APPENDIX Q FISHERIES BASELINE SUMMARY

TREASURY METALS INC.
GOLIATH GOLD PROJECT
FISHERIES BASELINE DATA SUMMARY

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EXECUTIVE SUMMARY

Treasury Metals (TML) is a Canadian gold exploration and development company focused on its 100% owned high-grade Goliath Gold Project (the Project), situated in the Kenora/Dryden Mining District of northwestern Ontario. The Project is located adjacent to the village of Wabigoon, Ontario, approximately 20 km east of the city center of Dryden or 330 km west of the city of Thunder Bay. The Project is expected to require the completion of federal and provincial environmental assessments and permits prior to development. To support ongoing drilling activities and project permitting, TML retained DST Consulting Engineers Inc. (DST) to gather baseline data and to submit environmental reports summarizing data collection efforts that occurred in 2012 and 2013. Fisheries surveys were concentrated in two waterbodies and three streams; Thunder Lake, Wabigoon Lake, Thunder Creek, Blackwater Creek, and an Un-named tributary of Thunder Lake (Figure 1.2).

Thunder Lake is a cold-water lake characterized by low productivity, deep, clear water and relatively low temperatures year round. Data collection efforts summarized in this report were all conducted within the Hoffstrom's Bay area of the lake. Wabigoon Lake is a cool-water lake characterized by moderate to high productivity, relatively shallow turbid water and is considerably larger but generally shallower than Thunder Lake. Data collection efforts summarized in this report were all conducted within the Keplyn's Bay area. Fish tissues sampled from both lakes indicate elevated levels of mercury are present in some fish. Elevated mercury levels are common in the region, and the Wabigoon chain so these results are not unexpected. Spawning and habitat surveys were conducted in both bays during the spring of 2013. Although no spawning activity was observed, potentially suitable habitat for Northern Pike, Muskellunge, White Sucker, and Lake Whitefish was observed, and summarized in this report.

Thunder Creek is a small creek that connects Thunder Lake to Wabigoon Lake. Its headwaters are at the dam on the south shore of Thunder Lake. OMNR data indicate that a variety nursery and spawning habitat exists in the creek. Since this habitat has been previously documented additional surveys were not conducted and only a small number of Minnow Traps were set in the stream. Blackwater Creek is a small tributary stream of Wabigoon Lake. It flows mostly through a flat silty-clay glaciolacustrine plain (KCB 2012). It was previously described as having little bedrock, gravel, cobble or boulder substrates (KCB 2012). The unnamed Creek is a small tributary stream of Thunder Lake. Originating in the area surrounding the tree farm site it flows mostly through sandy soils and has been generally described as having soft substrates (KCB 2012). Tisssue samples of fish collected in streams within the study area indicate low levels of mercury are present but do not exceed MOE guidelines. Small fish community sapling was completed via minnow trapping and electrofishing. Common species included Finescale, Northern Redbelly, and Pearl Dace; Brook Stickleback; Fathead Minnow; Brassy Minnow, Creek Chub; and White Sucker.

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1. INTRODUCTION

Treasury Metals (TML) is a Canadian gold exploration and development company focused on its 100% owned high-grade Goliath Gold Project (the Project), situated in the Kenora/Dryden Mining District of northwestern Ontario. The Project is located adjacent to the village of Wabigoon, Ontario, approximately 20 km east of the city center of Dryden or 330 km west of the city of Thunder Bay.

The Project Area consists largely of two historic properties, the “Thunder Lake Property”, previously owned by Teck-Corona and the “Laramide Property”, located partially within both the Hartman and Zealand townships. The properties have a total area of approximately 4,881 hectares, comprised of 4,064 hectares of 137 unpatented land claims and 19 patented land claims for the remainder. Treasury holds the entire project subject to specific royalties on 13 of the patented land parcels. The site can be readily accessed year round from Highway 17 and from multiple public secondary roads that extend north from the highway, including Anderson Road, Maggrah Road and Tree Nursery Road.

The Project is expected to require the completion of federal and provincial environmental assessments and permits prior to development. To support ongoing drilling activities and project permitting, TML retained DST Consulting Engineers Inc. (DST) to gather baseline data and to submit environmental reports summarizing data collection efforts that occurred in 2012 and 2013.

The Baseline Assessment Studies include the following components:

- Surface Water Quality;
- Sediment Quality;
- Benthic Invertebrates Community;
- Fisheries;
- Wildlife;
- Birds;
- Wetlands and vegetation; and,
- Hydrology.

The following report presents the results of the fisheries component for the 2012 and 2013 aquatic baseline data collection efforts.

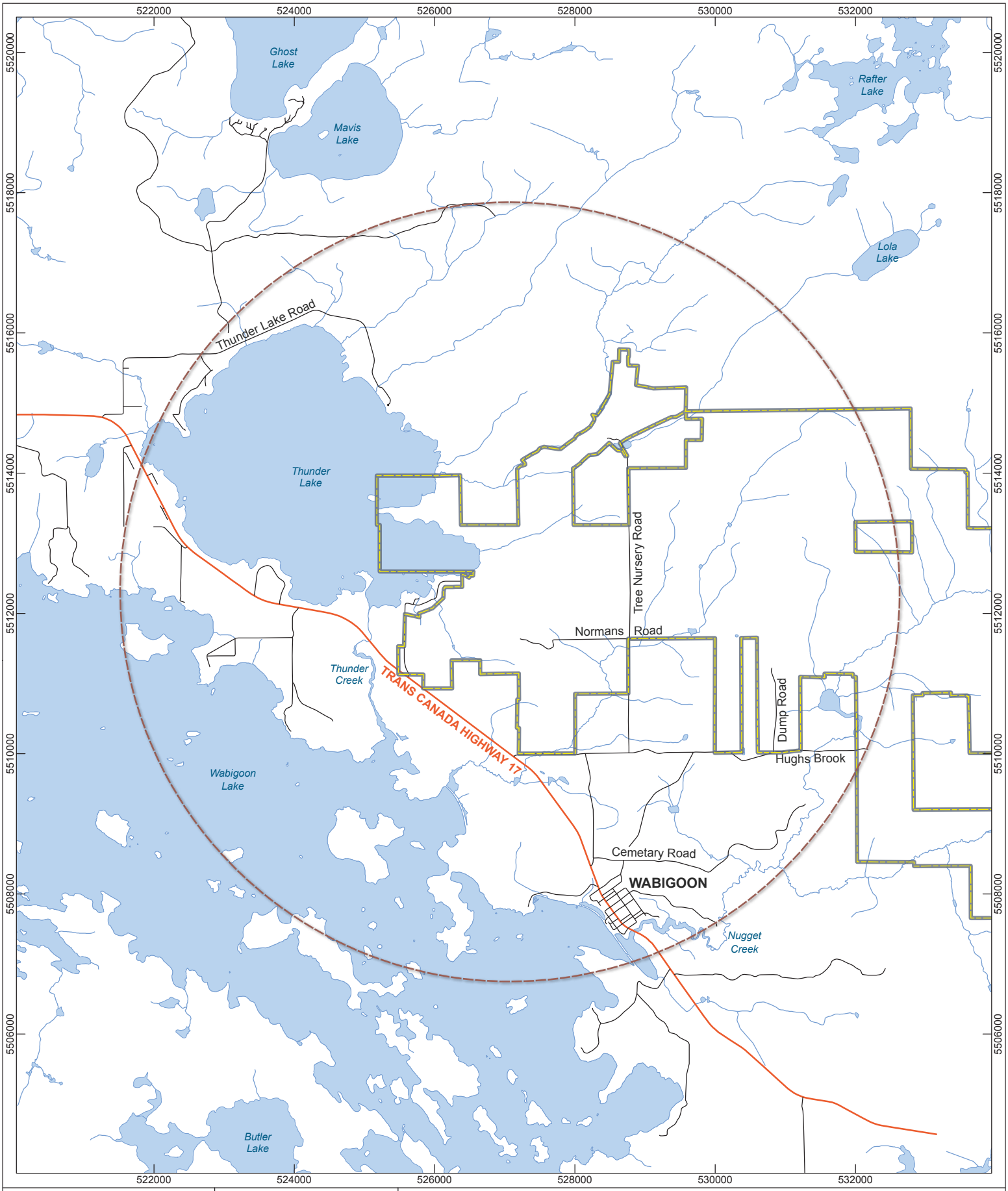
1.1 Study Areas

The project site is located within the Lake Wabigoon Ecoregion (Ecoregion 4S) which extends from the northern portion of the Lake of the Woods east to Lac Seul and Dryden. The climate in ecoregion 4S is cool and dry with warm, moist summers and cold winters. The vegetation of ecoregion 4S is predominantly mixed forest (25%), sparse forest including peat lands (24%), and coniferous forest (14%). Water makes up about 24% of the area. This ecoregion is within the Lower English River Section in the Boreal Forest Region. Mixed stands of boreal forest species, such as trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*), and white spruce (*Picea glauca*) make up much of the forest cover, on well drained sites. Jack pine (*Pinus banksiana*), balsam fir (*Abies balsamea*), and white birch (*Betula papyrifera*) are common typically on well-drained soils but are also prevalent on and around bogs and other wetlands. Extensive peat lands with black spruce (*Picea mariana*), tamarack (*Larix laricina)*, eastern white cedar (*Thuja occidentalis*), willow (*Salix spp*.), and speckled alder occupy low lying, poorly drained sites. Red and white pine (*P. resinosa and P. strobus*) communities are restricted to warmer than average sites.

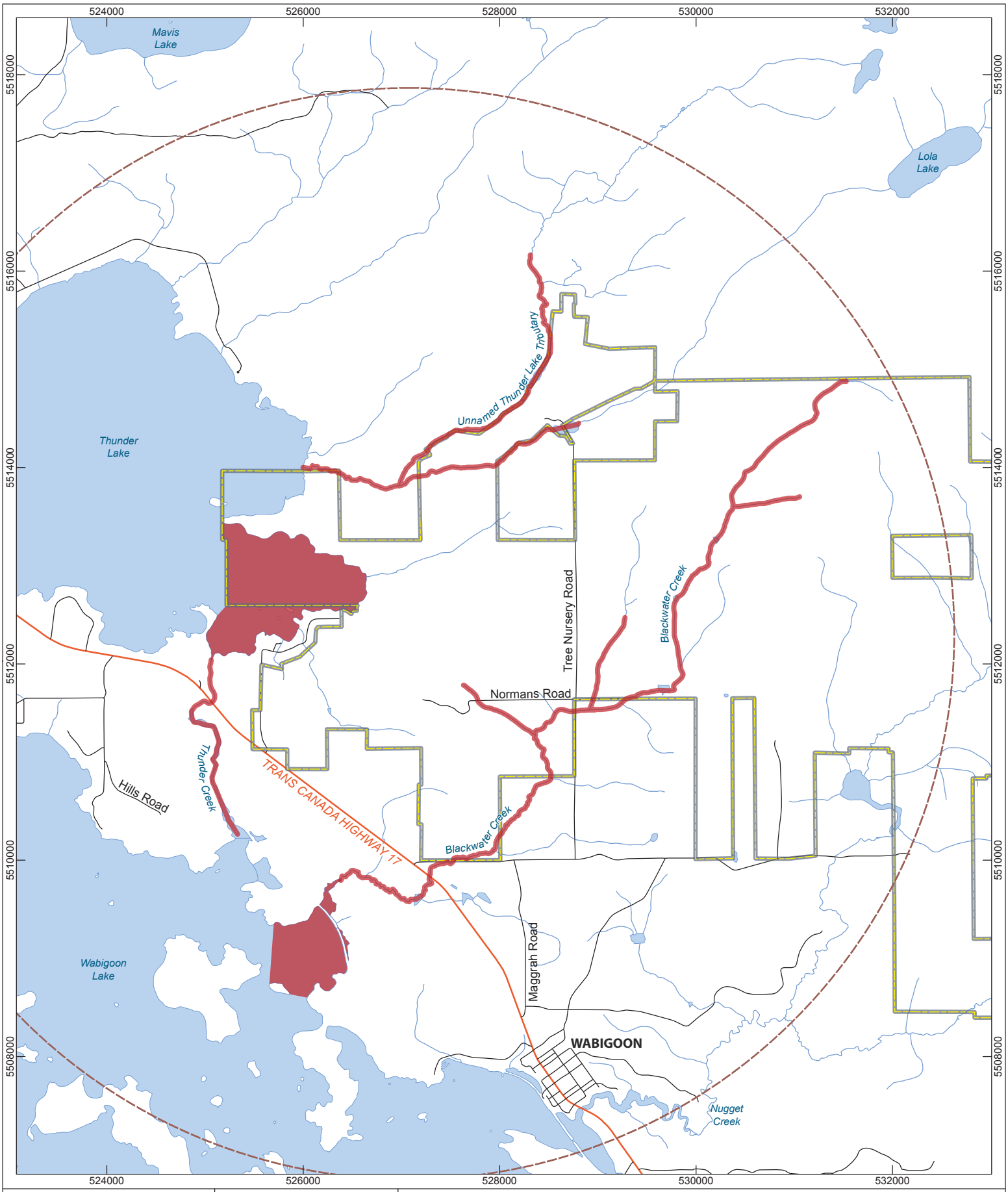
From a regional perspective the project is within Fisheries Management Zone (FMZ) 5. Management zones are geographic regions characterized by similar ecological, physical, social, and economic attributes (OMNR 2010). FMZ 5 covers an area of 44,360 km^2 extending from the Manitoba border in the west, to the boundaries of Quetico Provincial Park in the east. The zone extends north from the US border to the Dryden area and Wabigoon River watershed. Within the FMZ 5 boundary there are 5000 lakes over 10 ha in size and thousands of kilometers of river and stream habitat (OMNR 2012a). A total of 23% of the FMZ 5 area is permanent water, and additional 7% is wetland. Zone 5 is within the Nelson River primary watershed. Most of the land base in Zone 5 drains west through the Rainy River Lake of the Woods system to Lake Winnipeg and the Nelson River to Hudson Bay (LCWB, 2002). Thunder and Wabigoon Lakes are located in the northern limit of FMZ 5, and drain northwest through the Wabigoon River into the English River.

Lakes typical of FMZ 5 are characterized by low productivity, small size and deep water (Cano and Parker, 2007). These clear lakes represent one of two general fish community types found in the region, a cool-water community, with the other community type being cold-water. Cool-water communities are most often found in highly productive, shallow water lakes, such as Wabigoon Lake, and are characterized by fish species with optimum growth occurring between 15°C and 25°C (Scott and Crossman 1973). Common sport fish in cool-water communities include Walleye (*Sander vitreus*), Northern Pike (*Esox lucius*), Smallmouth Bass (*Micropterus dolomieui*), and Muskellunge (*Esox masquinongy*). Thunder Lake is representative of a cold-water fish community. Cold-water communities are found in clear, cold, deep water lakes and support fish species with optimal growth temperatures below 15°C (Scott and Crossman 1973). Lake Trout (*Salvelinus namaycush*), and Lake Whitefish (*Coregonus culpeaformis*) are common sport fish in cold-water lakes. The fish community structure can be diverse in cold-water lakes and may contain species that are more commonly associated with cool-water lakes such as Walleye, and Northern Pike, both of which occur in Thunder Lake.

In order to keep data collection efforts consistent among years, DST utilized the Project Study Area delineated by KCB (Figure 1.1). This study area is approximately 10 km in radius centered on the site and encompasses a total area of 9492.49 ha. The study area encompasses Treasury's claims as well as the areas immediately adjacent to these locations that may be influenced by development. Fisheries surveys were concentrated in two waterbodies and three streams; Thunder Lake, Wabigoon Lake, Thunder Creek, Blackwater Creek, and an Unnamed tributary of Thunder Lake (Figure 1.2).



GOLIATH GOLD PROJECT DRYDEN, ONTARIO, CANADA	SCALE: 70000 *TREASURY METALS INC.*	**LEGEND** Local Study Area Property Boundary Highway Local Road Waterbody Watercourse
LOCATION OF GOLIATH GOLD PROJECT STUDY AREA	*DESIGN: AT 06 FEB. 2014* *GIS: AT 18 FEB. 2014* *CHECK: MP 19 MAR. 2014* *REVIEW: KE 19 MAR. 2014*	N 0 500 1,000 1,500 Meters
FIGURE: 1.1.1 REV.02		***REFERENCE*** *Data by Treasury Metals Inc. and DST Consulting Engineers* *Projection: NAD83 UTM Zone 15N*



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

2012 AND 2013 FISHERIES STUDY AREAS

FIGURE: 1.1.2 | REV.02

SCALE: 50 000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 19 FEB. 2014
CHECK: MP 19 MAR. 2014
REVIEW: KE 19 MAR.2014

LEGEND

- Fisheries Survey Area
- Local Study Area
- Property Boundary
- Highway
- Local Road
- Waterbody
- Watercourse

N

0 500 1,000
Meters

REFERENCE
Data by Treasury Metals Inc.
and DST Consulting Engineers
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

DST consulting engineers

2. METHODOLOGY

2.1 Lakes

2.1.1 *Background Information*

A variety of literature and publically accessible data sources were reviewed and summarized in order to provide a general description of Thunder and Wabigoon lakes and the fish communities found in their waters.

2.1.2 *Tissue Sampling*

Fish tissue sampling was completed during the fall of 2012 on Thunder and Wabigoon lakes. Staff from TML and DST collected tissue samples from 42 fish over the course of three days. Walleye were selected as a target species as they are most likely to be included as VC's during the Environmental Assessment (EA) and permitting process. The majority of fish were caught by angling methods and all angling gear was in accordance with the regulations outlined in the Ontario Recreational Fishing Regulation Summary (2013). Due to low catch rates short duration gill net sets were attempted, which involved one half of a large-mesh Broadscale (Sandstrom et al 2010) net being set for less than 30 minutes at a time to limit potential by-catch. This methodology was chosen based on direction provided by the Dryden district OMNR. Total length, fork length, weight and sex were recorded for each fish captured. An ageing structure was removed and sent to Jon Tost of Great Lakes Environmental for analysis. An approximately 50g section of dorsal muscle tissue removed and sent to ALS Laboratories for contaminant analysis. A summary of results for Mercury (Hg) concentrations is provided in this report, results for other contaminants are provided in Appendix B.

2.1.3 *Fish Habitat and Spring Spawning*

Fish habitat mapping was completed in conjunction with the 2013 spring spawning survey. The survey effort focused on the Hoffstrom's Bay area of Thunder Lake, and Keplyn's Bay of Wabigoon Lake. Field staff from DST and TML completed visual surveys of the two bays and documented fish habitat features such as substrate, evidence of aquatic vegetation, bathymetric measurements, and temperature. Locations of fish habitat features were recorded using a hand held GPS. A series of photographs were also taken to document the observed conditions (Appendix C). An AquaVu underwater camera system was used to confirm substrate types.

A visual survey for spawning behaviour was conducted in the Hoffstrom Bay area of Thunder Lake, and Keplyn's Bay of Wabigoon Lake. The survey occurred shortly after ice out in the spring of 2013, target species included Northern Pike and Walleye. Field staff completed a seach of each bay to identify presence of potential spawning habitat and used an AquaVu underwater camera system to search for spawning fish. If spawning fish were detected the location was stored on a handheld GPS and a description of the habitat and spawning behaviour observations were recorded.

2.2 Streams

2.2.1 *Minnow Trapping*

Minnow trapping was used in each of the three streams to sample the cyprinid community. Minnow traps were standard "Gee" style traps, each constructed of ¼ inch wire mesh with two funnel openings and were cylindrical in shape. Minnow traps were fished on bottom in a variety of habitat types and baited with dog food pellets. Trap locations were recorded by handheld GPS and left to fish overnight. All traps were checked within 24 hours of being set. Catch was identified to species level and in groups where hybridization is common (Phoxinus sp.) to genus. Total length was measured and tallied by species into 10 mm size classes. In cases where trap catches were large a representative subset of fish were measured and weighed, all other fish were identified to species and released.

2.2.2 *Electrofishing*

The electrofishing methodology followed the Ontario Stream Assessment Protocol (OSAP) Standard Single Pass Survey methodology appropriate for wadeable, hard-bottomed streams. This approach is effective for producing comprehensive fish species lists, characterizing fish communities and providing qualitative assessments of species abundance (OMNR 2005). The single pass method requires an effort of 7-15 seconds/m^2, and attempts to capture all fish observed and 60-70 % of the population. Prior to electrofishing, the water temperature and conductivity were taken in order to properly calibrate the settings on the electrofisher. Electrofishing occurred in two streams

2.2.3 *Habitat Assessment*

Standard methodologies for assessing habitat in wadeable streams were followed in order to allow for the characterization of channel structure (cover, substrate), channel processes and the stream's suitability for biota. Stream assessment site boundary identification followed the OSAP procedure where possible, and was based on geomorphic criteria, such as riffle – pool sequences. The OSAP indicates that a sampling site should include at least one riffle – pool sequence, be at least 40 m long and begin and end at a crossover point. Where crossover points were difficult to identify, an area with similar bank heights on both sides and a relatively uniform channel depth was chosen as the bottom (downstream limit) of the site. An area at least 40 m upstream with similar characteristics was chosen as the top (upstream limit) of the site.

OSAP's Rapid Assessment Methodology (RAM) was used to characterize stream habitat at each site. The data collected included substrate, depth, in-stream morphology, cover and bank stability. All data was collected using the point transect method, with each site consisting of 6 - 10 transects evenly spaced perpendicular to the flow of the stream throughout the site (one transect every 4 to 10 meters, depending on the length of the site). Six observation points were visually located along each transect, with depth and point substrate measurements being made directly below the point, while cover and maximum particle size measurements were made within a visualized 30 cm ring around each point. The bank stability of both banks at each transect were categorized into one of four categories: eroding bank, vulnerable bank, protected bank, or deposition zone.

2.2.4 *Tissue Sampling*

Minnow trapping was used to collect small bodied fish for tissue sampling in streams. Minnow traps were standard “Gee” style traps, each constructed of ¼ inch wire mesh with two funnel openings and are cylindrical in shape. Minnow traps were fished on bottom in a variety of habitat types and baited with dog food pellets. Trap locations were recorded by handheld GPS and left to fish overnight. All traps were checked within 24 hours of being set. Catch was identified to species level and in groups where hybridization is common (Phoxinus sp.) to genus. Total length was measured and tallied by species into 10 mm size classes. Samples were packages and sent to ALS Laboratories for contaminant analysis. A summary of results for Mercury (Hg) concentrations is provided in this report, results for other contaminants are provided in Appendix B.

2.2.5 *Spring Spawning*

A visual spring spawning survey was conducted throughout Blackwater Creek. The survey occurred shortly after ice out in the spring of 2013 and targeted Northern Pike and Walleye. Field staff completed a foot search of the creek to identify presence of potential spawning habitat and used an AquaVu underwater camera system to search for spawning fish. If spawning fish were detected, the location was stored on a handheld GPS and a description of the habitat and what was observed was recorded.

3. RESULTS

3.1 Thunder Lake

3.1.1 *Background Information*

Thunder Lake is a coldwater lake characterized by low productivity, deep, clear water and relatively low temperatures year round. It has a surface area of 1,123 ha and a mean depth of 11.1 m. The lakes maximum depth is 23.5 m (OMNR 2013a). Water levels in Thunder Lake are controlled by a small dam at the head of Thunder Creek in Aaron Provincial Park. Coldwater lakes typically support fish species with optimum growth temperatures below 15°C (OMNR 2010) including Lake Trout and Lake Whitefish, both of which are present in Thunder Lake. However fish communities can be diverse in coldwater lakes and many species more often associated with cool-water communities may be present (OMNR 2010). This is the case in Thunder Lake which also hosts populations of; Walleye, Smallmouth Bass, Northern Pike and Yellow Perch. A list of fish species, as determined by Klohn Crippen Berger (KCB) in Thunder Lake is provided in Table 3.1.1. Thunder Lake is one of 560 known Lake Trout lakes found in FMZ 5, more than any other FMZ in the province. The zone advisory council has identified four objectives to guide the management of Lake Trout lakes: maintaining current abundance, maintaining angling opportunities, maintaining the relative proportion of mature fish (>56cm), and to protect mature trout during the fall spawning season (OMNR 2012b). The zone objectives should be considered when evaluating proposed developments that may impact designated Lake Trout lakes.

The east shore of Thunder Lake is largely undeveloped in comparison to the remaining shoreline of the lake which is dominated by private homes, seasonal camps and public campgrounds. The spring spawning and habitat surveys as well as the tissue sample collection efforts summarized in this report were all conducted within the Hoffstrom’s Bay area. In general terms the study area can be describes as beginning at Aaron Provincial Park public boat launch

north to the tip of a large peninsula, and extending east to the inlet of a small stream and large wetland area (Figure 1.2).

Table 3.1.1 Fish species present in Thunder Lake as determined by KCB.

Sport Fish	Non-sport Fish
Lake Trout (*Salvelinus namaycush*)	Cisco (*Coregonus artedii*)
Lake Whitefish (*Coregonus culpeaformis*)	White Sucker (*Catostomus commersonii*)
Northern Pike (*Esox lucius*)	Burbot (*Lota lota*)
Walleye (*Sander vitreus*)	Trout Perch (*Percopsis omiscomaycus*)
Yellow Perch (*Perca flavescens*)	Rock Bass (*Ambloplites rupestris*)
Smallmouth Bass (*Micropterus dolomieu*)	Johnny Darter (*Etheostoma nigrum*)
	Mottled Sculpin (*Cottus bairdii*)

(KCB, 2012)

3.1.2 *Tissue Sampling*

Fish capture efforts on Thunder Lake were completed in Hoffstrom's Bay on September 7th, 2012. A total of 11 Walleye were caught by angling. All 11 fish were retained for tissue sampling and ageing. All of the Walleye sampled were two years of age or less. The largest individual was two years old, had a total length of 343 mm and weighed 345 g (Table 3.1.2). The smallest fish was 252 mm long and weighed 114 g. Mercury results for the largest and smallest fish in the sample were 0.143 mg/kg and 0.331 mg/kg respectively (Table 3.1.2, Figure 3.1.1). Mercury levels ranged from a low of 0.102 mg/kg to a high of .503 mg/kg (Figure 3.1.1). Detailed catch records for tissue sampling are included in Appendix A, and complete lab results are included in Appendix B.

Many Lakes in northwestern Ontario have high mercury concentrations in large bodied fish, particularly predatory species (OMNR 2013b). Mercury is a naturally occurring metal at low levels in the atmosphere, water, soil, rocks and decomposing plant and animal matter (MOE 2013). Anthropogenic sources of mercury include industrial emissions and waste as well as burning of fossil fuels. Mercury that has been deposited in a waterbody is taken up through the food chain and accumulates at higher concentrations in predatory fish over time. Because elevated levels of mercury are common in sport fish species across Ontario, the Ontario Ministry of the Environment (MOE) monitors mercury levels in numerous waterbodies and provides guidelines for safe consumption of fish (MOE 2013). MOE guidelines are applied to two categories. First is for sensitive populations including children under 15 and women of child-bearing age where restrictions begin at 0.26 mg/kg and a "do not eat" restriction of 0.52 mg/kg. Second is for the general population where restrictions begin at 0.61 mg/kg and a "do not eat" advisory for levels greater than 1.84 mg/kg. Four fish sampled from Thunder Lake exceeded the minimum levels advised for sensitive populations of 0.26.mg/kg and are highlighted in table 3.1.2. All were below levels that would result in a "do not eat" advisory under MOE guidelines for either the general or sensitive population categories. These results are not unexpected, as elevated mercury levels are common in lakes throughout the region.

Table 3.1.2 Results of mercury contaminant sampling of fish captured in Thunder Lake.

Species	Fish ID#	Weight (g)	Total Length (mm)	Sex	Age	Mercury (mg/kg)
Walleye	F31	130	266	M	1	0.143
Walleye	F32	114	252	F	1	0.331*
Walleye	F33	345	343	F	2	0.143
Walleye	F34	120	263	M	1	0.142
Walleye	F35	205	296	M	1	0.102
Walleye	F36	140	272	M	1	0.157
Walleye	F37	135	265	F	1	0.272*
Walleye	F38	165	275	F	1	0.195
Walleye	F39	120	258	M	1	0.261*
Walleye	F40	120	257	M	1	0.191
Walleye	F41	125	257	U	1	0.503*

-* Exceeds MOE guidelines for sensitive population

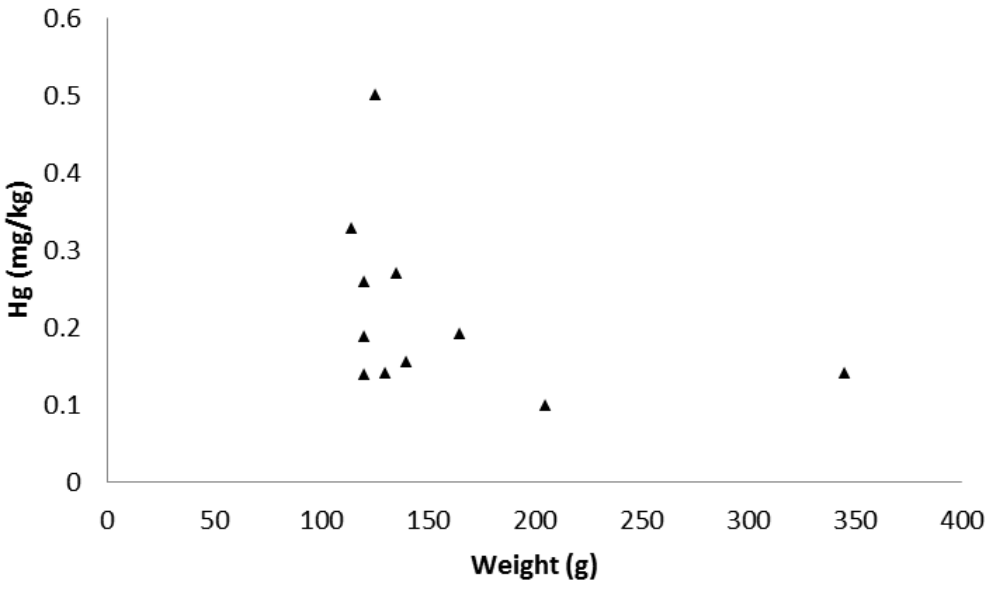
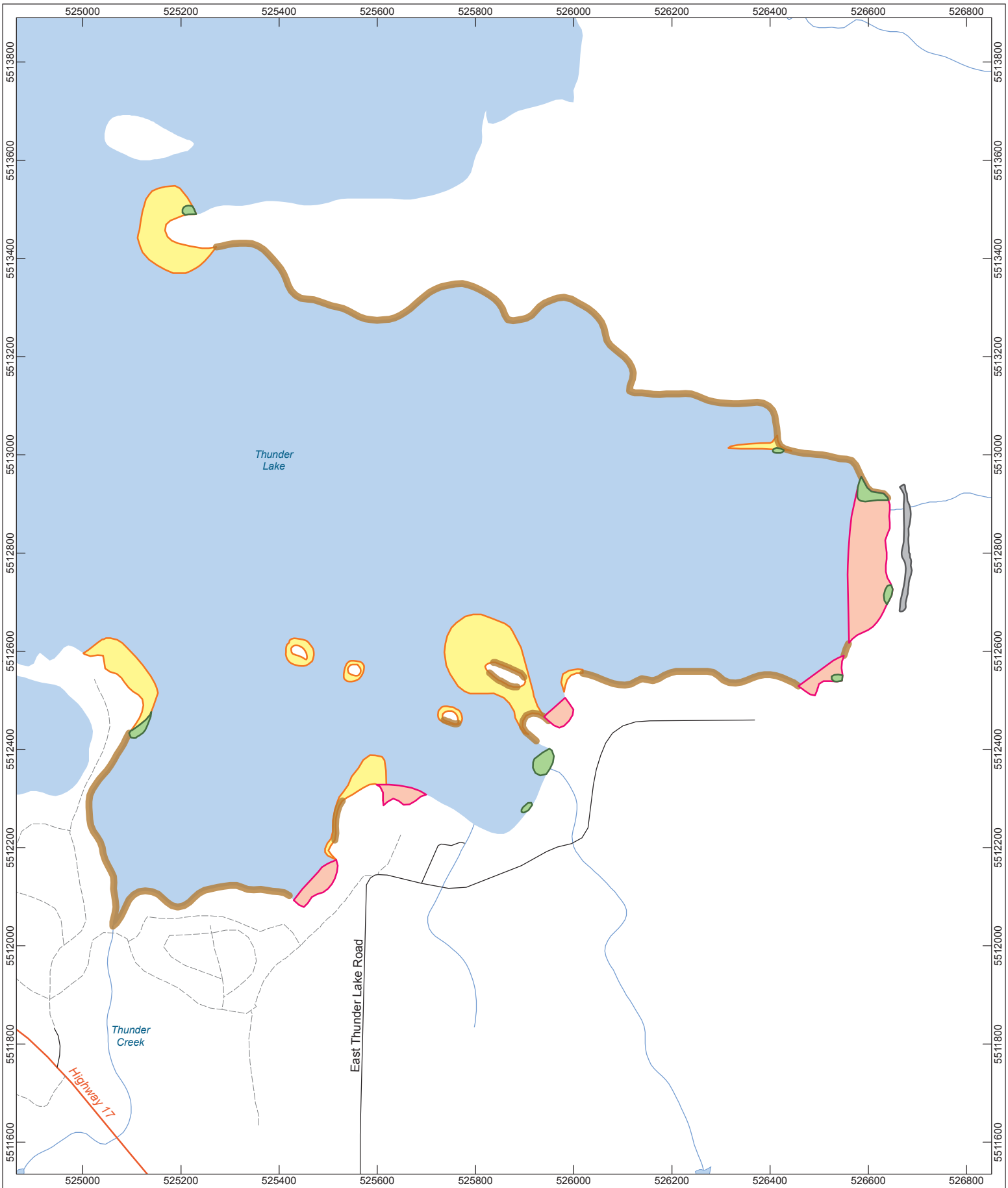


Figure 3.1.1. Mercury results by weight of Walleye from Thunder Lake.

3.1.3 *Habitat Mapping and Spring Spawning Survey*

An observational survey of littoral zone habitat was completed in Thunder Lake on May 23rd and June 5th, 2013. The documentation from the habitat survey has been illustrated using a variety of general descriptive categories in Figure 3.1.2, field notes are provided in Appendix C and site photos are included in Appendix D. The peninsula that forms the north shore of Hoffstrom's Bay is dominated by a generally rocky shoreline composed of a mix of bedrock, cobble and gravel with small areas of sparse aquatic vegetation. At the western end of the peninsula there is a large area of rock and cobble that has been identified as one of many areas where habitat improvement work completed by OMNR to enhance whitefish spawning habitat (Figure 3.1.3). At the head of the bay a large area has been flooded by beaver activity. The area upstream of the dam is dominated by aquatic vegetation, coarse woody debris and a mix of willow (*Salix sp.)* and alder (*Alnus Sp.*) shrubs around the margins. The shoreline in front of the dam is mostly sandy and silty with sparse submergent aquatic vegetation. Most of the northwest facing bays along the south shore of the bay are similar and have sandy/silty substrates, sparse aquatic vegetation and sandy shorelines. Other areas along the south shore are a similar mix of rock and sparse aquatic vegetation to those observed on the north shore. The peninsula that forms the southwest boundary of the study area has a large area of boulders and cobble that has been also been identified as a habitat improvement area. There are four small islands in Hoffstrom's Bay. The three smallest islands are predominantly rocky and have very little aquatic vegetation. Whereas, the largest island has a rocky shoreline with sparse aquatic vegetation and coarse woody debris. The northwest tip of the large island has a large bedrock cobble shoal extending northwest into deeper water. The maximum depth observed during the habitat and spawning survey was 13 m.

A additional objective of the littoral zone survey was to identify potential Northern Pike and Walleye spawning habitat. Pike spawning habitat can be generally described as shallow water with abundant aquatic vegetation (Scott and Crossman 1998). Pike spawn early in the spring when water temperatures range between 4°C and 11°C (Scott and Crossman 1998). The water temperature during the surveys ranged between 10°C and 15°C on May 23rd, and 12°C to 19°C on June 5th. No spawning pike were observed during the survey although suitable areas of aquatic vegetation were documented. If pike do spawn within the study area it may have occurred prior to the survey when water temperatures were cooler and in the optimal range described by Scott and Crossman (1998). As for Walleye their preferred spawning habitat includes rocky bottomed areas of rivers and streams often below waterfalls or other barriers to fish movement (Scott and Crossman 1998). However, they can also spawn successfully on coarse gravel shoals in lakes. The optimal temperature range for spawning is 5°C to 11°C (Scott and Crossman 1998). Water temperatures exceeded this range during both surveys and no Walleye spawning was observed. Furthermore, it does not appear that fish can access the small tributary stream at the east end of Hoffstrom's Bay due to Beaver dams creating barriers to fish movement. Lake Whitefish spawning areas identified on Figure 3.1.3 are sourced from OMNR data and describe areas where habitat improvement work has occurred but no survey has been conducted by DST to confirm the use of those areas for spawning.



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

GENERAL FISH HABITAT OBSERVATIONS, HOFFSTROM'S BAY

FIGURE: 3.1.2 | REV.01

SCALE: 10 000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 05 MAR. 2014
CHECK: MP 19 MAR. 2014
REVIEW: KE 19 MAR. 2014

- Rocky with Sparse Aquatic Vegitation
- Aquatic Vegetation
- Soft Substrates (sand, silt, organics)
- Beaver Dam
- Bedrock/Boulder Cobble
- Highway
- Local Road
- Recreational Road
- Waterbody
- Watercourse

N

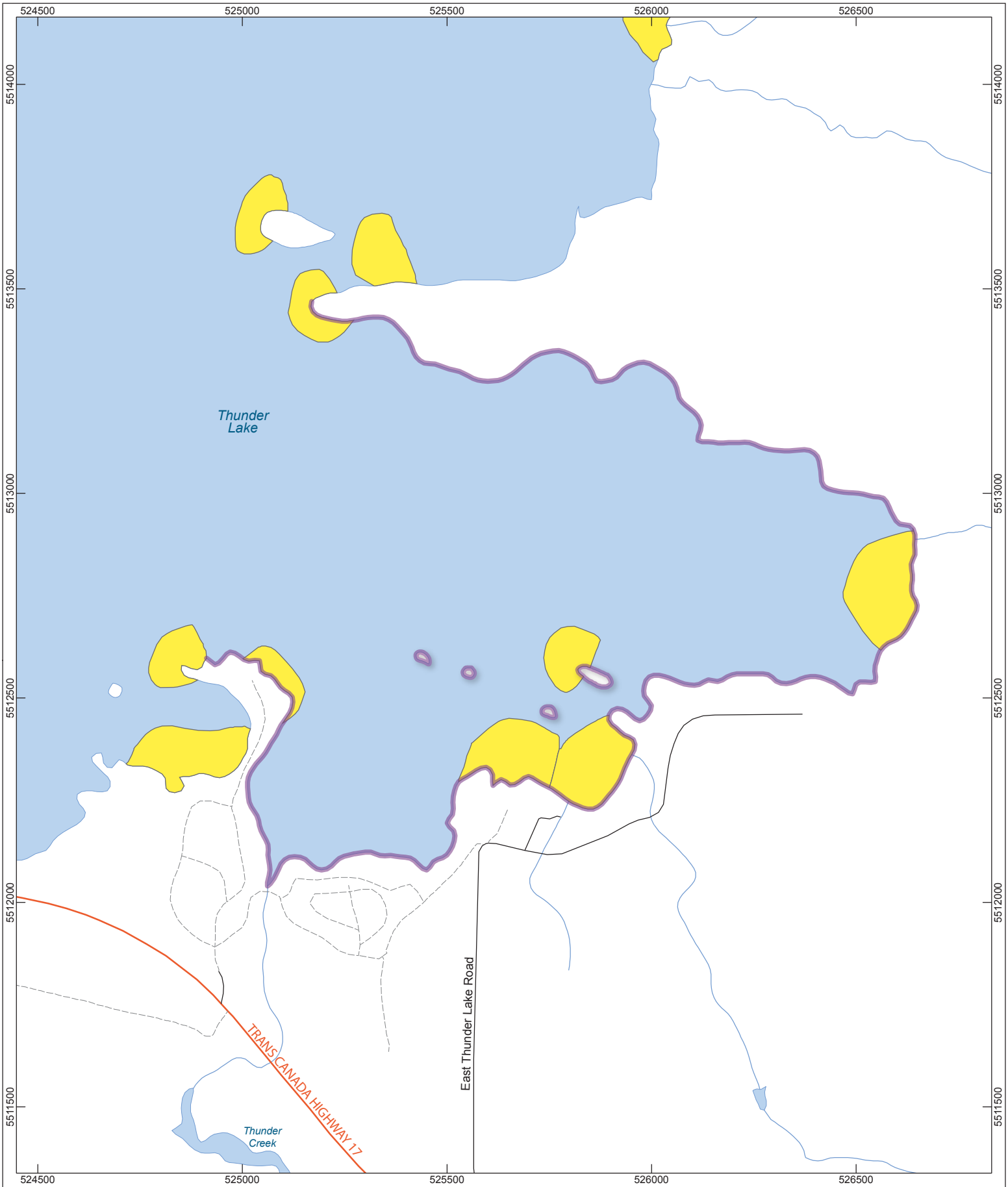
0 100 200
Meters

REFERENCE

Data by Treasury Metals Inc.
and DST Consulting Engineers
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

DST consulting engineers



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

HOFFSTROM'S BAY POTENTIAL SPAWNING HABITAT

FIGURE: 3.1.3 | REV.01

SCALE: 12 000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 18 FEB. 2014
CHECK: MP 19 MAR. 2014
REVIEW: KE 19 MAR. 2014

LEGEND

- Spring Spawning Survey Area
- Potential Whitefish Spawning Area
- Waterbody
- Watercourse
- Highway
- Local Road
- Recreational Road

N

0 100 200 300
Meters

REFERENCE

Data by Treasury Metals Inc.
and DST Consulting Engineers
Projection: NAD83 UTM Zone 15N

DST consulting engineers

3.2 Wabigoon Lake

3.2.1 *Background Information*

Wabigoon Lake is a cool water lake characterized by moderate to high productivity, relatively shallow turbid water where optimum growth of fish occurs between 15°C and 25°C (Scott and Crossman 1973). Wabigoon is considerably larger but generally shallower than Thunder Lake. It has a surface area of 9,922 ha and when combined with all adjoining waters has a surface area of 16,648 ha and a mean depth of 6.1 m; its maximum depth is 14.6 m (OMNR 2013a, 2013b). A list of fish species in Wabigoon Lake, as determined by KCB, is provided in Table 3.2.1. The shallow, turbid and highly productive water of Wabigoon Lake is uncharacteristic of FMZ 5 and is likely one of the higher productivity lakes in the zone. The water level of Wabigoon Lake is controlled by a dam at the outflow of the Wabigoon River in Dryden, Ontario. Changing water levels due to the dam have caused erosion along the shoreline of Wabigoon Lake releasing sediments that contribute to the turbidity of the lake (KCB 2012). Water Levels range 0.73 m annually between 368.5 m and 369.23 m ASL annually (OMNR 2013b). The lake has an irregular shoreline that is 204 km in length including islands, this in combination with the generally shallow depth results in a high proportion of littoral zone (OMNR 2013b). Wabigoon Lake is also one of six Specially Designated Waters (SDW) in FMZ 5 and receives enhanced management and supports an active sport fishery focussed on Walleye and Muskellunge angling (OMNR 2013b).

Wabigoon Lake is in close proximity to the communities of Dryden and Wabigoon Ontario, as such there are a number of private homes and seasonal camps along its shoreline particularly along the Trans-Canada Highway and other road accessible areas. There are also eight active tourist outfitters operating on Wabigoon (OMNR 2013b).The spring spawning and habitat surveys as well as the tissue sample collection efforts summarized in this report were all conducted within the Keplyn's Bay area. In general terms the study area can be described as a large shallow bay on the north shore of Wabigoon Lake. It has a predominantly soft bottom, sand and gravel shorelines with areas of aquatic vegetation (Figure 1.2).

Table 3.2.1 Fish species present in Wabigoon Lake as determined by KCB (KCB, 2012).

Sport Fish	Non-sport Fish
Sauger (*Sander canadensis*)	Cisco (*Coregonus artedii*)
Lake Whitefish (*Coregonus culpeaformis*)	White Sucker (*Catostomus commersonii*)
Northern Pike (*Esox lucius*)	Burbot (*Lota lota*)
Muskellunge (*Esox masquinongy*)	Longnose Sucker (*Catostomus catostomus*)
Walleye (*Sander vitreus*)	Trout Perch (*Percopsis omiscomaycus*)
Yellow Perch (*Perca flavescens*)	Rock Bass (*Ambloplites rupestris*)
Smallmouth Bass (*Micropterus dolomieu*)	Johnny Darter (*Etheostoma nigrum*)
Black Crappie (*Pomoxis nigromaculatus*)	Mottled Sculpin (*Cottus bairdii*)
	Shorthed Redhorse (*Moxostoma macrolepidotum*)
	Emerald Shiner (*Notropis atherinoides*)
	Nine-Spine Stickleback (*Pungitius pungitius*)
	Logperch (*Percina caprodes*)
	Mimic Shiner (*Notropis volucellus*)
	Fathead Minnow (*Pimephales promelas*)

3.2.2 *Tissue Sampling*

Fish capture efforts on Wabigoon Lake were completed in Keplyn's Bay on September 5th and 6th, 2012. A total of 28 Walleye and one Sauger were caught by angling, only two walleye were captured among all attempts and netting was abandoned to avoid unnecessary lethal harvest of non-target species. All 31 fish were retained for tissue sampling and ageing. The youngest Walleye were two years old and their length and weights ranged between 230 mm to 272 mm, and 84 g to 125g respectively. The oldest and largest individual was 10 years old, had a total length of 564 mm and weighed 1.9 kg (Table 3.2.1). The Sauger was 10 years old and had a total length of 255 mm and weighed 106 g. Mercury results for the largest and smallest fish by weight in the sample were 0.245 mg/kg and 0.114 mg/kg respectively (Table 3.2.1, Figure 3.2.1). Mercury levels ranged from a low of 0.0865 mg/kg to a high of .473 mg/kg (Table 3.2.1, Figure 3.2.1). Detailed catch records for tissue sampling are included in Appendix A, and complete lab results are included in Appendix B.

As previously stated many lakes in northwestern Ontario have high mercury concentrations in large bodied fish. Although low levels of mercury are naturally occurring in the environment, the elevated mercury concentrations in Wabigoon Lake are more likely due to industrial effluents. Between 1962 and 1970 approximately 10 metric tonnes of mercury were introduced into Wabigoon Lake via industrial effluents (Kinghorn et al. 2006). As a result, mercury levels in fish tissue have historically been high although they have been declining since regulatory changes ended the release of mercury into the lake. Comparing MOE thresholds of 0.26 mg/kg to 0.52 mg/kg for sensitive populations and 0.61 mg/kg to 1.84 mg/kg for the general population. Three fish sampled from Wabigoon Lake exceeded the minimum levels advised for sensitive populations of 0.26.mg/kg and are highlighted in table 3.2.1. All were well below levels that would result in a "do not eat" advisory under MOE guidelines for either the general or sensitive population categories. These results are expected, as elevated mercury levels are common in Wabigoon Lake and throughout the region.

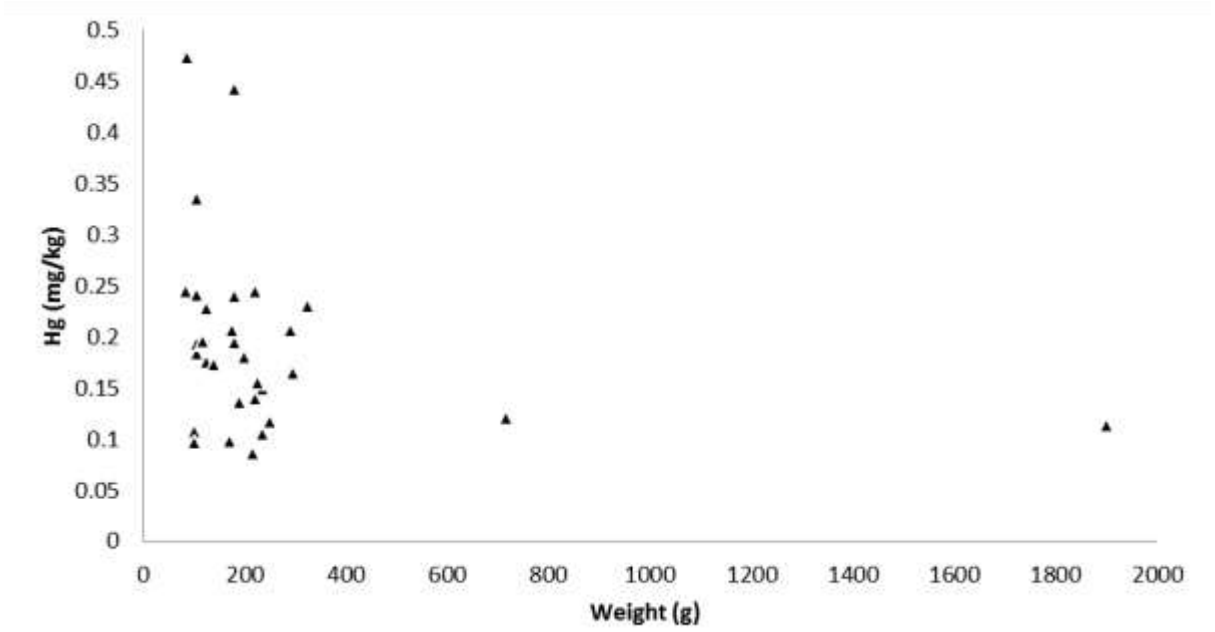


Figure 3.2.1 Mercury results by weight of Walleye and Sauger from Wabigoon Lake.

Table 3.2.1 Results of mercury contaminant sampling of fish captured in Wabigoon Lake.

Species	Fish ID#	Weight (g)	Total Length (mm)	Sex	Age	Mercury(mg/kg)
Walleye	F1	125	266	M	5	0.228
Walleye	F16	105	240	M	2	0.335*
Sauger	F17	106	255	F	10	0.184
Walleye	F18	84	230	M	2	0.245
Walleye	F19	180	301	M	2	0.24
Walleye	F2	105	254	M	4	0.194
Walleye	F20	215	317	F	4	0.0865
Walleye	F21	85	237	F	4	0.473*
Walleye	F22	250	316	M	3	0.117
Walleye	F23	125	272	M	2	0.176
Walleye	F3	235	308	F	5	0.149
Walleye	F4	295	330	F	7	0.165
Walleye	F5	106	240	U	2	0.241
Walleye	F6	117	291	U	3	0.196
Walleye	F7	180	291	M	6	0.442*
Walleye	F8	200	291	M	6	0.18
Walleye	F10	180	286	F	7	0.195
Walleye	F11	140	279	M	6	0.173
Walleye	F12	220	316	F	6	0.245
Walleye	F13	175	288	F	6	0.206
Walleye	F14	290	325	M	4	0.207
Walleye	F24	325	346	F	4	0.23
Walleye	F25	220	305	F	3	0.14
Walleye	F26	100	254	F	3	0.108
Walleye	F27	715	422	F	7	0.121
Walleye	F28	225	321	F	3	0.155
Walleye	F29	100	256	F	4	0.0975
Walleye	F30	235	310	M	3	0.105
Walleye	F9	170	281	F	6	0.0978
Walleye	GN1	190	295	F	2	0.136
Walleye	GN3	1900	564	F	10	0.114

-* Exceeds MOE guidelines for sensitive populations

3.2.1 *Habitat Mapping and Spring Spawning Survey*

An observational survey of littoral zone habitat was completed in Wabigoon Lake on May 22nd, 2013. The documentation from the habitat survey has been illustrated using a variety of general descriptive categories in Figure 3.2.2, field notes are provided in Appendix C and site photos are included in appendix E. The North and South shorelines of Keplyn's Bay are mainly composed of sand, silt and gravel. The rail causeway that forms the East shore of the bay is composed of rip-rap and boulder cobble. Nearly all of the bay has a soft bottom composed of a mix of sand, silt, gravel and organic material with sparse submergent vegetation. The bay is generally flat and shallow with a maximum recorded depth of 4.9 m. In the northeast corner of the bay near the inflow of Blackwater Creek there is a large area of aquatic vegetation as well as on the southwest corner at the entrance to the bay.

A spawning survey was completed identify potential Northern Pike, Muskellunge and Walleye spawning habitat. Pike spawning habitat can be generally described as shallow water with abundant aquatic vegetation (Scott and Crossman 1998). Muskellunge spawning habitat is similar and dependent on abundant aquatic vegetation. Although the two species minimize competition because pike spawn early in the spring when water temperatures range between 4°C and 11°C (Scott and Crossman 1998). Whereas Muskellunge spawn at temperatures between 9°C and 15°C and in slightly deeper water (15-20 inches) than pike which spawn in water as shallow as 7" (Scott and Crossman 1998) The water temperature during the surveys ranged between 9°C and 12°C on May 22nd. No spawning pike or musky were observed during the survey although areas of aquatic vegetation were documented. If pike and musky do spawn within the study area it may have occurred prior to or after the survey when water temperatures were in the optimal ranges described by Scott and Crossman (1998). As for Walleye their preferred spawning habitat includes rocky bottomed areas of rivers and streams often below waterfalls or other barriers to fish movement (Scott and Crossman 1998). However, they can also spawn successfully on coarse gravel shoals in lakes. No suitable shoals were observed during the survey and it is not likely that walleye spawn in Keplyn's Bay. Although, a culvert in the rail causeway at the inflow of Blackwater Creek does allow access to upper reaches of the stream. Muskellunge spawning areas identified on Figure 3.2.3 are sourced from OMNR data and describe areas where musky spawning may occur but has not been confirmed by the field surveys summarized in this report.

3.3 Thunder Creek

3.3.1 *Minnow Trapping*

Thunder Creek is a small creek that connects Thunder Lake to Wabigoon Lake. Its headwaters are at the dam on the south shore of Thunder Lake. OMNR data indicate that a variety nursery and spawning habitat exists in the creek. Since this habitat has been previously documented additional surveys were not conducted and only a small number of Minnow Traps were set (Figure 3.3.1). Among all four traps that were set in Thunder Creek only two fish were caught. A Brook Stickleback (total length = 55 mm) and a juvenile pike (total length = 60 mm). Additional data for Thunder Creek can be found in Goliath Gold Project Draft Aquatic Baseline Studies (KCB 2012) or by inquiring at the Dryden District ONMR office.

GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

GENERAL FISH HABITAT OBSERVATIONS, KEPLYN'S BAY

FIGURE: 3.2.2 | REV.01

SCALE: 6 000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 05 MAR. 2014
CHECK: MP 19 MAR. 2014
REVIEW: KE 19 MAR. 2014

LEGEND

- Sand/Cobble/Gravel/Organics Mix
- Aquatic Vegetation
- Riprap/Boulder Cobble
- Highway
- Local Road
- Recreational Road
- Waterbody

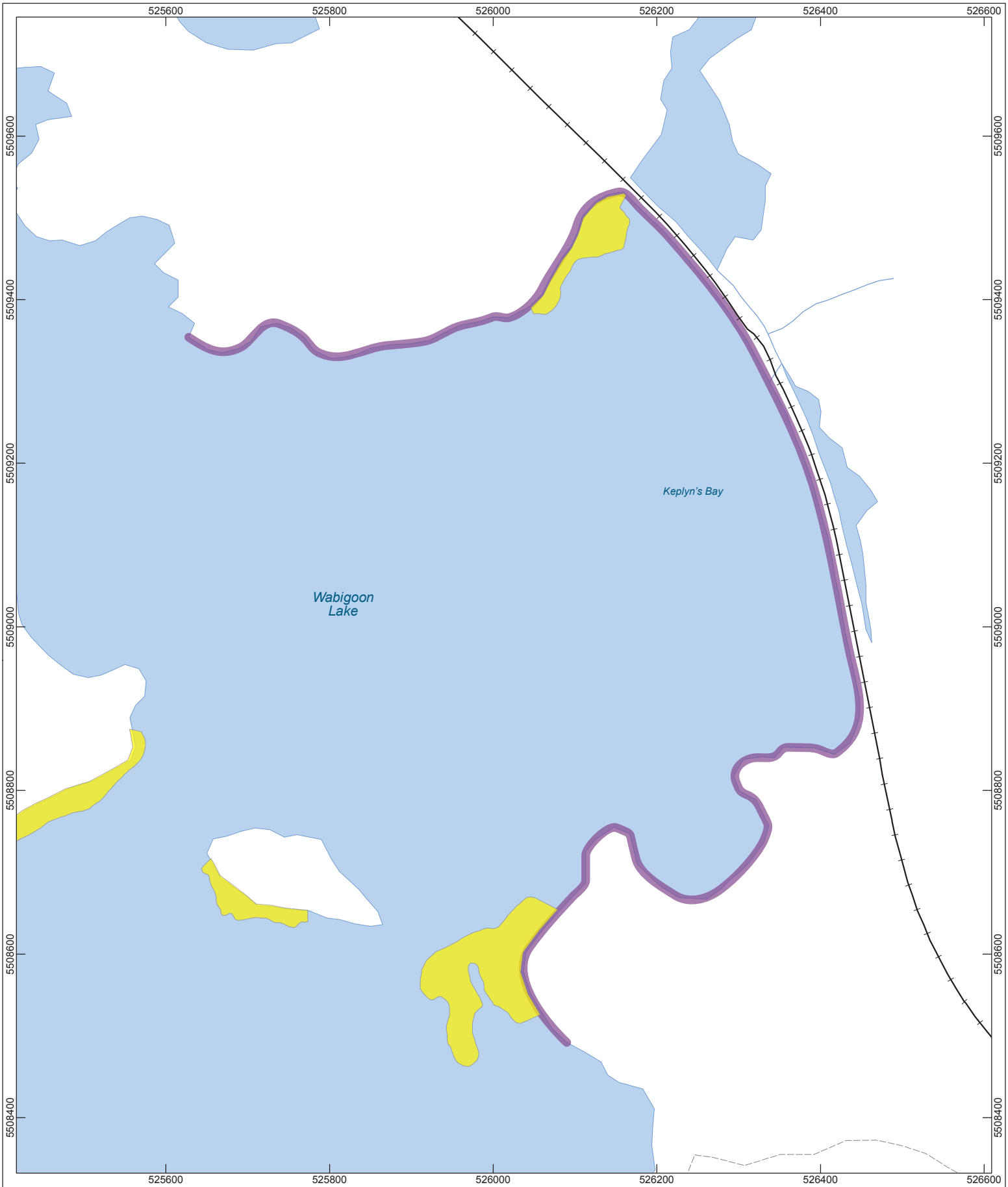
N

0 50 100 150
Meters

REFERENCE

Data by Treasury Metals Inc.
and DST Consulting Engineers
Projection: NAD83 UTM Zone 15N

DST consulting engineers



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

KEPLYN'S BAY POTENTIAL SPAWNING HABITAT

FIGURE: 3.2.3 | REV.01

SCALE: 6 000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 18 FEB. 2014
CHECK: XX ADD DATE
REVIEW: XX ADD DATE

LEGEND

- Spring Spawning Survey Area
- Potential Muskellunge/Northern Pike Spawning Area
- Waterbody
- Watercourse
- Recreational Road
- Railway

N

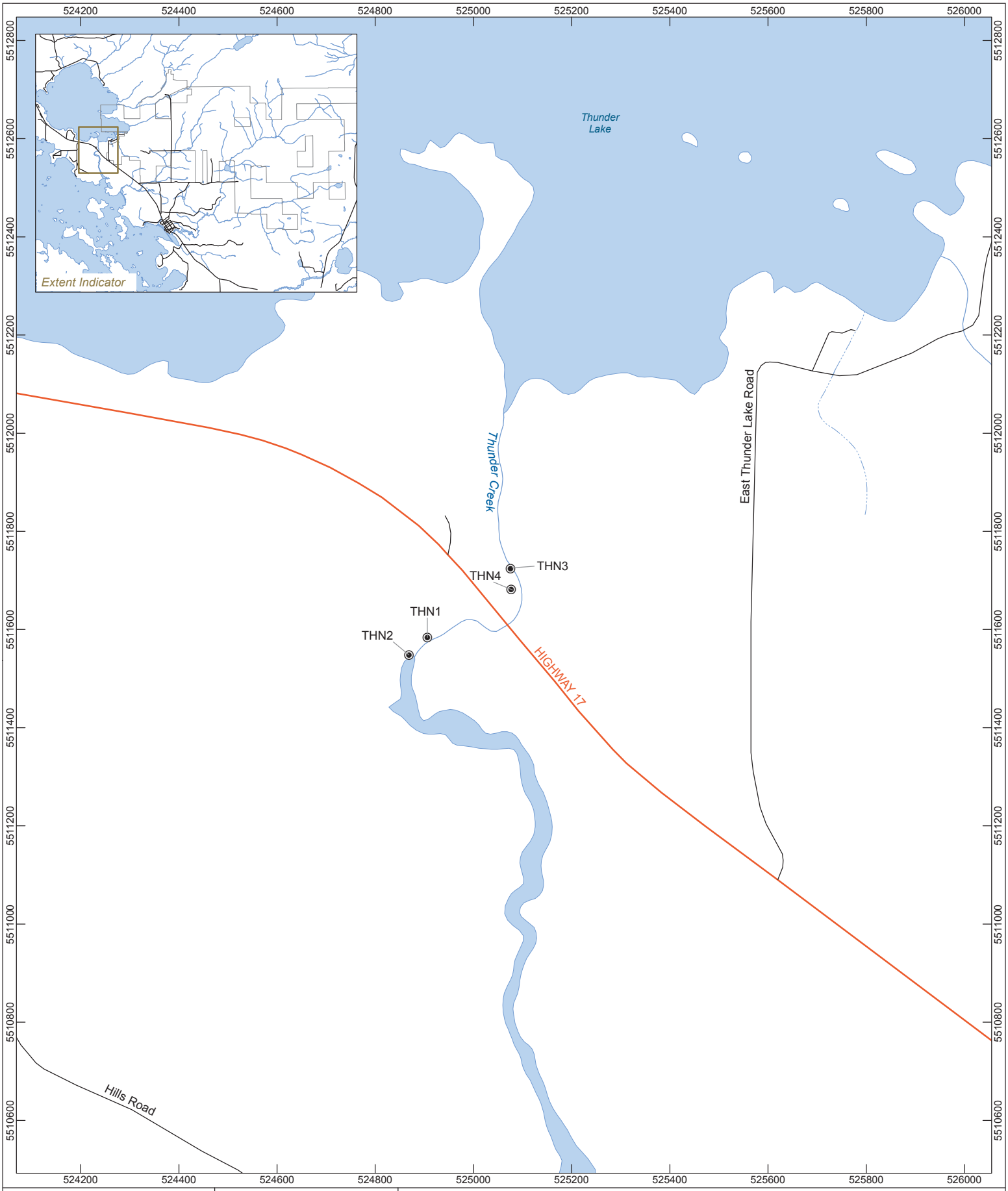
0 50 100 150
Meters

REFERENCE

Data by Treasury Metals Inc.
and DST Consulting Engineers
Projection: NAD83 UTM Zone 15N

TREASURY METALS INCORPORATED

DST consulting engineers



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

THUNDER CREEK
MINNOW TRAP LOCATIONS

FIGURE: 3.3.1 | REV.01

SCALE: 10 000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 19 FEB. 2014
CHECK: MP MAR 19. 2014
REVIEW: KE MAR 19. 2014

LEGEND

- Minnow Trap Location
- Local Study Area
- Highway
- Local Road
- Waterbody
- Intermittent Watercourse
- Permanent Watercourse

N

0 100 200
Meters

REFERENCE

Data by Treasury Metals Inc.
and DST Consulting Engineers
Projection: NAD83 UTM Zone 15N

DST consulting engineers

3.4 Blackwater Creek

3.4.1 *Minnow Trapping*

Blackwater Creek is a small tributary stream of Wabigoon Lake. It flows mostly through a flat silty-clay glaciolacustrine plain (KCB 2012). It was previously described as having little bedrock, gravel, cobble or boulder substrates (KCB 2012). A total of 1,510 baitfish were captured and released in 36 traps set throughout Blackwater Creek in 2012 (Figure 3.4.1). The total catch is summarized in Table 3.4.1, it was comprised of the following six species none of which are species at risk in the region at this time:

- Brook Stickleback (*Culea inconstans*)
- Fathead Minnow (*Pimephales promelas*)
- Finescale Dace (*Phoxinus neogaus*)
- Northern Redbelly Dace (*Phoxinus eos*)
- Pearl Dace (*Semotilus margarita*)
- White Sucker (*Catostomus commersonii*)

Table 3.4.1 Summary of Blackwater Creek minnow trap catches by species

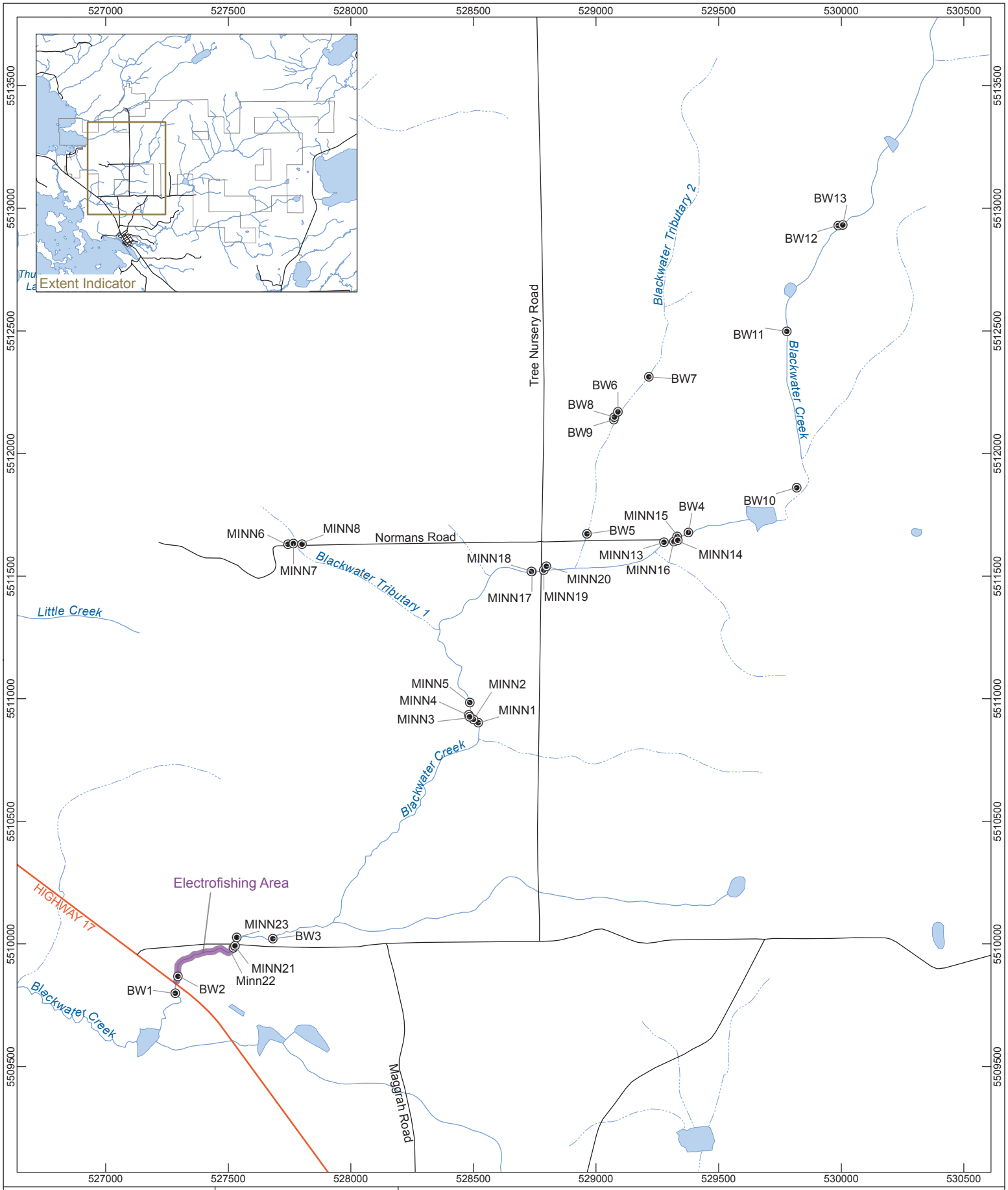
Species	Total Catch	Length Range (mm)
Brook Stickleback	178	20-60
Fathead Minnow	46	40-70
Finescale Dace	628	30-90
Northern Redbelly Dace	255	30-70
Pearl Dace	338	30-140
White Sucker	60	60

3.4.2 *Electrofishing*

One reach of Blackwater Creek was electrofished on June 26th, 2012. The upstream limit of the reach was a pool, the middle sections included a riffle followed by a glide ending in a pool at the lower limit. Substrates included cobble with fines upstream. The conductivity at the time of sampling was 87 µs/cm. The Backpack electrofisher was set at 375 volts and a pulse frequency of 30 *Hz*. A total of 472 seconds of shocking was used to complete the pass. Thirteen fish were captured, measured and released (Table 3.4.2).

3.4.3 *Habitat*

The site is situated in the lower reaches of Blackwater Creek between the Trans Canada Highway and Anderson Road. It had an average width of 2.13 m. This stretch of the stream has highly vegetated banks. The reach surveyed was classified as pools, riffles and glides. The instream cover consisted primarily of submergent and floating macrophytes and undercut banks (Figure 3.4.2). Cover was present in most depth strata, but was noticeably reduced in the greater depth categories (i.e. 501-1000 mm) (Figure 3.4.4). The substrate was well sorted and comprised primarily of fine particles as well as cobble (Figure 3.4.3). Due to the organic nature of the substrate, more than half the bank area showed signs of erosion (Figure 3.4.2).



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

BLACKWATER CREEK ELECTROFISHING AND MINNOW TRAP LOCATIONS

FIGURE: 3.4.1 | REV.01

SCALE: 20 000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 19 FEB. 2014
CHECK: MP 19 MAR. 2014
REVIEW: KE 19 MAR. 2014

LEGEND

- Minnow Trap Location
- Local Study Area
- Waterbody
- Electrofishing Area
- Highway
- Local Road
- Intermittent Watercourse
- Permanent Watercourse

N

0 200 400
Meters

REFERENCE

Data by Treasury Metals Inc. and DST Consulting Engineers
Projection: NAD83 UTM Zone 15N

DST consulting engineers

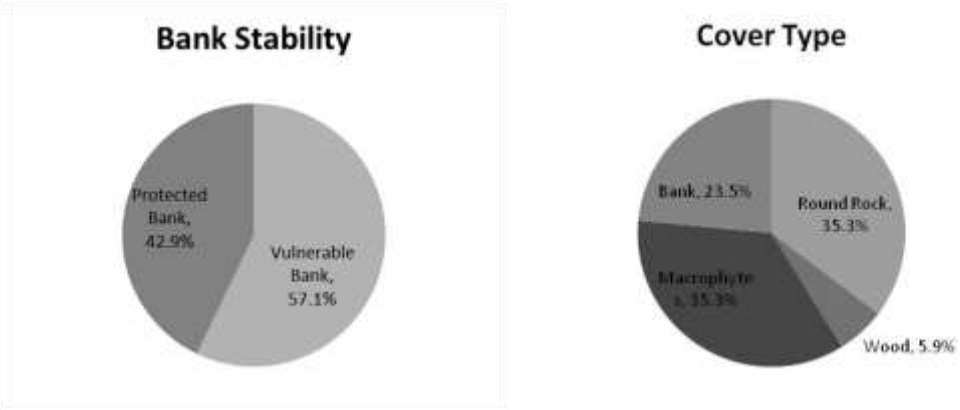


Figure 3.4.2. Bank stability as a percentage of total banks surveyed and cover type distribution as a percentage of all points surveyed at Blackwater Creek.

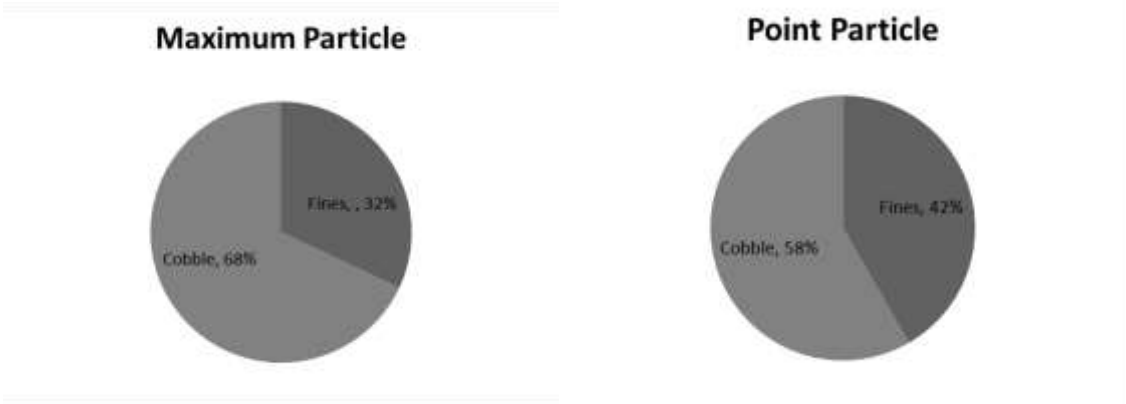


Figure 3.4.3. Substrate particle category distribution at Blackwater Creek as a percentage of entire transects (maximum particle) and points on transects (point particle).

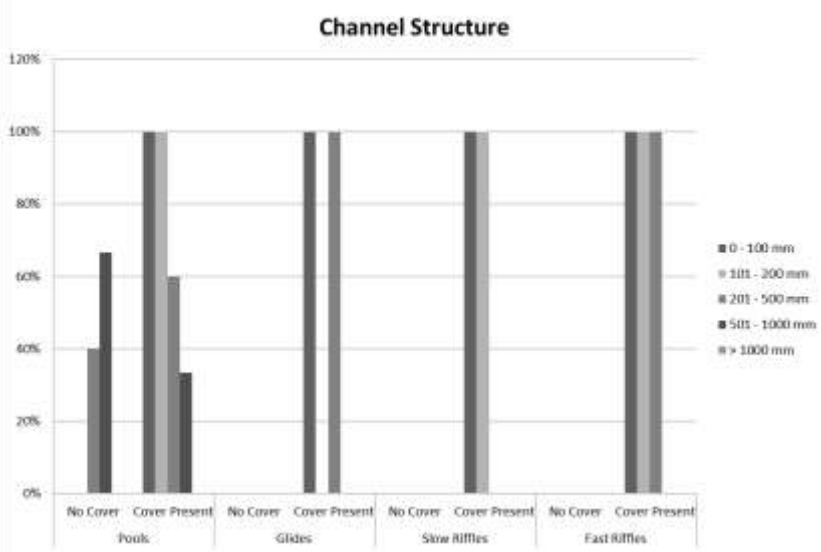


Figure 3.4.4. Percent of areas with and without cover by depth strata for site Blackwater Creek.

Table 3.4.2 Blackwater Creek electrofishing catch site Blackwater Creek.

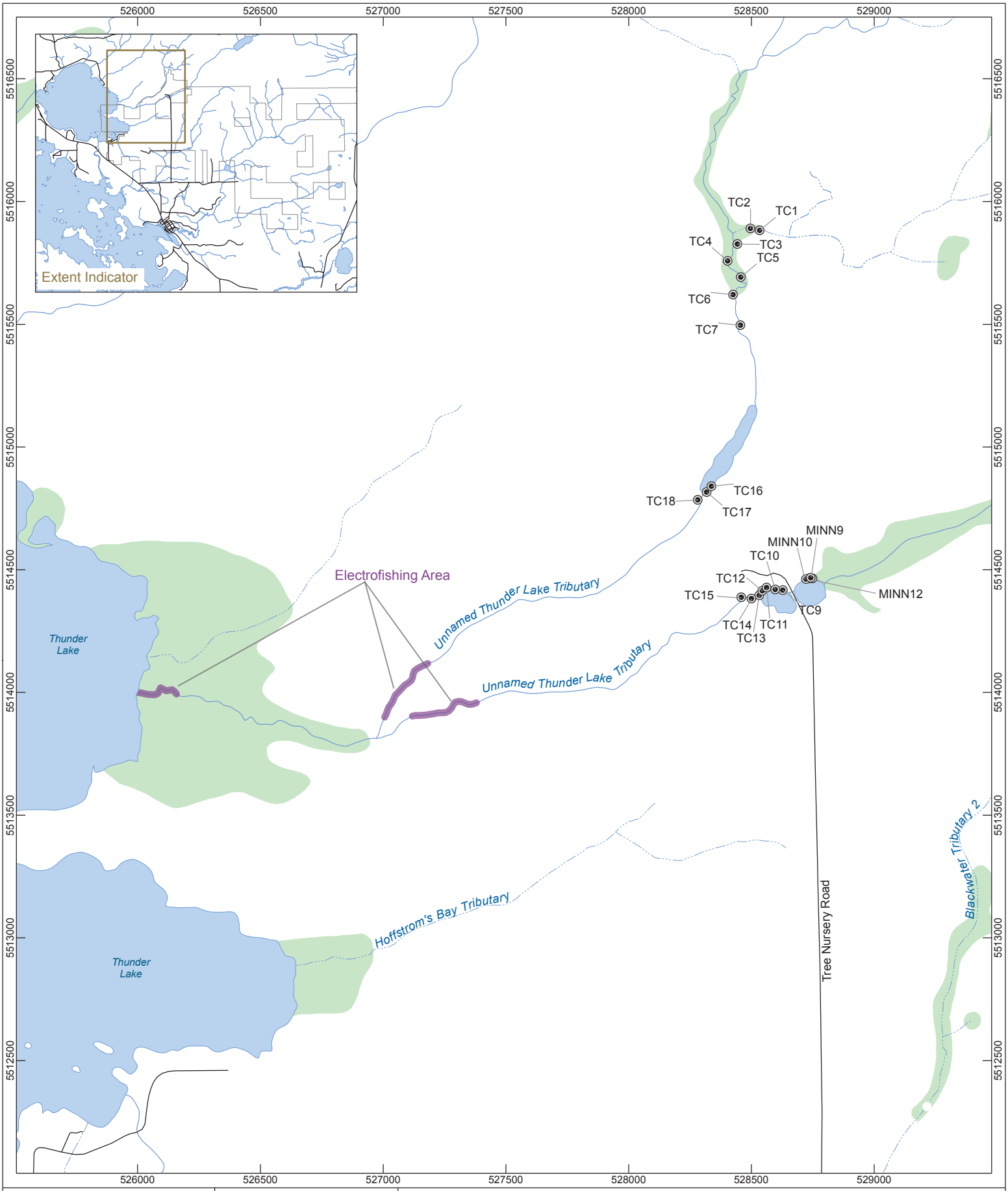
Catch Tally	Fish #	Species	Length (mm)
13	F1	Burbot	200
	F2	Brook Stickleback	45
	F3	Common White Sucker	70
	F4	Brook Stickleback	50
	F5	Pearl Dace	54
	F6	Pearl Dace	52
	F7	Pearl Dace	46
	F8	Brook Stickleback	30
	F9	Pearl Dace	42
	F10	Brook Stickleback	32
	F11	Brook Stickleback	30
	F12	Brook Stickleback	26
	F13	Brook Stickleback	25

3.5 Unnamed Thunder Lake Tributary

3.5.1 *Minnow Trapping*

The unnamed Creek is a small tributary stream of Thunder Lake. Originating in the area surrounding the tree farm site. It flows mostly through sandy soils (KCB 2012). It has been generally described as having soft substrates. A total of 396 baitfish were captured and released from 17 traps set throughout the tributary in 2012 (Figure 3.5.1). Fathead Minnows and Brook Stickleback were the most abundant species (n=116,77 respectively) in the catch, while White Sucker and Iowa Darter were the least common (n=1,2 respectively). The total catch is summarized in Table 3.5.1, it was comprised of the following 10 species:

- Brook Stickleback (*Culea inconstans*)
- Fathead Minnow (*Pimephales promelas*)
- Finescale Dace (*Phoxinus neogaus*)
- Northern Redbelly Dace (*Phoxinus eos*)
- Pearl Dace (*Semotilus margarita*)
- White Sucker (*Catostomus commersonii*)
- Blacknose Shiner (Notropis heterolepis)
- Brassy Minnow (Hybognathus hankinsoni)
- Central Mud Minnow (Umbra limi)
- Iowa Darter (Etheostoma exile)
- Creek Chub (Semotilus atromaculatus)



GOLIATH GOLD PROJECT
DRYDEN, ONTARIO, CANADA

THUNDER LAKE TRIBUTARY ELECTROFISHING AND MINNOW TRAP LOCATIONS

FIGURE: 3.5.1 | REV.01

SCALE: 20 000

TREASURY METALS INC.

DESIGN: AT 06 FEB. 2014
GIS: AT 19 FEB. 2014
CHECK: MP 19 MAR. 2014
REVIEW: KE 19 MAR. 2014

LEGEND

- Minnow Trap Location
- Local Study Area
- Electrofishing Area
- Intermittent Watercourse
- Permanent Watercourse
- Highway
- Local Road
- Waterbody
- Wetland Area

N

0 200 400 600
Meters

REFERENCE

Data by Treasury Metals Inc. and DST Consulting Engineers
Projection: NAD83 UTM Zone 15N

DST consulting engineers

Table 3.5.1 Summary of Unnamed Thunder Lake Tributary minnow trap catches by species

Species	Total Catch	Length Range (mm)
Brook Stickleback	77	20-70
Fathead Minnow	116	40-70
Finescale Dace	20	40-120
Northern Redbelly Dace	58	40-70
Pearl Dace	36	40-120
Blacknose Shiner	10	50-60
Brassy Minnow	68	40-70
Central Mud Minnow	2	60-80
Iowa Darter	2	50
Creek Chub	65	50-70
White Sucker	1	80

3.5.2 *Electrofishing*

Three reaches of the unnamed tributary of Thunder Lake were electrofished on June 25th, 2012 (TC-1, TC-2 and TC-3, Figure 3.5.1). The TC-1 site was located on the south branch of the stream beginning in the hydro transmission corridor and extending upstream into a forested area. At the time of the survey the water temperature was 17.2ºC and conductivity was measured at 52 µs/cm. The shocker was set to 450 volts and a pulse frequency of 30 *Hz*. A total of 850 seconds of shocking was completed to finish the pass. One Pearl Dace was captured in this reach of the stream with a total length of 98 mm and weight of 7 g. Site TC-2 was located in the north branch of the stream also beginning in the hydro transmission corridor and extending upstream into a forested area. Both temperature and conductivity were higher in the north branch at 18.6 ºC and 106 µs/cm respectively. The shocker voltage was reduced to 350 volts but pulse frequency was maintained at 30 *Hz*. A total of 500 seconds of shocking was completed during the pass, however no fish were captured in this reach. Site TC3 was located near the terminus of the unnamed stream at Thunder Lake. The reach started at the mouth of the stream and extended upstream for approximately 50 m. The water temperature at the time of the survey was 21.5 ºC and the conductivity at TC3 was 97 µs/cm. Shocker settings at this site were 375 volts at a pulse frequency of 30 *Hz.* The pass involved 353 seconds of shocking and a total of seven fish were captured including one Central Mudminnow (70mm) and six Brook Stickleback ranging between 15 mm and 35 mm in total length.

3.5.3 *Habitat*

Each of the three reaches sampled by electrofishing in the stream were also surveyed to describe fish habitat conditions. Site TC1 was located along the south branch of the stream near the former tree nursery beginning in the hydro transmission corridor extending upstream into a forested area. This reach of the stream has highly vegetated banks. The reach surveyed was classified as being composed of pools, fast and slow riffles, as well as glides. The instream cover consisted primarily of macrophytes and coarse woody debris, and to a lesser extent undercut banks (Figure 3.5.2). Cover was present in most depth strata, but was noticeably reduced in riffle categories (Figure 3.5.4). The substrate was well sorted and comprised only of fine particles (Figure 3.5.4). Due to the organic nature of the substrate, much of the banks showed signs of erosion (Figure 3.5.3).

Figure 3.5.2. Bank stability as a percentage of total banks surveyed and cover type distribution as a percentage of all points surveyed at TC1.

Figure 3.5.3. Substrate particle category distribution at TC1 as a percentage of entire transects (maximum particle) and points on transects (point particle).

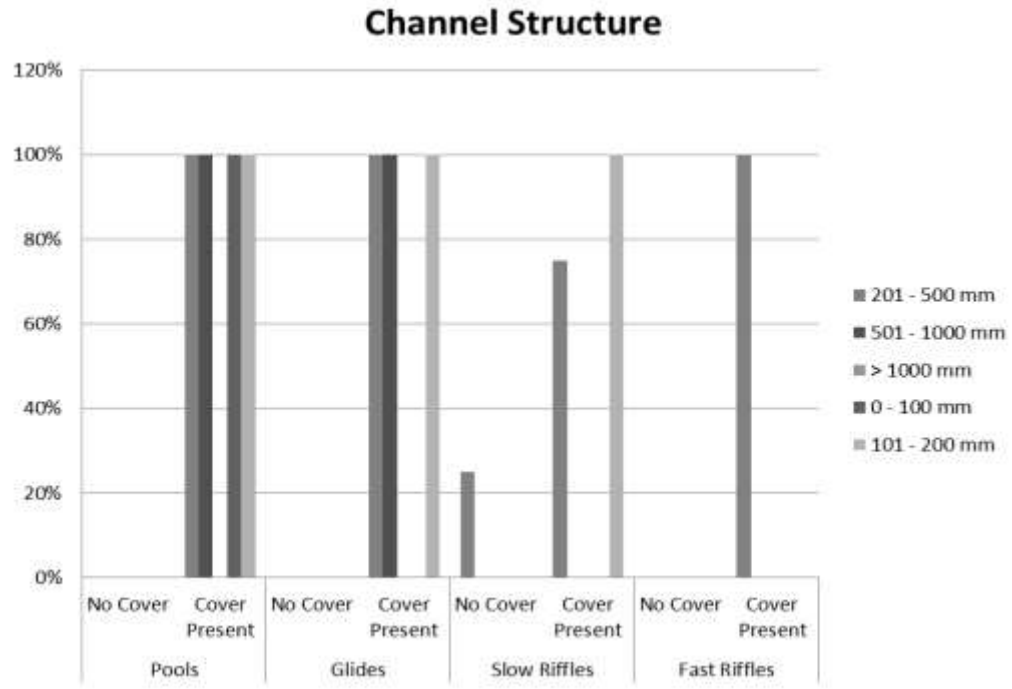


Figure 3.5.4. Percent of areas with and without cover by depth strata for site TC1.

Site TC2 was located along the north branch of the stream near the former tree nursery beginning in the hydro transmission corridor and extending upstream into a forested area. This reach of the stream was predominantly bedrock and as a consequence had little vulnerability to erosion (Figure 3.5.5). The reach surveyed was also classified as being composed of pools, fast and slow riffles, as well as glides. The instream cover consisted primarily of macrophytes and rock, with undercut banks and woody debris being less common (Figure 3.5.5). Cover was present in most depth strata, but less common in riffles in comparison to the pool sections (Figure 3.5.7). The substrate was well sorted and comprised mainly of bedrock overlain by cobble, gravel and fines (Figure 3.5.6).

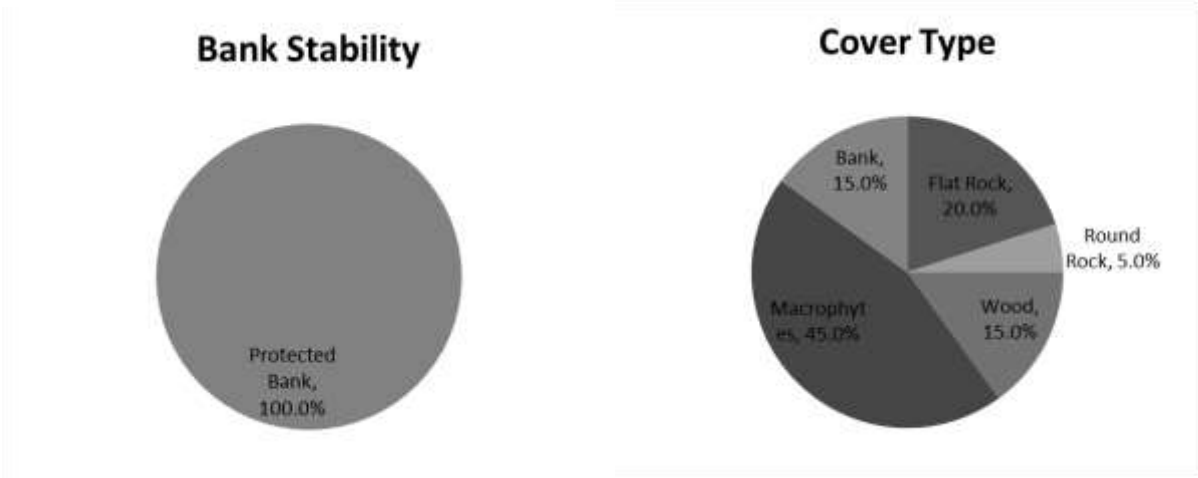


Figure 3.5.5. Bank stability as a percentage of total banks surveyed and cover type distribution as a percentage of all points surveyed at TC2.

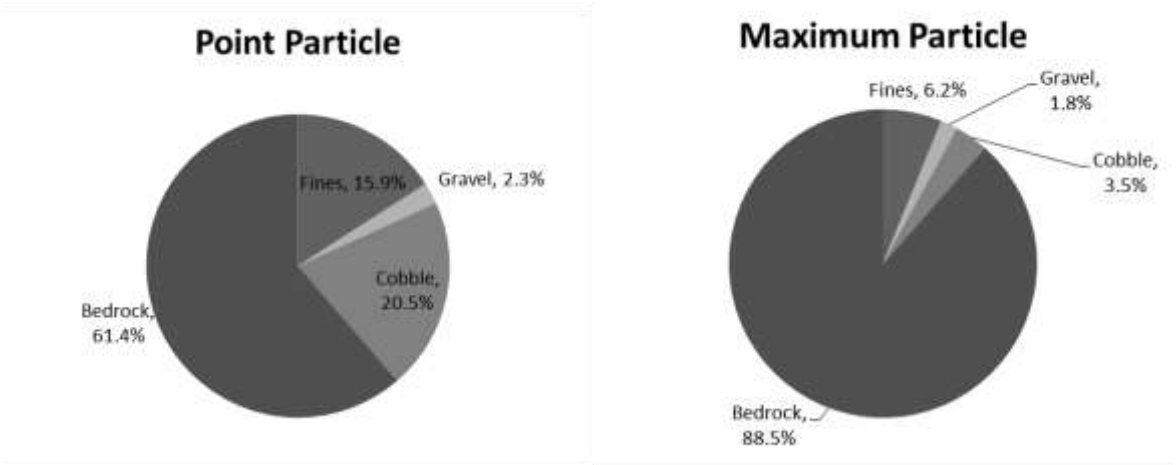


Figure 3.5.6. Substrate particle category distribution at TC2 as a percentage of entire transects (maximum particle) and points on transects (point particle).

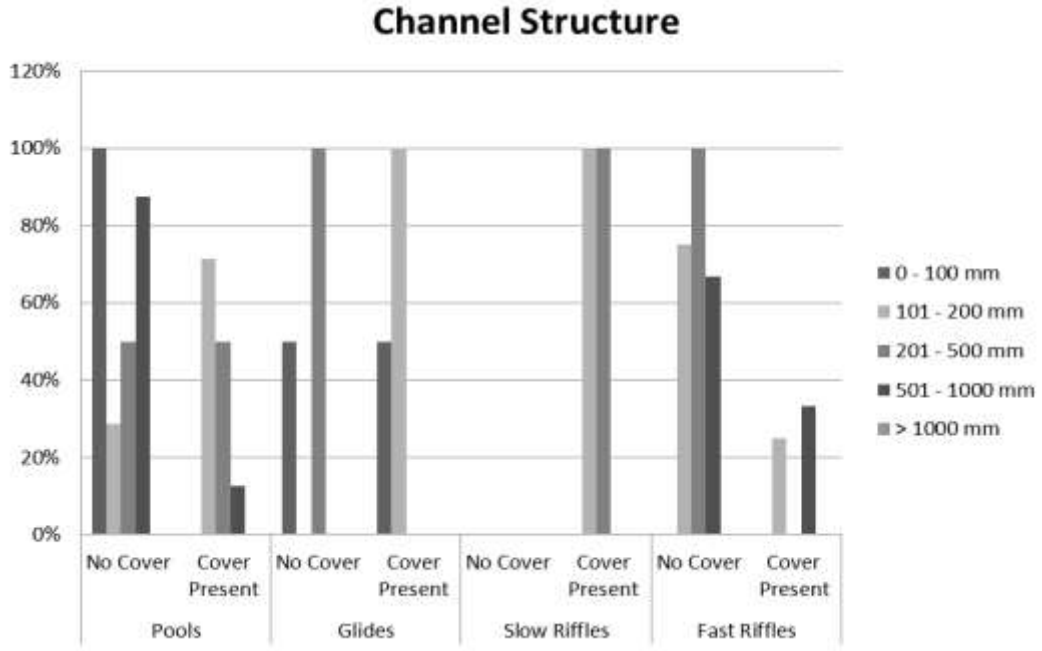


Figure 3.5.7. Percent of areas with and without cover by depth strata for site TC2.

Site TC3 was located at the terminus of the stream near the shoreline of Thunder Lake extending approximately 50 m upstream into a forested area. This reach of the stream had highly vegetated banks that were well protected against erosion. The instream cover consisted primarily of macrophytes and undercut banks (Figure 3.5.8). Cover was present in most depth strata, the site was classified as a pool for the entire reach (Figure 3.5.10). The substrate was composed entirely of fines (Figure 3.5.9).

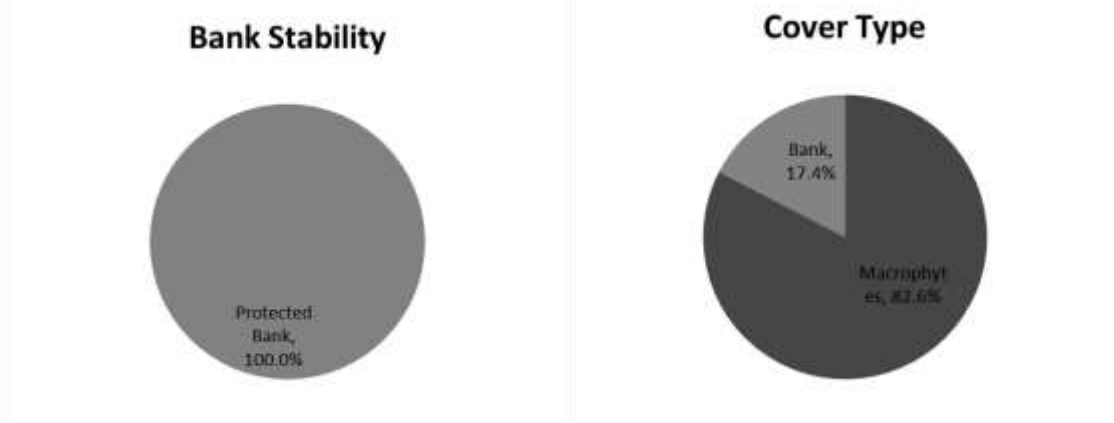


Figure 3.5.8. Bank stability as a percentage of total banks surveyed and cover type distribution as a percentage of all points surveyed at TC3.

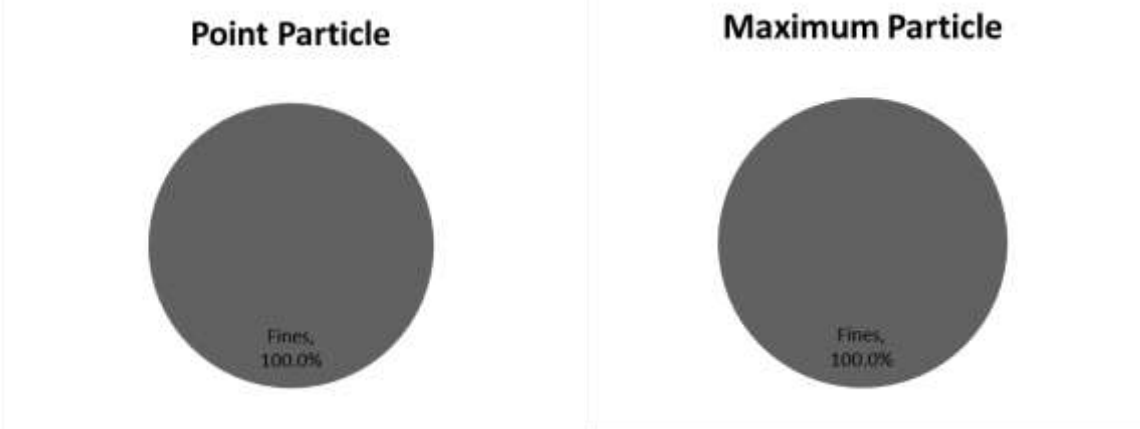


Figure 3.5.9. Substrate particle category distribution at TC3 as a percentage of entire transects (maximum particle) and points on transects (point particle).

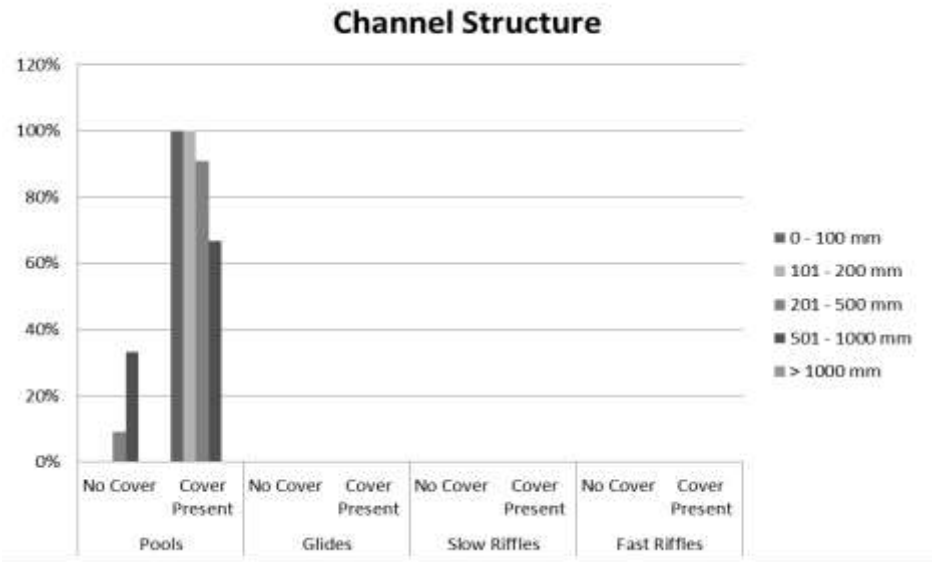


Figure 3.5.10. Percent of areas with and without cover by depth strata for site TC3.

3.6 Tissue Sampling in Streams

Minnow trapping was used to collect small-bodied fish for tissue sampling in streams. A total of seven sample batches, one batch from each trap were submitted for analysis. All batch sample results were below the recommended thresholds per kilogram of fish. The lowest levels of mercury were observed in sample TS15 at 0.0295 mg/kg and the highest levels were observed in TS16 at 0.123 mg/kg. A summary of fish tissue sampling results for streams at the Goliath site is provided in table 3.6.1 and Figure 3.6.1.

Table 3.6.1 Summary of small fish tissue sampling results.

Sample ID	Catch Tally	Batch weight (g)	Average Total Length (mm)	Mercury (mg/kg)
TS15	13	29	74.00	0.0295
TS7	12	30	64.42	0.0451
TS21	9	41	76.44	0.0569
TS22	5	28	89.00	0.067
TS5	8	23	65.88	0.088
TS13	3	11	72.00	0.0983
TS2	5	20	107.80	0.111
TS16	5	16	69.40	0.123

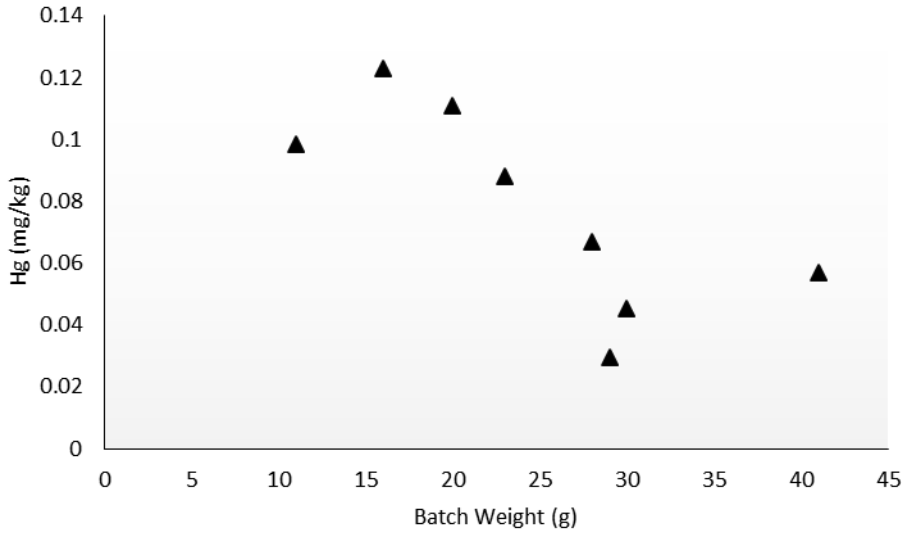


Figure 3.6.1. Mercury results by batch weight for small-bodied fish.

3.7 Spring Stream Spawning Surveys

A spring spawning survey was completed in Blackwater Creek on May 24th, 2013 and water temperatures ranged between 14 ºC and 20 ºC. The survey was completed on foot and field staff visually inspected the stream for the presence of spawning fish. No spawning behaviour was observed during the survey. However, the presence of juvenile White Suckers were confirmed by minnow trap catches indicating White Sucker may use the steam for spawning during the spring.

4. CONCLUSION

To support ongoing activities and project permitting, TML retained DST Consulting Engineers Inc. (DST) to gather baseline data and to submit environmental reports summarizing data collection efforts that occurred in 2012 and 2013. Fisheries surveys were concentrated in two waterbodies and three streams; Thunder Lake, Wabigoon Lake, Thunder Creek, Blackwater Creek, and an Unnamed tributary of Thunder Lake (Figure 1.2).

Thunder Lake is a cold-water lake characterized by low productivity, deep, clear water and relatively low temperatures year round. Data collection efforts summarized in this report were all conducted within the Hoffstrom's Bay area of the lake. Wabigoon Lake is a cool-water lake characterized by moderate to high productivity, relatively shallow turbid water and is considerably larger but generally shallower than Thunder Lake. Data collection efforts summarized in this report were all conducted within the Keplyn's Bay area. Fish tissues sampled from both lakes indicate elevated levels of mercury are present in some fish. Elevated mercury levels are common in the region, and the Wabigoon chain so these results are not unexpected. Spawning and habitat surveys were conducted in both bays during the spring of 2013. Although no spawning activity was observed, potentially suitable habitat for Northern Pike, Muskellunge, White Sucker, and Lake Whitefish was observed, and summarized in this report.

Thunder Creek is a small creek that connects Thunder Lake to Wabigoon Lake. Its headwaters are at the dam on the south shore of Thunder Lake. OMNR data indicate that a variety nursery and spawning habitat exists in the creek. Since this habitat has been previously documented additional surveys were not conducted and only a small number of Minnow Traps were set in the stream. Blackwater Creek is a small tributary stream of Wabigoon Lake. It flows mostly through a flat silty-clay glaciolacustrine plain (KCB 2012). It was previously described as having little bedrock, gravel, cobble or boulder substrates (KCB 2012). The unnamed Creek is a small tributary stream of Thunder Lake. Originating in the area surrounding the tree farm site it flows mostly through sandy soils and has been generally described as having soft substrates (KCB 2012). Tisssue samples of fish collected in streams within the study area indicate low levels of mercury are present but do not exceed MOE guidelines. Small fish community sapling was completed via minnow trapping and electrofishing. Common species included Finescale, Northern Redbelly, and Pearl Dace; Brook Stickleback; Fathead Minnow; Brassy Minnow, Creek Chub; and White Sucker.

5. CLOSURE

We appreciate this opportunity to provide environmental services to Treasury Metals Inc. If you have any questions or comments, please contact the undersigned.

For DST CONSULTING ENGINEERS INC.

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APPENDIX A
Detailed Catch Records

Sample ID	Date	Catch Tally	Fish#	Species	Batch weight (g)	TLEN (mm)	Hg (mg/kg wwt)
TS16	7/27/2012	5	F1	Pearl Dace	16	75	0.123
			F2	Pearl Dace		73	0.123
			F3	Pearl Dace		66	0.123
			F4	Finescale Dace		73	0.123
			F5	Pearl Dace		60	0.123
TS15	7/27/2012	13	F1	Pearl Dace	29	95	0.0295
			F2	Pearl Dace		92	0.0295
			F3	Finescale Dace		77	0.0295
			F4	Pearl Dace		82	0.0295
			F5	Pearl Dace		86	0.0295
			F6	Pearl Dace		73	0.0295
			F7	Finescale Dace		68	0.0295
			F8	Finescale Dace		73	0.0295
			F9	Finescale Dace		66	0.0295
			F10	Finescale Dace		64	0.0295
			F11	Finescale Dace		65	0.0295
			F12	Finescale Dace		59	0.0295
			F13	Finescale Dace		62	0.0295
TS21	7/27/2012	9	F1	Finescale Dace	41	76	0.0569
			F2	Finescale Dace		80	0.0569
			F3	Finescale Dace		90	0.0569
			F4	Finescale Dace		70	0.0569
			F5	Finescale Dace		72	0.0569
			F6	Finescale Dace		85	0.0569
			F7	Finescale Dace		70	0.0569
			F8	Finescale Dace		73	0.0569
			F9	Finescale Dace		72	0.0569
TS22	7/27/2012	5	F1	Pearl Dace	28	96	0.067
			F2	Pearl Dace		96	0.067
			F3	Pearl Dace		97	0.067
			F4	Pearl Dace		79	0.067
			F5	Pearl Dace		77	0.067
TS13	7/27/2012	3	F1	Finescale Dace	11	82	0.0983

Sample ID	Date	Catch Tally	Fish#	Species	Batch weight (g)	TLEN (mm)	Hg (mg/kg wwt)
			F2	Finescale Dace		72	0.0983
			F3	Finescale Dace		62	0.0983
TS7	7/27/2012	12	F1	Finescale Dace	30	76	0.0451
			F2	Finescale Dace		67	0.0451
			F3	Finescale Dace		60	0.0451
			F4	Finescale Dace		67	0.0451
			F5	Finescale Dace		68	0.0451
			F6	Finescale Dace		59	0.0451
			F7	Finescale Dace		67	0.0451
			F8	Finescale Dace		70	0.0451
			F9	Finescale Dace		65	0.0451
			F10	Finescale Dace		60	0.0451
			F11	Finescale Dace		52	0.0451
			F12	Finescale Dace		62	0.0451
TS5	7/27/2012	8	F1	Finescale Dace	23	66	0.088
			F2	Finescale Dace		82	0.088
			F3	Finescale Dace		68	0.088
			F4	Finescale Dace		55	0.088
			F5	Finescale Dace		62	0.088
			F6	Finescale Dace		50	0.088
			F7	Finescale Dace		79	0.088
			F8	Finescale Dace		65	0.088
TS2	7/27/2012	5	F1	Pearl Dace	20	115	0.111
			F2	Pearl Dace		92	0.111
			F3	Common White Sucker		117	0.111
			F4	Common White Sucker		110	0.111
			F5	Common White Sucker		105	0.111

Waterbody	Effort	Date	Species	Fish ID#	RWT	FLEN	TLEN	SEX	Age Tissue	NCA	Edge	Conf	AgeA	Hg(mg/kg wwt)
Wabigoon Lake	Angling	9/5/2012	Walleye	F1	125	248	266	M	OTO	5	++	7	5++	0.228
Wabigoon Lake	Angling	9/5/2012	Walleye	F16	105	227	240	M	OTO	2	++	7	2++	0.335
Wabigoon Lake	Angling	9/5/2012	Sauger	F17	106	235	255	F	OTO	10	++	7	10++	0.184
Wabigoon Lake	Angling	9/5/2012	Walleye	F18	84	215	230	M	OTO	2	++	7	2++	0.245
Wabigoon Lake	Angling	9/5/2012	Walleye	F19	180	280	301	M	OTO	2	++	7	2++	0.24
Wabigoon Lake	Angling	9/5/2012	Walleye	F2	105	238	254	M	OTO	4	++	7	4++	0.194
Wabigoon Lake	Angling	9/5/2012	Walleye	F20	215	292	317	F	OTO	4	++	7	4++	0.0865
Wabigoon Lake	Angling	9/5/2012	Walleye	F21	85	212	237	F	OTO	4	++	7	4++	0.473
Wabigoon Lake	Angling	9/5/2012	Walleye	F22	250	293	316	M	SPI	3	++	7	3++	0.117
Wabigoon Lake	Angling	9/5/2012	Walleye	F23	125	251	272	M	OTO	2	++	7	2++	0.176
Wabigoon Lake	Angling	9/5/2012	Walleye	F3	235	295	308	F	OTO	5	++	7	5++	0.149
Wabigoon Lake	Angling	9/5/2012	Walleye	F4	295	309	330	F	OTO	7	++	7	7++	0.165
Wabigoon Lake	Angling	9/5/2012	Walleye	F5	106	228	240	U	OTO	2	++	7	2++	0.241
Wabigoon Lake	Angling	9/5/2012	Walleye	F6	117	239	291	U	OTO	3	++	7	3++	0.196
Wabigoon Lake	Angling	9/5/2012	Walleye	F7	180	274	291	M	OTO	6	++	7	6++	0.442
Wabigoon Lake	Angling	9/5/2012	Walleye	F8	200	274	291	M	OTO	6	++	7	6++	0.18
Wabigoon Lake	Angling	9/6/2012	Walleye	F10	180	269	286	F	OTO	7	++	7	7++	0.195
Wabigoon Lake	Angling	9/6/2012	Walleye	F11	140	260	279	M	OTO	6	++	7	6++	0.173
Wabigoon Lake	Angling	9/6/2012	Walleye	F12	220	297	316	F	OTO	6	++	7	6++	0.245
Wabigoon Lake	Angling	9/6/2012	Walleye	F13	175	271	288	F	OTO	6	++	7	6++	0.206
Wabigoon Lake	Angling	9/6/2012	Walleye	F14	290	303	325	M	OTO	4	++	7	4++	0.207
Wabigoon Lake	Angling	9/6/2012	Walleye	F24	325	319	346	F	OTO	4	++	7	4++	0.23
Wabigoon Lake	Angling	9/6/2012	Walleye	F25	220	284	305	F	OTO	3	++	7	3++	0.14
Wabigoon Lake	Angling	9/6/2012	Walleye	F26	100	237	254	F	OTO	3	++	7	3++	0.108
Wabigoon Lake	Angling	9/6/2012	Walleye	F27	715	394	422	F	OTO	7	++	7	7++	0.121
Wabigoon Lake	Angling	9/6/2012	Walleye	F28	225	298	321	F	OTO	3	++	7	3++	0.155
Wabigoon Lake	Angling	9/6/2012	Walleye	F29	100	237	256	F	OTO	4	++	7	4++	0.0975
Wabigoon Lake	Angling	9/6/2012	Walleye	F30	235	288	310	M	OTO	3	++	7	3++	0.105
Wabigoon Lake	Angling	9/6/2012	Walleye	F9	170	264	281	F	OTO	6	++	7	6++	0.0978
Wabigoon Lake	Gill Net	9/6/2012	Walleye	GN1	190	274	295	F	OTO	2	++	7	2++	0.136
Wabigoon Lake	Gill Net	9/6/2012	Walleye	GN3	1900	530	564	F	OTO	10	++	7	10++	0.114
Thunder Lake	Angling	9/7/2012	Walleye	F31	130	254	266	M	OTO	1	++	7	1++	0.143
Thunder Lake	Angling	9/7/2012	Walleye	F32	114	238	252	F	OTO	1	++	7	1++	0.331
Thunder Lake	Angling	9/7/2012	Walleye	F33	345	326	343	F	OTO	2	++	7	2++	0.143
Thunder Lake	Angling	9/7/2012	Walleye	F34	120	248	263	M	OTO	1	++	7	1++	0.142
Thunder Lake	Angling	9/7/2012	Walleye	F35	205	282	296	M	OTO	1	++	7	1++	0.102
Thunder Lake	Angling	9/7/2012	Walleye	F36	140	255	272	M	OTO	1	++	7	1++	0.157
Thunder Lake	Angling	9/7/2012	Walleye	F37	135	250	265	F	OTO	1	++	7	1++	0.272
Thunder Lake	Angling	9/7/2012	Walleye	F38	165	260	275	F	OTO	1	++	7	1++	0.195
Thunder Lake	Angling	9/7/2012	Walleye	F39	120	245	258	M	OTO	1	++	7	1++	0.261
Thunder Lake	Angling	9/7/2012	Walleye	F40	120	240	257	M	OTO	1	++	7	1++	0.191
Thunder Lake	Angling	9/7/2012	Walleye	F41	125	244	257	U	OTO	1	++	7	1++	0.503

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
BW1	12:48	9:35	527284.25	5509797.6	0.75	0		
BW2	12:52	10:48	527294.97	5509868.56	0.4	4	Brook Stickleback	32
							Brook Stickleback	49
							Brook Stickleback	45
							Brook Stickleback	40
BW3	14:32	10:55	527682.05	5510020.86	0.3	7	Pearl Dace	60
							Pearl Dace	60
							Finescale Dace	60
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
BW4	15:00	11:40	529377.46	5511676.53	0.5	177	Northern Redbelly Dace	60
							Northern Redbelly Dace	60
							Northern Redbelly Dace	50
							Finescale Dace	70
							Northern Redbelly Dace	60
							Finescale Dace	50
							Northern Redbelly Dace	40
							Northern Redbelly Dace	40
							Northern Redbelly Dace	40
							Finescale Dace	70
							Finescale Dace	70
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							Finescale Dace	60
							Finescale Dace	60
							Finescale Dace	60
							Northern Redbelly Dace	40
							Finescale Dace	60
							Brook Stickleback	40
							Northern Redbelly Dace	40
							Northern Redbelly Dace	50

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Northern Redbelly Dace	40
							Northern Redbelly Dace	40
							Finescale Dace	60
							Finescale Dace	60
							Finescale Dace	50
							Finescale Dace	60
							Brook Stickleback	40
							Northern Redbelly Dace	50
							Finescale Dace	50
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							Northern Redbelly Dace	
							Brook Stickleback	
							Brook Stickleback	
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Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
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							Finescale Dace	
							Finescale Dace	

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	
							Finescale Dace	
							Finescale Dace	
							Finescale Dace	
							Finescale Dace	
							Finescale Dace	
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							Finescale Dace	
							Finescale Dace	

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	
							Pearl Dace	
							Pearl Dace	
							Pearl Dace	
BW5	15:15	11:29	528963.06	5511672.84	0.3	9	Pearl Dace	100
							Pearl Dace	100
							Northern Redbelly Dace	60
							Finescale Dace	90
							Northern Redbelly Dace	60
							Finescale Dace	40
							Brook Stickleback	25
							Brook Stickleback	25
							Brook Stickleback	30
BW6	13:27	9:00	529089.2	5512170.88	0.5	15	Finescale Dace	60
							Finescale Dace	60
							Finescale Dace	60
							Brook Stickleback	50
							Finescale Dace	40
							Finescale Dace	50
							Brook Stickleback	20
							Brook Stickleback	20
							Brook Stickleback	20
							Brook Stickleback	20
							Brook Stickleback	30
							Brook Stickleback	20
							Brook Stickleback	20
							Brook Stickleback	20
							Brook Stickleback	20
BW7	13:35	9:20	529215.39	5512312.79	0.2	13	Brook Stickleback	27
							Brook Stickleback	25
							Brook Stickleback	25
							Brook Stickleback	27
							Pearl Dace	80
							Finescale Dace	70
							Pearl Dace	70
							Finescale Dace	80
							Pearl Dace	70

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	90
							Finescale Dace	60
							Finescale Dace	60
							Finescale Dace	50
BW8	13:25	10:00	529075.26	5512147.97	0.2	3	Finescale Dace	65
							Finescale Dace	50
							Brook Stickleback	50
BW9	13:30	10:09	529072.31	5512138.23	0.2	49	Finescale Dace	60
							Finescale Dace	50
							Brook Stickleback	50
							Brook Stickleback	50
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
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							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
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							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
							Brook Stickleback	
MINN1	17:00	10:00	528519.25	5510901.27		1	Brook Stickleback	40
MINN2	17:05	10:05	528500.38	5510914.36		1	Brook Stickleback	60
MINN3	17:08	10:06	528484.74	5510924.78		146	Finescale Dace	60
							Finescale Dace	50
							Finescale Dace	60
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Northern Redbelly Dace	50
							Finescale Dace	60
							Finescale Dace	50
							Northern Redbelly Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Brook Stickleback	20

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
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							Finescale Dace	50
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							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Pearl Dace	90
							Northern Redbelly Dace	45
							Northern Redbelly Dace	40
							Northern Redbelly Dace	55
							Northern Redbelly Dace	45
							Finescale Dace	50
							Finescale Dace	40
							Finescale Dace	45
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
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							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
							Finescale Dace	40
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							Finescale Dace	40
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							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	50
							Pearl Dace	60

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
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							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
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							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							White Sucker	60
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
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							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
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							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
MINN4	17:10	10:10	528480.57	5510933.92		33	Northern Redbelly Dace	40
							Northern Redbelly Dace	45
							Northern Redbelly Dace	50
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	35
							Northern Redbelly Dace	50
							Northern Redbelly Dace	48
							Northern Redbelly Dace	44
							Northern Redbelly Dace	36
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	70
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	50
							Northern Redbelly Dace	50
							Northern Redbelly Dace	50
							Northern Redbelly Dace	50
							Northern Redbelly Dace	50
							Northern Redbelly Dace	50
MINN5	17:12	10:12	528485.96	5510983.45		16	Pearl Dace	90
							Finescale Dace	50
							Northern Redbelly Dace	50
							Finescale Dace	50
							Brook Stickleback	40
							Finescale Dace	50
							Pearl Dace	60
							Finescale Dace	40
							Finescale Dace	60
							White Sucker	60
							Northern Redbelly Dace	50
							Northern Redbelly Dace	50
							Northern Redbelly Dace	50
							Northern Redbelly Dace	50
							Brook Stickleback	40
							Brook Stickleback	40

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
MINN8	17:15	10:15	527800.44	5511630.59		248	Finescale Dace	60
							Finescale Dace	80
							Finescale Dace	50
							Finescale Dace	70
							Finescale Dace	50
							Northern Redbelly Dace	50
							Northern Redbelly Dace	40
							Finescale Dace	40
							Northern Redbelly Dace	50
							Pearl Dace	100
							Pearl Dace	110
							Pearl Dace	95
							Finescale Dace	80
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
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							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35
							Northern Redbelly Dace	35

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Northern Redbelly Dace	35
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
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							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
							Northern Redbelly Dace	45
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							Northern Redbelly Dace	55
							Northern Redbelly Dace	55
							Northern Redbelly Dace	55
							Northern Redbelly Dace	55
							Northern Redbelly Dace	55
							Northern Redbelly Dace	55
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
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							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
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							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
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							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	45
							Pearl Dace	55
							Pearl Dace	55
							Pearl Dace	55
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							Pearl Dace	55
							Pearl Dace	55
							Pearl Dace	55

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	55
							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
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							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
							Finescale Dace	80
MINN7	17:17	10:17	527766.03	5511631.7		143	brook Stickleback	30
							brook Stickleback	30
							brook Stickleback	30
							brook Stickleback	30
							brook Stickleback	30
							brook Stickleback	30
							brook Stickleback	30

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							brook Stickleback	30
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
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							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
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							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
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							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	50
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							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	60
MINN6	17:20	10:20	527743.83	5511629.8		10	brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	50
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	70
							Pearl Dace	70

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
MINN10	17:22	10:22	528722.2	5514460.97		22	Finescale Dace	70
							Fathead Minnow	70
							brook Stickleback	50
							brook Stickleback	60
							Finescale Dace	50
							Fathead Minnow	70
							Pearl Dace	50
							Pearl Dace	50
							Pearl Dace	70
							Pearl Dace	50
							Pearl Dace	50
							Fathead Minnow	70
							Fathead Minnow	60
							Fathead Minnow	60
							brook Stickleback	40
							Pearl Dace	50
							Pearl Dace	60
							Pearl Dace	60
							Pearl Dace	40
							brook Stickleback	40
							Pearl Dace	40
							Pearl Dace	40
MINN11	17:23	10:20	528734.89	5514464.83		6	brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45
							Pearl Dace	45
							Pearl Dace	45
							Finescale Dace	45
MINN9	17:25	10:25	528742.01	5514467.71		12	Finescale Dace	45
							Pearl Dace	50
							Finescale Dace	45
							Finescale Dace	45
							Finescale Dace	45
							Fathead Minnow	60
							Finescale Dace	50
							Finescale Dace	40
							Fathead Minnow	60

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Fathead Minnow	60
							Fathead Minnow	60
							Fathead Minnow	60
MINN12	17:27	10:27	528749.29	5514463.77		41	brook Stickleback	50
							Fathead Minnow	60
							Fathead Minnow	60
							Fathead Minnow	70
							Fathead Minnow	70
							Finescale Dace	50
							Finescale Dace	50
							Fathead Minnow	40
							Fathead Minnow	40
							Fathead Minnow	40
							Fathead Minnow	40
							Fathead Minnow	40
							Fathead Minnow	40
							Fathead Minnow	40
							Fathead Minnow	40
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							Fathead Minnow	50
							Fathead Minnow	50
							Fathead Minnow	50
							Fathead Minnow	50
							Fathead Minnow	50
							Fathead Minnow	50
							brook Stickleback	50
							brook Stickleback	50
							Finescale Dace	50
							Fathead Minnow	40
							Fathead Minnow	40
							Fathead Minnow	40

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Fathead Minnow	40
							Fathead Minnow	40
							Fathead Minnow	50
							Fathead Minnow	50
							Fathead Minnow	50
							Fathead Minnow	50
							Fathead Minnow	50
							Fathead Minnow	50
MINN13	17:30	10:30	529277.38	5511637.5		31	brook Stickleback	40
							Finescale Dace	50
							brook Stickleback	40
							Finescale Dace	50
							Finescale Dace	60
							Finescale Dace	50
							Finescale Dace	50
							brook Stickleback	40
							Finescale Dace	40
							brook Stickleback	40
							Finescale Dace	60
							Finescale Dace	60
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							Finescale Dace	60
							Finescale Dace	60
							Finescale Dace	60

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	60
							Finescale Dace	60
							Finescale Dace	60
MINN16	17:35	10:35	529318.25	5511639.18		109	brook Stickleback	45
							Finescale Dace	50
							Finescale Dace	60
							Finescale Dace	50
							Finescale Dace	50
							Finescale Dace	60
							Finescale Dace	50
							Finescale Dace	50
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							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	45
							Finescale Dace	45
							Finescale Dace	45
							Finescale Dace	45
							Finescale Dace	45
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							Finescale Dace	45
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							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
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							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
MINN14	17:35	10:35	529334.25	5511646.43		68	Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
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							Finescale Dace	45
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
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							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
MINN17	17:27	10:37	528738.71	5511518.36		0		
MINN18	17:37	10:40	528737.33	5511519.88		79	Pearl Dace	120

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	90
							Pearl Dace	90
							Finescale Dace	50
							brook Stickleback	50
							Finescale Dace	60
							Finescale Dace	70
							Pearl Dace	70
							Finescale Dace	70
							brook Stickleback	50
							brook Stickleback	50
							Pearl Dace	100
							Pearl Dace	50
							finescale Dace	35
							finescale Dace	35
							finescale Dace	35
							finescale Dace	35
							finescale Dace	35
							finescale Dace	35
							finescale Dace	35
							finescale Dace	35
							finescale Dace	45
							finescale Dace	45
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							finescale Dace	45
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							finescale Dace	55
							finescale Dace	55
							finescale Dace	55
							finescale Dace	55
							finescale Dace	55
							finescale Dace	55
							Pearl Dace	35
							Pearl Dace	35

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	35
							Pearl Dace	45
							Pearl Dace	45
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							Pearl Dace	55
							Pearl Dace	55
							Pearl Dace	55
							Pearl Dace	55
							Pearl Dace	55
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45
MINN21	17:45	10:45	527528.47	5509990.96		0		
MINN22	17:47	10:47	527521.25	5509983.74		0		
MINN15	17:50	10:50	529331.76	5511661.6		87	Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	35
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							Finescale Dace	35
							Finescale Dace	35
							Finescale Dace	45
							Finescale Dace	45
							Finescale Dace	45

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	45
							Finescale Dace	45
							Finescale Dace	45
							Finescale Dace	45
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							Finescale Dace	55
							Finescale Dace	55

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
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							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
							Finescale Dace	55
MINN19	17:50	10:50	528787.22	5511524.91		6	brook Stickleback	35
							brook Stickleback	45
							brook Stickleback	55
							brook Stickleback	55
							Finescale Dace	60
							Finescale Dace	60
MINN20	17:55	10:55	528797.23	5511540.35		10	Pearl Dace	140
							Finescale Dace	90
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	35
							brook Stickleback	45
							brook Stickleback	45
							brook Stickleback	45

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)
							brook Stickleback	45
							Finescale Dace	55
BW10	14:27	9:25	529818.33	5511861.59	1	2	Finescale Dace	50
							Finescale Dace	60
BW11	14:37	9:37	529778.53	5512497.98	0.5	26	brook Stickleback	60
							brook Stickleback	50
							brook Stickleback	30
							brook Stickleback	40
							brook Stickleback	50
							brook Stickleback	30
							brook Stickleback	45
							brook Stickleback	40
							brook Stickleback	50
							brook Stickleback	50
							brook Stickleback	40
							brook Stickleback	40
							Pearl Dace	70
							brook Stickleback	50
							brook Stickleback	30
							brook Stickleback	40
							brook Stickleback	40
							Pearl Dace	60
							brook Stickleback	50
							brook Stickleback	40
							brook Stickleback	30
							brook Stickleback	30
							Pearl Dace	50
							Pearl Dace	50
							brook Stickleback	40
							brook Stickleback	30
							Northern Redbelly Dace	60
							Northern Redbelly Dace	70
BW12	14:45	10:24	529987.53	5512930.31		2	brook Stickleback	40
							brook Stickleback	50
BW13	16:00	10:20	530006.34	5512932.57		0		

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
THN1	14:05	12:10	524905.95	5511583.61	1	0			
THN2	14:15	12:26	524868.78	5511548.08	>1	0			
THN3	14:25	12:43	525075.59	5511723.86	1	1	›ok Stickleb	55	
THN4	14:50	12:50	525077.16	5511681.47	1	1	lorthern Pik	60	

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
TC1	19:05	15:51	528534.09	5515882.7	0.64	2	Pearl Dace	85	6
							Pearl Dace	85	6
TC2	19:13	15:55	528496.36	5515889.9	0.29	0			
TC3	19:30	16:05	528443.19	5515826.3	0.7	14	Pearl Dace	90	6
							Pearl Dace	80	3
							Pearl Dace	80	5
							Pearl Dace	90	7
							Pearl Dace	75	4
							Pearl Dace	110	8
							Pearl Dace	80	4
							Pearl Dace	80	4
							Brook Stickleback	56	1
							Brook Stickleback	47	1
							Brook Stickleback	61	2
							Unknown	50	1
TC4	19:24	16:30	528403.41	5515758.6	1	38	Finescale Dace	110	9
							Pearl Dace	100	9
							Finescale Dace	110	11
							Finescale Dace	90	6
							Brook Stickleback	50	1
							Creek Chub	70	4
							Brook Stickleback	56	1
							Creek Chub	70	4
							Creek Chub	70	4
							Pearl Dace	90	5
							Finescale Dace	90	7
							Finescale Dace	80	6
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	50	1
							Brook Stickleback	52	1
							Brook Stickleback	50	1
							Brook Stickleback	50	2
							Brook Stickleback	50	1
							Fathead Minnow	50	2
							Fathead Minnow	60	2
							Fathead Minnow	50	2
							Fathead Minnow	50	2
							Fathead Minnow	50	1
							Fathead Minnow	40	1

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
							Fathead Minnow	40	1
							Fathead Minnow	50	1
							Fathead Minnow	50	1
							Fathead Minnow	50	1
							Fathead Minnow	40	1
							Fathead Minnow	40	1
							Fathead Minnow	40	1
							Fathead Minnow	40	1
							Fathead Minnow	40	1
							Fathead Minnow	40	1
							Fathead Minnow	40	1
TC5	19:31	16:47	528457.12	5515692.8	0.55	0			
TC6	19:37	16:55	528425.24	5515620.3	0.72	12	Finescale Dace	80	5
							Finescale Dace	80	6
							Finescale Dace	90	8
							Finescale Dace	60	2
							Finescale Dace	80	4
							Pearl Dace	80	4
							Fathead Minnow	40	1
							Pearl Dace	90	6
							Fathead Minnow	50	1
							Fathead Minnow	40	1
							Fathead Minnow	50	1
							Pearl Dace	50	1
TC7	19:43	17:08	528455.49	5515495.5	0.42	60	Brook Stickleback	50	1
							Pearl Dace	90	6
							Pearl Dace	90	8
							Brook Stickleback	50	1
							Brook Stickleback	40	1
							Finescale Dace	90	5
							Brook Stickleback	64	2
							Brook Stickleback	55	1
							Finescale Dace	80	4
							Brook Stickleback	60	1
							Pearl Dace	80	4
							Creek Chub	60	2
							Pearl Dace	80	5
							Brook Stickleback	50	1
							Pearl Dace	70	3
							Brook Stickleback	60	2

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
							Brook Stickleback	40	1
							Brook Stickleback	62	2
							Brook Stickleback	50	1
							Brook Stickleback	68	2
							Fathead Minnow	50	1
							Brook Stickleback	44	1
							Brook Stickleback	52	1
							Finescale Dace	70	4
							Brook Stickleback	48	1
							Brook Stickleback	50	1
							Brook Stickleback	60	2
							Creek Chub	50	1
							Pearl Dace	50	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	40	1
							Brook Stickleback	50	1
							Brook Stickleback	50	1
							Brook Stickleback	50	1
							Brook Stickleback	50	1
							Brook Stickleback	50	1
							Brook Stickleback	50	2
							Brook Stickleback	50	2
							Brook Stickleback	50	2
							Brook Stickleback	50	2
							Brook Stickleback	50	2
							Brook Stickleback	60	2
							Brook Stickleback	60	2
							Brook Stickleback	60	2
							Brook Stickleback	60	2
							Brook Stickleback	60	2
							Brook Stickleback	60	2

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
							Brook Stickleback	60	2
							Brook Stickleback	60	2
							Brook Stickleback	60	2
							Brook Stickleback	60	2
TC9	18:00	8:20	528628.85	5514416.6	0.3	0			
TC10	18:05	8:23	528597.55	5514420.6	0.6	11	Fathead Minnow	60	3
							Finescale Dace	120	17
							Finescale Dace	40	1
							Finescale Dace	50	2
							Finescale Dace	50	1
							Fathead Minnow	60	3
							Fathead Minnow	50	2
							Brassy Minnow	60	2
							Brassy Minnow	50	2
							Brassy Minnow	40	1
							Brassy Minnow	40	1
TC11	18:01	8:40	528562.24	5514428.9	0.6	48	Northern Redbelly Dace	50	1
							Fathead Minnow	50	2
							Fathead Minnow	70	3
							Fathead Minnow	60	2
							Fathead Minnow	60	3
							Fathead Minnow	60	3
							Fathead Minnow	50	2
							Brook Stickleback	50	2
							Northern Redbelly Dace	70	3
							Brook Stickleback	70	2
							Brassy Minnow	70	3
							Northern Redbelly Dace	60	2
							Northern Redbelly Dace	70	3
							Northern Redbelly Dace	40	1
							Northern Redbelly Dace	40	1
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
TC12	18:05	8:51	528544.84	5514413.3	0.7	1	Fathead Minnow	70	5
TC13	18:07	9:29	528531.93	5514395.3	0.25	12	Brook Stickleback	45	1
							Brook Stickleback	45	1
							Pearl Dace	40	1
							Fathead Minnow	50	1
							Brook Stickleback	51	1
							Brook Stickleback	45	1
							Brook Stickleback	47	1
							Brook Stickleback	55	1
							Brook Stickleback	50	1
							Finescale Dace		4
							Brook Stickleback	44	1
							Brook Stickleback	23	>1
TC14	18:10	9:42	528501.04	5514383.1	0.5	13	Common White Sucker	80	4
							Blacknose Shiner	60	1
							Blacknose Shiner	56	1

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
							Fathead Minnow	50	1
							Blacknose Shiner	60	1
							Fathead Minnow	50	1
							Blacknose Shiner	60	1
							Northern Redbelly Dace	70	3
							Blacknose Shiner	50	1
							Northern Redbelly Dace	55	1
							Brook Stickleback	60	2
							Blacknose Shiner	50	1
							Fathead Minnow	60	3
							Blacknose Shiner	50	3
							Blacknose Shiner	50	1
							Iowa Darter	56	2
							Iowa Darter	59	1
							Brook Stickleback	61	2
							Fathead Minnow	57	1
							Brassy Minnow	59	1
							Northern Redbelly Dace	60	2
							Fathead Minnow	57	2
							Blacknose Shiner	59	1
							Fathead Minnow	54	1
							Northern Redbelly Dace	59	1
							Brassy Minnow	51	1
							Fathead Minnow	51	1
							Brassy Minnow	46	1
TC15	18:15	10:20	528459.19	5514388.2	0.2	39	Blacknose Shiner	50	1
							Northern Redbelly Dace	50	1
							Northern Redbelly Dace	40	1
							Northern Redbelly Dace	50	1
							Northern Redbelly Dace	50	1
							Northern Redbelly Dace	40	1
							Northern Redbelly Dace	60	1
							Northern Redbelly Dace	40	1
							Northern Redbelly Dace	50	1
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
TC16	11:40	8:30	528337.18	5514839.7	1	127	Pearl Dace	120	13
							Fathead Minnow	60	2
							Northern Redbelly Dace	50	1
							Fathead Minnow	60	2
							Finescale Dace	60	2
							Brook Stickleback	50	2
							Brassy Minnow	60	3
							Brassy Minnow	60	3
							Brassy Minnow	50	1
							Fathead Minnow	50	2
							Brassy Minnow	60	2
							Brassy Minnow	60	2
							Brassy Minnow	70	3
							Fathead Minnow	60	3
							Brassy Minnow	60	3
							Brassy Minnow	50	1

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
							Finescale Dace	60	2
							Brassy Minnow	60	2
							Fathead Minnow	70	4
							Brassy Minnow	50	2
							Brassy Minnow	70	2
							Fathead Minnow	50	2
							Fathead Minnow	60	3
							Brassy Minnow	50	2
							Pearl Dace	80	6
							Northern Redbelly Dace	50	1
							Brassy Minnow	60	2
							Brassy Minnow	50	2
							Northern Redbelly Dace	60	2
							Pearl Dace	100	9
							Fathead Minnow	60	3
							Fathead Minnow	55	2
							Northern Redbelly Dace	60	2
							Northern Redbelly Dace	60	2
							Brassy Minnow	50	1
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
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							Fathead Minnow		
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							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Fathead Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
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							Brassy Minnow		
							Brassy Minnow		

Sample ID	Set Time	Lift Time	UTM E	UTM N	Depth (m)	Catch Tally	Species	TLEN (mm)	RWT (g)
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
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							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Brassy Minnow		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Northern Redbelly Dace		
							Pearl Dace		
							Pearl Dace		
							Pearl Dace		
							Pearl Dace		
							Pearl Dace		
							Pearl Dace		
							Pearl Dace		
							Brook Stickleback		
							Brook Stickleback		
TC17	11:45	9:55	528317.7	5514816.6	1.5	6	Pearl Dace	100	7
							Pearl Dace	100	8
							Pearl Dace	80	5
							Pearl Dace	80	3
							Brook Stickleback	50	3
							Brassy Minnow	50	2
TC18	11:51	9:55	528282.12	5514784.3	6:00	2	Central Mud Minnow	66	3
							Central Mud Minnow	80	4

Site ID	EFTC1
Date	6/25/2012
Crew	KR/MP
Weather	Sunny
Conductivity	52 ms/cm
Water Temperature	17.2
Total Seconds	850
Pulse Frequency	30
Volts	450
Comments	South branch of the tree farm tributary; site was half in bush half in power line

Catch Tally	Fish #	Species	Length	Weight	Pass
1	F1	Pearl Dace	98	7	1

Site ID	EFTC3
Date	6/25/2012
Crew	KR/MP
Weather	Clear
Conductivity	97 ms/cm
Water Temperature	21.5
Total Seconds	353
Pulse Frequency	30
Volts	375
Comments	Fished at mouth of Thunder Lake Tributary, below confluence of tree farm upwards for 50m; 2 central mud minnows turned but not coptured; swampy organic small creek;many small fish possibly yoy

Catch Tally	Fish #	Species	Length	Weight	Pass
7	F1	ntral Mud Minn	68	4.5	1
	F2	Brook Sticklebac	16	<1	1
	F3	Brook Sticklebac	32	<1	1
	F4	Dace Sp.	33	<1	1
	F5	Brook Sticklebac	23	<1	1
	F6	Brook Sticklebac	25	<1	1
	F7	Brook Sticklebac	20	<1	1

Site ID	EFTC2
Date	6/25/2012
Crew	KR/MP
Weather	Clear
Conductivity	106 ms/cm
Water Temperature	18.6
Total Seconds	500
Pulse Frequency	30
Volts	375
Comments	Hydro power trib north of EFTC1; No fish captured; fish half in power line half in forest

Catch Tally	Fish #	Species	Length	Weight	Pass
0					

Site ID	EFBW1
Date	6/26/2012
Crew	KR/MP
Weather	Clear
Conductivity	87 (µs/cm)
Water Temperature	
Total Seconds	472
Pulse Frequency	30
Volts	375
Comments	Strech of pool-riffle-glide-pool; Between highway and Anderson Road; Highly vegetated banks; Substrate cobble transitioning to fines upstream

Catch Tally	Fish #	Species	.ength (mm	Weight	Pass
13	F1	Burbot	200		
	F2	Brook Sticklebac	45		
	F3	nmon White Suc	70		
	F4	Brook Sticklebac	50		
	F5	Pearl Dace	54		
	F6	Pearl Dace	52		
	F7	Pearl Dace	46		
	F8	Brook Sticklebac	30		
	F9	Pearl Dace	42		
	F10	Brook Sticklebac	32		
	F11	Brook Sticklebac	30		
	F12	Brook Sticklebac	26		
	F13	Brook Sticklebac	25		

Appendix B
Laboratory Results

TREASURY METALS INC.
ATTN: Mac Potter
P.O. Box 789
Dryden ON P8N 2Z4

Date Received: 07-NOV-12
Report Date: 08-JAN-13 14:18 (MT)
Version: FINAL

Client Phone: 807-938-6961

Certificate of Analysis

Lab Work Order #: L1234648

Project P.O. #: NOT SUBMITTED
Job Reference: GOLIATH GOLD PROJECT
C of C Numbers:
Legal Site Desc:

Tricia Sampson
Account Manager Supervisor

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-1	L1234648-2	L1234648-3	L1234648-4	L1234648-5
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	05-SEP-12	05-SEP-12	05-SEP-12	05-SEP-12	05-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F1	F2	F3	F4	F5
Grouping	**Analyte**					
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	6.59	1.23	1.63	0.68	1.11
	Antimony (Sb)-Total (mg/kg wwt)	0.0035	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg wwt)	0.0575	0.0376	0.0601	0.0307	0.0265
	Barium (Ba)-Total (mg/kg wwt)	0.378	0.444	0.079	0.247	0.255
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Calcium (Ca)-Total (mg/kg wwt)	4850	6450	1770	6560	7880
	Cesium (Cs)-Total (mg/kg wwt)	0.0114	0.0105	0.0115	0.0160	0.0127
	Chromium (Cr)-Total (mg/kg wwt)	0.269	0.085	0.048	0.065	0.188
	Cobalt (Co)-Total (mg/kg wwt)	0.0075	<0.0040	<0.0040	<0.0040	0.0049
	Copper (Cu)-Total (mg/kg wwt)	0.274	0.167	0.162	0.189	0.195
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Iron (Fe)-Total (mg/kg wwt)	14.3	2.73	3.67	1.92	3.05
	Lead (Pb)-Total (mg/kg wwt)	0.0316	0.0103	0.0057	0.0099	0.0056
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Magnesium (Mg)-Total (mg/kg wwt)	410	407	323	402	450
	Manganese (Mn)-Total (mg/kg wwt)	1.32	2.09	0.277	0.549	0.956
	Mercury (Hg)-Total (mg/kg wwt)	0.228	0.149	0.230	0.331	0.102
	Molybdenum (Mo)-Total (mg/kg wwt)	0.0087	<0.0040	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg wwt)	0.115	0.045	0.025	0.034	0.102
	Phosphorus (P)-Total (mg/kg wwt)	4260	4920	2590	5020	6170
	Potassium (K)-Total (mg/kg wwt)	3830	3770	3620	3880	3780
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Rubidium (Rb)-Total (mg/kg wwt)	7.94	7.88	8.59	9.18	9.04
	Selenium (Se)-Total (mg/kg wwt)	0.231	0.177	0.182	0.157	0.210
	Sodium (Na)-Total (mg/kg wwt)	514	564	580	515	512
	Strontium (Sr)-Total (mg/kg wwt)	1.68	2.16	0.580	2.02	2.40
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg wwt)	0.00390	0.00370	0.00314	0.00475	0.00472
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Tin (Sn)-Total (mg/kg wwt)	0.0123	0.0053	0.0054	<0.0040	0.0081
	Titanium (Ti)-Total (mg/kg wwt)	0.448	0.073	0.135	0.046	0.081
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg wwt)	0.0294	0.0085	0.0060	0.0055	0.0083
	Yttrium (Y)-Total (mg/kg wwt)	0.0026	<0.0020	<0.0020	<0.0020	<0.0020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1234648-6 FISH 05-SEP-12 10:00 F6	L1234648-7 FISH 05-SEP-12 10:00 F7	L1234648-8 FISH 05-SEP-12 10:00 F8	L1234648-9 FISH 06-SEP-12 10:00 F9	L1234648-10 FISH 06-SEP-12 10:00 F10
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	3.26	7.94	0.97	0.84	0.77
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	0.0023	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg wwt)	0.0322	0.0433	0.0234	0.0544	0.0618
	Barium (Ba)-Total (mg/kg wwt)	0.284	0.503	0.489	0.221	0.282
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Calcium (Ca)-Total (mg/kg wwt)	7800	9160	12500	5970	6370
	Cesium (Cs)-Total (mg/kg wwt)	0.0101	0.0149	0.0132	0.0116	0.0105
	Chromium (Cr)-Total (mg/kg wwt)	0.341	0.213	0.212	0.236	0.146
	Cobalt (Co)-Total (mg/kg wwt)	0.0067	0.0070	0.0041	<0.0040	<0.0040
	Copper (Cu)-Total (mg/kg wwt)	0.242	0.212	0.236	0.196	0.192
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Iron (Fe)-Total (mg/kg wwt)	5.75	8.42	2.91	2.71	2.57
	Lead (Pb)-Total (mg/kg wwt)	0.0106	0.0142	0.0051	0.0064	0.0051
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Magnesium (Mg)-Total (mg/kg wwt)	434	458	524	400	390
	Manganese (Mn)-Total (mg/kg wwt)	0.862	0.674	1.22	1.04	1.11
	Mercury (Hg)-Total (mg/kg wwt)	0.157	0.272	0.195	0.261	0.335
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg wwt)	0.154	0.092	0.101	0.121	0.076
	Phosphorus (P)-Total (mg/kg wwt)	6110	6840	8190	4770	4890
	Potassium (K)-Total (mg/kg wwt)	3830	3850	4850	3970	3620
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Rubidium (Rb)-Total (mg/kg wwt)	7.44	9.49	8.90	9.43	7.79
	Selenium (Se)-Total (mg/kg wwt)	0.216	0.205	0.187	0.193	0.186
	Sodium (Na)-Total (mg/kg wwt)	545	596	739	492	526
	Strontium (Sr)-Total (mg/kg wwt)	2.53	3.07	3.51	2.02	2.05
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg wwt)	0.00371	0.00467	0.00391	0.00435	0.00407
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Tin (Sn)-Total (mg/kg wwt)	0.0057	0.0082	0.0041	0.0051	<0.0040
	Titanium (Ti)-Total (mg/kg wwt)	0.212	0.403	0.069	0.049	0.052
	Uranium (U)-Total (mg/kg wwt)	<0.00040	0.00042	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg wwt)	0.0159	0.0231	0.0094	0.0075	0.0090
	Yttrium (Y)-Total (mg/kg wwt)	<0.0020	0.0026	<0.0020	<0.0020	<0.0020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-11	L1234648-12	L1234648-13	L1234648-14	L1234648-16
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	06-SEP-12	06-SEP-12	06-SEP-12	06-SEP-12	05-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F11	F12	F13	F14	F16
Grouping	**Analyte**					
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	1.34	1.65	2.46	0.50	6.44
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg wwt)	0.0401	0.0387	0.0381	0.0359	0.0485
	Barium (Ba)-Total (mg/kg wwt)	0.498	0.350	0.326	0.251	0.071
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	0.0024
	Calcium (Ca)-Total (mg/kg wwt)	14000	14000	9240	9820	288
	Cesium (Cs)-Total (mg/kg wwt)	0.0106	0.0126	0.0124	0.0105	0.0116
	Chromium (Cr)-Total (mg/kg wwt)	0.134	0.388	0.101	0.059	0.043
	Cobalt (Co)-Total (mg/kg wwt)	<0.0040	0.0055	<0.0040	<0.0040	0.0043
	Copper (Cu)-Total (mg/kg wwt)	0.197	0.250	0.161	0.178	0.154
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Iron (Fe)-Total (mg/kg wwt)	2.77	4.14	4.02	1.74	7.62
	Lead (Pb)-Total (mg/kg wwt)	0.0061	0.0093	0.0085	0.0081	0.0221
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Magnesium (Mg)-Total (mg/kg wwt)	547	533	422	429	364
	Manganese (Mn)-Total (mg/kg wwt)	2.56	0.763	1.22	1.34	0.243
	Mercury (Hg)-Total (mg/kg wwt)	0.184	0.245	0.240	0.194	0.0865
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	0.0046	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg wwt)	0.068	0.189	0.057	0.056	0.030
	Phosphorus (P)-Total (mg/kg wwt)	8960	8850	6160	7170	2390
	Potassium (K)-Total (mg/kg wwt)	4790	4550	4330	3500	4710
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Rubidium (Rb)-Total (mg/kg wwt)	8.31	8.59	8.76	7.78	10.3
	Selenium (Se)-Total (mg/kg wwt)	0.119	0.160	0.129	0.191	0.190
	Sodium (Na)-Total (mg/kg wwt)	708	697	684	633	239
	Strontium (Sr)-Total (mg/kg wwt)	4.20	4.22	2.88	3.12	0.109
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg wwt)	0.00461	0.00558	0.00499	0.00426	0.00505
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Tin (Sn)-Total (mg/kg wwt)	<0.0040	0.0058	0.0053	<0.0040	0.0114
	Titanium (Ti)-Total (mg/kg wwt)	0.066	0.103	0.439	0.024	0.396
	Uranium (U)-Total (mg/kg wwt)	0.00047	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg wwt)	0.0211	0.0100	0.0133	0.0075	0.0139
	Yttrium (Y)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	0.0023

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-17	L1234648-18	L1234648-19	L1234648-20	L1234648-21
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	05-SEP-12	05-SEP-12	05-SEP-12	05-SEP-12	05-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F17	F18	F19	F20	F21
Grouping	**Analyte**					
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	1.84	3.68	0.54	0.66	5.16
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	0.0189	<0.0020	0.0030
	Arsenic (As)-Total (mg/kg wwt)	0.0610	0.0237	0.0465	0.0441	0.0418
	Barium (Ba)-Total (mg/kg wwt)	0.028	0.064	0.019	0.019	0.101
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg wwt)	0.0045	<0.0020	<0.0020	<0.0020	0.0028
	Calcium (Ca)-Total (mg/kg wwt)	113	163	186	113	167
	Cesium (Cs)-Total (mg/kg wwt)	0.0108	0.0142	0.0147	0.0126	0.0136
	Chromium (Cr)-Total (mg/kg wwt)	0.192	0.096	0.028	0.028	0.084
	Cobalt (Co)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Copper (Cu)-Total (mg/kg wwt)	0.112	0.147	0.161	0.124	0.190
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Iron (Fe)-Total (mg/kg wwt)	3.61	5.28	1.41	1.47	5.85
	Lead (Pb)-Total (mg/kg wwt)	0.0060	0.0158	<0.0040	<0.0040	0.0121
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Magnesium (Mg)-Total (mg/kg wwt)	313	366	346	345	310
	Manganese (Mn)-Total (mg/kg wwt)	0.184	0.184	0.132	0.139	0.228
	Mercury (Hg)-Total (mg/kg wwt)	0.473	0.117	0.176	0.165	0.241
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg wwt)	0.031	0.021	0.159	0.020	0.033
	Phosphorus (P)-Total (mg/kg wwt)	2010	2220	2270	2300	2080
	Potassium (K)-Total (mg/kg wwt)	4590	4710	4600	4810	4540
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Rubidium (Rb)-Total (mg/kg wwt)	6.74	10.8	11.2	10.2	8.53
	Selenium (Se)-Total (mg/kg wwt)	0.223	0.180	0.180	0.179	0.182
	Sodium (Na)-Total (mg/kg wwt)	234	214	225	209	213
	Strontium (Sr)-Total (mg/kg wwt)	0.019	0.042	0.039	0.015	0.077
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg wwt)	0.00355	0.00533	0.00480	0.00516	0.00461
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Tin (Sn)-Total (mg/kg wwt)	0.0074	0.0205	0.0124	0.0050	0.0245
	Titanium (Ti)-Total (mg/kg wwt)	0.097	0.271	0.028	0.037	0.297
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg wwt)	0.0050	0.0083	<0.0040	<0.0040	0.0105
	Yttrium (Y)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1234648-22 FISH 05-SEP-12 10:00 F22	L1234648-23 FISH 05-SEP-12 10:00 F23	L1234648-24 FISH 06-SEP-12 10:00 F24	L1234648-25 FISH 06-SEP-12 10:00 F25	L1234648-26 FISH 06-SEP-12 10:00 F26
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	0.86	0.53	0.92	<0.40	2.35
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg wwt)	0.0500	0.0399	0.0601	0.0509	0.0353
	Barium (Ba)-Total (mg/kg wwt)	0.018	0.011	0.021	0.070	0.039
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg wwt)	0.0025	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Calcium (Ca)-Total (mg/kg wwt)	129	165	190	170	109
	Cesium (Cs)-Total (mg/kg wwt)	0.0124	0.0175	0.0142	0.0137	0.0085
	Chromium (Cr)-Total (mg/kg wwt)	0.020	0.026	0.085	0.014	0.071
	Cobalt (Co)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Copper (Cu)-Total (mg/kg wwt)	0.118	0.125	0.157	0.137	0.110
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Iron (Fe)-Total (mg/kg wwt)	1.49	2.47	2.25	1.40	6.07
	Lead (Pb)-Total (mg/kg wwt)	0.0073	0.0065	<0.0040	<0.0040	0.0132
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Magnesium (Mg)-Total (mg/kg wwt)	346	348	348	330	242
	Manganese (Mn)-Total (mg/kg wwt)	0.103	0.114	0.156	0.140	0.111
	Mercury (Hg)-Total (mg/kg wwt)	0.196	0.442	0.180	0.195	0.173
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg wwt)	0.012	<0.010	0.048	0.014	0.115
	Phosphorus (P)-Total (mg/kg wwt)	2310	2290	2320	2190	1620
	Potassium (K)-Total (mg/kg wwt)	4740	4840	4660	4430	2840
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Rubidium (Rb)-Total (mg/kg wwt)	9.91	11.8	11.5	10.1	5.95
	Selenium (Se)-Total (mg/kg wwt)	0.191	0.106	0.217	0.216	0.119
	Sodium (Na)-Total (mg/kg wwt)	192	244	204	229	146
	Strontium (Sr)-Total (mg/kg wwt)	0.022	0.033	0.039	0.036	0.025
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg wwt)	0.00382	0.00349	0.00444	0.00420	0.00296
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Tin (Sn)-Total (mg/kg wwt)	<0.0040	0.0079	0.0082	0.0080	0.0182
	Titanium (Ti)-Total (mg/kg wwt)	0.052	0.027	0.059	0.027	0.145
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	0.0056
	Yttrium (Y)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-27	L1234648-28	L1234648-29	L1234648-30	L1234648-31
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	06-SEP-12	06-SEP-12	06-SEP-12	06-SEP-12	07-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F27	F28	F29	F30	F31
Grouping	**Analyte**					
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	<0.40	0.45	1.40	0.49	1.25
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg wwt)	0.0290	0.0583	0.0510	0.0483	0.0282
	Barium (Ba)-Total (mg/kg wwt)	<0.010	<0.010	0.030	0.012	0.185
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Calcium (Ca)-Total (mg/kg wwt)	120	139	150	118	10100
	Cesium (Cs)-Total (mg/kg wwt)	0.0159	0.0164	0.0138	0.0138	0.0475
	Chromium (Cr)-Total (mg/kg wwt)	0.035	0.042	0.034	0.048	0.033
	Cobalt (Co)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Copper (Cu)-Total (mg/kg wwt)	0.120	0.114	0.123	0.124	0.297
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Iron (Fe)-Total (mg/kg wwt)	1.05	1.90	2.24	1.62	2.72
	Lead (Pb)-Total (mg/kg wwt)	<0.0040	<0.0040	0.0100	<0.0040	0.0828
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Magnesium (Mg)-Total (mg/kg wwt)	337	324	358	365	467
	Manganese (Mn)-Total (mg/kg wwt)	0.0762	0.115	0.139	0.128	0.518
	Mercury (Hg)-Total (mg/kg wwt)	0.245	0.206	0.207	0.140	0.108
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg wwt)	0.028	0.066	0.021	0.041	0.022
	Phosphorus (P)-Total (mg/kg wwt)	2230	2150	2240	2310	7840
	Potassium (K)-Total (mg/kg wwt)	4680	4210	4890	4770	3790
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Rubidium (Rb)-Total (mg/kg wwt)	12.6	9.87	9.02	11.2	12.3
	Selenium (Se)-Total (mg/kg wwt)	0.191	0.199	0.181	0.202	0.283
	Sodium (Na)-Total (mg/kg wwt)	195	209	217	212	570
	Strontium (Sr)-Total (mg/kg wwt)	0.015	0.022	0.029	0.013	3.77
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg wwt)	0.00365	0.00360	0.00429	0.00481	0.00529
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Tin (Sn)-Total (mg/kg wwt)	<0.0040	<0.0040	0.0080	0.0043	<0.0040
	Titanium (Ti)-Total (mg/kg wwt)	0.022	0.020	0.074	0.038	0.050
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	0.0040
	Yttrium (Y)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-32	L1234648-33	L1234648-34	L1234648-35	L1234648-36
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	07-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F32	F33	F34	F35	F36
Grouping	**Analyte**					
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	1.15	3.28	9.12	1.21	8.59
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	0.0022
	Arsenic (As)-Total (mg/kg wwt)	0.0193	0.0205	0.0224	0.0176	0.0442
	Barium (Ba)-Total (mg/kg wwt)	0.117	0.284	0.251	0.157	0.252
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Calcium (Ca)-Total (mg/kg wwt)	5360	10600	7990	8150	10900
	Cesium (Cs)-Total (mg/kg wwt)	0.0510	0.0693	0.0421	0.0507	0.0418
	Chromium (Cr)-Total (mg/kg wwt)	0.087	0.060	0.097	0.074	0.126
	Cobalt (Co)-Total (mg/kg wwt)	<0.0040	<0.0040	0.0078	<0.0040	0.0219
	Copper (Cu)-Total (mg/kg wwt)	0.235	0.236	0.233	0.225	0.295
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Iron (Fe)-Total (mg/kg wwt)	2.00	4.88	11.0	2.83	12.6
	Lead (Pb)-Total (mg/kg wwt)	0.0077	0.0082	0.0191	<0.0040	0.0121
	Lithium (Li)-Total (mg/kg wwt)	<0.020	0.030	0.020	<0.020	0.026
	Magnesium (Mg)-Total (mg/kg wwt)	397	452	446	434	482
	Manganese (Mn)-Total (mg/kg wwt)	0.331	0.659	0.555	0.397	0.596
	Mercury (Hg)-Total (mg/kg wwt)	0.121	0.155	0.0975	0.105	0.0978
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	0.0948
	Nickel (Ni)-Total (mg/kg wwt)	0.150	0.168	0.060	0.050	0.055
	Phosphorus (P)-Total (mg/kg wwt)	4690	7960	6650	6690	8580
	Potassium (K)-Total (mg/kg wwt)	4150	3900	3990	3830	3980
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Rubidium (Rb)-Total (mg/kg wwt)	12.9	12.3	10.7	12.9	12.5
	Selenium (Se)-Total (mg/kg wwt)	0.255	0.228	0.261	0.233	0.272
	Sodium (Na)-Total (mg/kg wwt)	554	621	580	611	582
	Strontium (Sr)-Total (mg/kg wwt)	1.56	3.81	2.73	2.38	4.44
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg wwt)	0.00304	0.00446	0.00272	0.00347	0.00579
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	0.0029	0.0049	<0.0020	<0.0020
	Tin (Sn)-Total (mg/kg wwt)	0.0055	0.0070	<0.0040	<0.0040	<0.0040
	Titanium (Ti)-Total (mg/kg wwt)	0.083	0.235	0.827	0.038	0.681
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	0.00200	<0.00040	0.00048
	Vanadium (V)-Total (mg/kg wwt)	<0.0040	0.0093	0.0240	<0.0040	0.0731
	Yttrium (Y)-Total (mg/kg wwt)	<0.0020	<0.0020	0.0065	<0.0020	0.0028

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-37	L1234648-38	L1234648-39	L1234648-40	L1234648-41
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	07-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F37	F38	F39	F40	F41
Grouping	**Analyte**					
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	1.33	1.29	0.74	3.17	7.49
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg wwt)	0.0155	0.0201	0.0199	0.0253	0.0306
	Barium (Ba)-Total (mg/kg wwt)	0.152	0.160	0.215	0.044	0.074
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Calcium (Ca)-Total (mg/kg wwt)	6550	6660	9090	121	114
	Cesium (Cs)-Total (mg/kg wwt)	0.0562	0.0551	0.0417	0.0503	0.0511
	Chromium (Cr)-Total (mg/kg wwt)	0.109	0.199	0.119	0.054	0.046
	Cobalt (Co)-Total (mg/kg wwt)	<0.0040	0.0047	<0.0040	<0.0040	0.0105
	Copper (Cu)-Total (mg/kg wwt)	0.227	0.264	0.214	0.173	0.231
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Iron (Fe)-Total (mg/kg wwt)	5.20	3.52	2.45	5.59	14.1
	Lead (Pb)-Total (mg/kg wwt)	0.0570	0.0078	0.0064	0.0241	0.0193
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Magnesium (Mg)-Total (mg/kg wwt)	403	421	457	378	356
	Manganese (Mn)-Total (mg/kg wwt)	0.402	0.464	0.517	0.229	0.319
	Mercury (Hg)-Total (mg/kg wwt)	0.136	0.114	0.105	0.143	0.142
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Nickel (Ni)-Total (mg/kg wwt)	0.053	0.095	0.069	0.022	0.027
	Phosphorus (P)-Total (mg/kg wwt)	5350	5960	7390	2500	2410
	Potassium (K)-Total (mg/kg wwt)	3920	3910	3940	5090	4840
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Rubidium (Rb)-Total (mg/kg wwt)	14.2	14.0	12.1	13.5	13.5
	Selenium (Se)-Total (mg/kg wwt)	0.278	0.258	0.254	0.265	0.227
	Sodium (Na)-Total (mg/kg wwt)	545	496	545	260	244
	Strontium (Sr)-Total (mg/kg wwt)	2.14	2.01	3.14	0.025	0.036
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg wwt)	0.00396	0.00383	0.00331	0.00391	0.00398
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	0.0032	<0.0020
	Tin (Sn)-Total (mg/kg wwt)	<0.0040	0.0041	<0.0040	0.0137	0.0208
	Titanium (Ti)-Total (mg/kg wwt)	0.069	0.057	0.045	0.253	0.421
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Vanadium (V)-Total (mg/kg wwt)	0.0057	0.0052	<0.0040	0.0121	0.0106
	Yttrium (Y)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	0.0087

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-42	L1234648-43			
	Description	FISH	FISH			
	Sampled Date	06-SEP-12	06-SEP-12			
	Sampled Time	10:00	10:00			
	Client ID	GN1	GN3			
Grouping	**Analyte**					
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	<0.40	0.63			
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020			
	Arsenic (As)-Total (mg/kg wwt)	0.0517	0.0386			
	Barium (Ba)-Total (mg/kg wwt)	0.160	<0.010			
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020			
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020			
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20			
	Cadmium (Cd)-Total (mg/kg wwt)	<0.0020	<0.0020			
	Calcium (Ca)-Total (mg/kg wwt)	6320	94.5			
	Cesium (Cs)-Total (mg/kg wwt)	0.0119	0.0142			
	Chromium (Cr)-Total (mg/kg wwt)	0.135	0.030			
	Cobalt (Co)-Total (mg/kg wwt)	<0.0040	<0.0040			
	Copper (Cu)-Total (mg/kg wwt)	0.195	0.100			
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040			
	Iron (Fe)-Total (mg/kg wwt)	1.88	1.73			
	Lead (Pb)-Total (mg/kg wwt)	0.0078	<0.0040			
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020			
	Magnesium (Mg)-Total (mg/kg wwt)	404	325			
	Manganese (Mn)-Total (mg/kg wwt)	0.659	0.0892			
	Mercury (Hg)-Total (mg/kg wwt)	0.191	0.503			
	Molybdenum (Mo)-Total (mg/kg wwt)	<0.0040	<0.0040			
	Nickel (Ni)-Total (mg/kg wwt)	0.068	0.017			
	Phosphorus (P)-Total (mg/kg wwt)	5580	2230			
	Potassium (K)-Total (mg/kg wwt)	3780	4510			
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020			
	Rubidium (Rb)-Total (mg/kg wwt)	7.99	11.6			
	Selenium (Se)-Total (mg/kg wwt)	0.186	0.222			
	Sodium (Na)-Total (mg/kg wwt)	540	239			
	Strontium (Sr)-Total (mg/kg wwt)	2.01	0.017			
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040			
	Thallium (Tl)-Total (mg/kg wwt)	0.00340	0.00432			
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	<0.0020			
	Tin (Sn)-Total (mg/kg wwt)	<0.0040	0.0075			
	Titanium (Ti)-Total (mg/kg wwt)	0.016	0.049			
	Uranium (U)-Total (mg/kg wwt)	<0.00040	<0.00040			
	Vanadium (V)-Total (mg/kg wwt)	0.0061	<0.0040			
	Yttrium (Y)-Total (mg/kg wwt)	<0.0020	<0.0020			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-1	L1234648-2	L1234648-3	L1234648-4	L1234648-5
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	05-SEP-12	05-SEP-12	05-SEP-12	05-SEP-12	05-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F1	F2	F3	F4	F5
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	9.38	7.55	5.44	11.2	10.2
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-6	L1234648-7	L1234648-8	L1234648-9	L1234648-10
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	05-SEP-12	05-SEP-12	05-SEP-12	06-SEP-12	06-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F6	F7	F8	F9	F10
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	11.2	11.6	8.17	8.67	7.36
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-11	L1234648-12	L1234648-13	L1234648-14	L1234648-16
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	06-SEP-12	06-SEP-12	06-SEP-12	06-SEP-12	05-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F11	F12	F13	F14	F16
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	11.0	12.2	10.8	8.64	4.99
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-17	L1234648-18	L1234648-19	L1234648-20	L1234648-21
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	05-SEP-12	05-SEP-12	05-SEP-12	05-SEP-12	05-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F17	F18	F19	F20	F21
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	2.88	3.80	3.83	3.25	3.78
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-22	L1234648-23	L1234648-24	L1234648-25	L1234648-26
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	05-SEP-12	05-SEP-12	06-SEP-12	06-SEP-12	06-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F22	F23	F24	F25	F26
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	3.77	3.89	3.37	3.46	3.01
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-27	L1234648-28	L1234648-29	L1234648-30	L1234648-31
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	06-SEP-12	06-SEP-12	06-SEP-12	06-SEP-12	07-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F27	F28	F29	F30	F31
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	3.48	3.52	3.55	3.83	15.6
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-32	L1234648-33	L1234648-34	L1234648-35	L1234648-36
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	07-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F32	F33	F34	F35	F36
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	9.61	13.3	11.0	9.61	19.7
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-37	L1234648-38	L1234648-39	L1234648-40	L1234648-41
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	07-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12	07-SEP-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	F37	F38	F39	F40	F41
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	11.2	12.3	14.1	5.57	5.63
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1234648-42	L1234648-43			
	Description	FISH	FISH			
	Sampled Date	06-SEP-12	06-SEP-12			
	Sampled Time	10:00	10:00			
	Client ID	GN1	GN3			
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	7.55	3.58			
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Mercury (Hg)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Phosphorus (P)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Phosphorus (P)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Calcium (Ca)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Phosphorus (P)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Barium (Ba)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Chromium (Cr)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Copper (Cu)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Manganese (Mn)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nickel (Ni)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Aluminum (Al)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Barium (Ba)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Chromium (Cr)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Iron (Fe)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Lead (Pb)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Manganese (Mn)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Selenium (Se)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Strontium (Sr)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Thallium (Tl)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Vanadium (V)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Zinc (Zn)-Total	DUP-H	L1234648-1, -10, -11, -12, -13, -14, -16, -17, -18, -19, -2, -20, -21, -22, -3, -4, -5, -6, -7, -8, -9
Duplicate	Lead (Pb)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Manganese (Mn)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Nickel (Ni)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Barium (Ba)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Chromium (Cr)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Manganese (Mn)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Nickel (Ni)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Strontium (Sr)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Duplicate	Zinc (Zn)-Total	DUP-H	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43

Reference Information

	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Barium (Ba)-Total	DUP-H	L1234648-13
Duplicate	Chromium (Cr)-Total	DUP-H	L1234648-13
Duplicate	Copper (Cu)-Total	DUP-H	L1234648-13
Duplicate	Iron (Fe)-Total	DUP-H	L1234648-13
Duplicate	Manganese (Mn)-Total	DUP-H	L1234648-13
Duplicate	Molybdenum (Mo)-Total	DUP-H	L1234648-13
Duplicate	Nickel (Ni)-Total	DUP-H	L1234648-13
Duplicate	Vanadium (V)-Total	DUP-H	L1234648-13
Method Blank	Calcium (Ca)-Total	MB-LOR	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Method Blank	Phosphorus (P)-Total	MB-LOR	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Method Blank	Manganese (Mn)-Total	MB-LOR	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Method Blank	Copper (Cu)-Total	MB-LOR	L1234648-23, -24, -25, -26, -27, -28, -29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43
Method Blank	Copper (Cu)-Total	MB-LOR	L1234648-13
Method Blank	Zinc (Zn)-Total	MB-LOR	L1234648-13
Method Blank	Calcium (Ca)-Total	MB-LOR	L1234648-13
Method Blank	Copper (Cu)-Total	MB-LOR	L1234648-12, -19, -21, -7
Method Blank	Copper (Cu)-Total	MB-LOR	L1234648-12, -19, -21, -7

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-WET-CVAFS-VA	Tissue	Mercury in Tissue by CVAFS (WET)	EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry, adapted from US EPA Method 245.7. This digestion procedure was implemented on October 5, 2009.

MET-WET-HRMS-VA	Tissue	Metals in Tissue by HR-ICPMS (WET)	EPA 200.8

Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on wet weight basis.

MET-WET-ICP-VA	Tissue	Metals in Tissue by ICPOES (WET)	EPA 200.3, EPA 6010B

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Optical Emission Spectrophotometry, adapted from US EPA Method 6010B. This digestion procedure was implemented on October 5, 2009.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1234648 Report Date: 08-JAN-13

Client: TREASURY METALS INC.
P.O. Box 789
Dryden ON P8N 2Z4
Contact: Mac Potter

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-WET-CVAFS-VA	**Tissue**							
Batch R2498415								
WG1601341-5 CRM		**VA-NRC-TORT2**						
Mercury (Hg)-Total			94.2		%		70-130	16-DEC-12
WG1601341-6 CRM		**VA-NRC-DOLT4**						
Mercury (Hg)-Total			101.9		%		70-130	16-DEC-12
WG1601341-1 MB								
Mercury (Hg)-Total			<0.0010		mg/kg wwt		0.001	16-DEC-12
WG1601341-2 MB								
Mercury (Hg)-Total			<0.0010		mg/kg wwt		0.001	16-DEC-12
Batch R2499005								
WG1601340-5 CRM		**VA-NRC-TORT2**						
Mercury (Hg)-Total			107.7		%		70-130	17-DEC-12
WG1601340-6 CRM		**VA-NRC-DOLT4**						
Mercury (Hg)-Total			105.2		%		70-130	17-DEC-12
WG1601340-3 DUP		**L1234648-9**						
Mercury (Hg)-Total		0.261	0.226		mg/kg wwt	15	30	17-DEC-12
WG1601340-4 DUP		**L1234648-13**						
Mercury (Hg)-Total		0.240	0.372	DUP-H	mg/kg wwt	43	30	17-DEC-12
WG1601341-3 DUP		**L1234648-31**						
Mercury (Hg)-Total		0.108	0.124		mg/kg wwt	14	30	17-DEC-12
WG1601341-4 DUP		**L1234648-39**						
Mercury (Hg)-Total		0.105	0.116		mg/kg wwt	9.3	30	17-DEC-12
WG1601340-1 MB								
Mercury (Hg)-Total			<0.0010		mg/kg wwt		0.001	17-DEC-12
WG1601340-2 MB								
Mercury (Hg)-Total			<0.0010		mg/kg wwt		0.001	17-DEC-12
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601340-5 CRM		**VA-NRC-TORT2**						
Arsenic (As)-Total			101.2		%		70-130	27-DEC-12
Cadmium (Cd)-Total			123.4		%		70-130	27-DEC-12
Chromium (Cr)-Total			77.9		%		70-130	27-DEC-12
Cobalt (Co)-Total			99.7		%		70-130	27-DEC-12
Copper (Cu)-Total			91.0		%		70-130	27-DEC-12
Iron (Fe)-Total			88.5		%		70-130	27-DEC-12
Lead (Pb)-Total			74.0		%		70-130	27-DEC-12
Manganese (Mn)-Total			91.8		%		70-130	27-DEC-12
Molybdenum (Mo)-Total			96.2		%		70-130	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601340-5 CRM		**VA-NRC-TORT2**						
Nickel (Ni)-Total			91.7		%		70-130	27-DEC-12
Selenium (Se)-Total			106.6		%		70-130	27-DEC-12
Strontium (Sr)-Total			86.4		%		70-130	27-DEC-12
Tin (Sn)-Total			0.0451		mg/kg wwt		0.02-0.06	27-DEC-12
Vanadium (V)-Total			106.8		%		70-130	27-DEC-12
Zinc (Zn)-Total			110.7		%		70-130	27-DEC-12
WG1601340-6 CRM		**VA-NRC-DOLT4**						
Arsenic (As)-Total			98.4		%		70-130	27-DEC-12
Cadmium (Cd)-Total			117.2		%		70-130	27-DEC-12
Chromium (Cr)-Total			82.6		%		70-130	27-DEC-12
Cobalt (Co)-Total			93.5		%		70-130	27-DEC-12
Copper (Cu)-Total			98.7		%		70-130	27-DEC-12
Iron (Fe)-Total			90.4		%		70-130	27-DEC-12
Molybdenum (Mo)-Total			102.5		%		70-130	27-DEC-12
Nickel (Ni)-Total			101.4		%		70-130	27-DEC-12
Selenium (Se)-Total			106.5		%		70-130	27-DEC-12
Strontium (Sr)-Total			87.2		%		70-130	27-DEC-12
Tin (Sn)-Total			116.6		%		70-130	27-DEC-12
Vanadium (V)-Total			99.6		%		70-130	27-DEC-12
Zinc (Zn)-Total			115.1		%		70-130	27-DEC-12
WG1601341-5 CRM		**VA-NRC-TORT2**						
Arsenic (As)-Total			112.1		%		70-130	27-DEC-12
Cadmium (Cd)-Total			122.0		%		70-130	27-DEC-12
Chromium (Cr)-Total			76.5		%		70-130	27-DEC-12
Cobalt (Co)-Total			101.0		%		70-130	27-DEC-12
Copper (Cu)-Total			96.7		%		70-130	27-DEC-12
Iron (Fe)-Total			89.5		%		70-130	27-DEC-12
Lead (Pb)-Total			100.7		%		70-130	27-DEC-12
Manganese (Mn)-Total			96.2		%		70-130	27-DEC-12
Molybdenum (Mo)-Total			96.7		%		70-130	27-DEC-12
Nickel (Ni)-Total			93.1		%		70-130	27-DEC-12
Selenium (Se)-Total			111.4		%		70-130	27-DEC-12
Strontium (Sr)-Total			91.7		%		70-130	27-DEC-12
Vanadium (V)-Total			109.0		%		70-130	27-DEC-12
Zinc (Zn)-Total			116.2		%		70-130	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601341-6 CRM		**VA-NRC-DOLT4**						
Arsenic (As)-Total			97.4		%		70-130	27-DEC-12
Cadmium (Cd)-Total			114.2		%		70-130	27-DEC-12
Chromium (Cr)-Total			73.5		%		70-130	27-DEC-12
Cobalt (Co)-Total			92.1		%		70-130	27-DEC-12
Copper (Cu)-Total			98.2		%		70-130	27-DEC-12
Iron (Fe)-Total			87.3		%		70-130	27-DEC-12
Lead (Pb)-Total			80.8		%		70-130	27-DEC-12
Molybdenum (Mo)-Total			97.9		%		70-130	27-DEC-12
Nickel (Ni)-Total			91.3		%		70-130	27-DEC-12
Selenium (Se)-Total			101.4		%		70-130	27-DEC-12
Strontium (Sr)-Total			89.1		%		70-130	27-DEC-12
Tin (Sn)-Total			89.4		%		70-130	27-DEC-12
Vanadium (V)-Total			99.6		%		70-130	27-DEC-12
Zinc (Zn)-Total			113.9		%		70-130	27-DEC-12
WG1601340-3 DUP		**L1234648-9**						
Aluminum (Al)-Total		0.84	1.24	J	mg/kg wwt	0.40	0.8	27-DEC-12
Antimony (Sb)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Arsenic (As)-Total		0.0544	0.0519		mg/kg wwt	4.8	30	27-DEC-12
Barium (Ba)-Total		0.221	0.332	DUP-H	mg/kg wwt	40	30	27-DEC-12
Beryllium (Be)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Bismuth (Bi)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Boron (B)-Total		<0.20	<0.20	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Cadmium (Cd)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Cesium (Cs)-Total		0.0116	0.0113		mg/kg wwt	2.1	30	27-DEC-12
Chromium (Cr)-Total		0.236	0.403	DUP-H	mg/kg wwt	52	30	27-DEC-12
Cobalt (Co)-Total		<0.0040	0.0055	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Copper (Cu)-Total		0.196	0.273	DUP-H	mg/kg wwt	33	30	27-DEC-12
Gallium (Ga)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Iron (Fe)-Total		2.71	3.62		mg/kg wwt	29	30	27-DEC-12
Lead (Pb)-Total		0.0064	0.0085		mg/kg wwt	28	30	27-DEC-12
Lithium (Li)-Total		<0.020	<0.020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Manganese (Mn)-Total		1.04	1.41	DUP-H	mg/kg wwt	30	30	27-DEC-12
Molybdenum (Mo)-Total		<0.0040	0.0042	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Nickel (Ni)-Total		0.121	0.183	DUP-H	mg/kg wwt	41	30	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601340-3 DUP		**L1234648-9**						
Rhenium (Re)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Rubidium (Rb)-Total		9.43	9.09		mg/kg wwt	3.7	30	27-DEC-12
Selenium (Se)-Total		0.193	0.189		mg/kg wwt	1.8	30	27-DEC-12
Strontium (Sr)-Total		2.02	2.90		mg/kg wwt	36	50	27-DEC-12
Tellurium (Te)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Thallium (Tl)-Total		0.00435	0.00474		mg/kg wwt	8.6	30	27-DEC-12
Thorium (Th)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Tin (Sn)-Total		0.0051	0.0062		mg/kg wwt	19	30	27-DEC-12
Titanium (Ti)-Total		0.049	0.078	DUP-H	mg/kg wwt	46	30	27-DEC-12
Uranium (U)-Total		<0.00040	<0.00040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Vanadium (V)-Total		0.0075	0.0104	J	mg/kg wwt	0.0030	0.008	27-DEC-12
Yttrium (Y)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Zinc (Zn)-Total		8.67	8.40		mg/kg wwt	3.2	30	27-DEC-12
Zirconium (Zr)-Total		<0.040	<0.040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
WG1601340-4 DUP		**L1234648-13**						
Aluminum (Al)-Total		2.46	1.47	DUP-H	mg/kg wwt	0.99	0.8	27-DEC-12
Antimony (Sb)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Arsenic (As)-Total		0.0381	0.0412		mg/kg wwt	7.8	30	27-DEC-12
Barium (Ba)-Total		0.326	0.078	DUP-H	mg/kg wwt	123	30	27-DEC-12
Beryllium (Be)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Bismuth (Bi)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Boron (B)-Total		<0.20	<0.20	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Cadmium (Cd)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Cesium (Cs)-Total		0.0124	0.0128		mg/kg wwt	3.0	30	27-DEC-12
Chromium (Cr)-Total		0.101	0.061	DUP-H	mg/kg wwt	49	30	27-DEC-12
Cobalt (Co)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Copper (Cu)-Total		0.161	0.149		mg/kg wwt	7.7	30	27-DEC-12
Gallium (Ga)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Iron (Fe)-Total		4.02	2.44	DUP-H	mg/kg wwt	49	30	27-DEC-12
Lead (Pb)-Total		0.0085	<0.0040	DUP-H	mg/kg wwt	N/A	30	27-DEC-12
Lithium (Li)-Total		<0.020	<0.020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Manganese (Mn)-Total		1.22	0.317	DUP-H	mg/kg wwt	117	30	27-DEC-12
Molybdenum (Mo)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Nickel (Ni)-Total		0.057	0.037	J	mg/kg wwt	0.020	0.02	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601340-4 DUP		**L1234648-13**						
Rhenium (Re)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Rubidium (Rb)-Total		8.76	9.45		mg/kg wwt	7.5	30	27-DEC-12
Selenium (Se)-Total		0.129	0.188	DUP-H	mg/kg wwt	37	30	27-DEC-12
Strontium (Sr)-Total		2.88	0.556	DUP-H	mg/kg wwt	135	50	27-DEC-12
Tellurium (Te)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Thallium (Tl)-Total		0.00499	0.00363	DUP-H	mg/kg wwt	32	30	27-DEC-12
Thorium (Th)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Tin (Sn)-Total		0.0053	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Titanium (Ti)-Total		0.439	0.068	DUP-H	mg/kg wwt	146	30	27-DEC-12
Uranium (U)-Total		<0.00040	<0.00040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Vanadium (V)-Total		0.0133	0.0041	DUP-H	mg/kg wwt	0.0092	0.008	27-DEC-12
Yttrium (Y)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Zinc (Zn)-Total		10.8	5.89	DUP-H	mg/kg wwt	59	30	27-DEC-12
Zirconium (Zr)-Total		<0.040	<0.040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
WG1601341-3 DUP		**L1234648-31**						
Aluminum (Al)-Total		1.25	1.16		mg/kg wwt	8.1	30	27-DEC-12
Antimony (Sb)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Arsenic (As)-Total		0.0282	0.0324		mg/kg wwt	14	30	27-DEC-12
Barium (Ba)-Total		0.185	0.141		mg/kg wwt	27	30	27-DEC-12
Beryllium (Be)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Bismuth (Bi)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Boron (B)-Total		<0.20	<0.20	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Cadmium (Cd)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Cesium (Cs)-Total		0.0475	0.0548		mg/kg wwt	14	30	27-DEC-12
Chromium (Cr)-Total		0.033	0.037		mg/kg wwt	11	30	27-DEC-12
Cobalt (Co)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Copper (Cu)-Total		0.297	0.348		mg/kg wwt	16	30	27-DEC-12
Gallium (Ga)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Iron (Fe)-Total		2.72	2.69		mg/kg wwt	1.0	30	27-DEC-12
Lead (Pb)-Total		0.0828	0.183	DUP-H	mg/kg wwt	75	30	27-DEC-12
Lithium (Li)-Total		<0.020	<0.020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Manganese (Mn)-Total		0.518	0.338	DUP-H	mg/kg wwt	42	30	27-DEC-12
Molybdenum (Mo)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Nickel (Ni)-Total		0.022	0.181	DUP-H	mg/kg wwt	157	30	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601341-3 DUP		**L1234648-31**						
Rhenium (Re)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Rubidium (Rb)-Total		12.3	13.2		mg/kg wwt	7.7	30	27-DEC-12
Selenium (Se)-Total		0.283	0.256		mg/kg wwt	9.9	30	27-DEC-12
Strontium (Sr)-Total		3.77	2.42		mg/kg wwt	44	50	27-DEC-12
Tellurium (Te)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Thallium (Tl)-Total		0.00529	0.00482		mg/kg wwt	9.4	30	27-DEC-12
Thorium (Th)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Tin (Sn)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Titanium (Ti)-Total		0.050	0.051		mg/kg wwt	2.6	30	27-DEC-12
Uranium (U)-Total		<0.00040	<0.00040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Vanadium (V)-Total		0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Yttrium (Y)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Zinc (Zn)-Total		15.6	11.8		mg/kg wwt	27	30	27-DEC-12
Zirconium (Zr)-Total		<0.040	<0.040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
WG1601341-4 DUP		**L1234648-39**						
Aluminum (Al)-Total		0.74	1.27	J	mg/kg wwt	0.53	0.8	27-DEC-12
Antimony (Sb)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Arsenic (As)-Total		0.0199	0.0184		mg/kg wwt	7.4	30	27-DEC-12
Barium (Ba)-Total		0.215	0.094	DUP-H	mg/kg wwt	78	30	27-DEC-12
Beryllium (Be)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Bismuth (Bi)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Boron (B)-Total		<0.20	<0.20	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Cadmium (Cd)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Cesium (Cs)-Total		0.0417	0.0476		mg/kg wwt	13	30	27-DEC-12
Chromium (Cr)-Total		0.119	0.077	DUP-H	mg/kg wwt	43	30	27-DEC-12
Cobalt (Co)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Copper (Cu)-Total		0.214	0.191		mg/kg wwt	12	30	27-DEC-12
Gallium (Ga)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Iron (Fe)-Total		2.45	2.48		mg/kg wwt	1.1	30	27-DEC-12
Lead (Pb)-Total		0.0064	0.0058		mg/kg wwt	11	30	27-DEC-12
Lithium (Li)-Total		<0.020	<0.020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Manganese (Mn)-Total		0.517	0.287	DUP-H	mg/kg wwt	57	30	27-DEC-12
Molybdenum (Mo)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Nickel (Ni)-Total		0.069	0.045	DUP-H	mg/kg wwt	42	30	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601341-4 DUP		**L1234648-39**						
Rhenium (Re)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Rubidium (Rb)-Total		12.1	13.4		mg/kg wwt	9.5	30	27-DEC-12
Selenium (Se)-Total		0.254	0.249		mg/kg wwt	2.2	30	27-DEC-12
Strontium (Sr)-Total		3.14	1.24	DUP-H	mg/kg wwt	86	50	27-DEC-12
Tellurium (Te)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Thallium (Tl)-Total		0.00331	0.00260		mg/kg wwt	24	30	27-DEC-12
Thorium (Th)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Tin (Sn)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Titanium (Ti)-Total		0.045	0.056		mg/kg wwt	21	30	27-DEC-12
Uranium (U)-Total		<0.00040	<0.00040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Vanadium (V)-Total		<0.0040	0.0045	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Yttrium (Y)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
Zinc (Zn)-Total		14.1	8.14	DUP-H	mg/kg wwt	54	30	27-DEC-12
Zirconium (Zr)-Total		<0.040	<0.040	RPD-NA	mg/kg wwt	N/A	30	27-DEC-12
WG1601340-1 MB								
Aluminum (Al)-Total			<0.40		mg/kg wwt		0.4	27-DEC-12
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Boron (B)-Total			<0.20		mg/kg wwt		0.2	27-DEC-12
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	27-DEC-12
Chromium (Cr)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Copper (Cu)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Iron (Fe)-Total			<0.20		mg/kg wwt		0.2	27-DEC-12
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	27-DEC-12
Manganese (Mn)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Nickel (Ni)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601340-1 MB								
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	27-DEC-12
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	27-DEC-12
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	27-DEC-12
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	27-DEC-12
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	27-DEC-12
WG1601340-2 MB								
Aluminum (Al)-Total			<0.40		mg/kg wwt		0.4	27-DEC-12
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Boron (B)-Total			<0.20		mg/kg wwt		0.2	27-DEC-12
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	27-DEC-12
Chromium (Cr)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Copper (Cu)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Iron (Fe)-Total			<0.20		mg/kg wwt		0.2	27-DEC-12
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	27-DEC-12
Manganese (Mn)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Nickel (Ni)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601340-2 MB								
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	27-DEC-12
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	27-DEC-12
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	27-DEC-12
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	27-DEC-12
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	27-DEC-12
WG1601341-1 MB								
Aluminum (Al)-Total			<0.40		mg/kg wwt		0.4	27-DEC-12
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Boron (B)-Total			<0.20		mg/kg wwt		0.2	27-DEC-12
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	27-DEC-12
Chromium (Cr)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Copper (Cu)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Iron (Fe)-Total			<0.20		mg/kg wwt		0.2	27-DEC-12
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	27-DEC-12
Manganese (Mn)-Total			0.0061	MB-LOR	mg/kg wwt		0.004	27-DEC-12
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Nickel (Ni)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601341-1 MB								
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	27-DEC-12
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	27-DEC-12
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	27-DEC-12
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	27-DEC-12
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	27-DEC-12
WG1601341-2 MB								
Aluminum (Al)-Total			<0.40		mg/kg wwt		0.4	27-DEC-12
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Boron (B)-Total			<0.20		mg/kg wwt		0.2	27-DEC-12
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	27-DEC-12
Chromium (Cr)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Copper (Cu)-Total			0.010	MB-LOR	mg/kg wwt		0.01	27-DEC-12
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Iron (Fe)-Total			<0.20		mg/kg wwt		0.2	27-DEC-12
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	27-DEC-12
Manganese (Mn)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Nickel (Ni)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2503187								
WG1601341-2 MB								
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	27-DEC-12
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	27-DEC-12
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	27-DEC-12
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	27-DEC-12
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	27-DEC-12
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	27-DEC-12
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	27-DEC-12
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	27-DEC-12
Batch R2504159								
WG1607878-4 CRM		**VA-NRC-TORT2**						
Arsenic (As)-Total			108.8		%		70-130	21-DEC-12
Cadmium (Cd)-Total			122.3		%		70-130	21-DEC-12
Chromium (Cr)-Total			77.3		%		70-130	21-DEC-12
Cobalt (Co)-Total			94.4		%		70-130	21-DEC-12
Copper (Cu)-Total			91.9		%		70-130	21-DEC-12
Iron (Fe)-Total			101.8		%		70-130	21-DEC-12
Lead (Pb)-Total			101.4		%		70-130	21-DEC-12
Manganese (Mn)-Total			88.6		%		70-130	21-DEC-12
Molybdenum (Mo)-Total			105.7		%		70-130	21-DEC-12
Nickel (Ni)-Total			83.4		%		70-130	21-DEC-12
Selenium (Se)-Total			107.9		%		70-130	21-DEC-12
Strontium (Sr)-Total			87.5		%		70-130	21-DEC-12
Vanadium (V)-Total			111.6		%		70-130	21-DEC-12
Zinc (Zn)-Total			114.2		%		70-130	21-DEC-12
WG1607878-5 CRM		**VA-NIST-1566B**						
Antimony (Sb)-Total			0.0077		mg/kg wwt		0.001-0.021	21-DEC-12
Arsenic (As)-Total			99.2		%		70-130	21-DEC-12
Barium (Ba)-Total			74.3		%		70-130	21-DEC-12
Boron (B)-Total			4.40		mg/kg wwt		3.5-5.5	21-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2504159								
WG1607878-5 CRM		**VA-NIST-1566B**						
Cadmium (Cd)-Total			103.6		%		70-130	21-DEC-12
Cobalt (Co)-Total			87.0		%		70-130	21-DEC-12
Copper (Cu)-Total			89.3		%		70-130	21-DEC-12
Iron (Fe)-Total			86.4		%		70-130	21-DEC-12
Lead (Pb)-Total			85.4		%		70-130	21-DEC-12
Manganese (Mn)-Total			84.0		%		70-130	21-DEC-12
Nickel (Ni)-Total			90.1		%		70-130	21-DEC-12
Rubidium (Rb)-Total			82.8		%		70-130	21-DEC-12
Selenium (Se)-Total			106.3		%		70-130	21-DEC-12
Strontium (Sr)-Total			76.4		%		70-130	21-DEC-12
Thorium (Th)-Total			73.6		%		70-130	21-DEC-12
Tin (Sn)-Total			0.0265		mg/kg wwt		0.011-0.051	21-DEC-12
Vanadium (V)-Total			80.8		%		70-130	21-DEC-12
Zinc (Zn)-Total			111.5		%		70-130	21-DEC-12
WG1607878-3 DUP		**L1234648-13**						
Aluminum (Al)-Total		2.46	1.84		mg/kg wwt	9.6	30	21-DEC-12
Antimony (Sb)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Arsenic (As)-Total		0.0381	0.0412		mg/kg wwt	3.3	30	21-DEC-12
Barium (Ba)-Total		0.326	0.418	DUP-H	mg/kg wwt	38	30	21-DEC-12
Beryllium (Be)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Bismuth (Bi)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Boron (B)-Total		<0.20	<0.20	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Cadmium (Cd)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Cesium (Cs)-Total		0.0124	0.0122		mg/kg wwt	3.2	30	21-DEC-12
Chromium (Cr)-Total		0.101	0.140	DUP-H	mg/kg wwt	61	30	21-DEC-12
Cobalt (Co)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Copper (Cu)-Total		0.161	0.181	DUP-H	mg/kg wwt	32	30	21-DEC-12
Gallium (Ga)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Iron (Fe)-Total		4.02	3.90	DUP-H	mg/kg wwt	33	30	21-DEC-12
Lead (Pb)-Total		0.0085	0.0066		mg/kg wwt	19	30	21-DEC-12
Lithium (Li)-Total		<0.020	0.020	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Manganese (Mn)-Total		1.22	1.35	DUP-H	mg/kg wwt	41	30	21-DEC-12
Molybdenum (Mo)-Total		<0.0040	0.0108	DUP-H	mg/kg wwt	N/A	30	21-DEC-12
Nickel (Ni)-Total		0.057	0.068	DUP-H	mg/kg wwt	71	30	21-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2504159								
WG1607878-3 DUP		**L1234648-13**						
Rhenium (Re)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Rubidium (Rb)-Total		8.76	8.92		mg/kg wwt	2.7	30	21-DEC-12
Selenium (Se)-Total		0.129	0.261		mg/kg wwt	27	30	21-DEC-12
Strontium (Sr)-Total		2.88	3.72		mg/kg wwt	41	50	21-DEC-12
Tellurium (Te)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Thallium (Tl)-Total		0.00499	0.00526		mg/kg wwt	15	30	21-DEC-12
Thorium (Th)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Tin (Sn)-Total		0.0053	0.0060		mg/kg wwt	13	30	21-DEC-12
Titanium (Ti)-Total		0.439	0.129		mg/kg wwt	4.2	30	21-DEC-12
Uranium (U)-Total		<0.00040	0.00042	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Vanadium (V)-Total		0.0133	0.0137	DUP-H	mg/kg wwt	48	30	21-DEC-12
Yttrium (Y)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
Zinc (Zn)-Total		10.8	9.78		mg/kg wwt	28	30	21-DEC-12
Zirconium (Zr)-Total		<0.040	<0.040	RPD-NA	mg/kg wwt	N/A	30	21-DEC-12
WG1607878-1 MB								
Aluminum (Al)-Total			<0.40		mg/kg wwt		0.4	21-DEC-12
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Boron (B)-Total			<0.20		mg/kg wwt		0.2	21-DEC-12
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	21-DEC-12
Chromium (Cr)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Copper (Cu)-Total			0.014	MB-LOR	mg/kg wwt		0.01	21-DEC-12
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Iron (Fe)-Total			<0.20		mg/kg wwt		0.2	21-DEC-12
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	21-DEC-12
Manganese (Mn)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Nickel (Ni)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2504159								
WG1607878-1 MB								
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	21-DEC-12
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	21-DEC-12
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	21-DEC-12
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Zinc (Zn)-Total			0.19	MB-LOR	mg/kg wwt		0.1	21-DEC-12
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	21-DEC-12
WG1607878-2 MB								
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Boron (B)-Total			<0.20		mg/kg wwt		0.2	21-DEC-12
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	21-DEC-12
Chromium (Cr)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Copper (Cu)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Iron (Fe)-Total			<0.20		mg/kg wwt		0.2	21-DEC-12
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	21-DEC-12
Manganese (Mn)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2504159								
WG1607878-2 MB								
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	21-DEC-12
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	21-DEC-12
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	21-DEC-12
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	21-DEC-12
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	21-DEC-12
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	21-DEC-12
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	21-DEC-12
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	21-DEC-12
Batch R2505959								
WG1609464-4 CRM		**VA-NRC-TORT2**						
Arsenic (As)-Total			103.0		%		70-130	02-JAN-13
Cadmium (Cd)-Total			120.2		%		70-130	02-JAN-13
Chromium (Cr)-Total			82.3		%		70-130	02-JAN-13
Cobalt (Co)-Total			94.4		%		70-130	02-JAN-13
Copper (Cu)-Total			96.1		%		70-130	02-JAN-13
Iron (Fe)-Total			101.3		%		70-130	02-JAN-13
Lead (Pb)-Total			97.1		%		70-130	02-JAN-13
Manganese (Mn)-Total			89.0		%		70-130	02-JAN-13
Molybdenum (Mo)-Total			100.3		%		70-130	02-JAN-13
Nickel (Ni)-Total			92.9		%		70-130	02-JAN-13
Selenium (Se)-Total			111.6		%		70-130	02-JAN-13
Strontium (Sr)-Total			79.1		%		70-130	02-JAN-13
Tin (Sn)-Total			0.0418		mg/kg wwt		0.02-0.06	02-JAN-13
Vanadium (V)-Total			101.1		%		70-130	02-JAN-13
Zinc (Zn)-Total			118.5		%		70-130	02-JAN-13
WG1609464-5 CRM		**VA-NIST-1566B**						
Antimony (Sb)-Total			0.0087		mg/kg wwt		0.001-0.021	02-JAN-13
Arsenic (As)-Total			107.0		%		70-130	02-JAN-13
Barium (Ba)-Total			75.5		%		70-130	02-JAN-13
Boron (B)-Total			4.33		mg/kg wwt		3.5-5.5	02-JAN-13
Cadmium (Cd)-Total			104.3		%		70-130	02-JAN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2505959								
WG1609464-5 CRM		**VA-NIST-1566B**						
Cobalt (Co)-Total			90.8		%		70-130	02-JAN-13
Copper (Cu)-Total			97.0		%		70-130	02-JAN-13
Iron (Fe)-Total			89.4		%		70-130	02-JAN-13
Lead (Pb)-Total			90.6		%		70-130	02-JAN-13
Manganese (Mn)-Total			91.9		%		70-130	02-JAN-13
Nickel (Ni)-Total			101.5		%		70-130	02-JAN-13
Rubidium (Rb)-Total			81.8		%		70-130	02-JAN-13
Selenium (Se)-Total			99.5		%		70-130	02-JAN-13
Strontium (Sr)-Total			80.3		%		70-130	02-JAN-13
Tin (Sn)-Total			0.0241		mg/kg wwt		0.011-0.051	02-JAN-13
Vanadium (V)-Total			84.3		%		70-130	02-JAN-13
Zinc (Zn)-Total			124.8		%		70-130	02-JAN-13
WG1609464-1 MB								
Aluminum (Al)-Total			<0.40		mg/kg wwt		0.4	02-JAN-13
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Boron (B)-Total			<0.20		mg/kg wwt		0.2	02-JAN-13
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	02-JAN-13
Chromium (Cr)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Copper (Cu)-Total			0.018	MB-LOR	mg/kg wwt		0.01	02-JAN-13
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Iron (Fe)-Total			<0.20		mg/kg wwt		0.2	02-JAN-13
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	02-JAN-13
Manganese (Mn)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	02-JAN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2505959								
WG1609464-1 MB								
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	02-JAN-13
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	02-JAN-13
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	02-JAN-13
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	02-JAN-13
WG1609464-2 MB								
Aluminum (Al)-Total			<0.40		mg/kg wwt		0.4	02-JAN-13
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Boron (B)-Total			<0.20		mg/kg wwt		0.2	02-JAN-13
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	02-JAN-13
Chromium (Cr)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Copper (Cu)-Total			0.012	MB-LOR	mg/kg wwt		0.01	02-JAN-13
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Iron (Fe)-Total			<0.20		mg/kg wwt		0.2	02-JAN-13
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	02-JAN-13
Manganese (Mn)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	02-JAN-13
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2505959								
WG1609464-2 MB								
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	02-JAN-13
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	02-JAN-13
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	02-JAN-13
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	02-JAN-13
WG1609464-3 MB								
Aluminum (Al)-Total			<0.40		mg/kg wwt		0.4	02-JAN-13
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Boron (B)-Total			<0.20		mg/kg wwt		0.2	02-JAN-13
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	02-JAN-13
Chromium (Cr)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Copper (Cu)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Iron (Fe)-Total			<0.20		mg/kg wwt		0.2	02-JAN-13
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	02-JAN-13
Manganese (Mn)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	02-JAN-13
Strontium (Sr)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2505959								
WG1609464-3 MB								
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	02-JAN-13
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	02-JAN-13
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	02-JAN-13
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	02-JAN-13
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	02-JAN-13
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	02-JAN-13
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	02-JAN-13
MET-WET-ICP-VA	**Tissue**							
Batch R2500287								
WG1601340-5 CRM		**VA-NRC-TORT2**						
WG1601340-6 CRM		**VA-NRC-DOLT4**						
Calcium (Ca)-Total			93.7		%		70-130	17-DEC-12
Magnesium (Mg)-Total			91.3		%		70-130	17-DEC-12
Potassium (K)-Total			95.7		%		70-130	17-DEC-12
Sodium (Na)-Total			96.8		%		70-130	17-DEC-12
WG1601341-5 CRM		**VA-NRC-TORT2**						
WG1601341-6 CRM		**VA-NRC-DOLT4**						
Calcium (Ca)-Total			92.8		%		70-130	17-DEC-12
Magnesium (Mg)-Total			92.0		%		70-130	17-DEC-12
Potassium (K)-Total			96.6		%		70-130	17-DEC-12
Sodium (Na)-Total			95.0		%		70-130	17-DEC-12
WG1601340-3 DUP		**L1234648-9**						
Calcium (Ca)-Total		5970	8540		mg/kg wwt	35	50	17-DEC-12
Magnesium (Mg)-Total		400	443		mg/kg wwt	10	30	17-DEC-12
Phosphorus (P)-Total		4770	6550	DUP-H	mg/kg wwt	31	30	17-DEC-12
Potassium (K)-Total		3970	3840		mg/kg wwt	3.5	30	17-DEC-12
Sodium (Na)-Total		492	525		mg/kg wwt	6.5	30	17-DEC-12
WG1601341-3 DUP		**L1234648-31**						
Calcium (Ca)-Total		10100	6610		mg/kg wwt	42	50	17-DEC-12
Magnesium (Mg)-Total		467	421		mg/kg wwt	10	30	17-DEC-12
Phosphorus (P)-Total		7840	5360	DUP-H	mg/kg wwt	38	30	17-DEC-12
Potassium (K)-Total		3790	3950		mg/kg wwt	4.1	30	17-DEC-12
Sodium (Na)-Total		570	571		mg/kg wwt	0.2	30	17-DEC-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-ICP-VA	**Tissue**							
Batch R2500287								
WG1601341-4 DUP		**L1234648-39**						
Calcium (Ca)-Total		9090	3750	DUP-H	mg/kg wwt	83	50	17-DEC-12
Magnesium (Mg)-Total		457	391		mg/kg wwt	16	30	17-DEC-12
Phosphorus (P)-Total		7390	4010	DUP-H	mg/kg wwt	59	30	17-DEC-12
Potassium (K)-Total		3940	4380		mg/kg wwt	10	30	17-DEC-12
Sodium (Na)-Total		545	524		mg/kg wwt	4.0	30	17-DEC-12
WG1601340-1 MB								
Calcium (Ca)-Total			<0.50		mg/kg wwt		0.5	17-DEC-12
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	17-DEC-12
Phosphorus (P)-Total			<5.0		mg/kg wwt		5	17-DEC-12
Potassium (K)-Total			<20		mg/kg wwt		20	17-DEC-12
Sodium (Na)-Total			<20		mg/kg wwt		20	17-DEC-12
WG1601340-2 MB								
Calcium (Ca)-Total			<0.50		mg/kg wwt		0.5	17-DEC-12
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	17-DEC-12
Phosphorus (P)-Total			<5.0		mg/kg wwt		5	17-DEC-12
Potassium (K)-Total			<20		mg/kg wwt		20	17-DEC-12
Sodium (Na)-Total			<20		mg/kg wwt		20	17-DEC-12
WG1601341-1 MB								
Calcium (Ca)-Total			11.1	MB-LOR	mg/kg wwt		0.5	17-DEC-12
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	17-DEC-12
Phosphorus (P)-Total			5.3	MB-LOR	mg/kg wwt		5	17-DEC-12
Potassium (K)-Total			<20		mg/kg wwt		20	17-DEC-12
Sodium (Na)-Total			<20		mg/kg wwt		20	17-DEC-12
WG1601341-2 MB								
Calcium (Ca)-Total			<0.50		mg/kg wwt		0.5	17-DEC-12
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	17-DEC-12
Phosphorus (P)-Total			<5.0		mg/kg wwt		5	17-DEC-12
Potassium (K)-Total			<20		mg/kg wwt		20	17-DEC-12
Sodium (Na)-Total			<20		mg/kg wwt		20	17-DEC-12
Batch R2505013								
WG1607878-4 CRM		**VA-NRC-TORT2**						
WG1607878-5 CRM		**VA-NIST-1566B**						
Calcium (Ca)-Total			93.7		%		70-130	03-JAN-13
Magnesium (Mg)-Total			97.0		%		70-130	03-JAN-13
Potassium (K)-Total			104.0		%		70-130	03-JAN-13

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-ICP-VA	**Tissue**							
Batch R2505013								
WG1607878-5 CRM		**VA-NIST-1566B**						
Sodium (Na)-Total			99.4		%		70-130	03-JAN-13
WG1607878-3 DUP		**L1234648-13**						
Calcium (Ca)-Total		9240	13300		mg/kg wwt	36	50	03-JAN-13
Magnesium (Mg)-Total		422	475		mg/kg wwt	12	30	03-JAN-13
Phosphorus (P)-Total		6160	7850		mg/kg wwt	24	30	03-JAN-13
Potassium (K)-Total		4330	4190		mg/kg wwt	3.2	30	03-JAN-13
Sodium (Na)-Total		684	726		mg/kg wwt	6.1	30	03-JAN-13
WG1607878-1 MB								
Calcium (Ca)-Total			0.50	MB-LOR	mg/kg wwt		0.5	03-JAN-13
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	03-JAN-13
Phosphorus (P)-Total			<5.0		mg/kg wwt		5	03-JAN-13
Potassium (K)-Total			<20		mg/kg wwt		20	03-JAN-13
Sodium (Na)-Total			<20		mg/kg wwt		20	03-JAN-13
WG1607878-2 MB								
Calcium (Ca)-Total			<0.50		mg/kg wwt		0.5	03-JAN-13
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	03-JAN-13
Phosphorus (P)-Total			<5.0		mg/kg wwt		5	03-JAN-13
Potassium (K)-Total			<20		mg/kg wwt		20	03-JAN-13
Sodium (Na)-Total			<20		mg/kg wwt		20	03-JAN-13

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
J	Duplicate results and limits are expressed in terms of absolute difference.
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental

L1234648-COFC

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L1234648

Company:	Treasury Metals Inc		
Contact:	Mac Potter		
Address:	PO Box 783		
Dryden, ON P8N2Z4			
Phone:	807-938-6961	Fax:	807-938-6499
Email:	mac@treasurymetals.com		
Project:	Goliath Gold Project	PO:	
Quote #			
Invoice To:		Same as Report: ☐ Yes ☐ No	
Company:			
Contact:			
Address:			
Email:			
Account Manager		Sampler: MP KR KE	

Regulatory Information

- ☐ O.Reg 153/04 (O.Reg 511/Amend) Table
- Record of Site Condition ☐ Yes ☐ No
- PWQO ☐ MISA ☐ MMER ☐ CCME ☐
- Guideline Required:
- TCLP: Regulation 558 ☐ Other

Service Requested

- ☑ Regular TAT (7 Days)
- ☐ Priority TAT, 50% Surcharge (3-5 Days)
- ☐ Emergency TAT, 100% Surcharge (1-2 Days)
- Specify Date Required:

All TAT quoted material is in business days which exclude statutory holidays and weekends. Samples received past 3:00pm or Saturday/Sunday begin the next day.

Both questions below must answered for water samples

Are any samples taken from a regulated DW System? ☐ Yes ☐ No

If yes, an authorized DW COC must be used

Is the water sampled intended for human consumption? ☐ Yes ☐ No

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	HG-WEE-CVAFS-VA & MET-WET-ICP+HEMS-VA	Number of Containers
1	F1	05109112	10:00	FISH	X	
2	F2					
3	F3					
4	F4					
5	F5					
6	F6					
7	F7					
8	F8					
9	F9	06109112				
10	F10					
11	F11					

Special Instructions/Comments

Fish tissue samples, for Treasury Metals. Sample # on ziploc as whirlpacks are unreadable. Frozen at sampling + stored due to costs and environment. Stored ~~within~~ tissue within whirlpacks, inserted packs into ziplocs for labelling purposes.

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)		
Released by: M. POTTER	Date & Time	Received by:	Date & Time	Temp	Cooling Initiated ☐ Yes ☐ No	Verified by:	Date & Time	Observations: Yes / No ? If Yes add SIF
			07/12 Nov					

Failure to complete all portions of this form may delay analysis. **TAT may vary dependant on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs. Any known or suspected hazards relating to a sample must be noted on the chain of custody in the comments section. By use of the form the user acknowledges and agrees with the Terms and Conditions as specified on the back page.

ALS Environmental

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7B 5N3 Canada | PHONE +1 807 623 6463 | FAX +1 807 623 7598
ll Brothers Limited Company www.alsglobal.com

Company:	Treasury Metals Inc		
Contact:	Mac Potter		
Address:	PO Box 783		
Dryden, ON P8N2Z4			
Phone:	807-938-6961	Fax:	807-938-6499
Email:	mac@treasurymetals.com		
Project:	Goliath Gold Project	PO:	
Quote #			
Invoice To:		Same as Report: ☐ Yes ☐ No	
Company:			
Contact:			
Address:			
Email:			
Account Manager		Sampler: MP KR KE	

ulatory Information

- [illegible] O. Reg 511 Amend. Table
- Record of Site Condition ☐ Yes ☐ No
- PWQO ☐ MISA ☐ MMER ☐ CCME ☐
- Guideline Required:
- TCLP Regulation 558 ☐ Other

Service Requested

- ☐ Regular TAT (7 Days)
- ☐ Priority TAT 50% Surcharge (3-5 Days)
- ☐ Emergency TAT 100% Surcharge (1-2 Days)
- Specify Date Required:

All TAT quoted material is in business days which exclude statutory holidays and weekends. Samples received past 3:00pm or Saturday/Sunday begin the next day.

Both questions below must answered for water samples

- Are any samples taken from a regulated DW system? ☐ Yes ☐ No
- If yes, an authorized DW COC must be used
- Is the water sampled intended for human consumption? ☐ Yes ☐ No

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	PENTIOS	Hg-wet-CVAFS-VA E Met-wet-ICP-MS-VA											Number of Containers
12	F12	06/09/12	10 cc	FISH		X											
13	F13	↓	↓	↓		↓											
14	F14	↓															
15	F16	05/09/12															
16	F17	↓															
17	F18																
18	F19																
19	F20																
20	F21																
21	F22																
22	F23	↓	↓	↓		↓											

Special Instructions / Comments

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)		
Released by: M. POTTER	Date & Time	Received by:	Date & Time	Temp	Cooling Initiated ☐ Yes ☐ No	Verified by:	Date & Time	Observations: Yes / No ? If Yes add SIF

**Failure to complete all portions of this form may delay analysis. **TAT may vary dependant on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs. Any known or suspected hazards relating to a sample must be noted on the chain of custody in the comments section. By use of the form the user acknowledges and agrees with the Terms and Conditions as specified on the back page.

ALS Environmental

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...ell Brothers Limited Company www.alsglobal.com

Company:	Treasury Metals Inc
Contact:	Mac Potter
Address:	PO Box 783
Dryden, ON P8N2Z4	
Phone:	807-938-6961 Fax: 807-938-6499
Email:	mac@treasurymetals.com
Project:	Goliath Gold Project PO:
Quote #	
Invoice To:	Same as Report: ☐ Yes ☐ No
Company:	
Contact:	
Address:	
Email:	
Account Manager	Sampler: mP KR KE

Regulatory Information

☐ O. Reg 153 (O. Reg 511 Amend) Table
Record of Site Condition ☐ Yes ☐ No
PWQO ☐ MISA ☐ MMER ☐ CCME ☐
Guideline Required
TCLP Regulation 558 ☐ Other

Service Requested

☑ Regular TAT (7 Days)
☐ Priority TAT 50% Surcharge (3-5 Days)
☐ Emergency TAT 100% Surcharge (1-2 Days)
Specify Date Required

All TAT quoted material is in business days which exclude statutory holidays and weekends. Samples received past 3:00pm or Saturday/Sunday begin the next day.

Both questions below must answered for water samples

Are any samples taken from a regulated DW System? ☐ Yes ☐ No
If yes, an authorized DW COC must be used
Is the water sampled intended for human consumption? ☐ Yes ☐ No

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	~~BENTHOS~~	Hg-Wet-CVAFS-VA2 / Mt-Wet-ICP+HRMS-VA										Number of Containers
23	F24	06/09/12	10:00	FISH		x										
24	F25	↓	↓	↓		↓										
25	F26															
26	F27															
27	F28															
28	F29															
29	F30	↓														
30	F31	07/09/12														
31	F32	↓														
32	F33															
33	F34	↓	↓	↓		↓										

Special Instructions / Comments

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)		
Released by: M. POTTER [signature]	Date & Time	Received by:	Date & Time	Temp	Cooling Initiated ☐ Yes ☐ No	Verified by:	Date & Time	Observations: Yes / No ? If Yes add SIF

Failure to complete all portions of this form may delay analysis. **TAT may vary dependant on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs. Any known or suspected hazards relating to a sample must be noted on the chain of custody in the comments section. By use of the form the user acknowledges and agrees with the Terms and Conditions as specified on the back page.

TY-FM-0204g v.2 Analytical COC

ALS Environmental

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Company:	Treasury Metals Inc		
Contact:	Mac Potter		
Address:	PO Box 783		
Dryden, ON P8N2Z4			
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Email:	mac@treasurymetals.com		
Project:	Goliath Gold Project	PO:	
Quote #			
Invoice To:		Same as Report: ☐ Yes ☐ No	
Company:			
Contact:			
Address:			
Email:			
Account Manager		Sampler: MP KR KE	

Regulatory Information

(O. Reg. 511/Amend) - Table
Record on Site Condition ☐ Yes ☐ No
PWQO ☐ MISA ☐ MMER ☐ CCME ☐
Guideline Required
TCLP Regulation 558 ☐ Others

Service Requested

☑ Regular TAT (7 Days)
☐ Priority TAT 50% Surcharge (3-5 Days)
☐ Emergency TAT 100% Surcharge (1-2 Days)
Specify Date Required

All TAT quoted material is in business days which exclude statutory holidays and weekends. Samples received past 3:00pm or Saturday/Sunday begin the next day.

Both questions below must answered for water samples

Are any samples taken from a regulated DW system? ☐ Yes ☐ No
(If yes, an authorized DW COC must be used)
Is the water sampled intended for human consumption? ☐ Yes ☐ No

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	Hg - Wet - CVAFS - VA & Met - Wet - ICP + HMES - VA	Number of Containers
34	F35	07109112	10:00	FISH	X	
35	F36	↓	↓	↓	↓	
36	F37					
37	F38					
38	F39					
39	F40					
40	F41	↓				
41	GN1	06109112				
42	GN3	↓		↓	↓	
			↓			

Special Instructions / Comments

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)		
Released by: M. POTTER	Date & Time	Received by:	Date & Time	Temp	Cooling Initiated ☐ Yes ☐ No	Verified by:	Date & Time	Observations: Yes / No ? If Yes add SIF

**Failure to complete all portions of this form may delay analysis. **TAT may vary dependant on complexity of analysis and lab workload at time of submission. Please contact the lab to confirm TATs. Any known or suspected hazards relating to a sample must be noted on the chain of custody in the comments section. By use of the form the user acknowledges and agrees with the Terms and Conditions as specified on the back page.

TREASURY METALS INC.
ATTN: Mac Potter
P.O. Box 789
Dryden ON P8N 2Z4

Date Received: 30-JUL-12
Report Date: 07-SEP-12 07:18 (MT)
Version: FINAL

Client Phone: 807-938-6961

Certificate of Analysis

Lab Work Order #: L1185921

Project P.O. #: NOT SUBMITTED
Job Reference: OE-KN-014319
C of C Numbers:
Legal Site Desc:

Karen Rutledge
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1185921-1 FISH 26-JUL-12 10:00 TS-13	L1185921-2 FISH 26-JUL-12 10:00 TS-16	L1185921-3 FISH 26-JUL-12 10:00 TS-5	L1185921-4 FISH 26-JUL-12 10:00 TS-2	L1185921-5 FISH 26-JUL-12 10:00 TS-15
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	8.91	8.88	<2.2 DLB	6.09	<2.2 DLB
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Arsenic (As)-Total (mg/kg wwt)	0.0285	0.0188	0.0285	0.0342	0.0233
	Barium (Ba)-Total (mg/kg wwt)	1.05	1.15	1.51	1.01	1.26
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	<0.20
	Cadmium (Cd)-Total (mg/kg wwt)	0.0209	0.0083	0.0126	0.0395	0.0067
	Calcium (Ca)-Total (mg/kg wwt)	5880	6840	6300	7900	7600
	Cesium (Cs)-Total (mg/kg wwt)	0.0331	0.0104	0.0145	0.0037	0.0179
	Chromium (Cr)-Total (mg/kg wwt)	<0.030 DLB	<0.040 DLB	<0.030 DLB	<0.030 DLB	<0.020 DLB
	Cobalt (Co)-Total (mg/kg wwt)	0.0167	0.0279	0.0190	0.0168	0.0091
	Copper (Cu)-Total (mg/kg wwt)	1.62	1.44	0.930	1.36	0.968
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Iron (Fe)-Total (mg/kg wwt)	28.7	52.8	38.0	26.6	20.1
	Lead (Pb)-Total (mg/kg wwt)	0.0177	0.0144	0.0090	0.0123	0.0490
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	<0.020
	Magnesium (Mg)-Total (mg/kg wwt)	332	345	322	365	355
	Manganese (Mn)-Total (mg/kg wwt)	6.48	18.1	18.0	8.59	6.09
	Mercury (Hg)-Total (mg/kg wwt)	0.0983	0.123	0.0880	0.111	0.0295
	Molybdenum (Mo)-Total (mg/kg wwt)	0.0239	0.0263	0.0288	0.0254	<0.020 DLB
	Nickel (Ni)-Total (mg/kg wwt)	<0.030 DLB	<0.030 DLB	<0.020 DLB	<0.030 DLB	<0.020 DLB
	Phosphorus (P)-Total (mg/kg wwt)	4630	5410	4710	5860	5760
	Potassium (K)-Total (mg/kg wwt)	2840	2850	2910	2800	2770
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Rubidium (Rb)-Total (mg/kg wwt)	4.65	5.33	7.45	4.22	7.48
	Selenium (Se)-Total (mg/kg wwt)	0.273	0.267	0.230	0.304	0.162
	Sodium (Na)-Total (mg/kg wwt)	779	825	815	784	816
	Strontium (Sr)-Total (mg/kg wwt)	2.98	4.51	5.23	4.87	2.81
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
	Thallium (Tl)-Total (mg/kg wwt)	0.00383	0.00411	0.00177	0.00220	0.00066
	Thorium (Th)-Total (mg/kg wwt)	0.0355	0.0138	<0.0020	<0.0020	<0.0020
	Tin (Sn)-Total (mg/kg wwt)	0.0046	0.0041	0.0048	0.0050	<0.0040
	Titanium (Ti)-Total (mg/kg wwt)	0.582	0.478	0.097	0.295	0.113
	Uranium (U)-Total (mg/kg wwt)	0.00706	0.00302	0.00110	0.00384	0.00085
	Vanadium (V)-Total (mg/kg wwt)	0.0418	0.0290	0.0147	0.0648	0.0073
	Yttrium (Y)-Total (mg/kg wwt)	0.0099	0.0057	<0.0020	0.0021	<0.0020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L1185921-6 Description: FISH Sampled Date: 26-JUL-12 Sampled Time: 10:00 Client ID: TS-7	L1185921-7 FISH 26-JUL-12 10:00 TS-22	L1185921-8 FISH 26-JUL-12 10:00 TS-21	L1185921-9 FISH 26-JUL-12 10:00 TS-15-2	
TISSUE						
Metals	Aluminum (Al)-Total (mg/kg wwt)	5.70	2.41	6.81	<0.40	
	Antimony (Sb)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	
	Arsenic (As)-Total (mg/kg wwt)	0.0296	0.0190	0.0360	0.0362	
	Barium (Ba)-Total (mg/kg wwt)	2.42	1.42	2.51	0.853	
	Beryllium (Be)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	
	Bismuth (Bi)-Total (mg/kg wwt)	<0.0020	<0.0020	0.0042	<0.0020	
	Boron (B)-Total (mg/kg wwt)	<0.20	<0.20	<0.20	<0.20	
	Cadmium (Cd)-Total (mg/kg wwt)	0.0082	0.0204	0.0112	0.0063	
	Calcium (Ca)-Total (mg/kg wwt)	6370	7910	6930	984	
	Cesium (Cs)-Total (mg/kg wwt)	0.0032	0.0563	0.0248	0.0196	
	Chromium (Cr)-Total (mg/kg wwt)	<0.030 DLB	<0.030 DLB	<0.060 DLB	<0.010	
	Cobalt (Co)-Total (mg/kg wwt)	0.0389	0.0138	0.0277	0.0087	
	Copper (Cu)-Total (mg/kg wwt)	1.33	1.15	1.71	0.987	
	Gallium (Ga)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	
	Iron (Fe)-Total (mg/kg wwt)	61.4	24.2	41.7	9.68	
	Lead (Pb)-Total (mg/kg wwt)	0.0111	0.0172	0.0164	0.0088	
	Lithium (Li)-Total (mg/kg wwt)	<0.020	<0.020	<0.020	<0.020	
	Magnesium (Mg)-Total (mg/kg wwt)	329	363	344	183	
	Manganese (Mn)-Total (mg/kg wwt)	8.91	4.57	6.37	1.05	
	Mercury (Hg)-Total (mg/kg wwt)	0.0451	0.0670	0.0569	<0.0010	
	Molybdenum (Mo)-Total (mg/kg wwt)	0.0275	0.0253	0.0298	0.0240	
	Nickel (Ni)-Total (mg/kg wwt)	<0.020 DLB	<0.020 DLB	<0.020 DLB	<0.010	
	Phosphorus (P)-Total (mg/kg wwt)	4580	5830	5240	2110	
	Potassium (K)-Total (mg/kg wwt)	2660	2990	2500	3040	
	Rhenium (Re)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	
	Rubidium (Rb)-Total (mg/kg wwt)	2.45	4.78	6.96	6.16	
	Selenium (Se)-Total (mg/kg wwt)	0.163	0.246	0.241	0.128	
	Sodium (Na)-Total (mg/kg wwt)	828	920	863	830	
	Strontium (Sr)-Total (mg/kg wwt)	4.55	4.72	8.84	0.618	
	Tellurium (Te)-Total (mg/kg wwt)	<0.0040	<0.0040	<0.0040	<0.0040	
	Thallium (Tl)-Total (mg/kg wwt)	0.00041	0.00229	0.00217	<0.00040	
	Thorium (Th)-Total (mg/kg wwt)	<0.0020	<0.0020	<0.0020	<0.0020	
	Tin (Sn)-Total (mg/kg wwt)	<0.0040	<0.0040	0.0051	<0.0040	
	Titanium (Ti)-Total (mg/kg wwt)	0.262	0.093	0.358	0.010	
	Uranium (U)-Total (mg/kg wwt)	0.00180	0.00166	0.00359	<0.00040	
	Vanadium (V)-Total (mg/kg wwt)	0.0229	0.0430	0.0312	<0.0040	
	Yttrium (Y)-Total (mg/kg wwt)	<0.0020	<0.0020	0.0031	<0.0020	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1185921-1	L1185921-2	L1185921-3	L1185921-4	L1185921-5
	Description	FISH	FISH	FISH	FISH	FISH
	Sampled Date	26-JUL-12	26-JUL-12	26-JUL-12	26-JUL-12	26-JUL-12
	Sampled Time	10:00	10:00	10:00	10:00	10:00
	Client ID	TS-13	TS-16	TS-5	TS-2	TS-15
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	45.3	41.1	39.7	45.5	30.1
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	<0.040

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1185921-6	L1185921-7	L1185921-8	L1185921-9	
	Description	FISH	FISH	FISH	FISH	
	Sampled Date	26-JUL-12	26-JUL-12	26-JUL-12	26-JUL-12	
	Sampled Time	10:00	10:00	10:00	10:00	
	Client ID	TS-7	TS-22	TS-21	TS-15-2	
Grouping	**Analyte**					
TISSUE						
Metals	Zinc (Zn)-Total (mg/kg wwt)	44.4	34.8	47.0	14.2	
	Zirconium (Zr)-Total (mg/kg wwt)	<0.040	<0.040	<0.040	<0.040	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
SRPF	Sample received partially frozen - sample received partially frozen

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Chromium (Cr)-Total	DLB	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Nickel (Ni)-Total	DLB	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Duplicate	Chromium (Cr)-Total	DLB	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Chromium (Cr)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Copper (Cu)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Iron (Fe)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Manganese (Mn)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Molybdenum (Mo)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Strontium (Sr)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Aluminum (Al)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Barium (Ba)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Chromium (Cr)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Copper (Cu)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Iron (Fe)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Manganese (Mn)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Nickel (Ni)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Strontium (Sr)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9
Method Blank	Titanium (Ti)-Total	MB-LOR	L1185921-1, -2, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLB	Detection limit was raised due to detection of analyte at comparable level in Method Blank.
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HG-WET-CVAFS-VA	Tissue	Mercury in Tissue by CVAFS (WET)	EPA 200.3, EPA 245.7

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by atomic fluorescence spectrophotometry, adapted from US EPA Method 245.7. This digestion procedure was implemented on October 5, 2009.

MET-WET-HRMS-VA	Tissue	Metals in Tissue by HR-ICPMS (WET)	EPA 200.8

Trace metals in tissue are analyzed by high resolution inductively coupled plasma mass spectrometry (HR-ICPMS) modified from US EPA Method 200.8, (Revision 5.5). The sample preparation procedure is modified from US EPA 200.3. Analytical results are reported on wet weight basis.

MET-WET-ICP-VA	Tissue	Metals in Tissue by ICPOES (WET)	EPA 200.3, EPA 6010B

This method is adapted from US EPA Method 200.3 "Sample Procedures for Spectrochemical Determination of Total Recoverable Elements in Biological Tissues" (1996). Tissue samples are homogenized and sub-sampled prior to hotblock digestion with nitric and hydrochloric acids, in combination with repeated additions of hydrogen peroxide. Analysis is by Inductively Coupled Plasma - Optical Emission Spectrophotometry, adapted from US EPA Method 6010B. This digestion procedure was implemented on October 5, 2009.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1185921 Report Date: 07-SEP-12

Client: TREASURY METALS INC.
P.O. Box 789
Dryden ON P8N 2Z4
Contact: Mac Potter

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-WET-CVAFS-VA	**Tissue**							
Batch R2431074								
WG1536576-5 CRM		**VA-NRC-TORT2**						
Mercury (Hg)-Total			77.6		%		70-130	06-SEP-12
WG1536576-3 DUP		**L1185921-8**						
Mercury (Hg)-Total		0.0569	0.0535		mg/kg wwt	6.2	30	06-SEP-12
WG1536576-1 MB								
Mercury (Hg)-Total			<0.0010		mg/kg wwt		0.001	06-SEP-12
WG1536576-2 MB								
Mercury (Hg)-Total			<0.0010		mg/kg wwt		0.001	06-SEP-12
MET-WET-HRMS-VA	**Tissue**							
Batch R2431165								
WG1536576-5 CRM		**VA-NRC-TORT2**						
Arsenic (As)-Total			90.1		%		70-130	05-SEP-12
Cadmium (Cd)-Total			104.9		%		70-130	05-SEP-12
Chromium (Cr)-Total			84.3		%		70-130	05-SEP-12
Cobalt (Co)-Total			98.2		%		70-130	05-SEP-12
Copper (Cu)-Total			95.2		%		70-130	05-SEP-12
Iron (Fe)-Total			91.0		%		70-130	05-SEP-12
Lead (Pb)-Total			118.6		%		70-130	05-SEP-12
Manganese (Mn)-Total			93.9		%		70-130	05-SEP-12
Molybdenum (Mo)-Total			95.4		%		70-130	05-SEP-12
Nickel (Ni)-Total			88.2		%		70-130	05-SEP-12
Selenium (Se)-Total			104.3		%		70-130	05-SEP-12
Strontium (Sr)-Total			88.0		%		70-130	05-SEP-12
Vanadium (V)-Total			103.0		%		70-130	05-SEP-12
Zinc (Zn)-Total			105.5		%		70-130	05-SEP-12
WG1536576-6 CRM		**VA-NRC-DOLT4**						
Arsenic (As)-Total			86.7		%		70-130	05-SEP-12
Cadmium (Cd)-Total			105.6		%		70-130	05-SEP-12
Chromium (Cr)-Total			80.2		%		70-130	05-SEP-12
Cobalt (Co)-Total			90.6		%		70-130	05-SEP-12
Copper (Cu)-Total			104.5		%		70-130	05-SEP-12
Iron (Fe)-Total			94.1		%		70-130	05-SEP-12
Lead (Pb)-Total			112.3		%		70-130	05-SEP-12
Molybdenum (Mo)-Total			99.4		%		70-130	05-SEP-12
Nickel (Ni)-Total			100.9		%		70-130	05-SEP-12
Selenium (Se)-Total			104.9		%		70-130	05-SEP-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2431165								
WG1536576-6 CRM		**VA-NRC-DOLT4**						
Strontium (Sr)-Total			89.1		%		70-130	05-SEP-12
Tin (Sn)-Total			111.8		%		70-130	05-SEP-12
Vanadium (V)-Total			89.3		%		70-130	05-SEP-12
Zinc (Zn)-Total			109.8		%		70-130	05-SEP-12
WG1536576-3 DUP		**L1185921-8**						
Aluminum (Al)-Total		6.81	7.55		mg/kg wwt	10	30	05-SEP-12
Antimony (Sb)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Arsenic (As)-Total		0.0360	0.0316		mg/kg wwt	13	30	05-SEP-12
Barium (Ba)-Total		2.51	2.47		mg/kg wwt	1.7	30	05-SEP-12
Beryllium (Be)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Bismuth (Bi)-Total		0.0042	0.0040		mg/kg wwt	6.7	30	05-SEP-12
Boron (B)-Total		<0.20	<0.20	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Cadmium (Cd)-Total		0.0112	0.0105		mg/kg wwt	6.1	30	05-SEP-12
Cesium (Cs)-Total		0.0248	0.0239		mg/kg wwt	3.5	30	05-SEP-12
Chromium (Cr)-Total		<0.060	<0.060	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Cobalt (Co)-Total		0.0277	0.0267		mg/kg wwt	3.5	30	05-SEP-12
Copper (Cu)-Total		1.71	1.58		mg/kg wwt	8.0	30	05-SEP-12
Gallium (Ga)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Iron (Fe)-Total		41.7	40.9		mg/kg wwt	2.0	30	05-SEP-12
Lead (Pb)-Total		0.0164	0.0157		mg/kg wwt	4.1	30	05-SEP-12
Lithium (Li)-Total		<0.020	<0.020	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Manganese (Mn)-Total		6.37	5.91		mg/kg wwt	7.6	30	05-SEP-12
Molybdenum (Mo)-Total		0.0298	0.0268		mg/kg wwt	11	30	05-SEP-12
Nickel (Ni)-Total		<0.020	<0.020	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Rhenium (Re)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Rubidium (Rb)-Total		6.96	6.75		mg/kg wwt	3.0	30	05-SEP-12
Selenium (Se)-Total		0.241	0.222		mg/kg wwt	8.3	30	05-SEP-12
Strontium (Sr)-Total		8.84	8.66		mg/kg wwt	2.0	50	05-SEP-12
Tellurium (Te)-Total		<0.0040	<0.0040	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Thallium (Tl)-Total		0.00217	0.00192		mg/kg wwt	12	30	05-SEP-12
Thorium (Th)-Total		<0.0020	<0.0020	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
Tin (Sn)-Total		0.0051	0.0044		mg/kg wwt	15	30	05-SEP-12
Titanium (Ti)-Total		0.358	0.405		mg/kg wwt	12	30	05-SEP-12
Uranium (U)-Total		0.00359	0.00438		mg/kg wwt	20	30	05-SEP-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2431165								
WG1536576-3 DUP		**L1185921-8**						
Vanadium (V)-Total		0.0312	0.0315		mg/kg wwt	1.2	30	05-SEP-12
Yttrium (Y)-Total		0.0031	0.0039		mg/kg wwt	22	30	05-SEP-12
Zinc (Zn)-Total		47.0	38.6		mg/kg wwt	20	30	05-SEP-12
Zirconium (Zr)-Total		<0.040	<0.040	RPD-NA	mg/kg wwt	N/A	30	05-SEP-12
WG1536576-1 MB								
Aluminum (Al)-Total			<0.40		mg/kg wwt		0.4	05-SEP-12
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Barium (Ba)-Total			<0.010		mg/kg wwt		0.01	05-SEP-12
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Boron (B)-Total			<0.20		mg/kg wwt		0.2	05-SEP-12
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	05-SEP-12
Chromium (Cr)-Total			0.028	MB-LOR	mg/kg wwt		0.01	05-SEP-12
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Copper (Cu)-Total			0.011	MB-LOR	mg/kg wwt		0.01	05-SEP-12
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Iron (Fe)-Total			0.41	MB-LOR	mg/kg wwt		0.2	05-SEP-12
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	05-SEP-12
Manganese (Mn)-Total			0.0107	MB-LOR	mg/kg wwt		0.004	05-SEP-12
Molybdenum (Mo)-Total			0.0046	MB-LOR	mg/kg wwt		0.004	05-SEP-12
Nickel (Ni)-Total			<0.010		mg/kg wwt		0.01	05-SEP-12
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	05-SEP-12
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	05-SEP-12
Strontium (Sr)-Total			0.041	MB-LOR	mg/kg wwt		0.01	05-SEP-12
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	05-SEP-12
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Titanium (Ti)-Total			<0.010		mg/kg wwt		0.01	05-SEP-12
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	05-SEP-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2431165								
WG1536576-1 MB								
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	05-SEP-12
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	05-SEP-12
WG1536576-2 MB								
Aluminum (Al)-Total			0.49	MB-LOR	mg/kg wwt		0.4	05-SEP-12
Antimony (Sb)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Arsenic (As)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Barium (Ba)-Total			0.020	MB-LOR	mg/kg wwt		0.01	05-SEP-12
Beryllium (Be)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Bismuth (Bi)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Boron (B)-Total			<0.20		mg/kg wwt		0.2	05-SEP-12
Cadmium (Cd)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Cesium (Cs)-Total			<0.0010		mg/kg wwt		0.001	05-SEP-12
Chromium (Cr)-Total			0.013	MB-LOR	mg/kg wwt		0.01	05-SEP-12
Cobalt (Co)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Copper (Cu)-Total			0.048	MB-LOR	mg/kg wwt		0.01	05-SEP-12
Gallium (Ga)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Iron (Fe)-Total			0.27	MB-LOR	mg/kg wwt		0.2	05-SEP-12
Lead (Pb)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Lithium (Li)-Total			<0.020		mg/kg wwt		0.02	05-SEP-12
Manganese (Mn)-Total			0.0093	MB-LOR	mg/kg wwt		0.004	05-SEP-12
Molybdenum (Mo)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Nickel (Ni)-Total			0.039	MB-LOR	mg/kg wwt		0.01	05-SEP-12
Rhenium (Re)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Rubidium (Rb)-Total			<0.010		mg/kg wwt		0.01	05-SEP-12
Selenium (Se)-Total			<0.020		mg/kg wwt		0.02	05-SEP-12
Strontium (Sr)-Total			0.039	MB-LOR	mg/kg wwt		0.01	05-SEP-12
Tellurium (Te)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Thallium (Tl)-Total			<0.00040		mg/kg wwt		0.0004	05-SEP-12
Thorium (Th)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Tin (Sn)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Titanium (Ti)-Total			0.011	MB-LOR	mg/kg wwt		0.01	05-SEP-12
Uranium (U)-Total			<0.00040		mg/kg wwt		0.0004	05-SEP-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-WET-HRMS-VA	**Tissue**							
Batch R2431165								
WG1536576-2 MB								
Vanadium (V)-Total			<0.0040		mg/kg wwt		0.004	05-SEP-12
Yttrium (Y)-Total			<0.0020		mg/kg wwt		0.002	05-SEP-12
Zinc (Zn)-Total			<0.10		mg/kg wwt		0.1	05-SEP-12
Zirconium (Zr)-Total			<0.040		mg/kg wwt		0.04	05-SEP-12
MET-WET-ICP-VA	**Tissue**							
Batch R2430999								
WG1536576-5 CRM		**VA-NRC-TORT2**						
WG1536576-6 CRM		**VA-NRC-DOLT4**						
Calcium (Ca)-Total			93.1		%		70-130	05-SEP-12
Magnesium (Mg)-Total			90.4		%		70-130	05-SEP-12
Potassium (K)-Total			95.6		%		70-130	05-SEP-12
Sodium (Na)-Total			101.6		%		70-130	05-SEP-12
WG1536576-3 DUP		**L1185921-8**						
Calcium (Ca)-Total		6930	7130		mg/kg wwt	2.7	50	05-SEP-12
Magnesium (Mg)-Total		344	345		mg/kg wwt	0.4	30	05-SEP-12
Phosphorus (P)-Total		5240	5320		mg/kg wwt	1.5	30	05-SEP-12
Potassium (K)-Total		2500	2520		mg/kg wwt	0.8	30	05-SEP-12
Sodium (Na)-Total		863	853		mg/kg wwt	1.1	30	05-SEP-12
WG1536576-1 MB								
Calcium (Ca)-Total			<0.50		mg/kg wwt		0.5	05-SEP-12
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	05-SEP-12
Phosphorus (P)-Total			<5.0		mg/kg wwt		5	05-SEP-12
Potassium (K)-Total			<20		mg/kg wwt		20	05-SEP-12
Sodium (Na)-Total			<20		mg/kg wwt		20	05-SEP-12
WG1536576-2 MB								
Calcium (Ca)-Total			<0.50		mg/kg wwt		0.5	05-SEP-12
Magnesium (Mg)-Total			<1.0		mg/kg wwt		1	05-SEP-12
Phosphorus (P)-Total			<5.0		mg/kg wwt		5	05-SEP-12
Potassium (K)-Total			<20		mg/kg wwt		20	05-SEP-12
Sodium (Na)-Total			<20		mg/kg wwt		20	05-SEP-12

Quality Control Report

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Use Treasury Metal Account

ALS Environmental

ADDRESS 1081 Barton Street, Thunder Bay Ontario P7B 5N3
ALS CANADA LIMITED Part of the ALS Group A Campbell Brot

KR / July 30th 2012

-1185921.

Page __ of __

Company:	DST Consulting INC.	Regulato., ...	..... below must answered for water samples
Contact:	Kyle Rogers	☐ O. Reg 153 (O. Reg 511 Amend) Table:___	Are any samples taken from a regulated DW System? ☐ Yes ☐ No
Address:	106 N. Cumberland. Thunder Bay Ontario	Record of Site Condition ☐ Yes ☐ No	If yes, an authorized DW COC must be used.
Phone:	345-3620 ext 1294 Fax:	PWQO ☐ MISA ☐ MMER ☐ CCME ☐	Is the water sampled intended for human consumption? ☐ Yes ☐ No
Email:	Krogers@dstgroup.com	Guideline Required:	
Project:	OF-RN-01431-9 PO:	TCLP Regulation 558 ☐ Other:	Analysis Request
Quote #	@35588	Service Requested	Please indicate below Filtered, Preserved or both (F, P, F/P)
Invoice To:	Same as Report: ☑ Yes ☐ No	☑ Regular TAT (7 Days)	
Company:		☐ Priority TAT 50% Surcharge (3-5 Days)	
Contact:		☐ Emergency TAT 100% Surcharge (1-2 Days)	
Address:		Specify Date Required:	
Email:		All TAT quoted material is in business days which exclude statutory holidays and weekends. Samples received past 3:00pm or Saturday/Sunday begin the next day.	
Account Manager	Sampler: Kyle Rogers		

	Sample #	Sample Identification (This description will appear on the report)	Date	Time	Sample Type	Hg-Wet-CVAFS-VA & MET-Wet-ICP+ HRMS-VA	Number of Containers
1	TS-13	TS-13	July 26th	10:00	Fish	✓	
2	TS-16	TS-16	"	"	"	✓	
3	TS-5	TS-5	"	"	"	✓	
4	TS-2	TS-2	"	"	"	✓	
5	TS-15	TS-15	"	"	"	✓	
6	TS-7	TS-7	"	"	"	✓	
7	TS-22	TS-22	"	"	"	✓	
8	TS-21	TS-21	"	"	"	✓	
9	TS-15	TS-15-2	"	"	"	✓	

Special Instructions / Comments

Fish Tissue Samples for Treasury Metals Inc. in Dryden, Ontario

SHIPMENT RELEASE (client use)		SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)		
Released by:	Date & Time	Received by:	Date & Time	Temp	Cooling Initiated	Verified by:	Date & Time	Observations: Yes / No ? If Yes add SIF
K. Rogers	July 30th / 11:00		July 30/12 11:45	F	☐ Yes ☐ No		July 30/12 11:45	

Failure to complete all portions of this form may delay analysis. **TAT may vary dependant on complexity of analysis and lab workload at-time of submission. Please contact the lab to confirm TATs. Any known or suspected hazards relating to a sample must be noted on the chain of custody in the comments section. By use of the form the user acknowledges and agrees with the Terms and Conditions as specified on the back page.

Appendix C
Site Photographs

Site	Date	Latitude	Longitude	UTM (N)	UTM (E)	LOCATION	Waterbody
HB1P	05/23/13	49.76526601000	-92.63209504000	5512596.41	526495.39	Hoffstrom's Bay	Thunder Lake
HB1W	05/23/13	49.76362600000	-92.64024300000	5512411.23	525909.49	Hoffstrom's Bay	Thunder Lake
HB2P	05/23/13	49.76505596000	-92.63915000000	5512570.59	525987.44	Hoffstrom's Bay	Thunder Lake
HB2W	05/23/13	49.76291203000	-92.64510702000	5512330.19	525559.57	Hoffstrom's Bay	Thunder Lake
HB3P	05/23/13	49.76362441000	-92.64024149000	5512411.06	525909.60	Hoffstrom's Bay	Thunder Lake
HB3W	05/23/13	49.76416798000	-92.65071703000	5512467.93	525154.89	Hoffstrom's Bay	Thunder Lake
HB4P	05/23/13	49.76160001000	-92.64608100000	5512183.99	525490.11	Hoffstrom's Bay	Thunder Lake
HB4W	05/23/13	49.76905697000	-92.63444800000	5513017.06	526323.89	Hoffstrom's Bay	Thunder Lake
HBINFOW	05/23/13	49.76788301000	-92.62991499000	5512888.14	526650.95	Hoffstrom's Bay	Thunder Lake
HBIS1	05/23/13	49.76509401000	-92.64203103000	5512573.83	525779.94	Hoffstrom's Bay	Thunder Lake
HBIS2	05/23/13	49.76417200000	-92.64235599000	5512471.21	525757.03	Hoffstrom's Bay	Thunder Lake
HBIS3	05/23/13	49.76508898000	-92.64471801000	5512572.35	525586.44	Hoffstrom's Bay	Thunder Lake
HBIS4	05/23/13	49.76556398000	-92.64654502000	5512624.54	525454.62	Hoffstrom's Bay	Thunder Lake
HBT1	05/23/13	49.76737699000	-92.63406101000	5512830.42	526352.67	Hoffstrom's Bay	Thunder Lake
KB1P	05/22/13	49.73601903000	-92.64331899000	5509340.85	525702.55	Keplyn Bay	Wabigoon Lake
KB2P	05/22/13	49.73598299000	-92.63996497000	5509338.00	525944.25	Keplyn Bay	Wabigoon Lake
KB3P	05/22/13	49.73679302000	-92.63795700000	5509428.75	526088.51	Keplyn Bay	Wabigoon Lake
KB4P	05/22/13	49.73009998000	-92.63799103000	5508684.61	526089.64	Keplyn Bay	Wabigoon Lake

1. Hoffstrom's Bay HB4W

2. Hoffstrom's Bay HB1Inflow

3. Hoffstrom's Bay HB1Inflow

4. Hoffstrom's Bay HB1Inflow

5. Hoffstrom's Bay HB1Inflow

6. Hoffstrom's Bay HB1P

7. Hoffstrom's Bay HB2P

8. Hoffstrom's Bay HBIS1

9. Hoffstrom's Bay HBIS2

10. Hoffstrom's Bay HBIS3

11. Hoffstrom's Bay HBIS3

12. Hoffstrom's Bay HBIS4

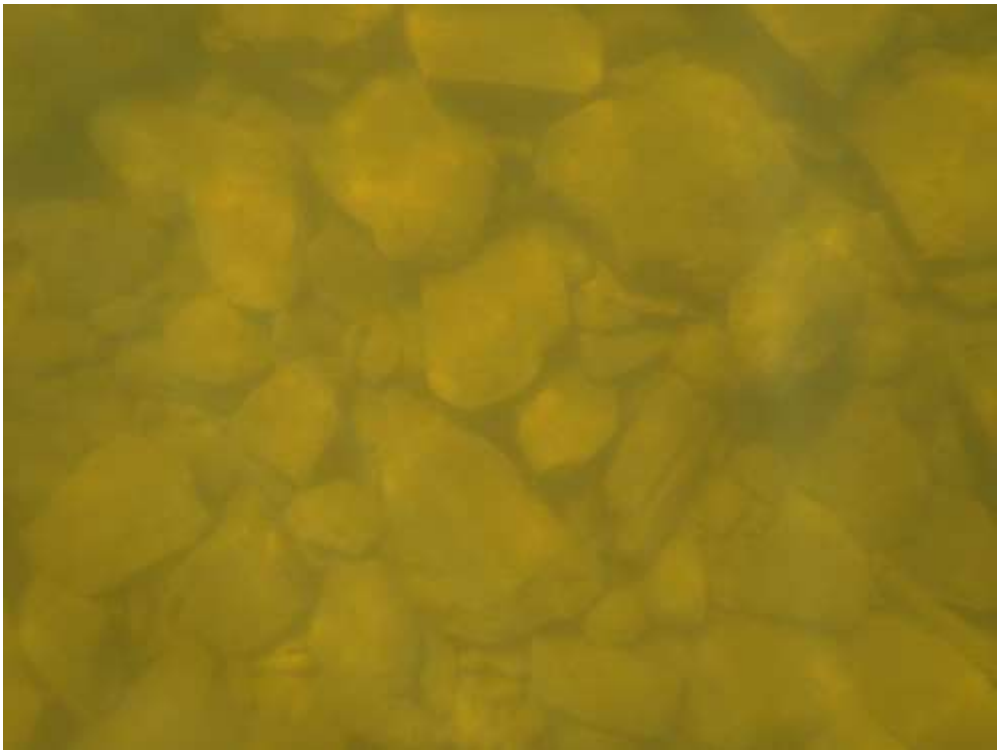
13. Hoffstrom's Bay HBIS4

14. Hoffstrom's Bay HB1W

15. Hoffstrom's Bay HB3P

16. Hoffstrom's Bay HB3P

17. Hoffstrom's Bay HB2W



18. Hoffstrom's Bay HB2W

19. Hoffstrom's Bay HB3W

20. Hoffstrom's Bay HB4P

21. Hoffstrom's Bay HB4P

22. Keplyn's Bay KB1P

23. Keplyn's Bay KB1P

24. Keplyn's Bay KB2P

25. Keplyn's Bay KB2P

26. Keplyn's Bay KB3P

27. Keplyn's Bay KB3P

28. Keplyn's Bay KB4P

29. Keplyn's Bay KB4P

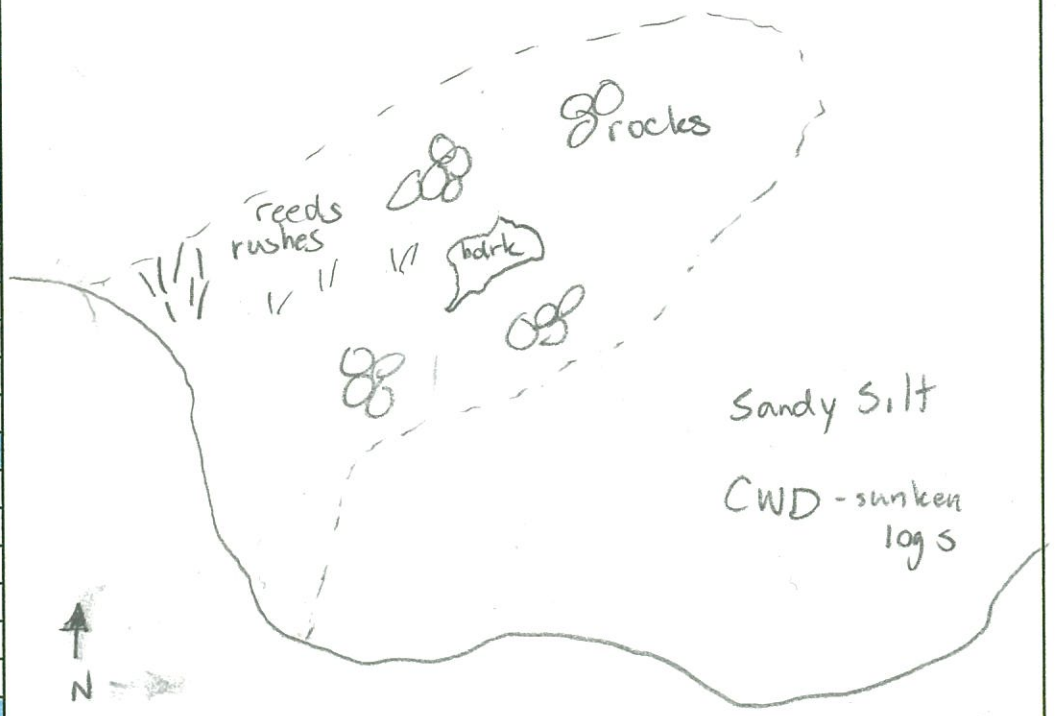
Appendix D
Fish Habitat Notes

Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May. 23. 13	2:35 pm CST	15
Waterbody Name - Survey Area		
Thunder Lake		
Site	**UTM Zone**	**Picture #**
HB4W	15	200 - 20
Depth	**Coordinates**	**Fish Cover**
0.30 m - 2.0	E: 526323	rocks sparse emergents
	N: 5513018	
Vegetation	**Substrate Type**	**Eco-Type**
emergents rushes, reeds.	rocks over bdrk	shoal
DO (mg/L)	**pH**	**Water Temp (°C)**
		6
Fish Species Present		
Comments:		
- natural rock shoal walleye spawn habitat		
Recorder's Initials:		
K.P. K.E, M.P		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
5. June. 13	3:30	19

Waterbody Name - Survey Area
Thunder Lake

Site	UTM Zone	Picture #
HB6W		208 → 213

Depth	Coordinates	Fish Cover
1.5 - 4.0 m	E: 524848 N: 5512558	- submergent - rocks

Vegetation	Substrate Type	Eco-Type
Submergent	Rock SIS	Island - shoal pt.

DO (mg/L)	pH	Water Temp (°C)
		10°C

Fish Species Present	

Comments:

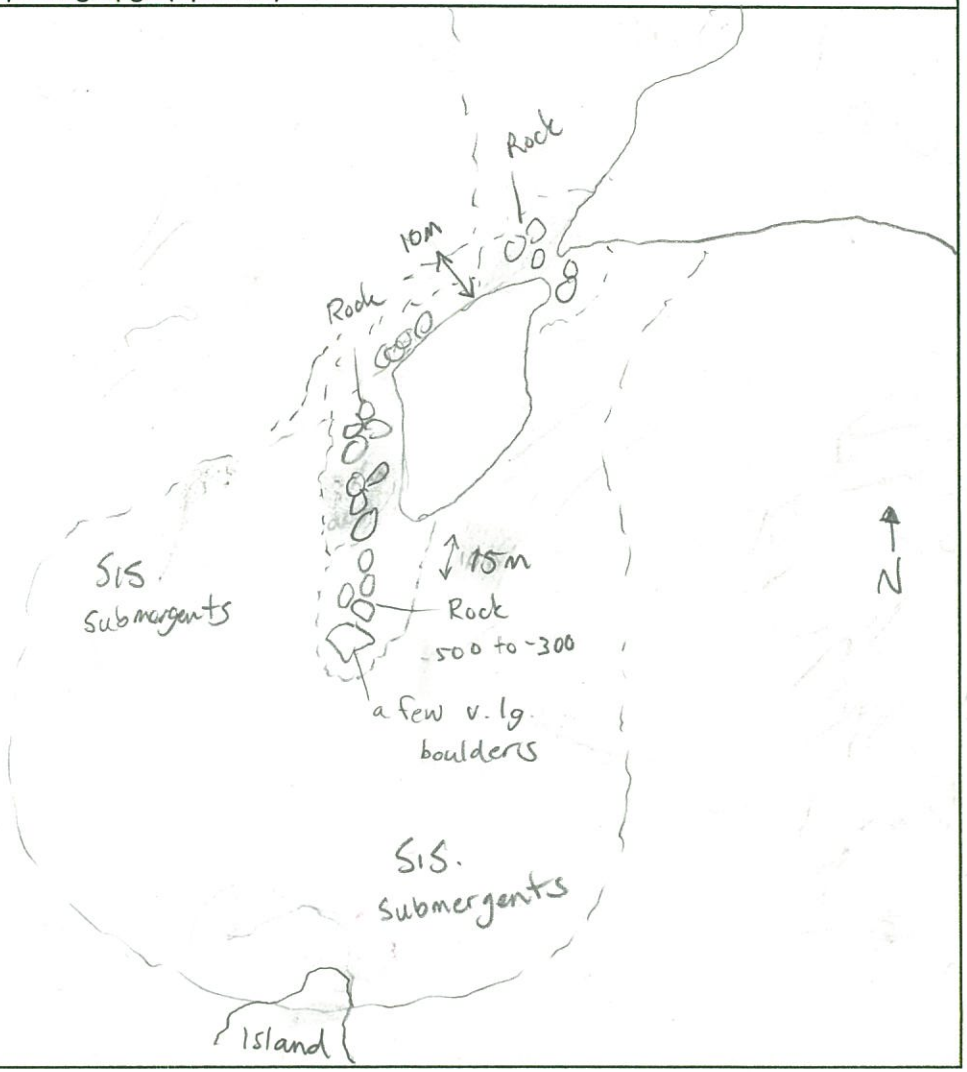
identified in NRVIS as Whitefish shoal spawning area
- small rocky point (island used to be connected)
- fairly sharp drop off from

Recorder's Initials:

K.P, M.P

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
JUNE 5/2013	12:00PM CST	12°C

Waterbody Name - Survey Area
THUNDER LAKE

Site	UTM Zone	Picture #
HB5W	15	205-207

Depth	Coordinates	Fish Cover
1.0-2.0	E: 525156 N: 5513459	Rock bdrk

Vegetation	Substrate Type	Eco-Type
-Some submergents	Rock -500-300	shoal

DO (mg/L)	pH	Water Temp (°C)
		11°C

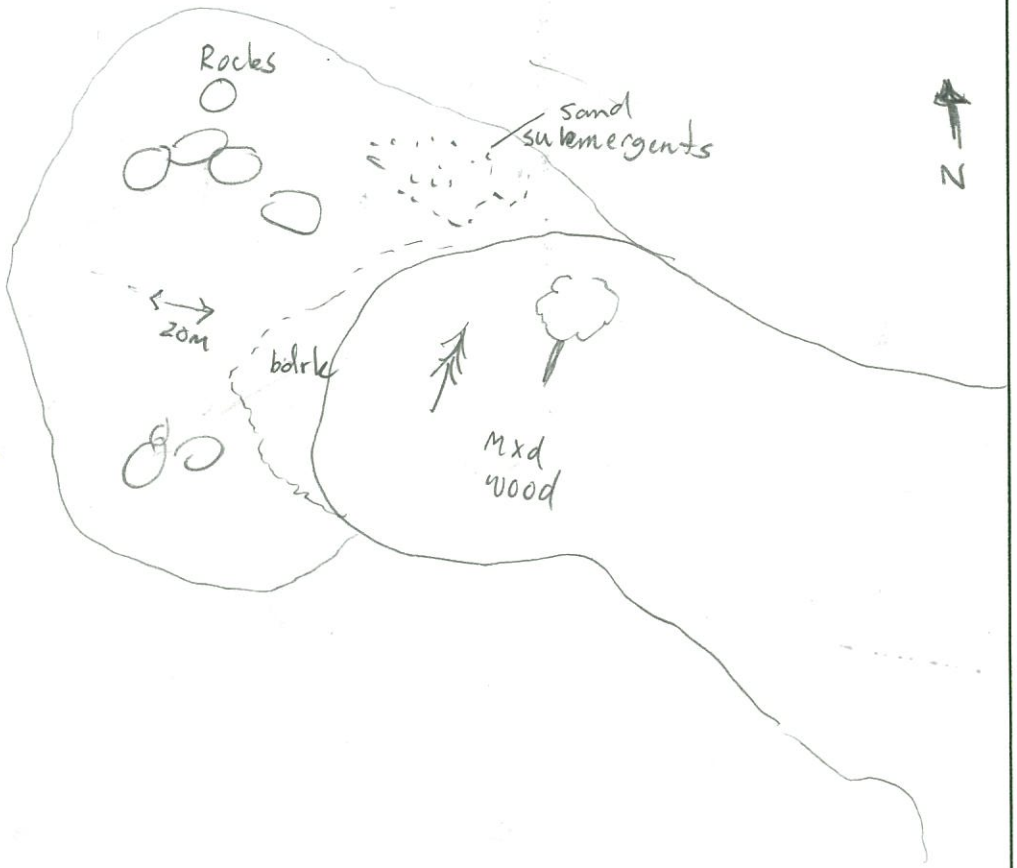
Fish Species Present	
3	Sm. mth. bass
	minnows

Comments:
rocks fairly clean -500, -300

Recorder's Initials:

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May-23-13	12:00	13
Waterbody Name - Survey Area		
Thunder Lake		
Site	**UTM Zone**	**Picture #**
HB3 W	15	182-183
Depth	**Coordinates**	**Fish Cover**
2.5m → 1.0m	E: 525154 N: 5512469	emergents.
Vegetation	**Substrate Type**	**Eco-Type**
sparse rushes.	Rocks boulders.	open water
DO (mg/L)	**pH**	**Water Temp (°C)**
		6

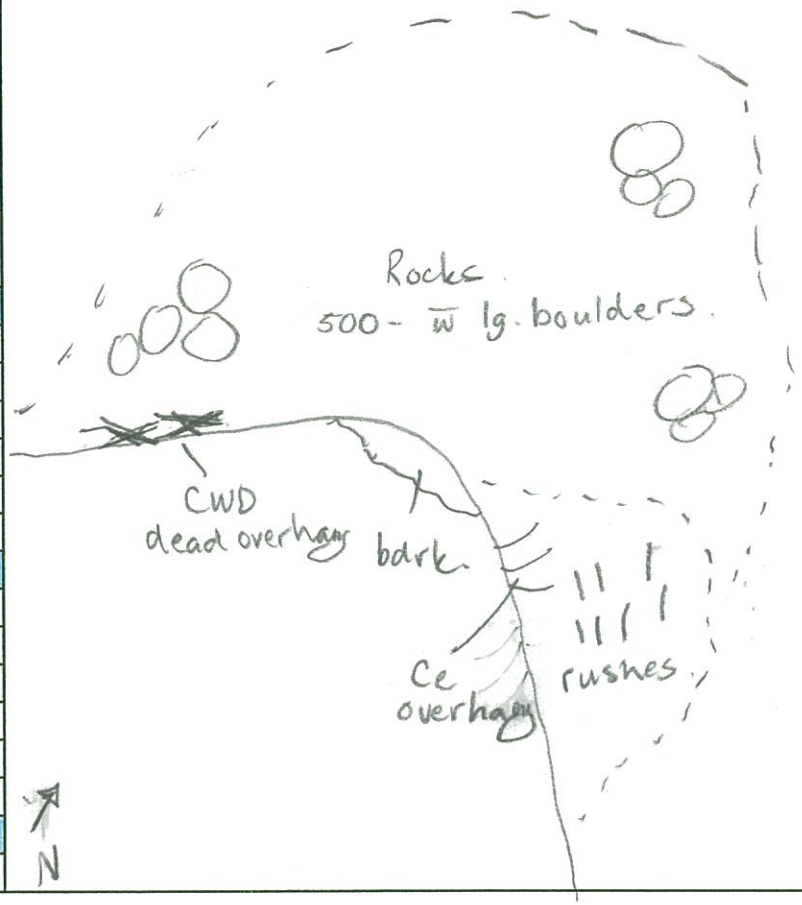
Fish Species Present	

Comments:
Walleye spawn habitat
MNR → created shoal/habitat

Recorder's Initials:
K.P. KE MP.

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
23/05/13	2 16	13
Waterbody Name - Survey Area		
THUNDER LAKE		
Site	**UTM Zone**	**Picture #**
HB154	15	193 - 199
Depth	**Coordinates**	**Fish Cover**
3.0 - 3.5	E: 525454 N: 5512626	ROCK/SUBMERG.
Vegetation	**Substrate Type**	**Eco-Type**
SPRASE SUBMERGENT		
DO (mg/L)	**pH**	**Water Temp (°C)**
		6°C

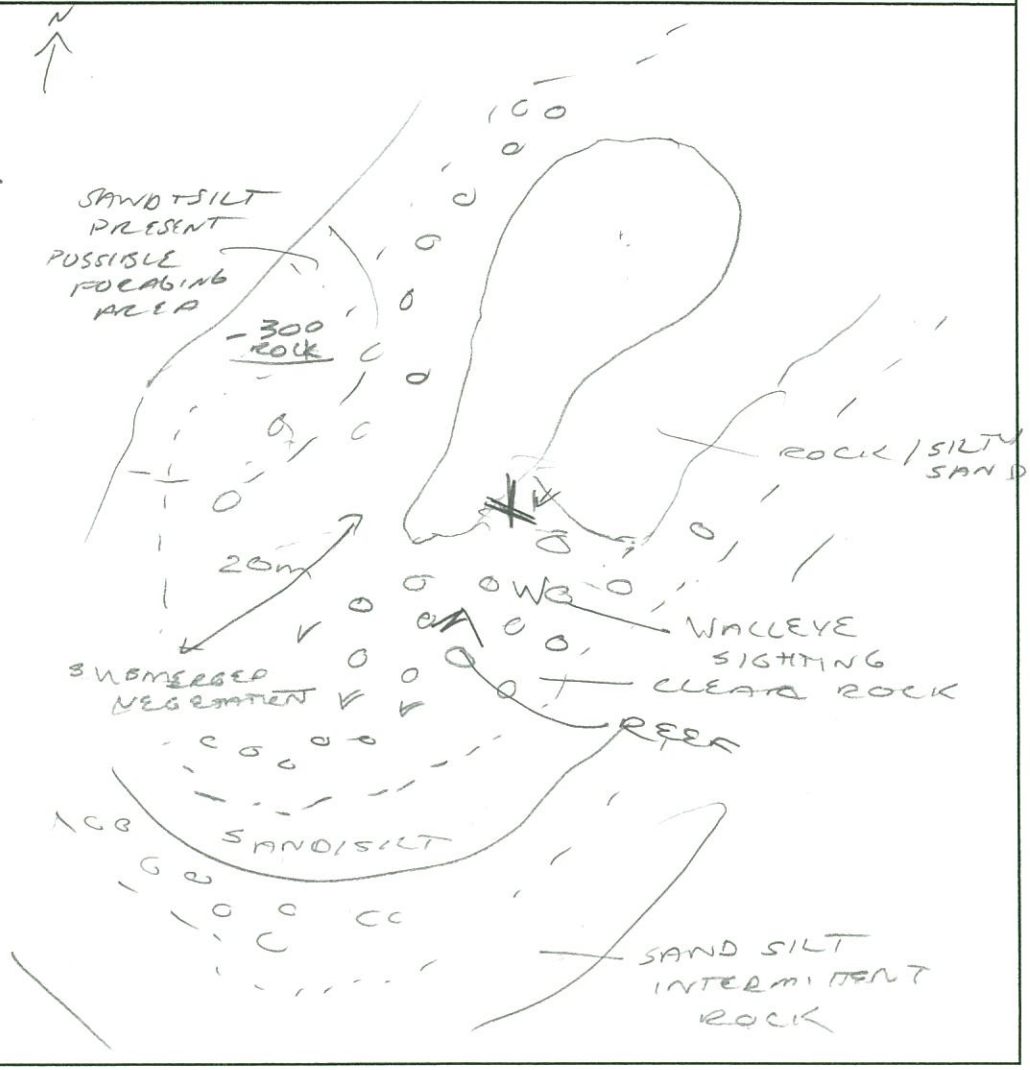
Fish Species Present	
WALLEYE	

Comments:
WALLEYE SPOTTED ON
ROCK AREA WITH
AQUA-VU

Recorder's Initials:
MP KP KE

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

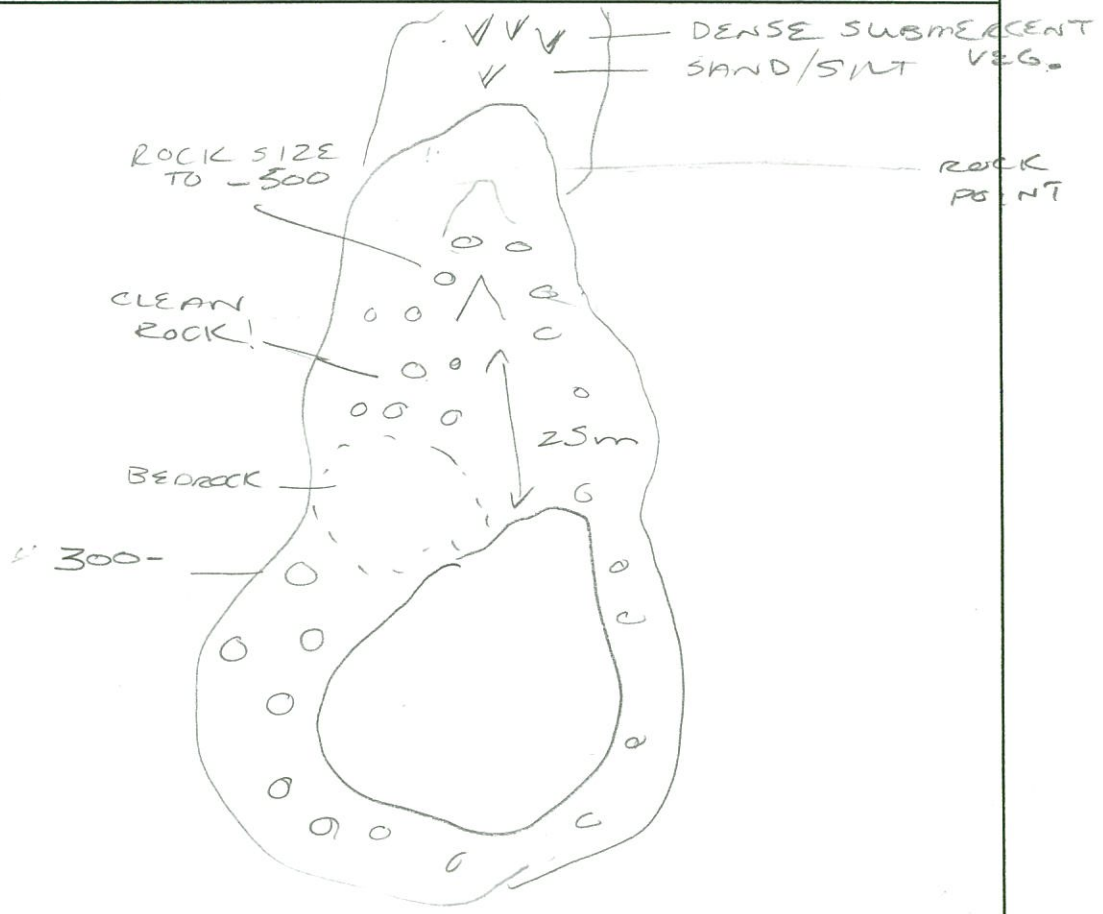


Fish Habitat Data Sheet

Date	Time	Temperature (°C)
23/05/13	1300 CST	13
Waterbody Name - Survey Area		
THUNDER LAKE		
Site	**UTM Zone**	**Picture #**
HB 153	15	187 - 192, 195
Depth	**Coordinates**	**Fish Cover**
3.5	E: 525586 N: 5512573	
Vegetation	**Substrate Type**	**Eco-Type**
SUBMERGENT	ROCK TO SANDSTEINES	
DO (mg/L)	**pH**	**Water Temp (°C)**
		6°C
Fish Species Present		
Comments:		
ROCK INCREASE IN SIZE TO POINT, VERY CLEAN ROCK PROBABLE LAKE TROUT SPAWNING AREA.		
Recorder's Initials:		
MP + KE + KP		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

MP + KE + KP

Date	Time	Temperature (°C)
23/05/13	130 CST	13°C

Waterbody Name - Survey Area
THUNDER LAKE

Site	UTM Zone	Picture #
HB152	15	185, 186

Depth	Coordinates	Fish Cover
1.5-2.0	E: 525773 N: 5512495	EMERG. + SUBM. VEGETATION

Vegetation	Substrate Type	Eco-Type
submerg. reeds	ROCK WITH FINE	

DO (mg/L)	pH	Water Temp (°C)
		6°C

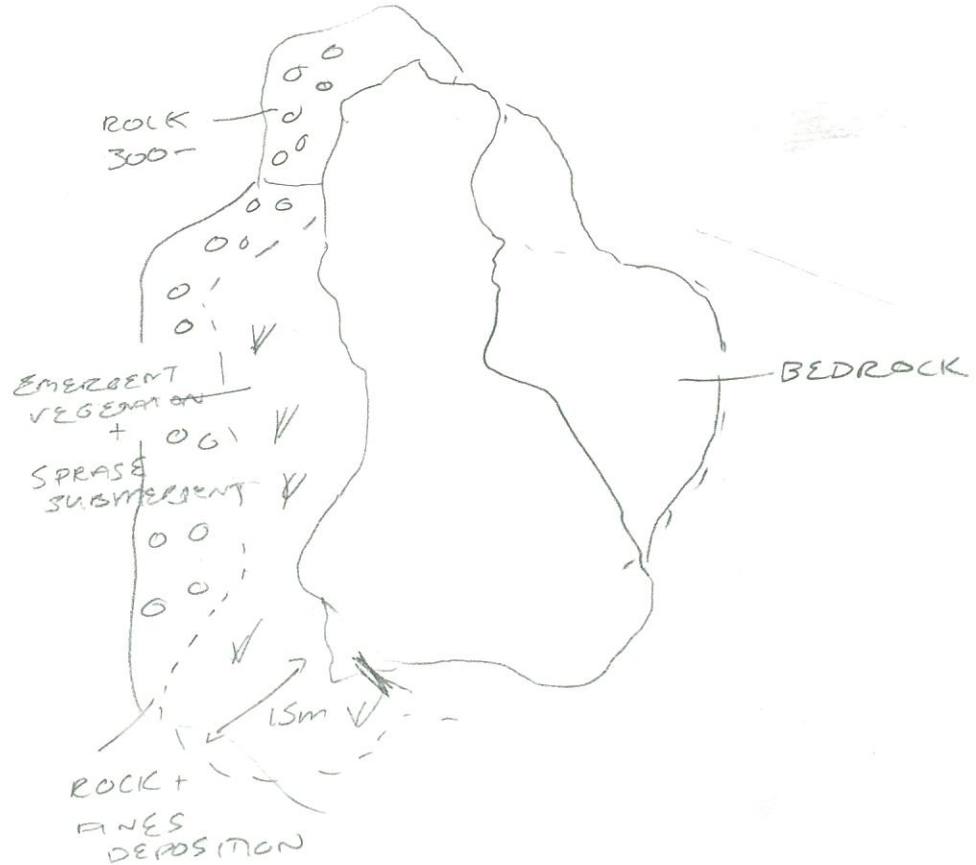
Fish Species Present	

Comments:

Recorder's Initials:
MP + KP + KE

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May 23 13	1:20 pm CST	13

Waterbody Name - Survey Area
Thunder Lake

Site	UTM Zone	Picture #
HBIS1	15	184

Depth	Coordinates	Fish Cover
1.0 – 3.0	E: 525747 N: 5512631	N/A

Vegetation	Substrate Type	Eco-Type
SPRASE SUB VEGETATION	Rocks - 300	Shoal

DO (mg/L)	pH	Water Temp (°C)
		6

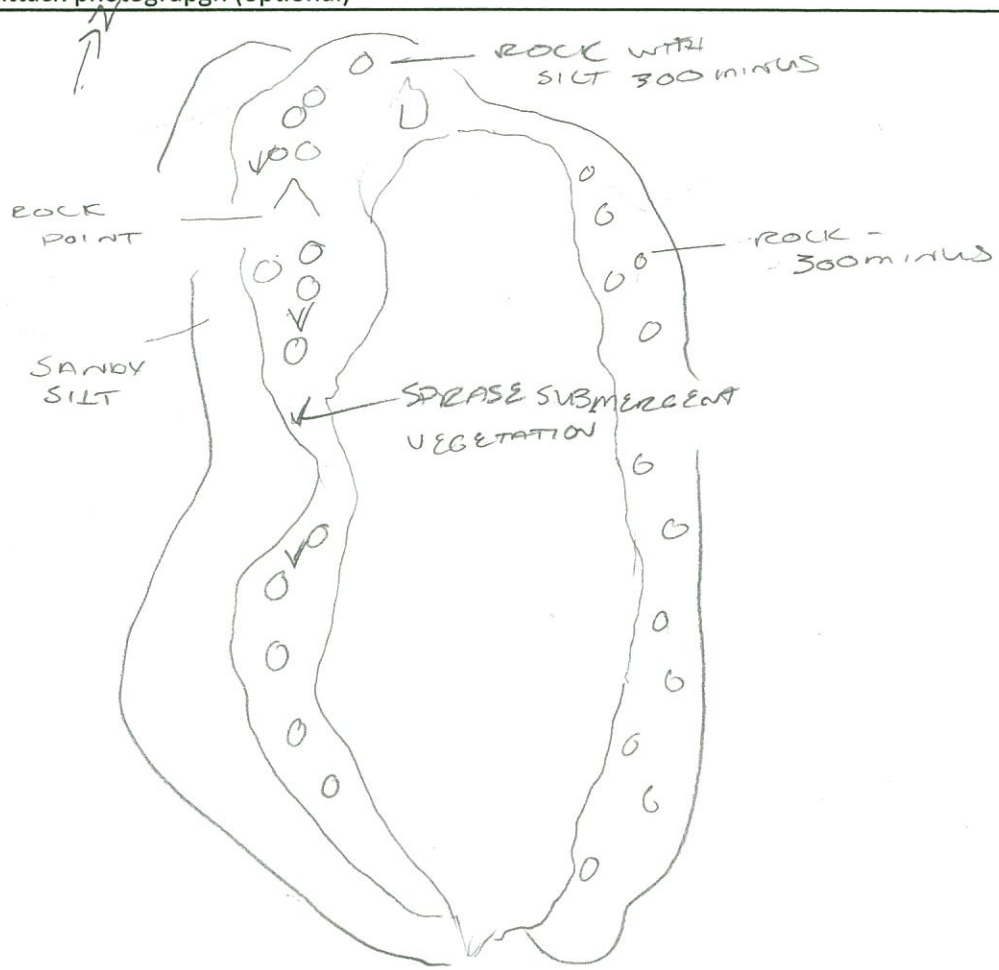
Fish Species Present
SMALL MOUTH BASS 316

Comments:
SMALLMOUTH BASS SPOTTED ON AQUAVU CAMERA

Recorder's Initials:
MP + KE + KP

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May 23.13	11:30	13
Waterbody Name - Survey Area		
Thunder Lake		
Site	**UTM Zone**	**Picture #**
HB4P	15	177-180
Depth	**Coordinates**	**Fish Cover**
1.0 m	E: 525490 N: 5512185	emergent overhang
Vegetation	**Substrate Type**	**Eco-Type**
emergent rushes	ssi Rock-off point	open water marsh
DO (mg/L)	**pH**	**Water Temp (°C)**
		6

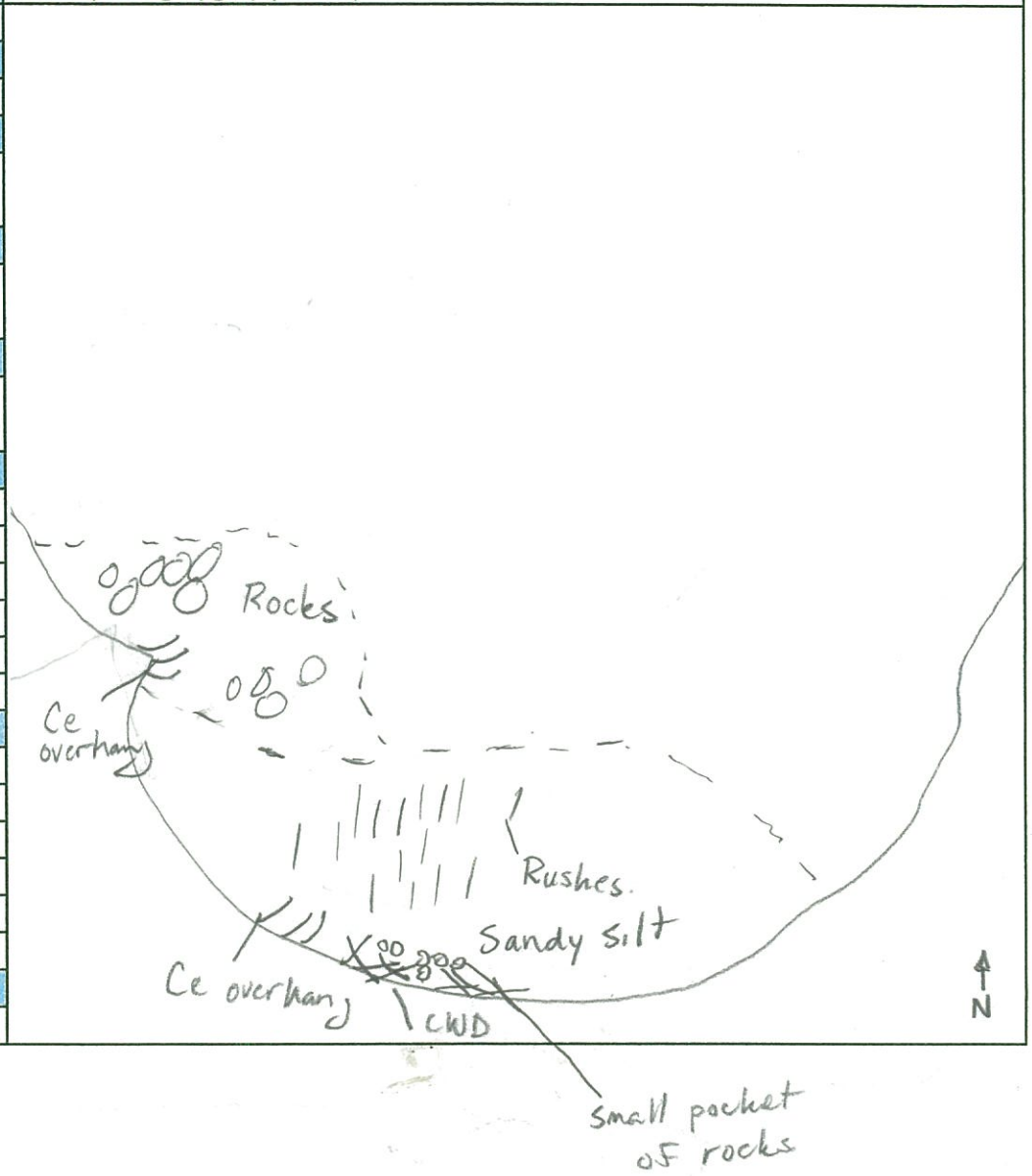
Fish Species Present	

Comments:
pike spawn habitat

Recorder's Initials:
K.P, K.E. M.D

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

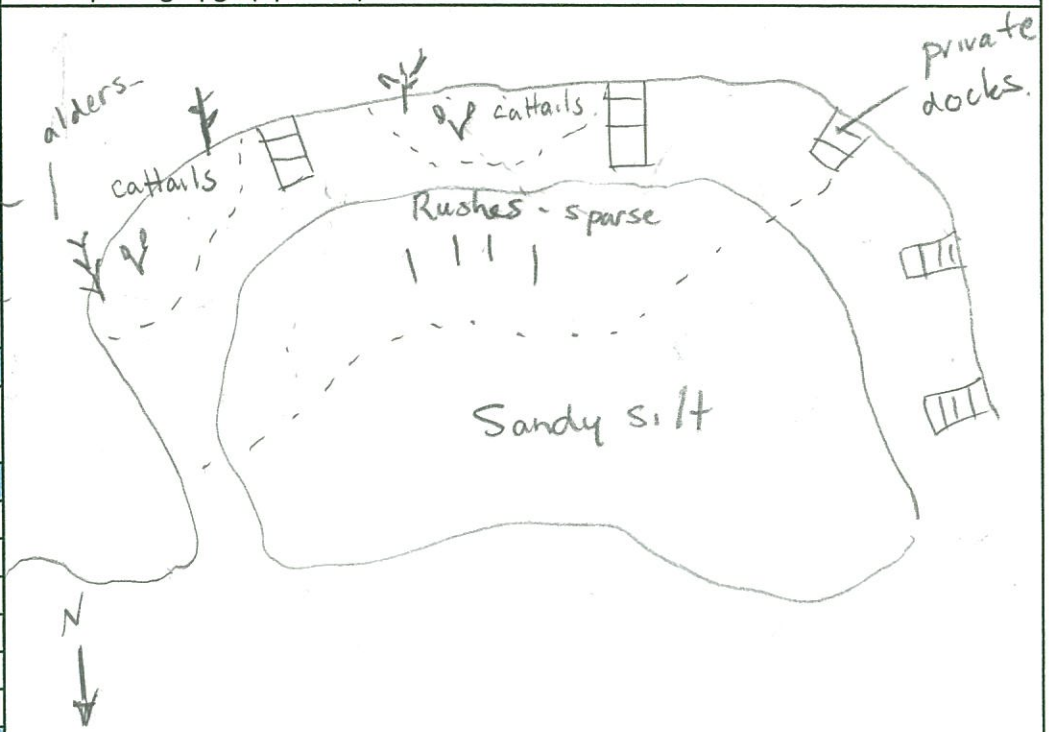


Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May. 23. 13	11:00 am CST	13
Waterbody Name - Survey Area		
Thunder Lake		
Site	**UTM Zone**	**Picture #** KP
HB3P	15	170-174
Depth	**Coordinates**	**Fish Cover**
1.1M	E: 525909	submergent emergents sparse
	N: 5512412	
Vegetation	**Substrate Type**	**Eco-Type**
Rushes · cattails.	ssi	open water marsh
DO (mg/L)	**pH**	**Water Temp (°C)**
		6
Fish Species Present		
Comments:		
pike spawn habitat		
Recorder's Initials:		
K.P. K.E, MP		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

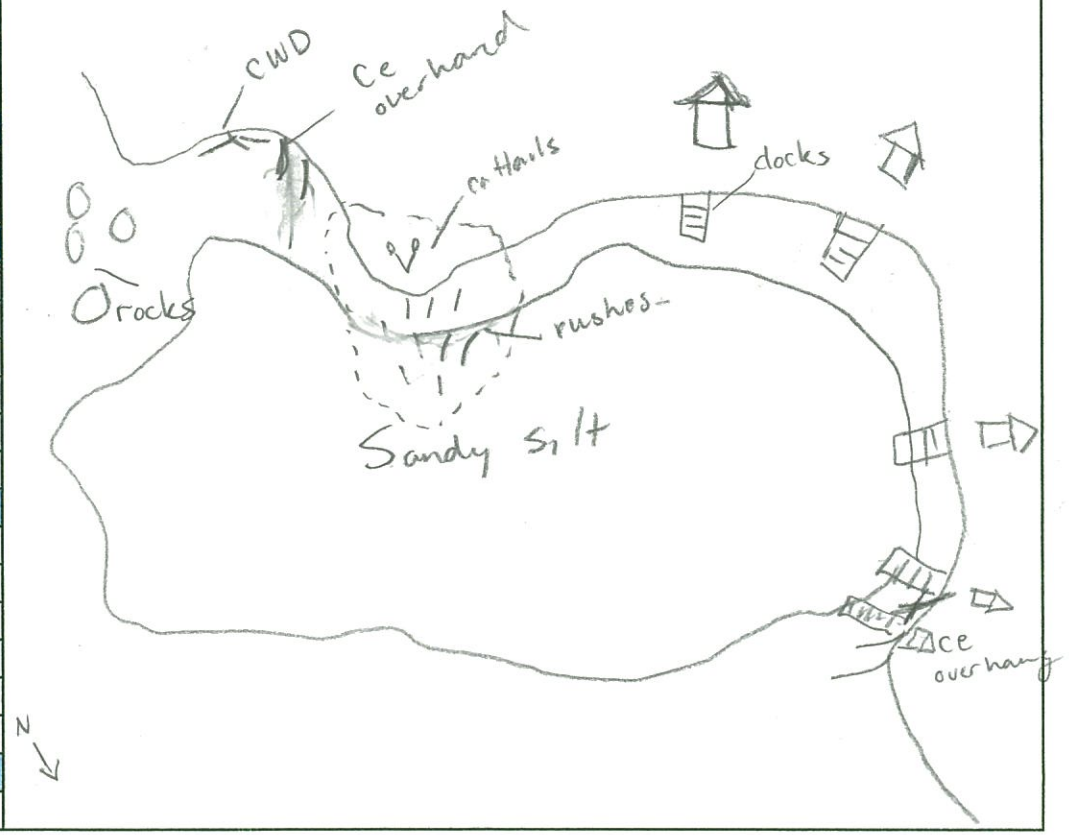


Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May 23. 13	10:30	12
Waterbody Name - Survey Area		
Thunder Lake		
Site	**UTM Zone**	**Picture #**
HBZP	15	166 – 167
Depth	**Coordinates**	**Fish Cover**
1.6	E: 525987 N: 5512571	overhang emergents
Vegetation	**Substrate Type**	**Eco-Type**
emergents -cattails, rushes	SSi 300 - Rock outfrom point	Marsh
DO (mg/L)	**pH**	**Water Temp (°C)**
		4
Fish Species Present		
Comments:		
potential pike habitat spawn		
Recorder's Initials:		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

K.P.KE.MP.

Date	Time	Temperature (°C)
May 23.13	9:00 am CST	10

Waterbody Name - Survey Area
Thunder Lake

Site	UTM Zone	Picture #
HB Inflow	15	1260 → 1283 K.E cam 152 → 162 - K.P cam

Depth	Coordinates	Fish Cover
0.3 → 1.5	E: 526651 N: 5512889	emergents.

Vegetation	Substrate Type	Eco-Type
emergents - sparse - rushes.	Ssi	Marsh/swamp.

DO (mg/L)	pH	Water Temp (°C)
		3°

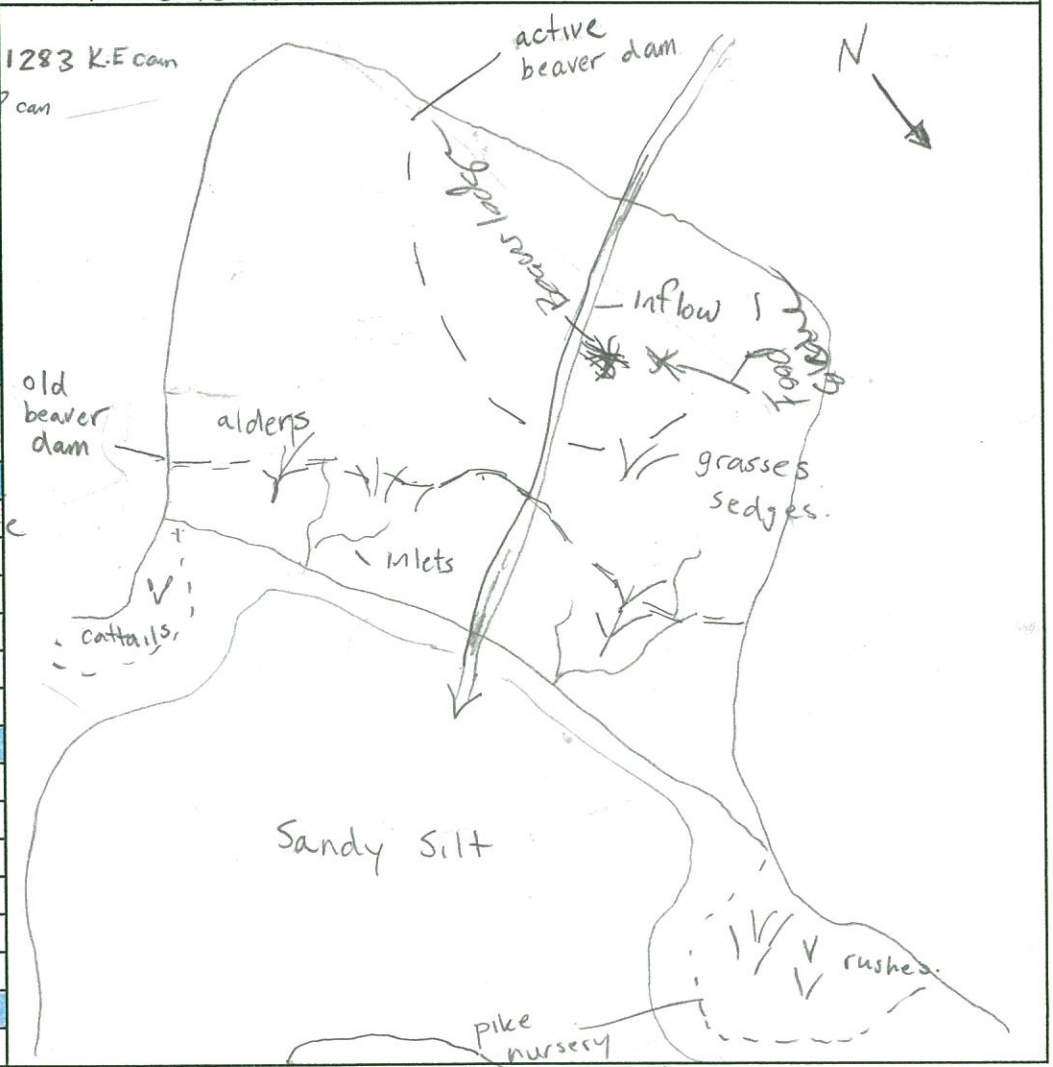
~~Fish Species Present~~	Comments
	- large beaver dam - shore to shore
	- beaver dam behind w active
	lodge + pond
	Barrier to Hoffstroms Bay
	tributary
pair of common	mergansers

Comments:
inflow into Thunder Lake
alder swamp w beaver damp.
small area w emergents → potential pike
nursery habitat
→ MNR made shoal out from shore - now
sand + silt covered w sparse submergents

Recorder's Initials:
K.P, K.E, M.P.

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

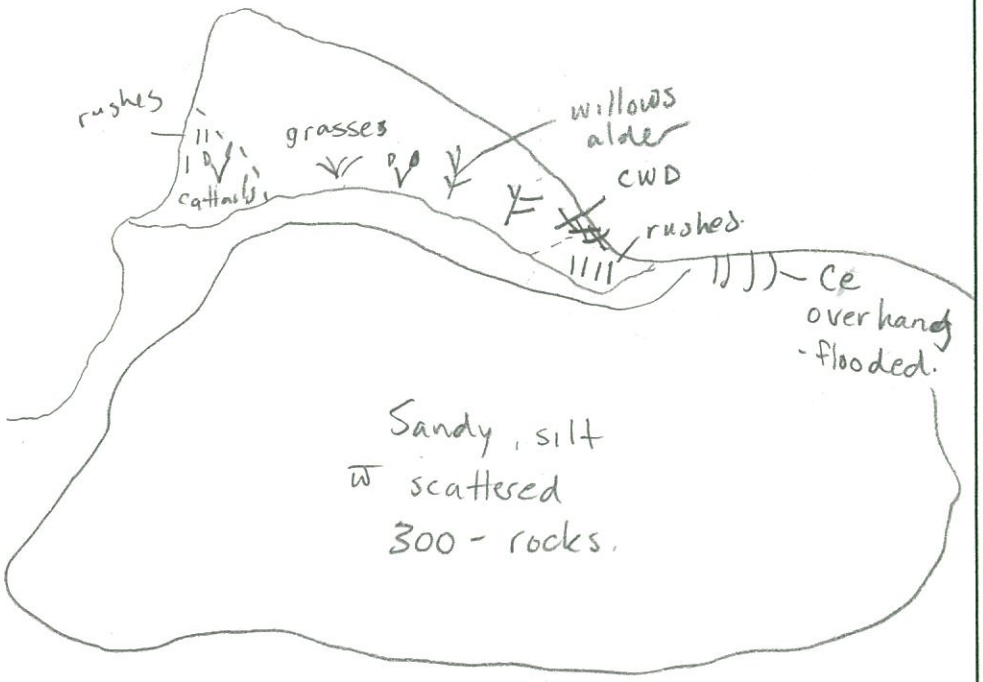


Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May. 23. 13	10:00 am CST	12
Waterbody Name - Survey Area		
Thunder Lake		
Site	**UTM Zone**	**Picture #**
HBIP	15	163 – 165
Depth	**Coordinates**	**Fish Cover**
1m → 0.3	E: 526495 N: 5512597	emergents (cattails, rushes)
Vegetation	**Substrate Type**	**Eco-Type**
Sparse submerg. emergents	Ssi (300-) - scattered Rock	Marsh
DO (mg/L)	**pH**	**Water Temp (°C)**
		4
Fish Species Present		
Comments:		
Recorder's Initials:		
K.P, K.E. M.P		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

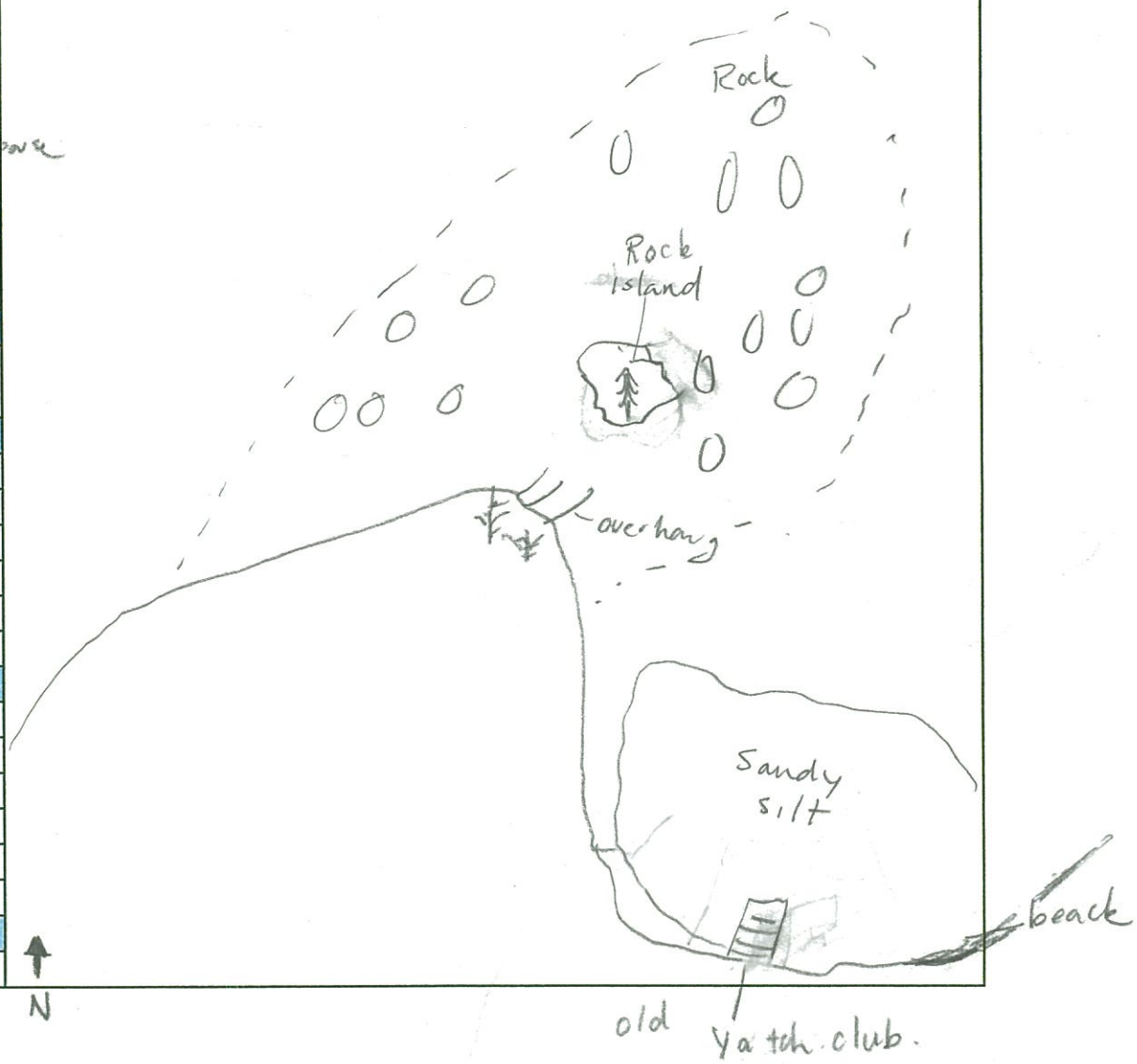


Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May 23 13	11:15	13
Waterbody Name - Survey Area		
Thunder Lake		
Site	**UTM Zone**	**Picture #** K.E
HB2W	15	1290-1294
Depth	**Coordinates**	**Fish Cover**
1.5 m	E: 525559	submergent - sparse
	N: 5512531	
Vegetation	**Substrate Type**	**Eco-Type**
submergent (sparse)	Rock	open water
DO (mg/L)	**pH**	**Water Temp (°C)**
		6
Fish Species Present		
Comments:		
MNR created habitat area.		
Recorder's Initials:		
K.P, K.E, MP.		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May. 23. 13	10:45	12
Waterbody Name - Survey Area		
Thunder Lake		
Site	**UTM Zone**	**Picture #** K.E cam
HBTW	15	1284-1289
Depth	**Coordinates**	**Fish Cover**
2.2M	E: 525909	submergent - sparse
	N: 5512412	
Vegetation	**Substrate Type**	**Eco-Type**
sparse submergent	Rock -300 → -500	Open Water submerged point
DO (mg/L)	**pH**	**Water Temp (°C)**
		4

Fish Species Present	

Comments:

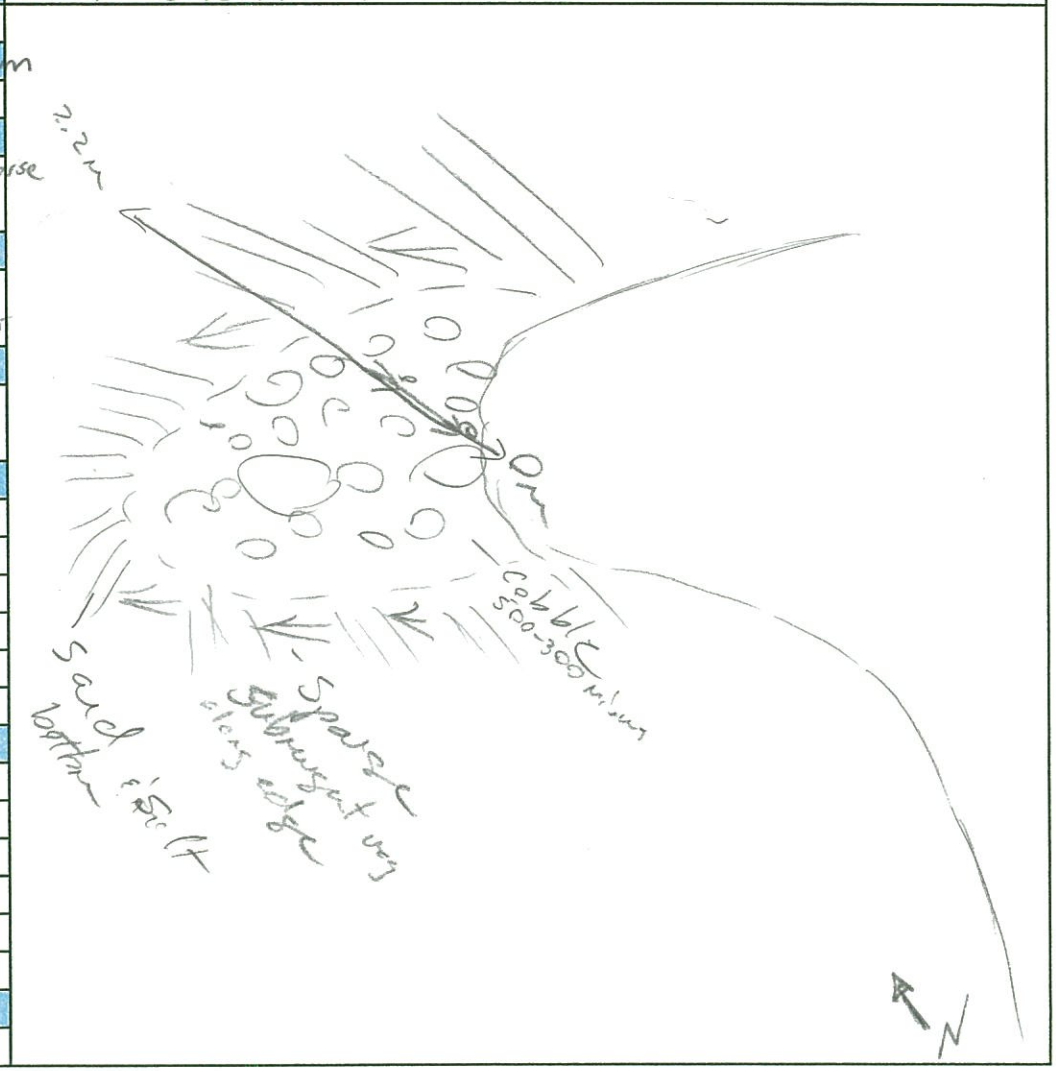
walleye spawn potential

Recorder's Initials:

K.P, KE. MP.

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

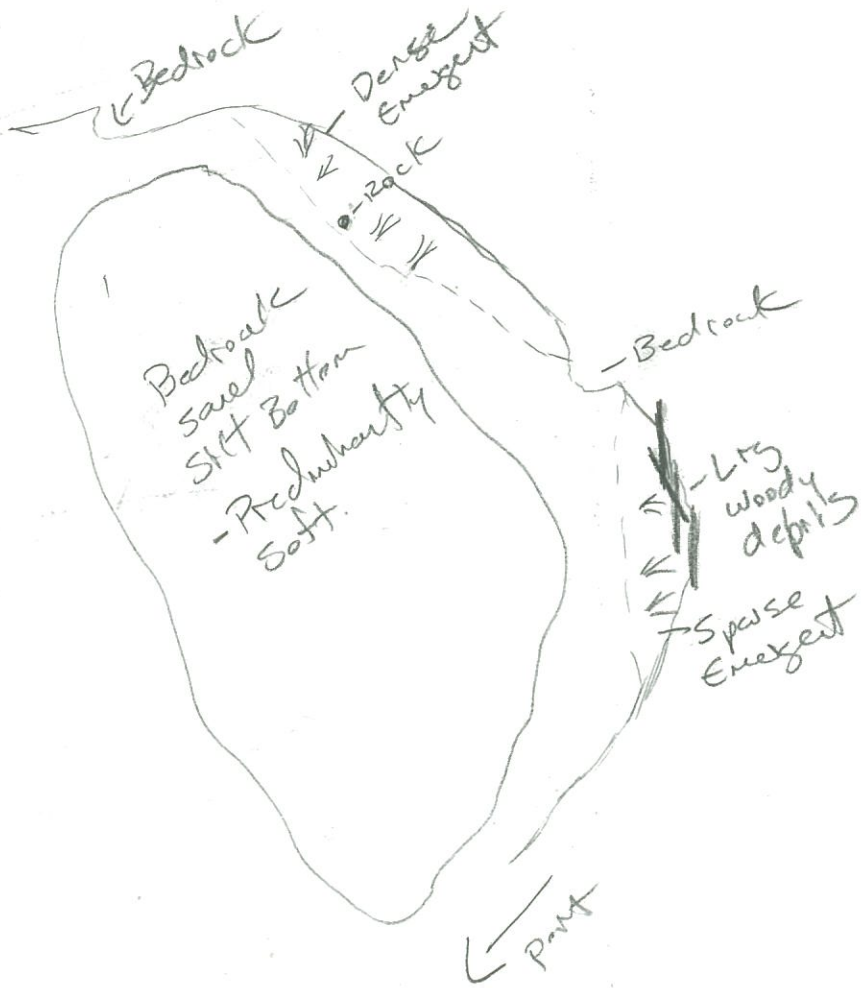


Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May 22-13	1:00 pm CST	12°C
Waterbody Name - Survey Area		
Wabigoon		
Site	**UTM Zone**	**Picture #** (KP cam)
KB 1P	15	133 → 138
Depth m	**Coordinates**	**Fish Cover**
2.7 → 0.3	E: 525702 N: 5509342	some C.W.D. overhang BF.
Vegetation	**Substrate Type**	**Eco-Type**
emergent	Sis, bdrk	Marsh. area
DO (mg/L)	**pH**	**Water Temp (°C)**
		7°C
Fish Species Present		
Comments:		
Pike habitat		
Recorder's Initials:		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



K.P, M.P. K.E

Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May 22 13	1:25 pm CST	12

Waterbody Name - Survey Area
Wabigoon

Site	UTM Zone	Picture #
KB2P		139 - 142

Depth	Coordinates	Fish Cover
2.5 → 0.3	E: 525944 N: 5509339	C.W.D

Vegetation	Substrate Type	Eco-Type
emergent - sparse submergent	Si S, bdrk	

DO (mg/L)	pH	Water Temp (°C)
		7

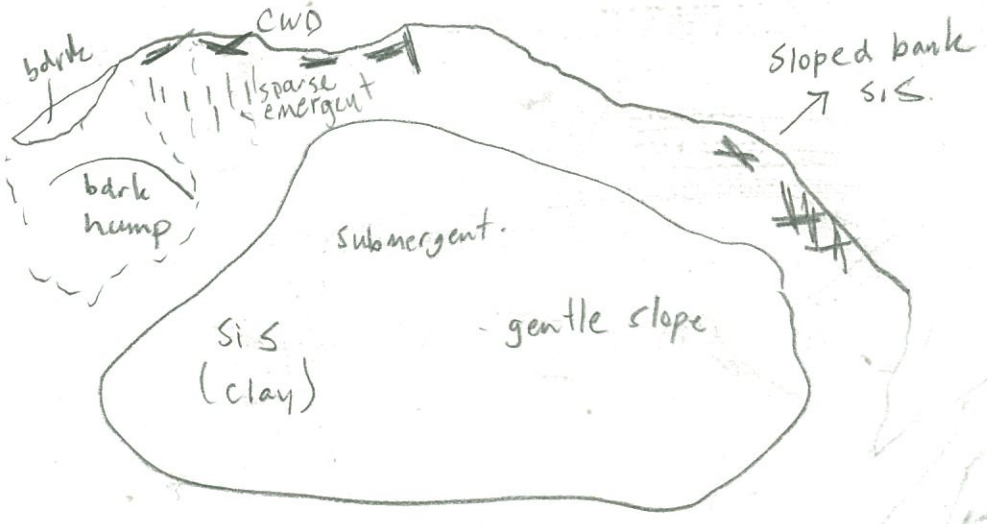
Fish Species Present	

Comments:
pike - possible but unlikely for spawning

Recorder's Initials:

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



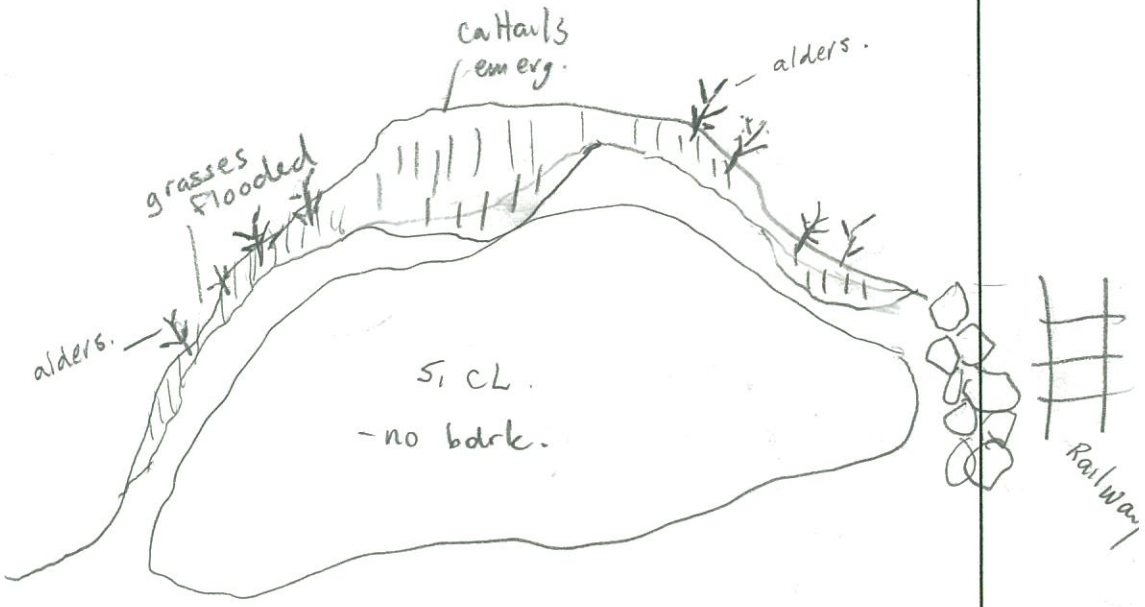
K.P, K.E, M.P

Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May. 22. 13	1:40 CST.	12
Waterbody Name - Survey Area		
Wabigoon		
Site	**UTM Zone**	**Picture #**
KB3P	15	143 - 144
Depth	**Coordinates**	**Fish Cover**
1.2 → 0.3	E: 526088 N: 5509430	emergents
Vegetation	**Substrate Type**	**Eco-Type**
emerg. cattails	Si Cl	
DO (mg/L)	**pH**	**Water Temp (°C)**
		7°C
Fish Species Present		
N/A		
Comments:		
Pike spawn habitat		
- water is high - flooded grass		
- alders in water		
Recorder's Initials:		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

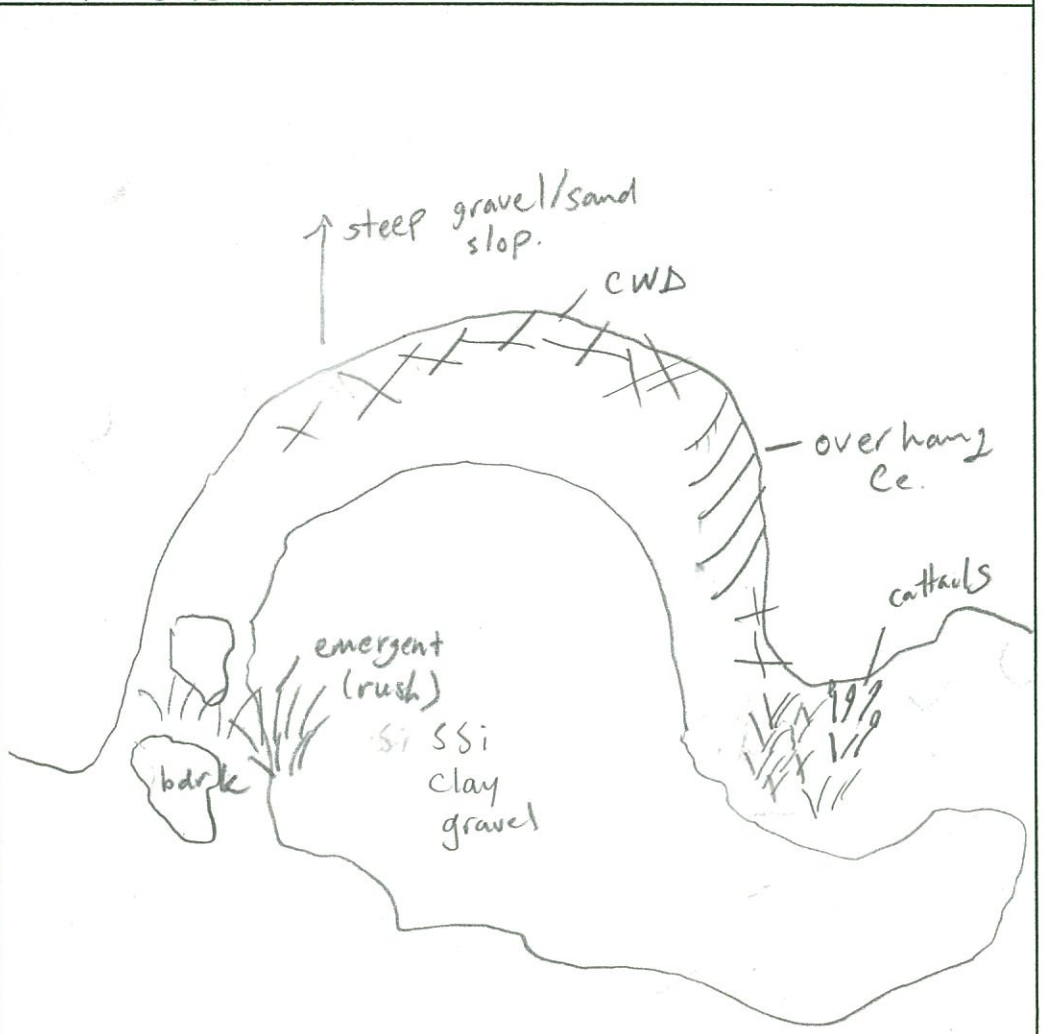


K.P, M.P, K.E **Fish Habitat Data Sheet**

Date	Time	Temperature (°C)
May. 22. 13	2:45	12°C
Waterbody Name - Survey Area		
Wabigoon		
Site	**UTM Zone**	**Picture #**
K B4P	15	147 - 154
Depth	**Coordinates**	**Fish Cover**
1 → 1.4	E: 526089 N: 5508685	overhang ce CWD
Vegetation	**Substrate Type**	**Eco-Type**
sparse emergent	hard - SSi clay/gravel	
DO (mg/L)	**pH**	**Water Temp (°C)**
		8
Fish Species Present		
Comments:		
- very hard bottom		
- pike spawn potential		
Recorder's Initials:		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
24/05/13	8:50 CST	13°C

Waterbody Name - Survey Area
BLACKWATER CREEK

Site	UTM Zone	Picture #
BC1 TO BC1END	15	1-10 KP CELL

Depth	Coordinates	Fish Cover
.40 - 1.0m	E: 527209 N: 5509655	Woody Debris Alder Overhang Emerg./Submerg.

Vegetation	Substrate Type	Eco-Type
Emerg/Cattails/Grass	Sandy/Silty/Clay	CREEK

DO (mg/L)	pH	Water Temp (°C)
		6°C

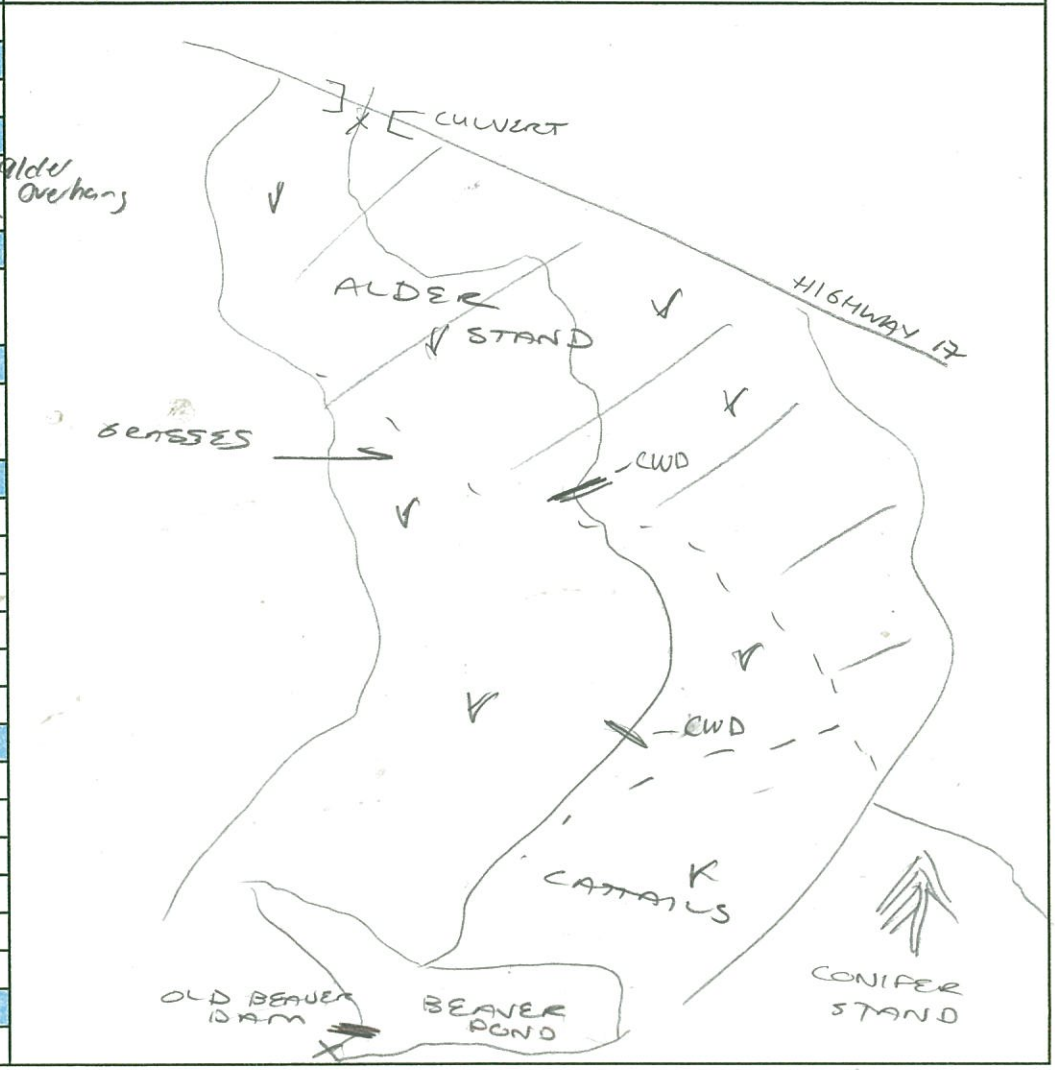
Fish Species Present

Comments:
HARD CLAY + SILT BOTTOM,

Recorder's Initials:
MP + KP

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
24/05/13	10:20 CST	14
Waterbody Name - Survey Area		
BLACKWATER		
Site	**UTM Zone**	**Picture #** K.P. cell
BC2 - BC2END	15	11 → 25
Depth	**Coordinates**	**Fish Cover**
.5 – 1.0	E: 526480 N: 5509906	FLOODED/EMERG/SUBMERG/WOODY
Vegetation	**Substrate Type**	**Eco-Type**
EMERG/FLOODED SUBMERG.	SILTY/CLAY	creek
DO (mg/L)	**pH**	**Water Temp (°C)**
		6°C

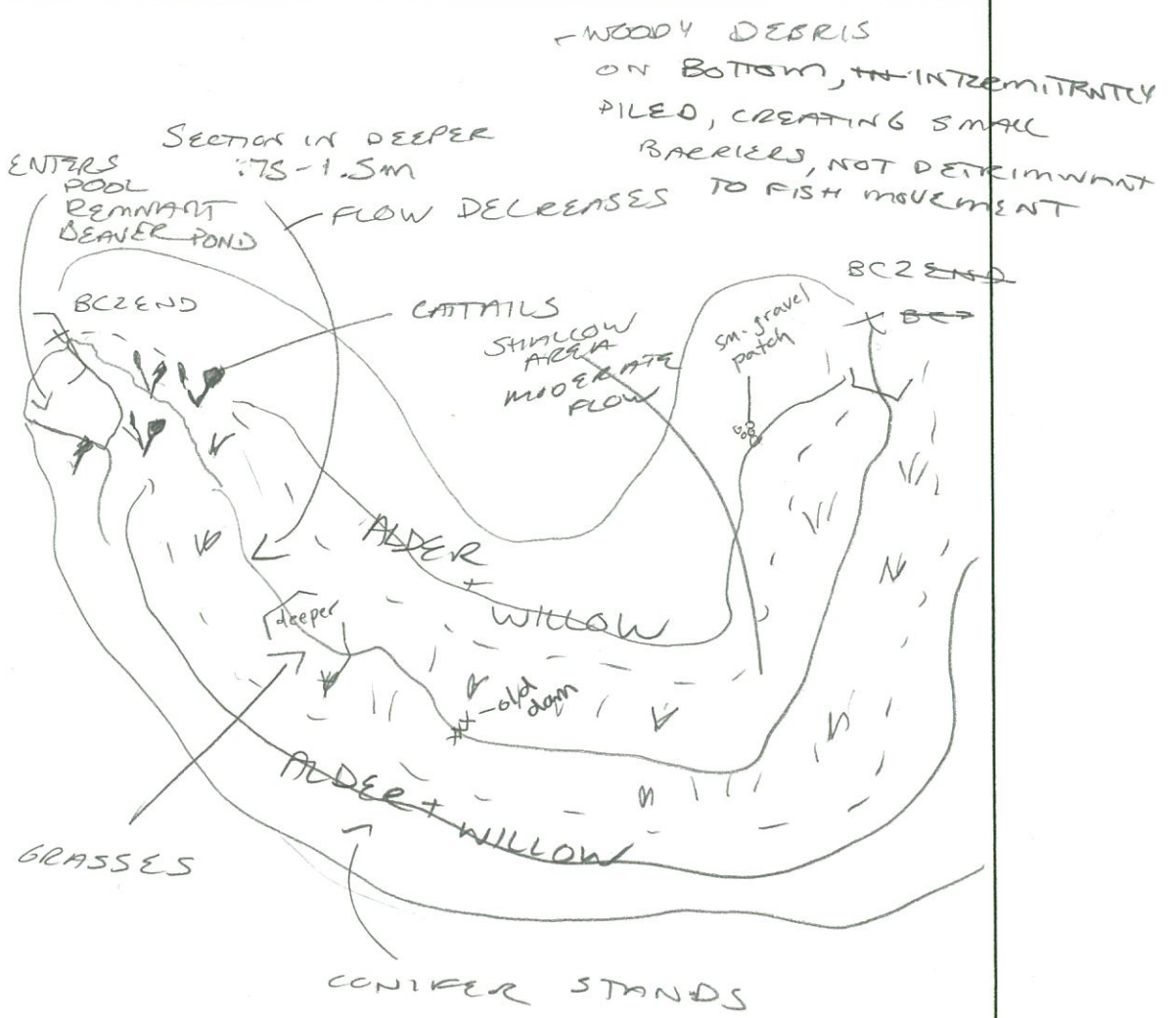
Fish Species Present	

Comments:
moderate flow, 0.30 → 1.5m dep
- meandering, brown murky water
- grasses + alder, willow along banks
- some CWD on bottom – no submerg. veg.

Recorder's Initials:
MP + KP

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
24/05/13	10:45 CST	14
Waterbody Name - Survey Area		
BLACKWATER		
Site	**UTM Zone**	**Picture #**
BC3 - BC3END	15	26 → 30
Depth	**Coordinates**	**Fish Cover**
1.5 m	E: 526248 N: 5509722	sparse CWD sparse submerged emergents
Vegetation grasses	**Substrate Type**	**Eco-Type**
emergent cattails sparse submerg.	SILTY CLAY	marsh, fe
DO (mg/L)	**pH**	**Water Temp (°C)**
		7°

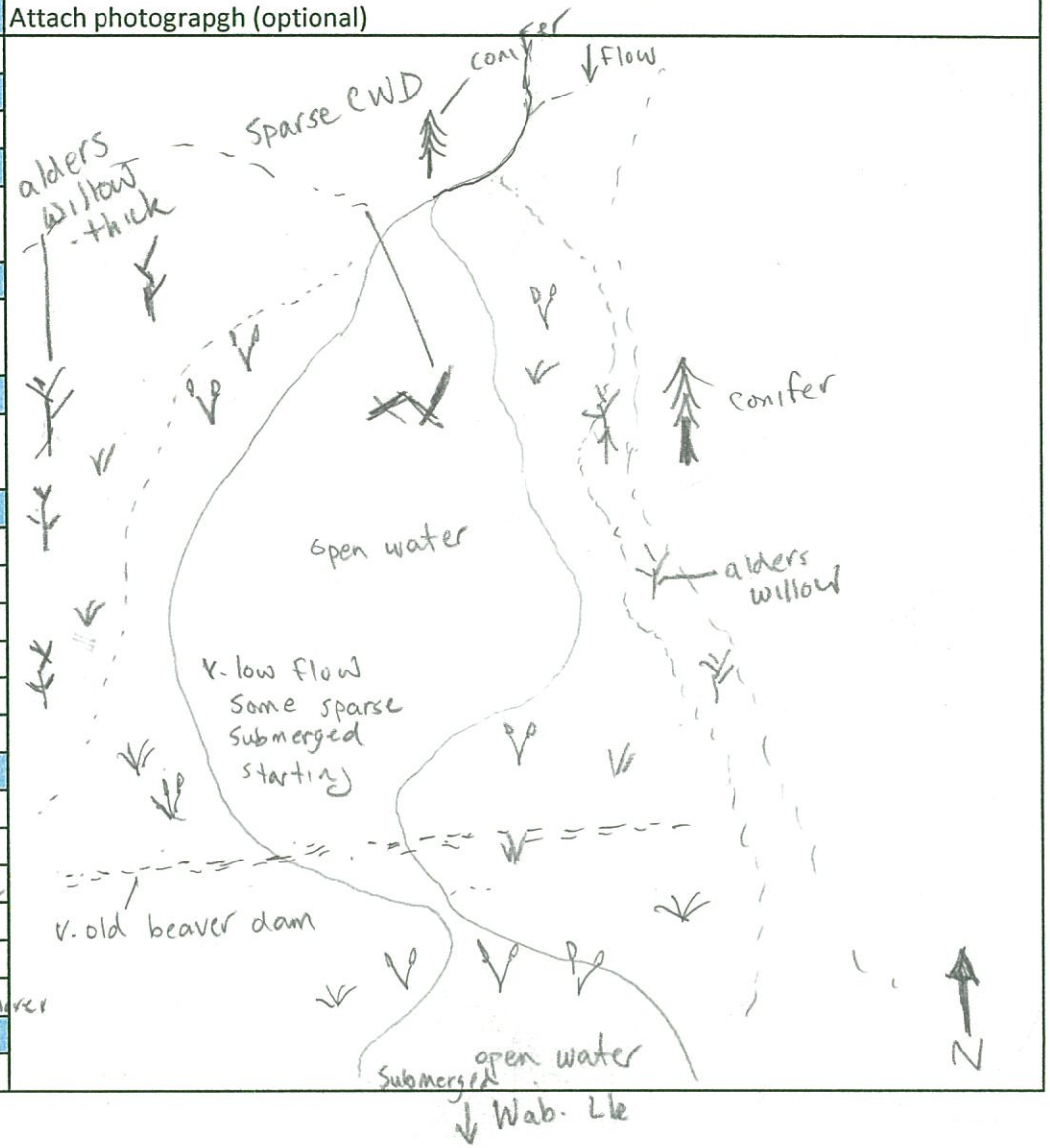
Fish Species Present

Comments:
brown, murky, v. low flow
- creek widens into pond - v. old dam
- turns marshy then opens up to Lake
- some submerged veg. starting
- lots of cattails
- alder/willow swale on W shore. Conifer E shore

Recorder's Initials:
K. P - M P.

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

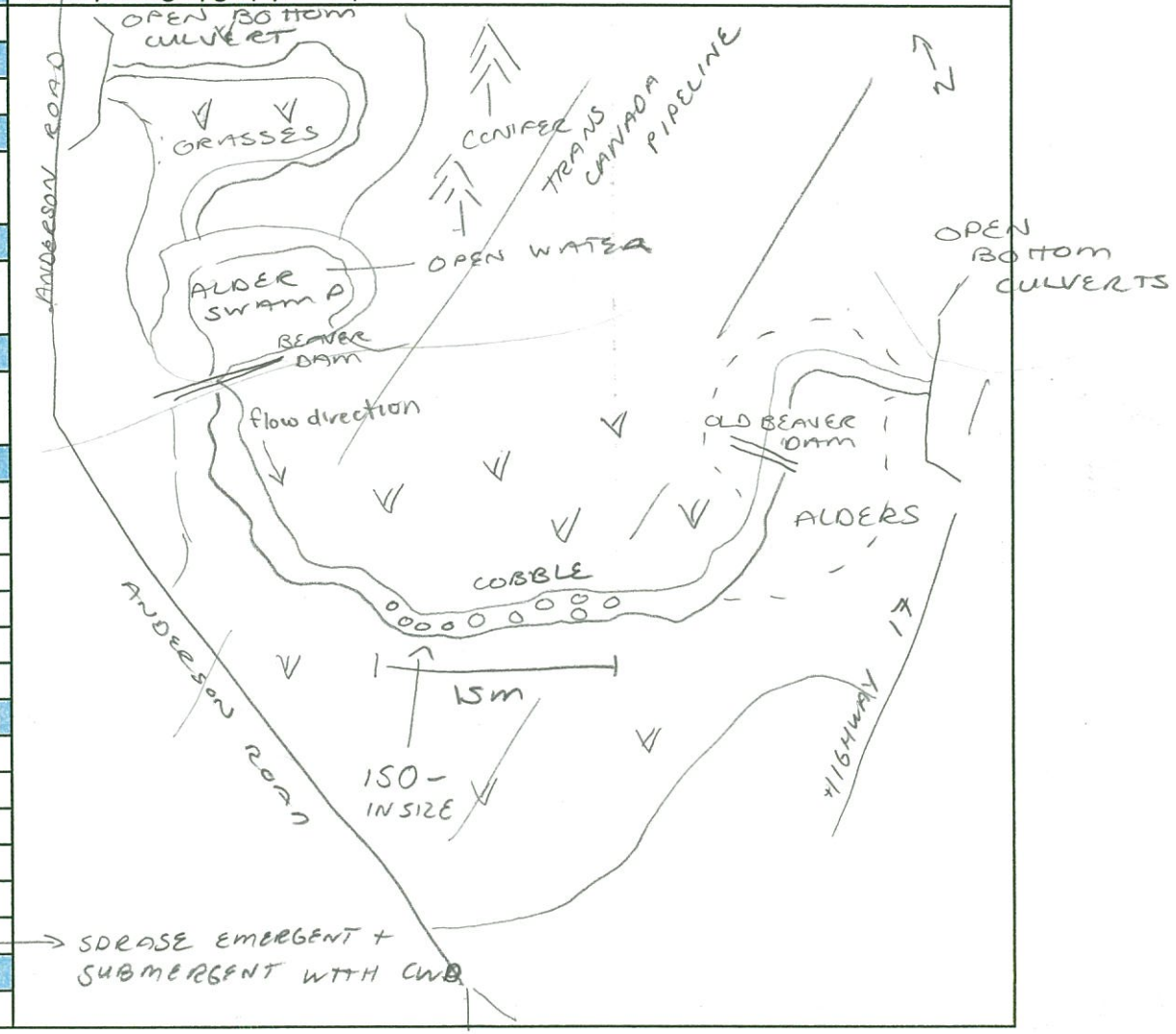


Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May. 24-13	11:50 am CST	15
Waterbody Name - Survey Area		
Blackwater Creek		
Site	**UTM Zone**	**Picture #**
BC4 → BC4end	15	J1 - 45
Depth	**Coordinates**	**Fish Cover**
26cm - 75cm	E: 527521 N: 5509993	CWD
Vegetation	**Substrate Type**	**Eco-Type**
	SILTY/CLAY W COBBLE	CWD + SUBT EM VEG.
DO (mg/L)	**pH**	**Water Temp (°C)**
		7°C
Fish Species Present		
Comments:		
- COBBLE ON PIPELINE, ONLY AREA OF SUCH, POSSIBLY COULD BE INFILL FROM PIPELINE INSTALLATION POSSIBLE FORD FOR EXCAVATOR		
- BROWN MURKY WATER → SPARSE EMERGENT + SUBMERGENT WITH CWD		
Recorder's Initials:		
MP KP		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
24/05/13	1400 CST	20

Waterbody Name - Survey Area
BLACKWATER CREEK

Site	UTM Zone	Picture #
BC5 - BC5END	15	46 - 65

Depth	Coordinates	Fish Cover
.20 - .75	E: 528004 N: 5510307	CWD EMERG. SPARSE SUBMERGE

Vegetation	Substrate Type	Eco-Type
-SPARSE EMERG/SUBMERG - CWD	CLAY/SILT	CREEK

DO (mg/L)	pH	Water Temp (°C)
		~~5°C~~ 10°C

Fish Species Present

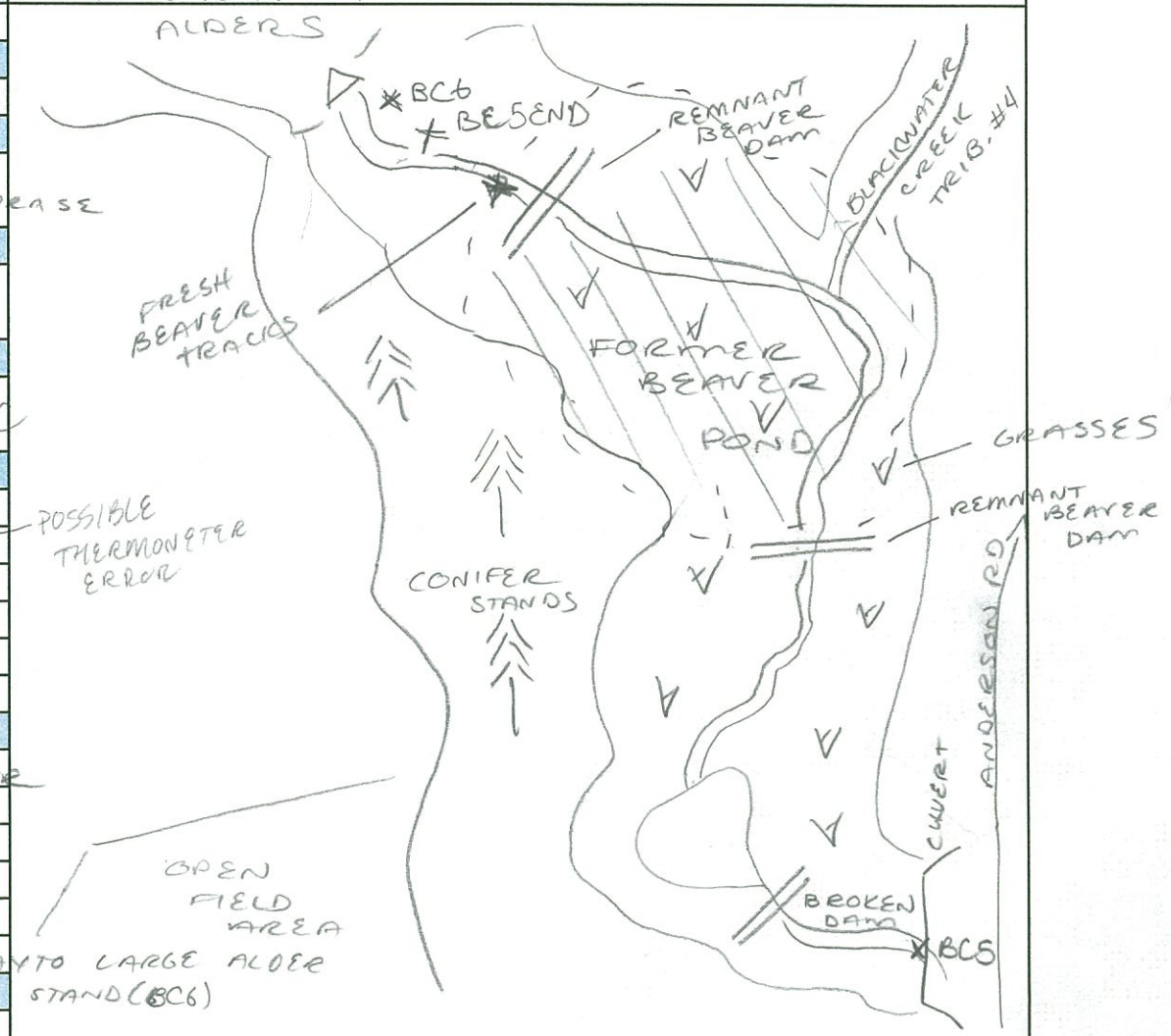
POSSIBLE THERMOMETER ERROR

Comments:
- MULTIPLE REMNANT DAMS, ~~SEE MAJOR~~ DAM SERVED LARGE AREA. MARKED WITH LINES
- MODERATE FLOW, CARRYING DARK MURKY TO CLEAR WATER
- FORMER BEAVER POND AREA GAVE WAY TO LARGE ALDER STAND (BC6)

Recorder's Initials:
MP, KP

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

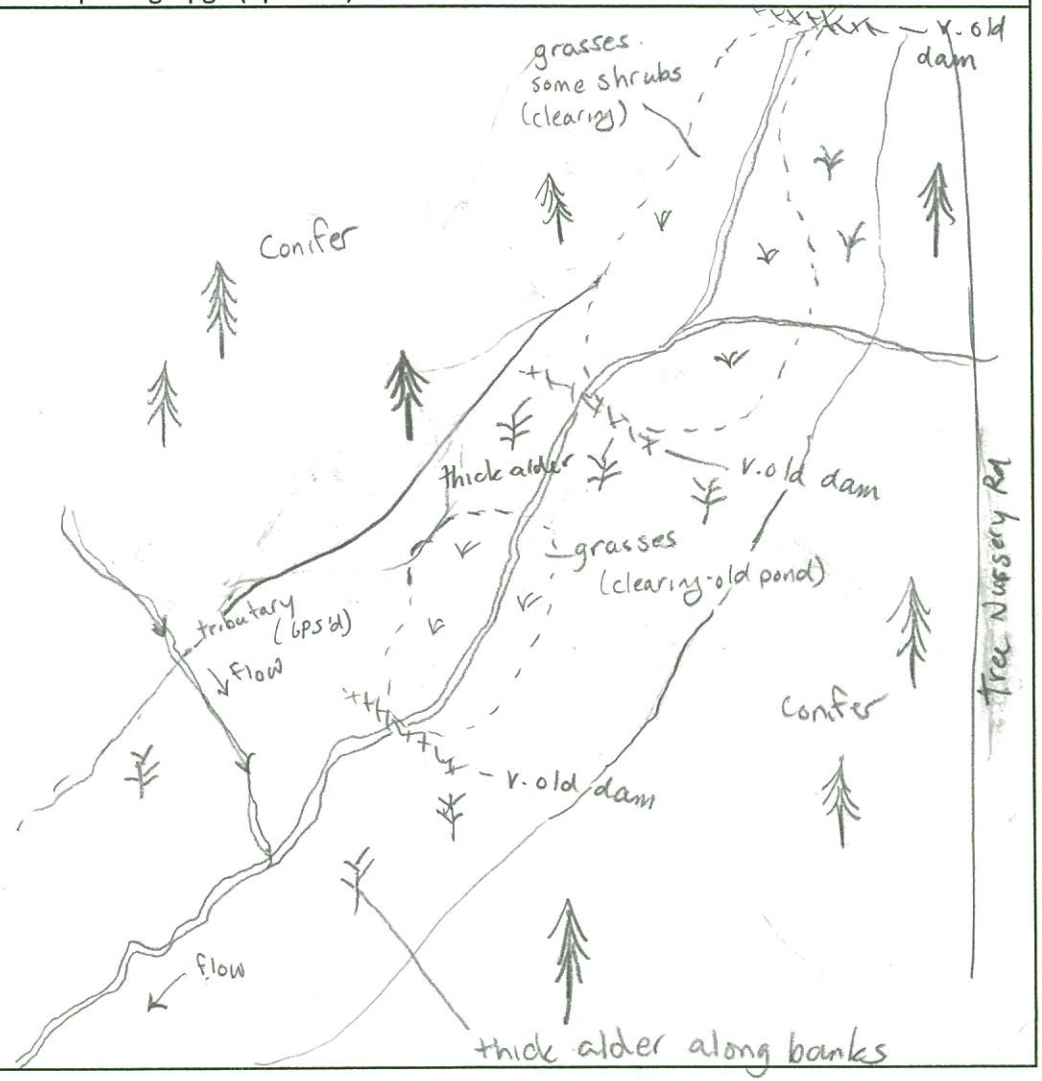


Fish Habitat Data Sheet

Date	Time	Temperature (°C)
May. 24-13	2:50	17
Waterbody Name - Survey Area		
Black water Creek		
Site	**UTM Zone**	**Picture #**
BC6 to BC6END	15	66-89
Depth	**Coordinates**	**Fish Cover**
0.20 → 1.0 m	E: 528468	CWD
	N: 5511012	
Vegetation	**Substrate Type**	**Eco-Type**
grasses, shrubs (alders)	S i S cl	Creek
DO (mg/L)	**pH**	**Water Temp (°C)**
		10
Fish Species Present		
TRIBUTARY - GPS'd - not on maps or GPS		
(WY point)		
Comments:		
- clear, tannins, approx 1.0m width in alders		
- S i S, CWD on bottom 1.5m width in clearing		
- v. thick alder along shore		
- clearings beyond old beaver dams are grass w scattered shrubs		
- no submerged		
Recorder's Initials:		
K.P. M.P		

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)



Fish Habitat Data Sheet

Date	Time	Temperature (°C)
24/05/13	3:30 CST	17°C

Waterbody Name - Survey Area
BLACKWATER CREEK

Site	UTM Zone	Picture #
BC7 – BC7END	15	90-107

Depth	Coordinates	Fish Cover
1.75 ⇒ .2	E: 528420	CWD
	N: 5511168	SPARSE SUBMERG.

Vegetation	Substrate Type	Eco-Type
SPARSE SUBMERGENT	CLAY/SILT	

DO (mg/L)	pH	Water Temp (°C)
		10

Fish Species Present	

Comments:

- NEW BEAVER DAM, SIGNIFICANT BARRIER TO FISH MOVEMENT
30cm rise with limited pooling for speed
- channel braided before dam flooding willow area

Recorder's Initials:

MP + KP

Site Description and Map

Draw a map of the site (with landmarks & north arrow). Indicate areas sampled.
Attach photograpgh (optional)

Appendix E
Limitations of Report

NATURAL SCIENCE INVESTIGATIONS

The information, conclusions and recommendations given herein are specifically for this project and this Client only, and for the scope of work described herein. It may not be sufficient for other uses. DST does not accept responsibility for use by third parties.

The data, conclusions and recommendations which are presented in this report, and the quality thereof, are based on a scope of work authorized by the Client. Note, however, that no scope of work, no matter how exhaustive, can identify all ecological and/or environmental conditions. This report therefore cannot warranty that all conditions on or off the site are represented by those identified at specific locations.

Any recommendations and conclusions provided that are based on conditions or assumptions reported herein will inherently include any uncertainty associated with those conditions or assumptions. In fact many aspects involving professional judgement contain a degree of uncertainty which cannot be eliminated. This uncertainty should be managed by periodic review and refinement as additional information becomes available.

Note also that standards, guidelines, methodologies and practices related to environmental investigations may change with time. Those which were applied at the time of this investigation may be obsolete or unacceptable at a later date.

Any topographic benchmarks and elevations documented in this report are primarily to establish relative elevation differences between study locations and should not be used for other purposes such as grading, excavation, planning, development, etc.

Any comments given in this report on potential environmental conditions/site ecology are intended only for the guidance of the Client. The scope of work may not be sufficient to determine all of the environmental factors at each site. Contractors bidding on this project should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the conditions may affect their work.

Any results from an analytical laboratory, federal or provincial government agencies, other subcontractor, or any other third party, reported herein have been carried out by others, and DST Consulting Engineers Inc. cannot warranty their accuracy. Similarly, DST cannot warranty the accuracy of information supplied by the Client.