E-01
Cobalt	2.5E+00	4.3E-02	1.2E-02	2.6E-04	---	5.8E-06	---	---	---	---	5.5E-02
Copper	1.9E+01	3.5E-02	3.1E-02	3.3E-04	---	8.1E-06	---	---	---	---	6.6E-02
Lead	1.1E+01	3.3E-03	4.7E-04	9.6E-05	---	3.8E-07	---	---	---	---	3.9E-03
Manganese	1.8E+02	1.6E-03	3.9E-03	4.1E-06	---	2.6E-05	---	---	---	---	5.5E-03
Mercury	1.3E-01	2.3E-03	7.4E-03	1.9E-04	---	2.8E-06	---	---	---	---	9.8E-03
Molybdenum	9.4E+00	8.4E-04	1.2E-01	3.9E-05	---	4.3E-05	---	---	---	---	1.2E-01
Nickel	6.7E+00	6.0E-02	1.7E-02	3.1E-03	---	2.6E-05	---	---	---	---	8.0E-02
Selenium	2.4E-01	1.2E-02	1.1E-01	5.8E-04	---	1.1E-04	---	---	---	---	1.2E-01
Thallium	4.3E-02	1.4E-02	5.0E-03	3.3E-05	---	9.4E-06	---	---	---	---	1.9E-02
Uranium	4.1E+01	9.1E-05	2.5E-05	1.5E-07	---	2.1E-06	---	---	---	---	1.2E-04

H.3-20 Peterson Creek Post Closure Risk Quotients for the Canada Goose

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	3.1E+00	1.3E-02	2.3E-03	9.4E-05	---	3.6E-05	---	---	---	---	1.6E-02
Chromium	2.7E+00	1.8E-01	2.1E-02	2.7E-03	---	6.6E-05	---	---	---	---	2.0E-01
Cobalt	2.5E+00	4.3E-02	1.2E-02	2.6E-04	---	1.3E-05	---	---	---	---	5.5E-02
Copper	1.9E+01	3.5E-02	3.1E-02	3.3E-04	---	1.5E-05	---	---	---	---	6.6E-02
Lead	1.1E+01	3.4E-03	4.7E-04	9.7E-05	---	7.7E-07	---	---	---	---	3.9E-03
Manganese	1.8E+02	1.6E-03	3.9E-03	4.1E-06	---	7.3E-05	---	---	---	---	5.5E-03
Mercury	1.3E-01	2.4E-03	7.5E-03	2.0E-04	---	8.8E-06	---	---	---	---	1.0E-02
Molybdenum	9.4E+00	8.4E-04	1.2E-01	3.9E-05	---	8.3E-05	---	---	---	---	1.2E-01
Nickel	6.7E+00	6.0E-02	1.7E-02	3.2E-03	---	3.9E-05	---	---	---	---	8.0E-02
Selenium	2.4E-01	1.2E-02	1.1E-01	5.8E-04	---	1.9E-04	---	---	---	---	1.2E-01
Thallium	4.3E-02	1.4E-02	5.1E-03	3.3E-05	---	2.2E-05	---	---	---	---	1.9E-02
Uranium	4.1E+01	9.2E-05	2.5E-05	1.5E-07	---	3.7E-06	---	---	---	---	1.2E-04

H.3-21 Jacko Lake Baseline Risk Quotients for the Domestic Cattle

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	7.9E+00	2.1E-02	3.2E-02	---	---	3.3E-05	---	---	---	---	5.3E-02
Antimony	8.7E-02	4.8E-03	1.7E-03	---	---	5.6E-05	---	---	---	---	6.6E-03
Arsenic	2.1E-01	2.5E-02	5.3E-03	---	---	2.2E-04	---	---	---	---	3.1E-02
Chromium	2.4E+00	2.5E-02	3.7E-03	---	---	2.4E-06	---	---	---	---	2.9E-02
Cobalt	7.3E+00	1.9E-03	6.5E-04	---	---	4.9E-07	---	---	---	---	2.6E-03
Copper	1.9E+00	4.4E-02	4.8E-02	---	---	2.5E-05	---	---	---	---	9.2E-02
Lead	4.1E+01	1.1E-04	2.0E-05	---	---	1.1E-07	---	---	---	---	1.3E-04
Manganese	5.2E+01	7.0E-04	2.1E-03	---	---	2.5E-05	---	---	---	---	2.9E-03
Mercury	1.9E-01	2.0E-04	8.1E-04	---	---	1.8E-06	---	---	---	---	1.0E-03
Molybdenum	2.1E-01	4.9E-03	8.4E-01	---	---	3.9E-04	---	---	---	---	8.5E-01
Nickel	8.1E-01	6.4E-02	2.2E-02	---	---	3.3E-05	---	---	---	---	8.6E-02
Selenium	4.8E-02	7.6E-03	8.5E-02	---	---	1.3E-04	---	---	---	---	9.3E-02
Thallium	3.6E-02	2.1E-03	9.3E-04	---	---	9.5E-06	---	---	---	---	3.1E-03
Uranium	4.9E-01	9.8E-04	3.2E-04	---	---	8.2E-05	---	---	---	---	1.4E-03

H.3-22 Jacko Lake Post Closure Risk Quotients for the Domestic Cattle

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	7.9E+00	2.1E-02	3.2E-02	---	---	1.3E-04	---	---	---	---	5.3E-02
Antimony	8.7E-02	4.9E-03	1.7E-03	---	---	5.6E-05	---	---	---	---	6.6E-03
Arsenic	2.1E-01	2.5E-02	5.3E-03	---	---	2.6E-04	---	---	---	---	3.1E-02
Chromium	2.4E+00	2.5E-02	3.7E-03	---	---	1.4E-05	---	---	---	---	2.9E-02
Cobalt	7.3E+00	1.9E-03	6.5E-04	---	---	3.0E-06	---	---	---	---	2.6E-03
Copper	1.9E+00	4.4E-02	4.8E-02	---	---	8.4E-05	---	---	---	---	9.2E-02
Lead	4.1E+01	1.2E-04	2.0E-05	---	---	1.3E-07	---	---	---	---	1.4E-04
Manganese	5.2E+01	7.0E-04	2.1E-03	---	---	6.1E-05	---	---	---	---	2.9E-03
Mercury	1.9E-01	2.1E-04	8.3E-04	---	---	5.7E-06	---	---	---	---	1.0E-03
Molybdenum	2.1E-01	4.9E-03	8.4E-01	---	---	7.5E-04	---	---	---	---	8.5E-01
Nickel	8.1E-01	6.4E-02	2.2E-02	---	---	7.6E-05	---	---	---	---	8.6E-02
Selenium	4.8E-02	7.6E-03	8.6E-02	---	---	2.3E-04	---	---	---	---	9.4E-02
Thallium	3.6E-02	2.2E-03	9.4E-04	---	---	2.1E-05	---	---	---	---	3.1E-03
Uranium	4.9E-01	9.8E-04	3.2E-04	---	---	1.0E-04	---	---	---	---	1.4E-03

H.3-23 Peterson Creek Baseline Risk Quotients for the Domestic Cattle

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	7.9E+00	2.1E-02	3.2E-02	---	---	4.2E-04	---	---	---	---	5.3E-02
Antimony	8.7E-02	4.8E-03	1.7E-03	---	---	6.5E-05	---	---	---	---	6.6E-03
Arsenic	2.1E-01	2.5E-02	5.3E-03	---	---	5.4E-04	---	---	---	---	3.1E-02
Chromium	2.4E+00	2.5E-02	3.7E-03	---	---	7.3E-06	---	---	---	---	2.9E-02
Cobalt	7.3E+00	1.9E-03	6.5E-04	---	---	1.1E-06	---	---	---	---	2.6E-03
Copper	1.9E+00	4.4E-02	4.8E-02	---	---	2.5E-03	---	---	---	---	9.4E-02
Lead	4.1E+01	1.1E-04	2.0E-05	---	---	6.6E-07	---	---	---	---	1.4E-04
Manganese	5.2E+01	7.0E-04	2.1E-03	---	---	4.2E-05	---	---	---	---	2.9E-03
Mercury	1.9E-01	2.0E-04	8.1E-04	---	---	2.7E-06	---	---	---	---	1.0E-03
Molybdenum	2.1E-01	4.9E-03	8.4E-01	---	---	4.9E-03	---	---	---	---	8.5E-01
Nickel	8.1E-01	6.4E-02	2.2E-02	---	---	1.6E-04	---	---	---	---	8.6E-02
Selenium	4.8E-02	7.6E-03	8.5E-02	---	---	2.0E-04	---	---	---	---	9.3E-02
Thallium	3.6E-02	2.1E-03	9.3E-04	---	---	1.4E-05	---	---	---	---	3.1E-03
Uranium	4.9E-01	9.8E-04	3.2E-04	---	---	1.9E-04	---	---	---	---	1.5E-03

H.3-24 Peterson Creek Post Closure Risk Quotients for the Domestic Cattle

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	7.9E+00	2.1E-02	3.2E-02	---	---	5.8E-03	---	---	---	---	5.9E-02
Antimony	8.7E-02	4.9E-03	1.7E-03	---	---	4.5E-04	---	---	---	---	7.0E-03
Arsenic	2.1E-01	2.5E-02	5.3E-03	---	---	7.9E-04	---	---	---	---	3.1E-02
Chromium	2.4E+00	2.5E-02	3.7E-03	---	---	7.0E-05	---	---	---	---	2.9E-02
Cobalt	7.3E+00	1.9E-03	6.5E-04	---	---	7.1E-06	---	---	---	---	2.6E-03
Copper	1.9E+00	4.4E-02	4.8E-02	---	---	2.5E-03	---	---	---	---	9.4E-02
Lead	4.1E+01	1.2E-04	2.0E-05	---	---	6.8E-07	---	---	---	---	1.4E-04
Manganese	5.2E+01	7.0E-04	2.1E-03	---	---	1.1E-03	---	---	---	---	3.9E-03
Mercury	1.9E-01	2.1E-04	8.3E-04	---	---	1.2E-05	---	---	---	---	1.1E-03
Molybdenum	2.1E-01	4.9E-03	8.4E-01	---	---	5.7E-03	---	---	---	---	8.6E-01
Nickel	8.1E-01	6.4E-02	2.2E-02	---	---	2.1E-04	---	---	---	---	8.6E-02
Selenium	4.8E-02	7.6E-03	8.6E-02	---	---	1.0E-03	---	---	---	---	9.4E-02
Thallium	3.6E-02	2.2E-03	9.4E-04	---	---	4.4E-05	---	---	---	---	3.1E-03
Uranium	4.9E-01	9.8E-04	3.2E-04	---	---	2.7E-04	---	---	---	---	1.6E-03

H.3-25 Jacko Lake Baseline Risk Quotients for the Great Blue Heron

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	3.5E+00	8.9E-06	---	---	1.2E-05	1.2E-05	5.9E-04	---	2.6E-03	2.0E-03	5.2E-03
Chromium	2.7E+00	1.3E-04	---	---	1.8E-04	1.9E-06	6.2E-03	---	1.3E-02	1.3E-03	2.1E-02
Cobalt	2.5E+00	3.3E-05	---	---	4.9E-05	1.2E-06	1.3E-03	---	3.8E-05	1.1E-03	2.5E-03
Copper	1.9E+01	2.6E-05	---	---	3.5E-04	2.2E-06	1.8E-03	---	1.5E-02	1.3E-02	3.0E-02
Lead	1.1E+01	2.6E-06	---	---	1.8E-05	3.6E-07	1.5E-04	---	2.1E-04	1.8E-03	2.2E-03
Manganese	1.8E+02	1.2E-06	---	---	6.4E-06	6.3E-06	2.0E-04	---	3.8E-04	1.1E-04	7.0E-04
Mercury	1.5E-01	1.5E-06	---	---	6.8E-05	2.0E-06	1.7E-04	---	2.7E-04	7.7E-01	7.7E-01
Molybdenum	1.1E+01	5.6E-07	---	---	8.5E-05	6.7E-06	7.6E-04	---	5.0E-03	1.8E-04	6.0E-03
Nickel	6.7E+00	4.6E-05	---	---	9.8E-05	3.4E-06	2.5E-03	---	3.6E-03	6.7E-04	6.9E-03
Selenium	2.7E-01	8.0E-06	---	---	2.7E-03	2.0E-05	2.5E-03	---	4.0E-02	2.7E-01	3.1E-01
Thallium	4.9E-02	9.5E-06	---	---	2.5E-05	6.2E-06	4.9E-04	---	7.0E-04	9.3E-04	2.2E-03
Uranium	4.6E+01	6.1E-08	---	---	8.2E-08	7.6E-07	4.0E-05	---	8.4E-06	1.4E-05	6.4E-05

H.3-26 Jacko Lake Post Closure Risk Quotients for the Great Blue Heron

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	3.5E+00	9.0E-06	---	---	1.2E-05	1.4E-05	6.2E-04	---	2.7E-03	2.4E-03	5.7E-03
Chromium	2.7E+00	1.4E-04	---	---	1.8E-04	1.1E-05	6.3E-03	---	1.3E-02	6.1E-03	2.6E-02
Cobalt	2.5E+00	3.3E-05	---	---	4.9E-05	7.6E-06	1.7E-03	---	5.2E-05	2.3E-03	4.2E-03
Copper	1.9E+01	2.7E-05	---	---	3.5E-04	7.5E-06	1.9E-03	---	1.7E-02	2.3E-02	4.2E-02
Lead	1.1E+01	2.6E-06	---	---	1.8E-05	4.3E-07	1.7E-04	---	2.4E-04	2.5E-03	3.0E-03
Manganese	1.8E+02	1.2E-06	---	---	6.4E-06	1.5E-05	2.1E-04	---	3.9E-04	1.5E-04	7.7E-04
Mercury	1.5E-01	1.6E-06	---	---	7.1E-05	6.3E-06	1.7E-04	---	2.7E-04	8.2E-01	8.2E-01
Molybdenum	1.1E+01	5.7E-07	---	---	8.6E-05	1.3E-05	8.2E-04	---	5.4E-03	3.3E-04	6.6E-03
Nickel	6.7E+00	4.6E-05	---	---	9.8E-05	8.0E-06	2.9E-03	---	4.2E-03	1.1E-03	8.3E-03
Selenium	2.7E-01	8.1E-06	---	---	2.7E-03	3.6E-05	2.5E-03	---	4.0E-02	4.7E-01	5.2E-01
Thallium	4.9E-02	9.6E-06	---	---	2.5E-05	1.3E-05	4.9E-04	---	7.0E-04	9.3E-04	2.2E-03
Uranium	4.6E+01	6.2E-08	---	---	8.3E-08	9.3E-07	5.4E-05	---	1.1E-05	1.8E-05	8.5E-05

H.3-27 Peterson Creek Baseline Risk Quotients for the Great Blue Heron

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	3.5E+00	8.9E-06	---	---	1.2E-05	2.4E-05	9.0E-04	---	4.0E-03	3.7E-03	8.6E-03
Chromium	2.7E+00	1.3E-04	---	---	1.8E-04	1.5E-05	3.2E-02	---	3.1E-02	8.2E-03	7.2E-02
Cobalt	2.5E+00	3.3E-05	---	---	4.9E-05	6.9E-06	3.7E-03	---	1.1E-04	6.5E-03	1.0E-02
Copper	1.9E+01	2.6E-05	---	---	3.5E-04	9.7E-06	2.2E-03	---	2.2E-02	2.4E-02	4.9E-02
Lead	1.1E+01	2.6E-06	---	---	1.8E-05	4.5E-07	3.2E-04	---	4.6E-04	2.8E-04	1.1E-03
Manganese	1.8E+02	1.2E-06	---	---	6.4E-06	3.2E-05	3.8E-04	---	7.2E-04	2.3E-04	1.4E-03
Mercury	1.5E-01	1.5E-06	---	---	6.8E-05	3.0E-06	2.9E-04	---	4.5E-04	3.8E-01	3.8E-01
Molybdenum	1.1E+01	5.6E-07	---	---	8.5E-05	4.6E-05	8.6E-05	---	5.6E-04	4.5E-04	1.2E-03
Nickel	6.7E+00	4.6E-05	---	---	9.8E-05	3.1E-05	7.8E-03	---	9.6E-03	2.6E-03	2.0E-02
Selenium	2.7E-01	8.0E-06	---	---	2.7E-03	1.1E-04	1.9E-03	---	4.1E-02	**1.3E+00**	**1.4E+00**
Thallium	4.9E-02	9.5E-06	---	---	2.5E-05	1.0E-05	9.2E-04	---	1.3E-03	1.4E-02	1.6E-02
Uranium	4.6E+01	6.1E-08	---	---	8.2E-08	2.2E-06	8.5E-06	---	1.8E-06	5.7E-05	7.0E-05

H.3-28 Peterson Creek Post Closure Risk Quotients for the Great Blue Heron

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	3.5E+00	9.0E-06	---	---	1.2E-05	3.8E-05	9.1E-04	---	4.0E-03	5.8E-03	1.1E-02
Chromium	2.7E+00	1.4E-04	---	---	1.8E-04	7.9E-05	3.2E-02	---	3.1E-02	3.3E-02	9.7E-02
Cobalt	2.5E+00	3.3E-05	---	---	4.9E-05	1.6E-05	3.8E-03	---	1.1E-04	1.2E-02	1.6E-02
Copper	1.9E+01	2.7E-05	---	---	3.5E-04	1.8E-05	2.2E-03	---	2.3E-02	3.1E-02	5.6E-02
Lead	1.1E+01	2.6E-06	---	---	1.8E-05	9.2E-07	3.2E-04	---	4.6E-04	4.2E-04	1.2E-03
Manganese	1.8E+02	1.2E-06	---	---	6.4E-06	8.7E-05	3.8E-04	---	7.3E-04	4.9E-04	1.7E-03
Mercury	1.5E-01	1.6E-06	---	---	7.1E-05	9.2E-06	2.9E-04	---	4.5E-04	3.9E-01	4.0E-01
Molybdenum	1.1E+01	5.7E-07	---	---	8.6E-05	8.8E-05	1.2E-04	---	7.6E-04	8.7E-04	1.9E-03
Nickel	6.7E+00	4.6E-05	---	---	9.8E-05	4.6E-05	7.9E-03	---	9.7E-03	3.0E-03	2.1E-02
Selenium	2.7E-01	8.1E-06	---	---	2.7E-03	2.1E-04	1.9E-03	---	4.1E-02	**2.4E+00**	**2.4E+00**
Thallium	4.9E-02	9.6E-06	---	---	2.5E-05	2.3E-05	9.2E-04	---	1.3E-03	1.4E-02	1.6E-02
Uranium	4.6E+01	6.2E-08	---	---	8.3E-08	3.9E-06	1.7E-05	---	3.5E-06	9.8E-05	1.2E-04

H.3-29 Jacko Lake Baseline Risk Quotients for the Mallard

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	4.1E+00	5.3E-04	1.8E-04	---	---	1.3E-05	7.5E-03	6.6E-05	9.8E-02	---	1.1E-01
Chromium	2.7E+00	9.5E-03	4.5E-05	---	---	2.6E-06	9.3E-02	1.3E-05	5.8E-01	---	6.8E-01
Cobalt	2.5E+00	2.3E-03	2.9E-04	---	---	1.7E-06	1.9E-02	5.4E-03	1.7E-03	---	2.9E-02
Copper	1.9E+01	1.9E-03	8.2E-03	---	---	3.0E-06	2.7E-02	9.6E-04	6.8E-01	---	7.1E-01
Lead	1.1E+01	1.8E-04	6.2E-06	---	---	4.8E-07	2.2E-03	9.1E-05	9.4E-03	---	1.2E-02
Manganese	1.8E+02	8.4E-05	2.4E-03	---	---	8.4E-06	3.0E-03	9.5E-03	1.7E-02	---	3.2E-02
Mercury	1.8E-01	9.2E-05	1.1E-02	---	---	2.2E-06	2.2E-03	7.3E-02	1.0E-02	---	9.6E-02
Molybdenum	1.2E+01	3.6E-05	1.2E-04	---	---	8.1E-06	1.0E-02	1.1E-03	2.0E-01	---	2.1E-01
Nickel	6.7E+00	3.2E-03	3.9E-03	---	---	4.6E-06	3.7E-02	2.6E-03	1.6E-01	---	2.1E-01
Selenium	3.2E-01	4.8E-04	3.0E-02	---	---	2.3E-05	3.2E-02	9.6E-05	**1.5E+00**	---	**1.6E+00**
Thallium	5.7E-02	5.7E-04	2.3E-04	---	---	7.0E-06	6.2E-03	6.0E-02	2.6E-02	---	9.3E-02
Uranium	5.3E+01	3.7E-06	1.5E-07	---	---	8.7E-07	5.2E-04	2.5E-04	3.2E-04	---	1.1E-03

H.3-30 Jacko Lake Post Closure Risk Quotients for the Mallard

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	4.1E+00	5.4E-04	1.8E-04	---	---	1.6E-05	7.8E-03	7.9E-05	1.0E-01	---	1.1E-01
Chromium	2.7E+00	9.5E-03	4.5E-05	---	---	1.4E-05	9.4E-02	6.5E-05	5.9E-01	---	6.9E-01
Cobalt	2.5E+00	2.3E-03	2.9E-04	---	---	1.0E-05	2.6E-02	1.1E-02	2.3E-03	---	4.2E-02
Copper	1.9E+01	1.9E-03	8.2E-03	---	---	1.0E-05	2.9E-02	3.7E-03	7.3E-01	---	7.7E-01
Lead	1.1E+01	1.8E-04	6.2E-06	---	---	5.8E-07	2.5E-03	1.3E-04	1.1E-02	---	1.4E-02
Manganese	1.8E+02	8.4E-05	2.4E-03	---	---	2.1E-05	3.1E-03	1.2E-02	1.7E-02	---	3.5E-02
Mercury	1.8E-01	9.5E-05	1.1E-02	---	---	7.1E-06	2.2E-03	7.8E-02	1.0E-02	---	1.0E-01
Molybdenum	1.2E+01	3.6E-05	1.2E-04	---	---	1.5E-05	1.1E-02	2.0E-03	2.1E-01	---	2.3E-01
Nickel	6.7E+00	3.3E-03	3.9E-03	---	---	1.1E-05	4.3E-02	5.9E-03	1.9E-01	---	2.4E-01
Selenium	3.2E-01	4.8E-04	3.0E-02	---	---	4.0E-05	3.2E-02	1.7E-04	**1.5E+00**	---	**1.6E+00**
Thallium	5.7E-02	5.7E-04	2.3E-04	---	---	1.5E-05	6.2E-03	6.0E-02	2.6E-02	---	9.3E-02
Uranium	5.3E+01	3.8E-06	1.5E-07	---	---	1.1E-06	7.0E-04	3.1E-04	4.4E-04	---	1.5E-03

H.3-31 Peterson Creek Baseline Risk Quotients for the Mallard

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	4.1E+00	5.3E-04	1.8E-04	---	---	2.7E-05	1.1E-02	1.3E-04	1.5E-01	---	1.6E-01
Chromium	2.7E+00	9.5E-03	4.5E-05	---	---	2.0E-05	4.8E-01	2.5E-05	**1.4E+00**	---	**1.9E+00**
Cobalt	2.5E+00	2.3E-03	2.9E-04	---	---	9.2E-06	5.6E-02	1.5E-02	5.0E-03	---	7.9E-02
Copper	1.9E+01	1.9E-03	8.2E-03	---	---	1.3E-05	3.3E-02	3.8E-03	9.9E-01	---	**1.0E+00**
Lead	1.1E+01	1.8E-04	6.2E-06	---	---	6.0E-07	4.8E-03	1.3E-04	2.0E-02	---	2.5E-02
Manganese	1.8E+02	8.4E-05	2.4E-03	---	---	4.2E-05	5.6E-03	4.2E-02	3.2E-02	---	8.2E-02
Mercury	1.8E-01	9.2E-05	1.1E-02	---	---	3.4E-06	3.7E-03	1.1E-01	1.7E-02	---	1.4E-01
Molybdenum	1.2E+01	3.6E-05	1.2E-04	---	---	5.5E-05	1.2E-03	7.4E-03	2.2E-02	---	3.1E-02
Nickel	6.7E+00	3.2E-03	3.9E-03	---	---	4.1E-05	1.2E-01	2.0E-02	4.2E-01	---	5.7E-01
Selenium	3.2E-01	4.8E-04	3.0E-02	---	---	1.3E-04	2.4E-02	5.5E-04	**1.5E+00**	---	**1.6E+00**
Thallium	5.7E-02	5.7E-04	2.3E-04	---	---	1.1E-05	1.2E-02	9.6E-02	4.9E-02	---	1.6E-01
Uranium	5.3E+01	3.7E-06	1.5E-07	---	---	2.6E-06	1.1E-04	7.6E-04	6.8E-05	---	9.5E-04

H.3-32 Peterson Creek Post Closure Risk Quotients for the Mallard

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	4.1E+00	5.4E-04	1.8E-04	---	---	4.3E-05	1.2E-02	2.1E-04	1.5E-01	---	1.6E-01
Chromium	2.7E+00	9.5E-03	4.5E-05	---	---	1.1E-04	4.8E-01	1.0E-04	**1.4E+00**	---	**1.9E+00**
Cobalt	2.5E+00	2.3E-03	2.9E-04	---	---	2.1E-05	5.7E-02	2.9E-02	5.0E-03	---	9.4E-02
Copper	1.9E+01	1.9E-03	8.2E-03	---	---	2.4E-05	3.3E-02	6.9E-03	9.9E-01	---	**1.0E+00**
Lead	1.1E+01	1.8E-04	6.2E-06	---	---	1.2E-06	4.8E-03	2.0E-04	2.0E-02	---	2.6E-02
Manganese	1.8E+02	8.4E-05	2.4E-03	---	---	1.2E-04	5.7E-03	9.0E-02	3.2E-02	---	1.3E-01
Mercury	1.8E-01	9.5E-05	1.1E-02	---	---	1.0E-05	3.7E-03	1.1E-01	1.7E-02	---	1.5E-01
Molybdenum	1.2E+01	3.6E-05	1.2E-04	---	---	1.1E-04	1.6E-03	1.4E-02	3.0E-02	---	4.6E-02
Nickel	6.7E+00	3.3E-03	3.9E-03	---	---	6.2E-05	1.2E-01	2.5E-02	4.2E-01	---	5.7E-01
Selenium	3.2E-01	4.8E-04	3.0E-02	---	---	2.3E-04	2.4E-02	9.8E-04	**1.5E+00**	---	**1.6E+00**
Thallium	5.7E-02	5.7E-04	2.3E-04	---	---	2.6E-05	1.2E-02	9.6E-02	4.9E-02	---	1.6E-01
Uranium	5.3E+01	3.8E-06	1.5E-07	---	---	4.5E-06	2.2E-04	1.3E-03	1.3E-04	---	1.7E-03

H.3-33 Jacko Lake Baseline Risk Quotients for the Meadow Vole

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	9.2E+01	1.5E-02	1.1E-02	7.4E-04	---	7.9E-06	---	---	---	---	2.7E-02
Antimony	5.9E-01	5.9E-03	1.2E-03	6.6E-04	---	2.3E-05	---	---	---	---	7.7E-03
Arsenic	5.5E-01	7.9E-02	9.3E-03	1.3E-03	---	2.3E-04	---	---	---	---	9.0E-02
Chromium	2.4E+00	2.1E-01	1.1E-02	7.2E-03	---	6.7E-06	---	---	---	---	2.3E-01
Cobalt	7.3E+00	1.6E-02	2.2E-03	2.2E-04	---	1.4E-06	---	---	---	---	1.8E-02
Copper	3.1E+00	2.2E-01	2.0E-01	4.7E-03	---	4.2E-05	---	---	---	---	4.3E-01
Lead	4.1E+01	9.6E-04	6.5E-05	6.3E-05	---	3.1E-07	---	---	---	---	1.1E-03
Manganese	5.2E+01	5.8E-03	2.6E-02	3.5E-05	---	6.9E-05	---	---	---	---	3.2E-02
Mercury	1.0E+00	3.2E-04	4.9E-03	6.1E-05	---	9.4E-07	---	---	---	---	5.3E-03
Molybdenum	2.4E+00	3.5E-03	2.2E-01	3.7E-04	---	9.4E-05	---	---	---	---	2.3E-01
Nickel	8.1E-01	5.3E-01	1.4E-01	6.3E-02	---	9.0E-05	---	---	---	---	7.4E-01
Selenium	3.3E-01	9.3E-03	1.1E-01	1.0E-03	---	5.2E-05	---	---	---	---	1.2E-01
Thallium	2.5E-01	2.6E-03	5.4E-04	1.4E-05	---	3.9E-06	---	---	---	---	3.2E-03
Uranium	5.6E+00	7.0E-04	8.8E-05	2.6E-06	---	2.0E-05	---	---	---	---	8.1E-04

H.3-34 Jacko Lake Post Closure Risk Quotients for the Meadow Vole

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	9.2E+01	1.5E-02	1.1E-02	7.4E-04	---	3.0E-05	---	---	---	---	2.7E-02
Antimony	5.9E-01	5.9E-03	1.2E-03	6.6E-04	---	2.3E-05	---	---	---	---	7.8E-03
Arsenic	5.5E-01	7.9E-02	9.3E-03	1.3E-03	---	2.7E-04	---	---	---	---	9.0E-02
Chromium	2.4E+00	2.1E-01	1.1E-02	7.2E-03	---	3.8E-05	---	---	---	---	2.3E-01
Cobalt	7.3E+00	1.6E-02	2.2E-03	2.2E-04	---	8.3E-06	---	---	---	---	1.8E-02
Copper	3.1E+00	2.2E-01	2.0E-01	4.7E-03	---	1.4E-04	---	---	---	---	4.3E-01
Lead	4.1E+01	9.6E-04	6.5E-05	6.3E-05	---	3.7E-07	---	---	---	---	1.1E-03
Manganese	5.2E+01	5.8E-03	2.6E-02	3.5E-05	---	1.7E-04	---	---	---	---	3.2E-02
Mercury	1.0E+00	3.4E-04	5.1E-03	6.4E-05	---	3.0E-06	---	---	---	---	5.5E-03
Molybdenum	2.4E+00	3.5E-03	2.2E-01	3.8E-04	---	1.8E-04	---	---	---	---	2.3E-01
Nickel	8.1E-01	5.3E-01	1.4E-01	6.3E-02	---	2.1E-04	---	---	---	---	7.4E-01
Selenium	3.3E-01	9.3E-03	1.1E-01	1.0E-03	---	9.3E-05	---	---	---	---	1.2E-01
Thallium	2.5E-01	2.6E-03	5.5E-04	1.4E-05	---	8.3E-06	---	---	---	---	3.2E-03
Uranium	5.6E+00	7.0E-04	8.9E-05	2.6E-06	---	2.4E-05	---	---	---	---	8.2E-04

H.3-35 Peterson Creek Baseline Risk Quotients for the Meadow Vole

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	9.2E+01	1.5E-02	1.1E-02	7.4E-04	---	3.6E-04	---	---	---	---	2.7E-02
Antimony	5.9E-01	5.9E-03	1.2E-03	6.6E-04	---	2.9E-05	---	---	---	---	7.7E-03
Arsenic	5.5E-01	7.9E-02	9.3E-03	1.3E-03	---	4.8E-04	---	---	---	---	9.0E-02
Chromium	2.4E+00	2.1E-01	1.1E-02	7.2E-03	---	5.1E-05	---	---	---	---	2.3E-01
Cobalt	7.3E+00	1.6E-02	2.2E-03	2.2E-04	---	7.5E-06	---	---	---	---	1.8E-02
Copper	3.1E+00	2.2E-01	2.0E-01	4.7E-03	---	1.8E-04	---	---	---	---	4.3E-01
Lead	4.1E+01	9.6E-04	6.5E-05	6.3E-05	---	3.8E-07	---	---	---	---	1.1E-03
Manganese	5.2E+01	5.8E-03	2.6E-02	3.5E-05	---	3.5E-04	---	---	---	---	3.2E-02
Mercury	1.0E+00	3.2E-04	4.9E-03	6.1E-05	---	1.4E-06	---	---	---	---	5.3E-03
Molybdenum	2.4E+00	3.5E-03	2.2E-01	3.7E-04	---	6.4E-04	---	---	---	---	2.3E-01
Nickel	8.1E-01	5.3E-01	1.4E-01	6.3E-02	---	8.1E-04	---	---	---	---	7.4E-01
Selenium	3.3E-01	9.3E-03	1.1E-01	1.0E-03	---	3.0E-04	---	---	---	---	1.2E-01
Thallium	2.5E-01	2.6E-03	5.4E-04	1.4E-05	---	6.2E-06	---	---	---	---	3.2E-03
Uranium	5.6E+00	7.0E-04	8.8E-05	2.6E-06	---	5.8E-05	---	---	---	---	8.5E-04

H.3-36 Peterson Creek Post Closure Risk Quotients for the Meadow Vole

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	9.2E+01	1.5E-02	1.1E-02	7.4E-04	---	2.2E-03	---	---	---	---	2.9E-02
Antimony	5.9E-01	5.9E-03	1.2E-03	6.6E-04	---	1.1E-04	---	---	---	---	7.9E-03
Arsenic	5.5E-01	7.9E-02	9.3E-03	1.3E-03	---	7.5E-04	---	---	---	---	9.1E-02
Chromium	2.4E+00	2.1E-01	1.1E-02	7.2E-03	---	2.8E-04	---	---	---	---	2.3E-01
Cobalt	7.3E+00	1.6E-02	2.2E-03	2.2E-04	---	1.7E-05	---	---	---	---	1.8E-02
Copper	3.1E+00	2.2E-01	2.0E-01	4.7E-03	---	3.4E-04	---	---	---	---	4.3E-01
Lead	4.1E+01	9.6E-04	6.5E-05	6.3E-05	---	7.8E-07	---	---	---	---	1.1E-03
Manganese	5.2E+01	5.8E-03	2.6E-02	3.5E-05	---	9.5E-04	---	---	---	---	3.3E-02
Mercury	1.0E+00	3.4E-04	5.1E-03	6.4E-05	---	4.4E-06	---	---	---	---	5.5E-03
Molybdenum	2.4E+00	3.5E-03	2.2E-01	3.8E-04	---	1.2E-03	---	---	---	---	2.3E-01
Nickel	8.1E-01	5.3E-01	1.4E-01	6.3E-02	---	1.2E-03	---	---	---	---	7.4E-01
Selenium	3.3E-01	9.3E-03	1.1E-01	1.0E-03	---	5.4E-04	---	---	---	---	1.2E-01
Thallium	2.5E-01	2.6E-03	5.5E-04	1.4E-05	---	1.4E-05	---	---	---	---	3.2E-03
Uranium	5.6E+00	7.0E-04	8.9E-05	2.6E-06	---	1.0E-04	---	---	---	---	9.0E-04

H.3-37 Jacko Lake Baseline Risk Quotients for the Moose

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	9.1E+00	6.8E-03	2.3E-02	---	---	3.0E-05	1.2E-03	1.9E-04	---	---	3.2E-02
Antimony	1.0E-01	1.5E-03	2.2E-03	---	---	5.1E-05	6.3E-04	1.4E-04	---	---	4.5E-03
Arsenic	2.4E-01	8.1E-03	2.7E-02	---	---	2.0E-04	3.0E-03	1.5E-04	---	---	3.8E-02
Chromium	2.4E+00	9.2E-03	1.3E-02	---	---	2.5E-06	2.4E-03	1.9E-06	---	---	2.4E-02
Cobalt	7.3E+00	7.1E-04	6.3E-03	---	---	5.1E-07	1.5E-04	2.4E-04	---	---	7.5E-03
Copper	2.2E+00	1.4E-02	5.6E-02	---	---	2.3E-05	5.4E-03	1.1E-03	---	---	7.7E-02
Lead	4.1E+01	4.2E-05	4.5E-05	---	---	1.2E-07	1.4E-05	3.2E-06	---	---	1.0E-04
Manganese	5.2E+01	2.6E-04	3.2E-03	---	---	2.6E-05	2.4E-04	4.3E-03	---	---	8.0E-03
Mercury	2.2E-01	6.5E-05	1.3E-03	---	---	1.6E-06	4.2E-05	7.8E-03	---	---	9.2E-03
Molybdenum	2.4E-01	1.6E-03	8.5E-02	---	---	3.6E-04	1.2E-02	6.8E-03	---	---	1.1E-01
Nickel	8.1E-01	2.4E-02	5.2E-02	---	---	3.4E-05	7.1E-03	2.8E-03	---	---	8.6E-02
Selenium	5.6E-02	2.4E-03	7.9E-02	---	---	1.2E-04	4.3E-03	7.2E-05	---	---	8.6E-02
Thallium	4.2E-02	6.8E-04	6.6E-04	---	---	8.7E-06	2.0E-04	1.1E-02	---	---	1.2E-02
Uranium	5.6E-01	3.1E-04	2.3E-04	---	---	7.5E-05	1.2E-03	3.1E-03	---	---	4.8E-03

H.3-38 Jacko Lake Post Closure Risk Quotients for the Moose

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	9.1E+00	6.8E-03	2.3E-02	---	---	1.1E-04	1.2E-03	1.0E-03	---	---	3.3E-02
Antimony	1.0E-01	1.6E-03	2.2E-03	---	---	5.1E-05	6.3E-04	1.4E-04	---	---	4.6E-03
Arsenic	2.4E-01	8.1E-03	2.7E-02	---	---	2.4E-04	3.2E-03	1.8E-04	---	---	3.8E-02
Chromium	2.4E+00	9.2E-03	1.3E-02	---	---	1.4E-05	2.4E-03	9.4E-06	---	---	2.4E-02
Cobalt	7.3E+00	7.1E-04	6.4E-03	---	---	3.1E-06	2.1E-04	5.2E-04	---	---	7.8E-03
Copper	2.2E+00	1.4E-02	5.7E-02	---	---	7.7E-05	5.8E-03	4.1E-03	---	---	8.1E-02
Lead	4.1E+01	4.2E-05	4.5E-05	---	---	1.4E-07	1.6E-05	4.5E-06	---	---	1.1E-04
Manganese	5.2E+01	2.6E-04	3.2E-03	---	---	6.4E-05	2.5E-04	5.6E-03	---	---	9.4E-03
Mercury	2.2E-01	6.8E-05	1.3E-03	---	---	5.2E-06	4.2E-05	8.2E-03	---	---	9.7E-03
Molybdenum	2.4E-01	1.6E-03	8.6E-02	---	---	6.8E-04	1.3E-02	1.3E-02	---	---	1.1E-01
Nickel	8.1E-01	2.4E-02	5.2E-02	---	---	7.9E-05	8.3E-03	6.3E-03	---	---	9.1E-02
Selenium	5.6E-02	2.5E-03	8.0E-02	---	---	2.1E-04	4.4E-03	1.3E-04	---	---	8.7E-02
Thallium	4.2E-02	6.9E-04	6.6E-04	---	---	1.9E-05	2.0E-04	1.1E-02	---	---	1.2E-02
Uranium	5.6E-01	3.1E-04	2.3E-04	---	---	9.2E-05	1.6E-03	3.8E-03	---	---	6.0E-03

H.3-39 Peterson Creek Baseline Risk Quotients for the Moose

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	9.1E+00	6.8E-03	2.3E-02	---	---	1.4E-03	3.6E-03	3.7E-04	---	---	3.6E-02
Antimony	1.0E-01	1.5E-03	2.2E-03	---	---	6.5E-05	8.2E-04	2.0E-04	---	---	4.8E-03
Arsenic	2.4E-01	8.1E-03	2.7E-02	---	---	4.2E-04	4.6E-03	3.0E-04	---	---	4.0E-02
Chromium	2.4E+00	9.2E-03	1.3E-02	---	---	1.9E-05	1.2E-02	3.6E-06	---	---	3.4E-02
Cobalt	7.3E+00	7.1E-04	6.3E-03	---	---	2.9E-06	4.5E-04	7.0E-04	---	---	8.2E-03
Copper	2.2E+00	1.4E-02	5.6E-02	---	---	1.0E-04	6.5E-03	4.3E-03	---	---	8.1E-02
Lead	4.1E+01	4.2E-05	4.5E-05	---	---	1.4E-07	3.0E-05	4.6E-06	---	---	1.2E-04
Manganese	5.2E+01	2.6E-04	3.2E-03	---	---	1.3E-04	4.6E-04	1.9E-02	---	---	2.3E-02
Mercury	2.2E-01	6.5E-05	1.3E-03	---	---	2.4E-06	7.1E-05	1.2E-02	---	---	1.3E-02
Molybdenum	2.4E-01	1.6E-03	8.5E-02	---	---	2.4E-03	1.4E-03	4.8E-02	---	---	1.4E-01
Nickel	8.1E-01	2.4E-02	5.2E-02	---	---	3.0E-04	2.3E-02	2.1E-02	---	---	1.2E-01
Selenium	5.6E-02	2.4E-03	7.9E-02	---	---	6.7E-04	3.3E-03	4.1E-04	---	---	8.6E-02
Thallium	4.2E-02	6.8E-04	6.6E-04	---	---	1.4E-05	3.8E-04	1.7E-02	---	---	1.9E-02
Uranium	5.6E-01	3.1E-04	2.3E-04	---	---	2.2E-04	2.4E-04	9.5E-03	---	---	1.0E-02

H.3-40 Peterson Creek Post Closure Risk Quotients for the Moose

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	9.1E+00	6.8E-03	2.3E-02	---	---	8.5E-03	3.6E-03	1.6E-03	---	---	4.4E-02
Antimony	1.0E-01	1.6E-03	2.2E-03	---	---	2.5E-04	8.6E-04	7.3E-04	---	---	5.6E-03
Arsenic	2.4E-01	8.1E-03	2.7E-02	---	---	6.6E-04	4.7E-03	4.7E-04	---	---	4.1E-02
Chromium	2.4E+00	9.2E-03	1.3E-02	---	---	1.0E-04	1.2E-02	1.5E-05	---	---	3.4E-02
Cobalt	7.3E+00	7.1E-04	6.4E-03	---	---	6.6E-06	4.6E-04	1.3E-03	---	---	8.9E-03
Copper	2.2E+00	1.4E-02	5.7E-02	---	---	1.9E-04	6.6E-03	7.7E-03	---	---	8.5E-02
Lead	4.1E+01	4.2E-05	4.5E-05	---	---	3.0E-07	3.0E-05	6.9E-06	---	---	1.2E-04
Manganese	5.2E+01	2.6E-04	3.2E-03	---	---	3.6E-04	4.7E-04	4.1E-02	---	---	4.5E-02
Mercury	2.2E-01	6.8E-05	1.3E-03	---	---	7.6E-06	7.1E-05	1.2E-02	---	---	1.4E-02
Molybdenum	2.4E-01	1.6E-03	8.6E-02	---	---	4.7E-03	1.8E-03	9.2E-02	---	---	1.9E-01
Nickel	8.1E-01	2.4E-02	5.2E-02	---	---	4.6E-04	2.3E-02	2.7E-02	---	---	1.3E-01
Selenium	5.6E-02	2.5E-03	8.0E-02	---	---	1.2E-03	3.3E-03	7.4E-04	---	---	8.8E-02
Thallium	4.2E-02	6.9E-04	6.6E-04	---	---	3.2E-05	3.8E-04	1.7E-02	---	---	1.9E-02
Uranium	5.6E-01	3.1E-04	2.3E-04	---	---	3.8E-04	4.8E-04	1.6E-02	---	---	1.8E-02

H.3-41 Jacko Lake Baseline Risk Quotients for the Mule Deer

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	1.3E+01	7.8E-03	3.6E-02	---	---	2.4E-05	---	---	---	---	4.4E-02
Antimony	1.5E-01	1.8E-03	2.3E-03	---	---	4.0E-05	---	---	---	---	4.2E-03
Arsenic	3.5E-01	9.3E-03	1.7E-02	---	---	1.6E-04	---	---	---	---	2.6E-02
Chromium	2.4E+00	1.5E-02	1.4E-02	---	---	2.9E-06	---	---	---	---	2.9E-02
Cobalt	7.3E+00	1.2E-03	5.2E-03	---	---	5.9E-07	---	---	---	---	6.4E-03
Copper	3.1E+00	1.6E-02	6.4E-02	---	---	1.8E-05	---	---	---	---	8.1E-02
Lead	4.1E+01	7.1E-05	5.7E-05	---	---	1.3E-07	---	---	---	---	1.3E-04
Manganese	5.2E+01	4.3E-04	5.0E-03	---	---	3.0E-05	---	---	---	---	5.5E-03
Mercury	3.2E-01	7.5E-05	1.3E-03	---	---	1.3E-06	---	---	---	---	1.3E-03
Molybdenum	3.5E-01	1.8E-03	6.9E-01	---	---	2.8E-04	---	---	---	---	6.9E-01
Nickel	8.1E-01	4.0E-02	6.4E-02	---	---	3.9E-05	---	---	---	---	1.0E-01
Selenium	8.1E-02	2.8E-03	1.0E-01	---	---	9.3E-05	---	---	---	---	1.1E-01
Thallium	6.1E-02	7.9E-04	1.0E-03	---	---	6.8E-06	---	---	---	---	1.8E-03
Uranium	8.1E-01	3.6E-04	3.6E-04	---	---	5.9E-05	---	---	---	---	7.8E-04

H.3-42 Jacko Lake Post Closure Risk Quotients for the Mule Deer

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	1.3E+01	7.8E-03	3.6E-02	---	---	9.0E-05	---	---	---	---	4.4E-02
Antimony	1.5E-01	1.8E-03	2.4E-03	---	---	4.0E-05	---	---	---	---	4.2E-03
Arsenic	3.5E-01	9.3E-03	1.7E-02	---	---	1.9E-04	---	---	---	---	2.6E-02
Chromium	2.4E+00	1.5E-02	1.4E-02	---	---	1.6E-05	---	---	---	---	2.9E-02
Cobalt	7.3E+00	1.2E-03	5.2E-03	---	---	3.6E-06	---	---	---	---	6.4E-03
Copper	3.1E+00	1.6E-02	6.5E-02	---	---	6.1E-05	---	---	---	---	8.1E-02
Lead	4.1E+01	7.1E-05	5.7E-05	---	---	1.6E-07	---	---	---	---	1.3E-04
Manganese	5.2E+01	4.3E-04	5.0E-03	---	---	7.4E-05	---	---	---	---	5.5E-03
Mercury	3.2E-01	7.8E-05	1.3E-03	---	---	4.1E-06	---	---	---	---	1.4E-03
Molybdenum	3.5E-01	1.8E-03	7.0E-01	---	---	5.4E-04	---	---	---	---	7.0E-01
Nickel	8.1E-01	4.0E-02	6.4E-02	---	---	9.1E-05	---	---	---	---	1.0E-01
Selenium	8.1E-02	2.8E-03	1.0E-01	---	---	1.6E-04	---	---	---	---	1.1E-01
Thallium	6.1E-02	7.9E-04	1.0E-03	---	---	1.5E-05	---	---	---	---	1.9E-03
Uranium	8.1E-01	3.6E-04	3.6E-04	---	---	7.3E-05	---	---	---	---	7.9E-04

H.3-43 Peterson Creek Baseline Risk Quotients for the Mule Deer

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	1.3E+01	7.8E-03	3.6E-02	---	---	1.1E-03	---	---	---	---	4.5E-02
Antimony	1.5E-01	1.8E-03	2.3E-03	---	---	5.1E-05	---	---	---	---	4.2E-03
Arsenic	3.5E-01	9.3E-03	1.7E-02	---	---	3.3E-04	---	---	---	---	2.6E-02
Chromium	2.4E+00	1.5E-02	1.4E-02	---	---	2.2E-05	---	---	---	---	2.9E-02
Cobalt	7.3E+00	1.2E-03	5.2E-03	---	---	3.3E-06	---	---	---	---	6.4E-03
Copper	3.1E+00	1.6E-02	6.4E-02	---	---	8.0E-05	---	---	---	---	8.1E-02
Lead	4.1E+01	7.1E-05	5.7E-05	---	---	1.7E-07	---	---	---	---	1.3E-04
Manganese	5.2E+01	4.3E-04	5.0E-03	---	---	1.5E-04	---	---	---	---	5.6E-03
Mercury	3.2E-01	7.5E-05	1.3E-03	---	---	1.9E-06	---	---	---	---	1.3E-03
Molybdenum	3.5E-01	1.8E-03	6.9E-01	---	---	1.9E-03	---	---	---	---	7.0E-01
Nickel	8.1E-01	4.0E-02	6.4E-02	---	---	3.5E-04	---	---	---	---	1.0E-01
Selenium	8.1E-02	2.8E-03	1.0E-01	---	---	5.3E-04	---	---	---	---	1.1E-01
Thallium	6.1E-02	7.9E-04	1.0E-03	---	---	1.1E-05	---	---	---	---	1.8E-03
Uranium	8.1E-01	3.6E-04	3.6E-04	---	---	1.7E-04	---	---	---	---	8.9E-04

H.3-44 Peterson Creek Post Closure Risk Quotients for the Mule Deer

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	1.3E+01	7.8E-03	3.6E-02	---	---	6.7E-03	---	---	---	---	5.0E-02
Antimony	1.5E-01	1.8E-03	2.4E-03	---	---	2.0E-04	---	---	---	---	4.4E-03
Arsenic	3.5E-01	9.3E-03	1.7E-02	---	---	5.2E-04	---	---	---	---	2.7E-02
Chromium	2.4E+00	1.5E-02	1.4E-02	---	---	1.2E-04	---	---	---	---	2.9E-02
Cobalt	7.3E+00	1.2E-03	5.2E-03	---	---	7.6E-06	---	---	---	---	6.4E-03
Copper	3.1E+00	1.6E-02	6.5E-02	---	---	1.5E-04	---	---	---	---	8.1E-02
Lead	4.1E+01	7.1E-05	5.7E-05	---	---	3.4E-07	---	---	---	---	1.3E-04
Manganese	5.2E+01	4.3E-04	5.0E-03	---	---	4.2E-04	---	---	---	---	5.8E-03
Mercury	3.2E-01	7.8E-05	1.3E-03	---	---	6.0E-06	---	---	---	---	1.4E-03
Molybdenum	3.5E-01	1.8E-03	7.0E-01	---	---	3.7E-03	---	---	---	---	7.0E-01
Nickel	8.1E-01	4.0E-02	6.4E-02	---	---	5.3E-04	---	---	---	---	1.0E-01
Selenium	8.1E-02	2.8E-03	1.0E-01	---	---	9.5E-04	---	---	---	---	1.1E-01
Thallium	6.1E-02	7.9E-04	1.0E-03	---	---	2.5E-05	---	---	---	---	1.9E-03
Uranium	8.1E-01	3.6E-04	3.6E-04	---	---	3.0E-04	---	---	---	---	1.0E-03

H.3-45 Jacko Lake Baseline Risk Quotients for the Muskrat

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	4.0E+01	4.0E-04	1.5E-04	---	1.7E-03	1.2E-05	1.9E-03	4.2E-04	1.3E-03	2.5E-05	5.9E-03
Antimony	4.4E-01	9.0E-05	8.0E-05	---	3.1E-05	2.0E-05	1.0E-03	3.0E-04	1.1E-05	7.8E-06	1.5E-03
Arsenic	5.5E-01	9.0E-04	7.6E-04	---	1.1E-04	1.5E-04	9.2E-03	6.1E-04	4.7E-03	1.9E-04	1.7E-02
Chromium	2.4E+00	2.4E-03	2.2E-03	---	2.9E-04	4.4E-06	1.7E-02	1.9E-05	4.2E-03	2.1E-05	2.6E-02
Cobalt	7.3E+00	1.8E-04	3.1E-05	---	2.4E-05	8.9E-07	1.1E-03	2.3E-03	3.8E-06	5.7E-06	3.7E-03
Copper	3.1E+00	2.5E-03	7.1E-03	---	3.0E-03	2.8E-05	2.6E-02	7.2E-03	2.6E-02	1.2E-03	7.3E-02
Lead	4.1E+01	1.1E-05	3.2E-05	---	6.9E-06	2.0E-07	9.8E-05	3.1E-05	1.6E-05	7.3E-06	2.0E-04
Manganese	5.2E+01	6.6E-05	2.4E-04	---	3.2E-05	4.5E-05	1.7E-03	4.1E-02	3.8E-04	5.8E-06	4.3E-02
Mercury	9.7E-01	3.8E-06	1.3E-04	---	1.5E-05	6.5E-07	6.7E-05	1.7E-02	1.2E-05	1.7E-03	1.9E-02
Molybdenum	1.0E+00	9.1E-05	5.0E-04	---	1.2E-03	1.4E-04	1.9E-02	1.5E-02	1.5E-02	2.8E-05	5.1E-02
Nickel	8.1E-01	6.0E-03	5.3E-03	---	1.2E-03	5.9E-05	5.0E-02	2.6E-02	8.6E-03	8.4E-05	9.8E-02
Selenium	2.4E-01	1.4E-04	1.5E-03	---	4.3E-03	4.7E-05	7.0E-03	1.6E-04	1.3E-02	4.6E-03	3.0E-02
Thallium	1.8E-01	4.0E-05	2.2E-06	---	9.4E-06	3.4E-06	3.2E-04	2.3E-02	5.3E-05	3.7E-06	2.4E-02
Uranium	2.5E+00	1.8E-05	7.5E-06	---	2.2E-06	3.0E-05	1.8E-03	6.7E-03	4.5E-05	4.1E-06	8.7E-03

H.3-46 Jacko Lake Post Closure Risk Quotients for the Muskrat

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	4.0E+01	4.0E-04	1.5E-04	---	1.7E-03	4.5E-05	1.9E-03	2.2E-03	1.3E-03	1.3E-04	7.8E-03
Antimony	4.4E-01	9.1E-05	8.1E-05	---	3.1E-05	2.0E-05	1.0E-03	3.0E-04	1.1E-05	7.8E-06	1.5E-03
Arsenic	5.5E-01	9.0E-04	7.6E-04	---	1.1E-04	1.8E-04	9.6E-03	7.4E-04	4.9E-03	2.3E-04	1.7E-02
Chromium	2.4E+00	2.4E-03	2.2E-03	---	2.9E-04	2.5E-05	1.7E-02	9.0E-05	4.2E-03	1.0E-04	2.6E-02
Cobalt	7.3E+00	1.8E-04	3.1E-05	---	2.4E-05	5.4E-06	1.5E-03	4.9E-03	5.1E-06	1.2E-05	6.7E-03
Copper	3.1E+00	2.5E-03	7.2E-03	---	3.0E-03	9.2E-05	2.8E-02	2.7E-02	2.8E-02	2.1E-03	9.8E-02
Lead	4.1E+01	1.1E-05	3.2E-05	---	6.9E-06	2.4E-07	1.1E-04	4.3E-05	1.9E-05	1.0E-05	2.3E-04
Manganese	5.2E+01	6.6E-05	2.4E-04	---	3.2E-05	1.1E-04	1.8E-03	5.4E-02	3.9E-04	7.7E-06	5.6E-02
Mercury	9.7E-01	4.0E-06	1.4E-04	---	1.6E-05	2.0E-06	6.7E-05	1.8E-02	1.2E-05	1.8E-03	2.0E-02
Molybdenum	1.0E+00	9.2E-05	5.0E-04	---	1.3E-03	2.7E-04	2.1E-02	2.8E-02	1.6E-02	5.1E-05	6.6E-02
Nickel	8.1E-01	6.1E-03	5.3E-03	---	1.2E-03	1.4E-04	5.8E-02	6.1E-02	1.0E-02	1.4E-04	1.4E-01
Selenium	2.4E-01	1.4E-04	1.5E-03	---	4.3E-03	8.3E-05	7.0E-03	2.8E-04	1.3E-02	8.1E-03	3.4E-02
Thallium	1.8E-01	4.0E-05	2.3E-06	---	9.5E-06	7.4E-06	3.2E-04	2.3E-02	5.3E-05	3.7E-06	2.4E-02
Uranium	2.5E+00	1.8E-05	7.6E-06	---	2.2E-06	3.6E-05	2.5E-03	8.3E-03	6.2E-05	5.1E-06	1.1E-02

H.3-47 Peterson Creek Baseline Risk Quotients for the Muskrat

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	4.0E+01	4.0E-04	1.5E-04	---	1.7E-03	5.4E-04	5.7E-03	8.0E-04	3.8E-03	1.9E-04	1.3E-02
Antimony	4.4E-01	9.0E-05	8.0E-05	---	3.1E-05	2.6E-05	1.3E-03	4.4E-04	1.4E-05	1.2E-05	2.0E-03
Arsenic	5.5E-01	9.0E-04	7.6E-04	---	1.1E-04	3.2E-04	1.4E-02	1.2E-03	7.2E-03	3.6E-04	2.5E-02
Chromium	2.4E+00	2.4E-03	2.2E-03	---	2.9E-04	3.4E-05	8.8E-02	3.5E-05	9.9E-03	1.4E-04	1.0E-01
Cobalt	7.3E+00	1.8E-04	3.1E-05	---	2.4E-05	5.0E-06	3.2E-03	6.7E-03	1.1E-05	3.4E-05	1.0E-02
Copper	3.1E+00	2.5E-03	7.1E-03	---	3.0E-03	1.2E-04	3.2E-02	2.8E-02	3.8E-02	2.2E-03	1.1E-01
Lead	4.1E+01	1.1E-05	3.2E-05	---	6.9E-06	2.5E-07	2.1E-04	4.5E-05	3.5E-05	1.2E-06	3.4E-04
Manganese	5.2E+01	6.6E-05	2.4E-04	---	3.2E-05	2.3E-04	3.2E-03	1.8E-01	7.2E-04	1.2E-05	1.9E-01
Mercury	9.7E-01	3.8E-06	1.3E-04	---	1.5E-05	9.7E-07	1.1E-04	2.5E-02	2.0E-05	8.5E-04	2.7E-02
Molybdenum	1.0E+00	9.1E-05	5.0E-04	---	1.2E-03	9.7E-04	2.2E-03	1.0E-01	1.7E-03	7.0E-05	1.1E-01
Nickel	8.1E-01	6.0E-03	5.3E-03	---	1.2E-03	5.3E-04	1.6E-01	2.0E-01	2.3E-02	3.3E-04	4.0E-01
Selenium	2.4E-01	1.4E-04	1.5E-03	---	4.3E-03	2.7E-04	5.2E-03	9.0E-04	1.3E-02	2.2E-02	4.8E-02
Thallium	1.8E-01	4.0E-05	2.2E-06	---	9.4E-06	5.5E-06	6.0E-04	3.7E-02	1.0E-04	5.6E-05	3.8E-02
Uranium	2.5E+00	1.8E-05	7.5E-06	---	2.2E-06	8.8E-05	3.9E-04	2.1E-02	9.6E-06	1.6E-05	2.1E-02

H.3-48 Peterson Creek Post Closure Risk Quotients for the Muskrat

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	4.0E+01	4.0E-04	1.5E-04	---	1.7E-03	3.4E-03	5.8E-03	3.4E-03	3.9E-03	8.1E-04	2.0E-02
Antimony	4.4E-01	9.1E-05	8.1E-05	---	3.1E-05	1.0E-04	1.4E-03	1.6E-03	1.5E-05	4.2E-05	3.3E-03
Arsenic	5.5E-01	9.0E-04	7.6E-04	---	1.1E-04	5.0E-04	1.4E-02	1.9E-03	7.3E-03	5.6E-04	2.6E-02
Chromium	2.4E+00	2.4E-03	2.2E-03	---	2.9E-04	1.8E-04	8.8E-02	1.4E-04	9.9E-03	5.6E-04	1.0E-01
Cobalt	7.3E+00	1.8E-04	3.1E-05	---	2.4E-05	1.1E-05	3.2E-03	1.3E-02	1.1E-05	6.5E-05	1.6E-02
Copper	3.1E+00	2.5E-03	7.2E-03	---	3.0E-03	2.3E-04	3.2E-02	5.1E-02	3.8E-02	2.8E-03	1.4E-01
Lead	4.1E+01	1.1E-05	3.2E-05	---	6.9E-06	5.1E-07	2.1E-04	6.6E-05	3.5E-05	1.7E-06	3.7E-04
Manganese	5.2E+01	6.6E-05	2.4E-04	---	3.2E-05	6.3E-04	3.3E-03	3.9E-01	7.3E-04	2.6E-05	4.0E-01
Mercury	9.7E-01	4.0E-06	1.4E-04	---	1.6E-05	3.0E-06	1.1E-04	2.6E-02	2.0E-05	8.9E-04	2.8E-02
Molybdenum	1.0E+00	9.2E-05	5.0E-04	---	1.3E-03	1.9E-03	2.9E-03	2.0E-01	2.2E-03	1.3E-04	2.1E-01
Nickel	8.1E-01	6.1E-03	5.3E-03	---	1.2E-03	8.0E-04	1.6E-01	2.6E-01	2.3E-02	3.7E-04	4.5E-01
Selenium	2.4E-01	1.4E-04	1.5E-03	---	4.3E-03	4.8E-04	5.2E-03	1.6E-03	1.3E-02	4.0E-02	6.6E-02
Thallium	1.8E-01	4.0E-05	2.3E-06	---	9.5E-06	1.3E-05	6.0E-04	3.7E-02	1.0E-04	5.6E-05	3.8E-02
Uranium	2.5E+00	1.8E-05	7.6E-06	---	2.2E-06	1.5E-04	7.7E-04	3.5E-02	1.9E-05	2.8E-05	3.6E-02

H.3-49 Jacko Lake Baseline Risk Quotients for the Red Fox

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	2.9E+01	4.4E-03	7.8E-04	3.8E-03	1.3E-01	1.5E-05	---	---	---	---	1.4E-01
Antimony	3.1E-01	9.9E-04	8.1E-05	2.0E-03	2.4E-03	2.5E-05	---	---	---	---	5.5E-03
Arsenic	5.5E-01	7.0E-03	3.5E-04	2.0E-03	6.0E-03	1.4E-04	---	---	---	---	1.6E-02
Chromium	2.4E+00	1.9E-02	1.3E-05	1.2E-02	1.6E-02	4.0E-06	---	---	---	---	4.6E-02
Cobalt	7.3E+00	1.4E-03	2.6E-05	3.5E-04	1.3E-03	8.1E-07	---	---	---	---	3.1E-03
Copper	3.1E+00	2.0E-02	1.2E-02	7.6E-03	1.7E-01	2.5E-05	---	---	---	---	2.1E-01
Lead	4.1E+01	8.5E-05	4.3E-07	1.0E-04	3.9E-04	1.8E-07	---	---	---	---	5.7E-04
Manganese	5.2E+01	5.2E-04	2.1E-03	5.6E-05	1.8E-03	4.1E-05	---	---	---	---	4.5E-03
Mercury	6.9E-01	4.2E-05	7.1E-04	1.4E-04	1.2E-03	8.2E-07	---	---	---	---	2.1E-03
Molybdenum	7.4E-01	1.0E-03	5.0E-04	1.9E-03	9.8E-02	1.8E-04	---	---	---	---	1.0E-01
Nickel	8.1E-01	4.7E-02	8.2E-03	1.0E-01	6.5E-02	5.4E-05	---	---	---	---	2.2E-01
Selenium	1.7E-01	1.6E-03	1.4E-02	3.1E-03	3.3E-01	5.9E-05	---	---	---	---	3.5E-01
Thallium	1.3E-01	4.4E-04	2.6E-05	4.2E-05	7.4E-04	4.4E-06	---	---	---	---	1.2E-03
Uranium	1.8E+00	2.0E-04	1.2E-06	1.3E-05	1.7E-04	3.7E-05	---	---	---	---	4.3E-04

H.3-50 Jacko Lake Post Closure Risk Quotients for the Red Fox

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	2.9E+01	4.4E-03	7.8E-04	3.8E-03	1.3E-01	5.7E-05	---	---	---	---	1.4E-01
Antimony	3.1E-01	1.0E-03	8.2E-05	2.0E-03	2.5E-03	2.5E-05	---	---	---	---	5.6E-03
Arsenic	5.5E-01	7.0E-03	3.5E-04	2.1E-03	6.1E-03	1.6E-04	---	---	---	---	1.6E-02
Chromium	2.4E+00	1.9E-02	1.3E-05	1.2E-02	1.6E-02	2.3E-05	---	---	---	---	4.6E-02
Cobalt	7.3E+00	1.4E-03	2.6E-05	3.5E-04	1.3E-03	4.9E-06	---	---	---	---	3.2E-03
Copper	3.1E+00	2.0E-02	1.3E-02	7.6E-03	1.7E-01	8.3E-05	---	---	---	---	2.1E-01
Lead	4.1E+01	8.5E-05	4.3E-07	1.0E-04	3.9E-04	2.2E-07	---	---	---	---	5.8E-04
Manganese	5.2E+01	5.2E-04	2.1E-03	5.6E-05	1.8E-03	1.0E-04	---	---	---	---	4.6E-03
Mercury	6.9E-01	4.4E-05	7.4E-04	1.5E-04	1.2E-03	2.6E-06	---	---	---	---	2.2E-03
Molybdenum	7.4E-01	1.0E-03	5.1E-04	1.9E-03	9.8E-02	3.4E-04	---	---	---	---	1.0E-01
Nickel	8.1E-01	4.8E-02	8.2E-03	1.0E-01	6.5E-02	1.2E-04	---	---	---	---	2.2E-01
Selenium	1.7E-01	1.6E-03	1.4E-02	3.1E-03	3.4E-01	1.0E-04	---	---	---	---	3.5E-01
Thallium	1.3E-01	4.4E-04	2.6E-05	4.2E-05	7.5E-04	9.4E-06	---	---	---	---	1.3E-03
Uranium	1.8E+00	2.0E-04	1.2E-06	1.4E-05	1.7E-04	4.6E-05	---	---	---	---	4.4E-04

H.3-51 Peterson Creek Baseline Risk Quotients for the Red Fox

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	2.9E+01	4.4E-03	7.8E-04	3.8E-03	1.3E-01	6.9E-04	---	---	---	---	1.4E-01
Antimony	3.1E-01	9.9E-04	8.1E-05	2.0E-03	2.4E-03	3.3E-05	---	---	---	---	5.5E-03
Arsenic	5.5E-01	7.0E-03	3.5E-04	2.0E-03	6.0E-03	2.9E-04	---	---	---	---	1.6E-02
Chromium	2.4E+00	1.9E-02	1.3E-05	1.2E-02	1.6E-02	3.1E-05	---	---	---	---	4.6E-02
Cobalt	7.3E+00	1.4E-03	2.6E-05	3.5E-04	1.3E-03	4.5E-06	---	---	---	---	3.1E-03
Copper	3.1E+00	2.0E-02	1.2E-02	7.6E-03	1.7E-01	1.1E-04	---	---	---	---	2.1E-01
Lead	4.1E+01	8.5E-05	4.3E-07	1.0E-04	3.9E-04	2.3E-07	---	---	---	---	5.7E-04
Manganese	5.2E+01	5.2E-04	2.1E-03	5.6E-05	1.8E-03	2.1E-04	---	---	---	---	4.7E-03
Mercury	6.9E-01	4.2E-05	7.1E-04	1.4E-04	1.2E-03	1.2E-06	---	---	---	---	2.1E-03
Molybdenum	7.4E-01	1.0E-03	5.0E-04	1.9E-03	9.8E-02	1.2E-03	---	---	---	---	1.0E-01
Nickel	8.1E-01	4.7E-02	8.2E-03	1.0E-01	6.5E-02	4.8E-04	---	---	---	---	2.2E-01
Selenium	1.7E-01	1.6E-03	1.4E-02	3.1E-03	3.3E-01	3.4E-04	---	---	---	---	3.5E-01
Thallium	1.3E-01	4.4E-04	2.6E-05	4.2E-05	7.4E-04	7.0E-06	---	---	---	---	1.3E-03
Uranium	1.8E+00	2.0E-04	1.2E-06	1.3E-05	1.7E-04	1.1E-04	---	---	---	---	5.0E-04

H.3-52 Peterson Creek Post Closure Risk Quotients for the Red Fox

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	2.9E+01	4.4E-03	7.8E-04	3.8E-03	1.3E-01	4.3E-03	---	---	---	---	1.5E-01
Antimony	3.1E-01	1.0E-03	8.2E-05	2.0E-03	2.5E-03	1.3E-04	---	---	---	---	5.7E-03
Arsenic	5.5E-01	7.0E-03	3.5E-04	2.1E-03	6.1E-03	4.5E-04	---	---	---	---	1.6E-02
Chromium	2.4E+00	1.9E-02	1.3E-05	1.2E-02	1.6E-02	1.7E-04	---	---	---	---	4.6E-02
Cobalt	7.3E+00	1.4E-03	2.6E-05	3.5E-04	1.3E-03	1.0E-05	---	---	---	---	3.2E-03
Copper	3.1E+00	2.0E-02	1.3E-02	7.6E-03	1.7E-01	2.0E-04	---	---	---	---	2.1E-01
Lead	4.1E+01	8.5E-05	4.3E-07	1.0E-04	3.9E-04	4.7E-07	---	---	---	---	5.8E-04
Manganese	5.2E+01	5.2E-04	2.1E-03	5.6E-05	1.8E-03	5.7E-04	---	---	---	---	5.1E-03
Mercury	6.9E-01	4.4E-05	7.4E-04	1.5E-04	1.2E-03	3.8E-06	---	---	---	---	2.2E-03
Molybdenum	7.4E-01	1.0E-03	5.1E-04	1.9E-03	9.8E-02	2.4E-03	---	---	---	---	1.0E-01
Nickel	8.1E-01	4.8E-02	8.2E-03	1.0E-01	6.5E-02	7.2E-04	---	---	---	---	2.2E-01
Selenium	1.7E-01	1.6E-03	1.4E-02	3.1E-03	3.4E-01	6.0E-04	---	---	---	---	3.6E-01
Thallium	1.3E-01	4.4E-04	2.6E-05	4.2E-05	7.5E-04	1.6E-05	---	---	---	---	1.3E-03
Uranium	1.8E+00	2.0E-04	1.2E-06	1.4E-05	1.7E-04	1.9E-04	---	---	---	---	5.8E-04

H.3-53 Jacko Lake Baseline Risk Quotients for the Ruffed Grouse

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	1.3E+01	1.9E-06	2.5E-05	1.1E-07	---	1.0E-07	---	---	---	---	2.7E-05
Chromium	2.7E+00	1.1E-04	5.6E-04	1.3E-05	---	6.3E-08	---	---	---	---	6.8E-04
Cobalt	2.5E+00	2.6E-05	9.1E-04	1.3E-06	---	4.1E-08	---	---	---	---	9.3E-04
Copper	1.9E+01	2.1E-05	4.4E-04	1.6E-06	---	7.3E-08	---	---	---	---	4.6E-04
Lead	1.1E+01	2.0E-06	8.3E-06	4.6E-07	---	1.2E-08	---	---	---	---	1.1E-05
Manganese	1.8E+02	9.4E-07	7.8E-05	2.0E-08	---	2.1E-07	---	---	---	---	8.0E-05
Mercury	6.7E-01	2.8E-07	6.1E-05	1.8E-07	---	1.5E-08	---	---	---	---	6.2E-05
Molybdenum	3.5E+01	1.3E-07	2.9E-05	5.0E-08	---	6.6E-08	---	---	---	---	2.9E-05
Nickel	6.7E+00	3.6E-05	3.6E-04	1.5E-05	---	1.1E-07	---	---	---	---	4.1E-04
Selenium	1.0E+00	1.7E-06	3.5E-04	6.7E-07	---	1.8E-07	---	---	---	---	3.5E-04
Thallium	2.1E-01	1.7E-06	7.2E-06	3.2E-08	---	4.7E-08	---	---	---	---	9.0E-06
Uranium	5.3E+01	4.2E-08	1.2E-07	5.4E-10	---	2.1E-08	---	---	---	---	1.8E-07

H.3-54 Jacko Lake Post Closure Risk Quotients for the Ruffed Grouse

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	1.3E+01	1.9E-06	2.5E-05	1.1E-07	---	1.2E-07	---	---	---	---	2.7E-05
Chromium	2.7E+00	1.1E-04	5.6E-04	1.3E-05	---	3.5E-07	---	---	---	---	6.8E-04
Cobalt	2.5E+00	2.6E-05	9.1E-04	1.3E-06	---	2.5E-07	---	---	---	---	9.4E-04
Copper	1.9E+01	2.1E-05	4.4E-04	1.6E-06	---	2.4E-07	---	---	---	---	4.6E-04
Lead	1.1E+01	2.0E-06	8.3E-06	4.7E-07	---	1.4E-08	---	---	---	---	1.1E-05
Manganese	1.8E+02	9.4E-07	7.9E-05	2.0E-08	---	5.1E-07	---	---	---	---	8.0E-05
Mercury	6.7E-01	2.9E-07	6.3E-05	1.9E-07	---	4.7E-08	---	---	---	---	6.4E-05
Molybdenum	3.5E+01	1.3E-07	2.9E-05	5.1E-08	---	1.3E-07	---	---	---	---	2.9E-05
Nickel	6.7E+00	3.6E-05	3.6E-04	1.5E-05	---	2.6E-07	---	---	---	---	4.2E-04
Selenium	1.0E+00	1.7E-06	3.5E-04	6.7E-07	---	3.2E-07	---	---	---	---	3.5E-04
Thallium	2.1E-01	1.7E-06	7.3E-06	3.2E-08	---	1.0E-07	---	---	---	---	9.1E-06
Uranium	5.3E+01	4.2E-08	1.2E-07	5.5E-10	---	2.6E-08	---	---	---	---	1.9E-07

H.3-55 Peterson Creek Baseline Risk Quotients for the Ruffed Grouse

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	1.3E+01	1.9E-06	2.5E-05	1.1E-07	---	2.1E-07	---	---	---	---	2.7E-05
Chromium	2.7E+00	1.1E-04	5.6E-04	1.3E-05	---	4.8E-07	---	---	---	---	6.8E-04
Cobalt	2.5E+00	2.6E-05	9.1E-04	1.3E-06	---	2.3E-07	---	---	---	---	9.3E-04
Copper	1.9E+01	2.1E-05	4.4E-04	1.6E-06	---	3.2E-07	---	---	---	---	4.6E-04
Lead	1.1E+01	2.0E-06	8.3E-06	4.6E-07	---	1.5E-08	---	---	---	---	1.1E-05
Manganese	1.8E+02	9.4E-07	7.8E-05	2.0E-08	---	1.0E-06	---	---	---	---	8.0E-05
Mercury	6.7E-01	2.8E-07	6.1E-05	1.8E-07	---	2.2E-08	---	---	---	---	6.2E-05
Molybdenum	3.5E+01	1.3E-07	2.9E-05	5.0E-08	---	4.5E-07	---	---	---	---	2.9E-05
Nickel	6.7E+00	3.6E-05	3.6E-04	1.5E-05	---	1.0E-06	---	---	---	---	4.2E-04
Selenium	1.0E+00	1.7E-06	3.5E-04	6.7E-07	---	1.0E-06	---	---	---	---	3.5E-04
Thallium	2.1E-01	1.7E-06	7.2E-06	3.2E-08	---	7.5E-08	---	---	---	---	9.0E-06
Uranium	5.3E+01	4.2E-08	1.2E-07	5.4E-10	---	6.4E-08	---	---	---	---	2.2E-07

H.3-56 Peterson Creek Post Closure Risk Quotients for the Ruffed Grouse

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	--	---	---	---	---	---	---	---	---	---	---
Antimony	--	---	---	---	---	---	---	---	---	---	---
Arsenic	1.3E+01	1.9E-06	2.5E-05	1.1E-07	---	3.4E-07	---	---	---	---	2.7E-05
Chromium	2.7E+00	1.1E-04	5.6E-04	1.3E-05	---	2.6E-06	---	---	---	---	6.8E-04
Cobalt	2.5E+00	2.6E-05	9.1E-04	1.3E-06	---	5.2E-07	---	---	---	---	9.4E-04
Copper	1.9E+01	2.1E-05	4.4E-04	1.6E-06	---	6.0E-07	---	---	---	---	4.6E-04
Lead	1.1E+01	2.0E-06	8.3E-06	4.7E-07	---	3.0E-08	---	---	---	---	1.1E-05
Manganese	1.8E+02	9.4E-07	7.9E-05	2.0E-08	---	2.9E-06	---	---	---	---	8.2E-05
Mercury	6.7E-01	2.9E-07	6.3E-05	1.9E-07	---	6.9E-08	---	---	---	---	6.4E-05
Molybdenum	3.5E+01	1.3E-07	2.9E-05	5.1E-08	---	8.7E-07	---	---	---	---	3.0E-05
Nickel	6.7E+00	3.6E-05	3.6E-04	1.5E-05	---	1.5E-06	---	---	---	---	4.2E-04
Selenium	1.0E+00	1.7E-06	3.5E-04	6.7E-07	---	1.8E-06	---	---	---	---	3.5E-04
Thallium	2.1E-01	1.7E-06	7.3E-06	3.2E-08	---	1.7E-07	---	---	---	---	9.2E-06
Uranium	5.3E+01	4.2E-08	1.2E-07	5.5E-10	---	1.1E-07	---	---	---	---	2.7E-07

H.3-57 Jacko Lake Baseline Risk Quotients for the Snowshoe Hare

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	3.9E+01	1.3E-02	3.1E-02	---	6.6E-03	1.3E-05	---	---	---	---	5.0E-02
Antimony	4.2E-01	2.9E-03	2.0E-03	---	1.2E-04	2.1E-05	---	---	---	---	5.1E-03
Arsenic	5.5E-01	2.8E-02	2.5E-02	---	4.1E-04	1.6E-04	---	---	---	---	5.4E-02
Chromium	2.4E+00	7.4E-02	3.2E-02	---	1.1E-03	4.5E-06	---	---	---	---	1.1E-01
Cobalt	7.3E+00	5.7E-03	1.2E-02	---	9.0E-05	9.1E-07	---	---	---	---	1.8E-02
Copper	3.1E+00	7.8E-02	1.7E-01	---	1.1E-02	2.8E-05	---	---	---	---	2.6E-01
Lead	4.1E+01	3.4E-04	1.4E-04	---	2.6E-05	2.1E-07	---	---	---	---	5.0E-04
Manganese	5.2E+01	2.1E-03	1.4E-02	---	1.2E-04	4.7E-05	---	---	---	---	1.7E-02
Mercury	9.4E-01	1.2E-04	1.6E-03	---	6.0E-05	6.9E-07	---	---	---	---	1.8E-03
Molybdenum	1.0E+00	3.0E-03	5.9E-01	---	4.9E-03	1.5E-04	---	---	---	---	6.0E-01
Nickel	8.1E-01	1.9E-01	1.6E-01	---	4.3E-03	6.1E-05	---	---	---	---	3.6E-01
Selenium	2.4E-01	4.6E-03	9.8E-02	---	1.7E-02	5.0E-05	---	---	---	---	1.2E-01
Thallium	1.8E-01	1.3E-03	8.9E-04	---	3.7E-05	3.6E-06	---	---	---	---	2.2E-03
Uranium	2.4E+00	5.9E-04	3.0E-04	---	8.6E-06	3.1E-05	---	---	---	---	9.4E-04

H.3-58 Jacko Lake Post Closure Risk Quotients for the Snowshoe Hare

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	3.9E+01	1.3E-02	3.1E-02	---	6.6E-03	4.8E-05	---	---	---	---	5.0E-02
Antimony	4.2E-01	2.9E-03	2.0E-03	---	1.2E-04	2.1E-05	---	---	---	---	5.1E-03
Arsenic	5.5E-01	2.8E-02	2.5E-02	---	4.1E-04	1.8E-04	---	---	---	---	5.4E-02
Chromium	2.4E+00	7.4E-02	3.2E-02	---	1.1E-03	2.6E-05	---	---	---	---	1.1E-01
Cobalt	7.3E+00	5.7E-03	1.2E-02	---	9.0E-05	5.6E-06	---	---	---	---	1.8E-02
Copper	3.1E+00	7.8E-02	1.7E-01	---	1.1E-02	9.4E-05	---	---	---	---	2.6E-01
Lead	4.1E+01	3.4E-04	1.4E-04	---	2.6E-05	2.5E-07	---	---	---	---	5.0E-04
Manganese	5.2E+01	2.1E-03	1.4E-02	---	1.2E-04	1.1E-04	---	---	---	---	1.7E-02
Mercury	9.4E-01	1.3E-04	1.7E-03	---	6.2E-05	2.2E-06	---	---	---	---	1.8E-03
Molybdenum	1.0E+00	3.0E-03	6.0E-01	---	4.9E-03	2.9E-04	---	---	---	---	6.1E-01
Nickel	8.1E-01	1.9E-01	1.6E-01	---	4.3E-03	1.4E-04	---	---	---	---	3.6E-01
Selenium	2.4E-01	4.6E-03	9.9E-02	---	1.7E-02	8.8E-05	---	---	---	---	1.2E-01
Thallium	1.8E-01	1.3E-03	9.0E-04	---	3.7E-05	7.9E-06	---	---	---	---	2.3E-03
Uranium	2.4E+00	5.9E-04	3.0E-04	---	8.7E-06	3.9E-05	---	---	---	---	9.5E-04

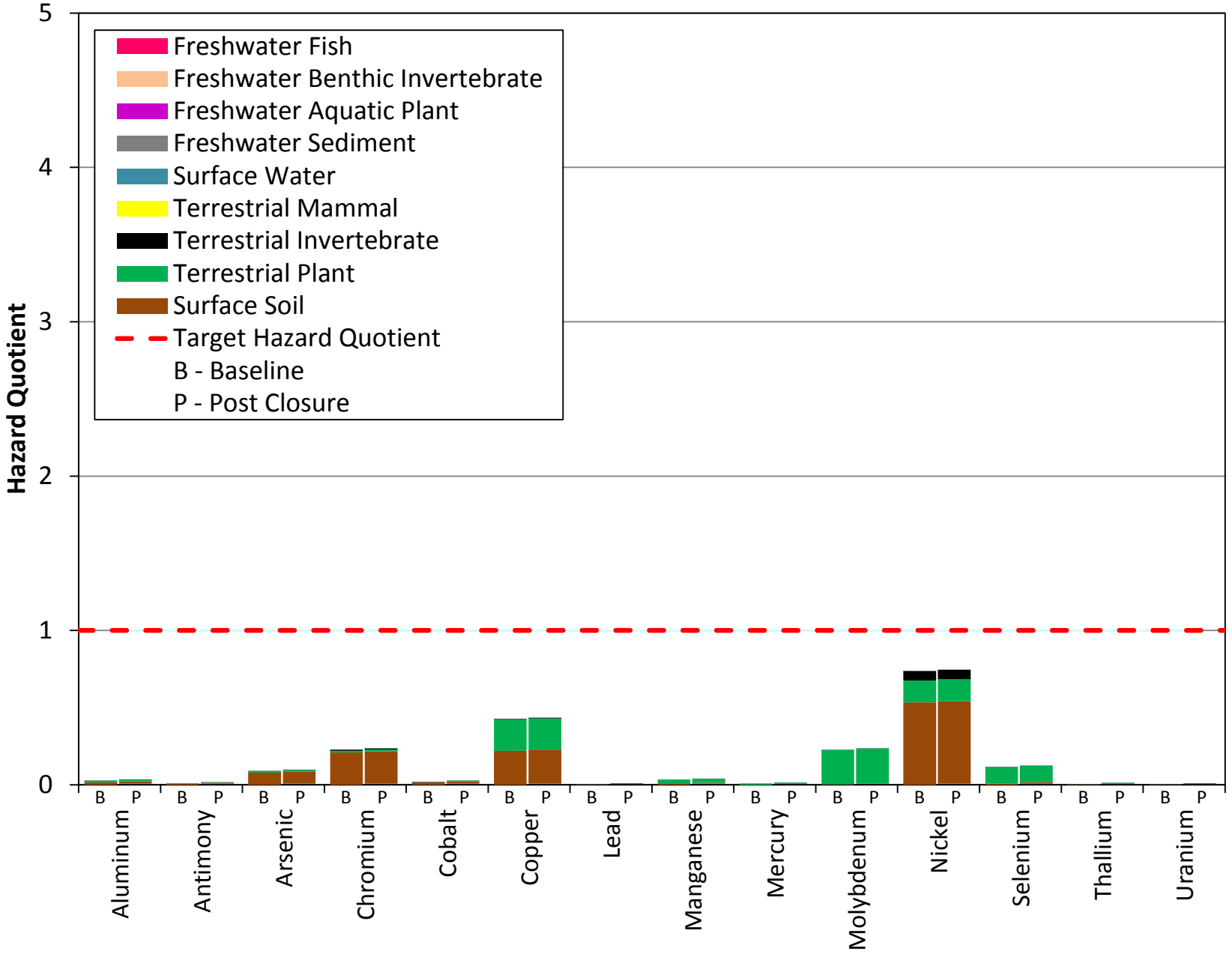
H.3-59 Peterson Creek Baseline Risk Quotients for the Snowshoe Hare

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	3.9E+01	1.3E-02	3.1E-02	---	6.6E-03	2.9E-04	---	---	---	---	5.1E-02
Antimony	4.2E-01	2.9E-03	2.0E-03	---	1.2E-04	1.4E-05	---	---	---	---	5.1E-03
Arsenic	5.5E-01	2.8E-02	2.5E-02	---	4.1E-04	1.6E-04	---	---	---	---	5.4E-02
Chromium	2.4E+00	7.4E-02	3.2E-02	---	1.1E-03	1.7E-05	---	---	---	---	1.1E-01
Cobalt	7.3E+00	5.7E-03	1.2E-02	---	9.0E-05	2.5E-06	---	---	---	---	1.8E-02
Copper	3.1E+00	7.8E-02	1.7E-01	---	1.1E-02	6.2E-05	---	---	---	---	2.6E-01
Lead	4.1E+01	3.4E-04	1.4E-04	---	2.6E-05	1.3E-07	---	---	---	---	5.0E-04
Manganese	5.2E+01	2.1E-03	1.4E-02	---	1.2E-04	1.2E-04	---	---	---	---	1.7E-02
Mercury	9.4E-01	1.2E-04	1.6E-03	---	6.0E-05	5.1E-07	---	---	---	---	1.8E-03
Molybdenum	1.0E+00	3.0E-03	5.9E-01	---	4.9E-03	5.1E-04	---	---	---	---	6.0E-01
Nickel	8.1E-01	1.9E-01	1.6E-01	---	4.3E-03	2.7E-04	---	---	---	---	3.6E-01
Selenium	2.4E-01	4.6E-03	9.8E-02	---	1.7E-02	1.4E-04	---	---	---	---	1.2E-01
Thallium	1.8E-01	1.3E-03	8.9E-04	---	3.7E-05	2.9E-06	---	---	---	---	2.2E-03
Uranium	2.4E+00	5.9E-04	3.0E-04	---	8.6E-06	4.6E-05	---	---	---	---	9.5E-04

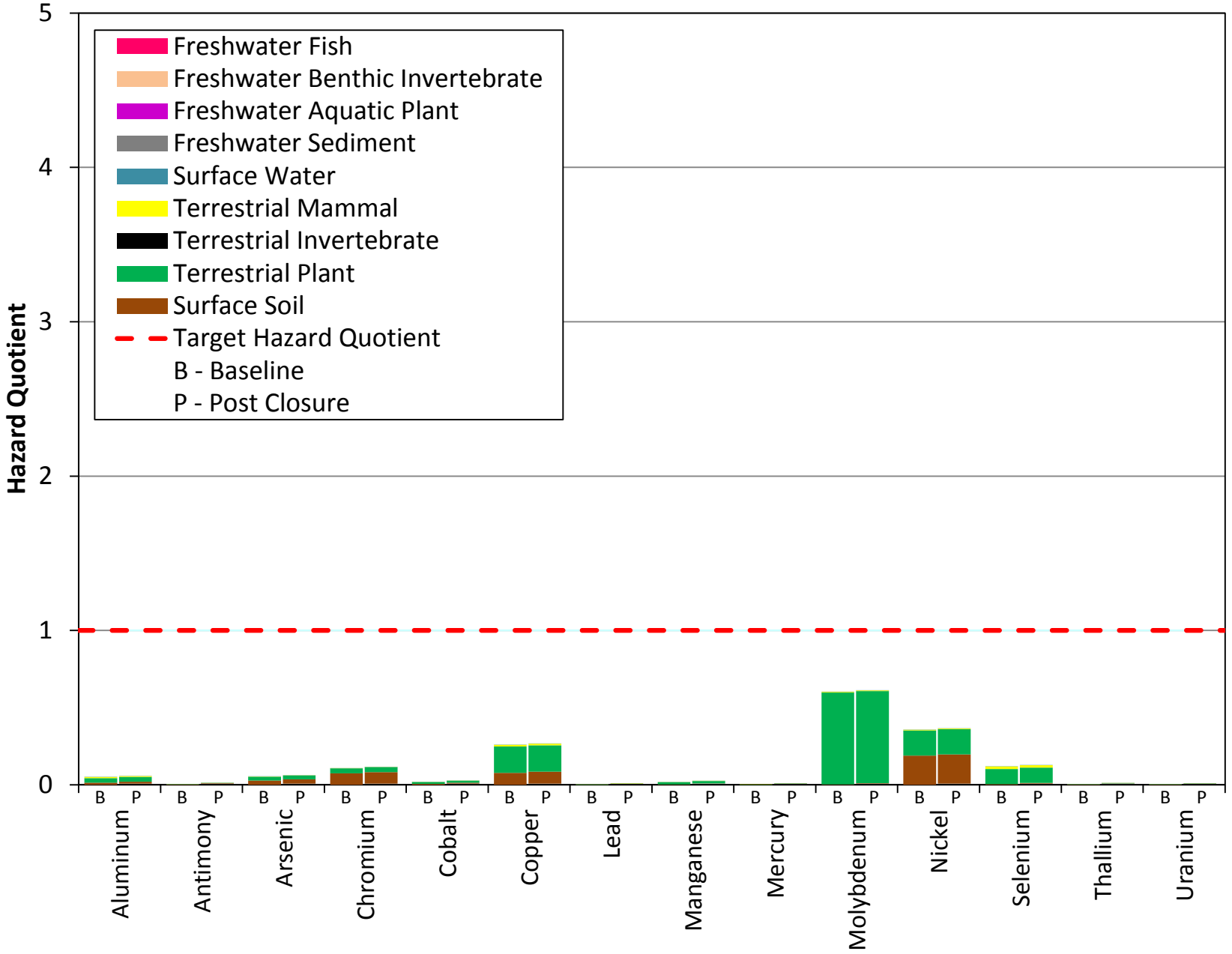
H.3-60 Peterson Creek Post Closure Risk Quotients for the Snowshoe Hare

Constituent	Reference Toxicity Dose (mg/kg-day)	Surface Soil Ingestion HQ	Terrestrial Plant Ingestion HQ	Terrestrial Invertebrate Ingestion HQ	Terrestrial Mammal Ingestion HQ	Surface Water Ingestion HQ	Freshwater Sediment Ingestion HQ	Freshwater Aquatic Plant Ingestion HQ	Freshwater Benthic Invertebrate Ingestion HQ	Freshwater Fish Ingestion HQ	Total Hazard Quotient
Inorganics											
Aluminum	3.9E+01	1.3E-02	3.1E-02	---	6.6E-03	1.8E-03	---	---	---	---	5.2E-02
Antimony	4.2E-01	2.9E-03	2.0E-03	---	1.2E-04	5.3E-05	---	---	---	---	5.2E-03
Arsenic	5.5E-01	2.8E-02	2.5E-02	---	4.1E-04	2.5E-04	---	---	---	---	5.4E-02
Chromium	2.4E+00	7.4E-02	3.2E-02	---	1.1E-03	9.3E-05	---	---	---	---	1.1E-01
Cobalt	7.3E+00	5.7E-03	1.2E-02	---	9.0E-05	5.9E-06	---	---	---	---	1.8E-02
Copper	3.1E+00	7.8E-02	1.7E-01	---	1.1E-02	1.2E-04	---	---	---	---	2.6E-01
Lead	4.1E+01	3.4E-04	1.4E-04	---	2.6E-05	2.6E-07	---	---	---	---	5.0E-04
Manganese	5.2E+01	2.1E-03	1.4E-02	---	1.2E-04	3.2E-04	---	---	---	---	1.7E-02
Mercury	9.4E-01	1.3E-04	1.7E-03	---	6.2E-05	1.6E-06	---	---	---	---	1.8E-03
Molybdenum	1.0E+00	3.0E-03	6.0E-01	---	4.9E-03	9.9E-04	---	---	---	---	6.1E-01
Nickel	8.1E-01	1.9E-01	1.6E-01	---	4.3E-03	4.1E-04	---	---	---	---	3.6E-01
Selenium	2.4E-01	4.6E-03	9.9E-02	---	1.7E-02	2.5E-04	---	---	---	---	1.2E-01
Thallium	1.8E-01	1.3E-03	9.0E-04	---	3.7E-05	6.7E-06	---	---	---	---	2.3E-03
Uranium	2.4E+00	5.9E-04	3.0E-04	---	8.7E-06	8.1E-05	---	---	---	---	9.9E-04

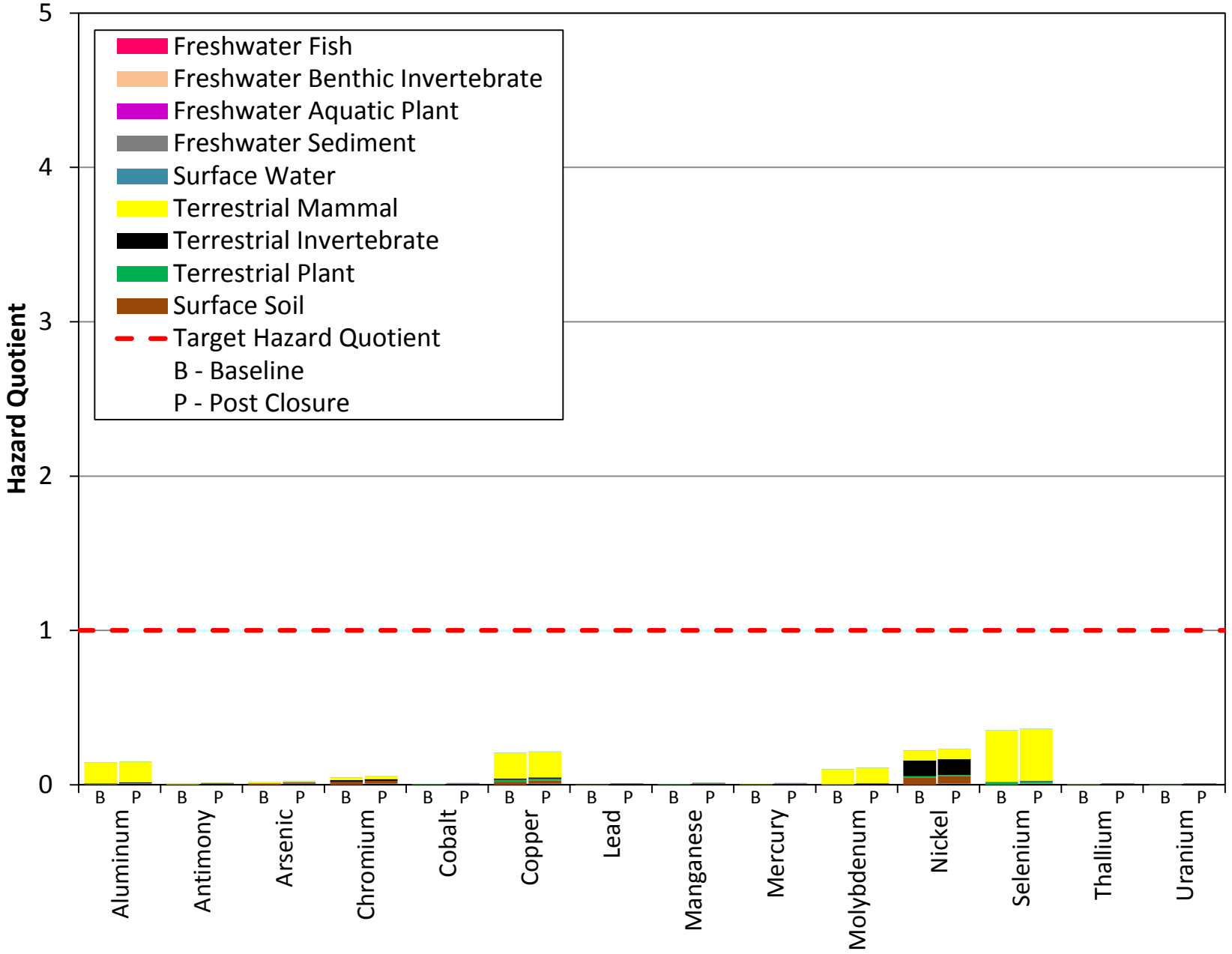
Detailed Hazard Quotients for the Meadow Vole Exposed to COPCs at Jacko Lake



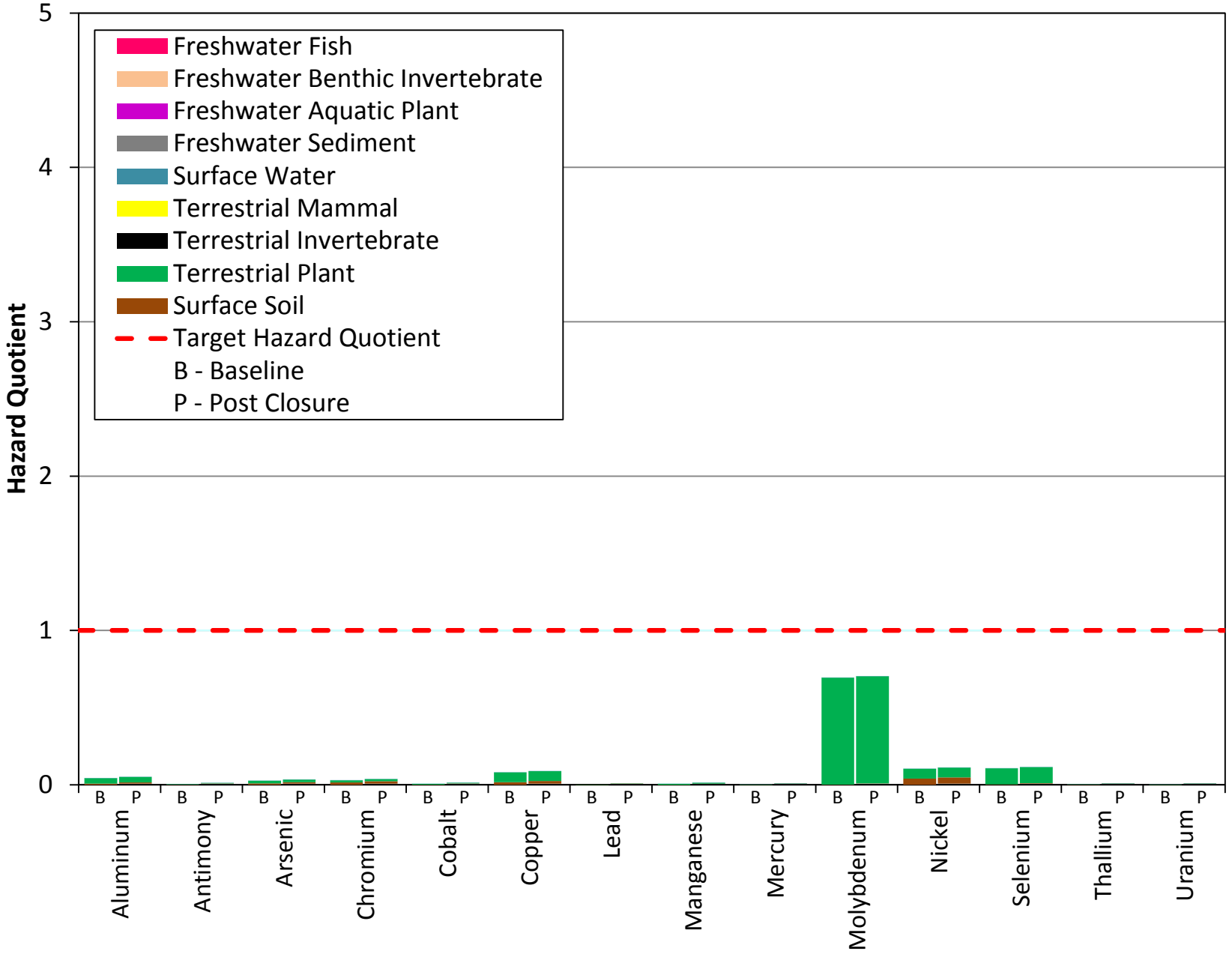
Detailed Hazard Quotients for the Snowshoe Hare Exposed to COPCs at Jacko Lake



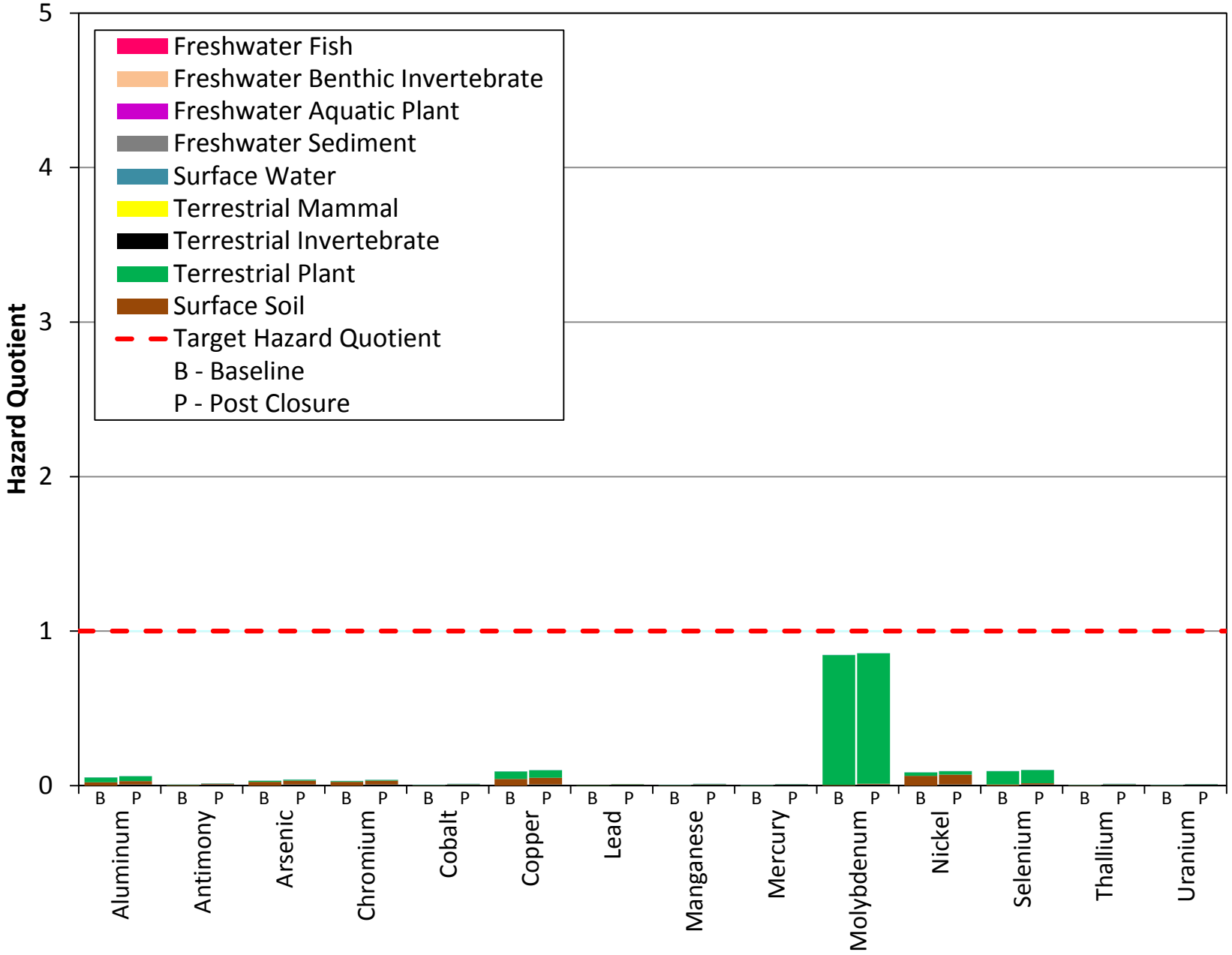
Detailed Hazard Quotients for the Red Fox Exposed to COPCs at Jacko Lake



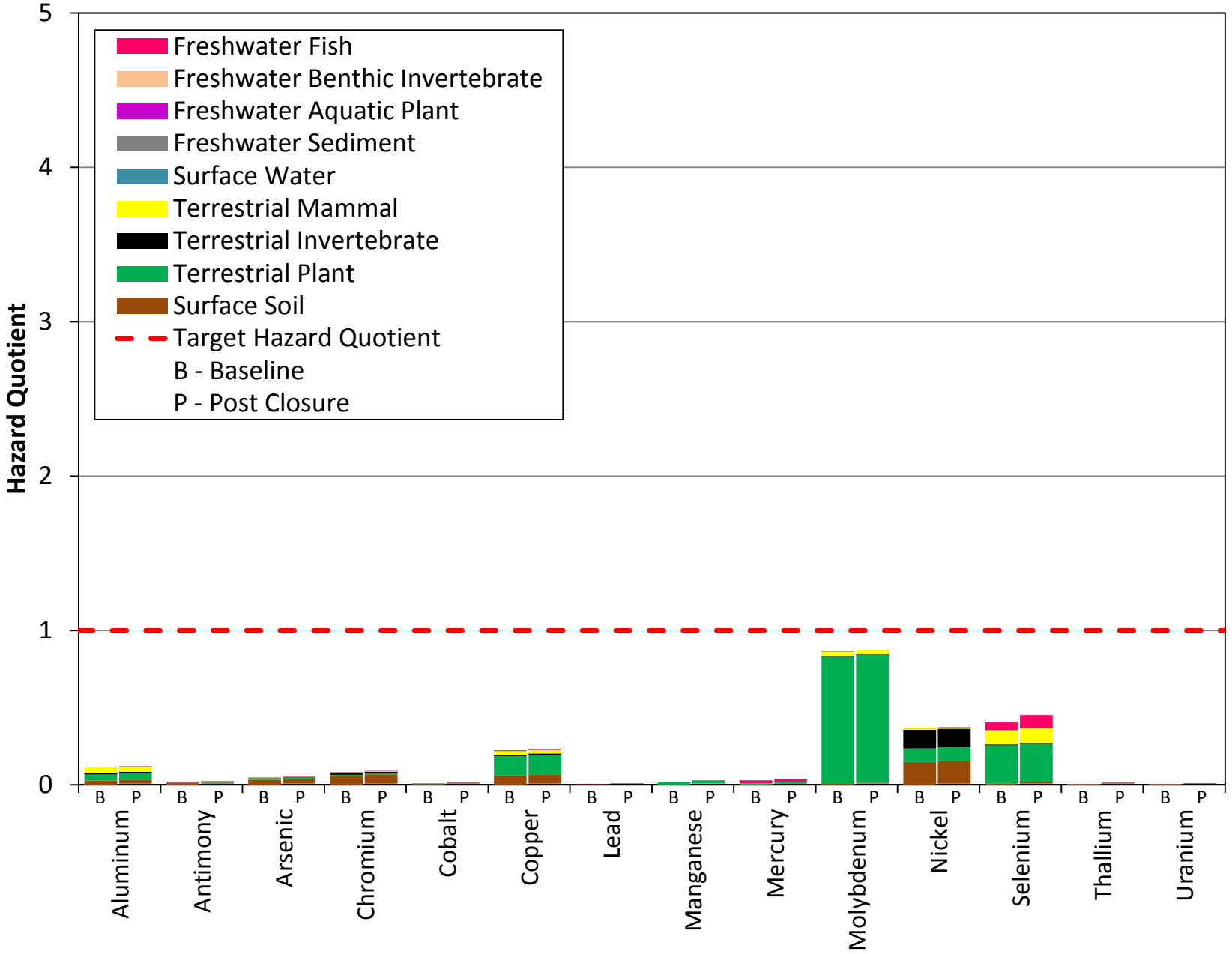
Detailed Hazard Quotients for the Mule Deer Exposed to COPCs at Jacko Lake



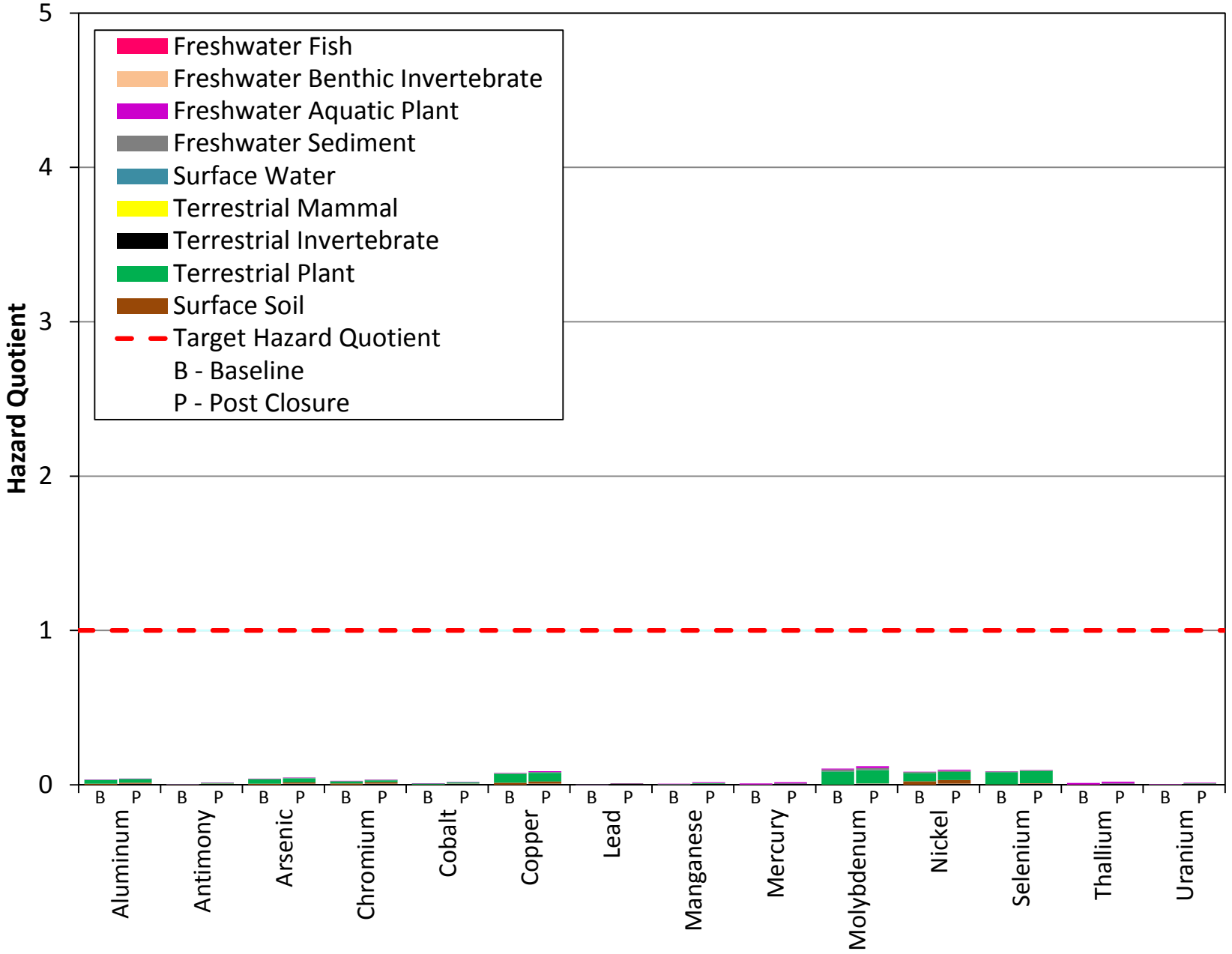
Detailed Hazard Quotients for the Domestic Cattle Exposed to COPCs at Jacko Lake



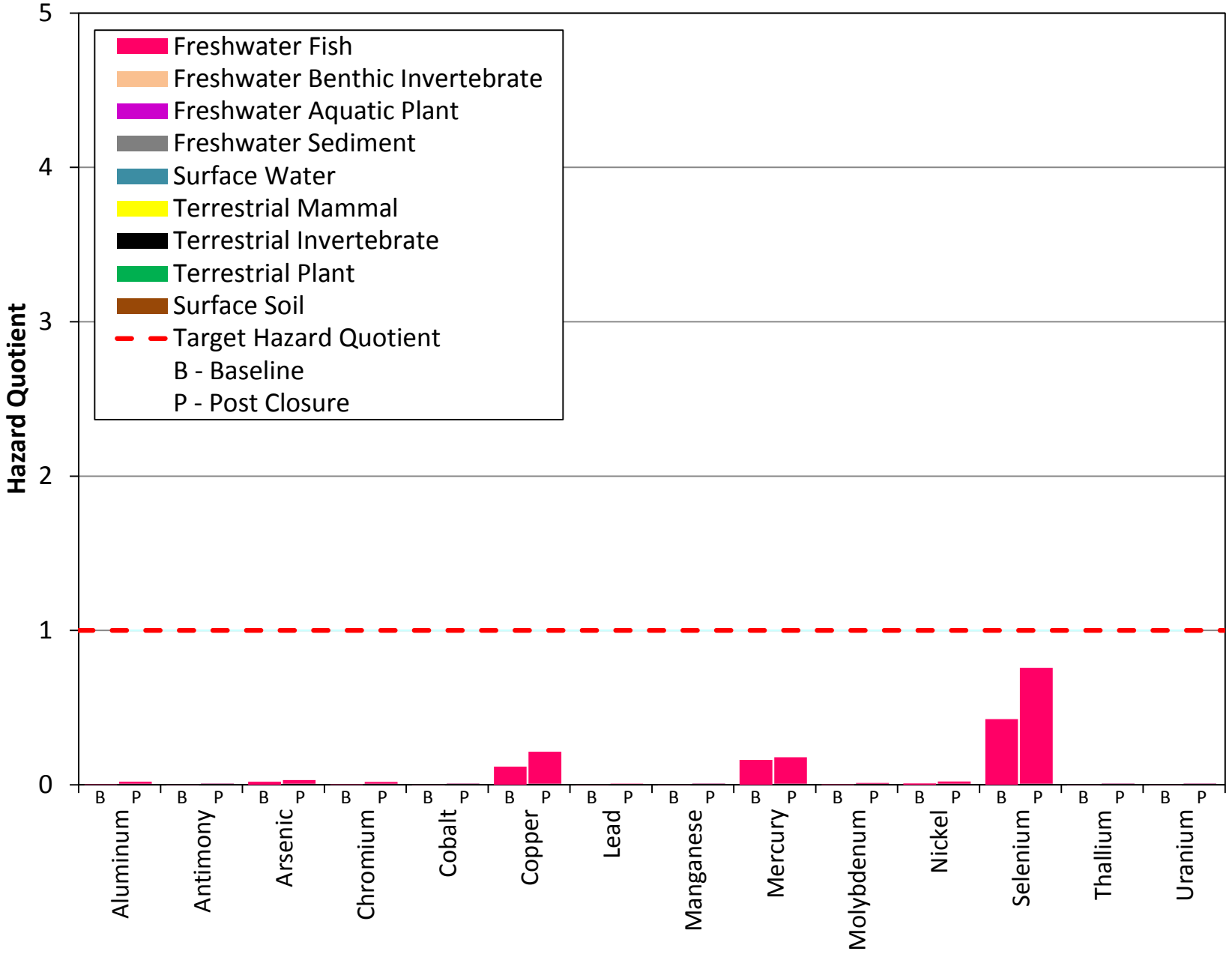
Detailed Hazard Quotients for the Black Bear Exposed to COPCs at Jacko Lake



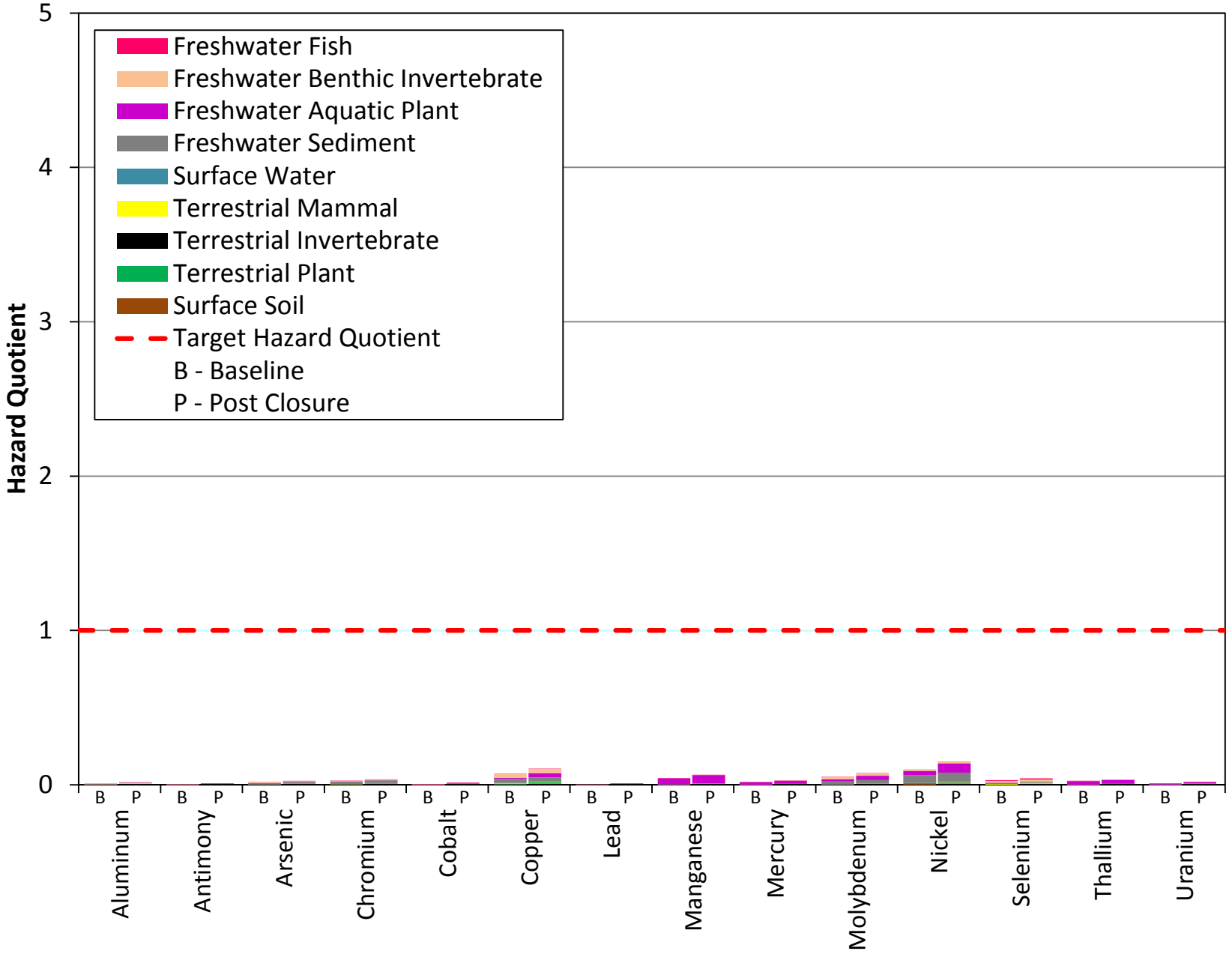
Detailed Hazard Quotients for the Moose Exposed to COPCs at Jacko Lake



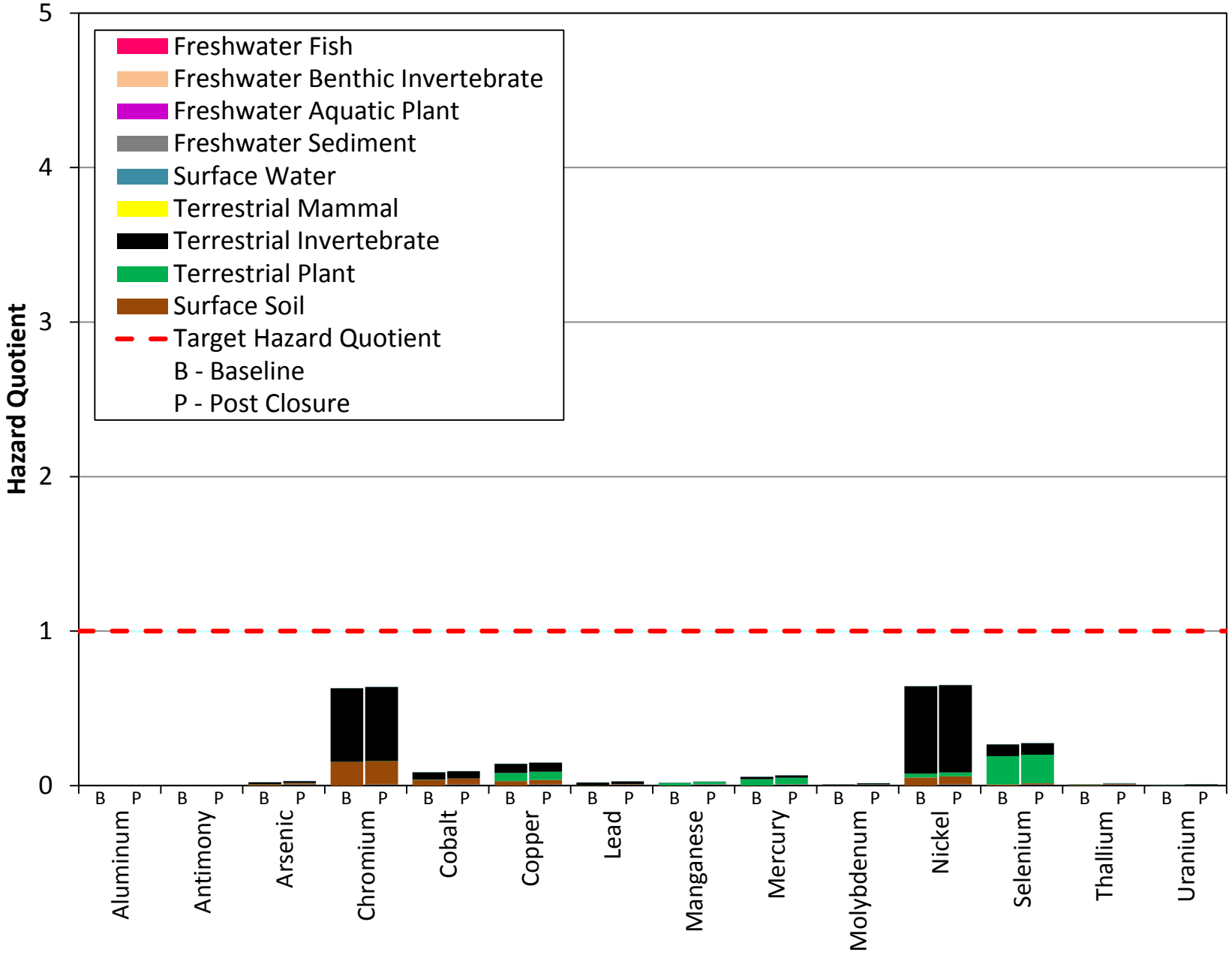
Detailed Hazard Quotients for the American Mink Exposed to COPCs at Jacko Lake



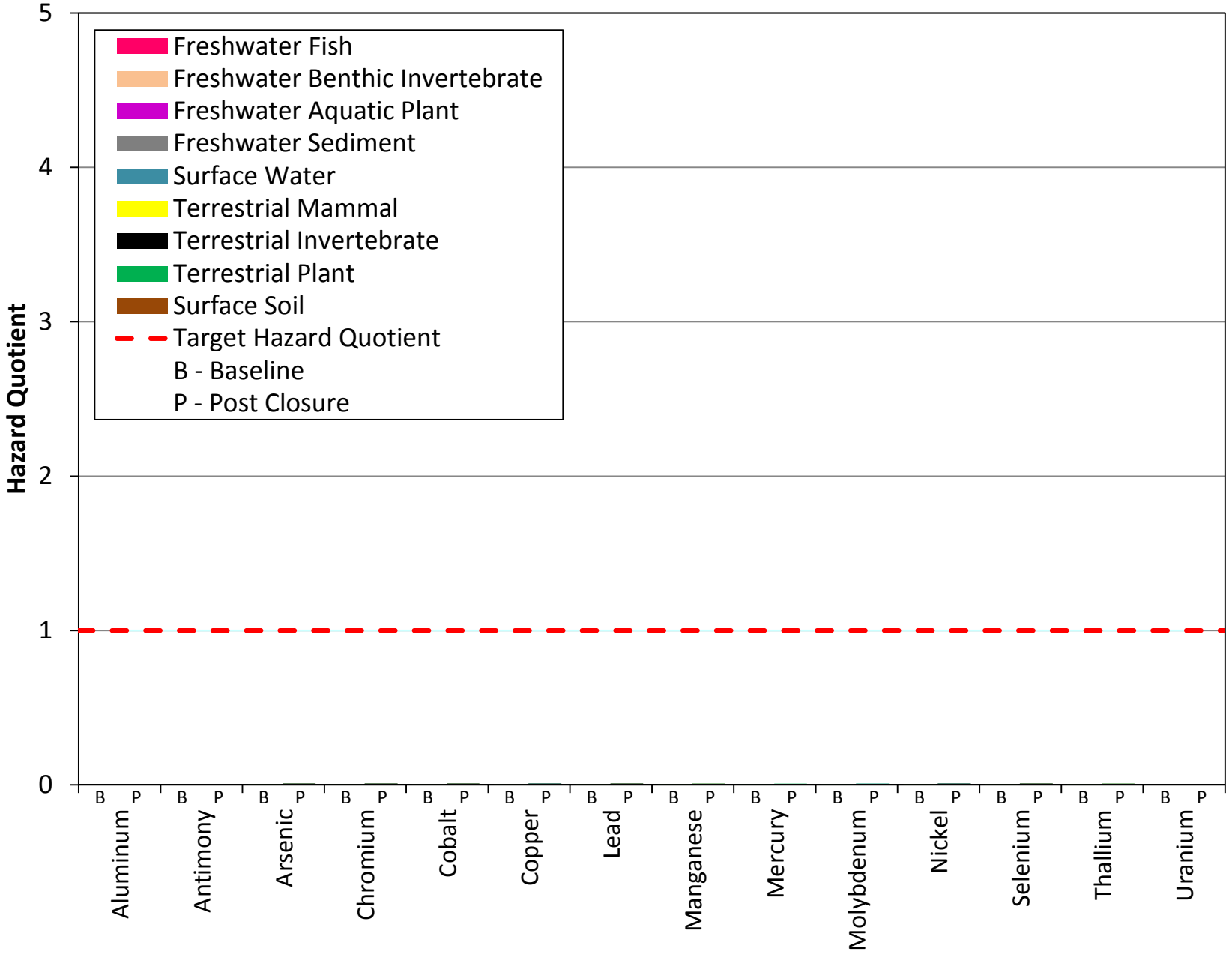
Detailed Hazard Quotients for the Muskrat Exposed to COPCs at Jacko Lake



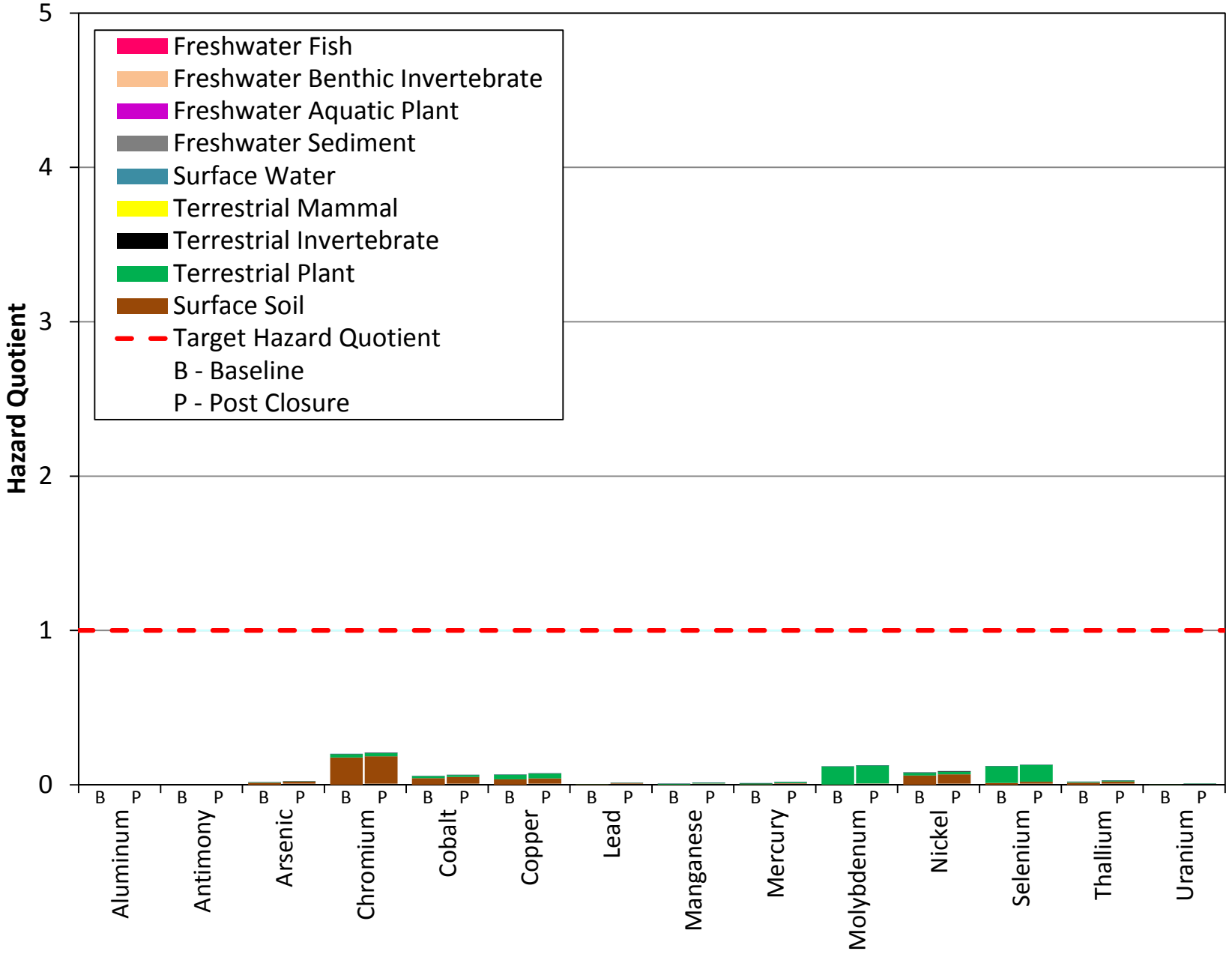
Detailed Hazard Quotients for the American Robin Exposed to COPCs at Jacko Lake



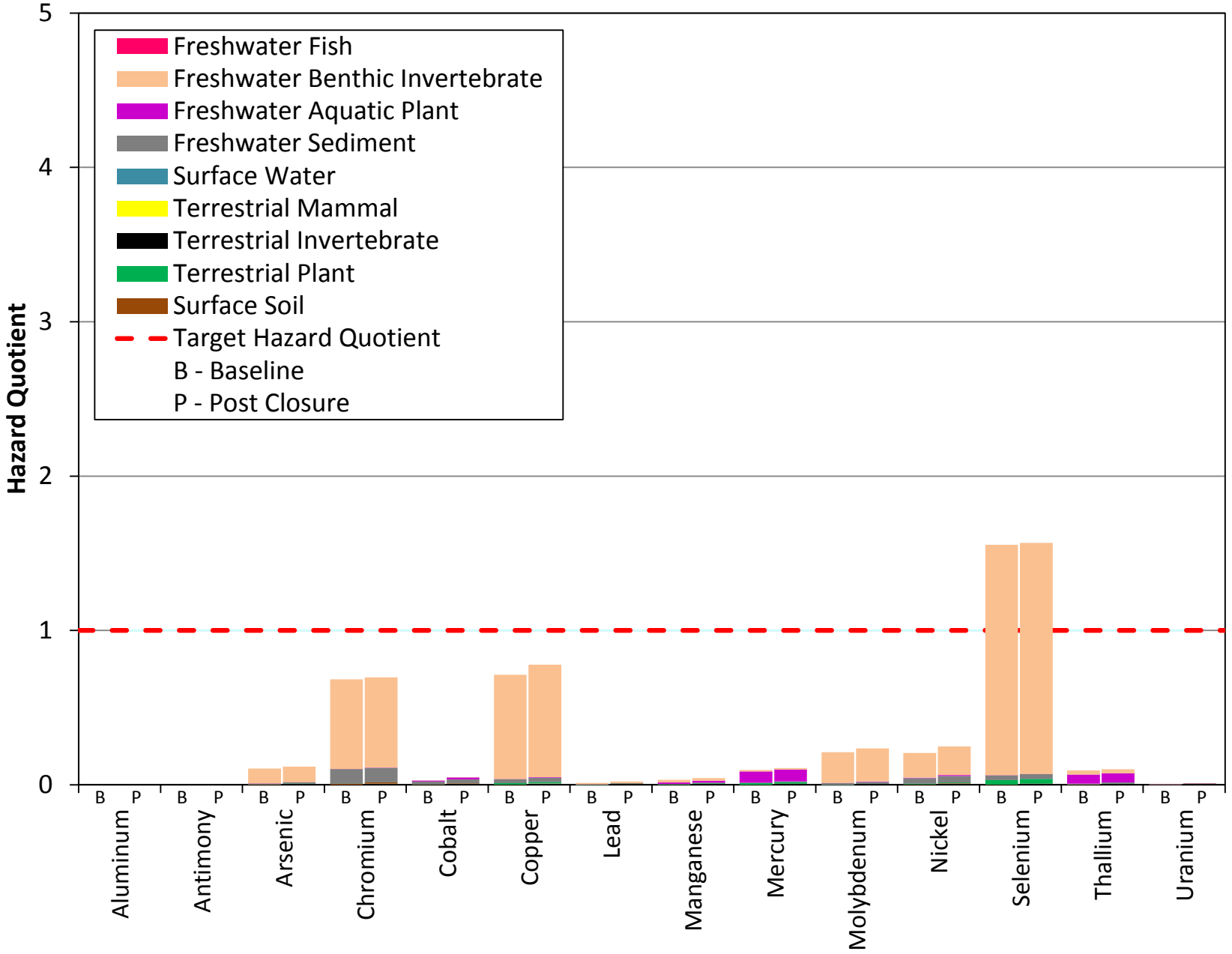
Detailed Hazard Quotients for the Ruffed Grouse Exposed to COPCs at Jacko Lake



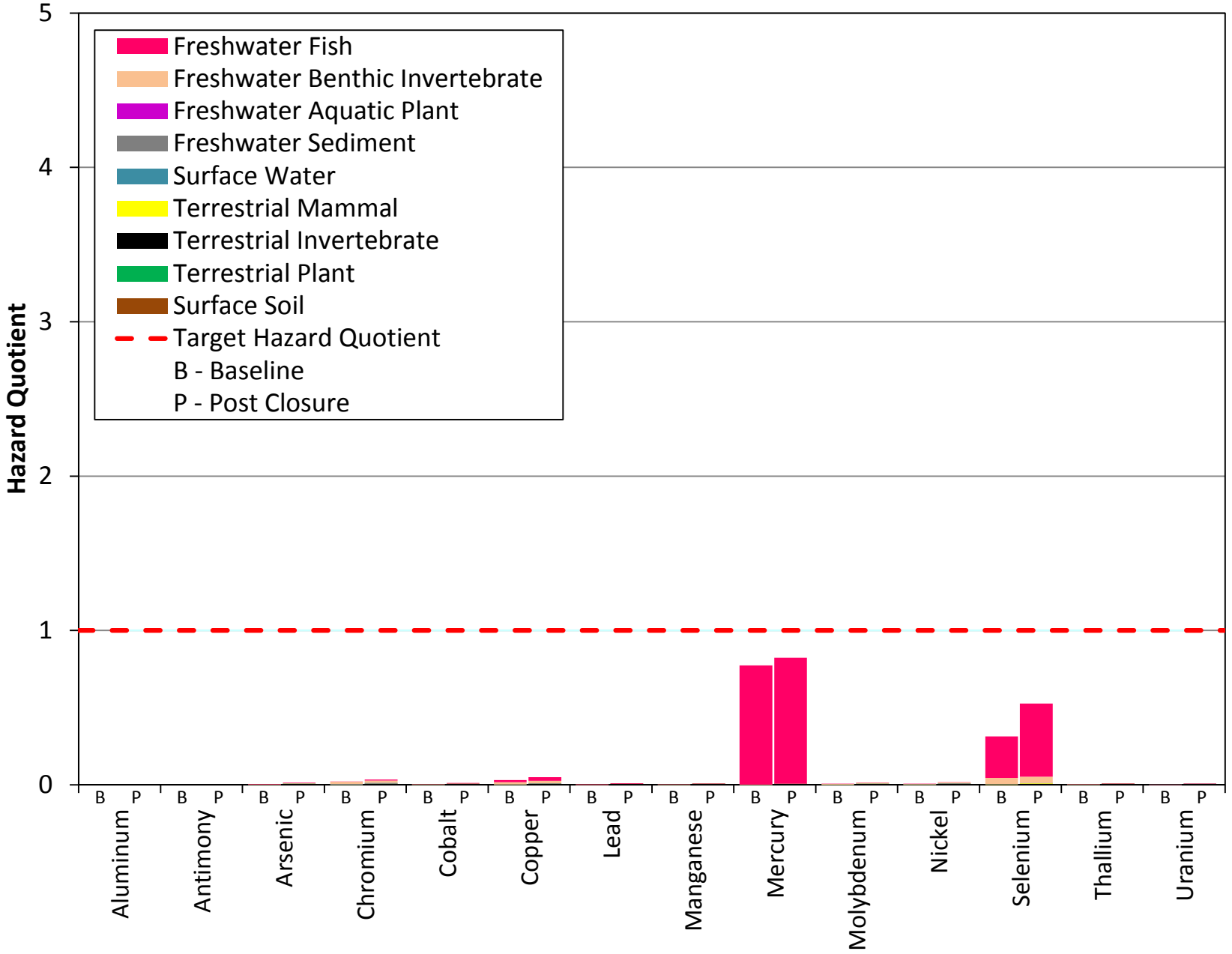
Detailed Hazard Quotients for the Canada Goose Exposed to COPCs at Jacko Lake



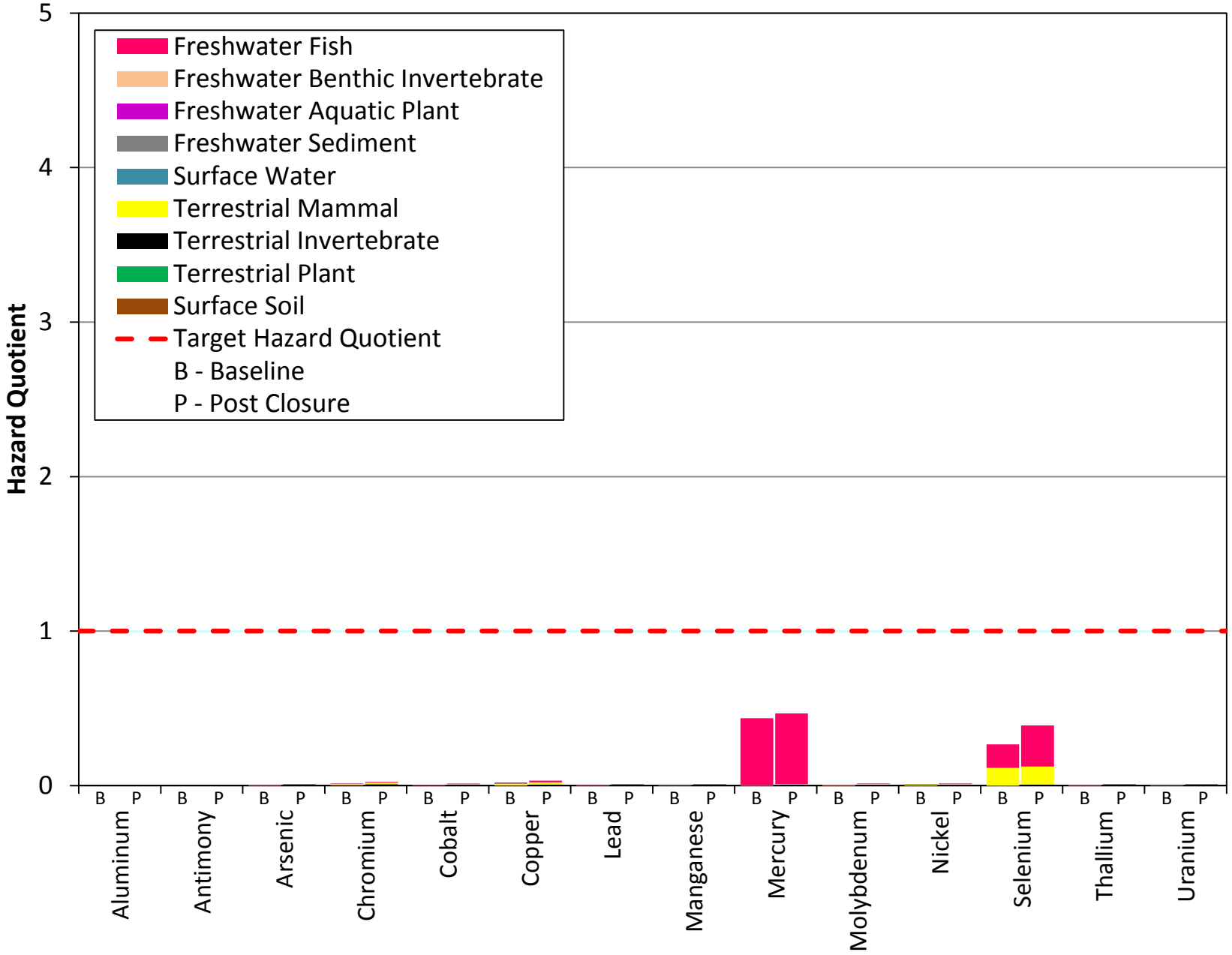
Detailed Hazard Quotients for the Mallard Exposed to COPCs at Jacko Lake



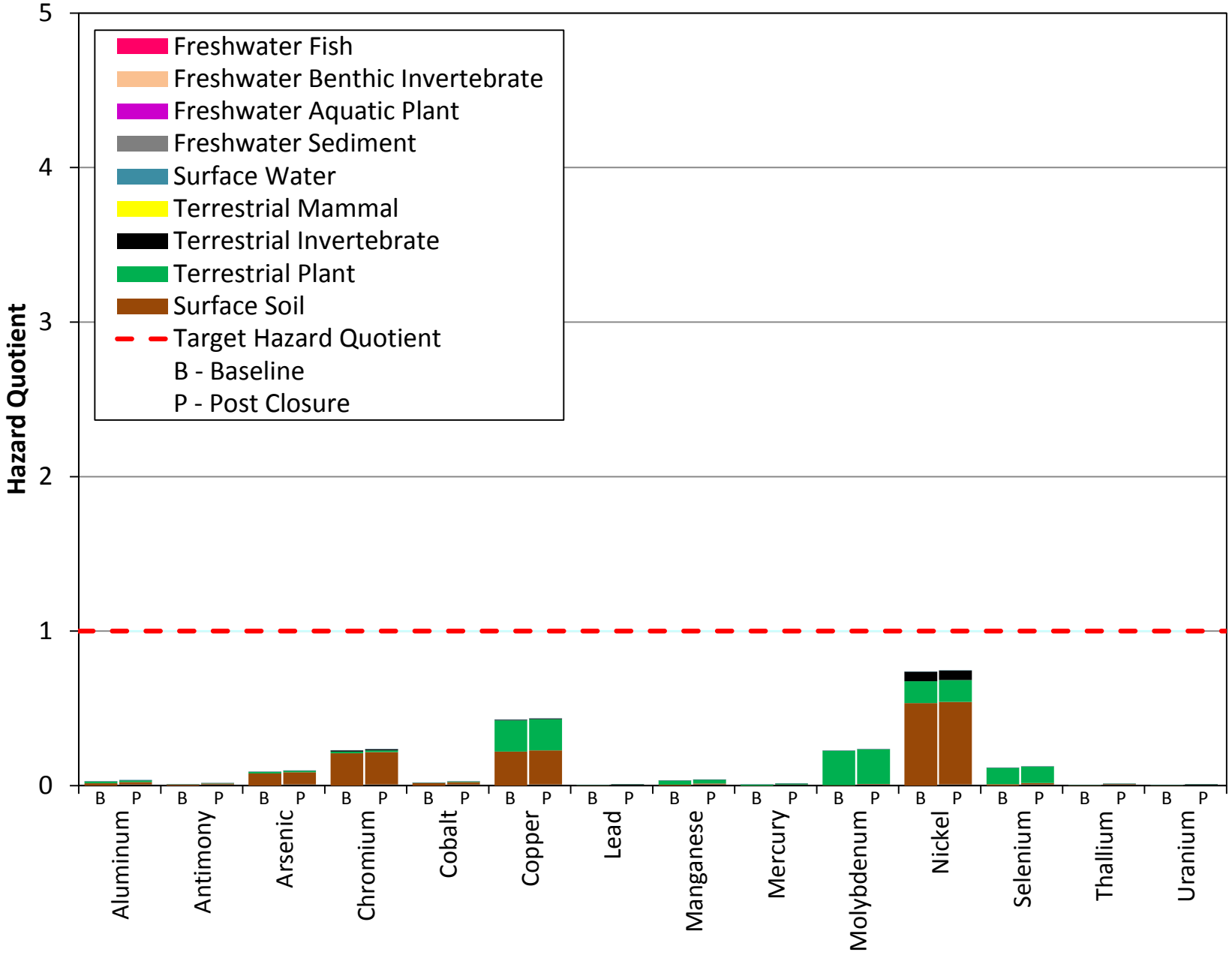
Detailed Hazard Quotients for the Great Blue Heron Exposed to COPCs at Jacko Lake



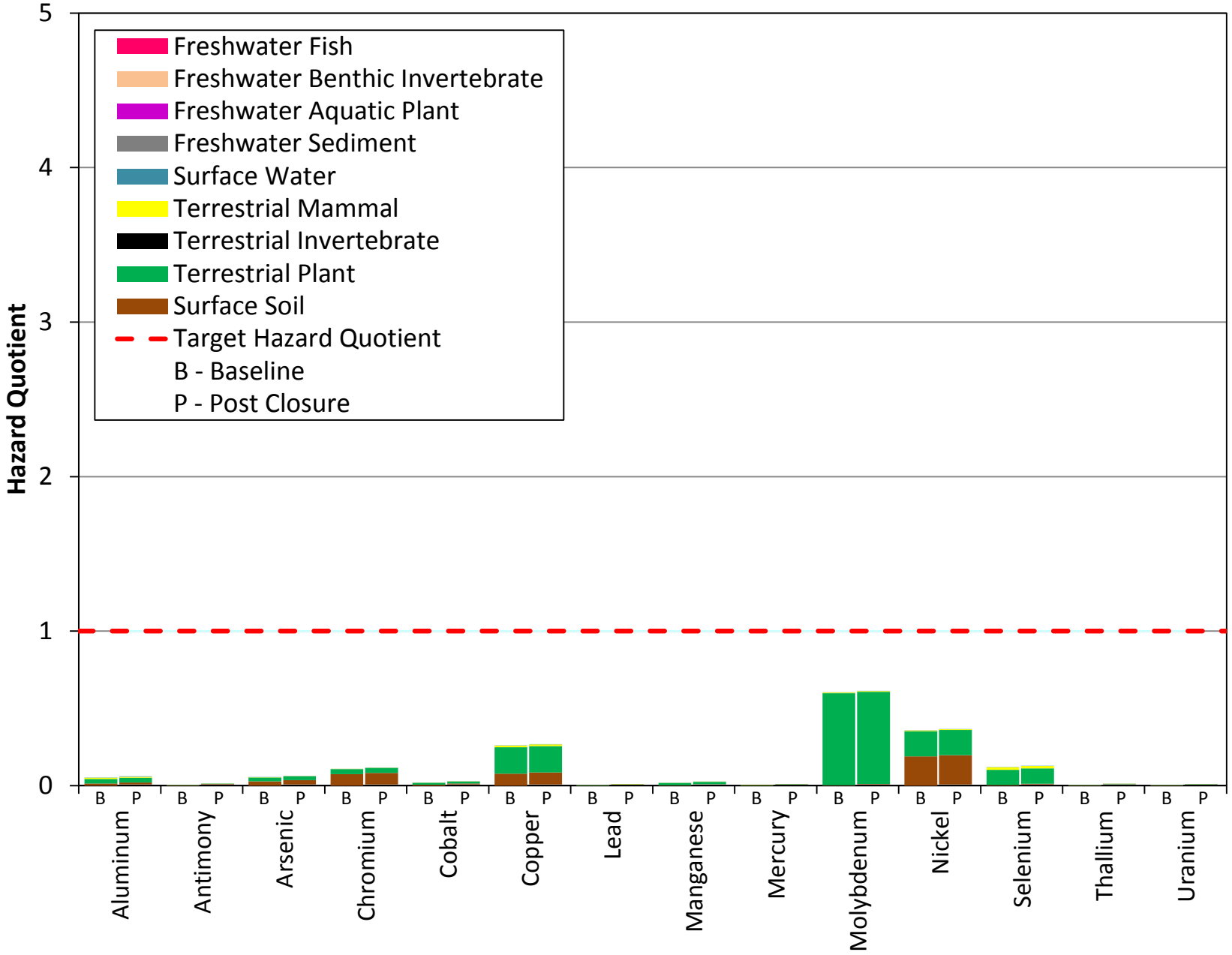
Detailed Hazard Quotients for the Bald Eagle Exposed to COPCs at Jacko Lake



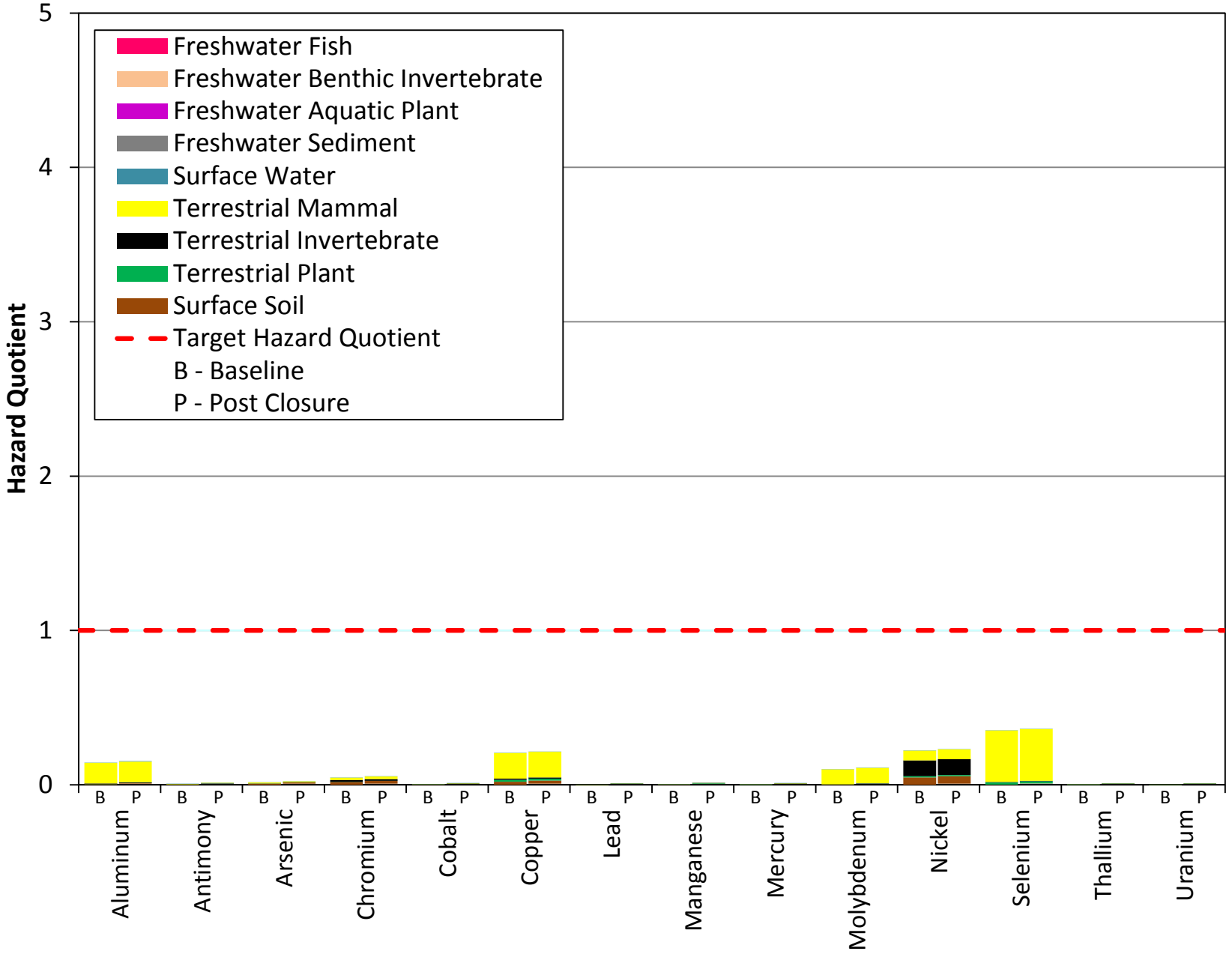
Detailed Hazard Quotients for the Meadow Vole Exposed to COPCs at Peterson Creek (PC02)



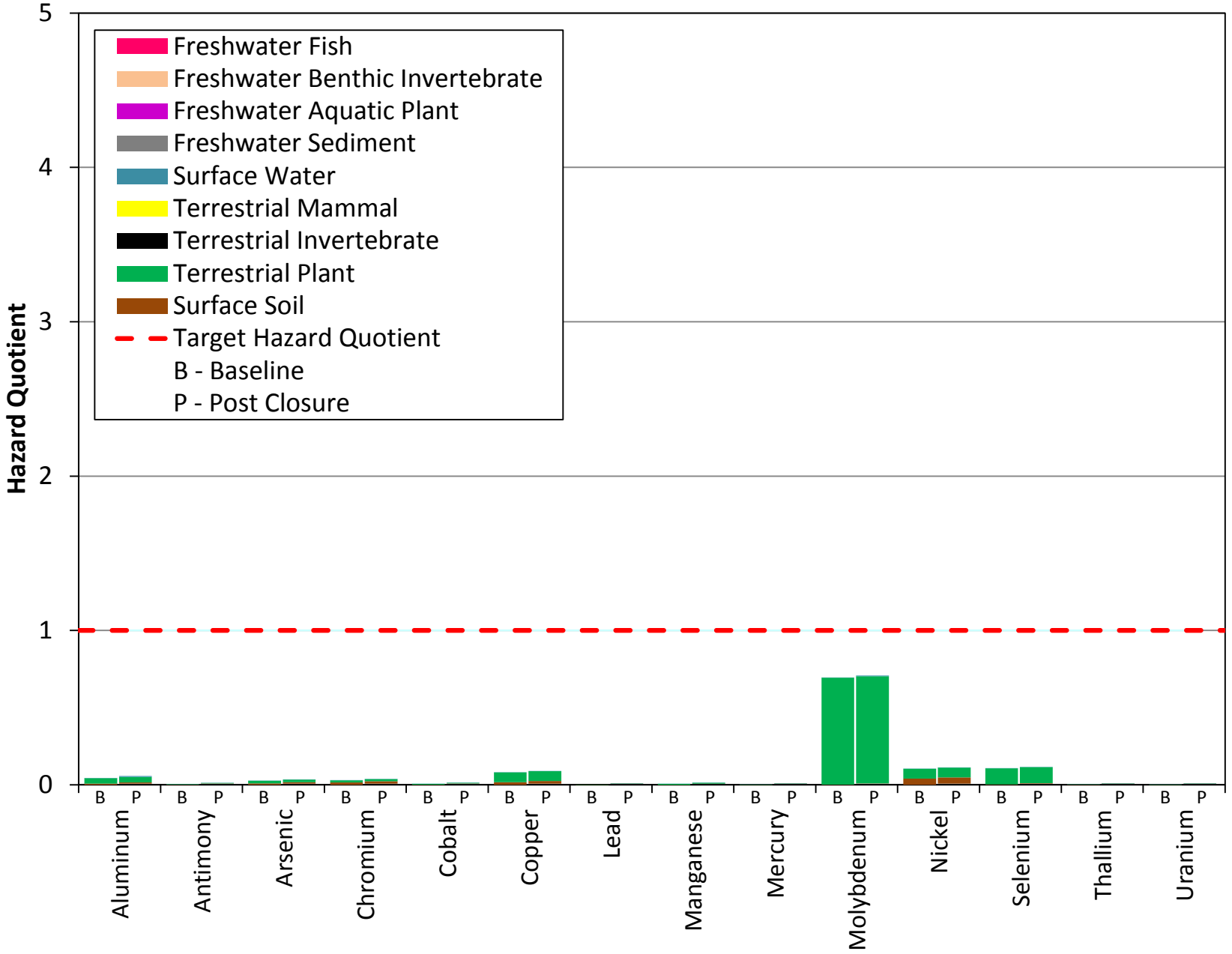
Detailed Hazard Quotients for the Snowshoe Hare Exposed to COPCs at Peterson Creek (PC02)



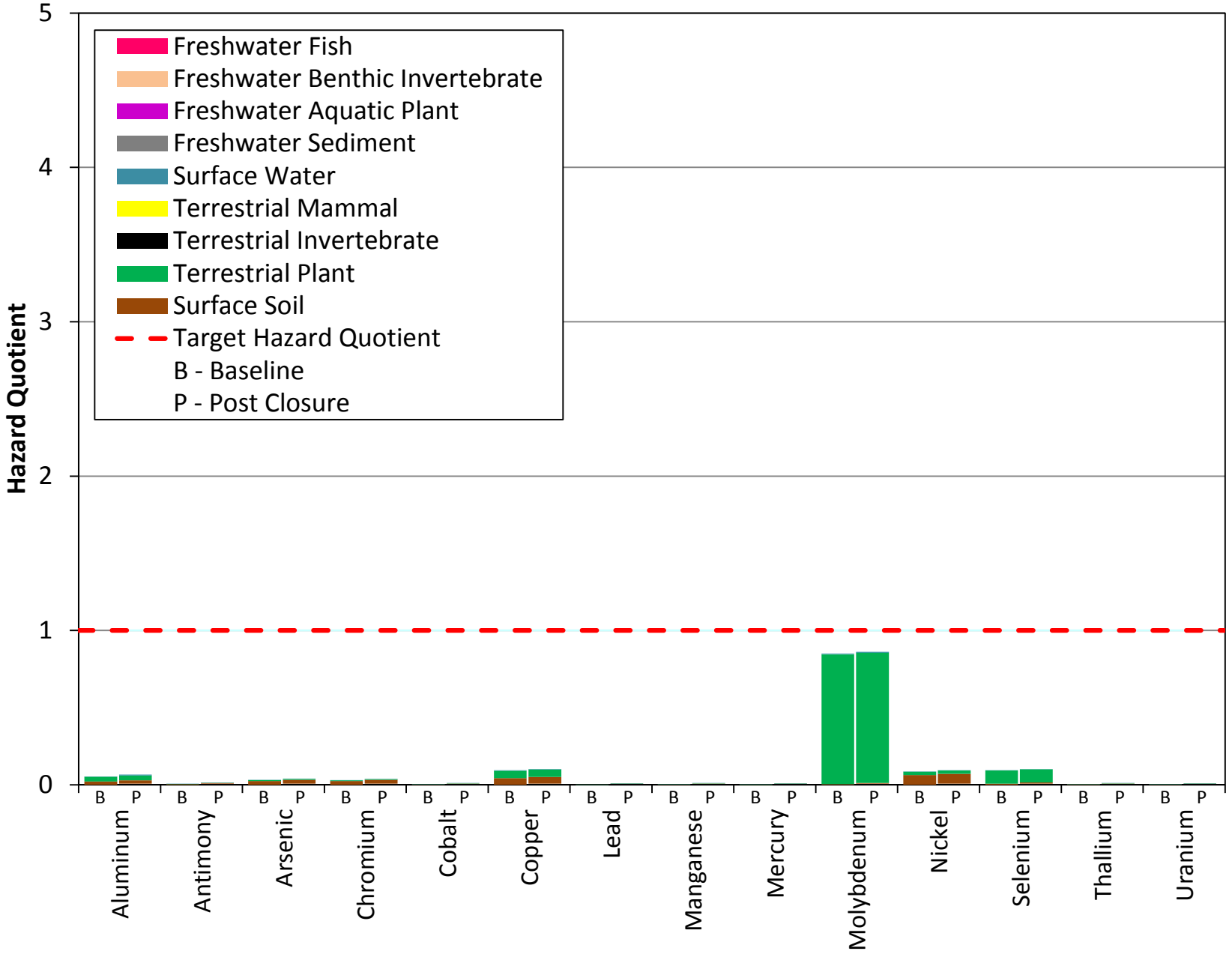
Detailed Hazard Quotients for the Red Fox Exposed to COPCs at Peterson Creek (PC02)



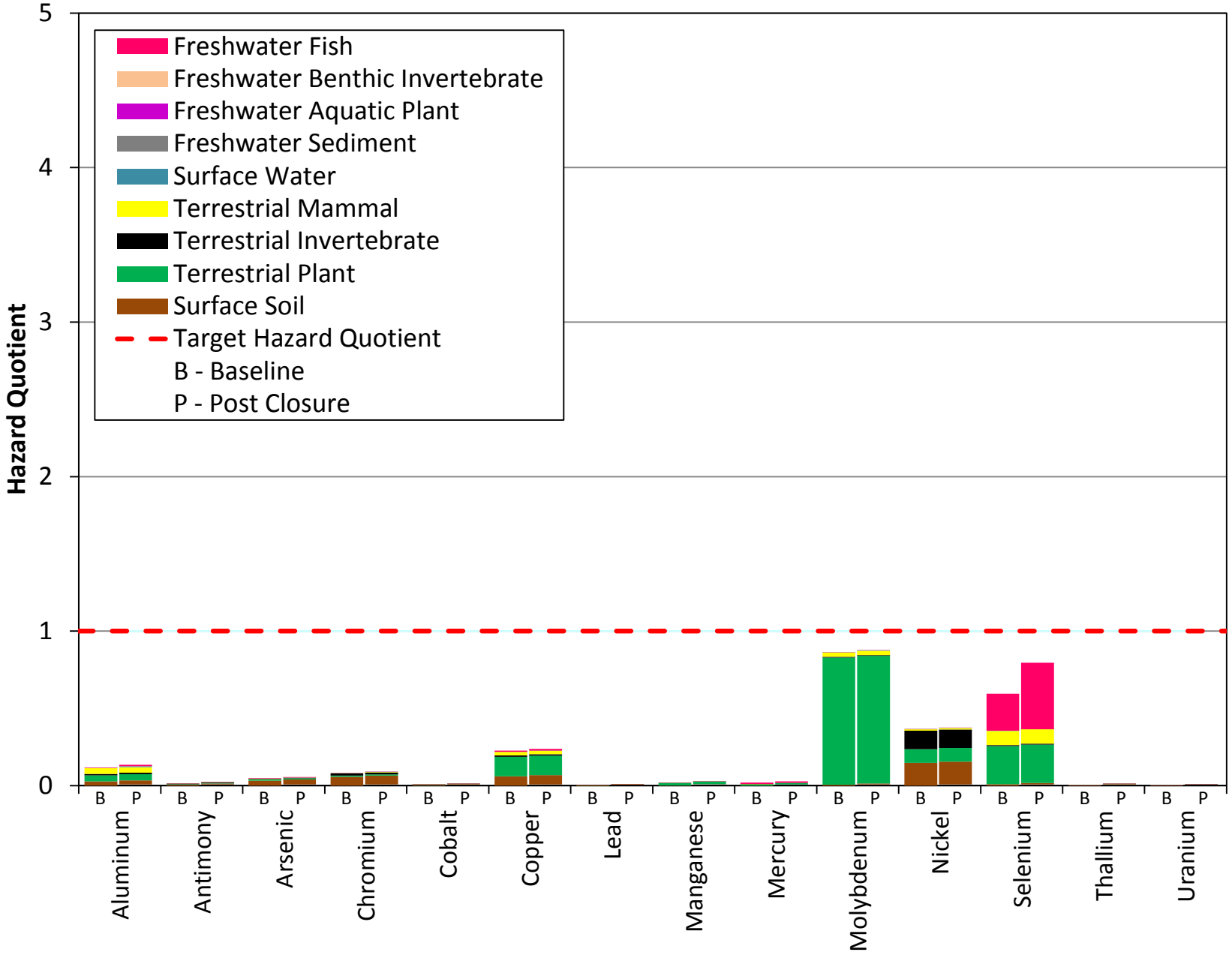
Detailed Hazard Quotients for the Mule Deer Exposed to COPCs at Peterson Creek (PC02)



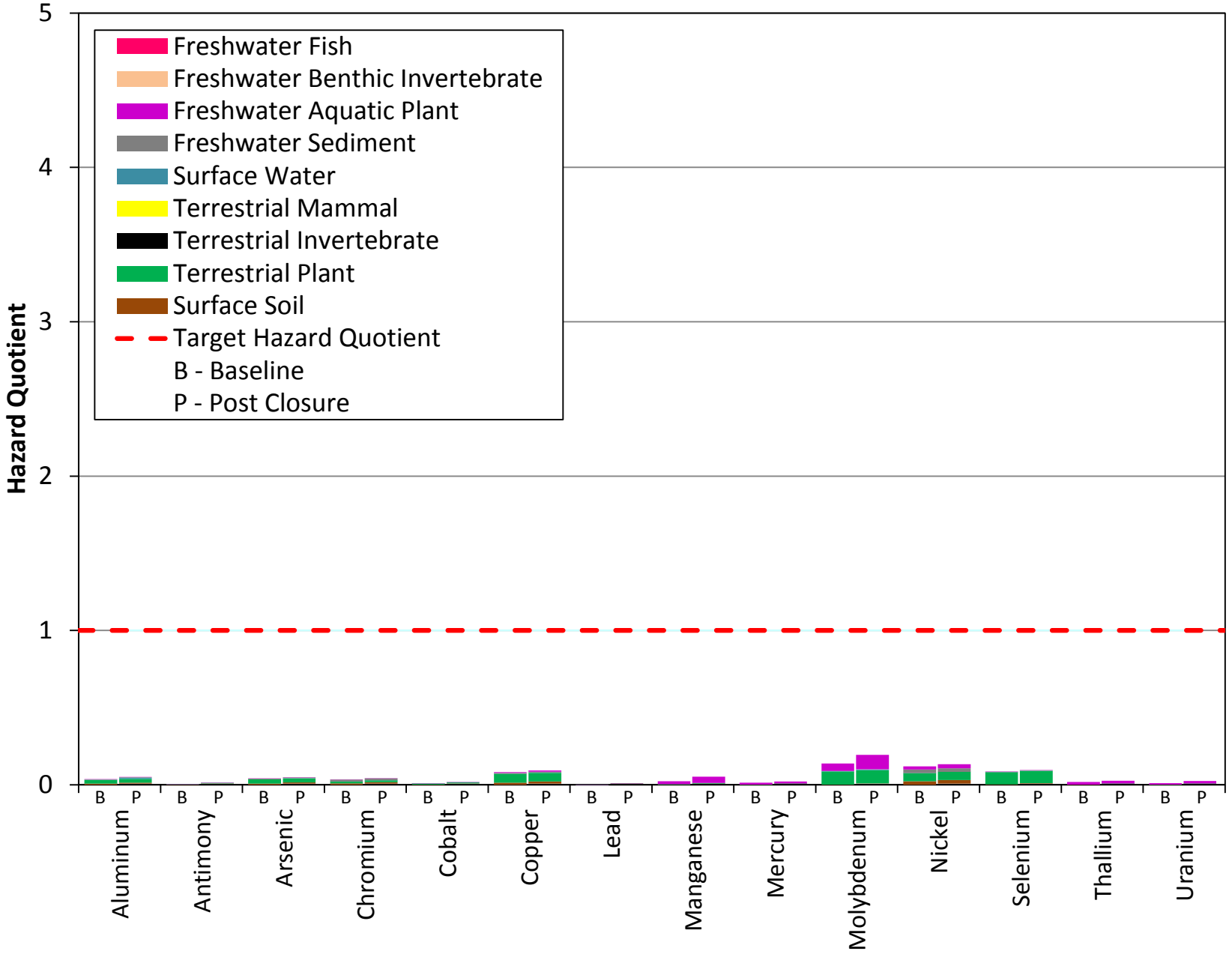
Detailed Hazard Quotients for the Domestic Cattle Exposed to COPCs at Peterson Creek (PC02)



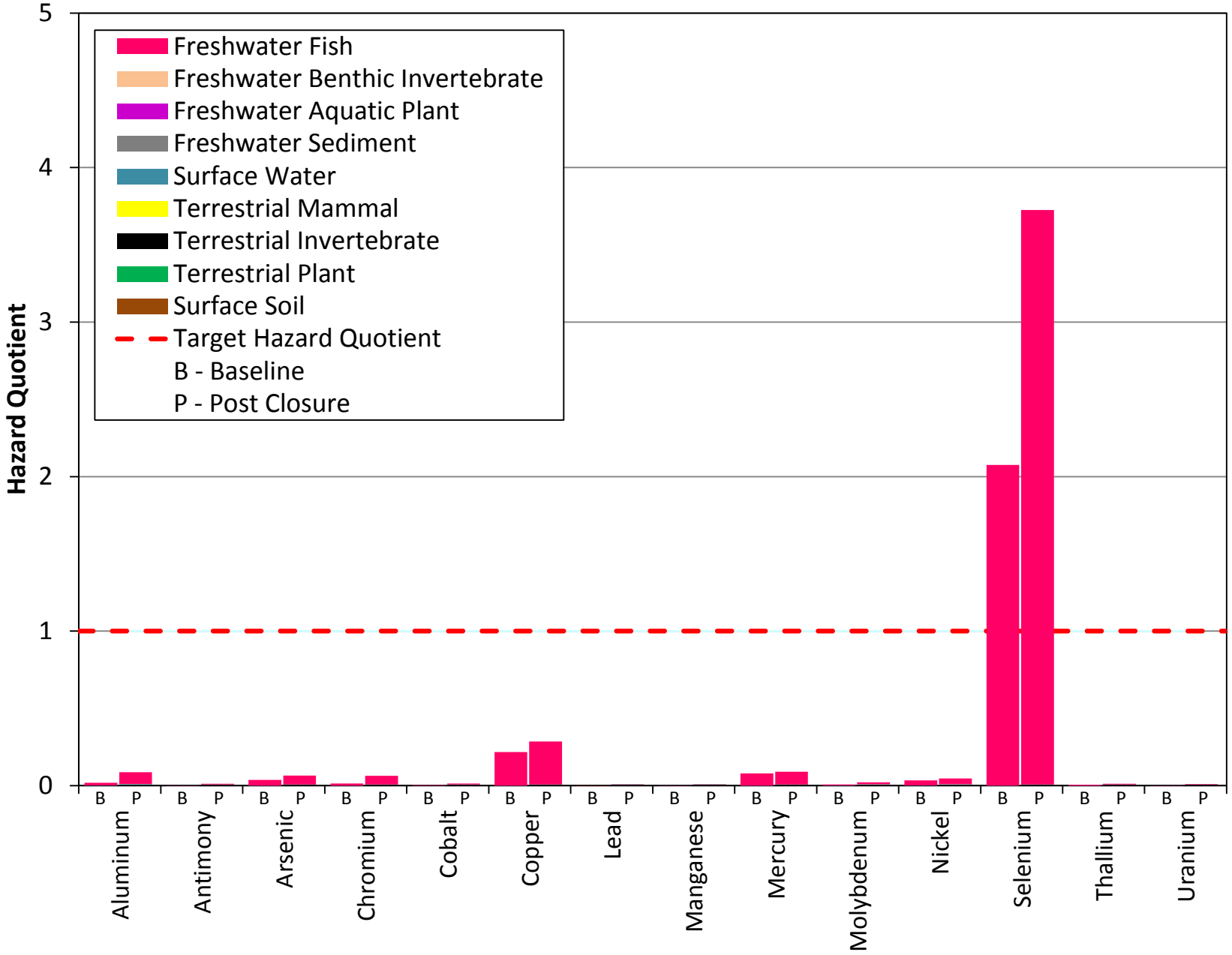
Detailed Hazard Quotients for the Black Bear Exposed to COPCs at Peterson Creek (PC02)



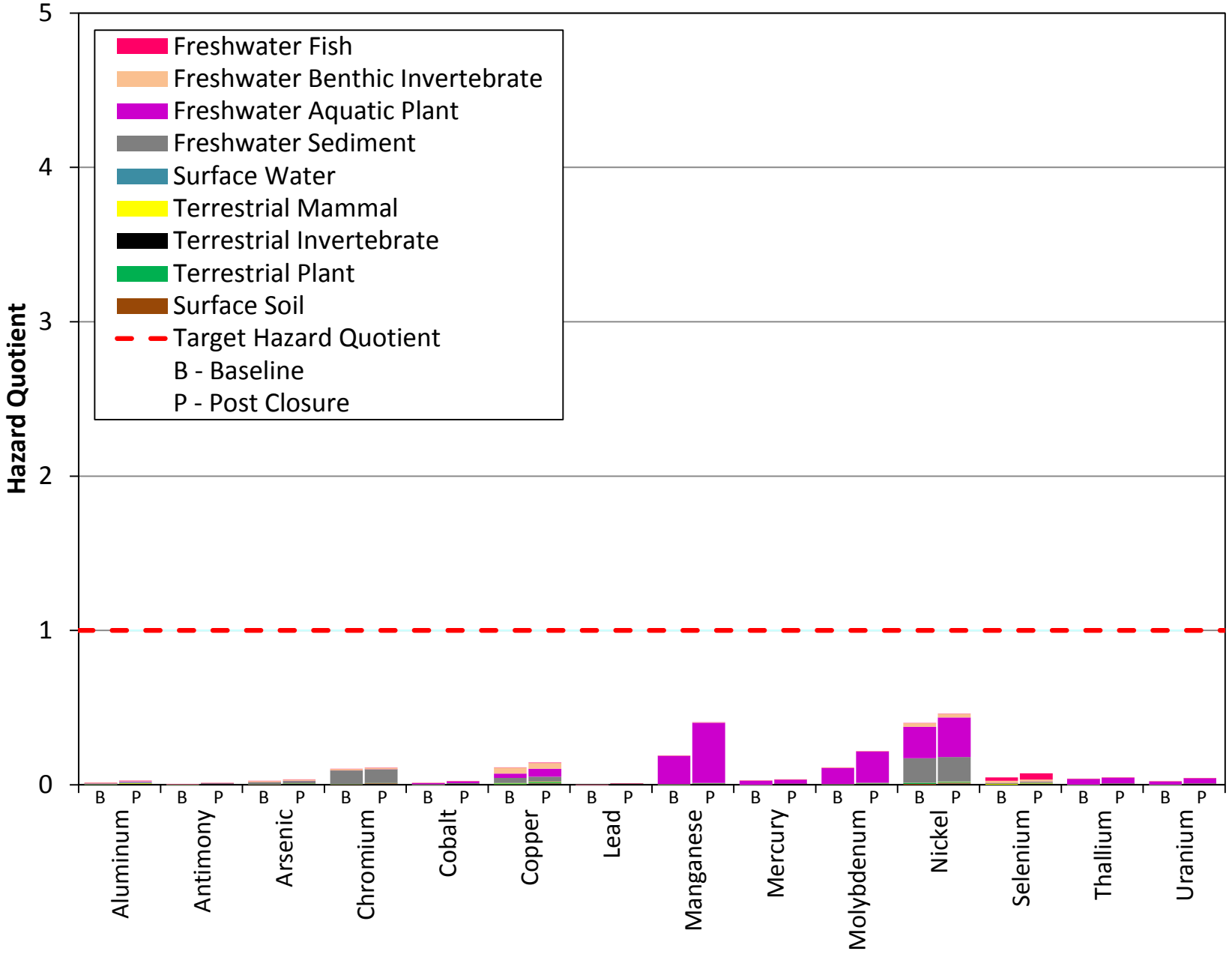
Detailed Hazard Quotients for the Moose Exposed to COPCs at Peterson Creek (PC02)



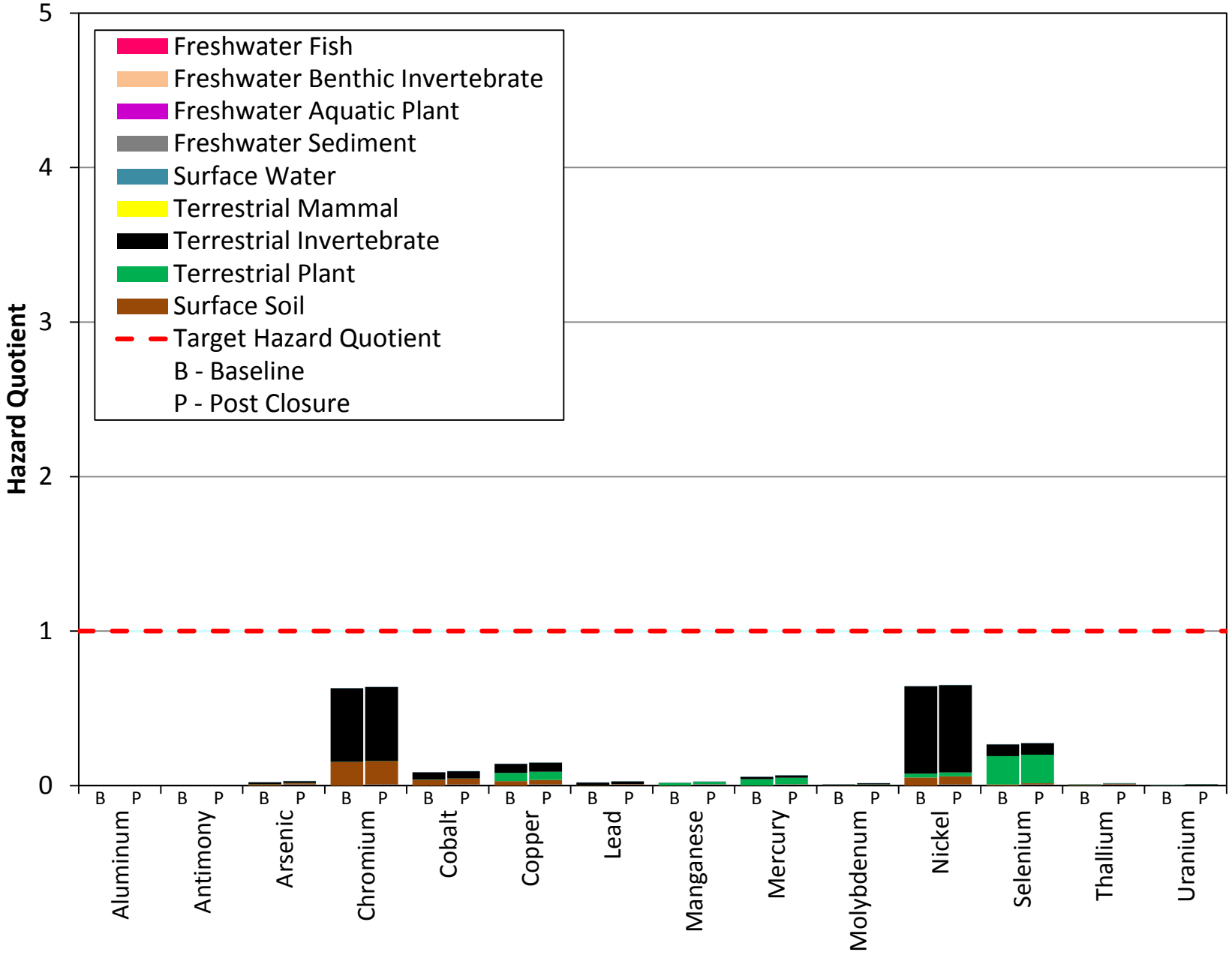
Detailed Hazard Quotients for the American Mink Exposed to COPCs at Peterson Creek (PC02)



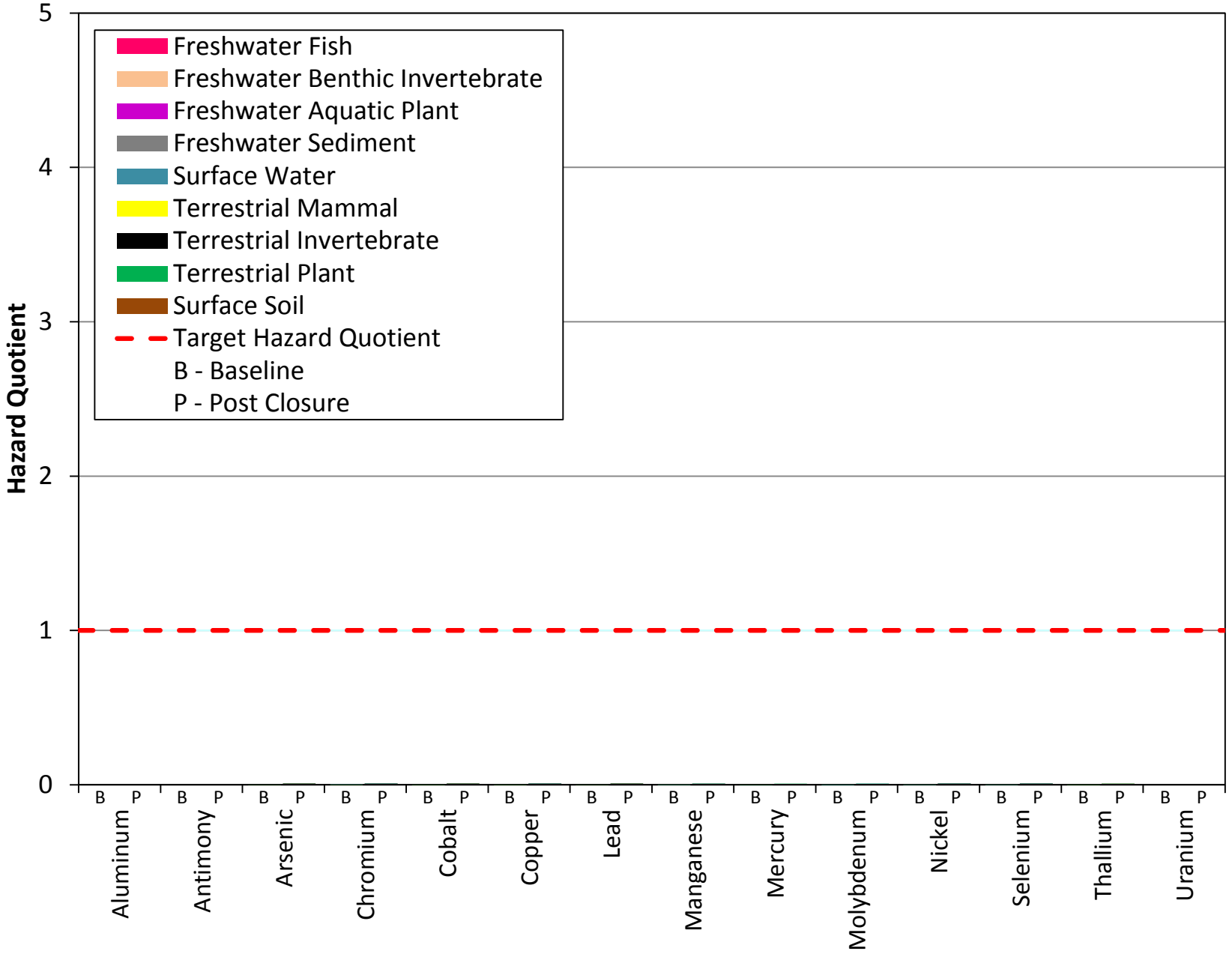
Detailed Hazard Quotients for the Muskrat Exposed to COPCs at Peterson Creek (PC02)



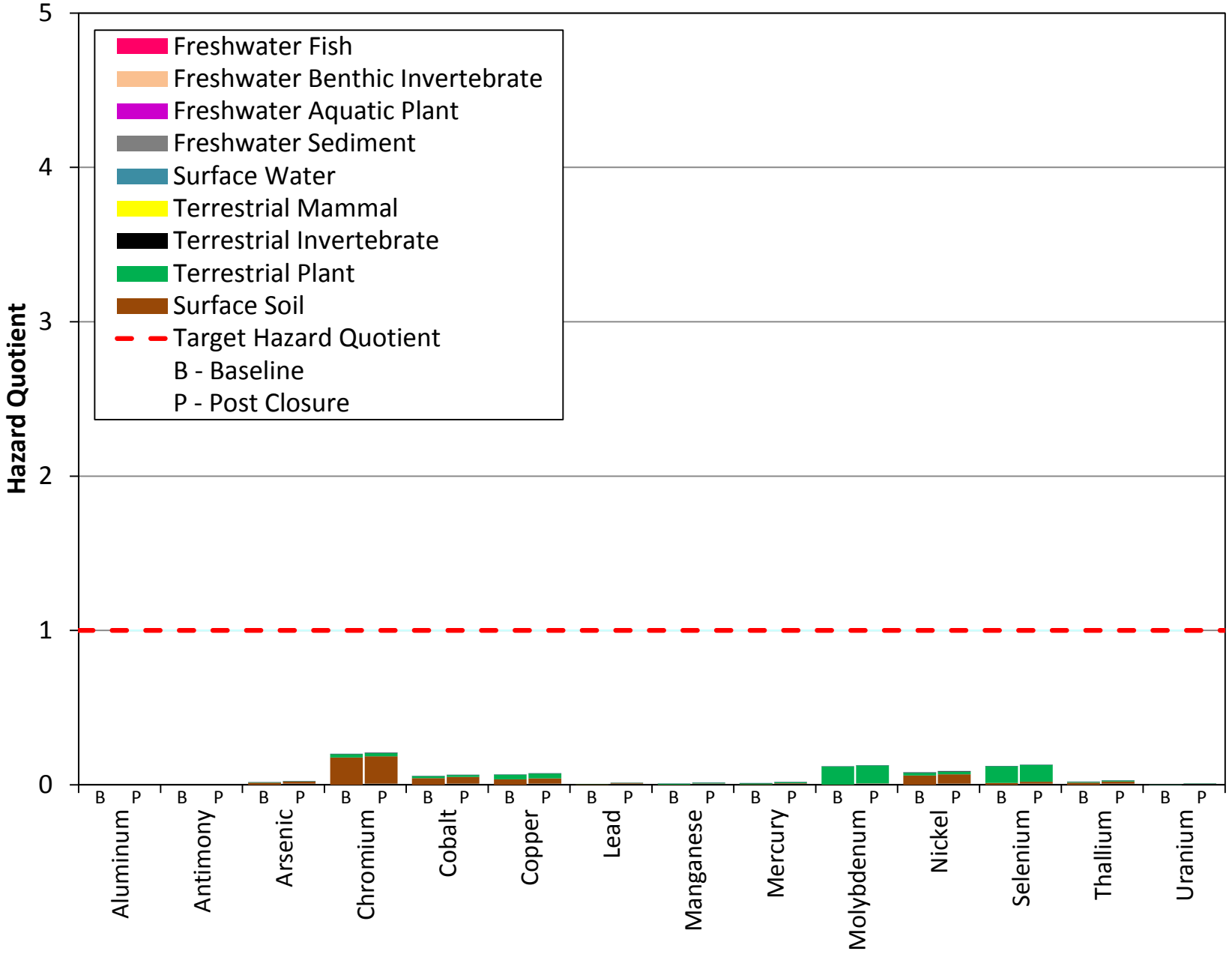
Detailed Hazard Quotients for the American Robin Exposed to COPCs at Peterson Creek (PC02)



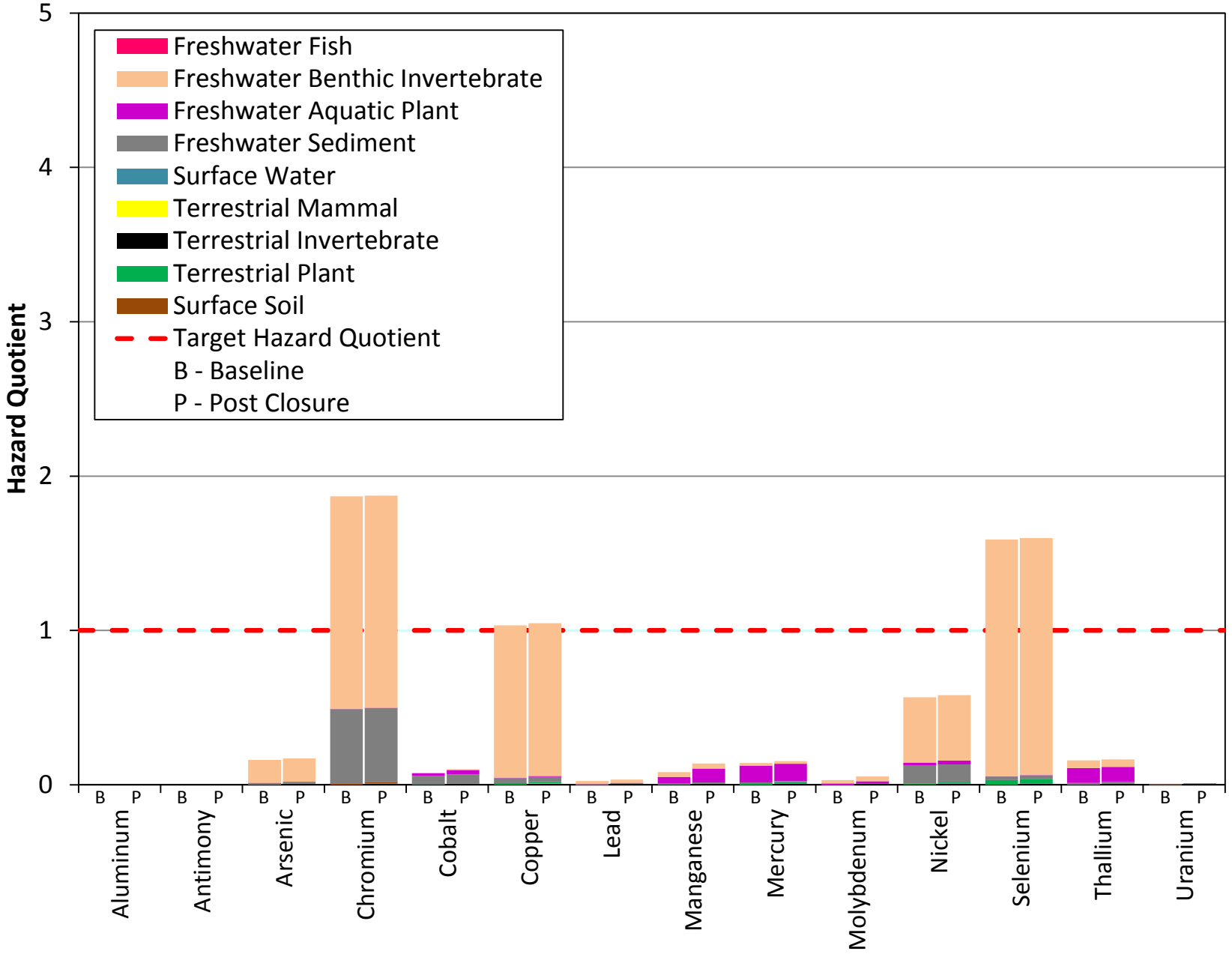
Detailed Hazard Quotients for the Ruffed Grouse Exposed to COPCs at Peterson Creek (PC02)



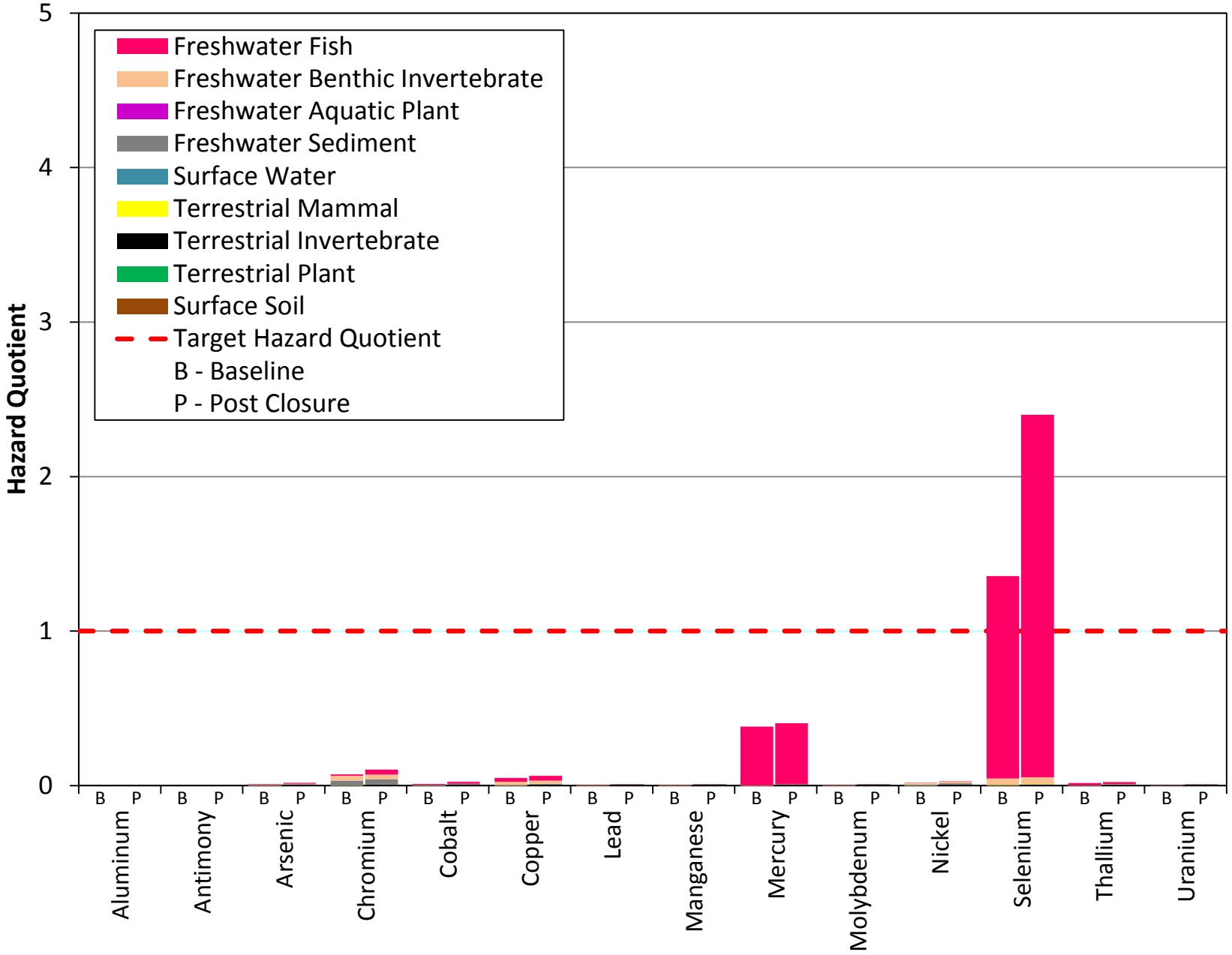
Detailed Hazard Quotients for the Canada Goose Exposed to COPCs at Peterson Creek (PC02)



Detailed Hazard Quotients for the Mallard Exposed to COPCs at Peterson Creek (PC02)



Detailed Hazard Quotients for the Great Blue Heron Exposed to COPCs at Peterson Creek (PC02)



Detailed Hazard Quotients for the Bald Eagle Exposed to COPCs at Peterson Creek (PC02)

