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## SHELL CANADA ENERGY

# Appendix 3.2: Air Emissions and Modelling Predictions

REPORT

Project Number: 13-1346-0001

Golder Associates

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# 1.0 INTRODUCTION AND APPROACH

This section provides the results of the air quality assessment of the 2013 Base Case, the 2013 Pierre River Mine (PRM) Application Case and the 2013 Planned Development Case (PDC). The approach used for this assessment is the same as the approach used in the Environmental Impact Assessment (EIA). The study areas and community receptors are consistent with the EIA as are the modelling assessment methods, which included the use of the CALPUFF modelling system with two years of meteorological data (1995 and 2002). A detailed description of the modelling assessment methods is provided in the EIA, Volume 3, Appendix 3-8.

## 1.1 Temporal Boundaries

The 2013 Base Case includes an assessment of the cumulative air quality effects from the existing and approved industrial emission sources assuming full operation within the region, as well as estimated emissions from transportation and residential activities. All existing and approved projects as of June 8, 2012 are included. Although the sources considered in the 2013 Base Case have been approved, it will be several years before these projects are fully operational and activities in the region increase from existing levels of emissions to those used in the 2013 Base Case. The 2013 Base Case represents the cumulative load on the airshed that may occur in the absence of any additional regulatory approvals.

The 2013 PRM Application Case provides a cumulative assessment of the emissions from PRM in combination with 2013 Base Case emissions in the region. The 2013 PRM Application Case represents the load on the airshed once PRM comes into operation.

The 2013 PDC includes planned projects which have not received approval to operate, and some of which have not yet applied for approval. The emissions used in the 2013 PDC represent levels that are speculative and are based on limited information available at this time. Although most of these planned developments are only disclosed and have not yet been the subject of formal approval applications, they would result in additional environmental effects in the Oil Sands Region should they proceed, therefore emission estimates for these projects are included in the assessment.

## 1.2 Spatial Boundaries

The following spatial areas were used for the air quality assessment in the EIA, in the 2013 Base Case, the 2013 PRM Application Case and the 2013 PDC. The domains are shown in the EIA, Volume 3, Section 3.2, Figure 3.2-1.

- The modelling domain defines the region over which air quality predictions were performed. Emission sources located within the modelling domain were quantified and used in the air quality predictions.
- The Regional Study Area (RSA) defines the region over which the graphic results of the air quality modelling are presented, and defines the area over which the assessment of air effects is evaluated. It extends into the province of Saskatchewan to ensure that air quality effects near the Alberta/Saskatchewan border are clearly shown.
- The Local Study Area (LSA) defines the area in the immediate vicinity of the Project where the majority of air quality effects are expected to occur. The LSA used for the assessment is shown in Figure 4.1-1 of this appendix.

Maximum air quality concentrations were also predicted for each of the community receptors indicated in Table 1.2-1. This list includes nine communities in Alberta and two communities in Saskatchewan, which represent the primary population centres in or near the Oil Sands Region that could potentially experience increased concentrations due to emissions from projects in the region. In addition, concentrations were also predicted at 12 receptors that represent locations close to PRM where persons participating in traditional land uses could experience the highest prolonged exposure to air emissions. Two regional worker camps, Oil Sands Lodge and PTI Camp, were also included. The community receptors located in and near the LSA are shown in the EIA, Volume 3, Section 3.2, Figure 3.2-2.

**Table 1.2-1 Community Receptors Included in the Air Assessment**

| Community | Distance from Project [km] | Direction |
|---|---|---|
| Anzac | 124.8 | SSE |
| Conklin | 213.5 | S |
| Fort Chipewyan | 133.0 | N |
| Fort McKay | 39.4 | S |
| Fort McMurray | 89.7 | S |
| Janvier/Chard (IR 194) | 185.2 | SSE |
| Clearwater (IR 175) | 102.9 | SSE |
| Namur River (IR 174A) | 54.0 | W |
| Poplar Point (IR 201G) | 41.7 | NNE |
| Cabin A | 10.2 | NNE |
| Cabin B | 25.4 | ENE |
| Cabin C | 11.4 | NE |
| Cabin D | 9.2 | ENE |
| Cabin E | 15.7 | E |
| Cabin F | 15.3 | E |
| Cabin G | 35.7 | ESE |
| Cabin H | 45.0 | SSE |
| Cabin I | 11.7 | SSW |
| Cabin J | 15.9 | S |
| Cabin K | 17.1 | SSE |
| Cabin L | 4.1 | SE |
| Oil Sands Lodge | 37.7 | S |
| PTI Camp | 45.7 | S |
| Descharme Lake, SK | 150.6 | ESE |
| La Loche, SK | 174.5 | SE |

Note: Distance and direction are relative to the Pierre River Mine plant site.

## 1.3 Air Quality Criteria

The current Alberta Ambient Air Quality Objectives (AAAQOs), the Federal Government Air Quality Objectives and the Canada-Wide Standards (CWS) for criteria air pollutants are shown in Table 1.3-1. The Alberta criteria for sulphur dioxide ($SO_{2)}$, nitrogen dioxide ($NO_2$) and particulate matter with a mean aerodynamic diameter of 2.5 microns (µm) or smaller matter ($PM_{2.5}$) have been updated since the EIA was submitted in 2007.

**Table 1.3-1 Alberta and National Air Quality Criteria**

| Compound | Averaging Period | Alberta Ambient Air Quality Objectives[a] [µg/m³] | Canada-Wide Standards[b] [µg/m³] | National Ambient Air Quality Objectives[c] [µg/m³] | | |
|---|---|---|---|---|---|---|
| | | | | Desirable | Acceptable | Tolerable |
| $SO_2$ | 1-Hour | 450 | – | 450 | 900 | – |
| | 24-Hour | 125 | – | 150 | 300 | 800 |
| | 30-Day | 30 | – | – | – | – |
| | Annual | 20 | – | 30 | 60 | – |
| $NO_2$ | 1-Hour | 300 | – | – | 400 | 1,000 |
| | 24-Hour | – | – | – | 200 | 300 |
| | Annual | 45 | – | 60 | 100 | – |
| CO | 1-Hour | 15,000 | – | 15,000 | 35,000 | – |
| | 8-Hour | 6,000 | – | 6,000 | 15,000 | 20,000 |
| $PM_{2.5}$ | 24-Hour | 30 | 30[d] | – | – | – |

(a) Source: ESRD 2013.

(b) Source: CCME 2000.

(c) Source: Health Canada 2006.

(d) Compliance with the Canada-Wide Standard is based on the 98th percentile of the annual monitored data averaged over three years of measurements.

– = No criteria available.

Trace compounds, including Total Reduced Sulphur (TRS) compounds, Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs) and airborne metals, were also assessed. A thorough evaluation of the potential health effects associated with air emissions in the region has been provided in Human Health Risk Assessment (Appendix 3.3); however, the air quality assessment provides a screening level evaluation for the compounds that have air quality criteria. The air quality criteria for the trace compounds are provided in the EIA, Volume 3, Section 3.2.3.7. The updated AAAQOs and Texas Commission on Environmental Quality (TCEQ) Effects Screening Levels (ESLs) for the trace compounds are shown in Table 1.3-2.

**Table 1.3-2 Updated Criteria for Trace Compounds**

| Compound | Alberta Ambient Air Quality Objectives[a] [µg/m³] | | TCEQ Effects Screening Levels[b] [µg/m³] | |
|---|---|---|---|---|
| | 1-Hour | Annual | Short-Term | Long-Term |
| carbonyl sulphide (COS) | – | – | 135 | 2.6 |
| 1,1,1,2-tetrachloroethane | – | – | 1,050 | 105 |
| 1,1,1-trichloroethane | – | – | 2,800 | 1,500 |
| 1,2-dichloropropane | – | – | 460 | 46 |
| 1,3-butadiene | – | – | 510 | 9.9 |
| acetaldehyde | 90 | – | 90 | 45 |
| acrolein | – | – | 3.2 | 0.15 |
| benzene | 30 | 3 | 170 | 4.5 |
| cumene | 500 | – | 500 | 250 |
| cyclohexane | – | – | 3,400 | 340 |
| dichlorobenzene | – | – | 600 | 60 |
| ethylbenzene | 2,000 | – | 740 | 570 |
| ethylene | 1,200 | 30 | 1,400 | 34 |
| formaldehyde | 65 | – | 15 | 3.3 |
| hexane | – | – | 5,300 | 200 |
| methyl ethyl ketone group | – | – | 1,250 | 125 |
| methylene chloride | – | – | 3,600 | 350 |
| phenol | 100 | | 150 | 19 |
| toluene | 1,880 | 400 (24-hour) | 640 | 1,200 |
| vinyl chloride | 130 | | 20,000 | 1.2 |
| xylenes | 2,300 | 700 (24-hour) | 350 | 180 |
| naphthalene and substitutes | – | – | 200 | 50 |
| molybdenum | – | – | 30 | 3 |

(a) Source: ESRD 2013.

(b) Source: TCEQ 2013.

# 2.0 PROJECT EMISSIONS

## 2.1 Pierre River Mine

The Pierre River Mine (PRM) will include the following emissions sources:

- two cogeneration units;
- four auxiliary boilers;
- heaters;
- emergency flares;
- mine fleet exhaust; and
- fugitive emission sources (i.e., mine face, tailings pond, plant and tank fugitives).

The emissions from heaters, flares, mine fleet exhaust and fugitive sources are the same as assessed in the EIA and are discussed in the EIA, Volume 3, Appendix 3-8, Section 3.2.1.

In the EIA, the PRM included one natural gas-fired cogeneration unit and one asphaltene-fired cogeneration unit. The latest design for the PRM replaced the one asphaltene-fired cogeneration unit with a second identical natural gas-fired cogeneration unit. The new natural gas-fired cogeneration unit includes an 85 MW (nominal) gas turbine and a Heat Recovery Steam Generator (HRSG), both fuelled with natural gas.

The estimated emissions from the PRM cogeneration units are presented in Table 2.1-1.

**Table 2.1-1 Emissions From the Pierre River Mine Cogeneration Units**

| Source | Duty Rating[(a)] [MW] | Emission Rates[(b)] | | | | | |
|---|---|---|---|---|---|---|---|
| | | $SO_2$ [t/d] | $NO_X$ [t/d] | CO [t/d] | $PM_{2.5}$ [t/d] | VOC [t/d] | TRS [t/d] |
| gas-fired cogeneration unit 1 | 400 | 0.01 | 2.24 | 1.42 | 0.12 | 0.05 | – |
| gas-fired cogeneration unit 2 | 400 | 0.01 | 2.24 | 1.42 | 0.12 | 0.05 | – |
| **Total** | | **0.02** | **4.48** | **2.85** | **0.24** | **0.11** | **–** |

(a) Duty ratings represent the maximum combined total thermal and net electricity output for the units.

(b) Emissions are expressed as tonnes per day (t/d).

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

– = No emissions.

The basis for estimating the emissions from the natural gas-fired cogeneration units were as follows:

- The $SO_2$ emissions from the gas turbines and the HRSGs were calculated based on a natural gas sulphur content of 4 ppmv.
- The oxides of nitrogen ($NO_X$) emissions from the cogeneration units were calculated assuming the units will meet the emission limits in the Canadian Council of Ministers of the Environment (CCME) *National Emission Guidelines for Stationary Combustion Turbines* (CCME 1992). For the gas-fired cogeneration units, the CCME guidelines provide a more stringent $NO_X$ limit compared to the *Alberta Air Emission Standards for Electricity Generation* (AENV 2005).

- The carbon monoxide (CO), $PM_{2.5}$, Volatile Organic Compound (VOC), benzene and Polycyclic Aromatic Hydrocarbon (PAH) emissions from the gas turbines were based on emission factors from the United States Environmental Protections Agency's (U.S. EPA's) Chapter 3.1 of AP-42 (U.S. EPA 1995).
- The CO, $PM_{2.5}$, VOC, benzene and PAH emissions from the HRSGs were based on emission factors from Chapter 1.4 of AP-42 (U.S. EPA 1995).
- The Total Reduced Sulphur (TRS) and hydrogen sulphide ($H_2S$) emissions from the cogeneration units were assumed to be negligible.

The $NO_X$ emission guideline in the CCME *National Emission Guidelines for Stationary Combustion Turbines* is expressed in grams of $NO_X$ per gigajoules of turbine's electricity output. Each of the gas turbines has a nominal electricity output of 85 MW, but is capable to generate up to a maximum of 99.5 MW of electricity. The maximum electricity output was used with the CCME $NO_X$ emission guideline to estimate the gas turbines' $NO_X$ emission rates.

The PRM will include four auxiliary boilers, which will serve as backup to the cogeneration units, and various space heaters. All boilers and heaters will be fired with natural gas.

The emissions from the four auxiliary boilers and space heaters are presented in Table 2.1-2.

**Table 2.1-2 Emissions From the Pierre River Mine Auxiliary Boilers and Heaters**

| Source | Duty Rating[(a)] [MW] | Emission Rates[(b)] | | | | | |
|---|---|---|---|---|---|---|---|
| | | $SO_2$ [t/d] | $NO_X$ [t/d] | CO [t/d] | $PM_{2.5}$ [t/d] | VOC [t/d] | TRS [t/d] |
| auxiliary boiler 1 | 188 | 0.01 | 0.42 | 0.68 | 0.06 | 0.04 | – |
| auxiliary boiler 2 | 188 | 0.01 | 0.42 | 0.68 | 0.06 | 0.04 | – |
| auxiliary boiler 3 | 188 | 0.01 | 0.42 | 0.68 | 0.06 | 0.04 | – |
| auxiliary boiler 4 | 188 | 0.01 | 0.42 | 0.68 | 0.06 | 0.04 | – |
| space heaters | 1 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | – |
| **Total** | | **0.02** | **1.67** | **2.71** | **0.24** | **0.18** | **–** |

(a) Duty ratings represent the maximum output ratings for the units.

(b) Emissions are expressed as tonnes per day (t/d).

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

– = No emissions.

The bases for the estimated emissions from the auxiliary boilers and heaters were as follows:

- The $SO_2$ emissions from the auxiliary boilers and heaters were calculated based on a natural gas sulphur content of 4 ppmv.
- The $NO_X$ emissions from the auxiliary boilers and heaters were calculated assuming the units will meet the emission limits in the CCME *National Emission Guideline for Commercial/Industrial Boilers and Heaters* (CCME 1998).
- The CO, $PM_{2.5}$, VOC and PAH emissions from the auxiliary boilers and heaters were based on emission factors from Chapter 1.4 of AP-42 (U.S. EPA 1995).

- The TRS and $H_2S$ emissions from the auxiliary boilers and heaters were assumed to be negligible.

A summary of the air emissions from the PRM is provided in Table 2.1-3. The point and area source input characteristics for the PRM are presented in Attachment A.

**Table 2.1-3 Summary of Updated Emissions From Pierre River Mine**

| Source | Emission Rates[(a)] | | | | | |
|---|---|---|---|---|---|---|
| | $SO_2$ [t/d] | $NO_X$ [t/d] | CO [t/d] | $PM_{2.5}$ [t/d] | VOC [t/d] | TRS [t/d] |
| cogeneration | 0.02 | 4.48 | 2.85 | 0.24 | 0.11 | – |
| auxiliary boilers | 0.02 | 1.66 | 2.70 | 0.24 | 0.18 | – |
| heaters | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | – |
| flaring | – | – | – | – | – | – |
| mine fleet | 0.01 | 7.31 | 8.02 | 0.21 | 0.87 | – |
| mine face fugitives | – | – | – | – | 6.21 | 0.04 |
| tailings pond fugitives | – | – | – | – | 9.92 | 0.05 |
| plant fugitives | – | – | – | – | 0.03 | 0.06 |
| tank fugitives | – | – | – | – | 0.14 | – |
| **Total** | **0.06** | **13.46** | **13.58** | **0.69** | **17.46** | **0.14** |

(a) Emissions are expressed as tonnes per day (t/d).

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that the totals do not equal the sum of the individual values.

– = No emissions.

# 3.0 REGIONAL EMISSIONS

The 2013 Base Case, 2013 PRM Application Case and 2013 PDC assessed the cumulative impacts of PRM emissions with other sources of emissions in the modelling domain. The modelling domain chosen is identical to that used in the EIA. It extends north of the Athabasca Oil Sands Region, south of the Cold Lake Air Weapons Range, east into Saskatchewan and west to Ranges 22 and 23, West of the 4$^{th}$ Meridian. The non-Project related emission sources considered in the assessment include:

- other existing, approved or planned oil sands developments;
- other non-oil sands related industrial facilities; and
- activities within the communities.

Information on the regional emissions was gathered from several sources. Emission profiles for oil sands developments were primarily based on previous air quality assessments in EIAs and regulatory approval applications. Where there was insufficient information on a specific planned oil sands development, an emission profile was developed based on the emission profile of a similar development in the region. Emission profiles for non-oil sands related industrial facilities such as conventional oil and gas facilities and aggregate operations were developed based on previous air quality assessments, regulatory approvals, and the National Pollutant Release Inventory (NPRI) database maintained by Environment Canada. Emission profiles for regional communities such as Fort McMurray, Fort McKay, Fort Chipewyan, Anzac, Conklin, Janvier and La Loche were developed based on the latest census data and projections as well as emission factors from U.S. EPA AP-42 (U.S. EPA 1995) documents for various activities in these communities. The point and area emission source characteristics for the regional developments are provided in Attachment A.

## 3.1 Tier 4 Regional Mine Fleet Emissions

Aerial deposition of sulphur and nitrogen compounds can result in long-term accumulations that have been associated with soil and water acidification. The assessment of Potential Acid Input (PAI) requires a review of the emissions of acid-forming compounds such as $SO_2$ and $NO_X$. In past EIAs, the majority of mine fleet emission estimates in the region have been based on the U.S. EPA pre-Tier 4 (i.e., Tier 1, Tier 2 and Tier 3) emission standards for non-road vehicles. With the introduction of the *Regulations Amending the Off-Road Compression-Ignition Engine Emission Regulations* by the Government of Canada in December 2011, the Tier 4 emission standards will be phased in starting in 2015. These standards will reduce $NO_X$ emissions from mine fleets significantly in the near future (Government of Canada 2011). To provide a more realistic and less conservative assessment, Tier 4 emission standards or Tier 4 emission factors from the U.S. EPA NONROAD emission model (U.S. EPA 2004) were used to develop a regional emissions profile to be modelled for the assessment of PAI. Because the effects of PAI are long-term and because most of the oil sands projects will not be fully operational until after 2015, the acidifying emissions based on Tier 4 emission standards will be more representative of future years. The following assumptions were used in developing the Tier 4 emissions profile:

- Tier 4 emission standards will come into effect in 2015.
- All of the developers will purchase mine fleet equipment that will meet Tier 2 or Tier 3 emission standards up until one year before Tier 4 emission standards comes into effect (i.e., 2014). Each developer's schedule is not known so this assumption provides a conservative assessment scenario.

- The mine fleet equipment purchased in 2015 will be replaced 10 years later by equipment meeting Tier 4 emission standards by the end of 2025 at the latest. Based on the regional developers' estimate, 10 years is the approximate design life for the engines of the large mine equipment.
- From the present to 2025, the mine fleet emissions will be based on pre-Tier 4 emission standards, which has been the standard assessment method in the past.
- For oil sands projects with mine fleet emission profiles that were developed based on Tier 1, Tier 2 or Tier 3 emission standards or factors, the post-2025 mine fleet emissions were adjusted based on the ratio between Tier 4 emission standards or factors and the corresponding Pre-Tier 4 (e.g., Tier 1, 2 or 3) emission standards or factors for engines larger than 750 horsepower.
- For oil sands projects with mine fleet emission profiles that were developed based on Tier 4 emission standards or factors in their most recent assessments, the post 2025 mine fleet emission profile remained unchanged.
- From 2025 onwards, the mine fleet emissions were calculated based on Tier 4 emission standards.

The estimated maximum mine fleet $NO_X$ emissions profile for the Oil Sands Region from 2011 to 2045 based on existing and approved projects in the 2013 Base Case are shown in Figure 3.1-1. The estimated maximum mine fleet $NO_X$ emissions profile for the Oil Sands Region from 2011 to 2045 based on existing, approved and planned projects in the 2013 PDC are shown in Figure 3.1-2.

The projected maximum mine fleet $NO_X$ emissions in the 2013 PDC are expected to decrease from approximately 180 t/d to approximately 120 t/d after 2025 when all mine fleets have to meet the Tier 4 emission standards. The maximum Tier 4 mine fleet $NO_X$ emission rate used in the assessment of PAI is 173 t/d. This value is based on adding the maximum annual Tier 4 mine fleet $NO_X$ emissions from each individual project. The Tier 4 mine fleet $NO_X$ emissions (173 t/d) were used only in the assessment of PAI. The unadjusted mine fleet $NO_X$ emissions (238 t/d) were used in the assessment of ground-level $NO_2$ concentrations. The unadjusted $NO_X$ emissions provide a conservative estimate of $NO_2$ concentrations as elevated concentrations may occur before the Tier 4 emission standards come into effect. A summary of Tier 4 mine fleet emission source characteristics for the PAI assessment in the 2013 PDC is provided in Attachment A.

*Figure 3.1-1 Estimated 2013 Base Case Mine Fleet $NO_X$ Emissions From Oil Sands Mining Operations*

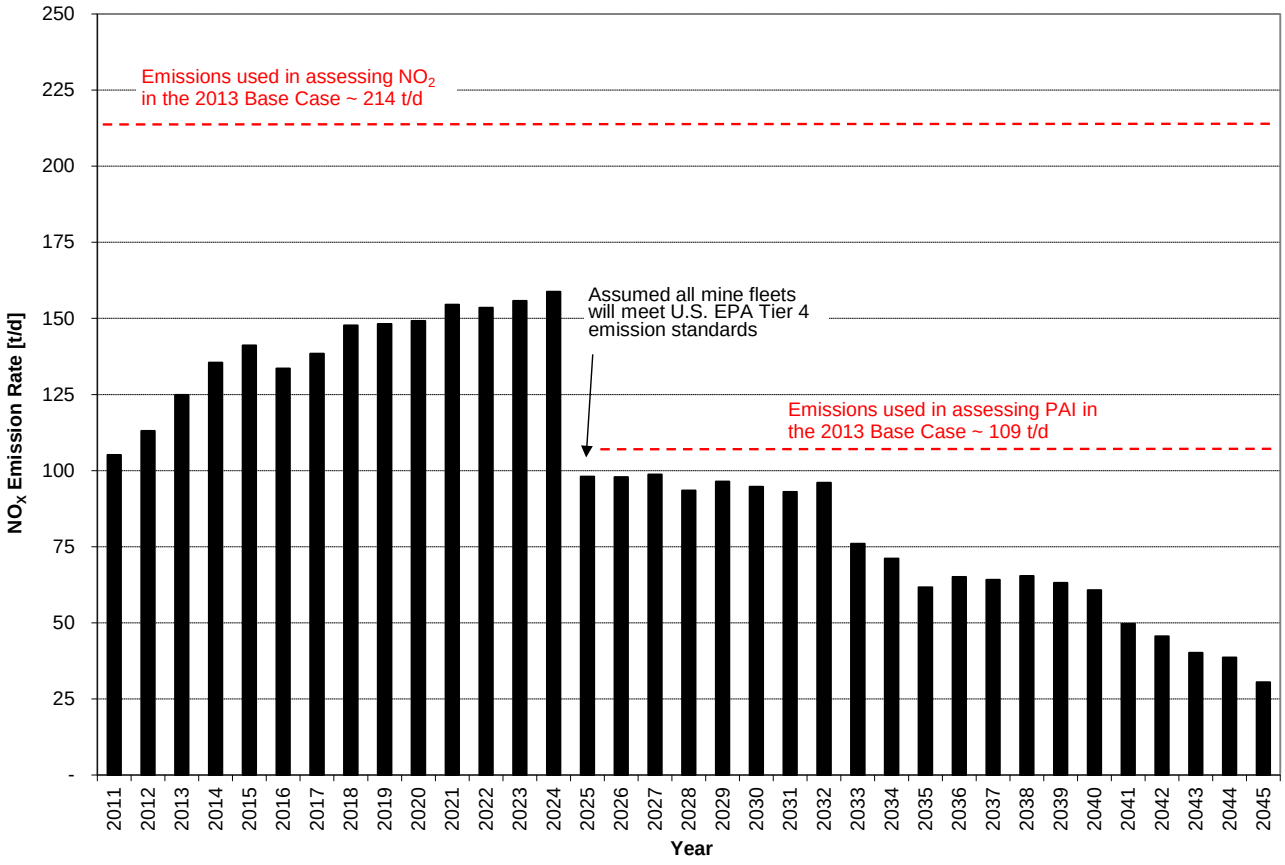
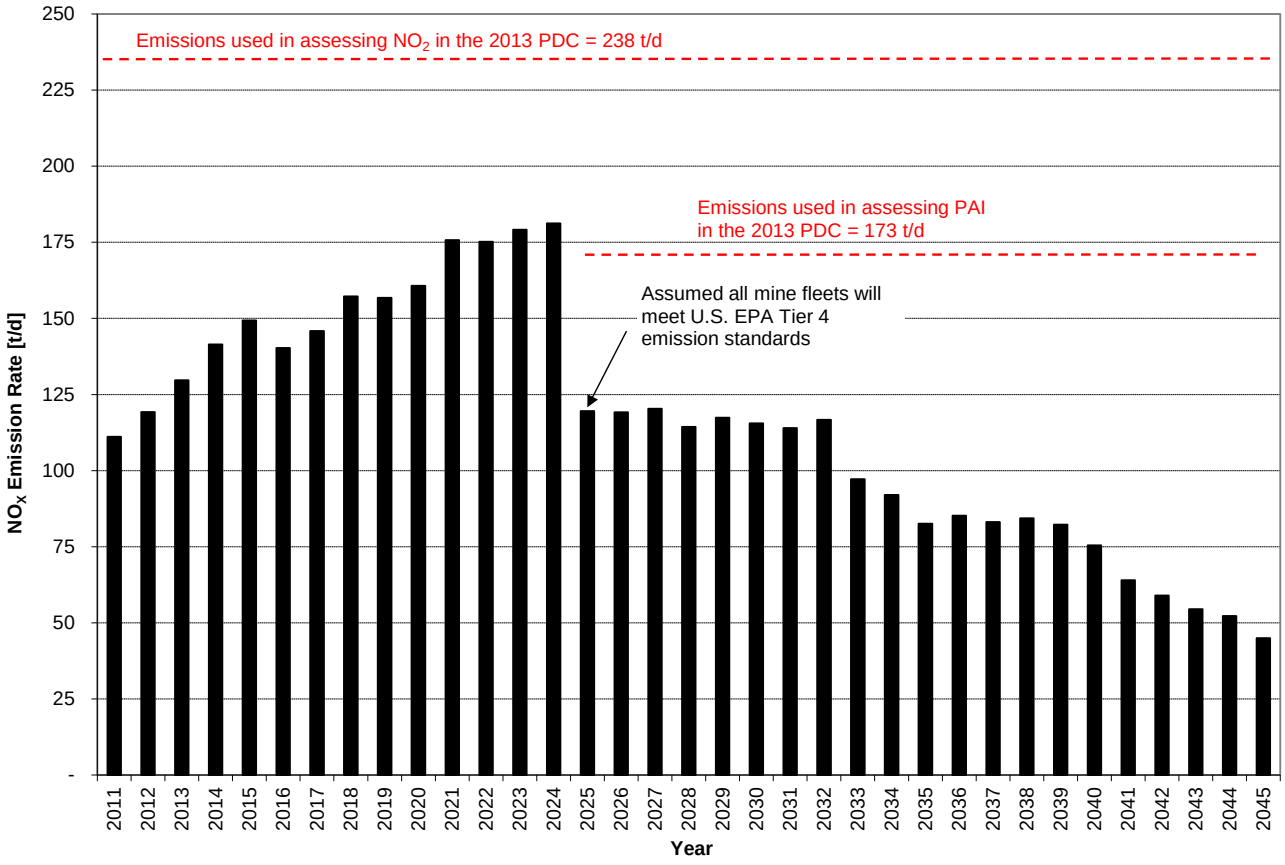


*Figure 3.1-2 Estimated 2013 Planned Development Case Mine Fleet $NO_X$ Emissions From Oil Sands Mining Operations*




## 3.2 Variable Tailings Pond and Mine Face Fugitive Emissions

For evaluating the air quality impacts associated with PRM, it was assumed that the rate of fugitive (i.e., VOC and TRS) emissions from some of the tailings ponds in the region will vary with various environmental factors such as ambient temperature, water temperature, wind speed and ice cover. This variable emissions scheme has been used in many recent EIAs and air quality assessments of oil sands mining projects. A review of other operator's EIAs indicated that the variable emission scheme was applied to the following tailings ponds:

- Suncor Energy Inc. (Suncor) South Tailings Pond;
- Suncor Tailings Pond 2/3;
- Suncor Voyageur South Tailings Pond;
- Canadian Natural Resources Limited (Canadian Natural) Horizon Project Tailings Pond;
- Imperial Oil Resources Ventures Limited (Imperial Oil) Kearl Project Tailings Pond;
- Syncrude Canada Ltd. (Syncrude) Aurora South Tailings Pond;

- Suncor Fort Hills Project Tailings Pond;
- Total E&P Canada Ltd. (Total E&P) Joslyn North Mine Tailings Pond; and
- Teck Resources Limited (Teck) Frontier Project Tailings Ponds.

A constant emission rate was used for the Shell tailings ponds to be consistent with the assessment methods used in the Muskeg River Mine Expansion EIA (Shell 2005). The variable emissions scheme assumes that pond emissions vary monthly due to different environmental factors. The pond emissions were modelled based on different monthly emission rates that are referenced to either a maximum monthly and an average annual pond emission rate. The variable emission ratios used for Suncor Projects, Syncrude Aurora South Project, Canadian Natural Horizon Project, Imperial Oil Kearl Project, Suncor Fort Hills Project and Total E&P Joslyn North Mine are provided in Table 3.2-1. The variable emission ratios used for Teck Frontier Project are provided in Table 3.2-2.

**Table 3.2-1 Seasonal Variable Fugitive Emission Ratios for Tailings Ponds**

| Month | Tailings Pond Emission Ratios |
|---|---|
| January | 2.7% |
| February | 3.4% |
| March | 6.9% |
| April | 29.6% |
| May | 65.3% |
| June | 88.3% |
| July | 100.0% |
| August | 95.0% |
| September | 57.5% |
| October | 25.8% |
| November | 3.8% |
| December | 2.6% |
| **Average** | **40.1%** |

**Table 3.2-2 Seasonal Variable Fugitive Emission Ratios for Teck Frontier Project**

| Month | Tailings Pond Emission Ratios | Mine Face Emission Ratios |
|---|---|---|
| January | 24% | 63% |
| February | 24% | 73% |
| March | 72% | 94% |
| April | 85% | 115% |
| May | 192% | 152% |
| June | 149% | 118% |
| July | 121% | 96% |
| August | 137% | 109% |
| September | 192% | 152% |
| October | 120% | 95% |
| November | 59% | 74% |
| December | 24% | 61% |
| **Annual** | **100%** | **100%** |

Source: Teck and SilverBirch 2011.

# 4.0 REGIONAL PREDICTIONS

## 4.1 Regional Sulphur Dioxide Predictions

The predicted maximum 2013 Base Case, 2013 PRM Application Case and 2013 PDC 1-hour, 24-hour, 30-day and annual average ground-level sulphur dioxide ($SO_2$) concentrations are summarized in Table 4.1-1. The dispersion modelling provided $SO_2$ predictions across the Regional Study Area (RSA) and Local Study Area (LSA), including predictions within developed areas and PRM development area. A summary is provided for the maximums that occur across the region and when the developed areas are excluded (Table 4.1-1). The developed areas include PRM development area as well as other open-pit mines and upgrading complexes within the RSA and LSA. The maximum 1-hour, 24-hour, 30-day and annual 2013 Base Case, 2013 PRM Application Case and 2013 PDC $SO_2$ concentrations are shown in Figures 4.1-1 to 4.1-12, respectively.

**Table 4.1-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Sulphur Dioxide Predictions**

| Parameter | 1-Hour | | | 24-Hour | | | 30-Day | | | Annual | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Local Study Area** | | | | | | | | | | | | |
| peak $SO_2$ [µg/m³][(a)] | 148.9 | 148.9 | 159.8 | 47.0 | 47.0 | 40.3 | 13.1 | 13.2 | 8.3 | 5.4 | 5.4 | 4.1 |
| maximum $SO_2$ [µg/m³][(a)] | 82.2 | 82.2 | 86.1 | 42.3 | 42.3 | 29.4 | 13.1 | 13.2 | 8.3 | 5.4 | 5.4 | 4.1 |
| maximum $SO_2$ (excluding developed areas)[(a)(b)] [µg/m³] | 82.2 | 82.2 | 86.1 | 39.5 | 39.5 | 26.7 | 11.2 | 11.2 | 8.3 | 4.6 | 4.6 | 4.1 |
| distance to maximum concentration [km][(c)(d)] | 11.7 | 11.7 | 12.5 | 13.0 | 13.0 | 9.1 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 |
| direction to maximum concentration[(c)(d)] | SW | SW | SSW | SW | SW | SSW | SSW | SSW | SSW | SSW | SSW | SSW |
| occurrences above AAAQO[(d)(e)] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| areal extent above AAAQO (excluding developed areas)[(b)(d)(e)] [ha] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Regional Study Area** | | | | | | | | | | | | |
| peak $SO_2$ [µg/m³][(a)] | 1,780.6 | 1,780.6 | 1,780.7 | 449.4 | 449.5 | 224.0 | 103.5 | 103.5 | 56.5 | 66.9 | 66.9 | 39.1 |
| maximum $SO_2$ [µg/m³][(a)] | 763.5 | 763.5 | 766.0 | 315.3 | 315.4 | 176.4 | 103.5 | 103.5 | 56.5 | 66.9 | 66.9 | 39.1 |
| maximum $SO_2$ (excluding developed areas)[(a)(b)] [µg/m³] | 276.4 | 276.4 | 329.1 | 70.6 | 70.6 | 72.3 | 15.5 | 15.5 | 24.5 | 10.4 | 10.4 | 18.8 |
| distance to maximum concentration [km][(c)(d)] | 54.7 | 54.7 | 80.4 | 54.4 | 54.4 | 54.4 | 37.1 | 37.1 | 87.5 | 54.7 | 54.7 | 87.5 |
| direction to maximum concentration[(c)(d)] | S | S | SSE | S | S | S | S | S | S | S | S | S |
| occurrences above AAAQO[(d)(e)] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| areal extent above AAAQO (excluding developed areas)[(b)(d)(e)] [ha] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **AAAQO[(e)] [µg/m³]** | **450** | | | **125** | | | **30** | | | **20** | | |

(a) The peak 1-hour predictions include the eight highest 1-hour predictions from the CALPUFF model. The maximum 1-hour predictions exclude the eight highest 1-hour concentrations, as per the Alberta model guidelines (AENV 2009). The maximum 24-hour and annual predictions include the eight highest hours.

(b) Developed areas include PRM development area as well as other open-pit mines and upgrading complexes within the RSA and LSA.

(c) Locations are relative to the Pierre River Mine plant site.

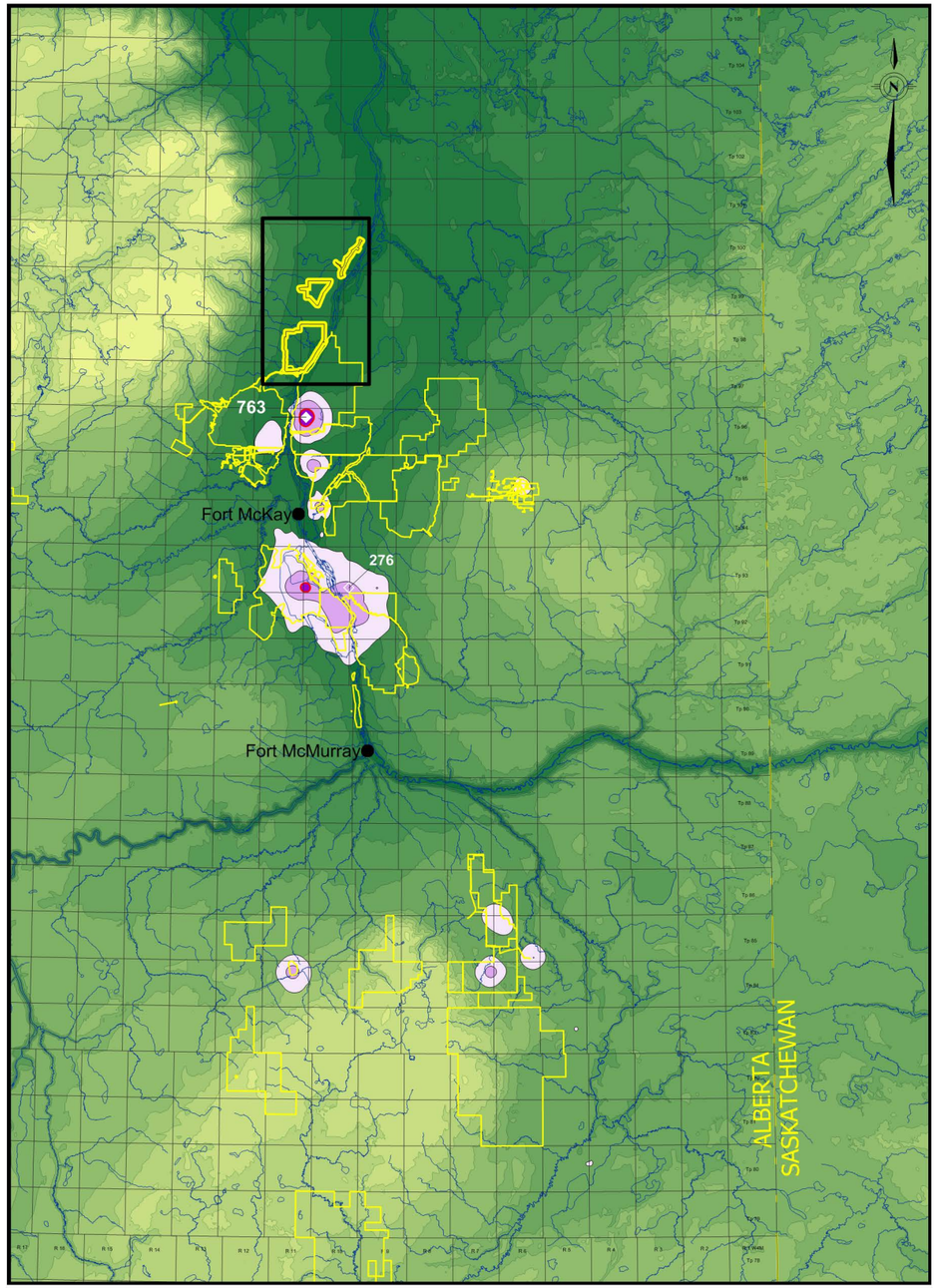
(d) Locations, number of occurrences and areas are based on the maximum predictions outside developed areas.

(e) AAAQO = Alberta Ambient Air Quality Objectives (ESRD 2013).

– = not applicable.

R:/_2013/1346/13-1346-0001 Shell Pierre River Mine Follow-up/6100 PRM JRP SIRs/6106 Air_AEE_Climate Change_Health/Air/07 AIR Working Folder/report/figures/Fig3_bas_so2h_9th.srf

## Air Regional Study Area




LEGEND

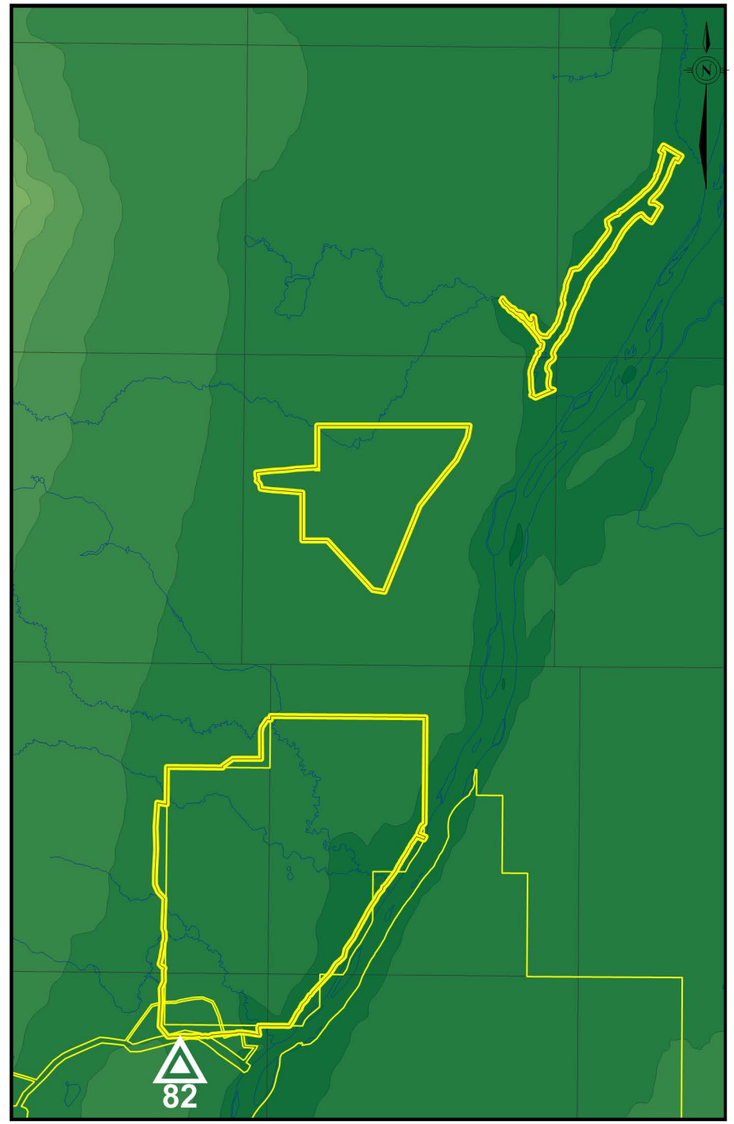
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

450
225
112.5
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

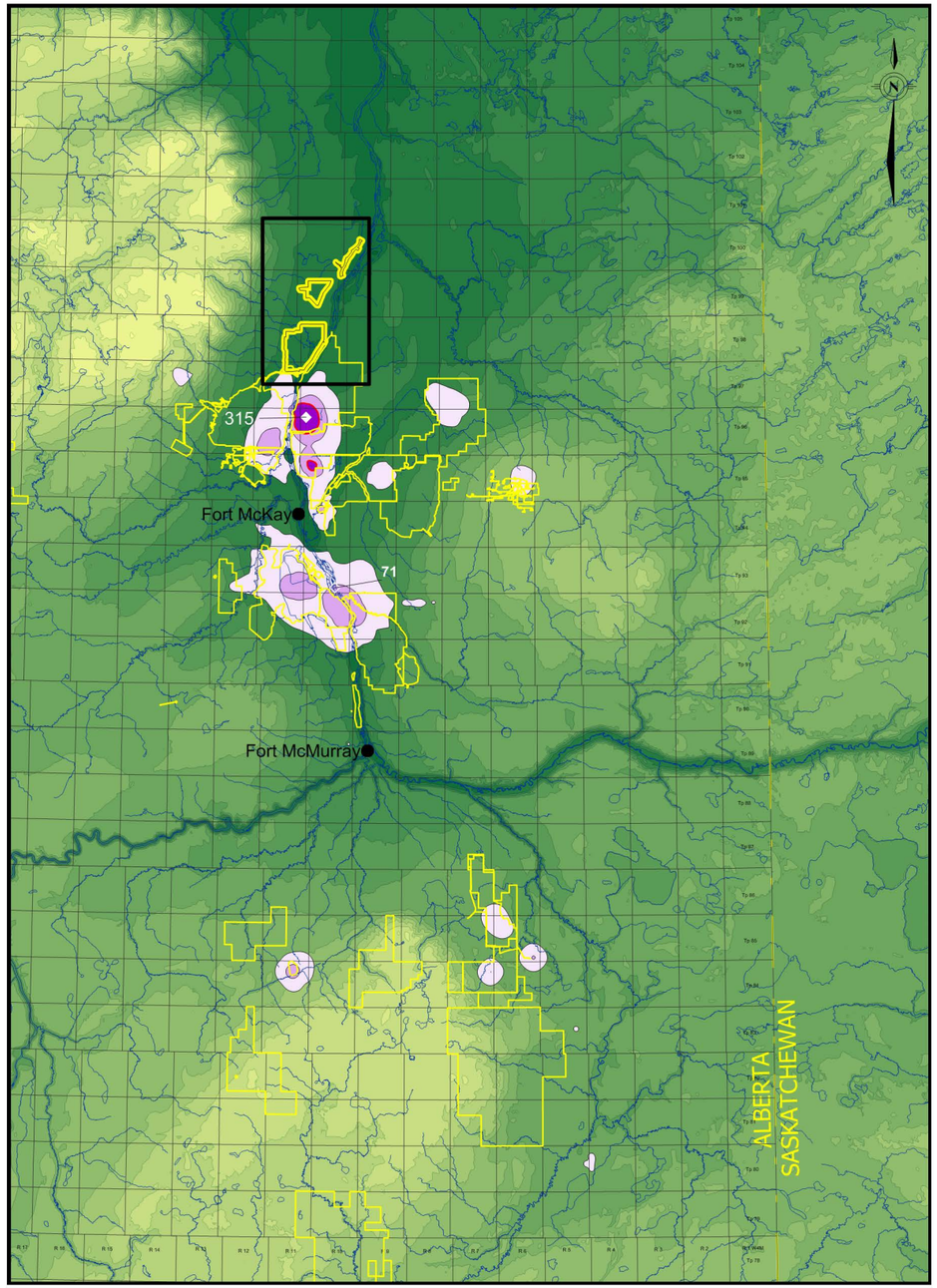
TITLE
**2013 BASE CASE**
**MAXIMUM 1-HOUR $SO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig3_bas_so2h_9th.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.1-1** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_ Health\Air\07 AIR Working Folder\report\figures\Fig4_bas_so2d_2nd.srf

## Air Regional Study Area




LEGEND

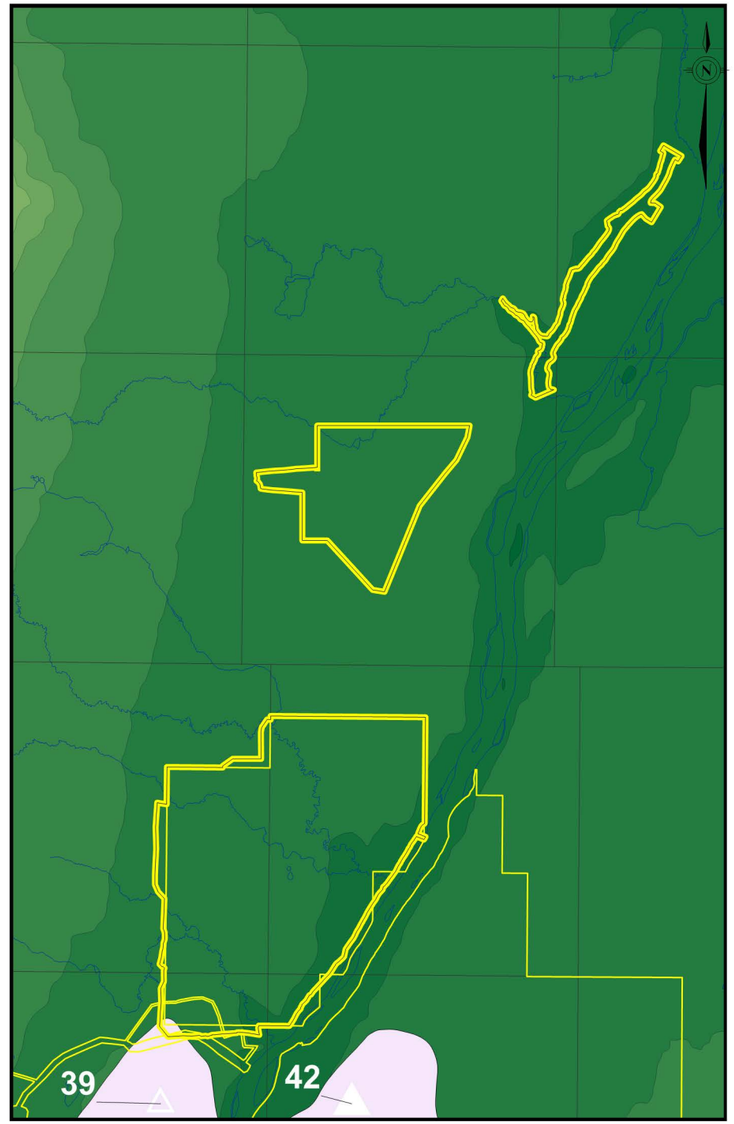
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

125
62.5
31.25
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

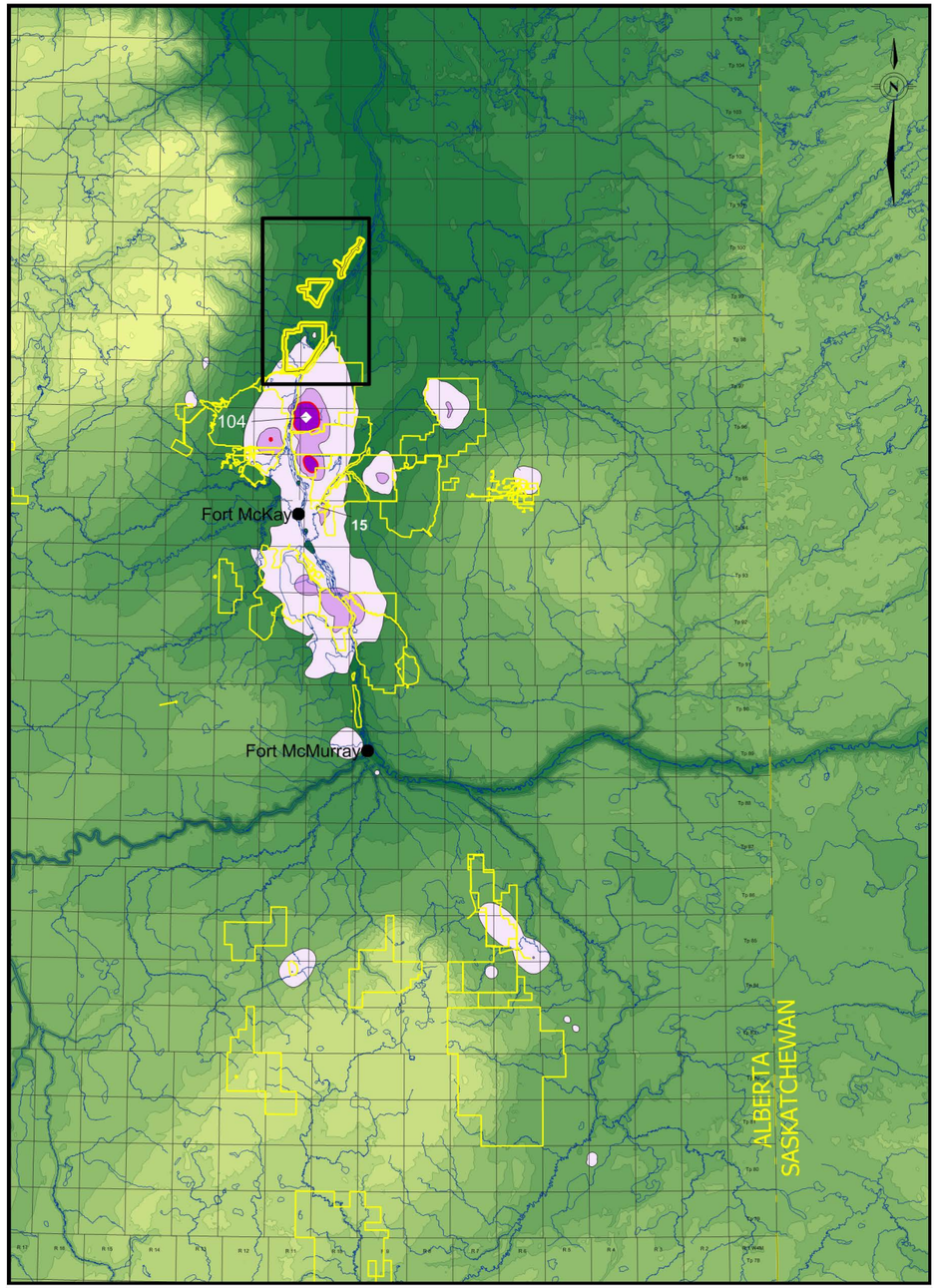
TITLE
**2013 BASE CASE**
**MAXIMUM 24-HOUR $SO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig4_bas_so2d_2nd.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.1-2** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_Climate Change_Health\Air\07 AIR Working Folder\report\figures\Fig5_bas_so2_30d.srf

## Air Regional Study Area




LEGEND

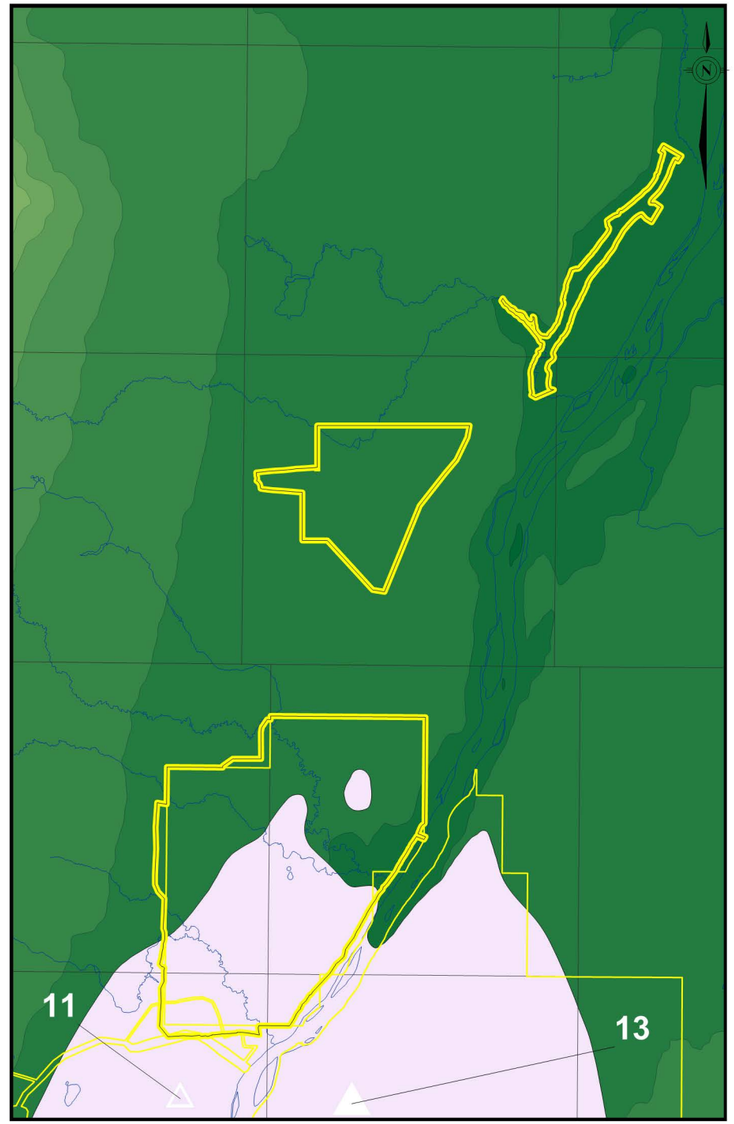
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

30
15
7.5
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

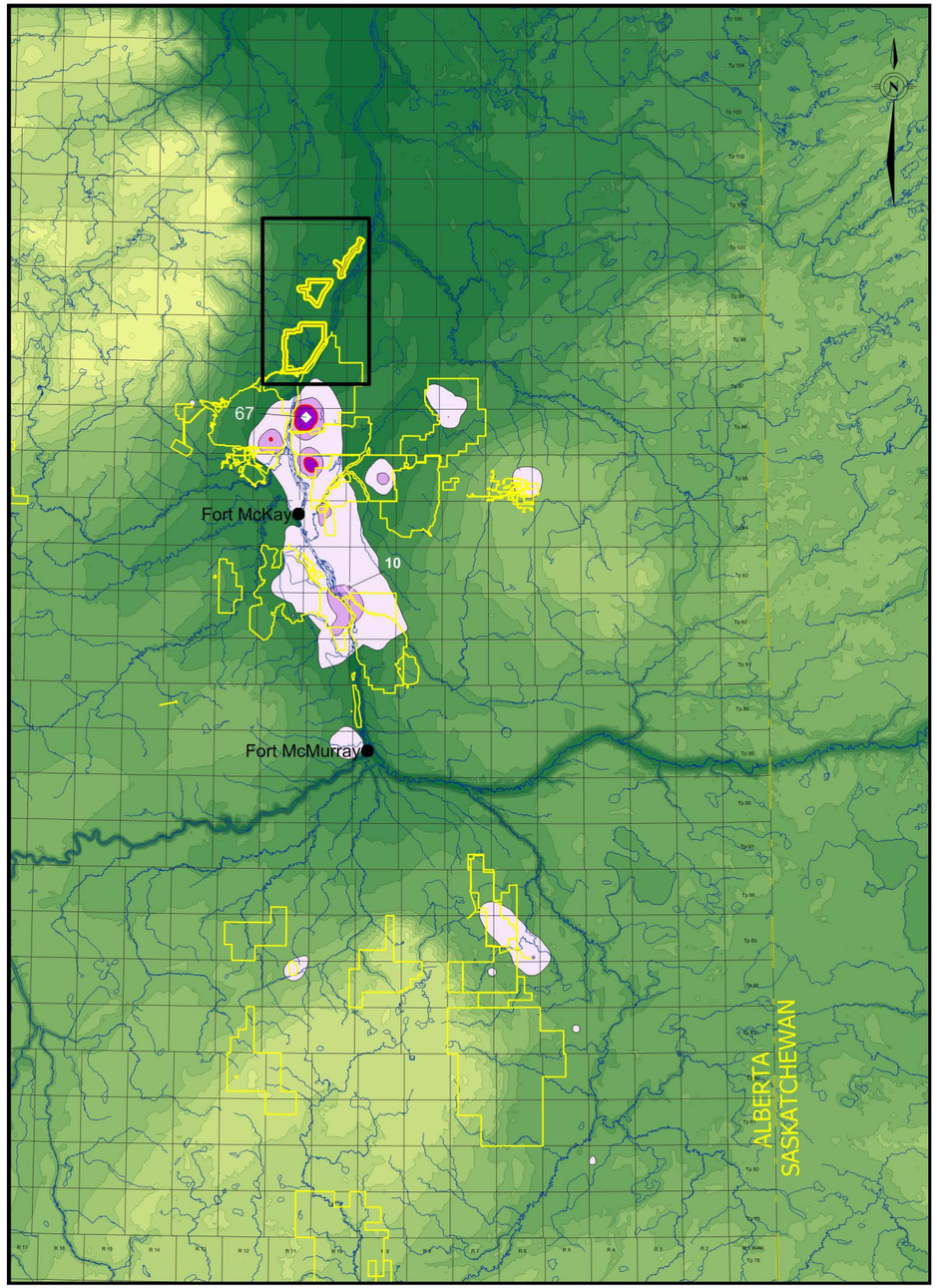
TITLE
**2013 BASE CASE MAXIMUM 30-DAY $SO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig5_bas_so2_30d.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.1-3** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_Climate Change_Health\Air\07 AIR Working Folder\report\figures\Fig6_bas_so2_ann.srf

## Air Regional Study Area




LEGEND

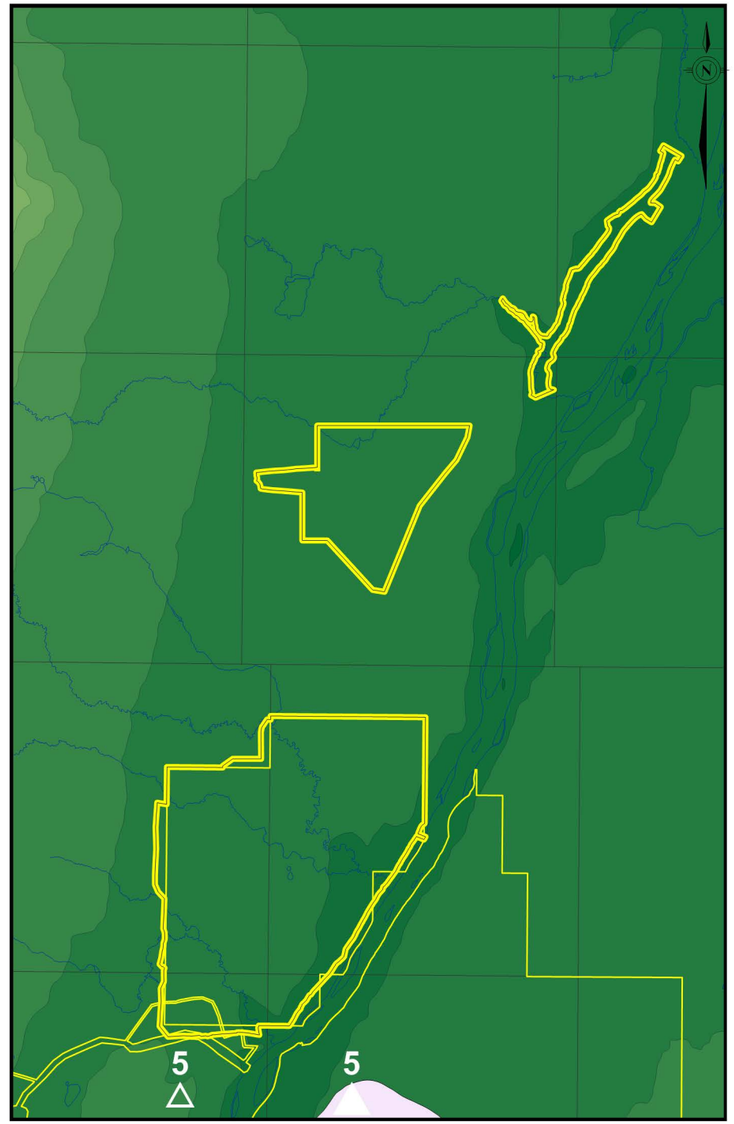
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

20
10
5
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

0 4 8 12 16 20
SCALE KILOMETRES

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

TITLE
**2013 BASE CASE ANNUAL $SO_2$ PREDICTIONS**

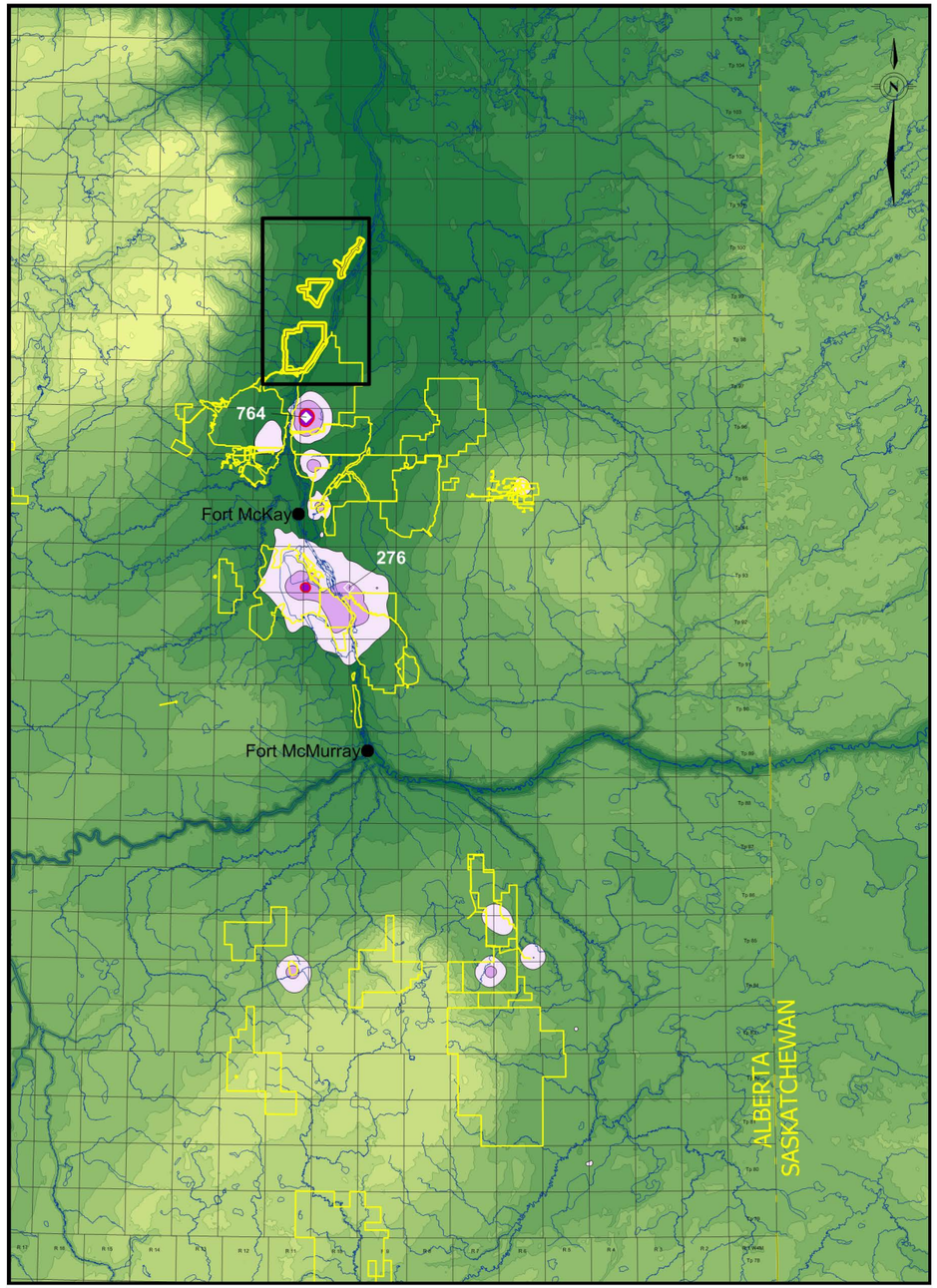
Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig6_bas_so2_ann.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

**FIGURE 4.1-4**

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_Health\Air\07 AIR Working Folder\report\figures\Fig7_app_so2h_9th.srf

## Air Regional Study Area




LEGEND

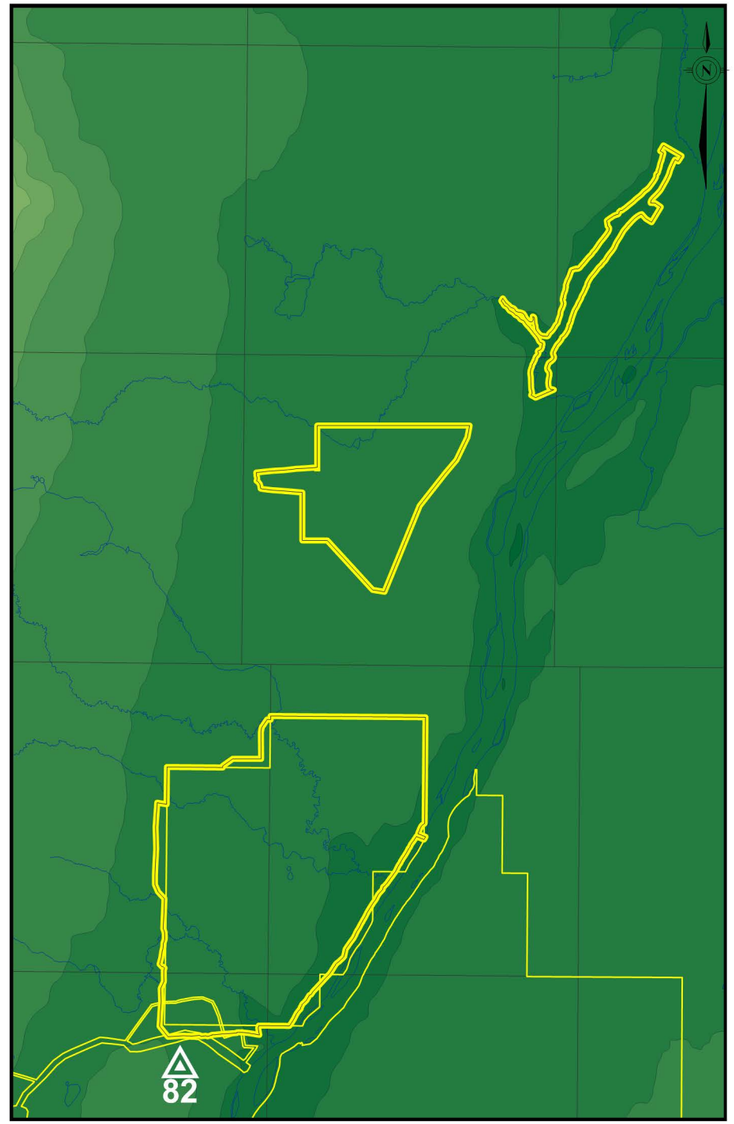
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

450
225
112.5
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

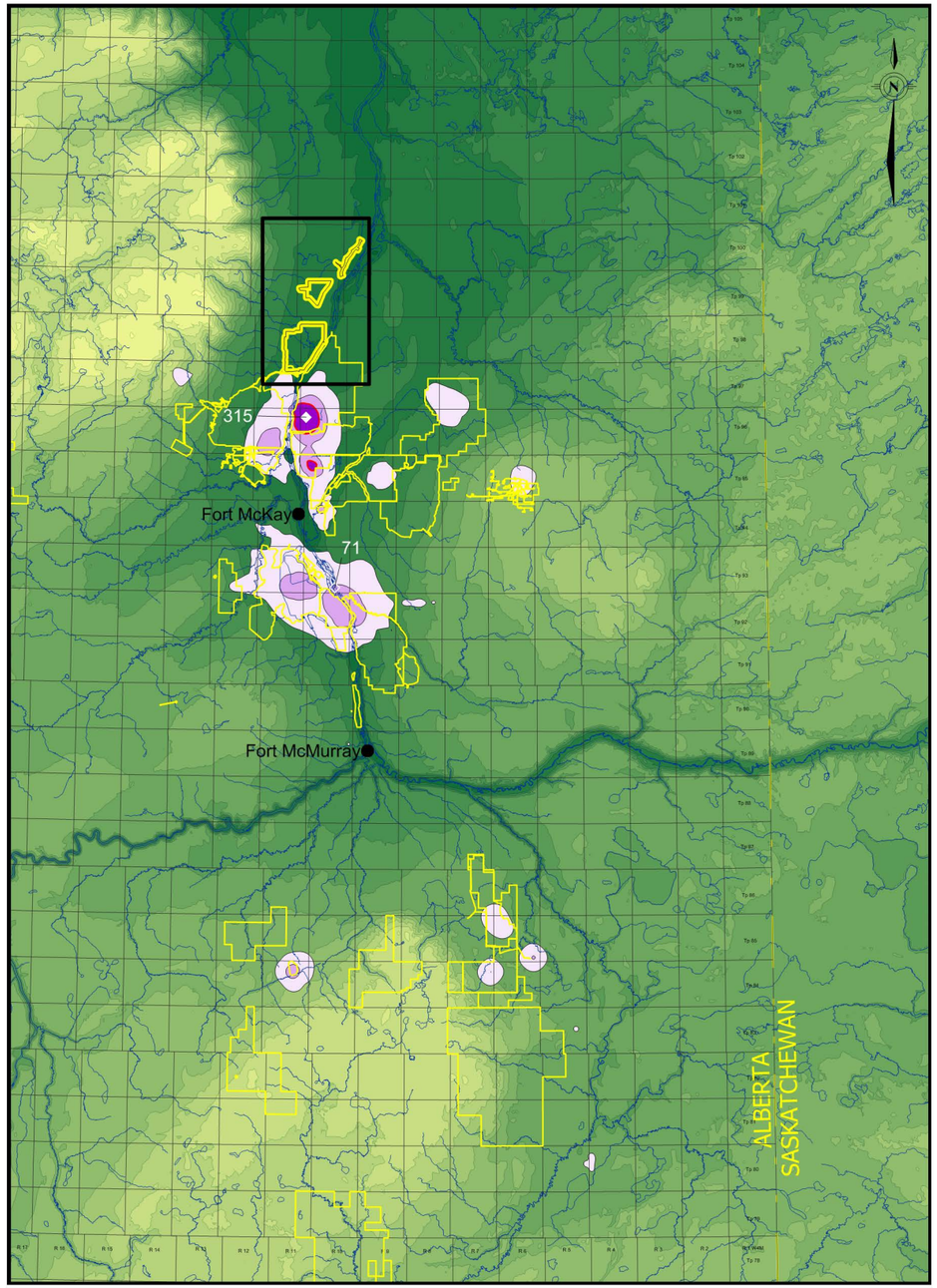
TITLE
**2013 PRM APPLICATION CASE MAXIMUM 1-HOUR $SO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig7_app_so2h_9th.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.1-5** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_ Health\Air\07 AIR Working Folder\report\figures\Fig8_app_so2d_2nd.srf

## Air Regional Study Area




LEGEND

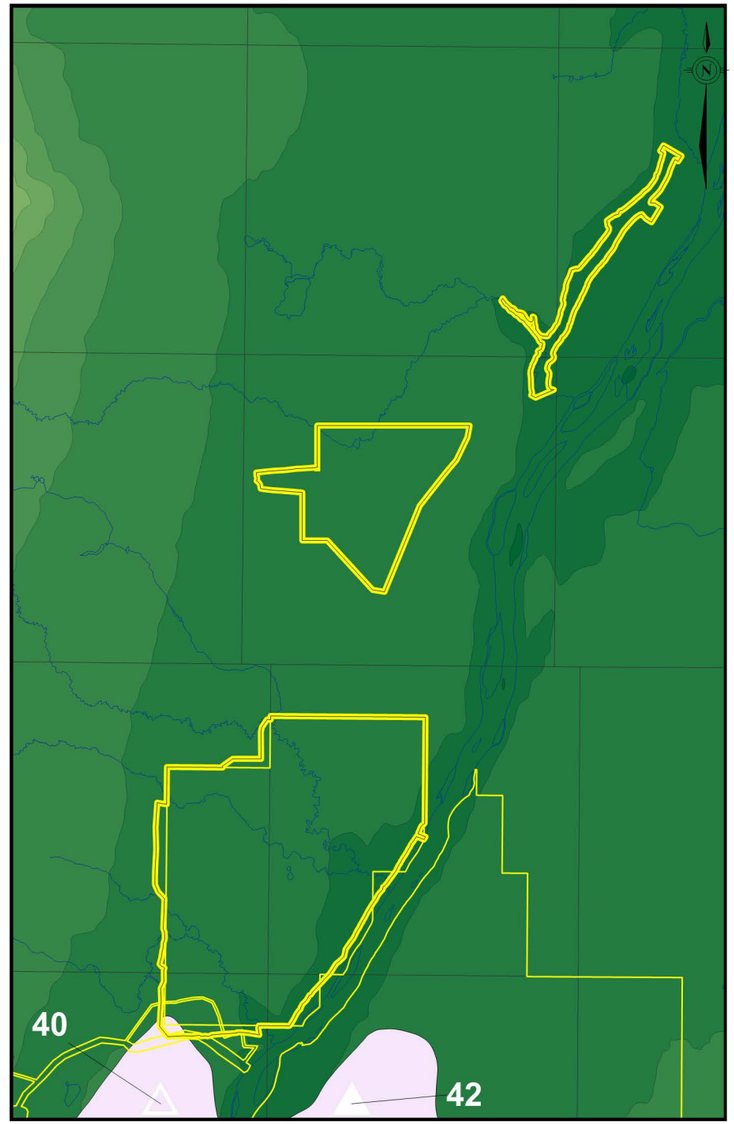
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

125
62.5
31.25
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

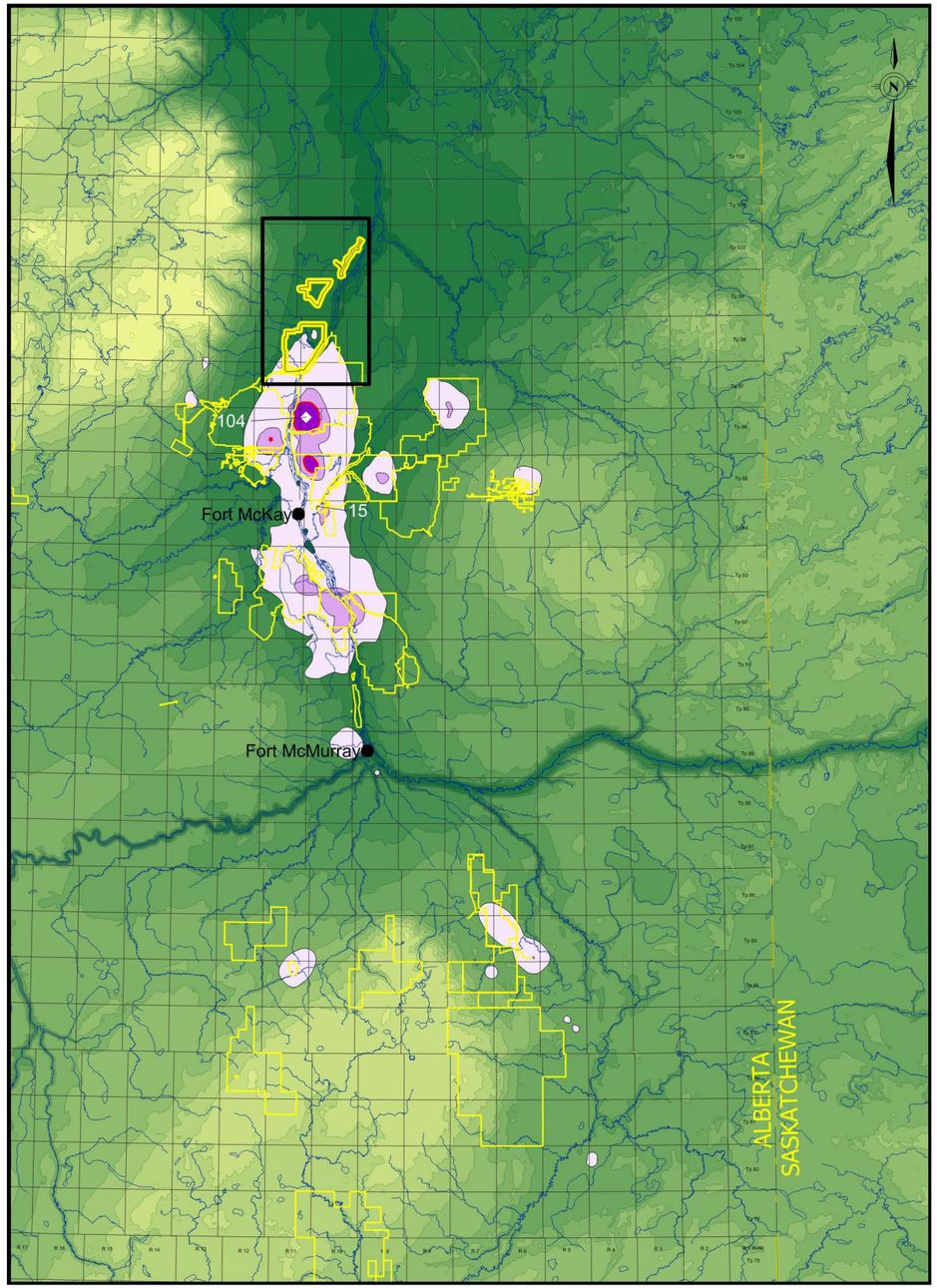
TITLE
**2013 PRM APPLICATION CASE**
**MAXIMUM 24-HOUR $SO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig8_app_so2d_2nd.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.1-6** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:/_2013/1346/13-1346-0001 Shell Pierre River Mine Follow-up/6100 PRM JRP SIRs/6106 Air_ AEE_Climate Change_Health/Air/07 AIR Working Folder/report/figures/Fig9_app_so2_30d.srf

## Air Regional Study Area




LEGEND

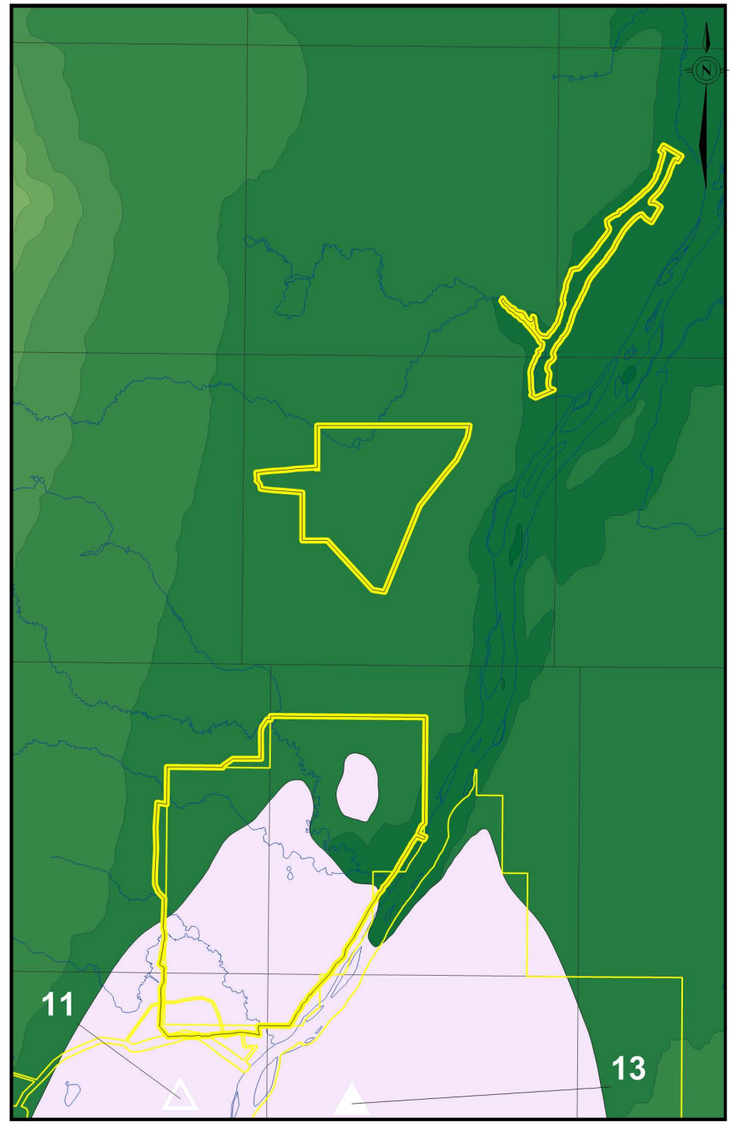
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

30
15
7.5
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

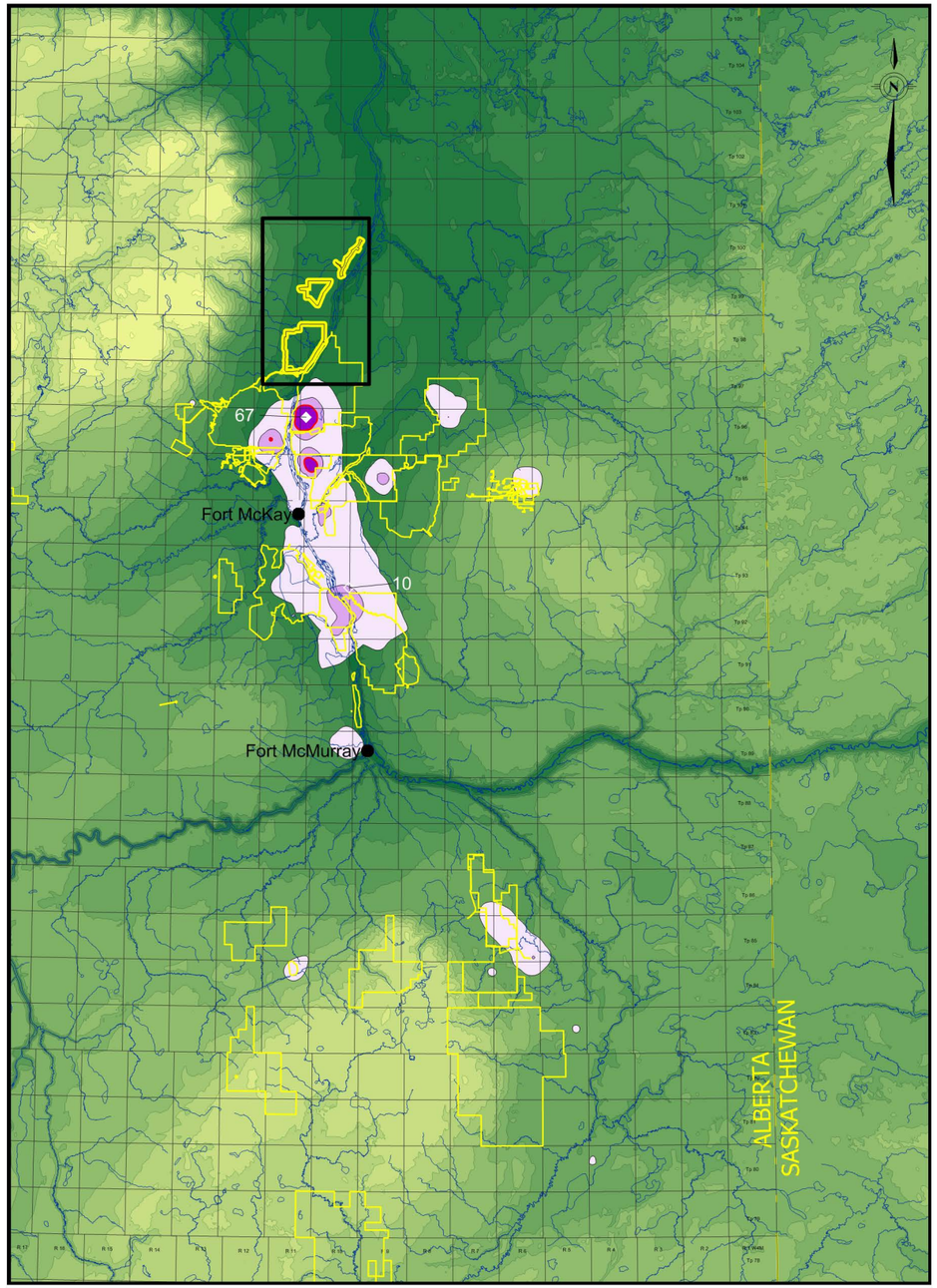
TITLE
**2013 PRM APPLICATION CASE MAXIMUM 30-DAY $SO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig9_app_so2_30d.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.1-7** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_ Health\Air\07 AIR Working Folder\report\figures\Fig10_app_so2_ann.srf

## Air Regional Study Area




LEGEND

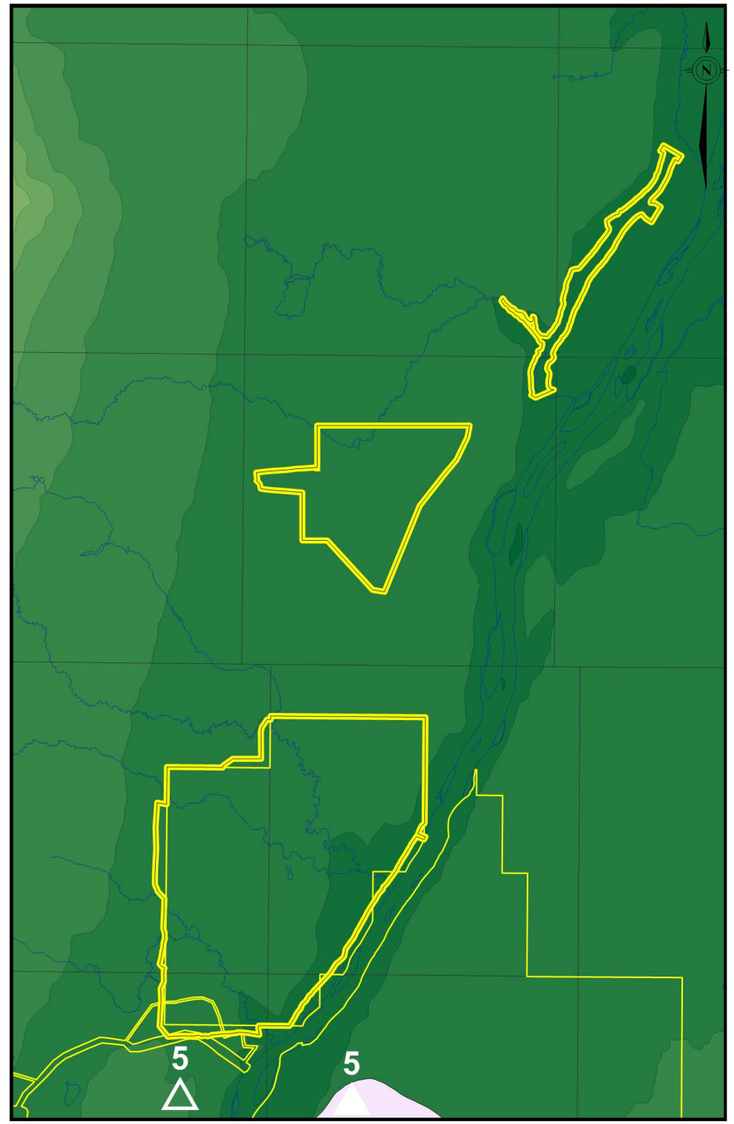
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

20
10
5
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

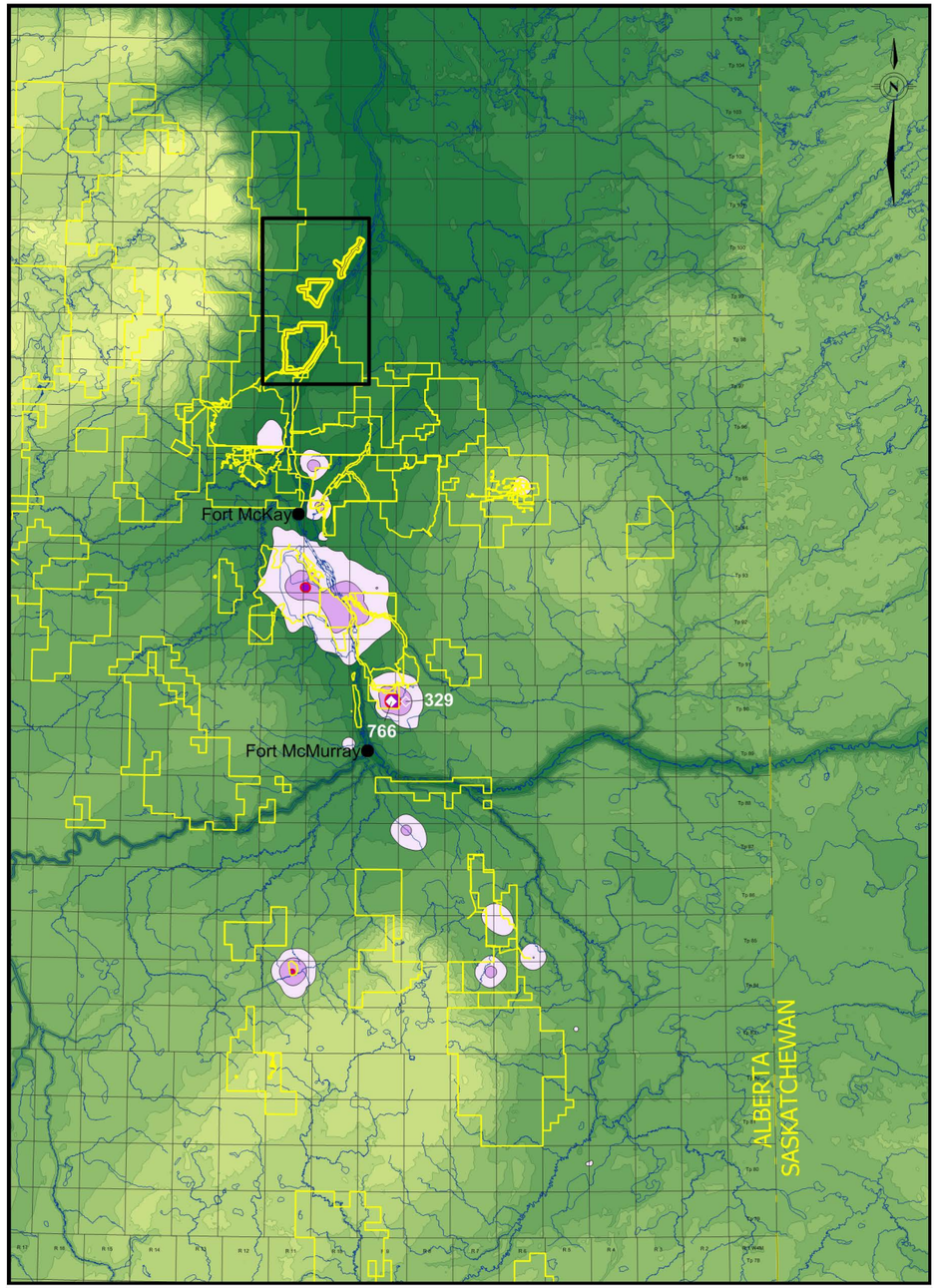
TITLE
**2013 PRM APPLICATION CASE ANNUAL $SO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig10_app_so2_ann.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.1-8** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:/_2013/1346/13-1346-0001 Shell Pierre River Mine Follow-up/6100 PRM JRP SIRs/6106 Air_AEE_Climate Change_Health/Air/07 AIR Working Folder/report/figures/Fig11_PDC_so2h_9th.srf

## Air Regional Study Area

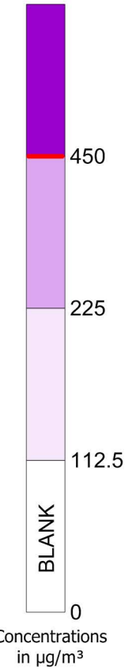



LEGEND

- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

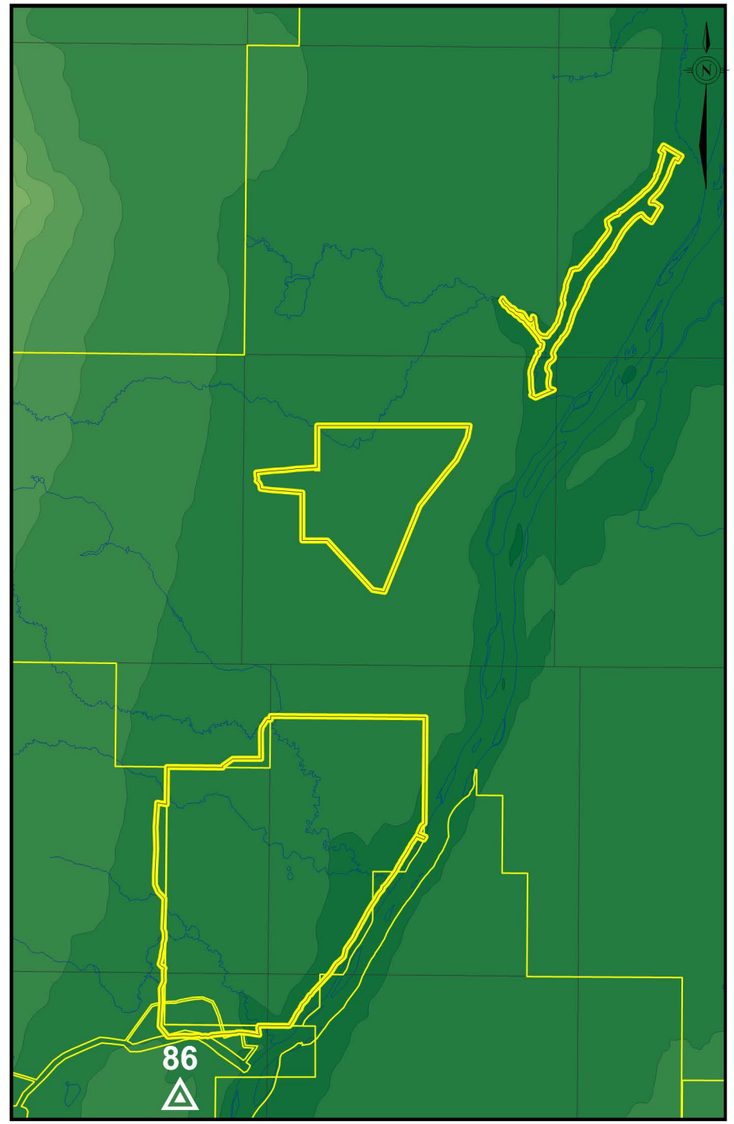
0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*




Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT

PIERRE RIVER MINE PROJECT

TITLE

**2013 PLANNED DEVELOPMENT CASE MAXIMUM 1-HOUR $SO_2$ PREDICTIONS**

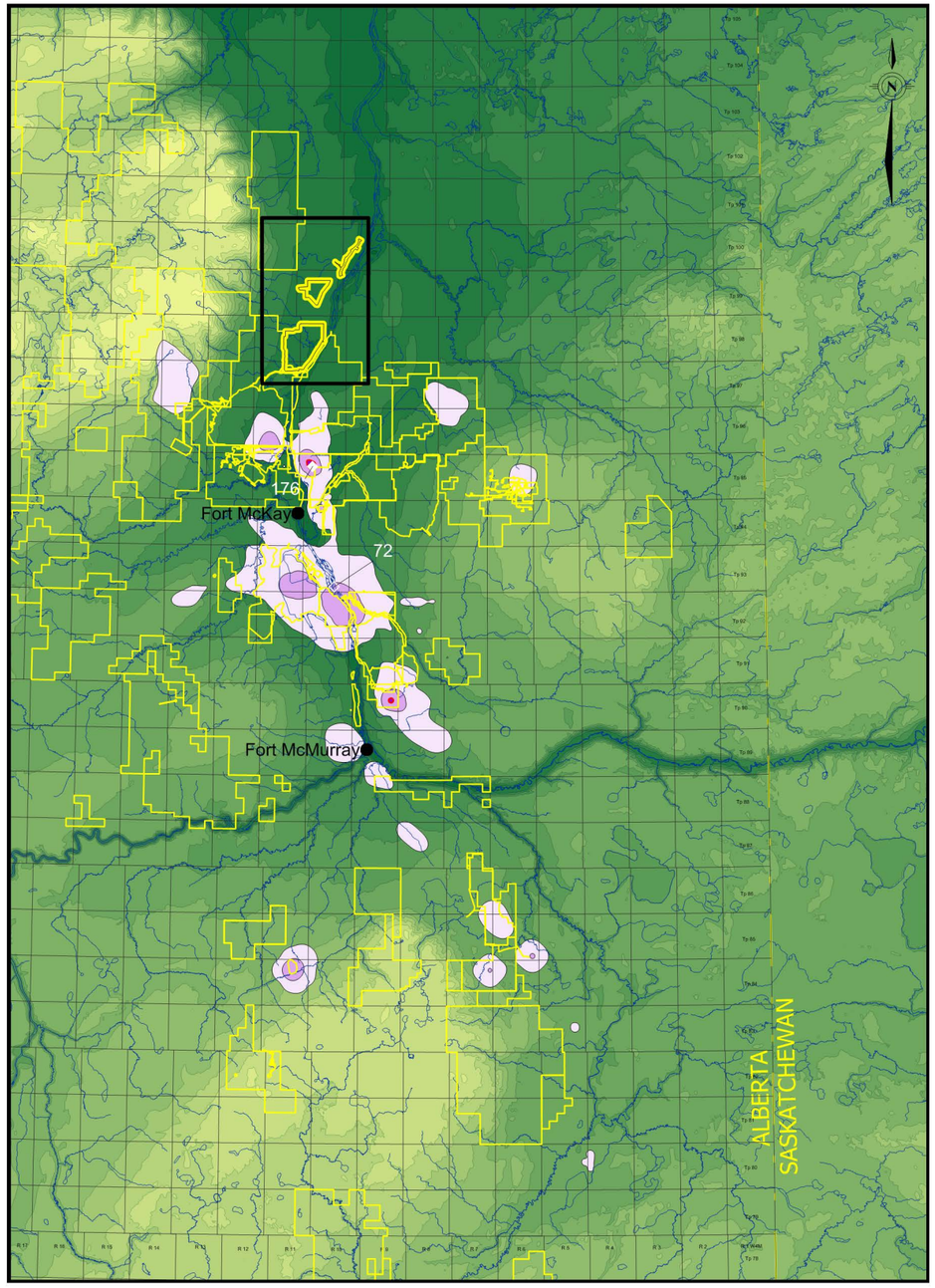
Shell Canada Limited

| PROJECT 13-1346-0001 | | | FILE No. Fig11_PDC_so2h_9th.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

**FIGURE 4.1-9**

R:/_2013/1346/13-1346-0001 Shell Pierre River Mine Follow-up/6100 PRM JRP SIRs/6106 Air_AEE_Climate Change_Health/Air/07 AIR Working Folder/report/figures/Fig12_pdc_so2d_2nd.srf

## Air Regional Study Area

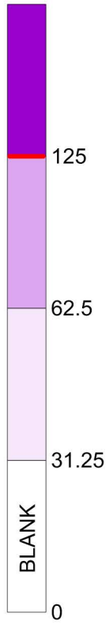



LEGEND

- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

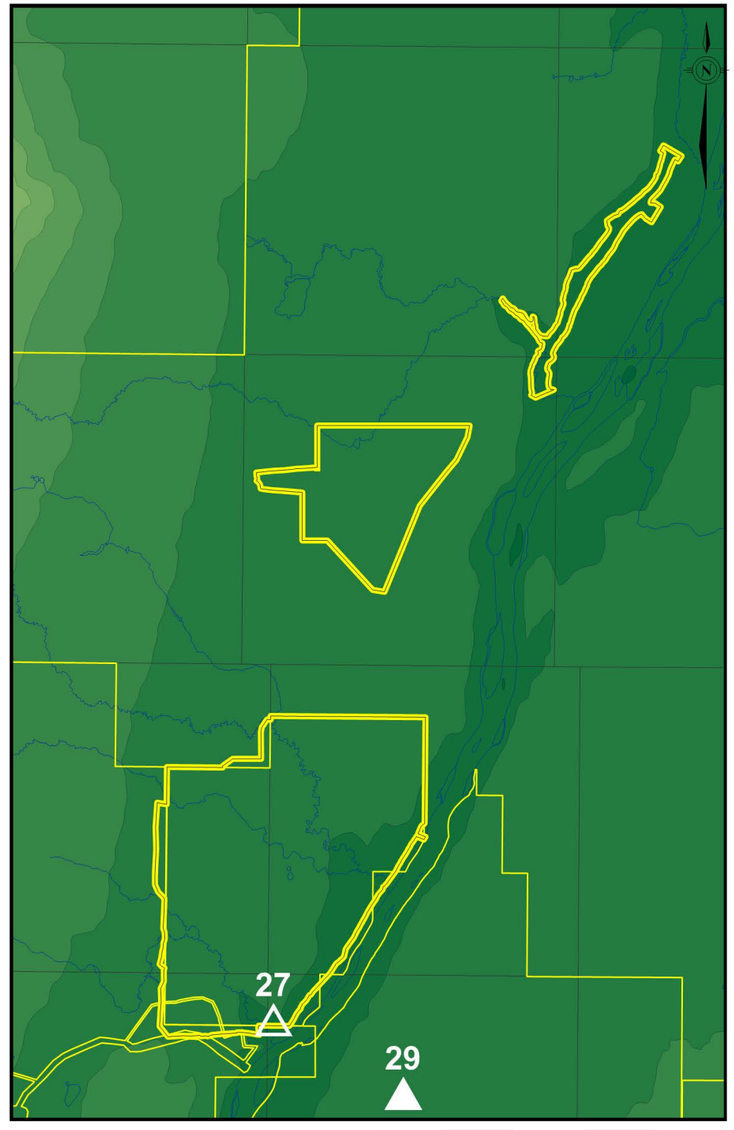
0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*




Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

TITLE
**2013 PLANNED DEVELOPMENT CASE MAXIMUM 24-HOUR $SO_2$ PREDICTIONS**

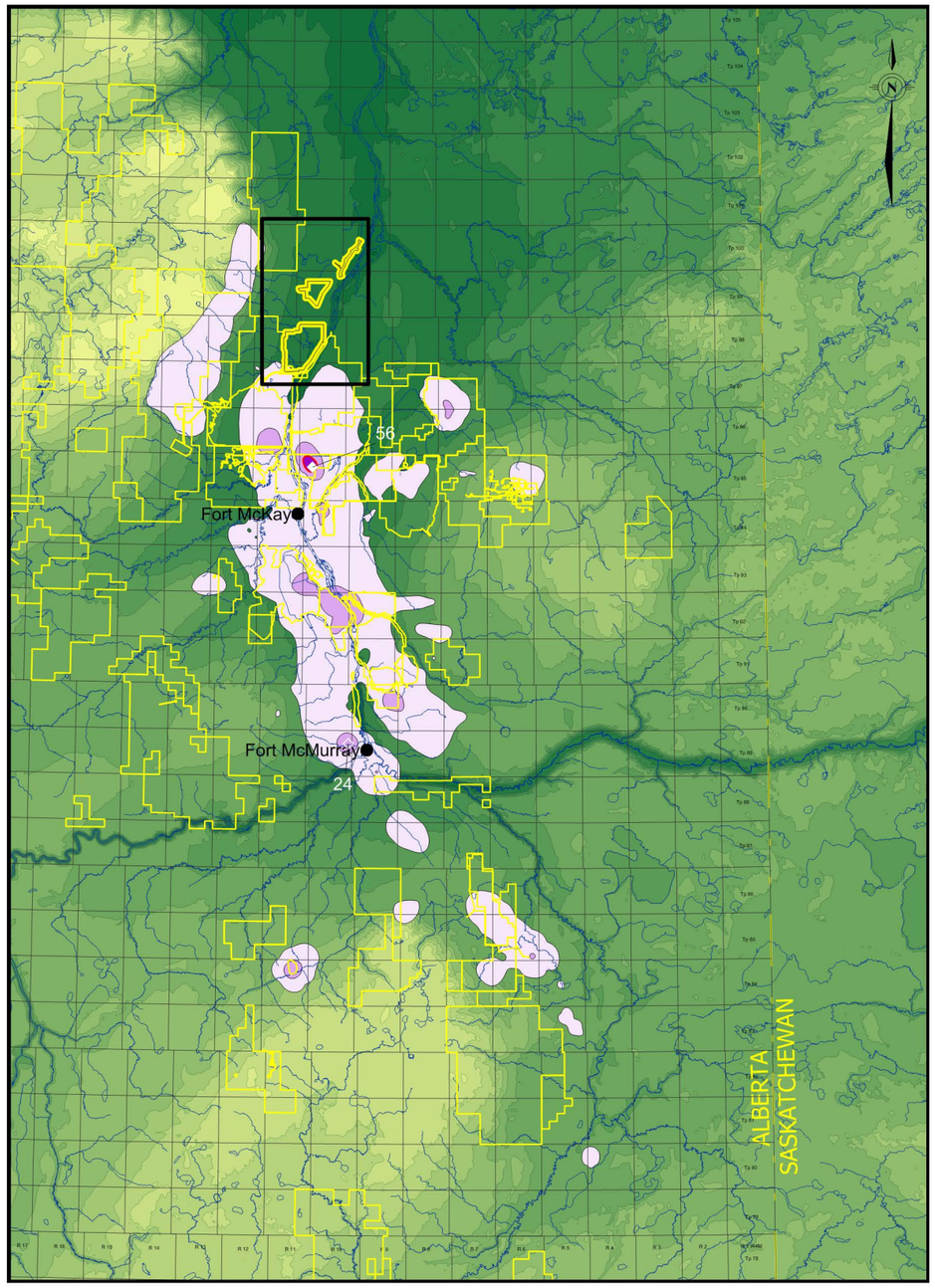
Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig12_pdc_so2d_2nd.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

**FIGURE 4.1-10**

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_ Health\Air\07 AIR Working Folder\report\figures\Fig13_pdc_so2_30d.srf

## Air Regional Study Area




LEGEND

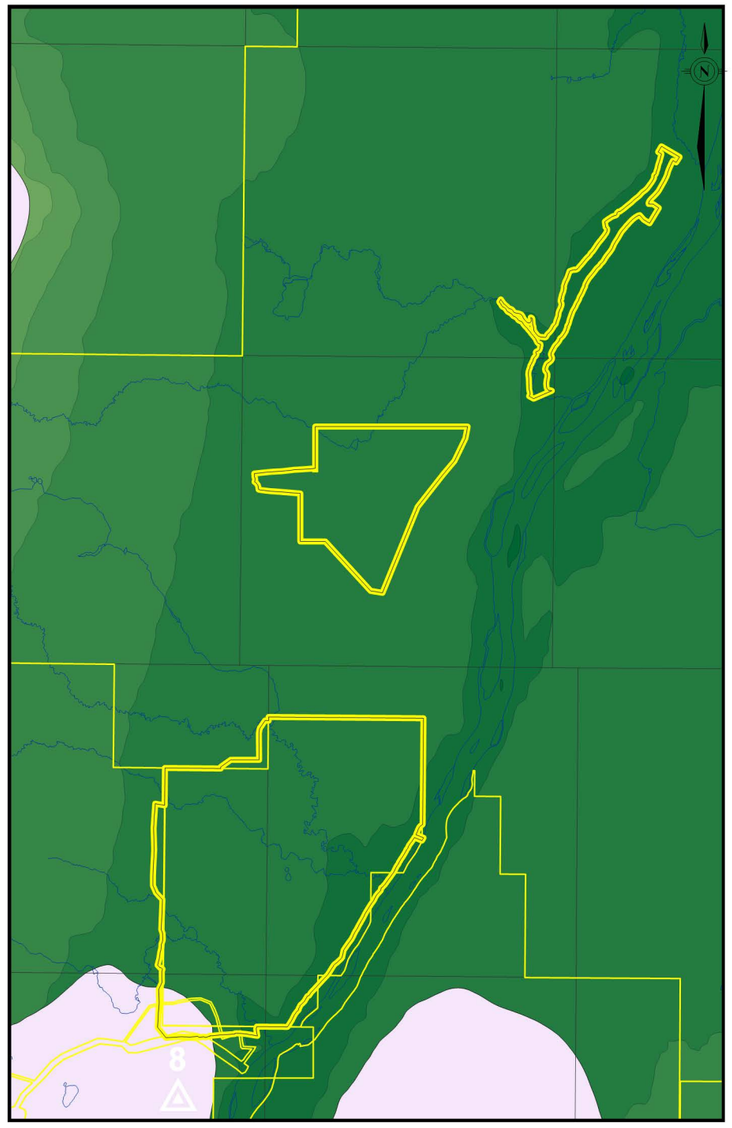
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

30
15
7.5
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

TITLE
**2013 PLANNED DEVELOPMENT CASE MAXIMUM 30-DAY $SO_2$ PREDICTIONS**

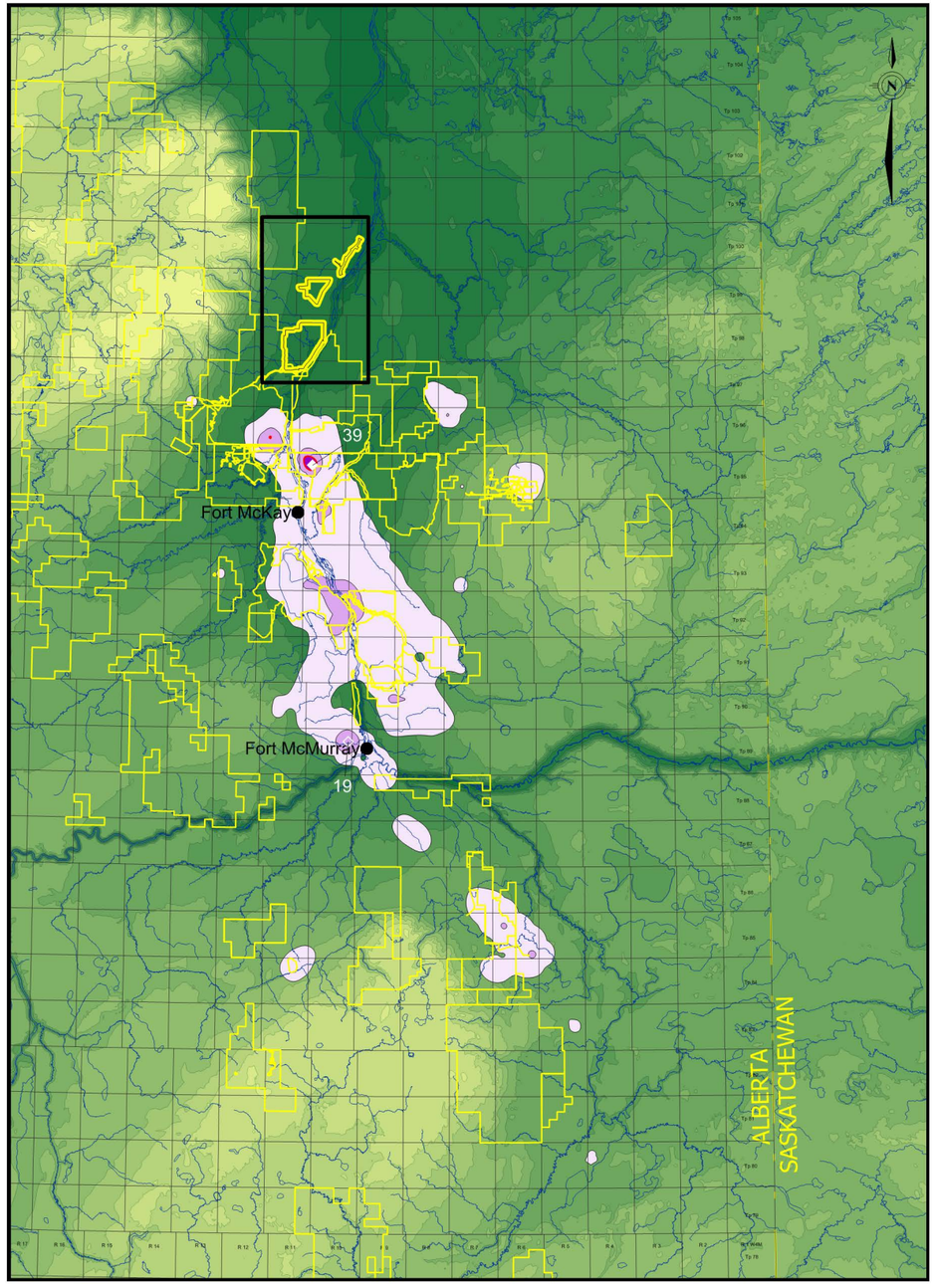
Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig13_pdc_so2_30d.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

**FIGURE 4.1-11**

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_Health\Air\07 AIR Working Folder\report\figures\Fig14_pdc_so2_ann.srf

## Air Regional Study Area




LEGEND

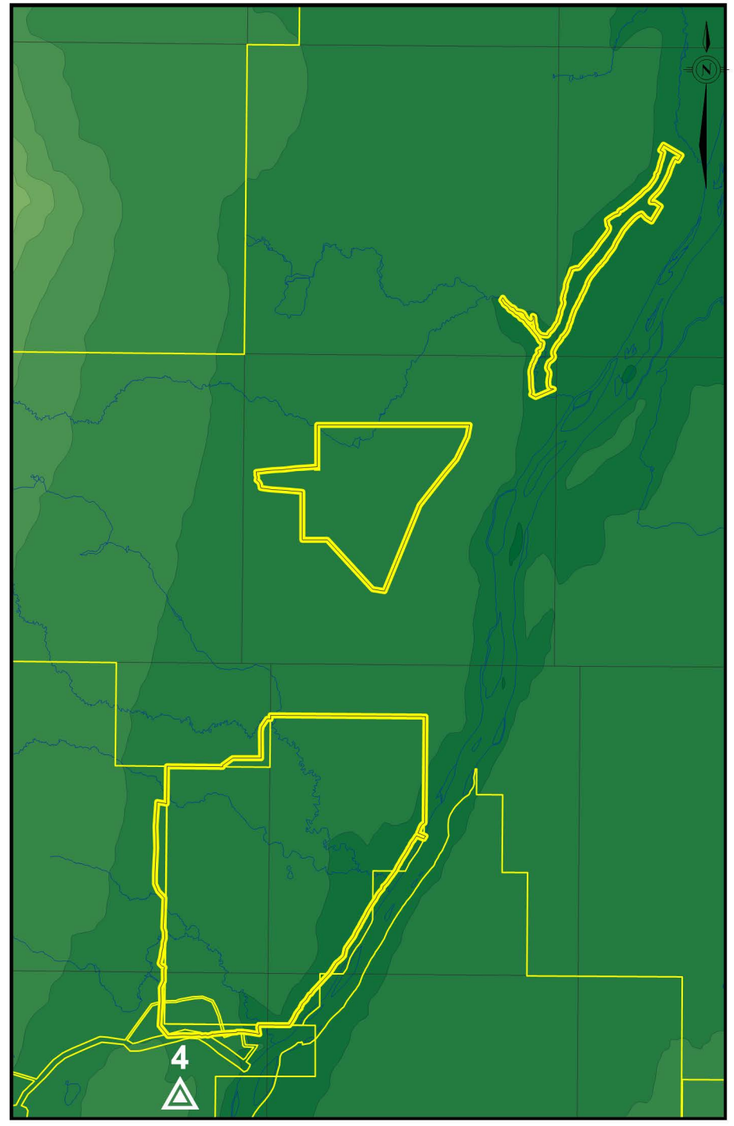
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

20
10
5
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

TITLE
**2013 PLANNED DEVELOPMENT CASE ANNUAL $SO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig14_pdc_so2_ann.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

**FIGURE 4.1-12**

## 4.2 Regional Nitrogen Dioxide Predictions

The predicted 2013 Base Case, 2013 PRM Application Case and 2013 PDC maximum 1-hour, 24-hour and annual ground-level oxides of nitrogen ($NO_X$) and nitrogen dioxide ($NO_2$) concentrations are presented in Table 4.2-1. The dispersion modelling provided $NO_X$ and $NO_2$ predictions across the RSA and LSA including, predictions within developed areas and PRM development area. A summary is provided for the maximums that occur across the region and when the developed areas are excluded (Table 4.2-1). The developed areas include PRM development area as well as other open-pit mines and upgrading complexes within the RSA and LSA. The 2013 Base Case, 2013 PRM Application Case and 2013 PDC maximum 1-hour and annual $NO_2$ concentrations are shown in Figures 4.2-1 to 4.2-6, respectively.

**Table 4.2-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Oxides of Nitrogen and Nitrogen Dioxide Predictions**

| Parameter | 1-Hour | | | 24-Hour | | | Annual | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Local Study Area** | | | | | | | | | |
| peak $NO_X$ [µg/m³][(a)] | 1,315.8 | 1,316.1 | 2,181.7 | 601.3 | 639.0 | 682.4 | 67.0 | 129.9 | 148.5 |
| peak $NO_2$ [µg/m³][(a)] | 163.5 | 163.5 | 199.3 | 120.1 | 122.5 | 123.0 | 28.4 | 47.9 | 49.7 |
| maximum $NO_2$ [µg/m³][(a)] | 150.9 | 150.9 | 171.5 | 120.1 | 122.5 | 123.0 | 28.4 | 47.9 | 49.7 |
| maximum $NO_2$ (excluding developed areas)[(a)(b)] [µg/m³] | 150.9 | 150.9 | 139.4 | 120.1 | 121.3 | 118.7 | 26.2 | 43.3 | 45.5 |
| distance to maximum concentration [km][(c)(d)] | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 8.2 | 12.5 | 8.8 | 8.8 |
| direction to maximum concentration[(c)(d)] | SSW | SSW | SSW | SSW | SSW | WSW | SSW | SW | SW |
| occurrences above AAAQO[(d)(e)] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| areal extent above AAAQO (excluding developed areas)[(b)(d)(e)] [ha] | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | <1 |
| **Regional Study Area** | | | | | | | | | |
| peak $NO_X$ [µg/m³][(a)] | 15,947.0 | 15,951.0 | 15,890.0 | 6,767.1 | 6,775.2 | 6,675.5 | 1,373.8 | 1,374.6 | 1,374.6 |
| peak $NO_2$ [µg/m³][(a)] | 434.7 | 434.8 | 434.1 | 306.9 | 307.1 | 305.0 | 139.9 | 140.1 | 140.6 |
| maximum $NO_2$ [µg/m³][(a)] | 405.4 | 405.4 | 405.3 | 306.9 | 307.1 | 305.0 | 139.9 | 140.1 | 140.6 |
| maximum $NO_2$ (excluding developed areas)[(a)(b)] [µg/m³] | 214.2 | 214.2 | 212.0 | 183.4 | 183.6 | 182.4 | 51.6 | 52.4 | 57.6 |
| distance to maximum concentration [km][(c)(d)] | 55.1 | 55.1 | 35.2 | 26.4 | 32.6 | 32.6 | 23.9 | 23.9 | 39.2 |
| direction to maximum concentration[(c)(d)] | S | S | SSE | ESE | SSW | SSW | SSW | SSW | SSW |
| occurrences above AAAQO[(d)(e)] | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| areal extent above AAAQO (excluding developed areas)[(b)(d)(e)] [ha] | 0 | 0 | 0 | 0 | 0 | 0 | 1,414 | 1,538 | 3,499 |
| **AAAQO[(e)] [µg/m³]** | **300** | | | **–** | | | **45** | | |

(a) The peak 1-hour predictions include the eight highest 1-hour predictions from the CALPUFF model. The maximum 1-hour predictions exclude the eight highest 1-hour concentrations, as per the Alberta model guidelines (AENV 2009). The maximum 24-hour and annual predictions include the eight highest hours.

(b) Developed areas include PRM development area as well as other open-pit mines and upgrading complexes within the RSA and LSA.

(c) Locations are relative to the Pierre River Mine plant site.

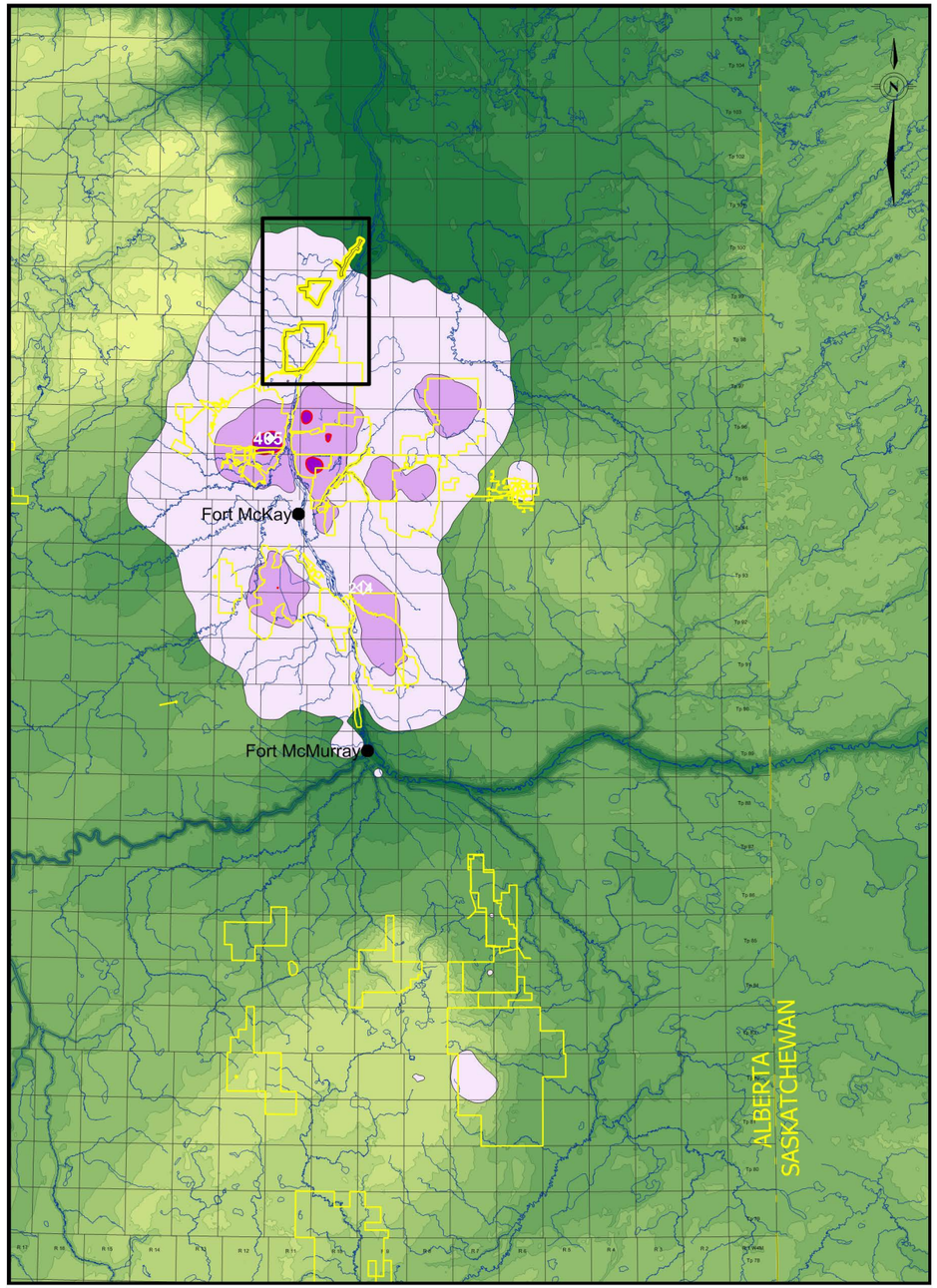
(d) Locations, number of occurrences and areas are based on the maximum predictions outside developed areas.

(e) AAAQO = Alberta Ambient Air Quality Objectives (ESRD 2013).

– = not applicable.

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_Climate Change_Health\Air\07 AIR Working Folder\report\figures\Fig15_bas_no2h_9th.srf

## Air Regional Study Area




LEGEND

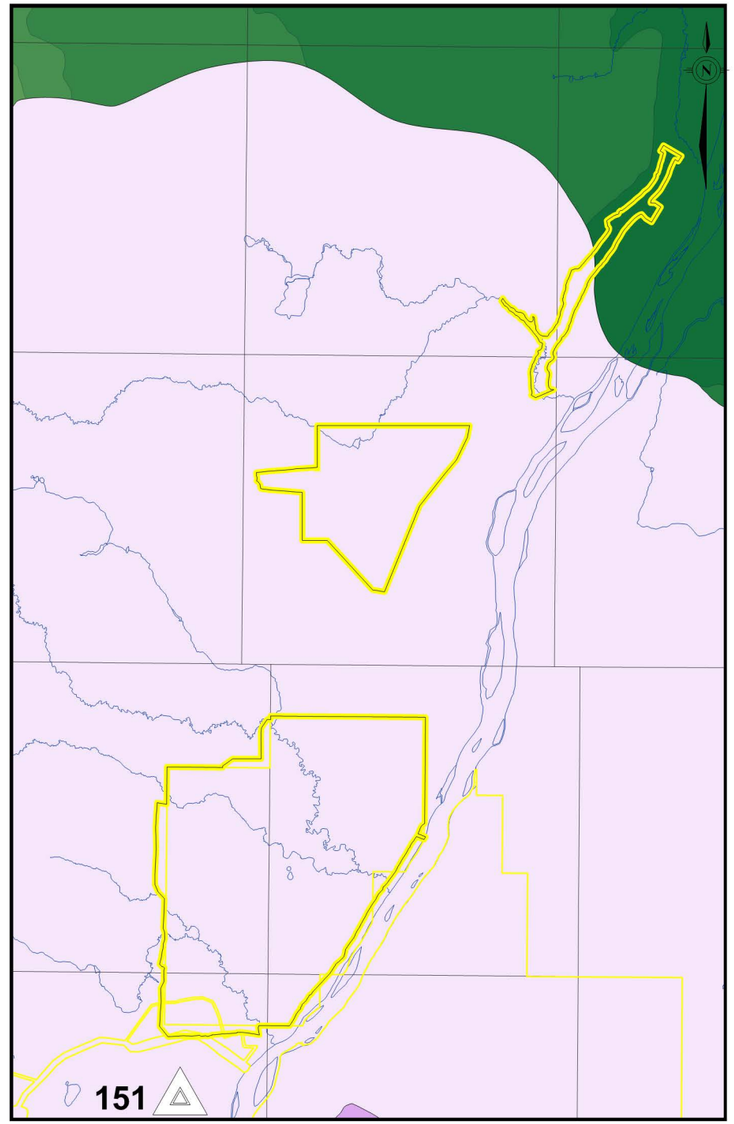
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

300
150
75
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

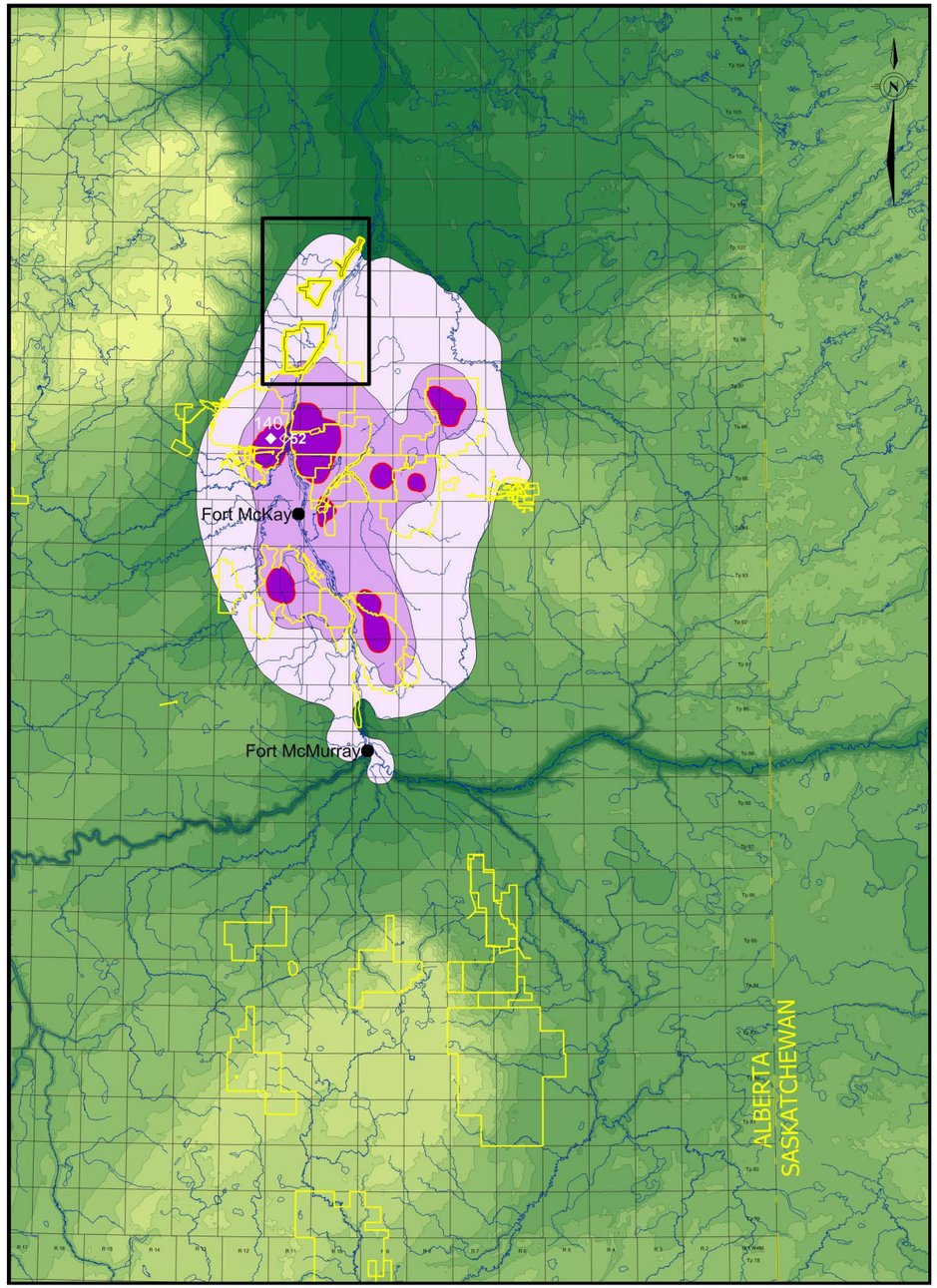
TITLE
**2013 BASE CASE MAXIMUM 1-HOUR $NO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig15_bas_no2h_9th.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | **FIGURE 4.2-1** | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_ Health\Air\07 AIR Working Folder\report\figures\Fig16_bas_no2_ann.srf

## Air Regional Study Area




LEGEND

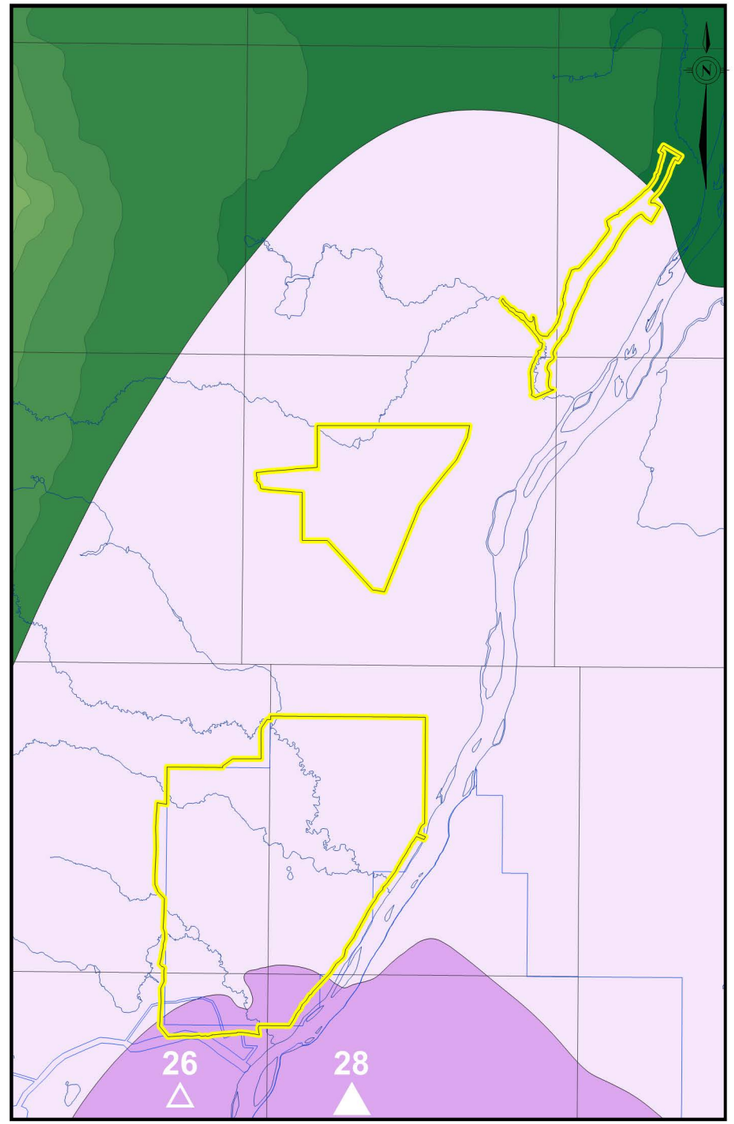
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

45
22.5
11.25
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

TITLE
**2013 BASE CASE ANNUAL $NO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig16_bas_no2_ann.srf | |
|---|---|---|---|---|
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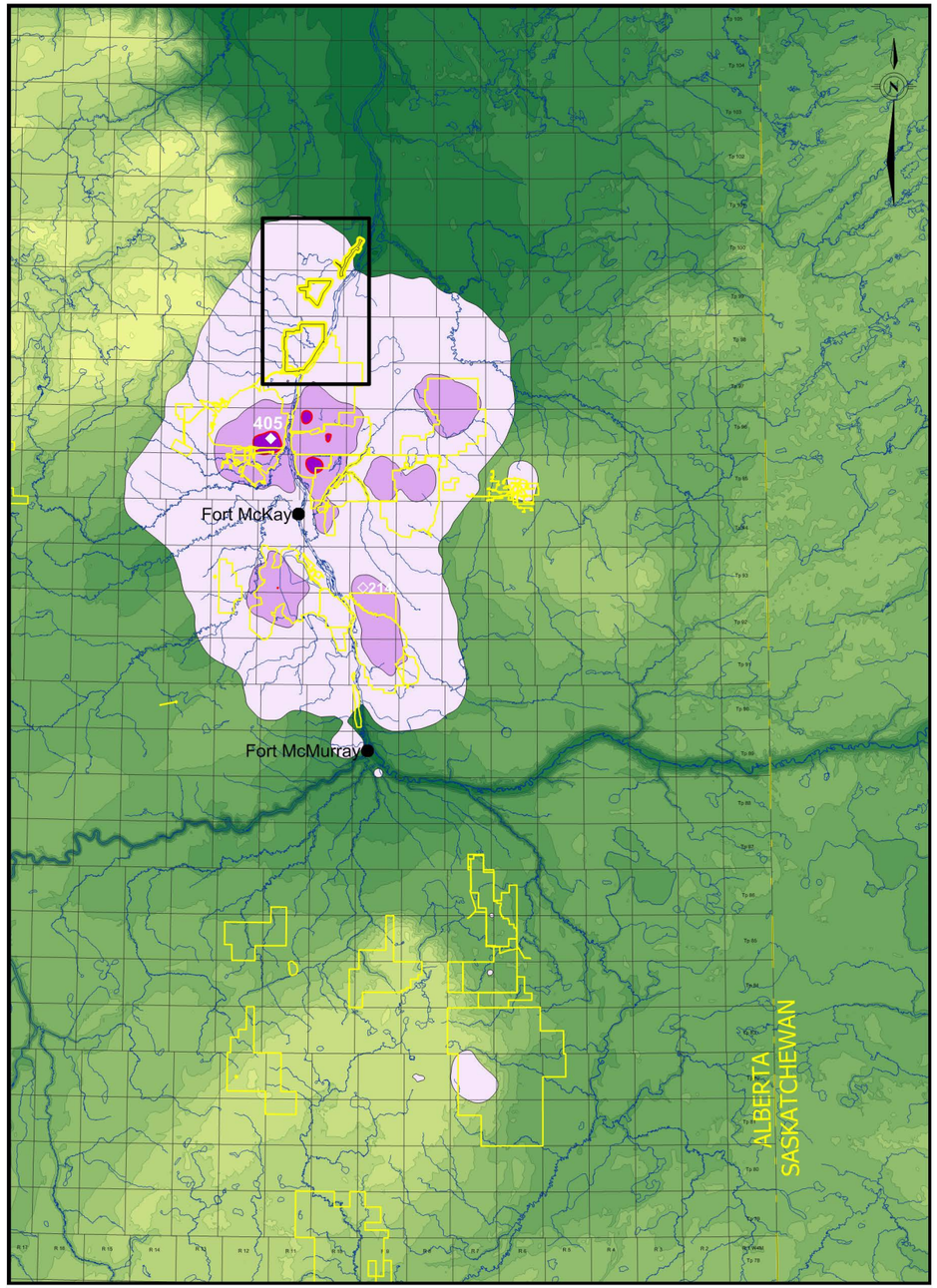
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

**FIGURE 4.2-2**

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_Climate Change_Health\Air\07 AIR Working Folder\report\figures\Fig17_app_no2h_9th.srf

## Air Regional Study Area




LEGEND

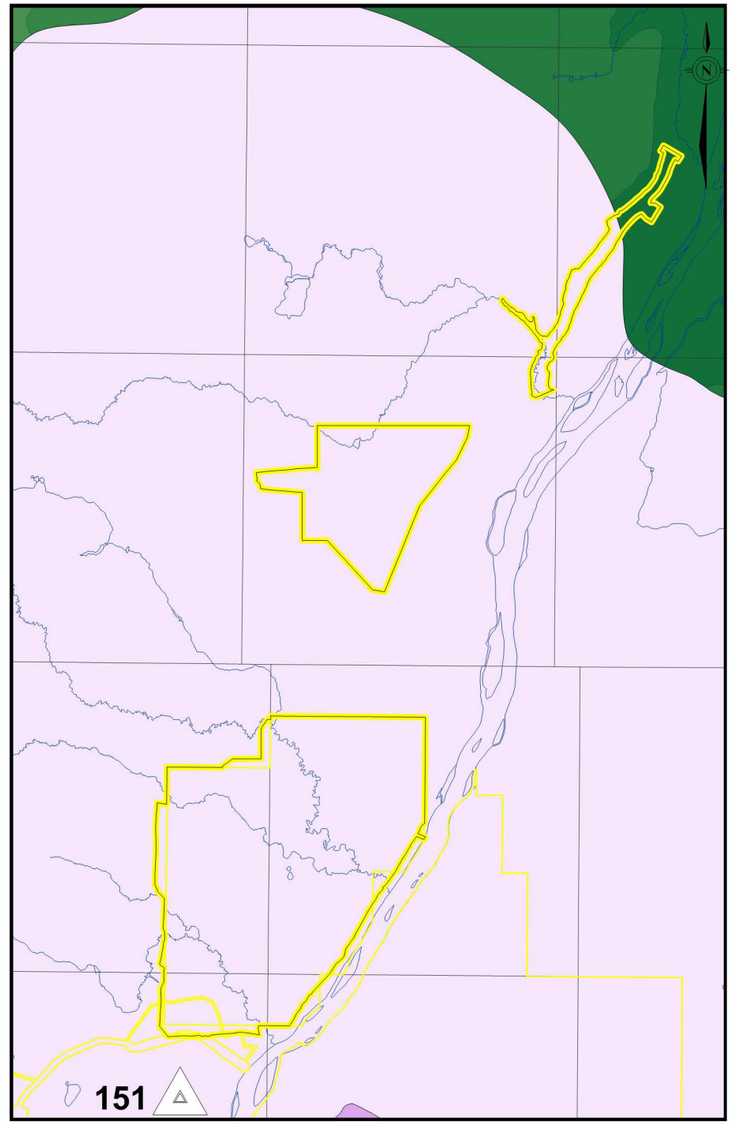
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

300
150
75
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

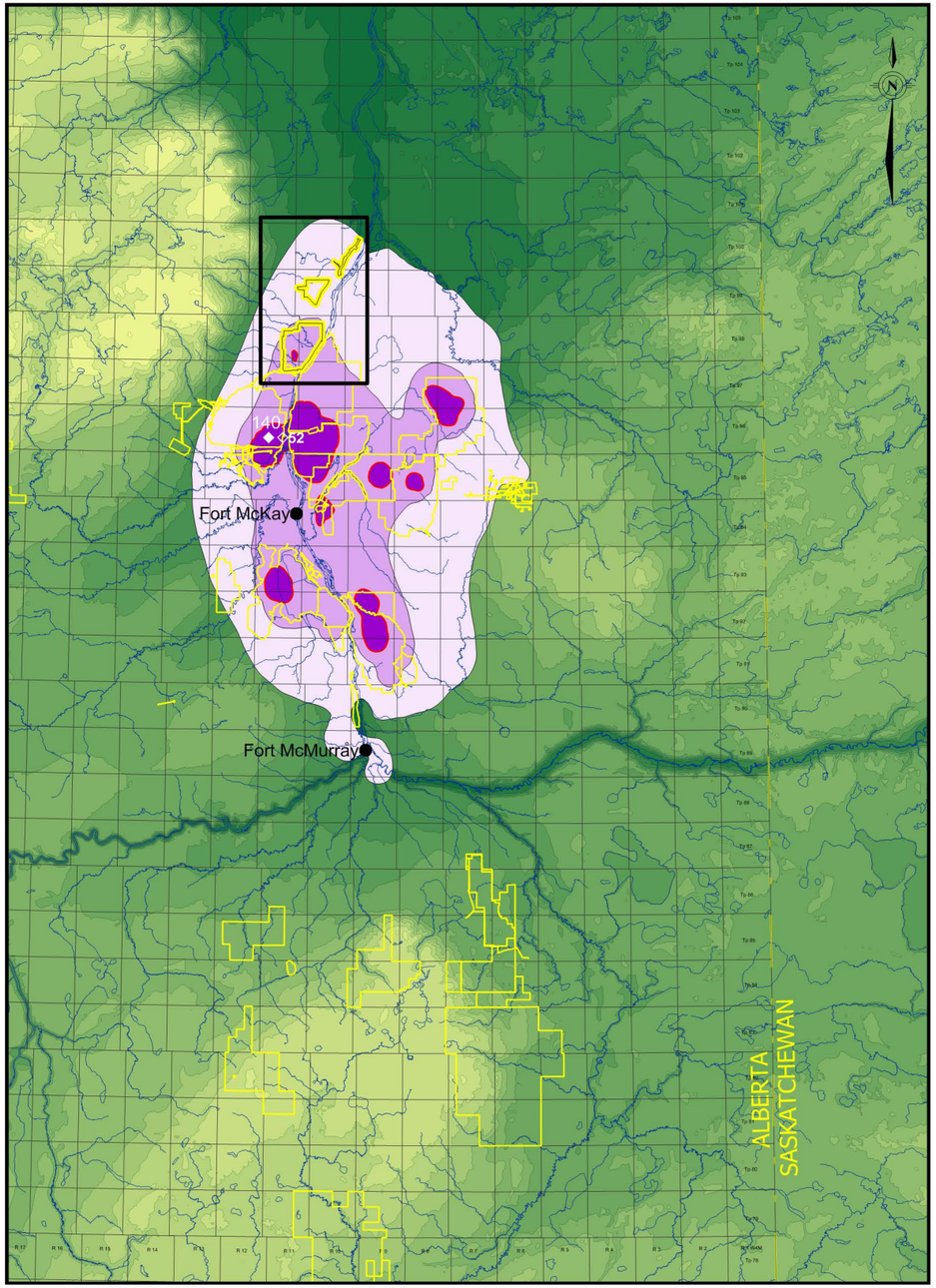
TITLE
**2013 PRM APPLICATION CASE MAXIMUM 1-HOUR $NO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig17_app_no2h_9th.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | **FIGURE 4.2-3** | |
| REVIEW | WES | 14/06/13 | | |

R:/_2013/1346/13-1346-0001 Shell Pierre River Mine Follow-up/6100 PRM JRP SIRs/6106 Air_AEE_Climate Change_Health/Air/07 AIR Working Folder/report/figures/Fig18_app_no2_ann.srf

## Air Regional Study Area




LEGEND

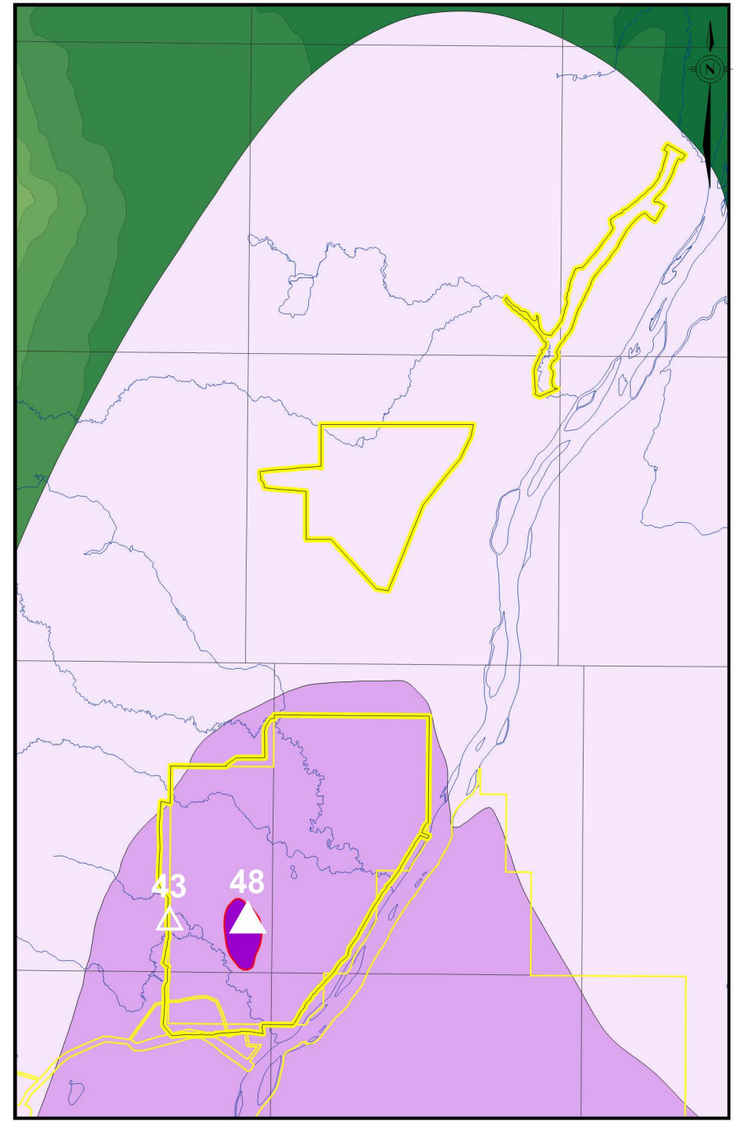
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

45
22.5
11.25
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

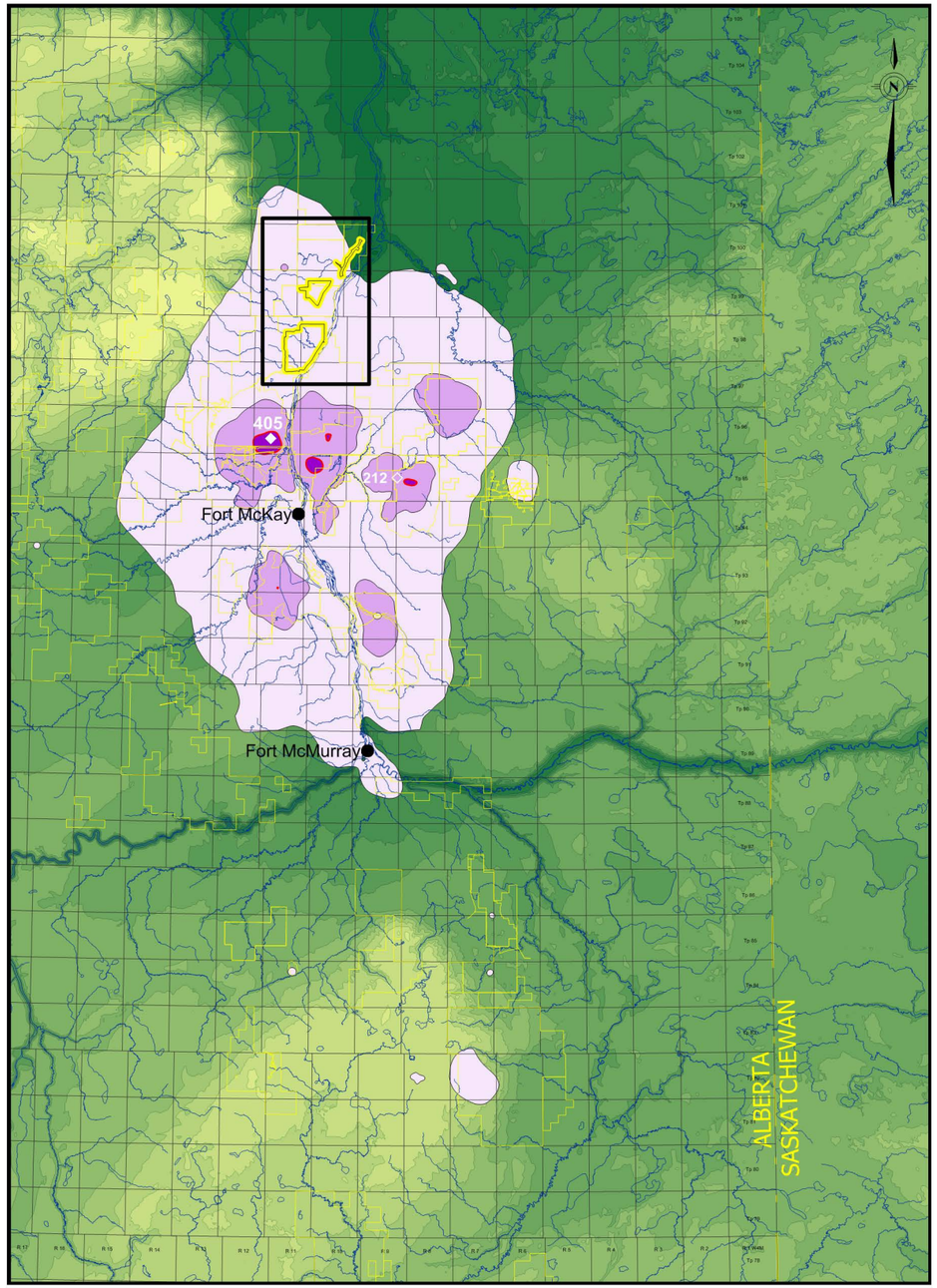
TITLE
**2013 PRM APPLICATION CASE ANNUAL $NO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig18_app_no2_ann.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.2-4** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:/_2013/1346/13-1346-0001 Shell Pierre River Mine Follow-up/6100 PRM JRP SIRs/6106 Air_AEE_Climate Change_Health/Air/07 AIR Working Folder/report/figures/Fig19_PDC_no2h_9th.srf

## Air Regional Study Area




LEGEND

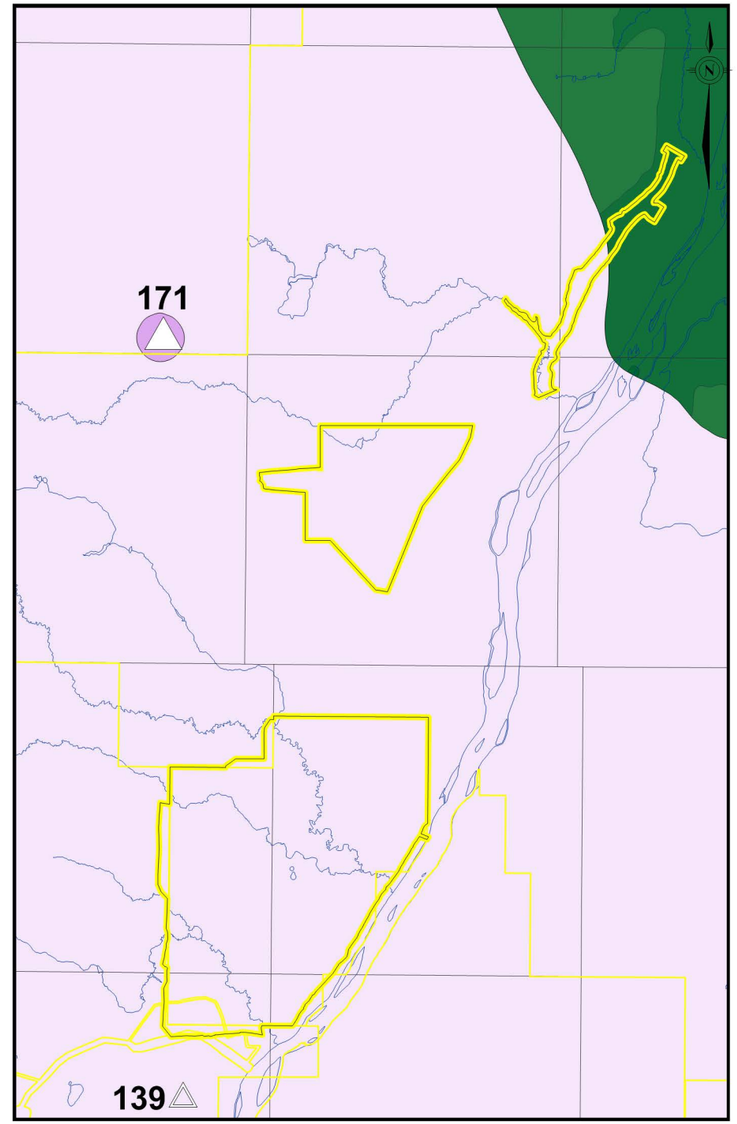
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

300
150
75
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

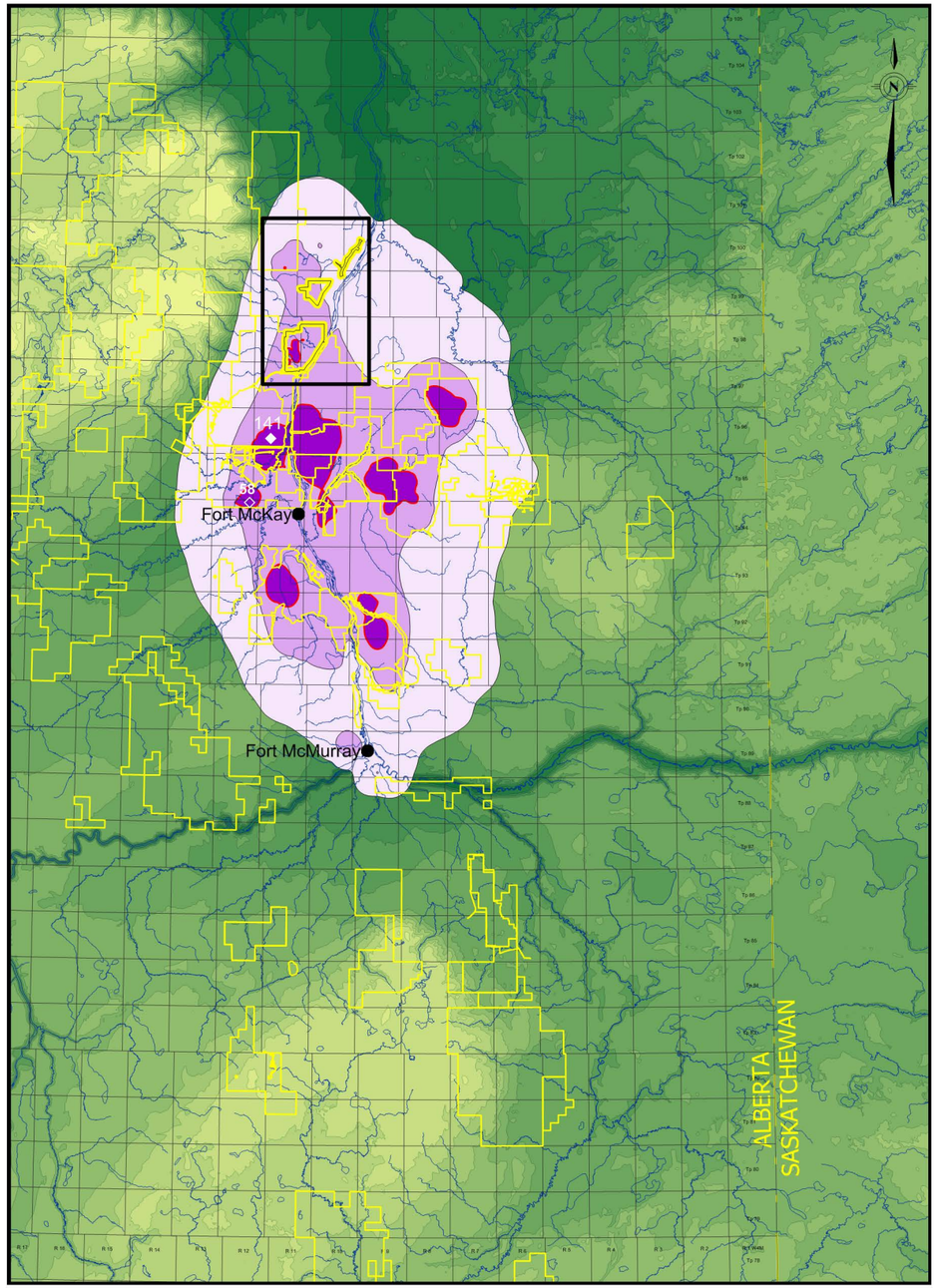
TITLE
**2013 PLANNED DEVELOPMENT CASE MAXIMUM 1-HOUR $NO_2$ PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | FILE No. Fig19_PDC_no2h_9th.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | **FIGURE 4.2-5** | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_ Health\Air\07 AIR Working Folder\report\figures\Fig20_pdc_no2_ann.srf

## Air Regional Study Area




LEGEND

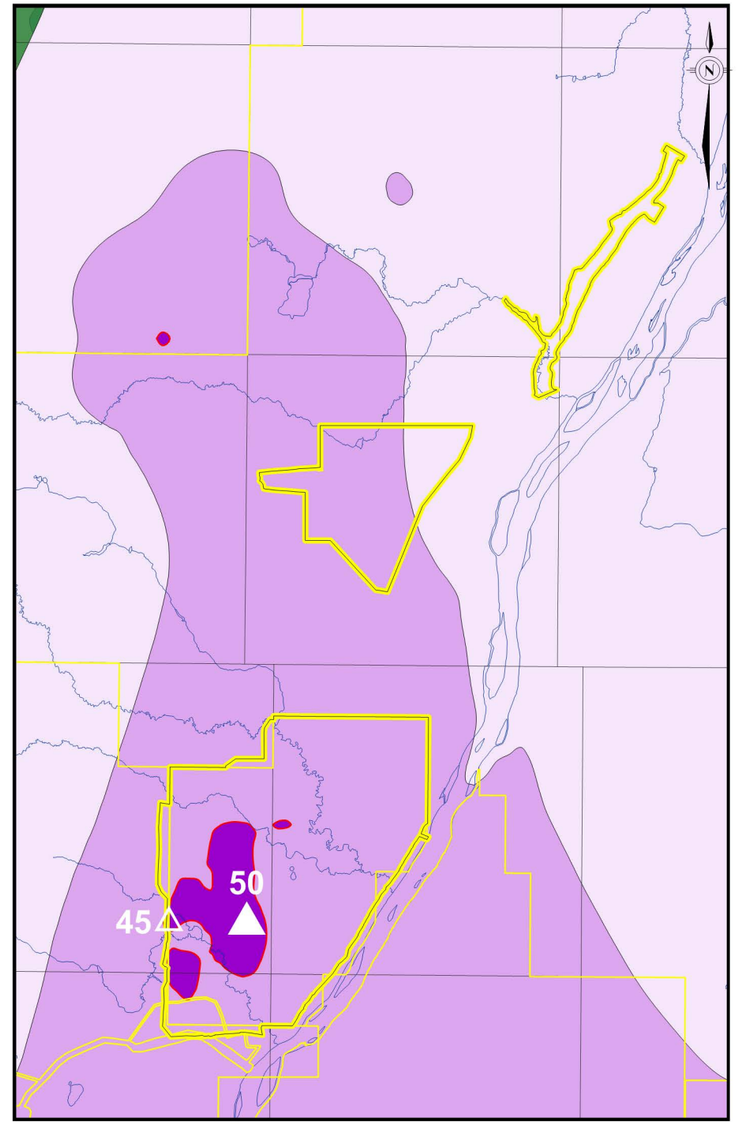
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

45
22.5
11.25
BLANK
0
Concentrations in µg/m³

## Air Local Study Area




LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

0 4 8 12 16 20
SCALE KILOMETRES

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

TITLE
**2013 PLANNED DEVELOPMENT CASE ANNUAL $NO_2$ PREDICTIONS**

**Shell Canada Limited**

| PROJECT 13-1346-0001 | | | Fig20_pdc_no2_ann.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.2-6** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

## 4.3 Potential Acid Input Predictions

Potential Acid Input (PAI) is the preferred method for evaluating the overall effects of acid-forming chemicals on the environment as it accounts for the acidifying effect of sulphur and nitrogen compounds, as well as the neutralizing effect of available base cations. The CALPUFF model was used to predict PAI in the region. The CALPUFF model is a good tool for estimating PAI because it takes into account the chemical transformations of $SO_2$ and $NO_X$ emissions. It also predicts both wet (i.e., rain and snow scavenged) and dry (i.e., via an effective dry deposition velocity) deposition of sulphur dioxide ($SO_2$), sulphate ($SO_4^{2-}$), nitric oxide (NO), nitrogen dioxide ($NO_2$), nitrate ($NO_3^-$) and nitric acid ($HNO_3$). Details of the PAI calculation are provided in the EIA, Volume 3, Appendix 3-8, Section 2.3.6.

Potential acid input has historically been defined in oil sands assessments as the sum of $SO_2$ and $NO_X$ deposition, minus base cation deposition (keq/ha/yr; referred to as "gross PAI"), as estimated by air dispersion modelling. This calculation represents potential acid inputs entering the terrestrial ecosystem from all sources, but does not take into account retention of deposited nitrogen (N) in terrestrial ecosystems. Nitrogen absorbed in terrestrial ecosystems does not contribute to the acidification of soils or surface waters. The terrestrial air emissions effects assessment is based on "soil net PAI", which takes into account uptake of N in terrestrial ecosystems. The calculation of soil net PAI includes all $SO_2$ deposition, all $NO_X$ deposition above 10 kg N/ha/yr and 25% of $NO_X$ deposition below the first 10 kg N/ha/yr (NSMWG 2007). Since the terrestrial assessment only uses soil net PAI, these predictions have been presented along with the gross PAI. Gross PAI was presented in the EIA and the updated predictions are presented for comparison.

The maximum predicted gross and soil net PAI levels, in conjunction with the highest nitrate and sulphate contributions to gross PAI are summarized in Table 4.3-1. The gross PAI and soil net PAI predictions are presented in Figures 4.3-1 to 4.3-6, respectively. An evaluation of areas where predicted PAI may affect the receiving environment is addressed in the Air Emissions Effects on Ecological Receptors assessment (Appendix 1, Section 2.5 and Appendix 2, Section 3.2.4).

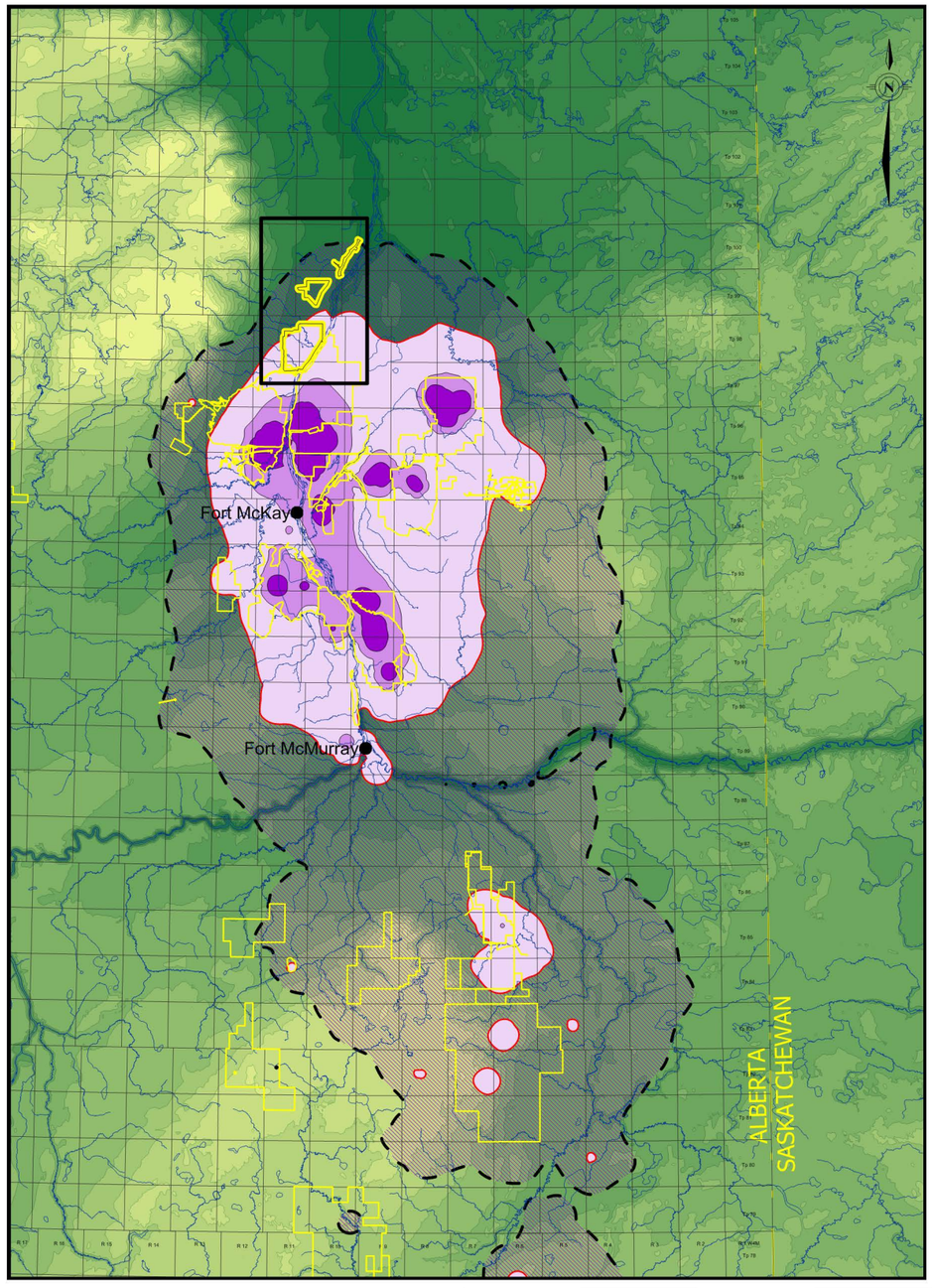
**Table 4.3-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Maximum Predicted Acid-Forming Deposition**

| Parameter | Maximum Annual Deposition [keq/ha/yr] | | | | | |
|---|---|---|---|---|---|---|
| | 2013 Base Case | | 2013 PRM Application Case | | 2013 Planned Development Case | |
| | Gross PAI | Soil Net PAI | Gross PAI | Soil Net PAI | Gross PAI | Soil Net PAI |
| **Local Study Area** | | | | | | |
| PAI | 0.52 | 0.16 | 1.26 | 0.72 | 1.62 | 1.09 |
| PAI (excluding developed areas) | 0.44 | 0.14 | 0.54 | 0.17 | 0.97 | 0.44 |
| nitrate deposition (excluding developed areas) | 0.32 | 0.32 | 0.42 | 0.42 | 0.88 | 0.88 |
| sulphate deposition (excluding developed areas) | 0.07 | 0.07 | 0.07 | 0.07 | 0.09 | 0.09 |
| **Regional Study Area** | | | | | | |
| PAI | 5.67 | 5.14 | 5.69 | 5.16 | 22.12 | 21.59 |
| PAI (excluding developed areas) | 1.12 | 0.59 | 1.14 | 0.61 | 2.27 | 1.73 |
| nitrate deposition (excluding developed areas) | 0.96 | 0.96 | 0.98 | 0.98 | 2.10 | 2.10 |
| sulphate deposition (excluding developed areas) | 0.31 | 0.31 | 0.31 | 0.31 | 0.33 | 0.33 |

Note: The maximum nitrate and sulphate deposition values do not include background values and are not necessarily co-located. Therefore, the addition of the maximum nitrate and maximum sulphate will not necessarily add up to the highest total PAI value listed in the table.

R:/_2013/1346/13-1346-0001 Shell Pierre River Mine Follow-up/6100 PRM JRP SIRs/6106 Air_AEE_Climate Change_Health/Air/07 AIR Working Folder/report/figures/Fig21_bas_total_pai.srf

## Air Regional Study Area




LEGEND

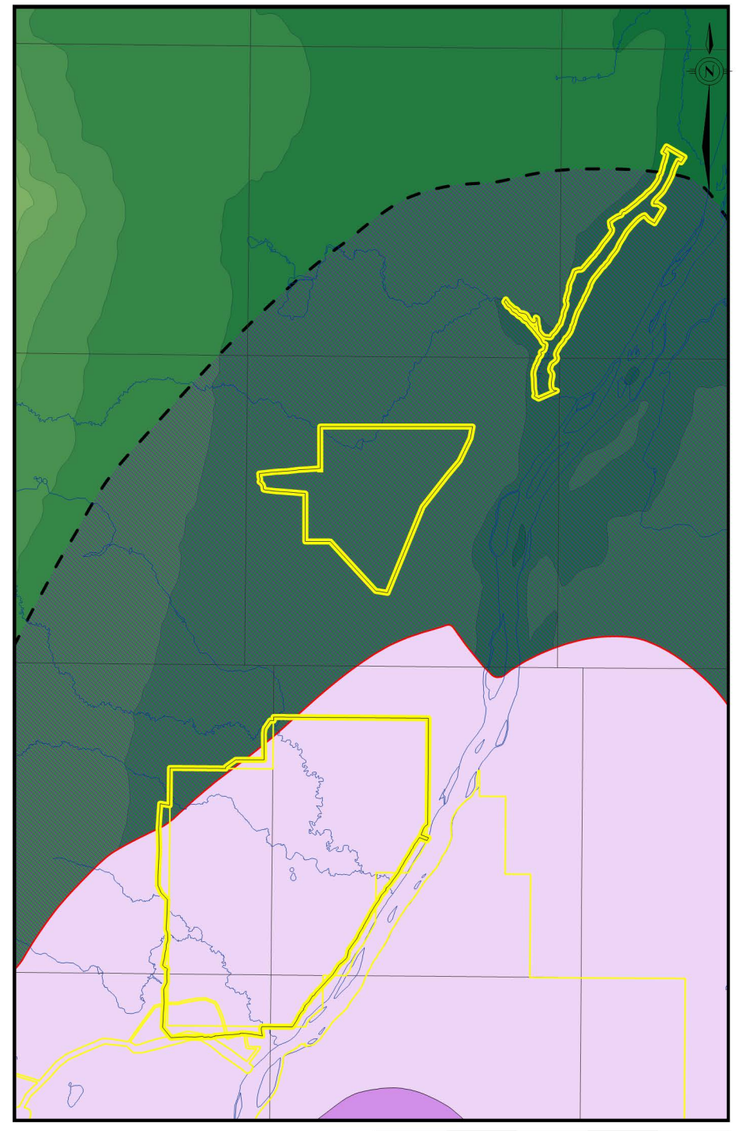
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

1
0.5
0.25
0.17
BLANK
0
Concentrations in µg/m³

## Air Local Study Area



0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

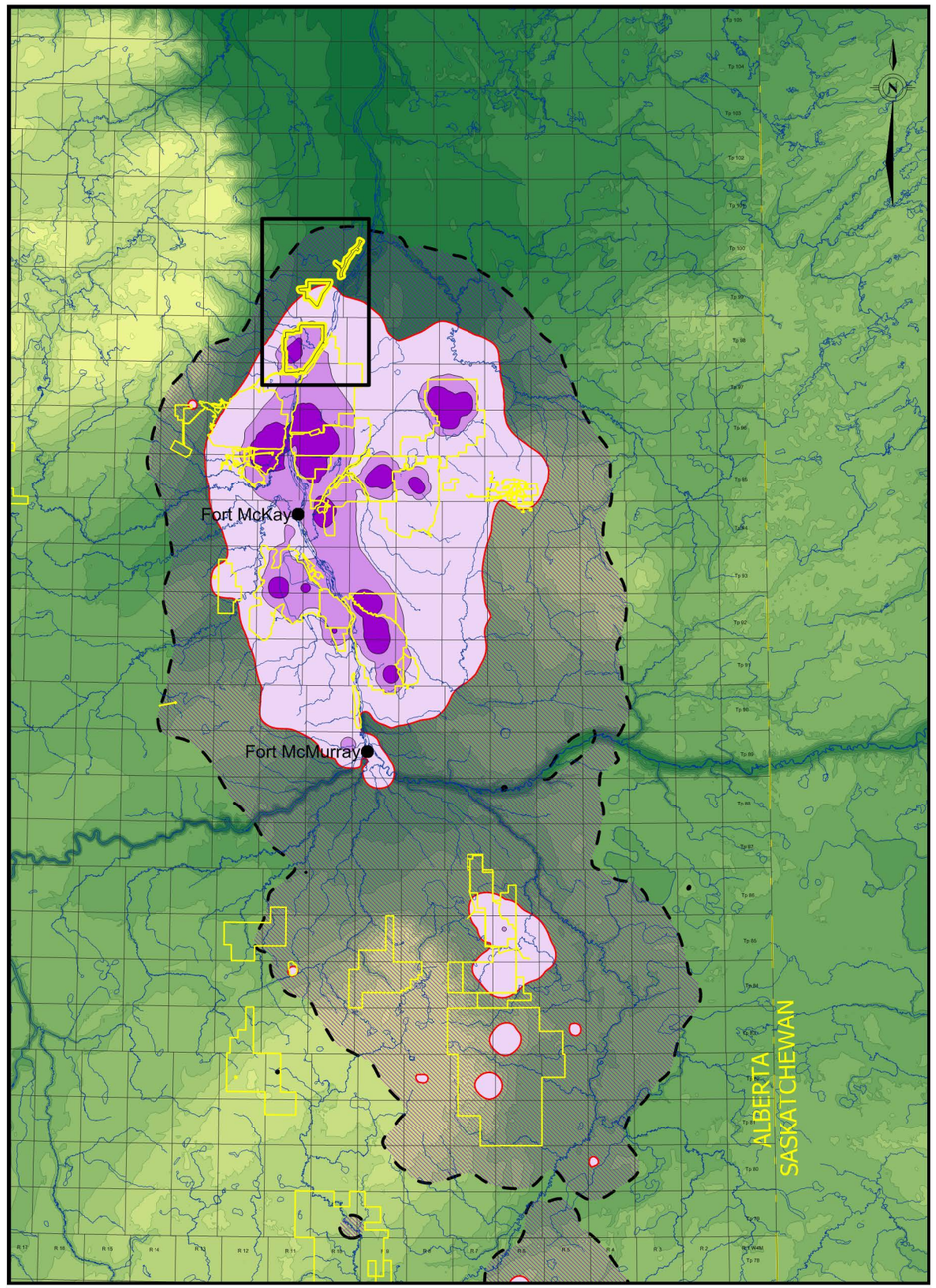
TITLE
**2013 BASE CASE**
**ANNUAL POTENTIAL ACID INPUT PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig21_bas_total_pai.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | **FIGURE 4.3-1** | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_ Health\Air\07 AIR Working Folder\report\figures\Fig22_ app_ total_pai.srf

## Air Regional Study Area




LEGEND

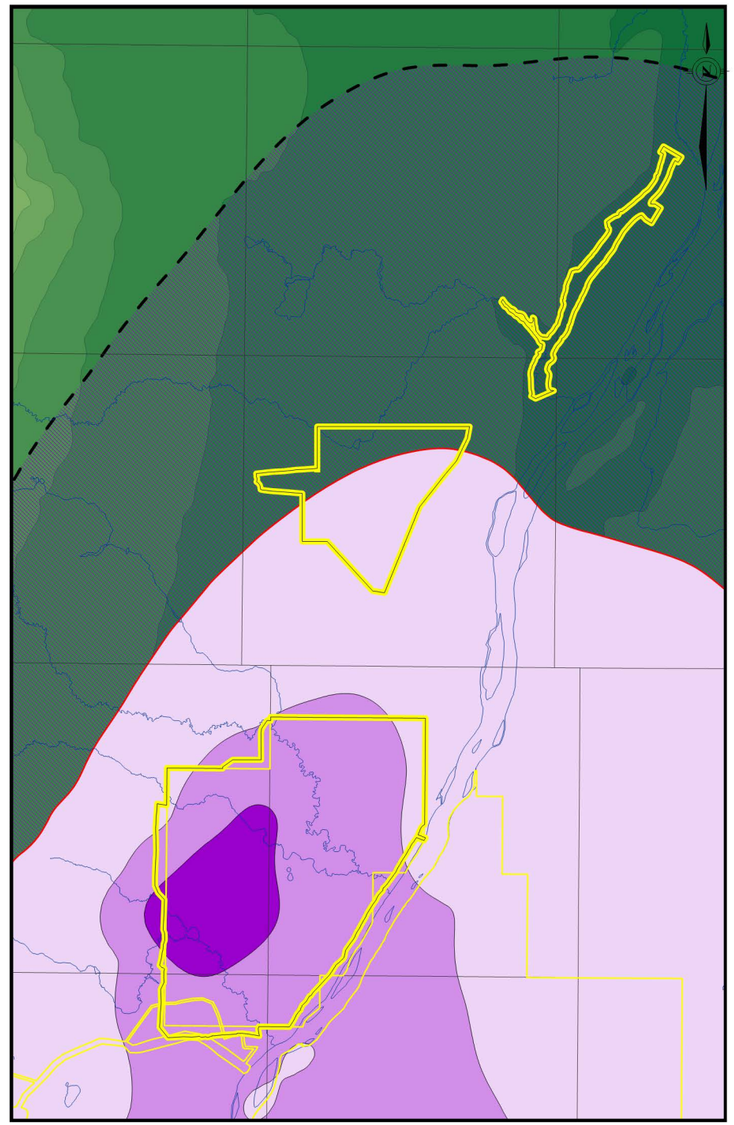
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

1
0.5
0.25
0.17
BLANK
0
Concentrations in µg/m³

## Air Local Study Area



0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

TITLE
**2013 PRM APPLICATION CASE**
**ANNUAL POTENTIAL ACID INPUT PREDICTIONS**

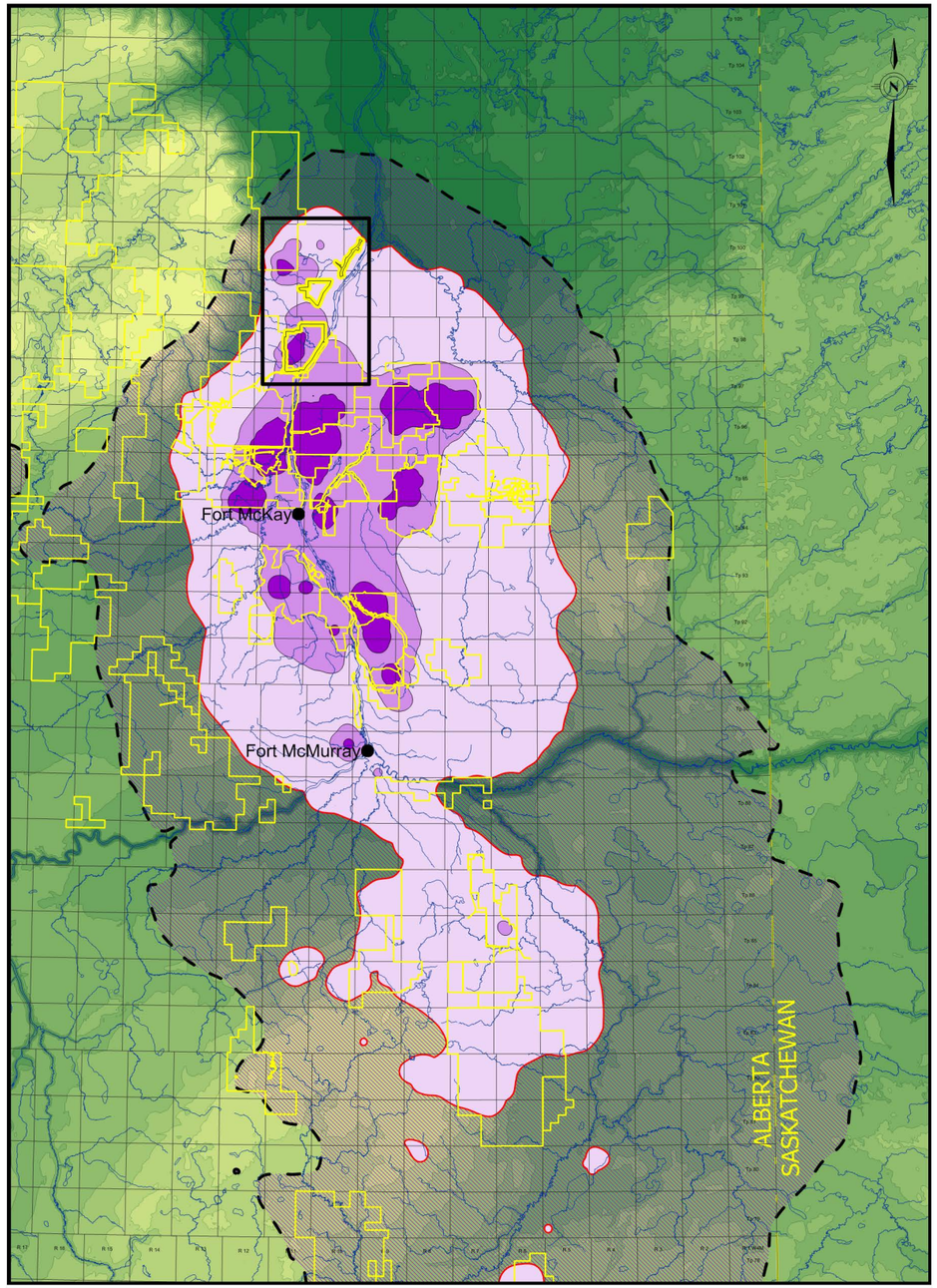
Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig22_app_total_pai.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

**FIGURE 4.3-2**

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_ Climate Change_ Health\Air\07 AIR Working Folder\report\figures\Fig23_pdc_total_pai.srf

## Air Regional Study Area

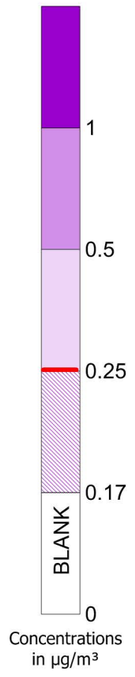



LEGEND

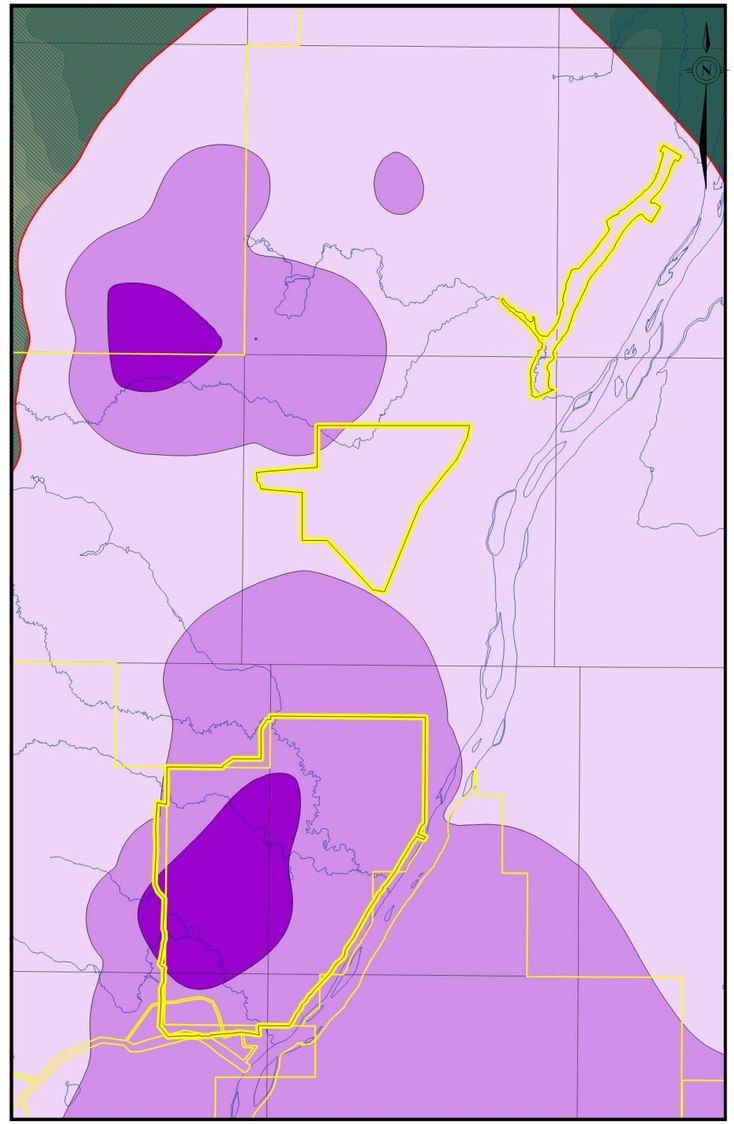
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*




## Air Local Study Area



0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT

PIERRE RIVER MINE PROJECT

TITLE

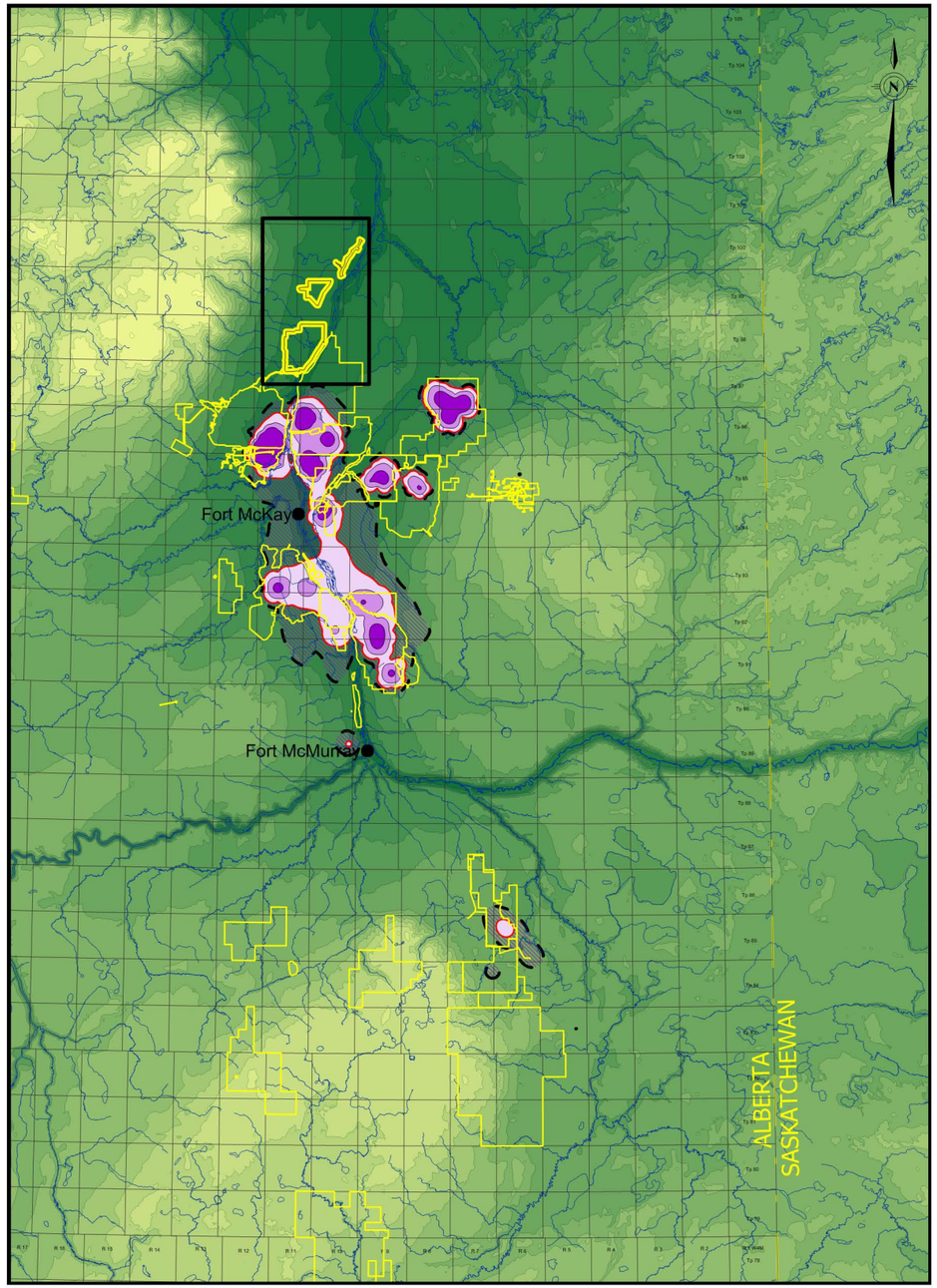
**2013 PLANNED DEVELOPMENT CASE ANNUAL POTENTIAL ACID INPUT PREDICTIONS**

**Shell Canada Limited**

| PROJECT 13-1346-0001 | | | Fig23_pdc_total_pai.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.3-3** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_Climate Change_Health\Air\07 AIR Working Folder\report\figures\Fig24_bas_soilnet.srf

## Air Regional Study Area




LEGEND

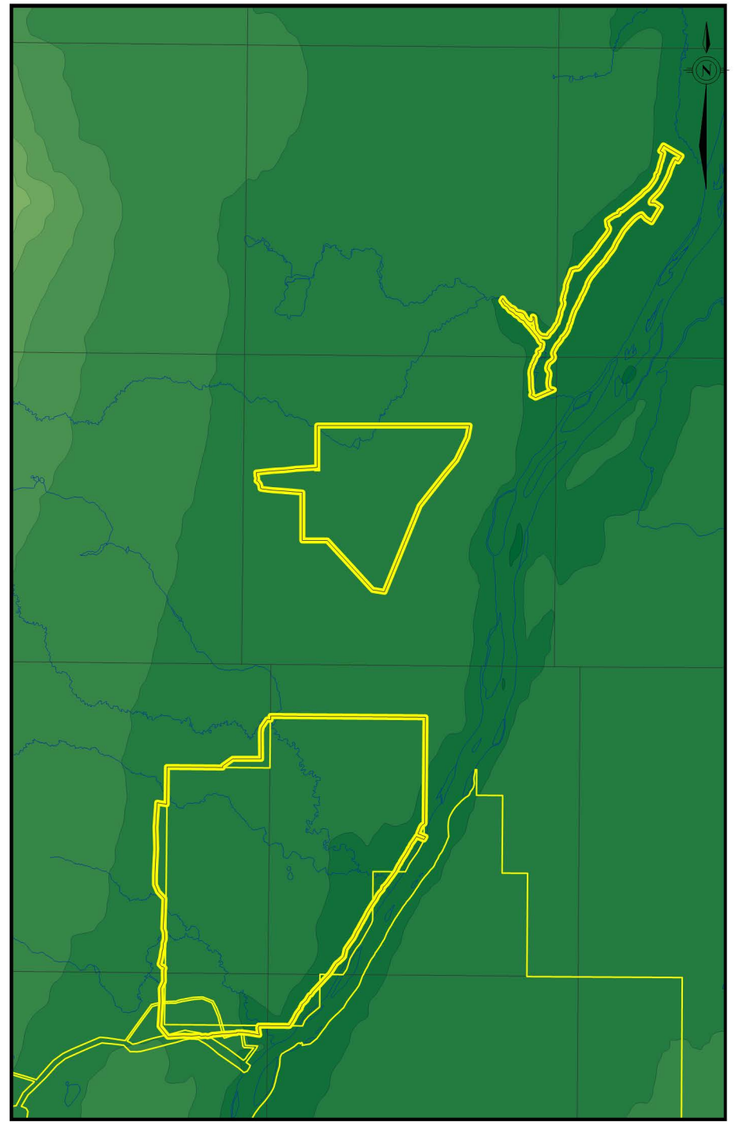
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

1
0.5
0.25
0.17
BLANK
0
Concentrations in µg/m³

## Air Local Study Area



0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

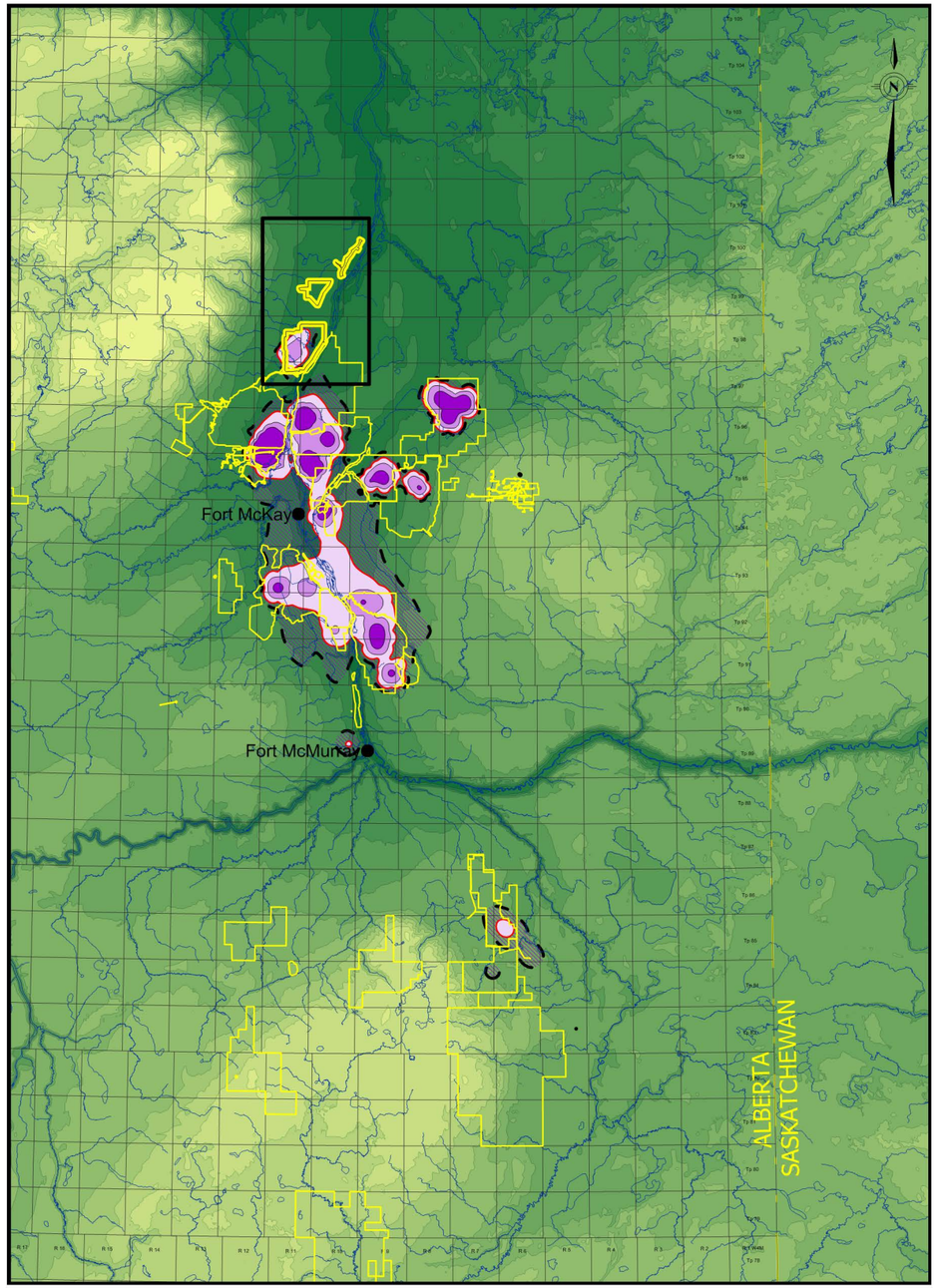
TITLE
**2013 BASE CASE ANNUAL SOIL NET POTENTIAL ACID INPUT PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig24_bas_soilnet.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.3-4** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:_2013\1346\13-1346-0001 Shell Pierre River Mine Follow-up\6100 PRM JRP SIRs\6106 Air_AEE_Climate Change_Health\Air\07 AIR Working Folder\report\figures\Fig25_app_soilnet.srf

## Air Regional Study Area




LEGEND

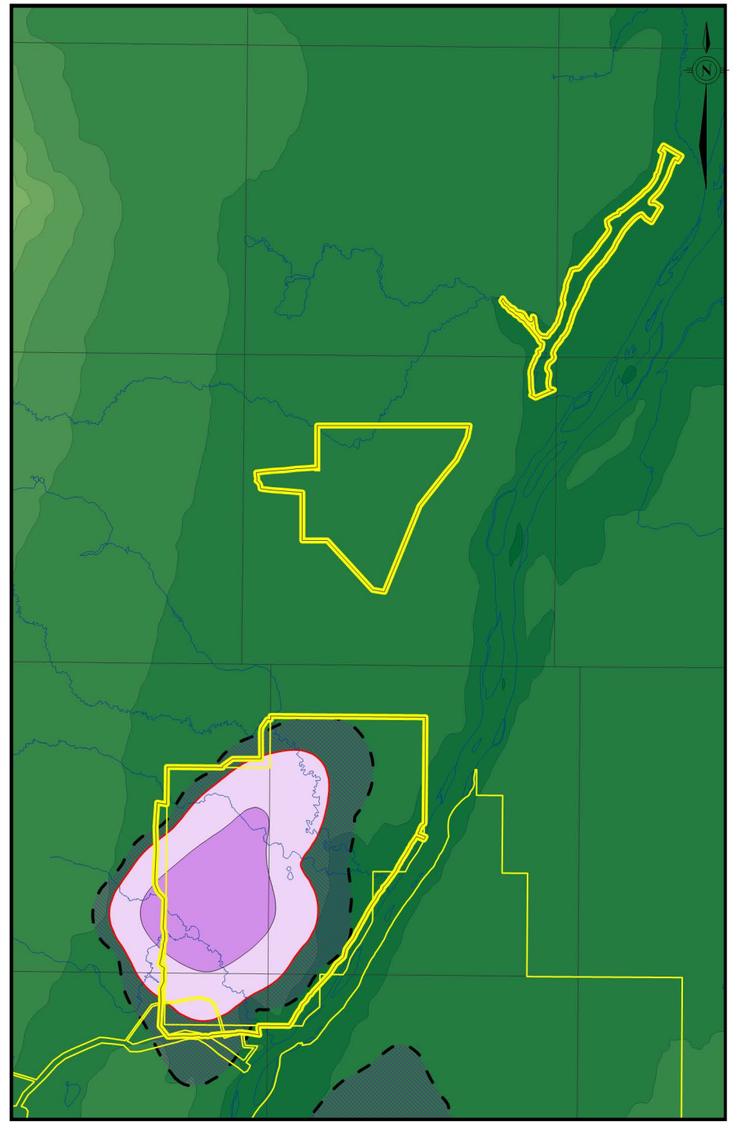
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

1
0.5
0.25
0.17
BLANK
0
Concentrations in µg/m³

## Air Local Study Area



0 4 8 12 16 20
SCALE KILOMETRES

LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.) USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

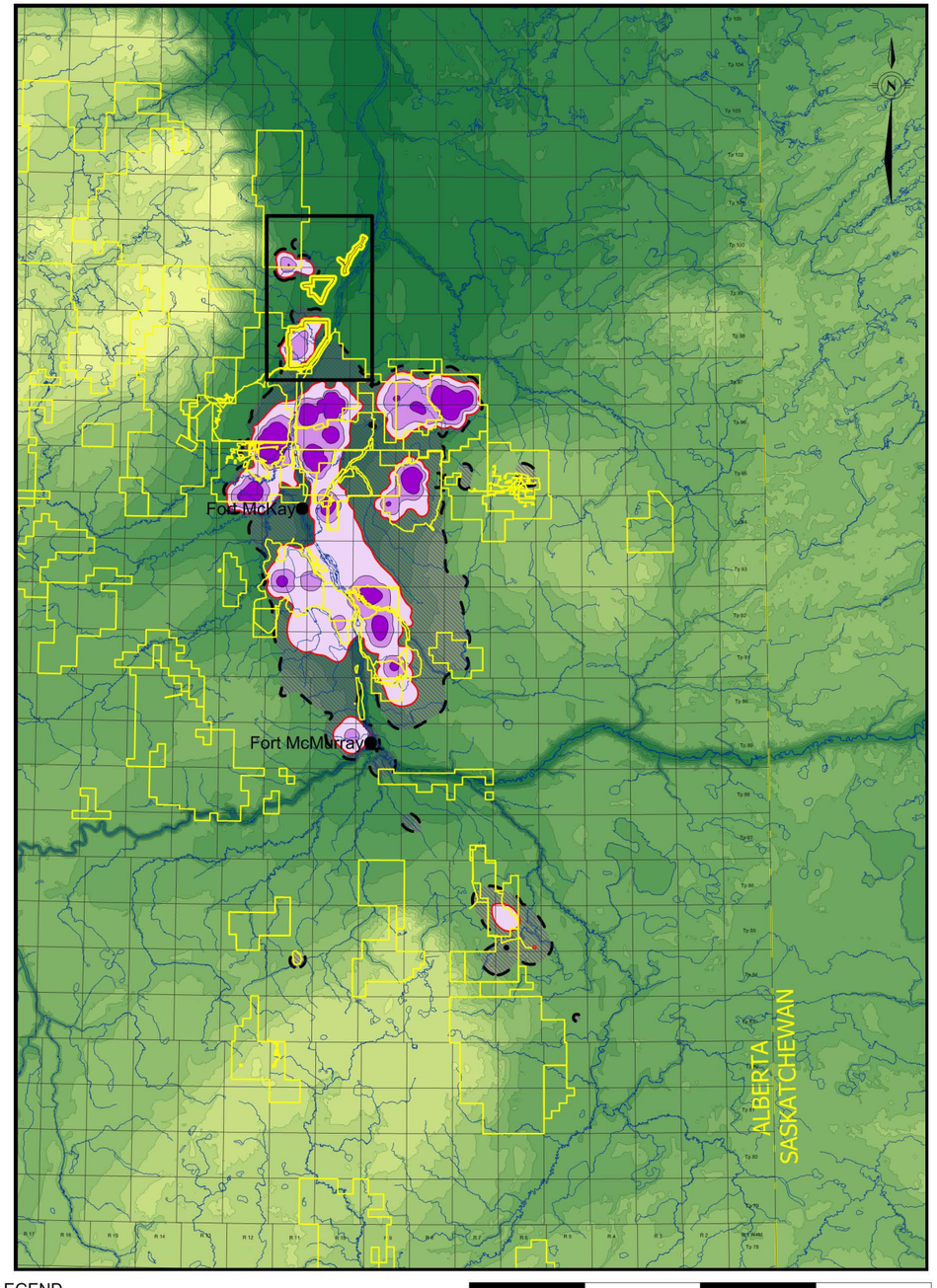
TITLE
**2013 PRM APPLICATION CASE ANNUAL SOIL NET POTENTIAL ACID INPUT PREDICTIONS**

Shell Canada Limited

| PROJECT 13-1346-0001 | | | Fig25_app_soilnet.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | **FIGURE 4.3-5** | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

R:/_2013/1346/13-1346-0001 Shell Pierre River Mine Follow-up/6100 PRM JRP SIRs/6106 Air_AEE_Climate Change_Health/Air/07 AIR Working Folder/report/figures/Fig26_pdc_soilnet.srf

## Air Regional Study Area




LEGEND

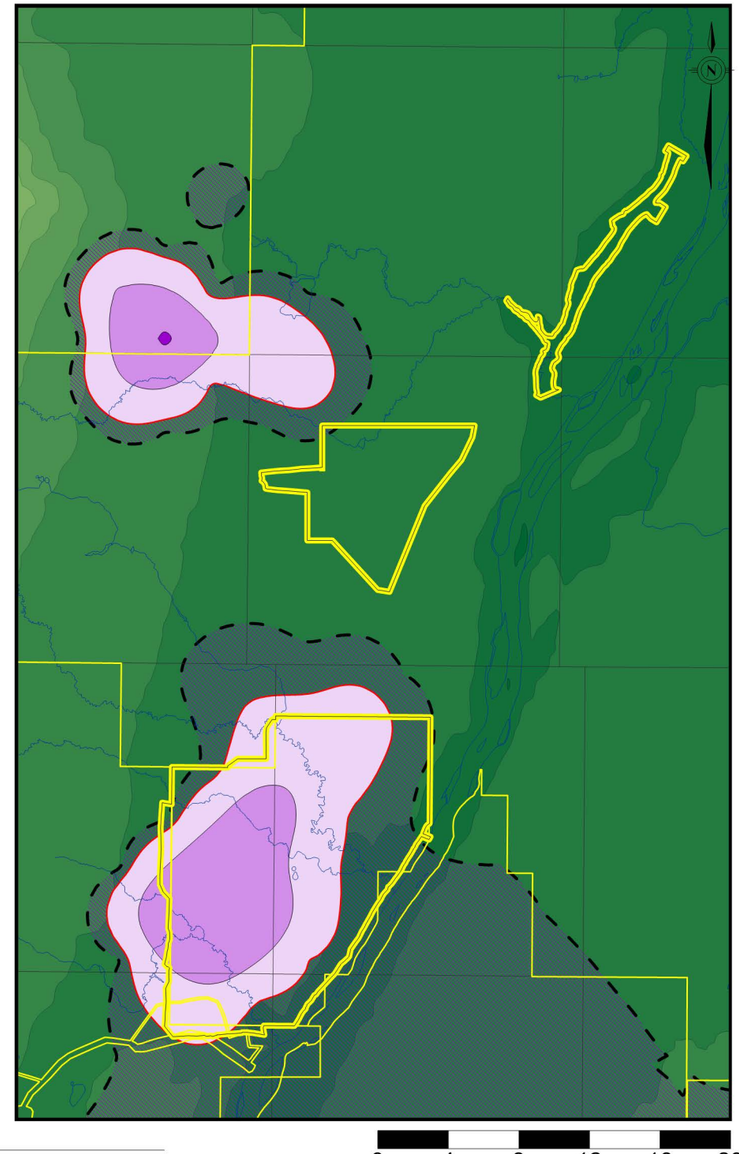
- *Elevations are shown at 50 m contour intervals.*
- *Indicates the limits of the Local Study Area shown on the right.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*

0 25 50 75 100
SCALE KILOMETRES

- *Maximum prediction within Regional Study Area.*
- *Maximum prediction within Regional Study Area, excluding developed areas.*

1
0.5
0.25
0.17
BLANK
0
Concentrations in µg/m³

## Air Local Study Area



LEGEND

- *Elevations are shown at 20 m contour intervals.*
- *Indicates the limits of the Local Study Area.*
- *Indicates the boundaries of developed area.*
- *Indicates the Pierre River Mine development area.*
- *Maximum prediction within Local Study Area.*
- *Maximum prediction within Local Study Area, excluding developed areas.*

0 4 8 12 16 20
SCALE KILOMETRES

**REFERENCE**

ALBERTA DIGITAL DATA OBTAINED FROM ALTALIS LTD. (SEPTEMBER 2004.)
USED UNDER LICENSE. PROJECTION: TRANSVERSE MERCATOR
DATUM: NAD 83 COORDINATE SYSTEM: UTM ZONE 12.

PROJECT
PIERRE RIVER MINE PROJECT

TITLE
**2013 PLANNED DEVELOPMENT CASE ANNUAL SOIL NET POTENTIAL ACID INPUT PREDICTIONS**

**Shell Canada Limited**

| PROJECT 13-1346-0001 | | | Fig26_pdc_soilnet.srf | |
|---|---|---|---|---|
| DESIGN | RU | 17/08/07 | SCALE AS SHOWN | REV. 0 |
| AIR | MC | 21/05/13 | | |
| CHECK | CB | 28/05/13 | | |
| REVIEW | WES | 14/06/13 | | |

**FIGURE 4.3-6**

The Clean Air Strategic Alliance framework for managing acid deposition in Alberta considers management units represented by grid cells that are 1° by 1° in size. The centre of each grid cell corresponds with the intersection of whole lines of latitude and lines of longitude. The modelling domain for PRM air assessment overlays 20 of these grid cells, all of them classified as being sensitive to acid inputs. Using the results from the CALPUFF model, it was possible to determine the PAI values that would correspond to each of the twenty 1° by 1° grid cells. These results are presented in Table 4.3-2.

**Table 4.3-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Gross Potential Acid Input Predictions for 1° by 1° Grid Cells**

| Grid Cell Centre[a] | 1995 Background[b] [keq/ha/yr] | 2013 Base Case[c] [keq/ha/yr] | 2013 PRM Application Case[c] [keq/ha/yr] | 2013 Planned Development Case[c] [keq/ha/yr] |
|---|---|---|---|---|
| 58º×113º | 0.040 | 0.069 | 0.069 | 0.081 |
| 58º×112º | 0.033 | 0.091 | 0.098 | 0.132 |
| 58º×111º | 0.030 | 0.105 | 0.108 | 0.138 |
| 58º×110º | 0.024 | 0.066 | 0.067 | 0.080 |
| 58º×109º | 0.030 | 0.055 | 0.055 | 0.063 |
| 57º×113º | 0.054 | 0.098 | 0.099 | 0.123 |
| 57º×112º | 0.047 | **0.273** | **0.282** | **0.367** |
| 57º×111º | 0.043 | **0.302** | **0.305** | **0.409** |
| 57º×110º | 0.044 | 0.123 | 0.124 | 0.150 |
| 57º×109º | 0.044 | 0.088 | 0.089 | 0.103 |
| 56º×113º | 0.075 | 0.111 | 0.111 | 0.137 |
| 56º×112º | 0.060 | 0.126 | 0.126 | 0.159 |
| 56º×111º | 0.065 | 0.192 | 0.193 | 0.243 |
| 56º×110º | 0.062 | 0.149 | 0.150 | 0.181 |
| 56º×109º | 0.062 | 0.113 | 0.114 | 0.131 |
| 55º×113º | 0.117 | 0.133 | 0.134 | 0.141 |
| 55º×112º | 0.102 | 0.133 | 0.133 | 0.145 |
| 55º×111º | 0.099 | 0.170 | 0.170 | 0.191 |
| 55º×110º | 0.092 | 0.157 | 0.157 | 0.174 |
| 55º×109º | 0.073 | 0.108 | 0.109 | 0.120 |

(a) The 1° by 1° grid cells are centred on the listed latitude and longitude.

(b) Background PAI values were determined by AENV using the RELAD model (Cheng 2001), except where noted.

(c) The predictions include the background PAI predicted by AENV (Cheng 2001).

Note: Values in bold indicate PAI predictions that are higher than the 0.25 keq/ha/yr critical load for sensitive ecosystems.

The predicted PAI levels in grid cells 57º×111º and 57º×112º are higher than the 0.25 keq/ha/yr critical load for sensitive ecosystems. These two grid cells contain most of the oil sands development in the region, including PRM development area and existing, approved and planned open-pit mining operations.

# 5.0 COMMUNITY EXPOSURE LEVELS

The predicted air quality concentrations at key community receptors and areas of local interest for the 2013 Base Case, 2013 PRM Application Case and 2013 PDC are provided in this section. The key receptors include nine communities in Alberta and two communities in Saskatchewan that represent the primary population centres in or near the region that could potentially experience increased concentrations due to PRM. In addition, concentrations were also predicted at 12 receptors that represent locations close to PRM where persons have historically practiced traditional land uses, and at two regional worker camps. The highest predictions at PRM fenceline are also provided. The fenceline represents the boundary of the PRM developed area.

## 5.1 Community Background Concentrations

Background concentration data, which is discussed in the EIA, Volume 3, Appendix 3-8, were used to represent community contributions of $SO_2$, $NO_X$, carbon monoxide (CO) and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) in Anzac, Conklin, Fort Chipewyan, Fort McKay, Fort McMurray and Janvier/Chard in Alberta, and La Loche in Saskatchewan. The other communities are not expected to have appreciable community-based emissions.

While available Total Reduced Sulphur (TRS) and hydrogen sulphide ($H_2S$) data are more limited, it indicates that the communities themselves are not a substantial source of these emissions and that background concentrations from community sources were effectively zero. Because local emission sources (motor vehicles exhaust, gasoline refuelling and home heating) can contribute significantly to local Volatile Organic Compounds (VOC) concentrations, VOC emissions were modelled for Fort McKay, Fort McMurray, Anzac, Fort Chipewyan, Janvier/Chard, Conklin and La Loche.

## 5.2 Sulphur Dioxide Predictions

The predicted 2013 Base Case, 2013 PRM Application Case and 2013 PDC regional community ground-level $SO_2$ concentrations are summarized in Table 5.2-1. The results indicate that the maximum 1-hour, maximum 24-hour, 30-day and annual $SO_2$ predictions are also below the AAAQOs of 450, 125, 30 and 20 µg/m³, respectively (ESRD 2013).

## 5.3 Nitrogen Dioxide Predictions

The predicted 2013 Base Case, 2013 PRM Application Case and 2013 PDC $NO_2$ concentrations in regional communities are summarized in Table 5.3-1. The results indicate that the annual prediction at the fenceline is above the AAAQO of 45 µg/m³ (ESRD 2013) in the 2013 PDC; however, all other predictions are below the AAAQOs. The exceedance of the annual $NO_2$ AAAQO is due to the addition of planned projects in the region.

## 5.4 Carbon Monoxide Predictions

The predicted peak regional community 2013 Base Case, 2013 PRM Application Case and 2013 PDC CO concentrations in regional communities are summarized in Table 5.4-1. The estimated CO emissions result in no predicted occurrences above the 1-hour and 8-hour AAAQO (ESRD 2013) levels of 15,000 and 6,000 µg/m³, respectively.

**Table 5.2-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Sulphur Dioxide Predictions in Regional Communities**

| Community | Peak 1-Hour[a] | | | Maximum 1-Hour[a] | | | Peak 24-Hour[a] | | | Maximum 24-Hour[a] | | | Maximum 30-Day[a] | | | Peak Annual[a] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC |
| Anzac[b] | 125.3 | 125.3 | 125.3 | 52.8 | 52.8 | 58.7 | 24.2 | 24.2 | 25.0 | 17.3 | 17.3 | 24.6 | 6.3 | 6.3 | 7.9 | 3.9 | 3.9 | 5.2 |
| Conklin[b] | 37.0 | 37.0 | 48.9 | 24.4 | 24.4 | 32.0 | 12.8 | 12.8 | 17.6 | 11.2 | 11.2 | 14.5 | 3.5 | 3.5 | 4.6 | 1.6 | 1.6 | 2.7 |
| Fort Chipewyan[b] | 26.8 | 26.8 | 30.7 | 17.2 | 17.2 | 19.2 | 10.3 | 10.3 | 13.6 | 9.9 | 9.9 | 12.4 | 2.1 | 2.1 | 2.6 | 0.6 | 0.6 | 0.8 |
| Fort McKay[b] | 164.2 | 164.2 | 167.2 | 86.3 | 86.3 | 88.6 | 27.7 | 27.7 | 28.0 | 24.9 | 24.9 | 27.9 | 8.7 | 8.7 | 9.5 | 5.1 | 5.1 | 5.5 |
| Fort McMurray[b] | 77.0 | 77.0 | 115.9 | 50.9 | 50.9 | 53.4 | 19.4 | 19.4 | 26.7 | 18.1 | 18.1 | 19.8 | 6.2 | 6.2 | 7.6 | 3.3 | 3.3 | 4.0 |
| Janvier/Chard (IR 194)[b] | 47.6 | 47.6 | 57.5 | 30.8 | 30.8 | 35.5 | 17.0 | 17.0 | 21.1 | 14.7 | 14.7 | 18.4 | 3.8 | 3.8 | 4.9 | 1.8 | 1.8 | 2.5 |
| Clearwater (IR175) | 57.0 | 57.0 | 67.6 | 35.0 | 35.0 | 42.6 | 13.1 | 13.1 | 18.3 | 12.0 | 12.0 | 16.9 | 3.3 | 3.3 | 4.9 | 2.2 | 2.2 | 3.0 |
| Namur River (IR 174A) | 43.9 | 43.9 | 45.8 | 33.6 | 33.6 | 34.7 | 16.7 | 16.7 | 18.9 | 13.3 | 13.3 | 17.3 | 2.8 | 2.8 | 3.9 | 1.3 | 1.3 | 1.8 |
| Poplar Point (IR 201G) | 32.3 | 32.3 | 35.8 | 27.8 | 27.8 | 31.8 | 14.3 | 14.3 | 18.5 | 14.1 | 14.1 | 17.5 | 3.7 | 3.7 | 4.8 | 1.5 | 1.5 | 1.8 |
| Cabin A | 60.2 | 60.2 | 65.7 | 38.8 | 38.8 | 40.2 | 19.1 | 19.1 | 22.9 | 17.4 | 17.4 | 21.3 | 5.2 | 5.2 | 5.8 | 2.3 | 2.3 | 2.6 |
| Cabin B | 50.6 | 50.6 | 51.5 | 29.0 | 29.0 | 32.9 | 15.9 | 15.9 | 19.7 | 14.5 | 14.5 | 17.5 | 4.1 | 4.1 | 4.9 | 2.0 | 2.0 | 2.2 |
| Cabin C | 70.3 | 70.3 | 76.1 | 41.7 | 41.8 | 45.8 | 19.1 | 19.1 | 21.8 | 17.3 | 17.3 | 19.7 | 5.2 | 5.2 | 5.8 | 2.3 | 2.3 | 2.6 |
| Cabin D | 77.0 | 77.0 | 82.9 | 46.8 | 46.8 | 50.1 | 20.3 | 20.3 | 22.9 | 18.3 | 18.3 | 20.7 | 5.7 | 5.7 | 6.2 | 2.5 | 2.5 | 2.8 |
| Cabin E | 59.6 | 59.6 | 60.7 | 38.8 | 38.8 | 42.8 | 17.3 | 17.3 | 20.6 | 17.1 | 17.2 | 19.2 | 5.1 | 5.1 | 5.9 | 2.7 | 2.7 | 3.0 |
| Cabin F | 62.5 | 62.5 | 66.6 | 44.1 | 44.1 | 50.1 | 18.1 | 18.1 | 20.5 | 16.9 | 16.9 | 19.8 | 5.2 | 5.2 | 5.9 | 2.9 | 2.9 | 3.1 |
| Cabin G | 40.5 | 40.5 | 43.0 | 27.8 | 27.8 | 31.1 | 12.6 | 12.6 | 14.3 | 11.7 | 11.7 | 13.5 | 4.6 | 4.6 | 5.2 | 2.6 | 2.6 | 2.9 |
| Cabin H | 65.4 | 65.4 | 69.4 | 49.6 | 49.6 | 51.4 | 29.8 | 29.8 | 31.2 | 19.4 | 19.4 | 19.5 | 5.5 | 5.5 | 6.7 | 3.6 | 3.6 | 4.2 |
| Cabin I | 142.0 | 142.0 | 151.1 | 72.5 | 72.5 | 72.4 | 29.5 | 29.6 | 29.2 | 27.4 | 27.4 | 25.3 | 9.2 | 9.2 | 6.2 | 4.2 | 4.2 | 3.4 |
| Cabin J | 136.9 | 136.9 | 127.4 | 100.5 | 100.5 | 75.1 | 48.4 | 48.4 | 33.0 | 47.0 | 47.0 | 30.4 | 12.6 | 12.6 | 9.5 | 6.6 | 6.6 | 4.5 |
| Cabin K | 92.7 | 92.7 | 100.6 | 68.3 | 68.3 | 58.5 | 31.4 | 31.4 | 28.3 | 27.9 | 27.9 | 25.0 | 9.5 | 9.5 | 8.9 | 4.8 | 4.8 | 4.3 |
| Cabin L | 102.0 | 102.1 | 110.0 | 54.4 | 54.4 | 60.2 | 24.2 | 24.2 | 26.0 | 22.1 | 22.1 | 25.6 | 7.8 | 7.8 | 7.0 | 3.3 | 3.4 | 3.3 |
| Descharme Lake, SK | 28.6 | 28.6 | 34.4 | 16.3 | 16.3 | 19.4 | 7.5 | 7.5 | 10.8 | 6.2 | 6.2 | 8.0 | 1.6 | 1.6 | 2.0 | 1.0 | 1.0 | 1.3 |
| La Loche, SK[b] | 30.0 | 30.0 | 36.9 | 17.4 | 17.5 | 20.8 | 10.6 | 10.6 | 13.1 | 8.2 | 8.2 | 11.3 | 3.1 | 3.1 | 3.9 | 1.2 | 1.2 | 1.6 |
| Oil Sands Lodge | 391.9 | 391.9 | 401.6 | 155.2 | 155.2 | 155.7 | 45.1 | 45.1 | 46.7 | 45.1 | 45.1 | 45.7 | 10.8 | 10.8 | 11.2 | 7.1 | 7.1 | 7.4 |
| PTI Camp | 201.1 | 201.1 | 202.8 | 105.3 | 105.3 | 115.7 | 33.0 | 33.0 | 33.9 | 31.9 | 31.9 | 33.9 | 8.2 | 8.2 | 9.2 | 5.2 | 5.2 | 5.7 |
| PRM Fenceline[c] | 138.3 | 138.3 | 146.4 | 78.5 | 78.5 | 79.1 | 32.9 | 33.2 | 30.6 | 31.8 | 32.0 | 26.7 | 9.4 | 9.5 | 7.7 | 4.0 | 4.0 | 3.8 |
| **AAAQO[d]** | **–** | | | **450** | | | **–** | | | **125** | | | **30** | | | **20** | | |

(a) The peak predictions include the eight highest 1-hour predictions from the CALPUFF model. The maximum 1-hour prediction excludes the eight highest 1-hour predictions and the maximum 24-hour prediction excludes the first highest 24-hour prediction from the model per the Alberta Air Quality Model Guideline (AENV 2009). The eight highest hours are included in the 30-day and annual predictions.

(b) These results include community background concentrations that represent the contribution due to local activities within the communities.

(c) Location along the fenceline where CALPUFF predicted the highest concentration.

(d) AAAQO = Alberta Ambient Air Quality Objectives (ESRD 2013).

**Table 5.3-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Nitrogen Dioxide Predictions in Regional Communities**

| Community | Peak 1-Hour[a] | | | Maximum 1-Hour[a] | | | Peak 24-Hour[a] | | | Maximum 24-Hour[a] | | | Peak Annual[a] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC |
| Anzac[b] | 95.5 | 94.7 | 102.2 | 77.0 | 77.9 | 80.9 | 42.6 | 42.6 | 42.8 | 37.2 | 37.7 | 40.9 | 7.8 | 7.9 | 9.5 |
| Conklin[b] | 132.6 | 132.6 | 133.9 | 86.1 | 86.1 | 89.6 | 40.6 | 40.9 | 43.3 | 37.8 | 37.9 | 40.4 | 5.2 | 5.2 | 6.7 |
| Fort Chipewyan[b] | 93.1 | 95.0 | 93.5 | 67.3 | 69.0 | 73.9 | 34.6 | 35.9 | 41.8 | 30.9 | 31.9 | 36.7 | 3.1 | 3.2 | 3.5 |
| Fort McKay[b] | 130.3 | 130.7 | 127.4 | 117.4 | 118.4 | 115.1 | 96.3 | 96.5 | 97.2 | 90.5 | 90.8 | 90.1 | 30.0 | 30.2 | 32.4 |
| Fort McMurray[b] | 112.6 | 112.7 | 114.5 | 102.6 | 102.7 | 105.5 | 80.2 | 80.9 | 84.6 | 73.8 | 74.2 | 76.0 | 21.5 | 21.6 | 22.9 |
| Janvier/Chard (IR 194)[b] | 90.6 | 90.8 | 95.1 | 64.5 | 65.1 | 73.9 | 29.4 | 30.0 | 34.3 | 27.9 | 28.1 | 31.9 | 5.4 | 5.4 | 6.6 |
| Clearwater (IR175) | 62.7 | 62.9 | 62.9 | 55.9 | 56.0 | 57.0 | 37.1 | 37.8 | 41.1 | 35.6 | 36.5 | 38.5 | 5.4 | 5.5 | 6.7 |
| Namur River (IR 174A) | 54.7 | 54.9 | 56.5 | 48.1 | 48.3 | 52.0 | 32.7 | 33.5 | 40.2 | 31.5 | 33.4 | 39.4 | 2.6 | 2.7 | 3.9 |
| Poplar Point (IR 201G) | 66.5 | 67.8 | 69.6 | 56.3 | 56.5 | 59.4 | 48.3 | 49.5 | 54.2 | 45.5 | 46.0 | 50.7 | 6.8 | 7.1 | 8.3 |
| Cabin A | 83.7 | 86.1 | 84.7 | 81.2 | 84.0 | 81.6 | 64.4 | 66.7 | 66.9 | 63.4 | 65.9 | 65.0 | 13.8 | 15.0 | 17.4 |
| Cabin B | 80.6 | 80.6 | 82.1 | 73.2 | 73.7 | 75.0 | 60.0 | 60.1 | 63.3 | 56.6 | 57.5 | 58.5 | 11.1 | 11.3 | 12.6 |
| Cabin C | 91.5 | 92.0 | 89.0 | 81.1 | 83.9 | 81.1 | 67.9 | 68.2 | 69.1 | 64.2 | 65.3 | 65.4 | 13.9 | 14.7 | 16.4 |
| Cabin D | 96.5 | 96.9 | 93.4 | 89.6 | 89.7 | 87.8 | 70.9 | 71.3 | 71.6 | 67.6 | 68.8 | 68.4 | 15.2 | 16.1 | 18.0 |
| Cabin E | 88.7 | 88.8 | 88.6 | 83.8 | 83.8 | 84.8 | 67.1 | 67.5 | 69.9 | 66.3 | 67.1 | 68.5 | 15.2 | 15.6 | 17.5 |
| Cabin F | 91.0 | 91.3 | 88.4 | 84.6 | 84.7 | 86.1 | 68.9 | 70.0 | 70.8 | 67.8 | 67.9 | 70.3 | 16.0 | 16.4 | 18.3 |
| Cabin G | 113.5 | 113.6 | 114.6 | 101.9 | 101.9 | 104.5 | 75.9 | 76.0 | 78.8 | 72.3 | 72.6 | 73.6 | 15.0 | 15.2 | 16.0 |
| Cabin H | 121.3 | 121.3 | 127.0 | 105.8 | 105.8 | 117.1 | 74.8 | 74.9 | 81.8 | 62.9 | 63.4 | 77.9 | 18.6 | 18.7 | 21.2 |
| Cabin I | 133.8 | 133.8 | 119.3 | 124.0 | 124.0 | 111.5 | 96.7 | 96.8 | 87.8 | 91.9 | 91.9 | 85.4 | 25.2 | 29.6 | 30.0 |
| Cabin J | 187.4 | 187.6 | 164.7 | 165.6 | 165.6 | 151.3 | 129.7 | 130.1 | 124.2 | 107.4 | 108.4 | 104.9 | 34.4 | 35.7 | 35.1 |
| Cabin K | 184.4 | 184.6 | 177.3 | 152.1 | 152.2 | 148.8 | 114.4 | 114.8 | 111.7 | 98.3 | 98.3 | 99.1 | 32.2 | 33.0 | 33.5 |
| Cabin L | 122.4 | 123.9 | 116.4 | 110.0 | 110.1 | 104.2 | 83.9 | 85.2 | 82.1 | 83.9 | 84.7 | 81.2 | 20.3 | 24.0 | 25.9 |
| Descharme Lake, SK | 35.9 | 36.0 | 41.8 | 24.0 | 24.0 | 27.4 | 11.8 | 12.2 | 14.8 | 11.3 | 11.4 | 13.4 | 1.7 | 1.8 | 2.2 |
| La Loche, SK[b] | 84.8 | 85.7 | 91.0 | 52.2 | 52.4 | 58.0 | 23.9 | 24.2 | 27.9 | 22.4 | 23.0 | 26.2 | 3.7 | 3.8 | 4.4 |
| Oil Sands Lodge | 168.1 | 168.2 | 168.1 | 152.2 | 152.3 | 152.3 | 116.5 | 116.6 | 116.7 | 107.3 | 107.4 | 107.2 | 34.9 | 35.1 | 37.0 |
| PTI Camp | 109.3 | 110.3 | 105.2 | 97.9 | 98.4 | 97.0 | 73.2 | 73.5 | 73.6 | 71.6 | 72.0 | 71.8 | 25.8 | 26.0 | 28.3 |
| PRM Fenceline[c] | 147.1 | 152.2 | 142.9 | 137.8 | 145.6 | 137.0 | 101.6 | 120.2 | 118.7 | 97.5 | 116.4 | 115.9 | 23.7 | 43.3 | 45.5 |
| **AAAQO[d]** | | **–** | | | **300** | | | **–** | | | **–** | | | **45** | |

(a) The peak predictions include the eight highest 1-hour predictions from the CALPUFF model. The maximum 1-hour prediction excludes the eight highest 1-hour predictions and the maximum 24-hour prediction excludes the first highest 24-hour prediction from the model per the Alberta Air Quality Model Guideline (AENV 2009).

(b) These results include community background concentrations that represent the contribution due to local activities within the communities.

(c) Location along the fenceline where CALPUFF predicted the highest concentration.

(d) AAAQO = Alberta Ambient Air Quality Objectives (ESRD 2013).

Note: Bold values indicate an exceedance of the AAAQO.

**Table 5.4-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Carbon Monoxide Predictions in Regional Communities**

| Community | Peak 1-Hour[a] | | | Peak 8-Hour[a] | | | Peak Annual[a] | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC |
| Anzac[b] | 931.9 | 935.5 | 1,009.3 | 556.9 | 560.5 | 605.7 | 107.1 | 107.2 | 111.5 |
| Conklin[b] | 387.6 | 387.6 | 451.4 | 203.6 | 203.7 | 236.4 | 30.1 | 30.2 | 33.9 |
| Fort Chipewyan[b] | 389.0 | 390.7 | 405.7 | 238.2 | 239.5 | 252.3 | 40.3 | 40.4 | 41.6 |
| Fort McKay[b] | 1,083.9 | 1,102.1 | 1,126.6 | 648.0 | 665.2 | 694.3 | 88.7 | 89.4 | 95.2 |
| Fort McMurray[b] | 3,342.2 | 3,342.6 | 3,296.5 | 1,903.1 | 1,903.2 | 1,888.8 | 375.4 | 375.6 | 378.7 |
| Janvier/Chard (IR 194) [b] | 442.3 | 444.0 | 463.8 | 268.6 | 270.4 | 291.1 | 47.1 | 47.1 | 50.5 |
| Clearwater (IR175) | 232.3 | 232.4 | 138.9 | 123.3 | 123.3 | 103.8 | 8.3 | 8.5 | 10.7 |
| Namur River (IR 174A) | 101.7 | 105.0 | 144.5 | 94.4 | 97.8 | 130.4 | 4.5 | 4.7 | 8.8 |
| Poplar Point (IR 201G) | 203.6 | 220.9 | 241.6 | 140.8 | 149.8 | 181.3 | 8.7 | 9.3 | 13.5 |
| Cabin A | 293.9 | 336.7 | 435.6 | 229.9 | 275.7 | 282.0 | 17.2 | 20.3 | 30.0 |
| Cabin B | 289.2 | 289.6 | 291.5 | 234.9 | 242.9 | 248.5 | 14.0 | 14.6 | 18.6 |
| Cabin C | 373.7 | 381.6 | 375.8 | 291.6 | 305.9 | 305.7 | 17.7 | 19.7 | 26.6 |
| Cabin D | 413.7 | 422.0 | 416.3 | 328.9 | 342.9 | 343.8 | 19.8 | 22.5 | 30.4 |
| Cabin E | 362.6 | 362.9 | 408.2 | 295.6 | 297.2 | 312.3 | 20.6 | 21.7 | 27.7 |
| Cabin F | 373.5 | 377.0 | 417.6 | 294.2 | 295.3 | 311.9 | 22.0 | 23.3 | 29.3 |
| Cabin G | 573.8 | 576.8 | 606.3 | 402.7 | 404.6 | 442.5 | 25.8 | 26.2 | 29.7 |
| Cabin H | 376.7 | 376.7 | 662.8 | 318.0 | 321.6 | 411.5 | 25.7 | 26.1 | 36.2 |
| Cabin I | 521.7 | 521.7 | 501.8 | 317.0 | 328.1 | 336.4 | 34.2 | 42.1 | 50.6 |
| Cabin J | 1,112.9 | 1,130.8 | 1,126.4 | 758.0 | 782.3 | 786.6 | 60.0 | 63.5 | 71.3 |
| Cabin K | 1,395.9 | 1,404.3 | 1,422.6 | 771.7 | 792.9 | 814.8 | 53.6 | 55.9 | 63.5 |
| Cabin L | 600.5 | 606.0 | 624.5 | 438.5 | 441.6 | 481.0 | 29.3 | 40.4 | 51.9 |
| Descharme Lake, SK | 46.4 | 46.6 | 54.7 | 25.1 | 26.7 | 34.1 | 2.6 | 2.7 | 3.9 |
| La Loche, SK[b] | 510.5 | 512.1 | 522.9 | 294.7 | 295.8 | 306.8 | 56.2 | 56.3 | 58.0 |
| Oil Sands Lodge | 923.6 | 943.4 | 983.2 | 630.7 | 639.2 | 660.1 | 67.7 | 68.5 | 72.6 |
| PTI Camp | 523.8 | 542.0 | 573.9 | 289.2 | 301.9 | 330.0 | 34.2 | 34.8 | 39.2 |
| PRM Fenceline[c] | 881.0 | 1,021.6 | 1,066.1 | 630.6 | 904.1 | 941.2 | 40.8 | 130.3 | 145.5 |
| **AAAQO[d]** | **15,000** | | | **6,000** | | | **–** | | |

(a) The predictions include the eight highest 1-hour predictions from the CALPUFF model.

(b) These results include community background concentrations that represent the contribution due to local activities within the communities.

(c) Location along the fenceline where CALPUFF predicted the highest concentration.

(d) AAAQO = Alberta Ambient Air Quality Objectives (ESRD 2013).

## 5.5 Hydrogen Sulphide and Other Total Reduced Sulphur Predictions

The predicted ground-level $H_2S$ concentrations resulting from the 2013 Base Case, 2013 PRM Application Case and 2013 PDC emissions are summarized in Table 5.5-1. The predicted peak 1-hour and 24-hour $H_2S$ concentrations are below the AAAQO (ESRD 2013) levels at all community receptors.

The Total Reduced Sulphur (TRS) emissions are comprised of several elements including $H_2S$. The predicted 2013 Base Case, 2013 PRM Application Case and 2013 PDC 1-hour, 24-hour and annual ground-level concentrations of various compounds included in the TRS emissions are shown in Table 5.5-2. There are no ambient objectives for TRS compounds, except for $H_2S$ and carbon disulphide ($CS_2$). The predicted peak 1-hour $CS_2$ concentrations are all below the AAAQO of 30 µg/m³. The results of the dispersion modelling for TRS compounds have been assessed separately in the Human Health Risk Assessment (Appendix 3.3).

## 5.6 Volatile Organic Compounds and Benzene Predictions

The 2013 Base, 2013 PRM Application and 2013 PDC regional community predictions of 1-hour, 24-hour and annual benzene concentrations are provided in Table 5.6-1. A summary of the 1-hour and annual predicted concentrations of selected VOCs are provided in Tables 5.6-2 and 5.6-3. The individual VOCs included in the tables were identified through screening performed for the health assessment. The potential effects of these compounds are assessed separately in the Human Health Risk Assessment (Appendix 3.3).

## 5.7 Fine Particulate Matter Predictions

The predicted 2013 Base Case, 2013 PRM Application Case and 2013 PDC $PM_{2.5}$ concentrations in the regional communities are presented in Table 5.7-1. The results indicate that the 98$^{th}$ percentile 24-hour $PM_{2.5}$ concentrations are below the Canada-Wide Standard for all communities except at the fenceline. The exceedance at the fenceline is primarily due to mine fleet activities. The potential effects of $PM_{2.5}$ are assessed separately in the Human Health Risk Assessment (Appendix 3.3).

## 5.8 Trace Air Compound Predictions

A summary of the predicted 1-hour and annual Polycyclic Aromatic Hydrocarbon (PAH) exposure levels in the regional communities as a result of the 2013 Base Case, 2013 PRM Application Case and 2013 PDC emissions is presented in Tables 5.8-1 and 5.8-2. The predicted 1-hour and annual trace metal exposure levels in the regional communities are presented in Tables 5.8-3 and 5.8-4. All of the predicted peak concentrations of PAH compounds and metals are below the AAAQO levels or other criteria, as applicable. The PAHs and trace metals included in the tables were identified through screening performed for the health assessment. The effect of these compounds on human and wildlife health have been assessed separately in the Human Health Risk Assessment (Appendix 3.3).

**Table 5.5-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Hydrogen Sulphide Predictions in Regional Communities**

| Community | Peak 1-Hour[a] | | | Peak 24-Hour[a] | | | Peak Annual[a] | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC |
| Anzac[b] | 1.2 | 1.2 | 1.2 | 0.4 | 0.4 | 0.4 | 0.04 | 0.04 | 0.04 |
| Conklin[b] | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| Fort Chipewyan[b] | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.00 | 0.00 | 0.01 |
| Fort McKay[b] | 1.3 | 1.3 | 1.4 | 0.5 | 0.5 | 0.5 | 0.09 | 0.09 | 0.10 |
| Fort McMurray[b] | 0.5 | 0.5 | 0.6 | 0.2 | 0.2 | 0.2 | 0.02 | 0.02 | 0.02 |
| Janvier/Chard (IR 194) [b] | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.00 | 0.00 | 0.01 |
| Clearwater (IR175) | 0.3 | 0.3 | 0.4 | 0.1 | 0.1 | 0.1 | 0.01 | 0.01 | 0.02 |
| Namur River (IR 174A) | 0.5 | 0.5 | 0.5 | 0.1 | 0.1 | 0.2 | 0.01 | 0.01 | 0.01 |
| Poplar Point (IR 201G) | 0.3 | 0.4 | 0.9 | 0.2 | 0.2 | 0.3 | 0.02 | 0.02 | 0.03 |
| Cabin A | 0.8 | 0.9 | 6.5 | 0.4 | 0.5 | 1.2 | 0.03 | 0.05 | 0.15 |
| Cabin B | 0.4 | 0.4 | 0.8 | 0.2 | 0.2 | 0.3 | 0.02 | 0.02 | 0.04 |
| Cabin C | 0.7 | 0.7 | 3.5 | 0.4 | 0.4 | 0.8 | 0.03 | 0.04 | 0.08 |
| Cabin D | 0.8 | 0.8 | 5.3 | 0.4 | 0.4 | 0.8 | 0.04 | 0.04 | 0.09 |
| Cabin E | 0.6 | 0.6 | 6.1 | 0.3 | 0.3 | 0.6 | 0.03 | 0.03 | 0.06 |
| Cabin F | 0.6 | 0.6 | 8.3 | 0.3 | 0.4 | 0.6 | 0.03 | 0.04 | 0.06 |
| Cabin G | 0.8 | 0.8 | 0.9 | 0.3 | 0.3 | 0.3 | 0.03 | 0.03 | 0.04 |
| Cabin H | 1.3 | 1.3 | 2.5 | 0.3 | 0.3 | 0.4 | 0.04 | 0.04 | 0.06 |
| Cabin I | 2.0 | 2.0 | 2.0 | 0.5 | 0.6 | 0.6 | 0.09 | 0.10 | 0.12 |
| Cabin J | 5.6 | 5.6 | 6.0 | 0.9 | 0.9 | 2.2 | 0.10 | 0.11 | 0.33 |
| Cabin K | 6.9 | 6.9 | 7.1 | 0.9 | 0.9 | 0.9 | 0.09 | 0.10 | 0.15 |
| Cabin L | 2.2 | 3.1 | 8.7 | 0.5 | 1.5 | 1.6 | 0.05 | 0.13 | 0.17 |
| Descharme Lake, SK | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| La Loche, SK[b] | 0.1 | 0.1 | 0.2 | 0.0 | 0.0 | 0.1 | 0.01 | 0.01 | 0.01 |
| Oil Sands Lodge | 1.3 | 1.3 | 1.3 | 0.6 | 0.6 | 0.6 | 0.09 | 0.09 | 0.11 |
| PTI Camp | 3.3 | 3.3 | 3.4 | 0.5 | 0.5 | 0.6 | 0.11 | 0.11 | 0.12 |
| PRM Fenceline[c] | 5.0 | 8.2 | **18.9** | 1.2 | **4.1** | **4.2** | 0.13 | 0.44 | 0.47 |
| **AAAQO[c]** | | **14** | | | **4** | | | – | |

(a) The predictions include the eight highest 1-hour predictions from the CALPUFF model.

(b) Location along the fenceline where CALPUFF predicted the highest concentration.

(c) AAAQO = Alberta Ambient Air Quality Objectives (ESRD 2013).

Note: Bold values indicate an exceedance of the AAAQO.

**Table 5.5-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Total Reduced Sulphur Compound Predictions in Regional Communities**

| Averaging Period and Parameter | Anzac | | | Conklin | | | Fort Chipewyan | | | Fort McKay | | | Fort McMurray | | | Janvier/Chard (IR 194) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak 1-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| Total TRS | 6.45850 | 6.45850 | 6.45940 | 0.58137 | 0.58642 | 1.07010 | 1.22740 | 1.27490 | 1.66260 | 18.17300 | 18.17400 | 20.13400 | 6.47680 | 6.48190 | 7.01150 | 1.38990 | 1.40530 | 2.02290 |
| $H_2S$[(b)] | 1.16390 | 1.16390 | 1.16430 | 0.09363 | 0.09374 | 0.09955 | 0.18196 | 0.18677 | 0.20433 | 1.29570 | 1.30910 | 1.37610 | 0.54113 | 0.54241 | 0.60340 | 0.17044 | 0.17233 | 0.19894 |
| COS | 0.08877 | 0.09328 | 0.13350 | 0.01768 | 0.01962 | 0.03070 | 0.05621 | 0.05866 | 0.09343 | 0.75189 | 0.78781 | 0.96983 | 0.22741 | 0.22771 | 0.29183 | 0.04371 | 0.04622 | 0.06730 |
| $CS_2$[(b)] | 0.08389 | 0.08784 | 0.12135 | 0.01647 | 0.01816 | 0.02741 | 0.05059 | 0.05439 | 0.07974 | 0.65424 | 0.68564 | 0.84203 | 0.20286 | 0.20312 | 0.25741 | 0.04221 | 0.04441 | 0.06167 |
| Mercaptan | 0.14108 | 0.14108 | 0.14110 | 0.01228 | 0.01236 | 0.02443 | 0.02454 | 0.02536 | 0.04279 | 0.39453 | 0.39454 | 0.43657 | 0.14244 | 0.14253 | 0.14808 | 0.02936 | 0.02963 | 0.04764 |
| Thiophene | 1.18580 | 1.18660 | 1.47810 | 0.20202 | 0.20233 | 0.51082 | 0.31826 | 0.31959 | 0.51519 | 9.11370 | 9.11370 | 10.08800 | 3.26770 | 3.26800 | 3.33340 | 0.53965 | 0.54052 | 0.76250 |
| **Peak 24-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| Total TRS | 2.33114 | 2.33222 | 2.38019 | 0.21142 | 0.21565 | 0.30950 | 0.40581 | 0.43469 | 0.59044 | 4.45201 | 4.45237 | 4.92845 | 1.61913 | 1.62579 | 1.95342 | 0.39324 | 0.39843 | 0.53072 |
| $H_2S$[(b)] | 0.41106 | 0.41116 | 0.41388 | 0.03549 | 0.03596 | 0.04152 | 0.06552 | 0.06844 | 0.07786 | 0.47729 | 0.48597 | 0.53452 | 0.15052 | 0.15112 | 0.19044 | 0.06008 | 0.06060 | 0.06886 |
| COS | 0.03852 | 0.03972 | 0.05427 | 0.00838 | 0.00881 | 0.01288 | 0.02369 | 0.02694 | 0.04076 | 0.34710 | 0.36005 | 0.43933 | 0.06905 | 0.06919 | 0.09219 | 0.01243 | 0.01298 | 0.01918 |
| $CS_2$[(b)] | 0.04130 | 0.04206 | 0.05282 | 0.00795 | 0.00833 | 0.01168 | 0.02190 | 0.02474 | 0.03643 | 0.30787 | 0.31914 | 0.38634 | 0.06261 | 0.06273 | 0.08229 | 0.01216 | 0.01264 | 0.01764 |
| Mercaptan | 0.05036 | 0.05038 | 0.05156 | 0.00429 | 0.00437 | 0.00724 | 0.00780 | 0.00830 | 0.01494 | 0.09613 | 0.09613 | 0.10748 | 0.03519 | 0.03528 | 0.04519 | 0.00812 | 0.00822 | 0.01325 |
| Thiophene | 0.34048 | 0.34054 | 0.34966 | 0.05186 | 0.05219 | 0.08832 | 0.09781 | 0.09848 | 0.17761 | 1.97114 | 1.97115 | 2.24911 | 0.71517 | 0.71550 | 0.79951 | 0.11885 | 0.11915 | 0.17422 |
| **Annual Average [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| Total TRS | 0.24030 | 0.24142 | 0.28096 | 0.02112 | 0.02148 | 0.02993 | 0.02701 | 0.02835 | 0.04421 | 1.05271 | 1.06325 | 1.19740 | 0.16808 | 0.17050 | 0.22353 | 0.03088 | 0.03139 | 0.04324 |
| $H_2S$[(b)] | 0.04025 | 0.04036 | 0.04217 | 0.00385 | 0.00389 | 0.00447 | 0.00363 | 0.00376 | 0.00515 | 0.09284 | 0.09392 | 0.10399 | 0.01777 | 0.01795 | 0.02149 | 0.00491 | 0.00496 | 0.00591 |
| COS | 0.00350 | 0.00362 | 0.00484 | 0.00057 | 0.00061 | 0.00097 | 0.00134 | 0.00148 | 0.00247 | 0.04443 | 0.04575 | 0.05617 | 0.00573 | 0.00593 | 0.00833 | 0.00091 | 0.00097 | 0.00150 |
| $CS_2$[(b)] | 0.00414 | 0.00425 | 0.00538 | 0.00058 | 0.00061 | 0.00092 | 0.00124 | 0.00136 | 0.00218 | 0.04122 | 0.04238 | 0.05119 | 0.00542 | 0.00560 | 0.00765 | 0.00090 | 0.00095 | 0.00140 |
| Mercaptan | 0.00516 | 0.00517 | 0.00616 | 0.00044 | 0.00045 | 0.00068 | 0.00053 | 0.00056 | 0.00103 | 0.02129 | 0.02147 | 0.02497 | 0.00347 | 0.00351 | 0.00486 | 0.00064 | 0.00065 | 0.00098 |
| Thiophene | 0.04243 | 0.04249 | 0.05143 | 0.00496 | 0.00498 | 0.00726 | 0.00621 | 0.00628 | 0.01068 | 0.34074 | 0.34137 | 0.38007 | 0.05884 | 0.05898 | 0.07780 | 0.00778 | 0.00781 | 0.01124 |

**Table 5.5-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Total Reduced Sulphur Compound Predictions in Regional Communities (continued)**

| Averaging Period and Parameter | Clearwater (IR175) | | | Namur River (IR 174A) | | | Poplar Point (IR 201G) | | | Cabin A | | | Cabin B | | | Cabin C | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak 1-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| Total TRS | 3.33540 | 3.34880 | 4.65390 | 3.64050 | 3.64050 | 3.81710 | 2.92770 | 3.03130 | 8.30780 | 7.25890 | 8.08660 | 50.24900 | 4.84440 | 4.89920 | 8.74720 | 7.33820 | 7.83470 | 27.11500 |
| $H_2S$[(b)] | 0.33289 | 0.33417 | 0.37405 | 0.47033 | 0.47033 | 0.48188 | 0.34879 | 0.38410 | 0.94023 | 0.75073 | 0.94342 | 6.46840 | 0.41507 | 0.42227 | 0.80028 | 0.72201 | 0.73888 | 3.46330 |
| COS | 0.16223 | 0.16236 | 0.20257 | 0.09213 | 0.09855 | 0.17327 | 0.24018 | 0.27453 | 0.36657 | 0.32087 | 0.37589 | 1.04080 | 0.36086 | 0.36141 | 0.44865 | 0.38641 | 0.39868 | 0.70067 |
| $CS_2$[(b)] | 0.14299 | 0.14311 | 0.17897 | 0.08327 | 0.08891 | 0.15209 | 0.21450 | 0.24470 | 0.32175 | 0.28655 | 0.34702 | 0.89480 | 0.31791 | 0.31839 | 0.39109 | 0.34593 | 0.35901 | 0.60488 |
| Mercaptan | 0.06788 | 0.06810 | 0.11121 | 0.07914 | 0.07914 | 0.08478 | 0.06081 | 0.06377 | 0.26320 | 0.14987 | 0.16619 | 1.81160 | 0.09478 | 0.09557 | 0.22489 | 0.15113 | 0.15854 | 0.97024 |
| Thiophene | 1.33540 | 1.33610 | 1.73830 | 1.34890 | 1.34890 | 1.72480 | 1.19140 | 1.19500 | 2.57230 | 2.53830 | 2.64020 | 16.47400 | 1.53540 | 1.54020 | 2.73160 | 2.57010 | 2.61730 | 8.78970 |
| **Peak 24-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| Total TRS | 0.93620 | 0.94768 | 1.13172 | 1.03299 | 1.04323 | 1.34428 | 1.54134 | 1.69277 | 2.18661 | 2.78822 | 3.40000 | 9.76543 | 1.76608 | 1.85023 | 2.66147 | 2.79370 | 2.87986 | 6.23954 |
| $H_2S$[(b)] | 0.11935 | 0.12197 | 0.13196 | 0.12515 | 0.13078 | 0.15793 | 0.20690 | 0.22393 | 0.26176 | 0.38910 | 0.48035 | 1.24346 | 0.20921 | 0.23045 | 0.28017 | 0.36743 | 0.37622 | 0.77375 |
| COS | 0.04911 | 0.05088 | 0.06658 | 0.06745 | 0.07419 | 0.11807 | 0.11544 | 0.13202 | 0.17830 | 0.15554 | 0.20809 | 0.29547 | 0.18915 | 0.21059 | 0.28024 | 0.19320 | 0.24095 | 0.34517 |
| $CS_2$[(b)] | 0.04468 | 0.04624 | 0.05940 | 0.06115 | 0.06704 | 0.10387 | 0.10421 | 0.11878 | 0.15765 | 0.14391 | 0.19122 | 0.25485 | 0.16663 | 0.18547 | 0.24371 | 0.17526 | 0.21508 | 0.30280 |
| Mercaptan | 0.01982 | 0.02001 | 0.02484 | 0.02228 | 0.02228 | 0.02647 | 0.02817 | 0.03077 | 0.06074 | 0.05385 | 0.06464 | 0.34949 | 0.02969 | 0.03015 | 0.05669 | 0.05199 | 0.05303 | 0.21816 |
| Thiophene | 0.35501 | 0.35566 | 0.41349 | 0.40607 | 0.40607 | 0.43435 | 0.37242 | 0.37401 | 0.63949 | 0.68253 | 0.71264 | 3.14700 | 0.38509 | 0.38638 | 0.60601 | 0.63181 | 0.64196 | 1.97622 |
| **Annual Average [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| Total TRS | 0.11633 | 0.11812 | 0.15456 | 0.06889 | 0.07162 | 0.09403 | 0.12812 | 0.13874 | 0.28053 | 0.28118 | 0.42675 | 1.26929 | 0.18389 | 0.19514 | 0.34048 | 0.27249 | 0.33199 | 0.76013 |
| $H_2S$[(b)] | 0.01379 | 0.01397 | 0.01647 | 0.00829 | 0.00854 | 0.01092 | 0.01515 | 0.01619 | 0.03061 | 0.03344 | 0.04642 | 0.14730 | 0.02078 | 0.02220 | 0.03533 | 0.03173 | 0.03802 | 0.08473 |
| COS | 0.00430 | 0.00450 | 0.00639 | 0.00238 | 0.00270 | 0.00488 | 0.00729 | 0.00820 | 0.01435 | 0.01609 | 0.02147 | 0.04796 | 0.01454 | 0.01545 | 0.02181 | 0.01753 | 0.02100 | 0.03692 |
| $CS_2$[(b)] | 0.00408 | 0.00426 | 0.00586 | 0.00229 | 0.00257 | 0.00441 | 0.00665 | 0.00745 | 0.01240 | 0.01472 | 0.01958 | 0.04034 | 0.01293 | 0.01373 | 0.01887 | 0.01587 | 0.01898 | 0.03168 |
| Mercaptan | 0.00236 | 0.00239 | 0.00340 | 0.00141 | 0.00145 | 0.00202 | 0.00250 | 0.00270 | 0.00729 | 0.00544 | 0.00878 | 0.03786 | 0.00351 | 0.00377 | 0.00829 | 0.00519 | 0.00643 | 0.02073 |
| Thiophene | 0.03575 | 0.03585 | 0.04733 | 0.01992 | 0.02007 | 0.02552 | 0.03000 | 0.03060 | 0.07257 | 0.06521 | 0.07217 | 0.33765 | 0.03863 | 0.03946 | 0.07944 | 0.06257 | 0.06632 | 0.19676 |

**Table 5.5-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Total Reduced Sulphur Compound Predictions in Regional Communities (continued)**

| Averaging Period and Parameter | Cabin D | | | Cabin E | | | Cabin F | | | Cabin G | | | Cabin H | | | Cabin I | | | Cabin J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak 1-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | | | | |
| Total TRS | 7.71760 | 8.25680 | 41.23500 | 6.80540 | 6.85680 | 47.76100 | 6.74440 | 6.77090 | 64.87100 | 16.85800 | 16.86300 | 17.91400 | 18.44500 | 18.44600 | 93.61400 | 16.63400 | 16.68000 | 17.43900 | 37.13900 | 37.15300 | 160.19000 |
| $H_2S$[(b)] | 0.79358 | 0.79509 | 5.30240 | 0.60795 | 0.60884 | 6.07610 | 0.60925 | 0.61013 | 8.25080 | 0.79970 | 0.80005 | 0.85004 | 1.27970 | 1.27970 | 2.48170 | 1.96840 | 1.97200 | 2.01740 | 5.57760 | 5.58800 | 5.99110 |
| COS | 0.49080 | 0.49771 | 0.75880 | 0.51869 | 0.52198 | 0.65884 | 0.52813 | 0.53519 | 0.75720 | 0.75494 | 0.76099 | 0.83463 | 1.28140 | 1.28530 | 1.64340 | 0.50007 | 0.50370 | 0.90536 | 1.42170 | 1.42860 | 2.05680 |
| $CS_2$[(b)] | 0.43482 | 0.44088 | 0.65726 | 0.45575 | 0.45865 | 0.57457 | 0.46504 | 0.47127 | 0.59333 | 0.65251 | 0.65788 | 0.71922 | 1.10610 | 1.10940 | 1.37390 | 0.46743 | 0.47059 | 0.79301 | 1.24300 | 1.24900 | 1.73520 |
| Mercaptan | 0.15995 | 0.16766 | 1.49180 | 0.13531 | 0.13578 | 1.71210 | 0.13405 | 0.13418 | 2.32390 | 0.41664 | 0.41674 | 0.45096 | 0.40286 | 0.40287 | 3.39070 | 0.34967 | 0.35005 | 0.36798 | 0.77905 | 0.77925 | 5.75380 |
| Thiophene | 2.72290 | 2.77190 | 13.54100 | 2.51690 | 2.51990 | 15.46500 | 2.53040 | 2.53120 | 21.00700 | 2.12070 | 2.12070 | 2.24930 | 9.07750 | 9.07750 | 30.89400 | 5.48880 | 5.48890 | 5.85620 | 13.72100 | 13.72100 | 52.52800 |
| **Peak 24-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | | | | |
| Total TRS | 2.98098 | 3.22588 | 6.25727 | 2.53580 | 2.83815 | 5.27077 | 2.72772 | 3.00782 | 5.35727 | 3.39827 | 3.39981 | 3.63677 | 3.11789 | 3.18247 | 13.90372 | 3.75477 | 3.91348 | 4.41773 | 7.33572 | 7.52394 | 56.45075 |
| $H_2S$[(b)] | 0.39255 | 0.41578 | 0.75729 | 0.30867 | 0.34104 | 0.64211 | 0.33009 | 0.35981 | 0.64598 | 0.26758 | 0.27631 | 0.31600 | 0.31370 | 0.32044 | 0.43004 | 0.54668 | 0.56206 | 0.62144 | 0.87693 | 0.89036 | 2.15800 |
| COS | 0.20686 | 0.28797 | 0.41873 | 0.26431 | 0.30531 | 0.43046 | 0.28288 | 0.32313 | 0.44908 | 0.31310 | 0.32493 | 0.39600 | 0.46150 | 0.46804 | 0.59545 | 0.19610 | 0.23000 | 0.38558 | 0.85934 | 0.89441 | 1.17383 |
| $CS_2$[(b)] | 0.18765 | 0.25690 | 0.36747 | 0.23372 | 0.26952 | 0.37530 | 0.25013 | 0.28523 | 0.39178 | 0.27344 | 0.28376 | 0.34333 | 0.40148 | 0.40722 | 0.50370 | 0.18242 | 0.20832 | 0.34121 | 0.75607 | 0.78644 | 1.01848 |
| Mercaptan | 0.05543 | 0.05693 | 0.21453 | 0.04241 | 0.04710 | 0.18096 | 0.04574 | 0.04994 | 0.18188 | 0.08411 | 0.08415 | 0.09181 | 0.04497 | 0.04613 | 0.48555 | 0.07405 | 0.07584 | 0.08221 | 0.11713 | 0.11946 | 2.01331 |
| Thiophene | 0.69593 | 0.71057 | 1.92112 | 0.58284 | 0.58383 | 1.64465 | 0.61150 | 0.61219 | 1.65434 | 0.31844 | 0.32362 | 0.53519 | 0.63545 | 0.63546 | 4.46310 | 0.98550 | 0.98615 | 1.13070 | 1.46190 | 1.46190 | 18.41668 |
| **Annual Average [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | | | | |
| Total TRS | 0.30232 | 0.38217 | 0.84344 | 0.28183 | 0.30735 | 0.55626 | 0.30037 | 0.32687 | 0.57994 | 0.41487 | 0.42027 | 0.53912 | 0.37702 | 0.38236 | 1.64417 | 0.65865 | 0.73974 | 0.98649 | 0.88952 | 0.93074 | 6.77409 |
| $H_2S$[(b)] | 0.03528 | 0.04401 | 0.09371 | 0.03175 | 0.03464 | 0.05526 | 0.03446 | 0.03730 | 0.05729 | 0.03347 | 0.03403 | 0.04074 | 0.03742 | 0.03798 | 0.05855 | 0.08824 | 0.09597 | 0.11584 | 0.10250 | 0.10677 | 0.33052 |
| COS | 0.01995 | 0.02465 | 0.04194 | 0.02300 | 0.02495 | 0.03702 | 0.02514 | 0.02720 | 0.03993 | 0.02727 | 0.02778 | 0.03309 | 0.04127 | 0.04182 | 0.05771 | 0.02915 | 0.04441 | 0.07511 | 0.07226 | 0.07858 | 0.17094 |
| $CS_2$[(b)] | 0.01804 | 0.02226 | 0.03598 | 0.02046 | 0.02220 | 0.03200 | 0.02235 | 0.02417 | 0.03456 | 0.02386 | 0.02431 | 0.02863 | 0.03617 | 0.03665 | 0.04713 | 0.02726 | 0.04054 | 0.06638 | 0.06461 | 0.07011 | 0.13320 |
| Mercaptan | 0.00572 | 0.00738 | 0.02264 | 0.00520 | 0.00570 | 0.01352 | 0.00559 | 0.00606 | 0.01390 | 0.00877 | 0.00887 | 0.01263 | 0.00633 | 0.00642 | 0.05110 | 0.01327 | 0.01423 | 0.02060 | 0.01606 | 0.01666 | 0.22497 |
| Thiophene | 0.06889 | 0.07419 | 0.21343 | 0.05986 | 0.06154 | 0.13217 | 0.06431 | 0.06612 | 0.13719 | 0.03512 | 0.03545 | 0.06872 | 0.07500 | 0.07533 | 0.47342 | 0.14218 | 0.14660 | 0.20143 | 0.17805 | 0.18059 | 2.07499 |

**Table 5.5-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Total Reduced Sulphur Compound Predictions in Regional Communities (continued)**

| Averaging Period and Parameter | Cabin K | | | Cabin L | | | Descharme Lake, SK | | | La Loche, SK | | | Oil Sands Lodge | | | PTI Camp | | | Pierre River Mine Fenceline[c] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak 1-Hour [µg/m³][a]** | | | | | | | | | | | | | | | | | | | | | |
| Total TRS | 42.36500 | 42.47200 | 100.38000 | 13.31100 | 17.08900 | 67.59900 | 0.97786 | 0.97786 | 1.23920 | 1.01600 | 1.01710 | 1.27420 | 17.36500 | 17.36500 | 17.83400 | 28.59400 | 28.59500 | 30.48000 | 39.25200 | 55.11100 | 147.31000 |
| $H_2S$[b] | 6.89680 | 6.90890 | 7.06190 | 2.21850 | 3.06250 | 8.70050 | 0.11452 | 0.11455 | 0.12346 | 0.13761 | 0.13837 | 0.15333 | 1.28400 | 1.28400 | 1.30020 | 3.34020 | 3.34020 | 3.41520 | 5.01850 | 8.18170 | 18.94000 |
| COS | 2.01400 | 2.03050 | 2.43580 | 0.67932 | 0.79193 | 1.33880 | 0.02671 | 0.02853 | 0.03842 | 0.03579 | 0.03811 | 0.05282 | 1.03750 | 1.07280 | 1.22700 | 0.58322 | 0.61917 | 0.81886 | 0.92878 | 1.79440 | 6.49040 |
| $CS_2$[b] | 1.91440 | 1.92880 | 2.27460 | 0.60102 | 0.70065 | 1.17950 | 0.02372 | 0.02530 | 0.03306 | 0.03315 | 0.03517 | 0.04666 | 0.90672 | 0.93759 | 1.07070 | 0.50801 | 0.53951 | 0.70984 | 0.83522 | 1.56720 | 5.55460 |
| Mercaptan | 0.83245 | 0.83396 | 3.50540 | 0.28022 | 0.36696 | 2.44430 | 0.02112 | 0.02112 | 0.02873 | 0.02215 | 0.02217 | 0.02943 | 0.37686 | 0.37686 | 0.38865 | 0.62997 | 0.62997 | 0.66736 | 0.86828 | 1.49130 | 5.32930 |
| Thiophene | 5.70970 | 5.70980 | 32.14300 | 3.33760 | 3.33760 | 22.20200 | 0.43379 | 0.43379 | 0.53798 | 0.40837 | 0.40837 | 0.43816 | 8.70170 | 8.70170 | 9.11650 | 14.73800 | 14.73800 | 15.65700 | 20.00300 | 20.00400 | 48.35600 |
| **Peak 24-Hour [µg/m³][a]** | | | | | | | | | | | | | | | | | | | | | |
| Total TRS | 6.76899 | 6.93829 | 21.05278 | 3.83836 | 9.11730 | 9.99394 | 0.28698 | 0.28904 | 0.41794 | 0.29922 | 0.30619 | 0.42469 | 5.05972 | 5.17988 | 5.70272 | 7.38781 | 7.38810 | 7.85359 | 7.36539 | 22.78193 | 26.05880 |
| $H_2S$[b] | 0.85368 | 0.86290 | 0.94765 | 0.52436 | 1.53634 | 1.61497 | 0.03417 | 0.03452 | 0.03591 | 0.04766 | 0.04805 | 0.05168 | 0.56634 | 0.57897 | 0.63553 | 0.53315 | 0.53315 | 0.55413 | 1.15975 | 4.10643 | 4.21786 |
| COS | 0.73348 | 0.76367 | 0.92511 | 0.28194 | 0.45426 | 0.61766 | 0.01225 | 0.01360 | 0.02130 | 0.01246 | 0.01324 | 0.01944 | 0.49171 | 0.50462 | 0.60065 | 0.23704 | 0.24592 | 0.30513 | 0.42662 | 1.41282 | 2.15692 |
| $CS_2$[b] | 0.64608 | 0.67226 | 0.81035 | 0.25433 | 0.40437 | 0.54360 | 0.01118 | 0.01236 | 0.01885 | 0.01173 | 0.01240 | 0.01732 | 0.43044 | 0.44166 | 0.52318 | 0.21342 | 0.22114 | 0.27119 | 0.38661 | 1.22273 | 1.85575 |
| Mercaptan | 0.11131 | 0.11349 | 0.71878 | 0.07287 | 0.18346 | 0.22747 | 0.00609 | 0.00612 | 0.01076 | 0.00622 | 0.00624 | 0.00992 | 0.09483 | 0.09682 | 0.10714 | 0.16143 | 0.16144 | 0.17116 | 0.14856 | 0.61696 | 0.82626 |
| Thiophene | 1.42946 | 1.43886 | 6.72290 | 0.93683 | 1.17403 | 2.01935 | 0.09462 | 0.09473 | 0.12462 | 0.10302 | 0.10311 | 0.14410 | 1.77368 | 1.77382 | 1.95665 | 3.49372 | 3.49372 | 3.68900 | 2.02229 | 3.06852 | 6.93744 |
| **Annual Average [µg/m³][a]** | | | | | | | | | | | | | | | | | | | | | |
| Total TRS | 0.86733 | 0.89721 | 2.14007 | 0.44595 | 0.89931 | 1.35279 | 0.02765 | 0.02827 | 0.04092 | 0.03733 | 0.03801 | 0.05255 | 1.04065 | 1.05112 | 1.20347 | 1.66703 | 1.67493 | 1.80831 | 0.95622 | 5.26923 | 6.33283 |
| $H_2S$[b] | 0.09387 | 0.09701 | 0.14856 | 0.05340 | 0.12655 | 0.17103 | 0.00396 | 0.00402 | 0.00484 | 0.00549 | 0.00556 | 0.00651 | 0.09309 | 0.09416 | 0.10513 | 0.11001 | 0.11082 | 0.12064 | 0.13242 | 0.44270 | 0.46640 |
| COS | 0.08217 | 0.08628 | 0.11871 | 0.02920 | 0.05163 | 0.08028 | 0.00101 | 0.00108 | 0.00166 | 0.00135 | 0.00143 | 0.00208 | 0.06019 | 0.06152 | 0.07282 | 0.03324 | 0.03421 | 0.04421 | 0.03631 | 0.21842 | 0.38921 |
| $CS_2$[b] | 0.07267 | 0.07626 | 0.10135 | 0.02648 | 0.04759 | 0.07117 | 0.00096 | 0.00102 | 0.00150 | 0.00129 | 0.00136 | 0.00190 | 0.05432 | 0.05549 | 0.06502 | 0.03365 | 0.03449 | 0.04301 | 0.03493 | 0.19019 | 0.33491 |
| Mercaptan | 0.01514 | 0.01560 | 0.06045 | 0.00842 | 0.01738 | 0.03120 | 0.00057 | 0.00058 | 0.00096 | 0.00077 | 0.00078 | 0.00121 | 0.02042 | 0.02059 | 0.02468 | 0.03531 | 0.03544 | 0.03881 | 0.01932 | 0.13921 | 0.17393 |
| Thiophene | 0.17160 | 0.17349 | 0.59496 | 0.09729 | 0.14884 | 0.27549 | 0.00704 | 0.00708 | 0.01088 | 0.00901 | 0.00905 | 0.01339 | 0.29143 | 0.29206 | 0.33418 | 0.72366 | 0.72414 | 0.76499 | 0.19872 | 0.36730 | 0.47776 |

(a) The predictions include the eight highest 1-hour predictions from the CALPUFF model.

(b) The 1-hour and 24-hour AAAQOs (ESRD 2013) for $H_2S$ are 14 µg/m³ and 4 µg/m³, respectively. The 1-hour AAAQO for $CS_2$ is 30 µg/m³.

(c) Location along the fenceline where CALPUFF predicted the highest concentration.

**Table 5.6-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Benzene Predictions in Regional Communities**

| Community | Peak 1-Hour Benzene[a] | | | Maximum 1-Hour Benzene[a] | | | Peak 24-Hour Benzene[a] | | | Annual Average Benzene[a] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| Anzac | 1.6 | 1.6 | 1.6 | 1.4 | 1.4 | 1.4 | 0.9 | 0.9 | 1.0 | 0.1 | 0.1 | 0.1 |
| Conklin | 0.5 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.1 |
| Fort Chipewyan | 3.3 | 3.3 | 3.3 | 2.7 | 2.7 | 2.7 | 1.9 | 1.9 | 1.9 | 0.4 | 0.4 | 0.4 |
| Fort McKay | 5.2 | 5.2 | 5.6 | 4.4 | 4.4 | 4.7 | 3.2 | 3.3 | 3.3 | 0.7 | 0.7 | 0.7 |
| Fort McMurray | 31.1 | 31.1 | 79.4 | 25.3 | 25.3 | **64.6** | 13.4 | 13.4 | 34.2 | 1.5 | 1.5 | **3.8** |
| Janvier/Chard (IR 194) | 0.4 | 0.4 | 0.5 | 0.3 | 0.3 | 0.4 | 0.1 | 0.1 | 0.2 | 0.0 | 0.0 | 0.0 |
| Clearwater (IR175) | 1.1 | 1.1 | 2.4 | 0.8 | 0.8 | 1.6 | 0.3 | 0.3 | 0.6 | 0.1 | 0.1 | 0.1 |
| Namur River (IR 174A) | 1.1 | 1.1 | 1.1 | 0.5 | 0.5 | 0.5 | 0.3 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 |
| Poplar Point (IR 201G) | 0.8 | 0.9 | 1.2 | 0.6 | 0.6 | 0.9 | 0.4 | 0.5 | 0.5 | 0.0 | 0.0 | 0.1 |
| Cabin A | 2.0 | 2.7 | 4.1 | 1.4 | 2.4 | 2.8 | 0.8 | 0.9 | 1.0 | 0.1 | 0.1 | 0.2 |
| Cabin B | 1.3 | 1.3 | 2.2 | 1.0 | 1.0 | 1.2 | 0.6 | 0.6 | 0.7 | 0.1 | 0.1 | 0.1 |
| Cabin C | 2.1 | 2.1 | 2.4 | 1.6 | 1.6 | 2.0 | 0.9 | 0.9 | 0.9 | 0.1 | 0.1 | 0.1 |
| Cabin D | 2.2 | 3.1 | 3.4 | 1.8 | 1.9 | 2.3 | 1.0 | 1.0 | 1.0 | 0.1 | 0.1 | 0.2 |
| Cabin E | 2.0 | 2.8 | 4.2 | 1.4 | 1.4 | 1.6 | 0.8 | 0.9 | 1.0 | 0.1 | 0.1 | 0.1 |
| Cabin F | 1.9 | 3.0 | 5.7 | 1.3 | 1.4 | 1.6 | 0.9 | 0.9 | 1.0 | 0.1 | 0.1 | 0.1 |
| Cabin G | 2.9 | 2.9 | 3.4 | 2.1 | 2.1 | 2.5 | 0.7 | 0.7 | 0.8 | 0.1 | 0.1 | 0.1 |
| Cabin H | 4.2 | 4.2 | 46.3 | 1.9 | 1.9 | 11.7 | 0.9 | 0.9 | 3.4 | 0.1 | 0.1 | 0.3 |
| Cabin I | 4.0 | 4.0 | 4.2 | 2.7 | 2.7 | 2.8 | 1.3 | 1.4 | 1.2 | 0.2 | 0.2 | 0.2 |
| Cabin J | 24.0 | 24.0 | 24.3 | 21.0 | 21.1 | 19.5 | 7.6 | 7.6 | 8.6 | 1.9 | 1.9 | 1.2 |
| Cabin K | 9.4 | 9.4 | 15.6 | 5.4 | 5.4 | 12.1 | 2.0 | 2.0 | 3.4 | 0.3 | 0.3 | 0.4 |
| Cabin L | 3.2 | 3.2 | 5.5 | 2.6 | 2.7 | 3.0 | 1.4 | 1.4 | 1.3 | 0.2 | 0.2 | 0.2 |
| Descharme Lake, SK | 0.2 | 0.2 | 0.3 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 |
| La Loche, SK | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 | 1.0 | 1.0 | 1.0 | 0.3 | 0.3 | 0.3 |
| Oil Sands Lodge | 4.5 | 4.6 | 4.8 | 3.8 | 3.8 | 4.0 | 2.2 | 2.2 | 2.3 | 0.4 | 0.4 | 0.4 |
| PTI Camp | 7.6 | 7.6 | 8.2 | 7.0 | 7.0 | 7.3 | 3.0 | 3.0 | 3.2 | 0.6 | 0.6 | 0.6 |
| PRM Fenceline[b] | 9.7 | 41.2 | 41.2 | 4.4 | **30.3** | **30.3** | 2.3 | 17.1 | 17.2 | 0.3 | **3.7** | **3.8** |
| **AAAQO[c]** | | **–** | | | **30** | | | **–** | | | **3** | |

(a) The maximum 1-hour prediction excludes the eight highest 1-hour predictions. The 24-hour and annual values include the eight highest 1-hour predictions from the CALPUFF model.

(b) Location along the fenceline where CALPUFF predicted highest concentration.

(c) AAAQO = Alberta Ambient Air Quality Objectives (ESRD 2013).

Note: Bold values indicate an exceedance of the AAAQO.

**Table 5.6-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Volatile Organic Compound Predictions in Regional Communities**

| Parameter[a][b] | Anzac | | | Conklin | | | Fort Chipewyan | | | Fort McKay | | | Fort McMurray | | | Janvier/Chard (IR 194) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak 1-hour** | | | | | | | | | | | | | | | | | | |
| total VOC | 262.2400 | 263.9800 | 380.1400 | 50.3240 | 50.8770 | 147.1800 | 222.5900 | 223.4400 | 232.4800 | 1,806.6000 | 1,806.6000 | 2,243.5000 | 612.5500 | 612.6900 | 1,426.4000 | 127.3600 | 129.1800 | 214.2800 |
| benzene | 1.6154 | 1.6154 | 1.6167 | 0.5387 | 0.5388 | 0.5474 | 3.2828 | 3.2849 | 3.2896 | 5.1802 | 5.1805 | 5.5958 | 31.0920 | 31.0940 | 79.3550 | 0.3639 | 0.3689 | 0.5359 |
| 1,1,1,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0002 | 0.0002 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,1-trichloroethane | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0003 | 0.0003 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0002 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2,2-tetrachloroethane | 0.0002 | 0.0002 | 0.0002 | 0.0030 | 0.0030 | 0.0030 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 |
| 1,1,2-trichloroethane | 0.0002 | 0.0002 | 0.0002 | 0.0024 | 0.0024 | 0.0024 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 |
| 1,1-dichloroethane | 0.0001 | 0.0001 | 0.0001 | 0.0018 | 0.0018 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| 1,2-dichloroethane | 0.0001 | 0.0001 | 0.0001 | 0.0018 | 0.0018 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| 1,2-dichloropropane | 0.0001 | 0.0001 | 0.0001 | 0.0020 | 0.0020 | 0.0020 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| 1,3-butadiene | 0.0204 | 0.0204 | 0.0209 | 0.0207 | 0.0207 | 0.0207 | 0.0162 | 0.0163 | 0.0163 | 0.1606 | 0.1634 | 0.1614 | 0.0969 | 0.0970 | 0.2421 | 0.0098 | 0.0099 | 0.0096 |
| 1,3-dichloropropene | 0.0001 | 0.0001 | 0.0001 | 0.0020 | 0.0020 | 0.0020 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| 1-pentene | 4.8451 | 4.8954 | 4.9230 | 1.3287 | 1.3325 | 1.4045 | 4.7670 | 4.8219 | 4.8332 | 51.3330 | 52.3400 | 52.4670 | 6.3583 | 6.3768 | 7.5619 | 1.9970 | 2.1127 | 2.1965 |
| acetaldehyde | 2.7412 | 2.7420 | 2.8112 | 0.9421 | 0.9488 | 0.9623 | 2.1889 | 2.1976 | 2.1979 | 21.6570 | 22.0330 | 21.7570 | 13.0140 | 13.0250 | 32.5850 | 1.3003 | 1.3222 | 1.2526 |
| acetone | 1.4418 | 1.4422 | 1.4790 | 0.3965 | 0.3968 | 0.3955 | 1.1520 | 1.1566 | 1.1568 | 11.3990 | 11.5960 | 11.4510 | 6.8405 | 6.8462 | 17.1410 | 0.6805 | 0.6919 | 0.6519 |
| acrolein | 0.2239 | 0.2240 | 0.2288 | 0.3952 | 0.3952 | 0.3953 | 0.1781 | 0.1788 | 0.1788 | 1.7616 | 1.7922 | 1.7697 | 1.0677 | 1.0685 | 2.6596 | 0.1087 | 0.1105 | 0.1077 |
| aliphatic aldehyde group | 4.0697 | 4.0709 | 4.1749 | 1.1193 | 1.1202 | 1.1164 | 3.2518 | 3.2647 | 3.2652 | 32.1750 | 32.7330 | 32.3230 | 19.3090 | 19.3250 | 48.3850 | 1.9209 | 1.9532 | 1.8402 |
| aliphatic $C_{17}$-$C_{34}$ group | 8.2967 | 8.2967 | 8.4035 | 0.4830 | 0.4842 | 10.2500 | 1.0365 | 1.0455 | 1.8442 | 17.0250 | 17.0270 | 16.9590 | 8.1932 | 8.1949 | 19.5020 | 1.0042 | 1.0085 | 3.9528 |
| aliphatic $C_5$-$C_8$ group | 161.6400 | 162.4700 | 205.0500 | 30.4530 | 30.6900 | 70.5910 | 68.2710 | 69.1580 | 93.9770 | 1,297.5000 | 1,297.5000 | 1,598.5000 | 470.3700 | 470.6300 | 482.3000 | 81.0750 | 81.9730 | 117.1000 |
| aliphatic $C_9$-$C_{16}$ group | 60.8130 | 60.8130 | 61.5980 | 7.3238 | 7.3723 | 75.1650 | 13.0050 | 13.3560 | 26.1630 | 252.0300 | 252.0700 | 308.0100 | 101.2600 | 101.2800 | 130.5700 | 16.3600 | 16.4730 | 29.1770 |
| aromatic $C_9$-$C_{16}$ group | 3.0026 | 3.0655 | 14.1010 | 0.8184 | 0.8324 | 3.3541 | 1.5477 | 1.5936 | 12.4080 | 24.1570 | 24.3470 | 63.6810 | 7.5606 | 7.5647 | 26.6440 | 1.6955 | 1.7200 | 6.3616 |
| carbon tetrachloride | 0.0002 | 0.0002 | 0.0002 | 0.0028 | 0.0028 | 0.0028 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 |
| chlorobenzene | 0.0002 | 0.0002 | 0.0002 | 0.0023 | 0.0023 | 0.0023 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| chloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroform | 0.0002 | 0.0002 | 0.0002 | 0.0022 | 0.0022 | 0.0022 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| cumene | 1.7700 | 1.8289 | 3.3756 | 0.4447 | 0.4583 | 0.9399 | 0.9214 | 0.9826 | 3.3913 | 13.9320 | 14.1150 | 21.5770 | 5.2276 | 5.2314 | 6.4882 | 0.9121 | 0.9419 | 2.0473 |
| cyclohexane | 2.6541 | 2.6630 | 8.2100 | 0.5601 | 0.5639 | 1.9809 | 1.0654 | 1.0750 | 6.7687 | 22.1330 | 22.1370 | 34.5010 | 7.1757 | 7.1779 | 15.9820 | 1.4412 | 1.4504 | 4.0972 |
| dichlorobenzene | 0.0007 | 0.0007 | 0.0012 | 0.0005 | 0.0005 | 0.0007 | 0.0001 | 0.0001 | 0.0002 | 0.0004 | 0.0004 | 0.0005 | 0.0007 | 0.0007 | 0.0018 | 0.0004 | 0.0004 | 0.0006 |
| ethylbenzene | 1.5760 | 1.6000 | 17.0660 | 0.3990 | 0.4146 | 3.9101 | 0.9677 | 0.9968 | 14.4220 | 16.2560 | 16.5610 | 77.3110 | 3.2910 | 3.3521 | 31.7230 | 0.7653 | 0.7747 | 6.7326 |
| ethylene | 2.6212 | 2.6235 | 3.9509 | 2.0984 | 2.0985 | 2.1073 | 16.9660 | 16.9660 | 16.9660 | 13.1250 | 13.1500 | 13.2830 | 35.3530 | 35.3550 | 90.1750 | 0.5138 | 0.5192 | 0.8103 |
| ethylene dibromide | 0.0002 | 0.0002 | 0.0002 | 0.0034 | 0.0034 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 |
| formaldehyde | 1.4864 | 1.4868 | 1.5942 | 4.0777 | 4.0778 | 4.0872 | 1.2166 | 1.2212 | 1.2220 | 11.5590 | 11.7600 | 11.6150 | 7.1005 | 7.1064 | 17.6280 | 0.7772 | 0.7930 | 0.8136 |
| hexane | 24.8160 | 24.8440 | 32.7600 | 3.4454 | 3.4477 | 14.0560 | 5.8370 | 5.8474 | 8.3103 | 235.0400 | 235.0400 | 271.3000 | 95.3220 | 95.3240 | 96.4010 | 11.2470 | 11.2570 | 15.2850 |
| isopropanol group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| methanol | 0.0133 | 0.0133 | 0.0133 | 0.1904 | 0.1904 | 0.1904 | 0.0017 | 0.0017 | 0.0017 | 0.0067 | 0.0067 | 0.0067 | 0.0121 | 0.0121 | 0.0121 | 0.0177 | 0.0177 | 0.0177 |
| methyl ethyl ketone group | 0.9342 | 0.9345 | 1.0585 | 0.3554 | 0.3556 | 0.3554 | 1.7291 | 1.7317 | 1.7325 | 6.7418 | 6.8562 | 6.7781 | 6.0815 | 6.0848 | 15.3390 | 0.4070 | 0.4136 | 0.4080 |
| methylene chloride | 0.0001 | 0.0001 | 0.0001 | 0.0015 | 0.0015 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| phenol | 0.0001 | 0.0001 | 0.0001 | 0.0018 | 0.0018 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| propylene | 0.6182 | 0.6184 | 0.9637 | 0.5488 | 0.5488 | 0.5512 | 4.6132 | 4.6132 | 4.6132 | 3.1686 | 3.1709 | 3.2009 | 9.2005 | 9.2007 | 23.5090 | 0.0867 | 0.0869 | 0.1788 |
| propylene oxide | 0.0026 | 0.0026 | 0.0032 | 0.0029 | 0.0030 | 0.0031 | 0.0011 | 0.0012 | 0.0020 | 0.0029 | 0.0030 | 0.0056 | 0.0014 | 0.0014 | 0.0023 | 0.0020 | 0.0020 | 0.0028 |
| styrene | 0.0001 | 0.0001 | 0.0001 | 0.0018 | 0.0018 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 |
| thiophene group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| toluene | 7.4854 | 7.5012 | 10.9370 | 2.2515 | 2.2583 | 3.4449 | 3.8608 | 3.8775 | 8.2621 | 69.4850 | 69.4900 | 83.2680 | 19.6810 | 19.6830 | 26.4090 | 4.3002 | 4.3162 | 7.4389 |
| trimethylbenzene | 1.0583 | 1.0594 | 1.4786 | 0.3322 | 0.3327 | 0.4838 | 0.5368 | 0.5380 | 1.0622 | 10.5080 | 10.5080 | 12.5620 | 2.6804 | 2.6805 | 3.5260 | 0.6346 | 0.6358 | 1.0484 |
| vinyl chloride | 0.0001 | 0.0001 | 0.0001 | 0.0011 | 0.0011 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| xylenes | 7.0068 | 7.0381 | 24.5890 | 1.5039 | 1.5249 | 5.8700 | 2.9963 | 3.0300 | 20.5260 | 55.3850 | 55.3960 | 105.1100 | 17.7360 | 17.7440 | 47.3570 | 3.8096 | 3.8421 | 11.6920 |

**Table 5.6-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Volatile Organic Compound Predictions in Regional Communities (continued)**

| Parameter[a][b] | Clearwater (IR175) | | | Namur River (IR 174A) | | | Poplar Point (IR 201G) | | | Cabin A | | | Cabin B | | | Cabin C | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak 1-hour** | | | | | | | | | | | | | | | | | | |
| total VOC | 352.9000 | 354.4700 | 489.1900 | 315.6100 | 315.6100 | 337.8400 | 337.3400 | 354.6400 | 1,491.7000 | 658.5500 | 775.7900 | 9,984.7998 | 546.6500 | 550.4500 | 1,260.4000 | 723.2500 | 752.4000 | 5,429.5000 |
| benzene | 1.1312 | 1.1380 | 2.3882 | 1.0612 | 1.0612 | 1.0907 | 0.8370 | 0.9007 | 1.1637 | 2.0162 | 2.6839 | 4.1052 | 1.3219 | 1.3263 | 2.2293 | 2.0957 | 2.1226 | 2.4409 |
| 1,1,1,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,1-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2,2-tetrachloroethane | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2-trichloroethane | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1-dichloroethane | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloroethane | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloropropane | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,3-butadiene | 0.0462 | 0.0462 | 0.0303 | 0.0184 | 0.0189 | 0.0195 | 0.0462 | 0.0488 | 0.0476 | 0.0685 | 0.0750 | 0.0715 | 0.0670 | 0.0670 | 0.0645 | 0.0858 | 0.0870 | 0.0821 |
| 1,3-dichloropropene | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1-pentene | 6.9240 | 6.9305 | 7.0930 | 3.7280 | 3.7900 | 4.4034 | 15.9930 | 16.4150 | 16.6150 | 20.4090 | 73.2720 | 73.2720 | 38.9410 | 38.9520 | 39.2170 | 26.4910 | 28.9610 | 28.9790 |
| acetaldehyde | 6.2265 | 6.2279 | 4.0786 | 2.4742 | 2.5411 | 2.6140 | 6.2274 | 6.5841 | 6.4155 | 9.2300 | 10.1180 | 9.6428 | 9.0312 | 9.0369 | 8.6964 | 11.5660 | 11.7280 | 11.0650 |
| acetone | 3.2760 | 3.2767 | 2.1448 | 1.3007 | 1.3359 | 1.3736 | 3.2775 | 3.4652 | 3.3762 | 4.8578 | 5.3251 | 5.0749 | 4.7531 | 4.7562 | 4.5767 | 6.0873 | 6.1728 | 5.8233 |
| acrolein | 0.5075 | 0.5076 | 0.3331 | 0.2024 | 0.2079 | 0.2141 | 0.5066 | 0.5356 | 0.5221 | 0.7508 | 0.8230 | 0.7845 | 0.7346 | 0.7351 | 0.7075 | 0.9408 | 0.9540 | 0.9001 |
| aliphatic aldehyde group | 9.2473 | 9.2493 | 6.0543 | 3.6716 | 3.7709 | 3.8774 | 9.2515 | 9.7814 | 9.5300 | 13.7120 | 15.0310 | 14.3250 | 13.4170 | 13.4250 | 12.9190 | 17.1830 | 17.4240 | 16.4370 |
| aliphatic $C_{17}$-$C_{34}$ group | 4.9184 | 4.9187 | 5.4443 | 2.9001 | 2.9001 | 3.4419 | 2.7390 | 2.8018 | 3.5737 | 4.0086 | 4.2873 | 6.1569 | 3.7870 | 3.7879 | 4.3788 | 4.4203 | 4.4360 | 5.2318 |
| aliphatic $C_5$-$C_8$ group | 219.1300 | 219.8800 | 263.0700 | 191.6900 | 191.6900 | 210.8600 | 201.6500 | 209.8800 | 439.8600 | 354.2400 | 499.6500 | 2,550.7000 | 302.5700 | 303.7100 | 443.8500 | 397.7400 | 405.4600 | 1,395.9000 |
| aliphatic $C_9$-$C_{16}$ group | 57.7520 | 57.7610 | 64.3860 | 69.8910 | 69.8910 | 70.4990 | 41.4670 | 43.6470 | 111.5100 | 106.9000 | 113.8800 | 690.1300 | 68.6540 | 69.1560 | 111.1200 | 111.9700 | 116.2400 | 394.4400 |
| aromatic $C_9$-$C_{16}$ group | 4.4853 | 4.5517 | 24.9760 | 6.4494 | 6.4494 | 23.7770 | 6.6353 | 7.1092 | 118.6200 | 15.8860 | 16.5480 | 811.4600 | 10.1910 | 10.2950 | 99.0240 | 17.3160 | 18.1790 | 434.9700 |
| carbon tetrachloride | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chlorobenzene | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroform | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| cumene | 3.0914 | 3.0931 | 5.3231 | 3.4595 | 3.4595 | 5.0487 | 4.1080 | 4.5553 | 25.0170 | 7.9694 | 8.6058 | 167.2600 | 6.0180 | 6.0252 | 20.8220 | 8.5761 | 9.1196 | 90.1920 |
| cyclohexane | 3.5182 | 3.5267 | 13.7510 | 4.3430 | 4.3430 | 13.0730 | 3.5898 | 3.6303 | 65.2600 | 9.6550 | 9.9103 | 447.2300 | 6.3979 | 6.4378 | 54.4780 | 10.8930 | 11.2260 | 239.6100 |
| dichlorobenzene | 0.0004 | 0.0004 | 0.0005 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | 0.0005 | 0.0003 | 0.0004 | 0.0006 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0004 | 0.0007 |
| ethylbenzene | 2.0922 | 2.1175 | 31.6100 | 2.8241 | 2.8242 | 30.0830 | 4.3993 | 4.5934 | 150.5400 | 10.2120 | 10.3370 | 1,034.1000 | 5.4449 | 5.4852 | 125.7100 | 11.6920 | 11.8160 | 553.7400 |
| ethylene | 2.5992 | 2.5995 | 4.8082 | 0.6175 | 0.6339 | 0.7872 | 1.4961 | 1.5708 | 1.7291 | 2.1975 | 2.4158 | 2.7717 | 2.1432 | 2.1444 | 2.3556 | 2.7074 | 2.7408 | 2.9094 |
| ethylene dibromide | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |
| formaldehyde | 3.3404 | 3.3412 | 2.2182 | 1.3542 | 1.3901 | 1.4522 | 3.3293 | 3.5201 | 3.4406 | 4.9275 | 5.4014 | 5.1544 | 4.8256 | 4.8290 | 4.6572 | 6.1741 | 6.2609 | 5.9137 |
| hexane | 35.0150 | 35.0150 | 36.6150 | 20.6590 | 20.6590 | 24.1480 | 23.5200 | 23.5340 | 27.6060 | 48.4610 | 48.5810 | 123.4800 | 26.9040 | 26.9050 | 34.7530 | 46.6160 | 46.6160 | 66.0050 |
| isopropanol group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| methanol | 0.0081 | 0.0081 | 0.0081 | 0.0038 | 0.0038 | 0.0039 | 0.0025 | 0.0025 | 0.0025 | 0.0029 | 0.0029 | 0.0030 | 0.0022 | 0.0022 | 0.0024 | 0.0029 | 0.0029 | 0.0030 |
| methyl ethyl ketone group | 1.9888 | 1.9892 | 1.4484 | 0.7607 | 0.7811 | 0.8119 | 1.9138 | 2.0225 | 1.9850 | 2.8339 | 3.1051 | 2.9753 | 2.7733 | 2.7750 | 2.6875 | 3.5483 | 3.5977 | 3.4149 |
| methylene chloride | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| phenol | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| propylene | 0.4902 | 0.4902 | 1.2320 | 0.0664 | 0.0679 | 0.1004 | 0.1468 | 0.1529 | 0.2076 | 0.2365 | 0.2556 | 0.3608 | 0.2128 | 0.2130 | 0.3084 | 0.2661 | 0.2714 | 0.3843 |
| propylene oxide | 0.0019 | 0.0019 | 0.0025 | 0.0026 | 0.0026 | 0.0040 | 0.0026 | 0.0030 | 0.0045 | 0.0031 | 0.0062 | 0.0070 | 0.0022 | 0.0023 | 0.0036 | 0.0034 | 0.0044 | 0.0061 |
| styrene | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| thiophene group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| toluene | 8.9438 | 8.9584 | 13.6530 | 20.0610 | 20.0610 | 20.1950 | 10.6510 | 10.7160 | 55.4420 | 31.9480 | 32.7560 | 377.7800 | 17.8120 | 17.8730 | 46.2330 | 32.7960 | 33.3030 | 203.1500 |
| trimethylbenzene | 1.2713 | 1.2724 | 1.8293 | 2.9500 | 2.9500 | 2.9656 | 1.5681 | 1.5719 | 7.0153 | 4.6867 | 4.7166 | 48.3110 | 2.5100 | 2.5124 | 5.8769 | 4.7503 | 4.7685 | 25.8370 |
| vinyl chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| xylenes | 9.4532 | 9.4829 | 41.7840 | 10.9530 | 10.9530 | 39.8010 | 9.7878 | 10.3980 | 198.3300 | 26.7260 | 27.5450 | 1,358.9000 | 18.0360 | 18.1640 | 165.6300 | 30.0690 | 31.1270 | 728.1600 |

**Table 5.6-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Volatile Organic Compound Predictions in Regional Communities (continued)**

| Parameter[a][b] | Cabin D | | | Cabin E | | | Cabin F | | | Cabin G | | | Cabin H | | | Cabin I | | | Cabin J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak 1-hour** | | | | | | | | | | | | | | | | | | | | | |
| total VOC | 788.7100 | 847.4100 | 8,241.9004 | 736.2900 | 761.5200 | 9,517.0996 | 731.1900 | 825.4600 | 12,913.0000 | 3,375.8999 | 3,376.6001 | 3,479.8999 | 1,636.9000 | 1,637.0000 | 12,845.0000 | 1,201.3001 | 1,201.6000 | 1,426.4000 | 10,515.0000 | 10,515.0000 | 31,429.0000 |
| benzene | 2.2378 | 3.0720 | 3.4215 | 1.9516 | 2.7588 | 4.1946 | 1.9286 | 2.9890 | 5.6771 | 2.9099 | 2.9122 | 3.3879 | 4.2152 | 4.2371 | 46.2700 | 3.9844 | 3.9920 | 4.1825 | 23.9670 | 23.9690 | 24.2610 |
| 1,1,1,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,1-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| 1,1,2-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| 1,1-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloropropane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |
| 1,3-butadiene | 0.0957 | 0.0970 | 0.0912 | 0.0912 | 0.0914 | 0.0935 | 0.0902 | 0.0905 | 0.0932 | 0.1418 | 0.1423 | 0.1442 | 0.0919 | 0.0922 | 0.1076 | 0.1207 | 0.1210 | 0.1133 | 0.2807 | 0.2835 | 0.2556 |
| 1,3-dichloropropene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1-pentene | 32.0910 | 86.5370 | 86.5370 | 44.4710 | 77.6760 | 77.6760 | 46.7610 | 84.1250 | 84.1250 | 304.8900 | 304.9500 | 305.6600 | 112.5400 | 113.0500 | 169.0900 | 18.9040 | 18.9080 | 18.9990 | 89.2720 | 89.2720 | 89.2720 |
| acetaldehyde | 12.9060 | 13.0780 | 12.2910 | 12.2880 | 12.3230 | 12.5930 | 12.1580 | 12.1920 | 12.5580 | 19.1180 | 19.1810 | 19.4460 | 12.3880 | 12.4280 | 14.5060 | 16.2800 | 16.3180 | 15.2740 | 37.8520 | 38.2230 | 34.4680 |
| acetone | 6.7928 | 6.8828 | 6.4686 | 6.4659 | 6.4847 | 6.6264 | 6.3979 | 6.4153 | 6.6080 | 10.0620 | 10.0950 | 10.2350 | 6.5192 | 6.5403 | 7.6335 | 8.5682 | 8.5882 | 8.0387 | 19.9220 | 20.1170 | 18.1410 |
| acrolein | 1.0498 | 1.0637 | 0.9999 | 1.0007 | 1.0036 | 1.0257 | 0.9902 | 0.9930 | 1.0229 | 1.5551 | 1.5602 | 1.5817 | 1.0078 | 1.0111 | 1.1802 | 1.3242 | 1.3273 | 1.2425 | 3.0789 | 3.1091 | 2.8036 |
| aliphatic aldehyde group | 19.1740 | 19.4280 | 18.2590 | 18.2520 | 18.3050 | 18.7050 | 18.0590 | 18.1090 | 18.6520 | 28.4030 | 28.4960 | 28.8900 | 18.4020 | 18.4610 | 21.5470 | 24.1860 | 24.2420 | 22.6910 | 56.2350 | 56.7860 | 51.2070 |
| aliphatic $C_{17}$-$C_{34}$ group | 4.6309 | 4.6424 | 5.5964 | 6.5579 | 6.5605 | 6.6118 | 6.5550 | 6.5566 | 6.6404 | 13.1500 | 13.1630 | 13.9200 | 42.0150 | 42.0150 | 41.6140 | 6.5007 | 6.5065 | 7.2215 | 17.2760 | 17.2980 | 94.2420 |
| aliphatic $C_5$-$C_8$ group | 417.2300 | 573.8300 | 2,109.6001 | 416.2000 | 515.3000 | 2,469.1001 | 417.2900 | 558.2700 | 3,349.1001 | 2,122.5000 | 2,123.0000 | 2,152.8001 | 1,264.2000 | 1,264.2000 | 3,382.8001 | 719.6900 | 719.7900 | 869.0400 | 3,508.2000 | 3,508.2000 | 8,011.6001 |
| aliphatic $C_9$-$C_{16}$ group | 118.3600 | 123.3300 | 567.2900 | 102.7100 | 103.4500 | 659.5200 | 100.8200 | 101.3200 | 894.3000 | 137.7600 | 138.1600 | 146.8500 | 489.1900 | 489.2000 | 915.9100 | 234.2700 | 234.3000 | 271.5900 | 720.4900 | 720.5400 | 2,192.3001 |
| aromatic $C_9$-$C_{16}$ group | 19.6050 | 20.1250 | 669.4700 | 15.2560 | 15.4210 | 764.1300 | 14.7210 | 14.8330 | 1,037.2000 | 13.1960 | 13.2790 | 43.3850 | 23.2460 | 23.2480 | 1,027.8001 | 36.8480 | 37.2920 | 95.9810 | 858.1000 | 858.1100 | 2,551.8001 |
| carbon tetrachloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| chlorobenzene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| chloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroform | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| cumene | 9.7261 | 9.9340 | 137.6800 | 8.5133 | 8.6279 | 158.0700 | 8.7729 | 8.8646 | 214.6700 | 10.6920 | 10.7700 | 12.7170 | 17.8280 | 17.8780 | 213.9100 | 13.6610 | 13.8160 | 24.4140 | 176.5600 | 176.5700 | 529.1300 |
| cyclohexane | 11.9610 | 12.2180 | 369.0000 | 10.0870 | 10.1510 | 420.9900 | 9.8834 | 9.9267 | 571.4300 | 5.4273 | 5.4585 | 23.0410 | 19.2350 | 19.2350 | 567.2600 | 19.8390 | 20.0090 | 51.9230 | 473.0000 | 473.0000 | 1,405.9000 |
| dichlorobenzene | 0.0004 | 0.0004 | 0.0006 | 0.0005 | 0.0005 | 0.0008 | 0.0005 | 0.0005 | 0.0008 | 0.0010 | 0.0010 | 0.0011 | 0.0004 | 0.0004 | 0.0022 | 0.0006 | 0.0006 | 0.0013 | 0.0004 | 0.0004 | 0.0023 |
| ethylbenzene | 15.1790 | 15.2400 | 853.6400 | 12.5100 | 12.7590 | 973.1300 | 12.4490 | 12.7000 | 1,320.7000 | 6.3133 | 6.3449 | 52.7890 | 11.5960 | 11.6170 | 1,303.8001 | 44.4020 | 44.5730 | 116.9900 | 1,094.0000 | 1,094.0000 | 3,248.1001 |
| ethylene | 2.9585 | 2.9862 | 3.1511 | 2.7334 | 2.7409 | 2.9512 | 2.6965 | 2.7035 | 2.9413 | 4.5048 | 4.5180 | 4.6111 | 3.9197 | 3.9199 | 3.6494 | 3.6574 | 3.6653 | 3.5360 | 8.2745 | 8.3046 | 7.8024 |
| ethylene dibromide | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| formaldehyde | 6.8894 | 6.9810 | 6.5688 | 6.5828 | 6.6020 | 6.7533 | 6.5125 | 6.5303 | 6.7336 | 10.2570 | 10.2900 | 10.4350 | 6.6379 | 6.6607 | 7.8400 | 8.6906 | 8.7112 | 8.1634 | 20.1940 | 20.3920 | 18.3880 |
| hexane | 50.2710 | 50.2710 | 101.7100 | 44.6820 | 44.6820 | 116.3200 | 49.9310 | 49.9310 | 157.9400 | 63.5440 | 63.5440 | 65.7090 | 273.2100 | 273.2100 | 275.6700 | 63.3990 | 63.4000 | 73.1490 | 429.9000 | 429.9000 | 446.6900 |
| isopropanol group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| methanol | 0.0030 | 0.0030 | 0.0032 | 0.0029 | 0.0029 | 0.0031 | 0.0031 | 0.0031 | 0.0032 | 0.0023 | 0.0023 | 0.0024 | 0.0041 | 0.0041 | 0.0046 | 0.0044 | 0.0044 | 0.0045 | 0.0047 | 0.0047 | 0.0047 |
| methyl ethyl ketone group | 3.9539 | 4.0060 | 3.7839 | 3.7574 | 3.7683 | 3.8616 | 3.7168 | 3.7269 | 3.8503 | 5.8805 | 5.8994 | 5.9843 | 3.7751 | 3.7873 | 4.4853 | 4.9852 | 4.9967 | 4.6851 | 11.5460 | 11.6580 | 10.5660 |
| methylene chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| phenol | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| propylene | 0.2864 | 0.2890 | 0.4023 | 0.2531 | 0.2538 | 0.3563 | 0.2515 | 0.2522 | 0.3546 | 0.3584 | 0.3595 | 0.3650 | 0.2451 | 0.2463 | 0.5059 | 0.3311 | 0.3311 | 0.4371 | 0.7107 | 0.7176 | 0.6546 |
| propylene oxide | 0.0036 | 0.0059 | 0.0065 | 0.0034 | 0.0036 | 0.0051 | 0.0037 | 0.0038 | 0.0054 | 0.0028 | 0.0028 | 0.0039 | 0.0050 | 0.0050 | 0.0068 | 0.0060 | 0.0060 | 0.0077 | 0.0046 | 0.0046 | 0.0064 |
| styrene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| thiophene group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| toluene | 35.1130 | 35.7110 | 311.2300 | 28.2180 | 28.3130 | 356.0100 | 27.5340 | 27.5980 | 483.4100 | 17.1370 | 17.1430 | 24.9520 | 72.1270 | 72.1280 | 492.8900 | 69.5030 | 69.5080 | 82.3440 | 399.0200 | 399.0200 | 1,190.0000 |
| trimethylbenzene | 5.0973 | 5.1187 | 39.8090 | 4.0381 | 4.0415 | 45.4820 | 3.9428 | 3.9451 | 61.7630 | 2.6797 | 2.6831 | 3.6171 | 9.1020 | 9.1021 | 63.4480 | 10.2690 | 10.2690 | 12.2120 | 51.0650 | 51.0660 | 151.9500 |
| vinyl chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| xylenes | 33.4790 | 34.2970 | 1,121.3001 | 27.8340 | 28.0350 | 1,279.4000 | 27.2060 | 27.3440 | 1,736.6000 | 19.9160 | 19.9650 | 72.0290 | 47.3470 | 47.3480 | 1,721.6000 | 60.5900 | 61.1410 | 158.0900 | 1,437.1000 | 1,437.1000 | 4,271.2998 |

**Table 5.6-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Volatile Organic Compound Predictions in Regional Communities (continued)**

| Parameter[a][b] | Cabin K | | | Cabin L | | | Descharme Lake, SK | | | La Loche, SK | | | Oil Sands Lodge | | | PTI Camp | | | Pierre River Mine Fenceline[c] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak 1-hour** | | | | | | | | | | | | | | | | | | | | | |
| total VOC | 2,423.8001 | 2,424.3001 | 19,181.0000 | 1,019.6000 | 1,019.7000 | 13,499.0000 | 79.6000 | 79.6000 | 152.1700 | 86.8670 | 86.8850 | 120.9200 | 1,751.6000 | 1,751.6000 | 1,804.0000 | 2,743.5000 | 2,743.7000 | 3,039.0000 | 3,286.1001 | 11,357.0000 | 29,428.0000 |
| benzene | 9.3640 | 9.3801 | 15.6080 | 3.1502 | 3.1503 | 5.5384 | 0.2139 | 0.2139 | 0.2817 | 1.5247 | 1.5248 | 1.5254 | 4.5402 | 4.6110 | 4.7612 | 7.6191 | 7.6193 | 8.2498 | 9.6777 | 41.2090 | 41.2350 |
| 1,1,1,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,1-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2,2-tetrachloroethane | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| 1,1,2-trichloroethane | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| 1,1-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloropropane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| 1,3-butadiene | 0.3384 | 0.3397 | 0.3306 | 0.1416 | 0.1424 | 0.1373 | 0.0051 | 0.0053 | 0.0050 | 0.0163 | 0.0163 | 0.0163 | 0.2022 | 0.2069 | 0.2067 | 0.1164 | 0.1192 | 0.1178 | 0.2174 | 0.2381 | 0.2345 |
| 1,3-dichloropropene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| 1-pentene | 168.7000 | 168.7000 | 168.7000 | 30.2840 | 78.7740 | 78.7950 | 4.6258 | 4.6262 | 4.6262 | 2.3068 | 2.3264 | 2.3892 | 89.7910 | 89.7910 | 89.7910 | 34.1870 | 34.4990 | 34.4990 | 47.6670 | 1,159.8001 | 1,159.9000 |
| acetaldehyde | 45.6320 | 45.8050 | 44.5790 | 19.0890 | 19.2040 | 18.5110 | 0.6899 | 0.7093 | 0.6724 | 2.1963 | 2.1965 | 2.1962 | 27.2700 | 27.9030 | 27.8760 | 15.6990 | 16.0740 | 15.8840 | 29.3070 | 32.1060 | 31.6130 |
| acetone | 24.0170 | 24.1080 | 23.4630 | 10.0470 | 10.1080 | 9.7426 | 0.3631 | 0.3732 | 0.3539 | 1.1560 | 1.1560 | 1.1559 | 14.3530 | 14.6860 | 14.6720 | 8.2627 | 8.4600 | 8.3601 | 15.4250 | 16.8980 | 16.6380 |
| acrolein | 3.7117 | 3.7258 | 3.6261 | 1.5527 | 1.5621 | 1.5059 | 0.0561 | 0.0577 | 0.0547 | 0.1787 | 0.1787 | 0.1786 | 2.2182 | 2.2696 | 2.2674 | 1.2770 | 1.3075 | 1.2921 | 2.3838 | 2.6115 | 2.5716 |
| aliphatic aldehyde group | 67.7930 | 68.0510 | 66.2290 | 28.3590 | 28.5310 | 27.5010 | 1.0249 | 1.0536 | 0.9988 | 3.2629 | 3.2632 | 3.2628 | 40.5140 | 41.4540 | 41.4140 | 23.3230 | 23.8800 | 23.5980 | 43.5390 | 47.6970 | 46.9660 |
| aliphatic $C_{17}$-$C_{34}$ group | 21.0920 | 21.1180 | 21.3210 | 6.3908 | 6.3909 | 7.7863 | 0.6833 | 0.6833 | 1.8818 | 0.9565 | 0.9568 | 2.4259 | 33.5210 | 33.5210 | 34.2720 | 27.1490 | 27.1510 | 27.3910 | 14.1690 | 14.2990 | 16.5770 |
| aliphatic $C_5$-$C_8$ group | 1,425.6000 | 1,425.6000 | 4,954.0000 | 498.9100 | 525.2500 | 3,451.5000 | 57.9840 | 57.9840 | 69.6660 | 51.9650 | 51.9650 | 59.1540 | 1,258.7000 | 1,258.7000 | 1,316.4000 | 2,075.3999 | 2,075.5000 | 2,268.3999 | 2,073.3999 | 7,692.0000 | 7,706.5000 |
| aliphatic $C_9$-$C_{16}$ group | 362.8000 | 362.8000 | 1,413.4000 | 147.2800 | 147.2800 | 931.7000 | 9.9080 | 9.9080 | 13.7930 | 10.7440 | 10.8380 | 17.6550 | 347.7100 | 347.7100 | 352.1100 | 426.8200 | 426.8200 | 437.3100 | 675.5200 | 692.3000 | 2,016.5000 |
| aromatic $C_9$-$C_{16}$ group | 100.4000 | 102.1800 | 1,526.8001 | 35.3120 | 35.3140 | 1,096.8001 | 1.0416 | 1.0423 | 11.5650 | 0.9751 | 0.9951 | 4.2986 | 27.0860 | 27.4100 | 70.3360 | 43.6610 | 43.6610 | 55.2730 | 80.4870 | 83.5530 | 2,390.6001 |
| carbon tetrachloride | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| chlorobenzene | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| chloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |
| chloroform | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| cumene | 25.9910 | 26.8910 | 323.0700 | 15.1410 | 15.1430 | 225.6700 | 0.5916 | 0.5957 | 2.5011 | 0.6348 | 0.6535 | 1.3621 | 15.9370 | 16.2470 | 24.9510 | 22.5940 | 22.5940 | 23.2970 | 39.7310 | 43.4580 | 491.6000 |
| cyclohexane | 55.6390 | 56.3230 | 840.2700 | 18.9860 | 18.9870 | 604.5300 | 0.9391 | 0.9391 | 6.3578 | 0.8580 | 0.8580 | 2.3113 | 21.4400 | 21.4400 | 38.4640 | 36.3800 | 36.3830 | 39.8720 | 48.9910 | 50.4790 | 1,317.7000 |
| dichlorobenzene | 0.0005 | 0.0005 | 0.0008 | 0.0004 | 0.0006 | 0.0009 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0004 | 0.0004 | 0.0004 | 0.0006 | 0.0006 | 0.0006 | 0.0008 | 0.0025 | 0.0026 |
| ethylbenzene | 117.8500 | 118.5500 | 1,933.4000 | 30.3560 | 30.3570 | 1,398.4000 | 0.9421 | 0.9423 | 14.5550 | 0.5280 | 0.5450 | 5.1014 | 18.7760 | 19.0300 | 87.4250 | 14.6940 | 15.0060 | 68.1050 | 99.9650 | 101.1600 | 3,048.3001 |
| ethylene | 10.2320 | 10.2680 | 10.0330 | 4.0793 | 4.1034 | 4.0652 | 0.1944 | 0.1944 | 0.3767 | 5.9006 | 5.9007 | 5.9013 | 5.7787 | 5.8480 | 5.9145 | 3.5353 | 3.6136 | 3.6339 | 6.2989 | 6.9288 | 6.8498 |
| ethylene dibromide | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| formaldehyde | 24.3450 | 24.4370 | 23.7830 | 10.1860 | 10.2470 | 9.8797 | 0.3710 | 0.3839 | 0.3643 | 1.1785 | 1.1786 | 1.1786 | 14.5490 | 14.8870 | 14.8730 | 8.3793 | 8.5797 | 8.4811 | 15.6380 | 17.1300 | 16.8690 |
| hexane | 112.8500 | 112.8500 | 234.2300 | 57.0370 | 57.0370 | 166.7500 | 11.0460 | 11.0460 | 12.9830 | 9.6803 | 9.6803 | 10.7170 | 239.6100 | 239.6100 | 248.4900 | 352.2800 | 352.2800 | 386.7400 | 151.9600 | 151.9600 | 363.3300 |
| isopropanol group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| methanol | 0.0045 | 0.0045 | 0.0046 | 0.0037 | 0.0037 | 0.0038 | 0.0017 | 0.0017 | 0.0017 | 0.0028 | 0.0028 | 0.0028 | 0.0064 | 0.0064 | 0.0064 | 0.0075 | 0.0075 | 0.0075 | 0.0045 | 0.0045 | 0.0046 |
| methyl ethyl ketone group | 13.9790 | 14.0320 | 13.6600 | 5.8244 | 5.8597 | 5.6595 | 0.2107 | 0.2165 | 0.2057 | 1.0219 | 1.0220 | 1.0220 | 8.3097 | 8.5024 | 8.4989 | 4.7988 | 4.9130 | 4.8618 | 8.9439 | 9.8046 | 9.6567 |
| methylene chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| phenol | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| propylene | 0.8552 | 0.8584 | 0.8355 | 0.3649 | 0.3670 | 0.4458 | 0.0403 | 0.0403 | 0.0926 | 1.5406 | 1.5406 | 1.5408 | 0.5388 | 0.5418 | 0.5874 | 0.3690 | 0.3805 | 0.5468 | 0.5800 | 0.6071 | 0.6665 |
| propylene oxide | 0.0054 | 0.0054 | 0.0060 | 0.0042 | 0.0160 | 0.0160 | 0.0011 | 0.0011 | 0.0018 | 0.0014 | 0.0015 | 0.0022 | 0.0050 | 0.0050 | 0.0061 | 0.0026 | 0.0026 | 0.0044 | 0.0050 | 0.0419 | 0.0425 |
| styrene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| thiophene group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| toluene | 97.6680 | 97.6680 | 723.1400 | 44.9720 | 44.9720 | 510.0200 | 2.4044 | 2.4081 | 5.5675 | 2.3183 | 2.3183 | 3.2243 | 71.0570 | 71.2440 | 81.0890 | 135.2400 | 135.2400 | 139.4800 | 228.2800 | 230.4700 | 1,111.1000 |
| trimethylbenzene | 13.7540 | 13.7540 | 92.0080 | 6.3944 | 6.3944 | 65.2200 | 0.3655 | 0.3655 | 0.7109 | 0.3451 | 0.3451 | 0.4233 | 10.4400 | 10.4480 | 11.8030 | 20.3590 | 20.3590 | 21.0430 | 34.2880 | 34.3700 | 142.1700 |
| vinyl chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| xylenes | 166.9900 | 169.1900 | 2,552.3001 | 56.2470 | 56.2500 | 1,836.9000 | 2.3569 | 2.3569 | 19.3210 | 2.1887 | 2.1887 | 7.0862 | 53.4840 | 53.4850 | 117.2100 | 90.0870 | 90.0940 | 99.1210 | 134.3700 | 138.1200 | 4,003.8999 |

(a) The peak predictions include the eight highest 1-hour predictions from the CALPUFF model.

(b) See EIA Volume 3, Section 3, Table 3.2-4 for respective air quality guidelines.

(c) Location along the fenceline where CALPUFF predicted highest concentration.

**Table 5.6-3 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Volatile Organic Compound Predictions in Regional Communities**

| Parameter[a][b] | Anzac | | | Conklin | | | Fort Chipewyan | | | Fort McKay | | | Fort McMurray | | | Janvier/Chard (IR 194) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak Annual Average** | | | | | | | | | | | | | | | | | | |
| total VOC | 12.1026 | 12.2339 | 17.9872 | 3.8656 | 3.9059 | 6.8942 | 26.5321 | 26.7074 | 29.2448 | 132.1566 | 133.3122 | 157.1306 | 44.3326 | 44.6100 | 97.9053 | 2.8246 | 2.8890 | 5.6197 |
| benzene | 0.1263 | 0.1266 | 0.1423 | 0.0492 | 0.0493 | 0.0512 | 0.3785 | 0.3790 | 0.3809 | 0.6672 | 0.6698 | 0.6965 | 1.5132 | 1.5139 | 3.8168 | 0.0207 | 0.0208 | 0.0241 |
| 1,1,1,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,1-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloropropane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,3-butadiene | 0.0012 | 0.0012 | 0.0013 | 0.0008 | 0.0008 | 0.0008 | 0.0019 | 0.0020 | 0.0020 | 0.0122 | 0.0123 | 0.0124 | 0.0062 | 0.0062 | 0.0141 | 0.0004 | 0.0004 | 0.0004 |
| 1,3-dichloropropene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1-pentene | 0.0620 | 0.0684 | 0.0750 | 0.0198 | 0.0223 | 0.0239 | 0.0463 | 0.0563 | 0.0605 | 1.9002 | 1.9561 | 2.0040 | 0.1186 | 0.1299 | 0.1464 | 0.0315 | 0.0352 | 0.0379 |
| acetaldehyde | 0.1597 | 0.1610 | 0.1671 | 0.0828 | 0.0832 | 0.0833 | 0.2619 | 0.2634 | 0.2639 | 1.6418 | 1.6557 | 1.6692 | 0.8325 | 0.8353 | 1.9038 | 0.0462 | 0.0468 | 0.0466 |
| acetone | 0.0829 | 0.0836 | 0.0868 | 0.0403 | 0.0406 | 0.0406 | 0.1378 | 0.1386 | 0.1388 | 0.8639 | 0.8712 | 0.8783 | 0.4377 | 0.4392 | 1.0014 | 0.0227 | 0.0230 | 0.0229 |
| acrolein | 0.0140 | 0.0141 | 0.0146 | 0.0099 | 0.0100 | 0.0100 | 0.0213 | 0.0214 | 0.0215 | 0.1336 | 0.1348 | 0.1359 | 0.0682 | 0.0684 | 0.1553 | 0.0053 | 0.0053 | 0.0053 |
| aliphatic aldehyde group | 0.2341 | 0.2360 | 0.2450 | 0.1139 | 0.1145 | 0.1146 | 0.3889 | 0.3912 | 0.3919 | 2.4386 | 2.4593 | 2.4792 | 1.2354 | 1.2396 | 2.8268 | 0.0641 | 0.0650 | 0.0646 |
| aliphatic $C_{17}$-$C_{34}$ group | 0.3163 | 0.3165 | 0.5230 | 0.0396 | 0.0396 | 0.1957 | 0.1142 | 0.1144 | 0.1297 | 0.8895 | 0.8916 | 0.9804 | 0.5748 | 0.5752 | 1.3053 | 0.0311 | 0.0312 | 0.1380 |
| aliphatic $C_5$-$C_8$ group | 3.6246 | 3.6895 | 5.3974 | 0.7780 | 0.7997 | 1.6525 | 1.6565 | 1.7398 | 2.4955 | 63.5110 | 64.0439 | 74.3214 | 10.2241 | 10.3607 | 16.4923 | 1.1728 | 1.2050 | 2.0495 |
| aliphatic $C_9$-$C_{16}$ group | 2.6909 | 2.6990 | 4.3945 | 0.3507 | 0.3532 | 1.5500 | 0.8973 | 0.9068 | 1.2323 | 18.5723 | 18.6579 | 22.0290 | 5.1395 | 5.1571 | 10.4399 | 0.3742 | 0.3780 | 1.2267 |
| aromatic $C_9$-$C_{16}$ group | 0.0841 | 0.0859 | 0.2190 | 0.0219 | 0.0225 | 0.0730 | 0.0536 | 0.0555 | 0.2167 | 1.9945 | 2.0130 | 3.0468 | 0.2480 | 0.2518 | 0.5630 | 0.0330 | 0.0338 | 0.1127 |
| carbon tetrachloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chlorobenzene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroform | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| cumene | 0.0478 | 0.0494 | 0.0844 | 0.0117 | 0.0123 | 0.0254 | 0.0266 | 0.0284 | 0.0677 | 1.1973 | 1.2147 | 1.5736 | 0.1241 | 0.1268 | 0.2025 | 0.0190 | 0.0198 | 0.0404 |
| cyclohexane | 0.0534 | 0.0540 | 0.1288 | 0.0127 | 0.0129 | 0.0424 | 0.0256 | 0.0263 | 0.1142 | 1.2285 | 1.2355 | 1.8242 | 0.1657 | 0.1671 | 0.3357 | 0.0208 | 0.0211 | 0.0661 |
| dichlorobenzene | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| ethylbenzene | 0.0385 | 0.0391 | 0.1997 | 0.0100 | 0.0102 | 0.0698 | 0.0264 | 0.0272 | 0.2249 | 0.7814 | 0.7885 | 1.8702 | 0.1067 | 0.1081 | 0.4115 | 0.0156 | 0.0159 | 0.1093 |
| ethylene | 0.2940 | 0.2943 | 0.3433 | 0.1828 | 0.1829 | 0.1935 | 1.9335 | 1.9338 | 1.9359 | 1.5735 | 1.5764 | 1.6046 | 1.9637 | 1.9643 | 4.9662 | 0.0615 | 0.0616 | 0.0723 |
| ethylene dibromide | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| formaldehyde | 0.1042 | 0.1050 | 0.1116 | 0.0837 | 0.0840 | 0.0861 | 0.1463 | 0.1472 | 0.1482 | 0.8817 | 0.8895 | 0.9001 | 0.4551 | 0.4568 | 1.0337 | 0.0459 | 0.0463 | 0.0488 |
| hexane | 0.2883 | 0.2890 | 0.4184 | 0.0739 | 0.0741 | 0.1312 | 0.0643 | 0.0651 | 0.1082 | 4.4263 | 4.4296 | 5.1673 | 1.0588 | 1.0598 | 1.5604 | 0.1187 | 0.1191 | 0.1827 |
| isopropanol group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| methanol | 0.0006 | 0.0006 | 0.0006 | 0.0018 | 0.0018 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0009 | 0.0009 | 0.0009 |
| methyl ethyl ketone group | 0.0655 | 0.0659 | 0.0713 | 0.0342 | 0.0343 | 0.0354 | 0.2013 | 0.2017 | 0.2020 | 0.5810 | 0.5852 | 0.5911 | 0.3700 | 0.3708 | 0.8770 | 0.0166 | 0.0168 | 0.0176 |
| methylene chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| phenol | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| propylene | 0.0712 | 0.0712 | 0.0817 | 0.0473 | 0.0473 | 0.0480 | 0.5244 | 0.5245 | 0.5248 | 0.3629 | 0.3632 | 0.3693 | 0.5053 | 0.5054 | 1.2874 | 0.0150 | 0.0150 | 0.0165 |
| propylene oxide | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0002 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0002 |
| styrene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| thiophene group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| toluene | 0.2714 | 0.2726 | 0.4080 | 0.0735 | 0.0738 | 0.1373 | 0.4102 | 0.4115 | 0.4976 | 4.5427 | 4.5543 | 5.5460 | 0.9333 | 0.9358 | 1.8366 | 0.0746 | 0.0752 | 0.1459 |
| trimethylbenzene | 0.0232 | 0.0233 | 0.0330 | 0.0065 | 0.0065 | 0.0102 | 0.0145 | 0.0146 | 0.0247 | 0.6149 | 0.6157 | 0.7456 | 0.0857 | 0.0859 | 0.1394 | 0.0092 | 0.0092 | 0.0150 |
| vinyl chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| xylenes | 0.1661 | 0.1684 | 0.3914 | 0.0436 | 0.0443 | 0.1324 | 0.1691 | 0.1719 | 0.4424 | 3.4704 | 3.4943 | 5.2145 | 0.5697 | 0.5747 | 1.2563 | 0.0612 | 0.0623 | 0.1976 |

**Table 5.6-3 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Volatile Organic Compound Predictions in Regional Communities (continued)**

| Parameter[a][b] | Clearwater (IR175) | | | Namur River (IR 174A) | | | Poplar Point (IR 201G) | | | Cabin A | | | Cabin B | | | Cabin C | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak Annual Average** | | | | | | | | | | | | | | | | | | |
| total VOC | 10.7640 | 10.9724 | 17.4627 | 5.3008 | 5.6378 | 9.6058 | 12.4496 | 13.7087 | 38.1305 | 27.9869 | 47.5421 | 208.3271 | 21.5171 | 22.7784 | 43.5908 | 28.2745 | 34.8585 | 111.6956 |
| benzene | 0.0513 | 0.0518 | 0.0927 | 0.0179 | 0.0187 | 0.0228 | 0.0352 | 0.0387 | 0.0547 | 0.0853 | 0.1496 | 0.2214 | 0.0500 | 0.0535 | 0.0751 | 0.0807 | 0.1003 | 0.1411 |
| 1,1,1,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,1-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloropropane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,3-butadiene | 0.0011 | 0.0011 | 0.0012 | 0.0005 | 0.0005 | 0.0006 | 0.0014 | 0.0015 | 0.0015 | 0.0032 | 0.0036 | 0.0037 | 0.0026 | 0.0027 | 0.0027 | 0.0033 | 0.0036 | 0.0036 |
| 1,3-dichloropropene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1-pentene | 0.1006 | 0.1122 | 0.1255 | 0.0535 | 0.0725 | 0.0778 | 0.2697 | 0.3552 | 0.3804 | 0.4594 | 2.2070 | 2.2440 | 0.6567 | 0.7428 | 0.7988 | 0.5328 | 1.0434 | 1.0986 |
| acetaldehyde | 0.1470 | 0.1491 | 0.1608 | 0.0689 | 0.0723 | 0.0753 | 0.1874 | 0.1969 | 0.2001 | 0.4305 | 0.4846 | 0.5004 | 0.3552 | 0.3647 | 0.3659 | 0.4442 | 0.4794 | 0.4845 |
| acetone | 0.0769 | 0.0780 | 0.0841 | 0.0361 | 0.0379 | 0.0394 | 0.0985 | 0.1034 | 0.1050 | 0.2264 | 0.2548 | 0.2630 | 0.1868 | 0.1917 | 0.1923 | 0.2335 | 0.2521 | 0.2546 |
| acrolein | 0.0124 | 0.0126 | 0.0135 | 0.0057 | 0.0060 | 0.0063 | 0.0154 | 0.0161 | 0.0164 | 0.0352 | 0.0396 | 0.0409 | 0.0290 | 0.0298 | 0.0299 | 0.0363 | 0.0392 | 0.0396 |
| aliphatic aldehyde group | 0.2170 | 0.2202 | 0.2374 | 0.1019 | 0.1070 | 0.1111 | 0.2780 | 0.2920 | 0.2965 | 0.6389 | 0.7191 | 0.7424 | 0.5272 | 0.5411 | 0.5428 | 0.6592 | 0.7115 | 0.7188 |
| aliphatic $C_{17}$-$C_{34}$ group | 0.1255 | 0.1258 | 0.2324 | 0.0374 | 0.0379 | 0.1030 | 0.0911 | 0.0928 | 0.1735 | 0.1858 | 0.2008 | 0.4319 | 0.1487 | 0.1505 | 0.2424 | 0.1898 | 0.1984 | 0.3556 |
| aliphatic $C_5$-$C_8$ group | 5.3219 | 5.4245 | 7.4573 | 2.6610 | 2.8274 | 4.0845 | 5.9597 | 6.6402 | 13.3166 | 12.6625 | 24.9019 | 66.7296 | 10.2311 | 10.9139 | 16.8394 | 12.9516 | 16.7598 | 37.2552 |
| aliphatic $C_9$-$C_{16}$ group | 1.7145 | 1.7276 | 2.8194 | 0.9001 | 0.9211 | 1.6807 | 1.7218 | 1.7818 | 4.1093 | 3.8572 | 4.2394 | 17.1337 | 2.5832 | 2.6438 | 4.7838 | 3.7888 | 4.0294 | 10.6244 |
| aromatic $C_9$-$C_{16}$ group | 0.1495 | 0.1523 | 0.3586 | 0.1103 | 0.1149 | 0.2911 | 0.2464 | 0.2593 | 2.0101 | 0.7188 | 0.8012 | 13.3203 | 0.3709 | 0.3838 | 1.9679 | 0.6667 | 0.7161 | 6.4913 |
| carbon tetrachloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chlorobenzene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroform | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| cumene | 0.0892 | 0.0919 | 0.1507 | 0.0636 | 0.0679 | 0.1228 | 0.1458 | 0.1576 | 0.5620 | 0.3589 | 0.4265 | 3.1225 | 0.2482 | 0.2600 | 0.6117 | 0.3587 | 0.4028 | 1.6920 |
| cyclohexane | 0.1009 | 0.1020 | 0.2210 | 0.0639 | 0.0656 | 0.1619 | 0.1336 | 0.1383 | 1.0992 | 0.3901 | 0.4173 | 7.3041 | 0.1879 | 0.1926 | 1.0673 | 0.3587 | 0.3764 | 3.5488 |
| dichlorobenzene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| ethylbenzene | 0.0693 | 0.0704 | 0.3078 | 0.0516 | 0.0533 | 0.2517 | 0.1432 | 0.1480 | 2.3237 | 0.5352 | 0.5626 | 16.3727 | 0.2058 | 0.2127 | 2.1814 | 0.4657 | 0.4835 | 7.7192 |
| ethylene | 0.0913 | 0.0918 | 0.1850 | 0.0184 | 0.0191 | 0.0269 | 0.0473 | 0.0492 | 0.0609 | 0.1038 | 0.1154 | 0.1413 | 0.0850 | 0.0869 | 0.1006 | 0.1069 | 0.1144 | 0.1348 |
| ethylene dibromide | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| formaldehyde | 0.0868 | 0.0881 | 0.0971 | 0.0404 | 0.0424 | 0.0467 | 0.1045 | 0.1101 | 0.1146 | 0.2357 | 0.2660 | 0.2783 | 0.1950 | 0.2005 | 0.2041 | 0.2432 | 0.2629 | 0.2691 |
| hexane | 0.5754 | 0.5763 | 0.7780 | 0.1585 | 0.1597 | 0.2365 | 0.3215 | 0.3264 | 0.6672 | 0.6812 | 0.7553 | 2.7868 | 0.4460 | 0.4507 | 0.7539 | 0.7084 | 0.7316 | 1.7374 |
| isopropanol group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| methanol | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| methyl ethyl ketone group | 0.0487 | 0.0493 | 0.0589 | 0.0212 | 0.0223 | 0.0237 | 0.0577 | 0.0605 | 0.0624 | 0.1322 | 0.1487 | 0.1554 | 0.1090 | 0.1119 | 0.1133 | 0.1364 | 0.1471 | 0.1502 |
| methylene chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| phenol | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| propylene | 0.0182 | 0.0182 | 0.0421 | 0.0021 | 0.0021 | 0.0033 | 0.0049 | 0.0051 | 0.0071 | 0.0103 | 0.0113 | 0.0147 | 0.0084 | 0.0085 | 0.0110 | 0.0106 | 0.0112 | 0.0145 |
| propylene oxide | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0003 |
| styrene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| thiophene group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| toluene | 0.3186 | 0.3205 | 0.4897 | 0.2188 | 0.2218 | 0.3437 | 0.3614 | 0.3702 | 1.2378 | 0.8823 | 0.9564 | 6.9121 | 0.4831 | 0.4919 | 1.2948 | 0.8257 | 0.8625 | 3.6555 |
| trimethylbenzene | 0.0414 | 0.0415 | 0.0580 | 0.0303 | 0.0306 | 0.0432 | 0.0474 | 0.0483 | 0.1540 | 0.1159 | 0.1296 | 0.8768 | 0.0630 | 0.0642 | 0.1612 | 0.1070 | 0.1115 | 0.4577 |
| vinyl chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| xylenes | 0.2836 | 0.2874 | 0.6463 | 0.1786 | 0.1847 | 0.4746 | 0.3947 | 0.4124 | 3.3283 | 1.1570 | 1.2960 | 22.2114 | 0.5760 | 0.5936 | 3.2359 | 1.0682 | 1.1398 | 10.7711 |

**Table 5.6-3 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Volatile Organic Compound Predictions in Regional Communities (continued)**

| Parameter[a][b] | Cabin D | | | Cabin E | | | Cabin F | | | Cabin G | | | Cabin H | | | Cabin I | | | Cabin J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 RPM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak Annual Average** | | | | | | | | | | | | | | | | | | | | | |
| total VOC | 31.8932 | 40.3367 | 122.4170 | 32.1865 | 34.8777 | 72.0647 | 34.3382 | 37.0355 | 74.1297 | 70.2599 | 70.8595 | 83.5932 | 45.6562 | 46.2497 | 100.6526 | 57.7139 | 67.8760 | 104.4794 | 819.0018 | 823.3738 | 1,238.6917 |
| benzene | 0.0918 | 0.1166 | 0.1589 | 0.0803 | 0.0876 | 0.1201 | 0.0862 | 0.0934 | 0.1270 | 0.0911 | 0.0926 | 0.1128 | 0.0987 | 0.1002 | 0.2625 | 0.1992 | 0.2173 | 0.2215 | 1.9369 | 1.9450 | 1.1657 |
| 1,1,1,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,1-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloropropane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,3-butadiene | 0.0038 | 0.0041 | 0.0042 | 0.0041 | 0.0042 | 0.0043 | 0.0045 | 0.0046 | 0.0047 | 0.0051 | 0.0051 | 0.0052 | 0.0050 | 0.0050 | 0.0051 | 0.0072 | 0.0084 | 0.0083 | 0.0131 | 0.0136 | 0.0129 |
| 1,3-dichloropropene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1-pentene | 0.5626 | 1.2061 | 1.2626 | 0.7717 | 0.9554 | 1.0573 | 0.7836 | 0.9629 | 1.0765 | 4.6070 | 4.6441 | 4.7174 | 1.2267 | 1.2611 | 1.5934 | 0.6979 | 1.0278 | 1.0601 | 1.6740 | 1.8257 | 1.9081 |
| acetaldehyde | 0.5061 | 0.5538 | 0.5607 | 0.5507 | 0.5707 | 0.5771 | 0.5993 | 0.6204 | 0.6273 | 0.6867 | 0.6920 | 0.6937 | 0.6734 | 0.6791 | 0.6897 | 0.9762 | 1.1365 | 1.1126 | 1.7625 | 1.8290 | 1.7381 |
| acetone | 0.2661 | 0.2912 | 0.2948 | 0.2896 | 0.3001 | 0.3034 | 0.3151 | 0.3263 | 0.3298 | 0.3612 | 0.3640 | 0.3648 | 0.3541 | 0.3571 | 0.3625 | 0.5135 | 0.5979 | 0.5852 | 0.9274 | 0.9624 | 0.9145 |
| acrolein | 0.0413 | 0.0452 | 0.0458 | 0.0450 | 0.0466 | 0.0471 | 0.0489 | 0.0506 | 0.0512 | 0.0560 | 0.0564 | 0.0566 | 0.0550 | 0.0555 | 0.0564 | 0.0796 | 0.0926 | 0.0907 | 0.1434 | 0.1489 | 0.1415 |
| aliphatic aldehyde group | 0.7512 | 0.8219 | 0.8320 | 0.8174 | 0.8471 | 0.8564 | 0.8896 | 0.9209 | 0.9309 | 1.0196 | 1.0274 | 1.0298 | 0.9996 | 1.0081 | 1.0233 | 1.4495 | 1.6876 | 1.6519 | 2.6179 | 2.7166 | 2.5813 |
| aliphatic $C_{17}$-$C_{34}$ group | 0.2068 | 0.2188 | 0.3936 | 0.2115 | 0.2157 | 0.3458 | 0.2243 | 0.2288 | 0.3616 | 0.4566 | 0.4575 | 0.5486 | 0.2813 | 0.2822 | 0.7408 | 0.3708 | 0.3935 | 0.6091 | 0.4804 | 0.4898 | 1.7086 |
| aliphatic $C_5$-$C_8$ group | 14.3397 | 19.1771 | 41.0947 | 14.7430 | 16.1991 | 26.6863 | 15.5904 | 17.0305 | 27.5699 | 38.6730 | 38.9826 | 42.8382 | 21.2263 | 21.5241 | 37.1455 | 23.9559 | 27.9814 | 39.2295 | 224.4979 | 226.2718 | 333.2660 |
| aliphatic $C_9$-$C_{16}$ group | 4.2460 | 4.5736 | 11.7105 | 4.0264 | 4.1581 | 7.7825 | 4.3226 | 4.4619 | 8.1116 | 5.2818 | 5.3153 | 6.8441 | 5.5596 | 5.5954 | 12.0501 | 7.8345 | 8.8081 | 13.7896 | 61.5684 | 61.9717 | 99.2383 |
| aromatic $C_9$-$C_{16}$ group | 0.8017 | 0.8681 | 7.0042 | 0.6650 | 0.6923 | 3.2454 | 0.7249 | 0.7536 | 3.2711 | 0.5556 | 0.5628 | 1.3189 | 0.8094 | 0.8171 | 4.3161 | 1.8928 | 2.1036 | 4.1202 | 61.7043 | 61.7919 | 93.5112 |
| carbon tetrachloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chlorobenzene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroform | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| cumene | 0.4161 | 0.4758 | 1.8601 | 0.4106 | 0.4358 | 1.0563 | 0.4476 | 0.4741 | 1.0942 | 0.4075 | 0.4141 | 0.6107 | 0.6336 | 0.6408 | 1.3957 | 0.7736 | 0.9745 | 1.6737 | 13.5674 | 13.6508 | 20.5681 |
| cyclohexane | 0.4302 | 0.4541 | 3.8221 | 0.3429 | 0.3529 | 1.7486 | 0.3735 | 0.3841 | 1.7590 | 0.2415 | 0.2442 | 0.6570 | 0.3964 | 0.3993 | 2.3282 | 1.0248 | 1.1052 | 2.1805 | 33.9126 | 33.9459 | 51.3749 |
| dichlorobenzene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| ethylbenzene | 0.5891 | 0.6133 | 8.2840 | 0.4075 | 0.4176 | 3.5553 | 0.4471 | 0.4578 | 3.5419 | 0.2445 | 0.2472 | 1.1606 | 0.3579 | 0.3608 | 4.7774 | 1.6895 | 1.7707 | 3.9855 | 77.2550 | 77.2887 | 117.3133 |
| ethylene | 0.1207 | 0.1308 | 0.1531 | 0.1295 | 0.1337 | 0.1533 | 0.1402 | 0.1447 | 0.1650 | 0.1661 | 0.1672 | 0.1797 | 0.1601 | 0.1613 | 0.2023 | 0.2262 | 0.2595 | 0.2810 | 0.3872 | 0.4010 | 0.4564 |
| ethylene dibromide | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| formaldehyde | 0.2765 | 0.3030 | 0.3105 | 0.3005 | 0.3118 | 0.3188 | 0.3265 | 0.3384 | 0.3457 | 0.3742 | 0.3774 | 0.3811 | 0.3669 | 0.3704 | 0.3831 | 0.5279 | 0.6140 | 0.6049 | 0.9470 | 0.9834 | 0.9399 |
| hexane | 0.7767 | 0.8059 | 1.8733 | 0.7193 | 0.7285 | 1.2370 | 0.7751 | 0.7842 | 1.2909 | 0.6275 | 0.6300 | 0.8261 | 1.0398 | 1.0428 | 1.7855 | 1.1581 | 1.1730 | 1.6811 | 10.6214 | 10.6305 | 15.6637 |
| isopropanol group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| methanol | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| methyl ethyl ketone group | 0.1553 | 0.1698 | 0.1736 | 0.1688 | 0.1749 | 0.1783 | 0.1837 | 0.1901 | 0.1937 | 0.2113 | 0.2129 | 0.2144 | 0.2066 | 0.2084 | 0.2150 | 0.2992 | 0.3480 | 0.3429 | 0.5385 | 0.5588 | 0.5364 |
| methylene chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| phenol | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| propylene | 0.0119 | 0.0128 | 0.0162 | 0.0126 | 0.0130 | 0.0164 | 0.0136 | 0.0140 | 0.0175 | 0.0143 | 0.0144 | 0.0165 | 0.0156 | 0.0157 | 0.0203 | 0.0215 | 0.0245 | 0.0283 | 0.0356 | 0.0370 | 0.0406 |
| propylene oxide | 0.0001 | 0.0002 | 0.0003 | 0.0001 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0003 |
| styrene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| thiophene group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| toluene | 0.9442 | 0.9931 | 3.9664 | 0.8032 | 0.8220 | 2.0941 | 0.8647 | 0.8843 | 2.1428 | 0.6938 | 0.6986 | 1.0965 | 0.9539 | 0.9589 | 2.7193 | 1.9600 | 2.0865 | 3.2634 | 30.2472 | 30.3001 | 45.3423 |
| trimethylbenzene | 0.1221 | 0.1279 | 0.4951 | 0.1005 | 0.1024 | 0.2549 | 0.1079 | 0.1097 | 0.2599 | 0.0895 | 0.0899 | 0.1353 | 0.1076 | 0.1080 | 0.3167 | 0.2602 | 0.2669 | 0.3925 | 3.8680 | 3.8709 | 5.7187 |
| vinyl chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| xylenes | 1.2834 | 1.3788 | 11.6036 | 1.0388 | 1.0763 | 5.3135 | 1.1307 | 1.1698 | 5.3442 | 0.8834 | 0.8930 | 2.1461 | 1.2112 | 1.2214 | 7.0886 | 3.0651 | 3.3304 | 6.5740 | 103.0098 | 103.1203 | 156.0655 |

**Table 5.6-3 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Volatile Organic Compound Predictions in Regional Communities (continued)**

| Parameter[a][b] | Cabin K | | | Cabin L | | | Descharme Lake, SK | | | La Loche, SK | | | Oil Sands Lodge | | | PTI Camp | | | Pierre River Mine Fenceline[c] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC | 2013 Base | 2013 PRM Application | 2013 PDC |
| **Peak Annual Average** | | | | | | | | | | | | | | | | | | | | | |
| total VOC | 107.0601 | 110.1976 | 336.3781 | 50.7112 | 67.4926 | 139.3109 | 2.2441 | 2.3164 | 4.1407 | 16.7837 | 16.8374 | 18.9159 | 126.9513 | 128.1077 | 151.9254 | 185.2626 | 186.1360 | 206.8164 | 62.7332 | 1,037.2618 | 1,241.2931 |
| benzene | 0.2869 | 0.2932 | 0.4270 | 0.1527 | 0.1859 | 0.2129 | 0.0071 | 0.0073 | 0.0104 | 0.2707 | 0.2708 | 0.2735 | 0.3871 | 0.3897 | 0.4180 | 0.5794 | 0.5814 | 0.6108 | 0.2540 | 3.7391 | 3.8361 |
| 1,1,1,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,1-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2,2-tetrachloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,2-trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-dichloropropane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,3-butadiene | 0.0113 | 0.0117 | 0.0115 | 0.0059 | 0.0075 | 0.0075 | 0.0002 | 0.0002 | 0.0002 | 0.0030 | 0.0030 | 0.0030 | 0.0142 | 0.0143 | 0.0141 | 0.0066 | 0.0067 | 0.0068 | 0.0088 | 0.0220 | 0.0223 |
| 1,3-dichloropropene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1-pentene | 2.2380 | 2.3667 | 2.4821 | 0.7119 | 1.3847 | 1.4359 | 0.0524 | 0.0568 | 0.0600 | 0.0545 | 0.0593 | 0.0635 | 3.1098 | 3.1654 | 3.2407 | 0.9107 | 0.9547 | 1.0017 | 0.6667 | 102.8983 | 102.9293 |
| acetaldehyde | 1.5297 | 1.5728 | 1.5547 | 0.7945 | 1.0081 | 1.0111 | 0.0286 | 0.0293 | 0.0288 | 0.4033 | 0.4038 | 0.4033 | 1.9077 | 1.9217 | 1.9046 | 0.8903 | 0.9005 | 0.9201 | 1.1822 | 2.9646 | 3.0033 |
| acetone | 0.8049 | 0.8276 | 0.8180 | 0.4179 | 0.5302 | 0.5317 | 0.0149 | 0.0153 | 0.0150 | 0.2120 | 0.2123 | 0.2120 | 1.0039 | 1.0113 | 1.0021 | 0.4684 | 0.4737 | 0.4840 | 0.6219 | 1.5600 | 1.5803 |
| acrolein | 0.1245 | 0.1280 | 0.1266 | 0.0648 | 0.0822 | 0.0825 | 0.0024 | 0.0025 | 0.0024 | 0.0330 | 0.0330 | 0.0330 | 0.1553 | 0.1564 | 0.1550 | 0.0725 | 0.0733 | 0.0750 | 0.0963 | 0.2413 | 0.2445 |
| aliphatic aldehyde group | 2.2721 | 2.3361 | 2.3089 | 1.1796 | 1.4967 | 1.5009 | 0.0421 | 0.0432 | 0.0424 | 0.5985 | 0.5993 | 0.5983 | 2.8337 | 2.8545 | 2.8288 | 1.3222 | 1.3373 | 1.3662 | 1.7555 | 4.4035 | 4.4607 |
| aliphatic $C_{17}$-$C_{34}$ group | 0.4282 | 0.4346 | 0.8187 | 0.2869 | 0.3829 | 0.6378 | 0.0177 | 0.0179 | 0.0510 | 0.1792 | 0.1793 | 0.2205 | 0.8433 | 0.8454 | 0.9353 | 1.0051 | 1.0066 | 1.0894 | 0.4945 | 0.6768 | 0.9151 |
| aliphatic $C_5$-$C_8$ group | 45.9202 | 47.2735 | 103.1883 | 21.1267 | 28.2875 | 48.0568 | 1.1797 | 1.2154 | 1.8024 | 2.1499 | 2.1910 | 2.9207 | 66.4290 | 66.9612 | 76.5470 | 111.0106 | 111.4203 | 120.4321 | 27.0595 | 693.9000 | 746.9379 |
| aliphatic $C_9$-$C_{16}$ group | 12.5106 | 12.7745 | 31.2742 | 6.4659 | 8.2459 | 15.5836 | 0.3043 | 0.3087 | 0.6313 | 1.3244 | 1.3292 | 1.7825 | 17.1036 | 17.1894 | 20.3425 | 34.3750 | 34.4373 | 37.1609 | 10.2762 | 20.1274 | 27.1273 |
| aromatic $C_9$-$C_{16}$ group | 3.9462 | 4.0078 | 21.4487 | 1.6458 | 1.9284 | 6.9017 | 0.0340 | 0.0350 | 0.1272 | 0.0585 | 0.0595 | 0.1577 | 2.0133 | 2.0319 | 3.1637 | 3.4560 | 3.4695 | 4.3386 | 1.7175 | 3.9547 | 20.0756 |
| carbon tetrachloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chlorobenzene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| chloroform | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| cumene | 1.6255 | 1.6835 | 5.5139 | 0.7064 | 0.9741 | 2.2270 | 0.0204 | 0.0213 | 0.0450 | 0.0258 | 0.0267 | 0.0523 | 1.2943 | 1.3118 | 1.6846 | 1.9221 | 1.9347 | 2.2372 | 0.8544 | 3.2157 | 4.8017 |
| cyclohexane | 2.0925 | 2.1158 | 11.6999 | 0.8828 | 0.9904 | 3.7010 | 0.0210 | 0.0213 | 0.0728 | 0.0282 | 0.0286 | 0.0838 | 1.1642 | 1.1712 | 1.8064 | 2.3674 | 2.3725 | 2.8734 | 0.9271 | 1.7467 | 10.9915 |
| dichlorobenzene | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0001 | 0.0001 |
| ethylbenzene | 3.7600 | 3.7836 | 25.7249 | 1.4618 | 1.5701 | 7.6285 | 0.0165 | 0.0169 | 0.1274 | 0.0239 | 0.0243 | 0.1415 | 0.8206 | 0.8277 | 2.1932 | 1.0656 | 1.0707 | 1.9570 | 1.2779 | 2.0196 | 24.8031 |
| ethylene | 0.3384 | 0.3473 | 0.3678 | 0.1843 | 0.2320 | 0.2596 | 0.0093 | 0.0094 | 0.0139 | 1.0321 | 1.0322 | 1.0382 | 0.4726 | 0.4755 | 0.4984 | 0.2625 | 0.2646 | 0.2985 | 0.2726 | 0.6350 | 0.6658 |
| ethylene dibromide | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| formaldehyde | 0.8228 | 0.8465 | 0.8413 | 0.4309 | 0.5474 | 0.5533 | 0.0179 | 0.0184 | 0.0194 | 0.2205 | 0.2209 | 0.2221 | 1.0234 | 1.0312 | 1.0255 | 0.4802 | 0.4858 | 0.4996 | 0.6387 | 1.5896 | 1.6142 |
| hexane | 1.9372 | 1.9486 | 4.8169 | 1.0577 | 1.0938 | 2.0206 | 0.0993 | 0.0998 | 0.1460 | 0.1354 | 0.1360 | 0.1941 | 3.9999 | 4.0032 | 4.6623 | 8.8459 | 8.8486 | 9.6661 | 1.2007 | 4.7370 | 7.1793 |
| isopropanol group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| methanol | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 |
| methyl ethyl ketone group | 0.4676 | 0.4807 | 0.4772 | 0.2434 | 0.3088 | 0.3120 | 0.0089 | 0.0091 | 0.0093 | 0.1842 | 0.1844 | 0.1847 | 0.5871 | 0.5914 | 0.5880 | 0.2780 | 0.2811 | 0.2892 | 0.3623 | 0.9043 | 0.9179 |
| methylene chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| phenol | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| propylene | 0.0313 | 0.0321 | 0.0351 | 0.0177 | 0.0217 | 0.0257 | 0.0013 | 0.0013 | 0.0022 | 0.2686 | 0.2686 | 0.2697 | 0.0487 | 0.0490 | 0.0555 | 0.0258 | 0.0260 | 0.0355 | 0.0250 | 0.0581 | 0.0627 |
| propylene oxide | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0002 | 0.0003 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0006 | 0.0007 |
| styrene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| thiophene group | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| toluene | 3.1631 | 3.2017 | 11.5356 | 1.5944 | 1.7847 | 4.2850 | 0.0639 | 0.0646 | 0.1221 | 0.2823 | 0.2830 | 0.3499 | 3.8276 | 3.8392 | 4.7595 | 9.5310 | 9.5395 | 10.3155 | 2.4077 | 3.5784 | 10.3920 |
| trimethylbenzene | 0.3939 | 0.3964 | 1.4337 | 0.2065 | 0.2171 | 0.5135 | 0.0087 | 0.0087 | 0.0151 | 0.0197 | 0.0198 | 0.0266 | 0.5302 | 0.5309 | 0.6475 | 1.3916 | 1.3921 | 1.4917 | 0.3240 | 0.8523 | 1.7598 |
| vinyl chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| xylenes | 6.3222 | 6.4015 | 35.5060 | 2.6513 | 3.0136 | 11.2353 | 0.0601 | 0.0613 | 0.2166 | 0.1411 | 0.1425 | 0.3087 | 3.3569 | 3.3809 | 5.2577 | 6.1472 | 6.1646 | 7.6322 | 2.7152 | 5.3587 | 33.5258 |

(a) See EIA Volume 3, Section 3, Table 3.2-4 for respective air quality guidelines.

(b) Location along the fenceline where CALPUFF predicted highest concentration.

Note: Some numbers are rounded for presentation purposes. Therefore, it may appear that totals do not equal the sum of the individual values.

**Table 5.7-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case $PM_{2.5}$ Predictions in Regional Communities**

| Community | Peak 24-Hour[a] | | | Maximum 24-Hour[a] | | | 98th Percentile 24-Hour | | | Peak Annual | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC | 2013 Base Case | 2013 PRM Application Case | 2013 PDC |
| Anzac[b] | 29.8 | 30.1 | 34.8 | 17.5 | 17.7 | 20.0 | 12.4 | 12.5 | 13.9 | 5.4 | 5.4 | 5.8 |
| Conklin[b] | 26.1 | 26.3 | 30.7 | 21.6 | 21.9 | 25.7 | 11.4 | 11.5 | 12.9 | 5.0 | 5.0 | 5.3 |
| Fort Chipewyan[b] | 17.0 | 17.1 | 18.6 | 13.2 | 13.3 | 14.5 | 9.2 | 9.2 | 9.9 | 4.6 | 4.6 | 4.7 |
| Fort McKay[b] | 34.7 | 35.0 | 37.2 | **32.8** | **32.9** | **33.6** | 27.7 | 27.8 | 28.3 | 9.6 | 9.7 | 10.0 |
| Fort McMurray[b] | 85.1 | 85.5 | 89.4 | **73.0** | **73.1** | **75.9** | 18.6 | 18.6 | 20.3 | 7.7 | 7.7 | 8.0 |
| Janvier/Chard (IR 194)[b] | 31.3 | 31.5 | 36.1 | 24.3 | 24.6 | 28.3 | 11.1 | 11.1 | 12.6 | 5.1 | 5.1 | 5.5 |
| Clearwater (IR175) | 12.5 | 12.7 | 15.9 | 10.0 | 10.3 | 11.8 | 5.3 | 5.3 | 6.3 | 1.1 | 1.1 | 1.4 |
| Namur River (IR 174A) | 16.7 | 16.9 | 19.1 | 11.7 | 11.8 | 14.9 | 4.9 | 5.1 | 5.8 | 0.7 | 0.7 | 0.9 |
| Poplar Point (IR 201G) | 12.5 | 12.9 | 14.5 | 7.3 | 7.5 | 9.3 | 6.0 | 6.0 | 7.1 | 1.1 | 1.2 | 1.4 |
| Cabin A | 19.6 | 20.8 | 21.4 | 14.4 | 15.5 | 16.0 | 10.2 | 10.6 | 11.3 | 2.1 | 2.3 | 2.6 |
| Cabin B | 16.3 | 16.3 | 17.8 | 10.5 | 10.8 | 11.4 | 7.0 | 7.2 | 7.8 | 1.6 | 1.6 | 1.9 |
| Cabin C | 22.9 | 23.2 | 23.5 | 13.3 | 14.0 | 14.6 | 10.0 | 10.3 | 11.2 | 2.1 | 2.2 | 2.5 |
| Cabin D | 24.8 | 25.2 | 25.2 | 14.7 | 16.0 | 16.0 | 11.3 | 11.5 | 11.9 | 2.3 | 2.5 | 2.7 |
| Cabin E | 20.4 | 20.5 | 21.9 | 15.5 | 16.3 | 16.7 | 9.8 | 10.0 | 11.3 | 2.2 | 2.3 | 2.6 |
| Cabin F | 21.5 | 21.8 | 23.2 | 17.8 | 18.5 | 17.9 | 10.3 | 10.6 | 11.8 | 2.4 | 2.5 | 2.7 |
| Cabin G | 26.1 | 26.2 | 27.4 | 17.7 | 17.9 | 18.7 | 10.4 | 10.5 | 11.4 | 2.3 | 2.4 | 2.6 |
| Cabin H | 13.5 | 13.6 | 19.9 | 12.9 | 12.9 | 19.6 | 12.0 | 12.1 | 15.5 | 2.7 | 2.7 | 3.7 |
| Cabin I | 20.8 | 21.4 | 22.2 | 20.3 | 20.4 | 22.2 | 16.3 | 16.5 | 16.8 | 3.6 | 3.8 | 4.2 |
| Cabin J | 48.0 | 48.6 | 46.2 | **37.7** | **38.2** | **39.7** | 25.9 | 26.0 | 27.0 | 6.1 | 6.2 | 6.6 |
| Cabin K | 42.6 | 43.2 | 42.8 | **35.8** | **36.0** | **38.8** | 21.6 | 21.9 | 22.3 | 5.7 | 5.8 | 6.2 |
| Cabin L | 30.0 | 30.3 | 30.1 | 23.9 | 24.3 | 23.0 | 16.6 | 18.0 | 17.4 | 3.4 | 3.9 | 4.1 |
| Descharme Lake, SK | 4.0 | 4.1 | 5.3 | 3.7 | 3.8 | 4.7 | 2.6 | 2.6 | 3.1 | 0.5 | 0.5 | 0.6 |
| La Loche, SK[b] | 18.6 | 18.8 | 20.5 | 13.4 | 13.4 | 14.5 | 10.0 | 10.0 | 10.8 | 4.9 | 4.9 | 5.1 |
| Oil Sands Lodge | 33.9 | 33.9 | 36.5 | **33.0** | **33.1** | **32.5** | 27.7 | 27.9 | 27.9 | 6.5 | 6.6 | 6.9 |
| PTI Camp | 27.8 | 28.1 | 28.4 | 22.1 | 22.2 | 24.1 | 15.8 | 15.9 | 15.6 | 4.0 | 4.1 | 4.4 |
| PRM Fenceline[c] | 31.1 | 37.7 | 35.8 | 26.7 | **33.5** | **32.7** | 18.6 | 23.8 | 23.8 | 4.0 | 6.4 | 6.7 |
| **AAAQO[d]** | **–** | | | **30** | | | **–** | | | – | | |
| **Canada-Wide Standard[e]** | **–** | | | **–** | | | **30** | | | – | | |

(a) The peak predictions are the highest 24-hour predictions from the CALPUFF model. The maximum predictions exclude the first highest 24-hour prediction per the Alberta Air Quality Model guideline (AENV 2009).

(b) These results include community background concentrations that represent the contribution from local activities within the communities.

(c) Location along the fenceline where CALPUFF predicted highest concentration.

(d) AAAQO = Alberta Ambient Air Quality Objectives (ESRD 2013).

(e) CCME 2000.

**Table 5.8-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Polycyclic Aromatic Hydrocarbon Predictions in Regional Communities**

| Parameter | Anzac | | | Conklin | | | Fort Chipewyan | | | Fort McKay | | | Fort McMurray | | | Janvier/Chard (IR 194) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak 1-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| carcinogenic PAH Group 1 | 0.0009 | 0.0009 | 0.0009 | 0.0002 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0003 | 0.0003 | 0.0004 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0004 |
| carcinogenic PAH Group 2 | 0.0003 | 0.0003 | 0.0003 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0011 | 0.0012 | 0.0012 | 0.0003 | 0.0003 | 0.0004 | 0.0002 | 0.0002 | 0.0002 |
| carcinogenic PAH Group 3 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0002 | 0.0003 | 0.0003 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| pyrenes and substituted pyrenes | 0.0003 | 0.0003 | 0.0004 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0026 | 0.0027 | 0.0028 | 0.0006 | 0.0006 | 0.0008 | 0.0002 | 0.0002 | 0.0002 |
| fluorenes/fluoranthenes and substituted | 0.0005 | 0.0006 | 0.0007 | 0.0006 | 0.0006 | 0.0006 | 0.0003 | 0.0003 | 0.0005 | 0.0053 | 0.0055 | 0.0058 | 0.0012 | 0.0012 | 0.0017 | 0.0004 | 0.0004 | 0.0005 |
| acenaphthenes/acenaphthylenes | 0.0003 | 0.0004 | 0.0005 | 0.0005 | 0.0005 | 0.0005 | 0.0002 | 0.0002 | 0.0003 | 0.0035 | 0.0036 | 0.0038 | 0.0008 | 0.0008 | 0.0011 | 0.0002 | 0.0002 | 0.0003 |
| anthracenes/phenanthrenes and substituted | 0.0009 | 0.0009 | 0.0011 | 0.0009 | 0.0009 | 0.0009 | 0.0005 | 0.0005 | 0.0007 | 0.0079 | 0.0082 | 0.0085 | 0.0018 | 0.0018 | 0.0026 | 0.0006 | 0.0006 | 0.0007 |
| naphthalene and substituted naphthalenes | 0.0290 | 0.0290 | 0.0292 | 0.0118 | 0.0118 | 0.0120 | 0.0068 | 0.0071 | 0.0095 | 0.0862 | 0.0893 | 0.0930 | 0.0203 | 0.0204 | 0.0286 | 0.0134 | 0.0136 | 0.0150 |
| 1-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| biphenyls | 0.0011 | 0.0011 | 0.0011 | 0.0163 | 0.0163 | 0.0163 | 0.0001 | 0.0001 | 0.0002 | 0.0006 | 0.0006 | 0.0006 | 0.0010 | 0.0010 | 0.0010 | 0.0015 | 0.0015 | 0.0015 |
| **Total PAH** | **0.0336** | **0.0336** | **0.0343** | **0.0306** | **0.0306** | **0.0308** | **0.0084** | **0.0086** | **0.0116** | **0.1078** | **0.1117** | **0.1164** | **0.0265** | **0.0265** | **0.0367** | **0.0168** | **0.0170** | **0.0188** |

| Parameter | Clearwater (IR175) | | | Namur River (IR 174A) | | | Poplar Point (IR 201G) | | | Cabin A | | | Cabin B | | | Cabin C | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak 1-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| carcinogenic PAH Group 1 | 0.0004 | 0.0004 | 0.0004 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | 0.0002 |
| carcinogenic PAH Group 2 | 0.0002 | 0.0002 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0003 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0007 | 0.0004 | 0.0004 | 0.0006 | 0.0006 | 0.0006 | 0.0006 |
| carcinogenic PAH Group 3 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| pyrenes and substituted pyrenes | 0.0005 | 0.0005 | 0.0006 | 0.0003 | 0.0003 | 0.0004 | 0.0007 | 0.0008 | 0.0010 | 0.0010 | 0.0012 | 0.0015 | 0.0010 | 0.0010 | 0.0013 | 0.0013 | 0.0013 | 0.0015 |
| fluorenes/fluoranthenes and substituted | 0.0009 | 0.0009 | 0.0012 | 0.0006 | 0.0006 | 0.0009 | 0.0014 | 0.0016 | 0.0020 | 0.0020 | 0.0025 | 0.0031 | 0.0021 | 0.0021 | 0.0026 | 0.0026 | 0.0027 | 0.0030 |
| acenaphthenes/acenaphthylenes | 0.0006 | 0.0006 | 0.0008 | 0.0004 | 0.0004 | 0.0006 | 0.0009 | 0.0010 | 0.0013 | 0.0013 | 0.0016 | 0.0020 | 0.0013 | 0.0013 | 0.0017 | 0.0017 | 0.0018 | 0.0020 |
| anthracenes/phenanthrenes and substituted | 0.0014 | 0.0014 | 0.0017 | 0.0009 | 0.0009 | 0.0013 | 0.0021 | 0.0024 | 0.0030 | 0.0030 | 0.0036 | 0.0046 | 0.0030 | 0.0030 | 0.0039 | 0.0039 | 0.0041 | 0.0045 |
| naphthalene and substituted naphthalenes | 0.0155 | 0.0155 | 0.0195 | 0.0109 | 0.0115 | 0.0154 | 0.0238 | 0.0268 | 0.0341 | 0.0330 | 0.0398 | 0.0502 | 0.0332 | 0.0333 | 0.0428 | 0.0427 | 0.0443 | 0.0493 |
| 1-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| biphenyls | 0.0007 | 0.0007 | 0.0007 | 0.0003 | 0.0003 | 0.0018 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0005 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0004 |
| **Total PAH** | **0.0202** | **0.0202** | **0.0251** | **0.0137** | **0.0145** | **0.0208** | **0.0297** | **0.0334** | **0.0427** | **0.0412** | **0.0498** | **0.0630** | **0.0417** | **0.0417** | **0.0537** | **0.0533** | **0.0554** | **0.0617** |

**Table 5.8-1 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Polycyclic Aromatic Hydrocarbon Predictions in Regional Communities (continued)**

| Parameter | Cabin D | | | Cabin E | | | Cabin F | | | Cabin G | | | Cabin H | | | Cabin I | | | Cabin J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak 1-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | | | | |
| carcinogenic PAH Group 1 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0002 | 0.0002 | 0.0002 | 0.0006 | 0.0006 | 0.0006 | 0.0014 | 0.0014 | 0.0014 | 0.0003 | 0.0003 | 0.0003 | 0.0006 | 0.0006 | 0.0006 |
| carcinogenic PAH Group 2 | 0.0007 | 0.0007 | 0.0008 | 0.0006 | 0.0006 | 0.0008 | 0.0006 | 0.0006 | 0.0008 | 0.0009 | 0.0009 | 0.0010 | 0.0009 | 0.0009 | 0.0018 | 0.0009 | 0.0009 | 0.0010 | 0.0021 | 0.0022 | 0.0023 |
| carcinogenic PAH Group 3 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0004 | 0.0002 | 0.0002 | 0.0002 | 0.0005 | 0.0005 | 0.0005 |
| pyrenes and substituted pyrenes | 0.0015 | 0.0015 | 0.0017 | 0.0014 | 0.0014 | 0.0019 | 0.0014 | 0.0015 | 0.0019 | 0.0019 | 0.0020 | 0.0023 | 0.0020 | 0.0020 | 0.0040 | 0.0020 | 0.0021 | 0.0023 | 0.0048 | 0.0049 | 0.0052 |
| fluorenes/fluoranthenes and substituted | 0.0031 | 0.0031 | 0.0036 | 0.0029 | 0.0029 | 0.0039 | 0.0030 | 0.0030 | 0.0040 | 0.0040 | 0.0040 | 0.0046 | 0.0041 | 0.0041 | 0.0082 | 0.0042 | 0.0043 | 0.0046 | 0.0099 | 0.0101 | 0.0107 |
| acenaphthenes/acenaphthylenes | 0.0020 | 0.0020 | 0.0024 | 0.0019 | 0.0019 | 0.0026 | 0.0019 | 0.0020 | 0.0026 | 0.0026 | 0.0026 | 0.0030 | 0.0026 | 0.0027 | 0.0054 | 0.0028 | 0.0028 | 0.0030 | 0.0065 | 0.0067 | 0.0070 |
| anthracenes/phenanthrenes and substituted | 0.0045 | 0.0046 | 0.0053 | 0.0042 | 0.0043 | 0.0058 | 0.0044 | 0.0044 | 0.0058 | 0.0059 | 0.0059 | 0.0069 | 0.0060 | 0.0060 | 0.0121 | 0.0062 | 0.0063 | 0.0069 | 0.0147 | 0.0150 | 0.0158 |
| naphthalene and substituted naphthalenes | 0.0494 | 0.0500 | 0.0578 | 0.0464 | 0.0471 | 0.0634 | 0.0479 | 0.0485 | 0.0638 | 0.0647 | 0.0652 | 0.0752 | 0.0657 | 0.0661 | 0.1333 | 0.0678 | 0.0687 | 0.0748 | 0.1600 | 0.1631 | 0.1723 |
| 1-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| biphenyls | 0.0003 | 0.0003 | 0.0004 | 0.0003 | 0.0003 | 0.0005 | 0.0003 | 0.0003 | 0.0004 | 0.0002 | 0.0002 | 0.0003 | 0.0004 | 0.0004 | 0.0006 | 0.0004 | 0.0004 | 0.0005 | 0.0004 | 0.0004 | 0.0004 |
| **Total PAH** | **0.0617** | **0.0624** | **0.0723** | **0.0580** | **0.0590** | **0.0794** | **0.0599** | **0.0606** | **0.0798** | **0.0809** | **0.0816** | **0.0940** | **0.0832** | **0.0836** | **0.1671** | **0.0849** | **0.0859** | **0.0936** | **0.1995** | **0.2033** | **0.2149** |

| Parameter | Cabin K | | | Cabin L | | | Descharme Lake, SK | | | La Loche, SK | | | Oil Sands Lodge | | | PTI Camp | | | Pierre River Mine Fenceline[(b)] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak 1-Hour [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | | | | |
| carcinogenic PAH Group 1 | 0.0006 | 0.0006 | 0.0006 | 0.0003 | 0.0003 | 0.0003 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0005 | 0.0005 | 0.0006 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0006 | 0.0006 |
| carcinogenic PAH Group 2 | 0.0023 | 0.0024 | 0.0024 | 0.0010 | 0.0011 | 0.0011 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0020 | 0.0020 | 0.0020 | 0.0009 | 0.0009 | 0.0010 | 0.0015 | 0.0021 | 0.0023 |
| carcinogenic PAH Group 3 | 0.0005 | 0.0005 | 0.0005 | 0.0002 | 0.0002 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0004 | 0.0004 | 0.0005 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0005 | 0.0005 |
| pyrenes and substituted pyrenes | 0.0053 | 0.0054 | 0.0056 | 0.0024 | 0.0024 | 0.0026 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0045 | 0.0045 | 0.0047 | 0.0020 | 0.0021 | 0.0022 | 0.0035 | 0.0049 | 0.0052 |
| fluorenes/fluoranthenes and substituted | 0.0110 | 0.0111 | 0.0114 | 0.0049 | 0.0049 | 0.0054 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0004 | 0.0092 | 0.0093 | 0.0096 | 0.0040 | 0.0042 | 0.0045 | 0.0072 | 0.0100 | 0.0107 |
| acenaphthenes/acenaphthylenes | 0.0072 | 0.0073 | 0.0075 | 0.0032 | 0.0032 | 0.0035 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0061 | 0.0061 | 0.0063 | 0.0027 | 0.0028 | 0.0030 | 0.0047 | 0.0066 | 0.0070 |
| anthracenes/phenanthrenes and substituted | 0.0163 | 0.0164 | 0.0169 | 0.0072 | 0.0073 | 0.0079 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0005 | 0.0137 | 0.0138 | 0.0142 | 0.0060 | 0.0063 | 0.0067 | 0.0106 | 0.0148 | 0.0158 |
| naphthalene and substituted naphthalenes | 0.1771 | 0.1786 | 0.1842 | 0.0786 | 0.0796 | 0.0865 | 0.0035 | 0.0036 | 0.0046 | 0.0061 | 0.0063 | 0.0079 | 0.1496 | 0.1510 | 0.1552 | 0.0653 | 0.0685 | 0.0729 | 0.1152 | 0.1612 | 0.1723 |
| 1-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| biphenyls | 0.0004 | 0.0004 | 0.0004 | 0.0003 | 0.0003 | 0.0005 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0006 | 0.0004 | 0.0004 | 0.0007 |
| **Total PAH** | **0.2208** | **0.2226** | **0.2296** | **0.0981** | **0.0993** | **0.1080** | **0.0044** | **0.0045** | **0.0057** | **0.0074** | **0.0078** | **0.0097** | **0.1866** | **0.1883** | **0.1936** | **0.0819** | **0.0858** | **0.0914** | **0.1437** | **0.2010** | **0.2152** |

(a) The peak predictions include the eight highest 1-hour predictions from the CALPUFF model.

(b) Location along the fenceline where CALPUFF predicted highest concentration.

Note: There are no AAAQOs for PAH compounds. Some numbers are rounded for presentation purposes; therefore, it may appear that the totals do not equal the sum of the individual values.

**Table 5.8-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Polycyclic Aromatic Hydrocarbon Predictions in Regional Communities**

| Parameter | Anzac | | | Conklin | | | Fort Chipewyan | | | Fort McKay | | | Fort McMurray | | | Janvier/Chard (IR 194) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak Annual Average [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| carcinogenic PAH Group 1 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| carcinogenic PAH Group 2 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| carcinogenic PAH Group 3 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| pyrenes and substituted pyrenes | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0002 | 0.0002 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| fluorenes/fluoranthenes and substituted | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0003 | 0.0003 | 0.0004 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| acenaphthenes/acenaphthylenes | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0002 | 0.0002 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| anthracenes/phenanthrenes and substituted | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0005 | 0.0005 | 0.0006 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 |
| naphthalene and substituted naphthalenes | 0.0008 | 0.0008 | 0.0009 | 0.0003 | 0.0003 | 0.0004 | 0.0002 | 0.0002 | 0.0003 | 0.0052 | 0.0053 | 0.0062 | 0.0008 | 0.0008 | 0.0011 | 0.0004 | 0.0004 | 0.0005 |
| 1-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| biphenyls | 0.0000 | 0.0000 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 |
| **Total PAH** | **0.0009** | **0.0009** | **0.0011** | **0.0005** | **0.0005** | **0.0006** | **0.0003** | **0.0003** | **0.0004** | **0.0065** | **0.0066** | **0.0078** | **0.0010** | **0.0010** | **0.0013** | **0.0005** | **0.0005** | **0.0006** |

| Parameter | Clearwater (IR175) | | | Namur River (IR 174A) | | | Poplar Point (IR 201G) | | | Cabin A | | | Cabin B | | | Cabin C | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak Annual Average [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | |
| carcinogenic PAH Group 1 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| carcinogenic PAH Group 2 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| carcinogenic PAH Group 3 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| pyrenes and substituted pyrenes | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| fluorenes/fluoranthenes and substituted | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 |
| acenaphthenes/acenaphthylenes | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| anthracenes/phenanthrenes and substituted | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0003 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 |
| naphthalene and substituted naphthalenes | 0.0007 | 0.0007 | 0.0009 | 0.0004 | 0.0004 | 0.0006 | 0.0009 | 0.0010 | 0.0014 | 0.0019 | 0.0024 | 0.0033 | 0.0015 | 0.0016 | 0.0022 | 0.0020 | 0.0023 | 0.0031 |
| 1-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| biphenyls | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total PAH** | **0.0009** | **0.0009** | **0.0011** | **0.0005** | **0.0005** | **0.0008** | **0.0011** | **0.0012** | **0.0017** | **0.0024** | **0.0029** | **0.0041** | **0.0019** | **0.0020** | **0.0027** | **0.0024** | **0.0028** | **0.0038** |

**Table 5.8-2 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Polycyclic Aromatic Hydrocarbon Predictions in Regional Communities (continued)**

| Parameter | Cabin D | | | Cabin E | | | Cabin F | | | Cabin G | | | Cabin H | | | Cabin I | | | Cabin J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak Annual Average [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | | | | |
| carcinogenic PAH Group 1 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| carcinogenic PAH Group 2 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 |
| carcinogenic PAH Group 3 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| pyrenes and substituted pyrenes | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0003 |
| fluorenes/fluoranthenes and substituted | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0001 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0003 | 0.0004 | 0.0005 | 0.0005 | 0.0006 |
| acenaphthenes/acenaphthylenes | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0003 | 0.0004 | 0.0004 |
| anthracenes/phenanthrenes and substituted | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0005 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0008 | 0.0009 |
| naphthalene and substituted naphthalenes | 0.0022 | 0.0026 | 0.0036 | 0.0023 | 0.0025 | 0.0034 | 0.0025 | 0.0027 | 0.0037 | 0.0027 | 0.0028 | 0.0034 | 0.0030 | 0.0031 | 0.0056 | 0.0041 | 0.0055 | 0.0064 | 0.0084 | 0.0090 | 0.0102 |
| 1-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| biphenyls | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total PAH** | **0.0027** | **0.0032** | **0.0044** | **0.0028** | **0.0031** | **0.0043** | **0.0031** | **0.0033** | **0.0046** | **0.0033** | **0.0034** | **0.0041** | **0.0037** | **0.0038** | **0.0069** | **0.0051** | **0.0068** | **0.0080** | **0.0105** | **0.0112** | **0.0126** |

| Parameter | Cabin K | | | Cabin L | | | Descharme Lake, SK | | | La Loche, SK | | | Oil Sands Lodge | | | PTI Camp | | | Pierre River Mine Fenceline[(b)] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak Annual Average [µg/m³][(a)]** | | | | | | | | | | | | | | | | | | | | | |
| carcinogenic PAH Group 1 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 |
| carcinogenic PAH Group 2 | 0.0001 | 0.0001 | 0.0001 | 0.0000 | 0.0001 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0003 | 0.0003 |
| carcinogenic PAH Group 3 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0001 | 0.0001 |
| pyrenes and substituted pyrenes | 0.0002 | 0.0002 | 0.0003 | 0.0001 | 0.0002 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0003 | 0.0003 | 0.0003 | 0.0001 | 0.0001 | 0.0001 | 0.0001 | 0.0006 | 0.0007 |
| fluorenes/fluoranthenes and substituted | 0.0004 | 0.0005 | 0.0005 | 0.0002 | 0.0003 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0005 | 0.0005 | 0.0006 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0013 | 0.0014 |
| acenaphthenes/acenaphthylenes | 0.0003 | 0.0003 | 0.0003 | 0.0001 | 0.0002 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0003 | 0.0004 | 0.0004 | 0.0002 | 0.0002 | 0.0002 | 0.0002 | 0.0008 | 0.0009 |
| anthracenes/phenanthrenes and substituted | 0.0007 | 0.0007 | 0.0008 | 0.0003 | 0.0005 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0008 | 0.0008 | 0.0009 | 0.0003 | 0.0004 | 0.0004 | 0.0004 | 0.0019 | 0.0020 |
| naphthalene and substituted naphthalenes | 0.0074 | 0.0077 | 0.0089 | 0.0035 | 0.0053 | 0.0066 | 0.0002 | 0.0002 | 0.0003 | 0.0003 | 0.0003 | 0.0004 | 0.0087 | 0.0088 | 0.0097 | 0.0040 | 0.0040 | 0.0049 | 0.0046 | 0.0206 | 0.0222 |
| 1-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 2-chloronaphthalene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| biphenyls | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Total PAH** | 0.0092 | 0.0096 | 0.0111 | 0.0043 | 0.0066 | 0.0081 | 0.0003 | 0.0003 | 0.0004 | 0.0004 | 0.0004 | 0.0005 | 0.0108 | 0.0109 | 0.0121 | 0.0049 | 0.0050 | 0.0061 | 0.0056 | 0.0256 | 0.0275 |

(a) The predictions include the eight highest 1-hour predictions from the CALPUFF model.

(b) Location along the fenceline where CALPUFF predicted highest concentration.

Note: There are no AAAQOs for PAH compounds. Some numbers are rounded for presentation purposes; therefore, it may appear that the totals do not equal the sum of the individual values.

**Table 5.8-3 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Trace Metal Predictions in Regional Communities**

| Parameter[(a)(b)] | Anzac | | | Conklin | | | Fort Chipewyan | | | Fort McKay | | | Fort McMurray | | | Janvier/Chard (IR 194) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak 1-Hour [µg/m³]** | | | | | | | | | | | | | | | | | | |
| aluminum | 0.00590 | 0.00590 | 0.00591 | 0.00226 | 0.00227 | 0.00227 | 0.00260 | 0.00260 | 0.00263 | 0.02406 | 0.02406 | 0.02410 | 0.01031 | 0.01032 | 0.00989 | 0.00442 | 0.00442 | 0.00435 |
| antimony | 0.00003 | 0.00003 | 0.00003 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00009 | 0.00009 | 0.00009 | 0.00005 | 0.00005 | 0.00005 | 0.00002 | 0.00002 | 0.00002 |
| arsenic | 0.00016 | 0.00016 | 0.00031 | 0.00013 | 0.00013 | 0.00017 | 0.00005 | 0.00006 | 0.00007 | 0.00029 | 0.00029 | 0.00029 | 0.00019 | 0.00019 | 0.00022 | 0.00010 | 0.00010 | 0.00013 |
| barium | 0.00345 | 0.00346 | 0.00679 | 0.00286 | 0.00286 | 0.00380 | 0.00110 | 0.00115 | 0.00154 | 0.00618 | 0.00618 | 0.00623 | 0.00321 | 0.00321 | 0.00386 | 0.00180 | 0.00181 | 0.00239 |
| beryllium | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00001 | 0.00000 | 0.00000 | 0.00001 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00001 | 0.00001 | 0.00001 |
| cadmium | 0.00164 | 0.00168 | 0.00253 | 0.00073 | 0.00073 | 0.00096 | 0.00097 | 0.00097 | 0.00109 | 0.01038 | 0.01044 | 0.01098 | 0.00421 | 0.00421 | 0.00339 | 0.00126 | 0.00128 | 0.00137 |
| chromium | 0.00311 | 0.00311 | 0.00322 | 0.00130 | 0.00131 | 0.00139 | 0.00120 | 0.00121 | 0.00129 | 0.00975 | 0.00975 | 0.00982 | 0.00517 | 0.00517 | 0.00532 | 0.00228 | 0.00228 | 0.00244 |
| chromium_6 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cobalt | 0.00029 | 0.00029 | 0.00030 | 0.00011 | 0.00011 | 0.00012 | 0.00016 | 0.00017 | 0.00017 | 0.00173 | 0.00174 | 0.00179 | 0.00071 | 0.00071 | 0.00056 | 0.00024 | 0.00024 | 0.00025 |
| copper | 0.00067 | 0.00067 | 0.00145 | 0.00055 | 0.00055 | 0.00074 | 0.00033 | 0.00035 | 0.00044 | 0.00193 | 0.00194 | 0.00231 | 0.00107 | 0.00107 | 0.00114 | 0.00055 | 0.00055 | 0.00065 |
| lead | 0.00065 | 0.00065 | 0.00091 | 0.00033 | 0.00033 | 0.00043 | 0.00029 | 0.00029 | 0.00034 | 0.00189 | 0.00190 | 0.00214 | 0.00106 | 0.00106 | 0.00108 | 0.00049 | 0.00050 | 0.00055 |
| manganese | 0.00131 | 0.00131 | 0.00134 | 0.00050 | 0.00051 | 0.00053 | 0.00050 | 0.00050 | 0.00052 | 0.00312 | 0.00312 | 0.00315 | 0.00207 | 0.00207 | 0.00207 | 0.00088 | 0.00089 | 0.00092 |
| mercury | 0.00020 | 0.00020 | 0.00040 | 0.00017 | 0.00017 | 0.00022 | 0.00006 | 0.00007 | 0.00009 | 0.00036 | 0.00036 | 0.00036 | 0.00017 | 0.00017 | 0.00020 | 0.00010 | 0.00010 | 0.00014 |
| molybdenum | 0.00087 | 0.00087 | 0.00170 | 0.00072 | 0.00072 | 0.00095 | 0.00034 | 0.00035 | 0.00045 | 0.00205 | 0.00205 | 0.00212 | 0.00140 | 0.00140 | 0.00156 | 0.00069 | 0.00070 | 0.00083 |
| nickel | 0.00454 | 0.00455 | 0.00472 | 0.00198 | 0.00199 | 0.00211 | 0.00175 | 0.00176 | 0.00187 | 0.01699 | 0.01699 | 0.01709 | 0.00778 | 0.00778 | 0.00809 | 0.00344 | 0.00344 | 0.00370 |
| selenium | 0.00207 | 0.00207 | 0.00208 | 0.00065 | 0.00065 | 0.00065 | 0.00048 | 0.00048 | 0.00049 | 0.00526 | 0.00526 | 0.00526 | 0.00259 | 0.00259 | 0.00259 | 0.00099 | 0.00099 | 0.00099 |
| silver | 0.00025 | 0.00026 | 0.00023 | 0.00007 | 0.00007 | 0.00008 | 0.00013 | 0.00013 | 0.00014 | 0.00173 | 0.00174 | 0.00176 | 0.00068 | 0.00068 | 0.00054 | 0.00017 | 0.00017 | 0.00017 |
| strontium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| tin | 0.00039 | 0.00039 | 0.00039 | 0.00014 | 0.00014 | 0.00014 | 0.00012 | 0.00012 | 0.00012 | 0.00094 | 0.00094 | 0.00094 | 0.00057 | 0.00057 | 0.00057 | 0.00023 | 0.00023 | 0.00023 |
| vanadium | 0.00262 | 0.00262 | 0.00357 | 0.00150 | 0.00150 | 0.00199 | 0.00101 | 0.00101 | 0.00114 | 0.00669 | 0.00669 | 0.00679 | 0.00437 | 0.00437 | 0.00470 | 0.00202 | 0.00203 | 0.00231 |
| zinc | 0.02286 | 0.02287 | 0.04573 | 0.01889 | 0.01889 | 0.02507 | 0.00984 | 0.01005 | 0.01244 | 0.08850 | 0.08850 | 0.08983 | 0.03251 | 0.03251 | 0.03637 | 0.01777 | 0.01783 | 0.02135 |
| **Total Metals** | **0.05103** | **0.05112** | **0.08163** | **0.03291** | **0.03295** | **0.04165** | **0.02096** | **0.02129** | **0.02483** | **0.18195** | **0.18207** | **0.18507** | **0.07814** | **0.07815** | **0.08222** | **0.03747** | **0.03758** | **0.04279** |

**Table 5.8-3 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Trace Metal Predictions in Regional Communities (continued)**

| Parameter[(a)(b)] | Clearwater (IR175) | | | Namur River (IR 174A) | | | Poplar Point (IR 201G) | | | Cabin A | | | Cabin B | | | Cabin C | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak 1-Hour [µg/m³]** | | | | | | | | | | | | | | | | | | |
| aluminum | 0.00749 | 0.00750 | 0.00746 | 0.00468 | 0.00468 | 0.00464 | 0.00417 | 0.00417 | 0.00420 | 0.00845 | 0.00852 | 0.00836 | 0.00742 | 0.00743 | 0.00733 | 0.00929 | 0.00937 | 0.00939 |
| antimony | 0.00004 | 0.00004 | 0.00004 | 0.00003 | 0.00003 | 0.00003 | 0.00002 | 0.00002 | 0.00002 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 |
| arsenic | 0.00012 | 0.00012 | 0.00015 | 0.00009 | 0.00009 | 0.00011 | 0.00009 | 0.00009 | 0.00012 | 0.00017 | 0.00018 | 0.00022 | 0.00012 | 0.00012 | 0.00015 | 0.00018 | 0.00020 | 0.00025 |
| barium | 0.00197 | 0.00200 | 0.00251 | 0.00160 | 0.00160 | 0.00214 | 0.00168 | 0.00175 | 0.00242 | 0.00304 | 0.00339 | 0.00421 | 0.00214 | 0.00217 | 0.00289 | 0.00332 | 0.00364 | 0.00484 |
| beryllium | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | 0.00002 |
| cadmium | 0.00305 | 0.00305 | 0.00222 | 0.00145 | 0.00148 | 0.00158 | 0.00231 | 0.00242 | 0.00266 | 0.00428 | 0.00452 | 0.00485 | 0.00386 | 0.00386 | 0.00423 | 0.00484 | 0.00492 | 0.00520 |
| chromium | 0.00356 | 0.00357 | 0.00370 | 0.00245 | 0.00245 | 0.00249 | 0.00201 | 0.00202 | 0.00210 | 0.00377 | 0.00383 | 0.00401 | 0.00330 | 0.00330 | 0.00337 | 0.00415 | 0.00426 | 0.00465 |
| chromium_6 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cobalt | 0.00051 | 0.00051 | 0.00036 | 0.00025 | 0.00026 | 0.00026 | 0.00036 | 0.00037 | 0.00040 | 0.00071 | 0.00075 | 0.00078 | 0.00064 | 0.00064 | 0.00069 | 0.00081 | 0.00082 | 0.00084 |
| copper | 0.00070 | 0.00071 | 0.00078 | 0.00052 | 0.00053 | 0.00064 | 0.00063 | 0.00067 | 0.00080 | 0.00110 | 0.00115 | 0.00136 | 0.00079 | 0.00080 | 0.00095 | 0.00123 | 0.00130 | 0.00153 |
| lead | 0.00071 | 0.00072 | 0.00077 | 0.00043 | 0.00043 | 0.00049 | 0.00051 | 0.00054 | 0.00062 | 0.00098 | 0.00102 | 0.00115 | 0.00073 | 0.00074 | 0.00083 | 0.00112 | 0.00117 | 0.00130 |
| manganese | 0.00141 | 0.00142 | 0.00146 | 0.00092 | 0.00092 | 0.00093 | 0.00080 | 0.00080 | 0.00083 | 0.00152 | 0.00155 | 0.00165 | 0.00135 | 0.00135 | 0.00136 | 0.00177 | 0.00181 | 0.00191 |
| mercury | 0.00011 | 0.00011 | 0.00014 | 0.00009 | 0.00009 | 0.00012 | 0.00010 | 0.00010 | 0.00014 | 0.00016 | 0.00019 | 0.00024 | 0.00012 | 0.00013 | 0.00015 | 0.00017 | 0.00019 | 0.00026 |
| molybdenum | 0.00091 | 0.00092 | 0.00103 | 0.00064 | 0.00064 | 0.00074 | 0.00059 | 0.00059 | 0.00072 | 0.00113 | 0.00118 | 0.00139 | 0.00082 | 0.00082 | 0.00099 | 0.00124 | 0.00132 | 0.00162 |
| nickel | 0.00545 | 0.00546 | 0.00566 | 0.00385 | 0.00385 | 0.00392 | 0.00303 | 0.00303 | 0.00314 | 0.00552 | 0.00560 | 0.00589 | 0.00491 | 0.00492 | 0.00505 | 0.00585 | 0.00600 | 0.00658 |
| selenium | 0.00192 | 0.00192 | 0.00192 | 0.00109 | 0.00109 | 0.00109 | 0.00096 | 0.00096 | 0.00097 | 0.00149 | 0.00149 | 0.00149 | 0.00129 | 0.00129 | 0.00129 | 0.00152 | 0.00153 | 0.00153 |
| silver | 0.00051 | 0.00051 | 0.00036 | 0.00020 | 0.00021 | 0.00020 | 0.00032 | 0.00033 | 0.00035 | 0.00071 | 0.00075 | 0.00075 | 0.00063 | 0.00063 | 0.00068 | 0.00080 | 0.00082 | 0.00082 |
| strontium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| tin | 0.00041 | 0.00041 | 0.00041 | 0.00028 | 0.00028 | 0.00028 | 0.00021 | 0.00021 | 0.00021 | 0.00032 | 0.00032 | 0.00032 | 0.00035 | 0.00035 | 0.00035 | 0.00038 | 0.00038 | 0.00038 |
| vanadium | 0.00290 | 0.00292 | 0.00315 | 0.00204 | 0.00204 | 0.00211 | 0.00170 | 0.00170 | 0.00188 | 0.00323 | 0.00331 | 0.00371 | 0.00261 | 0.00262 | 0.00280 | 0.00355 | 0.00372 | 0.00434 |
| zinc | 0.02391 | 0.02407 | 0.02676 | 0.01885 | 0.01890 | 0.02154 | 0.01458 | 0.01471 | 0.01855 | 0.03351 | 0.03465 | 0.03859 | 0.02244 | 0.02250 | 0.02565 | 0.03240 | 0.03458 | 0.04250 |
| **Total Metals** | **0.05569** | **0.05594** | **0.05888** | **0.03946** | **0.03957** | **0.04334** | **0.03407** | **0.03450** | **0.04013** | **0.07015** | **0.07244** | **0.07901** | **0.05355** | **0.05371** | **0.05882** | **0.07266** | **0.07606** | **0.08800** |

**Table 5.8-3 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Trace Metal Predictions in Regional Communities (continued)**

| Parameter[a][b] | Cabin D | | | Cabin E | | | Cabin F | | | Cabin G | | | Cabin H | | | Cabin I | | | Cabin J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak 1-Hour [µg/m³]** | | | | | | | | | | | | | | | | | | | | | |
| aluminum | 0.01009 | 0.01015 | 0.01016 | 0.00918 | 0.00919 | 0.00911 | 0.00975 | 0.00975 | 0.00965 | 0.01063 | 0.01064 | 0.01165 | 0.00949 | 0.00951 | 0.01467 | 0.02040 | 0.02044 | 0.02038 | 0.03161 | 0.03173 | 0.03386 |
| antimony | 0.00004 | 0.00004 | 0.00004 | 0.00004 | 0.00004 | 0.00004 | 0.00005 | 0.00005 | 0.00005 | 0.00004 | 0.00004 | 0.00004 | 0.00007 | 0.00007 | 0.00007 | 0.00007 | 0.00007 | 0.00007 | 0.00007 | 0.00007 | 0.00007 |
| arsenic | 0.00019 | 0.00020 | 0.00025 | 0.00018 | 0.00018 | 0.00026 | 0.00020 | 0.00020 | 0.00028 | 0.00021 | 0.00021 | 0.00024 | 0.00019 | 0.00019 | 0.00037 | 0.00031 | 0.00032 | 0.00044 | 0.00027 | 0.00027 | 0.00071 |
| barium | 0.00350 | 0.00365 | 0.00485 | 0.00378 | 0.00385 | 0.00555 | 0.00422 | 0.00425 | 0.00597 | 0.00462 | 0.00462 | 0.00530 | 0.00358 | 0.00358 | 0.00806 | 0.00547 | 0.00563 | 0.00828 | 0.00456 | 0.00457 | 0.01556 |
| beryllium | 0.00002 | 0.00002 | 0.00002 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00003 | 0.00003 | 0.00003 | 0.00002 | 0.00002 | 0.00004 |
| cadmium | 0.00541 | 0.00548 | 0.00581 | 0.00479 | 0.00488 | 0.00513 | 0.00523 | 0.00527 | 0.00551 | 0.00858 | 0.00859 | 0.00941 | 0.00709 | 0.00710 | 0.01270 | 0.01119 | 0.01119 | 0.01323 | 0.02371 | 0.02380 | 0.02921 |
| chromium | 0.00447 | 0.00453 | 0.00491 | 0.00416 | 0.00416 | 0.00422 | 0.00444 | 0.00445 | 0.00450 | 0.00387 | 0.00387 | 0.00401 | 0.00528 | 0.00528 | 0.00529 | 0.00835 | 0.00840 | 0.00924 | 0.00777 | 0.00777 | 0.00909 |
| chromium_6 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cobalt | 0.00090 | 0.00091 | 0.00094 | 0.00079 | 0.00081 | 0.00083 | 0.00087 | 0.00087 | 0.00089 | 0.00138 | 0.00138 | 0.00151 | 0.00118 | 0.00118 | 0.00196 | 0.00186 | 0.00186 | 0.00205 | 0.00395 | 0.00397 | 0.00452 |
| copper | 0.00131 | 0.00135 | 0.00158 | 0.00131 | 0.00134 | 0.00172 | 0.00148 | 0.00149 | 0.00188 | 0.00180 | 0.00180 | 0.00198 | 0.00140 | 0.00140 | 0.00315 | 0.00239 | 0.00242 | 0.00321 | 0.00395 | 0.00397 | 0.00718 |
| lead | 0.00120 | 0.00122 | 0.00136 | 0.00105 | 0.00107 | 0.00132 | 0.00120 | 0.00121 | 0.00146 | 0.00161 | 0.00161 | 0.00176 | 0.00128 | 0.00128 | 0.00261 | 0.00226 | 0.00229 | 0.00268 | 0.00395 | 0.00397 | 0.00597 |
| manganese | 0.00190 | 0.00192 | 0.00203 | 0.00167 | 0.00167 | 0.00168 | 0.00179 | 0.00179 | 0.00179 | 0.00154 | 0.00154 | 0.00169 | 0.00229 | 0.00229 | 0.00242 | 0.00366 | 0.00368 | 0.00390 | 0.00395 | 0.00397 | 0.00555 |
| mercury | 0.00018 | 0.00019 | 0.00026 | 0.00022 | 0.00022 | 0.00032 | 0.00024 | 0.00024 | 0.00034 | 0.00027 | 0.00027 | 0.00031 | 0.00021 | 0.00021 | 0.00048 | 0.00028 | 0.00029 | 0.00044 | 0.00025 | 0.00025 | 0.00092 |
| molybdenum | 0.00131 | 0.00135 | 0.00165 | 0.00110 | 0.00113 | 0.00150 | 0.00128 | 0.00129 | 0.00165 | 0.00134 | 0.00134 | 0.00144 | 0.00132 | 0.00132 | 0.00201 | 0.00222 | 0.00226 | 0.00292 | 0.00197 | 0.00197 | 0.00389 |
| nickel | 0.00631 | 0.00639 | 0.00696 | 0.00630 | 0.00631 | 0.00641 | 0.00675 | 0.00676 | 0.00686 | 0.00579 | 0.00579 | 0.00598 | 0.00783 | 0.00783 | 0.00786 | 0.01163 | 0.01171 | 0.01298 | 0.01087 | 0.01088 | 0.01108 |
| selenium | 0.00161 | 0.00161 | 0.00162 | 0.00173 | 0.00173 | 0.00174 | 0.00190 | 0.00190 | 0.00190 | 0.00204 | 0.00204 | 0.00204 | 0.00473 | 0.00473 | 0.00473 | 0.00305 | 0.00305 | 0.00307 | 0.00320 | 0.00320 | 0.00320 |
| silver | 0.00090 | 0.00091 | 0.00091 | 0.00079 | 0.00081 | 0.00080 | 0.00086 | 0.00087 | 0.00087 | 0.00133 | 0.00133 | 0.00146 | 0.00118 | 0.00118 | 0.00183 | 0.00186 | 0.00186 | 0.00193 | 0.00395 | 0.00397 | 0.00423 |
| strontium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| tin | 0.00041 | 0.00041 | 0.00041 | 0.00045 | 0.00045 | 0.00045 | 0.00050 | 0.00050 | 0.00050 | 0.00041 | 0.00041 | 0.00041 | 0.00084 | 0.00084 | 0.00084 | 0.00079 | 0.00079 | 0.00079 | 0.00078 | 0.00078 | 0.00078 |
| vanadium | 0.00379 | 0.00387 | 0.00450 | 0.00327 | 0.00328 | 0.00346 | 0.00346 | 0.00347 | 0.00398 | 0.00379 | 0.00380 | 0.00400 | 0.00418 | 0.00418 | 0.00421 | 0.00667 | 0.00675 | 0.00813 | 0.00610 | 0.00611 | 0.00814 |
| zinc | 0.03485 | 0.03593 | 0.04385 | 0.03118 | 0.03176 | 0.04334 | 0.03547 | 0.03575 | 0.04743 | 0.03369 | 0.03390 | 0.03945 | 0.03450 | 0.03450 | 0.06160 | 0.06034 | 0.06142 | 0.07883 | 0.05047 | 0.05055 | 0.13023 |
| **Total Metals** | **0.07839** | **0.08013** | **0.09211** | **0.07201** | **0.07288** | **0.08789** | **0.07969** | **0.08013** | **0.09553** | **0.08295** | **0.08320** | **0.09266** | **0.08667** | **0.08670** | **0.13490** | **0.14285** | **0.14447** | **0.17262** | **0.16140** | **0.16182** | **0.27425** |

**Table 5.8-3 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case 1-Hour Trace Metal Predictions in Regional Communities (continued)**

| Parameter[a][b] | Cabin K | | | Cabin L | | | Descharme Lake, SK | | | La Loche, SK | | | Oil Sands Lodge | | | PTI Camp | | | Pierre River Mine Fenceline[c] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Peak 1-Hour [µg/m³]** | | | | | | | | | | | | | | | | | | | | | |
| aluminum | 0.02953 | 0.02958 | 0.03034 | 0.01346 | 0.01350 | 0.01345 | 0.00225 | 0.00225 | 0.00225 | 0.00225 | 0.00225 | 0.00225 | 0.04469 | 0.04469 | 0.04425 | 0.03453 | 0.03453 | 0.03475 | 0.02059 | 0.02261 | 0.02246 |
| antimony | 0.00006 | 0.00006 | 0.00006 | 0.00005 | 0.00005 | 0.00005 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00007 | 0.00007 | 0.00007 | 0.00014 | 0.00014 | 0.00014 | 0.00007 | 0.00007 | 0.00007 |
| arsenic | 0.00028 | 0.00028 | 0.00046 | 0.00025 | 0.00025 | 0.00032 | 0.00004 | 0.00004 | 0.00005 | 0.00005 | 0.00005 | 0.00006 | 0.00025 | 0.00025 | 0.00026 | 0.00049 | 0.00049 | 0.00049 | 0.00036 | 0.00077 | 0.00080 |
| barium | 0.00500 | 0.00501 | 0.01018 | 0.00439 | 0.00518 | 0.00601 | 0.00075 | 0.00078 | 0.00090 | 0.00092 | 0.00094 | 0.00121 | 0.00433 | 0.00433 | 0.00446 | 0.00900 | 0.00900 | 0.00916 | 0.00679 | 0.01686 | 0.01760 |
| beryllium | 0.00002 | 0.00002 | 0.00003 | 0.00002 | 0.00002 | 0.00002 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00002 | 0.00002 | 0.00002 | 0.00004 | 0.00004 | 0.00004 | 0.00003 | 0.00005 | 0.00005 |
| cadmium | 0.02215 | 0.02218 | 0.02404 | 0.00859 | 0.00865 | 0.00976 | 0.00058 | 0.00058 | 0.00064 | 0.00074 | 0.00075 | 0.00084 | 0.03356 | 0.03356 | 0.03338 | 0.00865 | 0.00871 | 0.00897 | 0.01240 | 0.01439 | 0.01576 |
| chromium | 0.00672 | 0.00672 | 0.00680 | 0.00595 | 0.00599 | 0.00646 | 0.00120 | 0.00120 | 0.00125 | 0.00114 | 0.00114 | 0.00117 | 0.00743 | 0.00743 | 0.00748 | 0.01421 | 0.01421 | 0.01425 | 0.00848 | 0.00867 | 0.00946 |
| chromium_6 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cobalt | 0.00369 | 0.00370 | 0.00389 | 0.00142 | 0.00144 | 0.00156 | 0.00008 | 0.00009 | 0.00010 | 0.00013 | 0.00013 | 0.00014 | 0.00559 | 0.00559 | 0.00555 | 0.00147 | 0.00148 | 0.00150 | 0.00206 | 0.00240 | 0.00254 |
| copper | 0.00369 | 0.00370 | 0.00478 | 0.00168 | 0.00171 | 0.00208 | 0.00021 | 0.00021 | 0.00025 | 0.00027 | 0.00028 | 0.00032 | 0.00563 | 0.00563 | 0.00568 | 0.00243 | 0.00243 | 0.00245 | 0.00264 | 0.00340 | 0.00356 |
| lead | 0.00369 | 0.00370 | 0.00438 | 0.00156 | 0.00158 | 0.00184 | 0.00021 | 0.00021 | 0.00022 | 0.00024 | 0.00024 | 0.00026 | 0.00561 | 0.00561 | 0.00562 | 0.00172 | 0.00172 | 0.00176 | 0.00235 | 0.00266 | 0.00299 |
| manganese | 0.00369 | 0.00370 | 0.00424 | 0.00254 | 0.00256 | 0.00268 | 0.00047 | 0.00047 | 0.00048 | 0.00045 | 0.00045 | 0.00046 | 0.00560 | 0.00560 | 0.00560 | 0.00452 | 0.00452 | 0.00455 | 0.00365 | 0.00387 | 0.00407 |
| mercury | 0.00025 | 0.00025 | 0.00060 | 0.00022 | 0.00031 | 0.00032 | 0.00004 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00007 | 0.00024 | 0.00024 | 0.00024 | 0.00049 | 0.00049 | 0.00049 | 0.00036 | 0.00100 | 0.00104 |
| molybdenum | 0.00189 | 0.00189 | 0.00254 | 0.00170 | 0.00173 | 0.00210 | 0.00031 | 0.00031 | 0.00033 | 0.00034 | 0.00034 | 0.00041 | 0.00199 | 0.00199 | 0.00201 | 0.00348 | 0.00348 | 0.00352 | 0.00243 | 0.00424 | 0.00442 |
| nickel | 0.00894 | 0.00895 | 0.00915 | 0.00841 | 0.00847 | 0.00919 | 0.00189 | 0.00189 | 0.00196 | 0.00180 | 0.00180 | 0.00185 | 0.01269 | 0.01269 | 0.01273 | 0.02478 | 0.02478 | 0.02480 | 0.01189 | 0.01197 | 0.01325 |
| selenium | 0.00312 | 0.00312 | 0.00313 | 0.00228 | 0.00228 | 0.00228 | 0.00073 | 0.00073 | 0.00073 | 0.00067 | 0.00067 | 0.00067 | 0.00430 | 0.00430 | 0.00430 | 0.00835 | 0.00835 | 0.00835 | 0.00359 | 0.00359 | 0.00360 |
| silver | 0.00369 | 0.00370 | 0.00379 | 0.00142 | 0.00144 | 0.00150 | 0.00008 | 0.00008 | 0.00009 | 0.00010 | 0.00010 | 0.00011 | 0.00559 | 0.00559 | 0.00553 | 0.00142 | 0.00143 | 0.00143 | 0.00206 | 0.00239 | 0.00247 |
| strontium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| tin | 0.00065 | 0.00065 | 0.00065 | 0.00056 | 0.00056 | 0.00056 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00015 | 0.00082 | 0.00082 | 0.00082 | 0.00149 | 0.00149 | 0.00149 | 0.00084 | 0.00084 | 0.00084 |
| vanadium | 0.00551 | 0.00552 | 0.00574 | 0.00499 | 0.00505 | 0.00583 | 0.00100 | 0.00100 | 0.00106 | 0.00096 | 0.00097 | 0.00111 | 0.00604 | 0.00604 | 0.00607 | 0.00991 | 0.00991 | 0.00993 | 0.00696 | 0.00892 | 0.00930 |
| zinc | 0.04645 | 0.04656 | 0.08113 | 0.04407 | 0.04491 | 0.05475 | 0.00849 | 0.00850 | 0.00905 | 0.00843 | 0.00854 | 0.01030 | 0.07887 | 0.07887 | 0.07957 | 0.13069 | 0.13069 | 0.13118 | 0.07301 | 0.11299 | 0.11794 |
| **Total Metals** | **0.14901** | **0.14929** | **0.19593** | **0.10356** | **0.10567** | **0.12078** | **0.01850** | **0.01855** | **0.01957** | **0.01871** | **0.01888** | **0.02139** | **0.22332** | **0.22332** | **0.22363** | **0.25780** | **0.25788** | **0.25925** | **0.16058** | **0.22170** | **0.23223** |

(a) The peak predictions include the highest 1-hour predictions from the CALPUFF model.

(b) See the EIA, Volume 3, Section 3.2, Table 3.2-6 for respective air quality guidelines.

(c) Location along the fenceline where CALPUFF predicted highest concentration.

Note: Some numbers are rounded for presentation purposes; therefore, it may appear that the totals do not equal the sum of the individual values.

**Table 5.8-4 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Trace Metal Predictions in Regional Communities**

| Parameter[(a)(b)] | Anzac | | | Conklin | | | Fort Chipewyan | | | Fort McKay | | | Fort McMurray | | | Janvier/Chard (IR 194) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Annual Average [µg/m³]** | | | | | | | | | | | | | | | | | | |
| aluminum | 0.00018 | 0.00018 | 0.00018 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00007 | 0.00142 | 0.00142 | 0.00145 | 0.00034 | 0.00034 | 0.00033 | 0.00009 | 0.00009 | 0.00009 |
| antimony | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| arsenic | 0.00001 | 0.00001 | 0.00002 | 0.00000 | 0.00000 | 0.00001 | 0.00000 | 0.00000 | 0.00000 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 |
| barium | 0.00021 | 0.00021 | 0.00033 | 0.00011 | 0.00011 | 0.00020 | 0.00003 | 0.00003 | 0.00005 | 0.00024 | 0.00024 | 0.00037 | 0.00012 | 0.00012 | 0.00019 | 0.00011 | 0.00011 | 0.00018 |
| beryllium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cadmium | 0.00009 | 0.00009 | 0.00012 | 0.00004 | 0.00004 | 0.00006 | 0.00003 | 0.00003 | 0.00004 | 0.00092 | 0.00093 | 0.00098 | 0.00016 | 0.00016 | 0.00017 | 0.00004 | 0.00004 | 0.00006 |
| chromium | 0.00011 | 0.00011 | 0.00015 | 0.00005 | 0.00005 | 0.00008 | 0.00003 | 0.00003 | 0.00004 | 0.00031 | 0.00032 | 0.00036 | 0.00014 | 0.00014 | 0.00016 | 0.00006 | 0.00006 | 0.00009 |
| chromium_6 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cobalt | 0.00001 | 0.00001 | 0.00002 | 0.00000 | 0.00000 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00016 | 0.00016 | 0.00016 | 0.00003 | 0.00003 | 0.00003 | 0.00001 | 0.00001 | 0.00001 |
| copper | 0.00005 | 0.00005 | 0.00007 | 0.00002 | 0.00002 | 0.00004 | 0.00001 | 0.00001 | 0.00001 | 0.00019 | 0.00019 | 0.00022 | 0.00005 | 0.00005 | 0.00006 | 0.00003 | 0.00003 | 0.00004 |
| lead | 0.00003 | 0.00003 | 0.00005 | 0.00002 | 0.00002 | 0.00003 | 0.00001 | 0.00001 | 0.00001 | 0.00018 | 0.00018 | 0.00020 | 0.00004 | 0.00005 | 0.00005 | 0.00002 | 0.00002 | 0.00003 |
| manganese | 0.00004 | 0.00004 | 0.00005 | 0.00002 | 0.00002 | 0.00003 | 0.00001 | 0.00001 | 0.00001 | 0.00020 | 0.00021 | 0.00022 | 0.00006 | 0.00006 | 0.00007 | 0.00002 | 0.00002 | 0.00003 |
| mercury | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00001 | 0.00000 | 0.00000 | 0.00000 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 |
| molybdenum | 0.00006 | 0.00006 | 0.00009 | 0.00003 | 0.00003 | 0.00005 | 0.00001 | 0.00001 | 0.00002 | 0.00008 | 0.00008 | 0.00011 | 0.00004 | 0.00004 | 0.00006 | 0.00003 | 0.00003 | 0.00005 |
| nickel | 0.00016 | 0.00016 | 0.00022 | 0.00008 | 0.00008 | 0.00012 | 0.00004 | 0.00004 | 0.00005 | 0.00028 | 0.00028 | 0.00034 | 0.00018 | 0.00018 | 0.00021 | 0.00009 | 0.00010 | 0.00013 |
| selenium | 0.00003 | 0.00003 | 0.00003 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00002 | 0.00002 | 0.00002 |
| silver | 0.00001 | 0.00001 | 0.00001 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00015 | 0.00015 | 0.00015 | 0.00002 | 0.00002 | 0.00002 | 0.00000 | 0.00000 | 0.00000 |
| strontium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| tin | 0.00001 | 0.00001 | 0.00001 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00000 | 0.00000 | 0.00000 |
| vanadium | 0.00013 | 0.00013 | 0.00019 | 0.00007 | 0.00007 | 0.00011 | 0.00003 | 0.00003 | 0.00004 | 0.00019 | 0.00019 | 0.00026 | 0.00011 | 0.00011 | 0.00015 | 0.00007 | 0.00007 | 0.00011 |
| zinc | 0.00155 | 0.00156 | 0.00230 | 0.00076 | 0.00076 | 0.00135 | 0.00030 | 0.00031 | 0.00042 | 0.00296 | 0.00299 | 0.00385 | 0.00112 | 0.00113 | 0.00155 | 0.00082 | 0.00083 | 0.00128 |
| **Total Metals** | **0.00270** | **0.00272** | **0.00384** | **0.00126** | **0.00127** | **0.00216** | **0.00058** | **0.00060** | **0.00077** | **0.00737** | **0.00744** | **0.00878** | **0.00248** | **0.00251** | **0.00312** | **0.00144** | **0.00144** | **0.00213** |

**Table 5.8-4 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Trace Metal Predictions in Regional Communities (continued)**

| Parameter[(a)(b)] | Clearwater (IR175) | | | Namur River (IR 174A) | | | Poplar Point (IR 201G) | | | Cabin A | | | Cabin B | | | Cabin C | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Annual Average [µg/m³]** | | | | | | | | | | | | | | | | | | |
| aluminum | 0.00022 | 0.00022 | 0.00021 | 0.00010 | 0.00010 | 0.00010 | 0.00023 | 0.00024 | 0.00025 | 0.00049 | 0.00053 | 0.00055 | 0.00037 | 0.00037 | 0.00040 | 0.00048 | 0.00050 | 0.00052 |
| antimony | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| arsenic | 0.00001 | 0.00001 | 0.00001 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 |
| barium | 0.00011 | 0.00011 | 0.00018 | 0.00006 | 0.00006 | 0.00009 | 0.00009 | 0.00010 | 0.00016 | 0.00014 | 0.00016 | 0.00029 | 0.00013 | 0.00014 | 0.00020 | 0.00014 | 0.00016 | 0.00026 |
| beryllium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cadmium | 0.00011 | 0.00012 | 0.00013 | 0.00004 | 0.00004 | 0.00005 | 0.00014 | 0.00014 | 0.00017 | 0.00033 | 0.00036 | 0.00041 | 0.00024 | 0.00024 | 0.00028 | 0.00032 | 0.00034 | 0.00038 |
| chromium | 0.00009 | 0.00010 | 0.00012 | 0.00005 | 0.00005 | 0.00006 | 0.00008 | 0.00009 | 0.00011 | 0.00014 | 0.00015 | 0.00019 | 0.00012 | 0.00012 | 0.00014 | 0.00014 | 0.00014 | 0.00018 |
| chromium_6 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cobalt | 0.00002 | 0.00002 | 0.00002 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | 0.00002 | 0.00003 | 0.00005 | 0.00006 | 0.00007 | 0.00004 | 0.00004 | 0.00004 | 0.00005 | 0.00006 | 0.00006 |
| copper | 0.00004 | 0.00004 | 0.00005 | 0.00002 | 0.00002 | 0.00002 | 0.00004 | 0.00004 | 0.00005 | 0.00008 | 0.00009 | 0.00012 | 0.00006 | 0.00006 | 0.00008 | 0.00008 | 0.00008 | 0.00011 |
| lead | 0.00003 | 0.00003 | 0.00004 | 0.00001 | 0.00001 | 0.00002 | 0.00003 | 0.00004 | 0.00004 | 0.00007 | 0.00008 | 0.00009 | 0.00005 | 0.00005 | 0.00007 | 0.00007 | 0.00007 | 0.00009 |
| manganese | 0.00004 | 0.00004 | 0.00005 | 0.00002 | 0.00002 | 0.00002 | 0.00004 | 0.00004 | 0.00005 | 0.00008 | 0.00008 | 0.00010 | 0.00006 | 0.00006 | 0.00007 | 0.00008 | 0.00008 | 0.00009 |
| mercury | 0.00001 | 0.00001 | 0.00001 | 0.00000 | 0.00000 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00002 |
| molybdenum | 0.00003 | 0.00003 | 0.00005 | 0.00002 | 0.00002 | 0.00003 | 0.00003 | 0.00003 | 0.00005 | 0.00004 | 0.00005 | 0.00008 | 0.00004 | 0.00004 | 0.00006 | 0.00004 | 0.00005 | 0.00007 |
| nickel | 0.00012 | 0.00013 | 0.00016 | 0.00008 | 0.00008 | 0.00009 | 0.00010 | 0.00010 | 0.00013 | 0.00013 | 0.00015 | 0.00021 | 0.00013 | 0.00013 | 0.00017 | 0.00014 | 0.00015 | 0.00020 |
| selenium | 0.00003 | 0.00003 | 0.00003 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 |
| silver | 0.00002 | 0.00002 | 0.00001 | 0.00000 | 0.00000 | 0.00001 | 0.00002 | 0.00002 | 0.00002 | 0.00005 | 0.00005 | 0.00006 | 0.00004 | 0.00004 | 0.00004 | 0.00005 | 0.00005 | 0.00005 |
| strontium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| tin | 0.00001 | 0.00001 | 0.00001 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 |
| vanadium | 0.00009 | 0.00009 | 0.00012 | 0.00005 | 0.00005 | 0.00007 | 0.00007 | 0.00008 | 0.00011 | 0.00010 | 0.00011 | 0.00018 | 0.00010 | 0.00010 | 0.00013 | 0.00010 | 0.00011 | 0.00017 |
| zinc | 0.00095 | 0.00096 | 0.00141 | 0.00052 | 0.00054 | 0.00076 | 0.00088 | 0.00094 | 0.00133 | 0.00139 | 0.00158 | 0.00245 | 0.00121 | 0.00127 | 0.00173 | 0.00143 | 0.00155 | 0.00226 |
| **Total Metals** | **0.00192** | **0.00194** | **0.00260** | **0.00101** | **0.00103** | **0.00136** | **0.00182** | **0.00192** | **0.00254** | **0.00313** | **0.00348** | **0.00485** | **0.00262** | **0.00272** | **0.00346** | **0.00317** | **0.00337** | **0.00450** |

**Table 5.8-4 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Trace Metal Predictions in Regional Communities (continued)**

| Parameter[a][b] | Cabin D | | | Cabin E | | | Cabin F | | | Cabin G | | | Cabin H | | | Cabin I | | | Cabin J | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Annual Average [µg/m³]** | | | | | | | | | | | | | | | | | | | | | |
| aluminum | 0.00054 | 0.00056 | 0.00059 | 0.00052 | 0.00053 | 0.00057 | 0.00056 | 0.00057 | 0.00061 | 0.00051 | 0.00051 | 0.00054 | 0.00072 | 0.00072 | 0.00094 | 0.00115 | 0.00128 | 0.00133 | 0.00203 | 0.00207 | 0.00216 |
| antimony | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| arsenic | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | 0.00002 | 0.00002 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00004 |
| barium | 0.00015 | 0.00017 | 0.00029 | 0.00017 | 0.00018 | 0.00027 | 0.00018 | 0.00019 | 0.00029 | 0.00032 | 0.00033 | 0.00039 | 0.00019 | 0.00019 | 0.00046 | 0.00017 | 0.00018 | 0.00051 | 0.00024 | 0.00026 | 0.00082 |
| beryllium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cadmium | 0.00036 | 0.00038 | 0.00043 | 0.00034 | 0.00035 | 0.00040 | 0.00037 | 0.00037 | 0.00043 | 0.00038 | 0.00038 | 0.00041 | 0.00045 | 0.00045 | 0.00068 | 0.00082 | 0.00091 | 0.00103 | 0.00145 | 0.00149 | 0.00170 |
| chromium | 0.00015 | 0.00016 | 0.00020 | 0.00016 | 0.00016 | 0.00019 | 0.00017 | 0.00017 | 0.00021 | 0.00021 | 0.00021 | 0.00023 | 0.00021 | 0.00021 | 0.00033 | 0.00024 | 0.00026 | 0.00037 | 0.00038 | 0.00039 | 0.00058 |
| chromium_6 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cobalt | 0.00006 | 0.00006 | 0.00007 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00007 | 0.00006 | 0.00006 | 0.00006 | 0.00008 | 0.00008 | 0.00011 | 0.00014 | 0.00015 | 0.00016 | 0.00024 | 0.00025 | 0.00027 |
| copper | 0.00009 | 0.00009 | 0.00012 | 0.00008 | 0.00009 | 0.00011 | 0.00009 | 0.00009 | 0.00012 | 0.00011 | 0.00011 | 0.00013 | 0.00011 | 0.00011 | 0.00019 | 0.00017 | 0.00018 | 0.00025 | 0.00028 | 0.00029 | 0.00041 |
| lead | 0.00008 | 0.00008 | 0.00010 | 0.00007 | 0.00008 | 0.00009 | 0.00008 | 0.00008 | 0.00010 | 0.00009 | 0.00009 | 0.00010 | 0.00010 | 0.00010 | 0.00016 | 0.00016 | 0.00017 | 0.00021 | 0.00027 | 0.00027 | 0.00035 |
| manganese | 0.00008 | 0.00009 | 0.00010 | 0.00008 | 0.00009 | 0.00010 | 0.00009 | 0.00009 | 0.00011 | 0.00010 | 0.00010 | 0.00011 | 0.00012 | 0.00012 | 0.00017 | 0.00016 | 0.00018 | 0.00022 | 0.00028 | 0.00029 | 0.00035 |
| mercury | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00001 | 0.00001 | 0.00003 | 0.00001 | 0.00001 | 0.00003 | 0.00001 | 0.00001 | 0.00005 |
| molybdenum | 0.00004 | 0.00005 | 0.00008 | 0.00005 | 0.00005 | 0.00008 | 0.00005 | 0.00006 | 0.00008 | 0.00009 | 0.00009 | 0.00011 | 0.00006 | 0.00006 | 0.00013 | 0.00005 | 0.00005 | 0.00013 | 0.00007 | 0.00008 | 0.00022 |
| nickel | 0.00015 | 0.00016 | 0.00021 | 0.00017 | 0.00018 | 0.00022 | 0.00018 | 0.00019 | 0.00023 | 0.00025 | 0.00025 | 0.00029 | 0.00025 | 0.00025 | 0.00035 | 0.00018 | 0.00018 | 0.00033 | 0.00023 | 0.00024 | 0.00051 |
| selenium | 0.00002 | 0.00002 | 0.00002 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00003 | 0.00006 | 0.00006 | 0.00006 | 0.00003 | 0.00003 | 0.00003 | 0.00004 | 0.00004 | 0.00004 |
| silver | 0.00005 | 0.00006 | 0.00006 | 0.00005 | 0.00005 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00005 | 0.00005 | 0.00006 | 0.00007 | 0.00007 | 0.00010 | 0.00013 | 0.00015 | 0.00015 | 0.00023 | 0.00024 | 0.00025 |
| strontium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| tin | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 |
| vanadium | 0.00011 | 0.00012 | 0.00018 | 0.00013 | 0.00013 | 0.00018 | 0.00013 | 0.00014 | 0.00019 | 0.00021 | 0.00021 | 0.00025 | 0.00017 | 0.00017 | 0.00030 | 0.00013 | 0.00013 | 0.00030 | 0.00017 | 0.00018 | 0.00048 |
| zinc | 0.00154 | 0.00168 | 0.00249 | 0.00164 | 0.00174 | 0.00236 | 0.00175 | 0.00185 | 0.00250 | 0.00263 | 0.00267 | 0.00312 | 0.00192 | 0.00197 | 0.00394 | 0.00225 | 0.00241 | 0.00459 | 0.00344 | 0.00357 | 0.00743 |
| **Total Metals** | **0.00345** | **0.00371** | **0.00498** | **0.00358** | **0.00373** | **0.00477** | **0.00381** | **0.00399** | **0.00506** | **0.00509** | **0.00515** | **0.00588** | **0.00452** | **0.00460** | **0.00798** | **0.00580** | **0.00630** | **0.00968** | **0.00940** | **0.00969** | **0.01568** |

**Table 5.8-4 2013 Base Case, 2013 PRM Application Case and 2013 Planned Development Case Annual Trace Metal Predictions in Regional Communities (continued)**

| Parameter[a][b] | Cabin K | | | Cabin L | | | Descharme Lake, SK | | | La Loche, SK | | | Oil Sands Lodge | | | PTI Camp | | | Pierre River Mine Fenceline[c] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case | 2013 Base Case | 2013 PRM Application Case | 2013 Planned Development Case |
| **Annual Average [µg/m³]** | | | | | | | | | | | | | | | | | | | | | |
| aluminum | 0.00175 | 0.00177 | 0.00183 | 0.00084 | 0.00098 | 0.00102 | 0.00009 | 0.00009 | 0.00009 | 0.00009 | 0.00009 | 0.00009 | 0.00254 | 0.00254 | 0.00256 | 0.00122 | 0.00123 | 0.00126 | 0.00109 | 0.00267 | 0.00272 |
| antimony | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| arsenic | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00002 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00001 | 0.00002 | 0.00001 | 0.00002 | 0.00003 |
| barium | 0.00025 | 0.00027 | 0.00051 | 0.00017 | 0.00022 | 0.00044 | 0.00005 | 0.00005 | 0.00007 | 0.00007 | 0.00007 | 0.00010 | 0.00025 | 0.00025 | 0.00039 | 0.00028 | 0.00028 | 0.00039 | 0.00022 | 0.00038 | 0.00059 |
| beryllium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cadmium | 0.00125 | 0.00127 | 0.00138 | 0.00059 | 0.00070 | 0.00078 | 0.00003 | 0.00003 | 0.00004 | 0.00004 | 0.00004 | 0.00005 | 0.00177 | 0.00178 | 0.00182 | 0.00073 | 0.00074 | 0.00078 | 0.00078 | 0.00196 | 0.00205 |
| chromium | 0.00034 | 0.00035 | 0.00044 | 0.00020 | 0.00023 | 0.00030 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00005 | 0.00006 | 0.00047 | 0.00047 | 0.00052 | 0.00032 | 0.00032 | 0.00036 | 0.00024 | 0.00044 | 0.00050 |
| chromium_6 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| cobalt | 0.00021 | 0.00021 | 0.00022 | 0.00010 | 0.00011 | 0.00012 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00030 | 0.00030 | 0.00030 | 0.00013 | 0.00013 | 0.00013 | 0.00013 | 0.00033 | 0.00034 |
| copper | 0.00025 | 0.00025 | 0.00031 | 0.00013 | 0.00015 | 0.00020 | 0.00001 | 0.00001 | 0.00002 | 0.00002 | 0.00002 | 0.00003 | 0.00034 | 0.00034 | 0.00037 | 0.00016 | 0.00017 | 0.00019 | 0.00016 | 0.00036 | 0.00040 |
| lead | 0.00023 | 0.00024 | 0.00028 | 0.00012 | 0.00014 | 0.00017 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | 0.00002 | 0.00002 | 0.00032 | 0.00033 | 0.00034 | 0.00015 | 0.00015 | 0.00017 | 0.00015 | 0.00035 | 0.00037 |
| manganese | 0.00025 | 0.00025 | 0.00028 | 0.00013 | 0.00015 | 0.00017 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00035 | 0.00035 | 0.00036 | 0.00018 | 0.00018 | 0.00020 | 0.00016 | 0.00036 | 0.00038 |
| mercury | 0.00001 | 0.00002 | 0.00003 | 0.00001 | 0.00001 | 0.00003 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00001 | 0.00001 | 0.00001 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00001 | 0.00002 | 0.00003 |
| molybdenum | 0.00007 | 0.00008 | 0.00014 | 0.00005 | 0.00006 | 0.00012 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00003 | 0.00008 | 0.00008 | 0.00011 | 0.00009 | 0.00009 | 0.00012 | 0.00006 | 0.00010 | 0.00016 |
| nickel | 0.00024 | 0.00025 | 0.00036 | 0.00017 | 0.00019 | 0.00029 | 0.00007 | 0.00007 | 0.00008 | 0.00008 | 0.00008 | 0.00009 | 0.00029 | 0.00029 | 0.00036 | 0.00035 | 0.00036 | 0.00041 | 0.00019 | 0.00026 | 0.00036 |
| selenium | 0.00004 | 0.00004 | 0.00004 | 0.00003 | 0.00003 | 0.00003 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00006 | 0.00003 | 0.00003 | 0.00003 |
| silver | 0.00020 | 0.00020 | 0.00021 | 0.00009 | 0.00011 | 0.00011 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00029 | 0.00029 | 0.00029 | 0.00012 | 0.00012 | 0.00012 | 0.00012 | 0.00032 | 0.00033 |
| strontium | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| tin | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00001 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00000 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00002 | 0.00001 | 0.00001 | 0.00001 |
| vanadium | 0.00018 | 0.00019 | 0.00032 | 0.00012 | 0.00015 | 0.00026 | 0.00004 | 0.00004 | 0.00005 | 0.00005 | 0.00006 | 0.00007 | 0.00020 | 0.00020 | 0.00027 | 0.00023 | 0.00024 | 0.00029 | 0.00015 | 0.00023 | 0.00034 |
| zinc | 0.00321 | 0.00331 | 0.00510 | 0.00195 | 0.00236 | 0.00386 | 0.00041 | 0.00042 | 0.00056 | 0.00056 | 0.00057 | 0.00079 | 0.00405 | 0.00409 | 0.00497 | 0.00323 | 0.00326 | 0.00397 | 0.00245 | 0.00378 | 0.00530 |
| **Total Metals** | **0.00850** | **0.00873** | **0.01150** | **0.00470** | **0.00560** | **0.00794** | **0.00082** | **0.00083** | **0.00105** | **0.00106** | **0.00108** | **0.00141** | **0.01135** | **0.01143** | **0.01278** | **0.00731** | **0.00737** | **0.00850** | **0.00597** | **0.01163** | **0.01394** |

(a) See EIA Volume 3, Section 3.2, Table 3.2-6 for respective air quality guidelines.

(b) Location along the fenceline where CALPUFF predicted highest concentration.

Note: Some numbers are rounded for presentation purposes; therefore, it may appear that the totals do not equal the sum of the individual values.

# 6.0 AIR EMISSIONS EFFECTS ON ECOLOGICAL RECEPTORS

The AEE assessment for the 2013 PRM Application Case is presented in Appendix 1, Section 2.5. Supporting information used in the AEE assessment, including water chemistry, air modeling results and the tabulated results from the acidification calculations, is presented in Attachment B.

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# ATTACHMENT A

## Point and Area Source Characteristics

## Table A-1 2013 Base Case Point Source Emission Characteristics

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Shell Canada Energy (Shell) - Jackpine Mine Phase 1** | | | | | | | | | | | | | | | | |
| 1 | SHJKP1COGN | Cogen | 476,180 | 6,344,235 | 311 | 30.00 | 5.500 | 15.0 | 393 | 0.017 | 3.375 | 1.960 | 0.164 | 0.000 | 0.075 | 0.000 |
| 2 | SHJKP1OTSG | OTSG | 476,376 | 6,343,975 | 311 | 13.00 | 0.900 | 14.3 | 392 | 0.001 | 0.054 | 0.068 | 0.006 | 0.000 | 0.004 | 0.000 |
| 3 | SHJKP1BOLR01 | Boiler1 | 476,333 | 6,343,978 | 311 | 25.00 | 4.510 | 15.0 | 453 | 0.012 | 1.733 | 1.470 | 0.133 | 0.000 | 0.096 | 0.000 |
| 4 | SHJKP1BOLR02 | Boiler2 | 476,340 | 6,343,965 | 311 | 25.00 | 4.510 | 15.0 | 453 | 0.012 | 1.733 | 1.470 | 0.133 | 0.000 | 0.096 | 0.000 |
| **Shell - Orion EOR Project** | | | | | | | | | | | | | | | | |
| 5 | SHOEORSGEN01 | Steam Generators | 538,730 | 6,043,490 | 556 | 27.40 | 1.680 | 21.0 | 471 | 0.900 | 1.260 | 0.406 | 0.095 | 0.000 | 0.093 | 0.000 |
| **Shell/Albian Sands Energy Inc. - Muskeg River Mine and Expansion** | | | | | | | | | | | | | | | | |
| 6 | ASMRMCOGN01 | Cogeneration Unit and Plant Fugitives | 469,565 | 6,346,240 | 276 | 37.50 | 5.000 | 18.3 | 398 | 0.000 | 2.126 | 0.990 | 0.121 | 0.000 | 0.056 | 0.000 |
| 7 | ASMRMEAUBL01 | Boiler and Heater | 469,565 | 6,345,851 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.387 | 0.035 | 0.000 | 0.025 | 0.000 |
| 8 | ASMRMEBOLR01 | Boiler | 469,549 | 6,345,847 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.379 | 0.034 | 0.000 | 0.025 | 0.000 |
| 9 | ASMRMBOLR01 | Boiler | 469,600 | 6,346,125 | 275 | 37.50 | 2.400 | 18.3 | 448 | 0.000 | 0.950 | 0.620 | 0.078 | 0.000 | 0.056 | 0.000 |
| 10 | ASMRMBOLR02 | Boiler and Flare | 469,575 | 6,346,125 | 276 | 37.50 | 2.400 | 18.3 | 448 | 0.000 | 1.073 | 0.691 | 0.105 | 0.000 | 0.061 | 0.000 |
| 11 | ASMRMCOGN02 | Cogeneration Unit | 469,580 | 6,346,240 | 276 | 37.50 | 5.000 | 18.3 | 398 | 0.000 | 2.126 | 0.990 | 0.121 | 0.000 | 0.056 | 0.000 |
| 12 | ASMRMEAUBL02 | Boiler and Heater | 469,581 | 6,345,855 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.394 | 0.514 | 0.047 | 0.000 | 0.034 | 0.000 |
| 13 | ASMRMEAUBL03 | Boiler | 469,578 | 6,345,802 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.387 | 0.035 | 0.000 | 0.025 | 0.000 |
| 14 | ASMRMEAUBL04 | Boiler | 469,594 | 6,345,806 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.387 | 0.035 | 0.000 | 0.025 | 0.000 |
| 15 | ASMRMEBOLR02 | Boiler | 469,562 | 6,345,798 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.379 | 0.034 | 0.000 | 0.025 | 0.000 |
| 16 | ASMRMEGSHT | Heater | 469,571 | 6,345,606 | 274 | 8.00 | 0.250 | 18.0 | 453 | 0.000 | 0.009 | 0.008 | 0.001 | 0.000 | 0.001 | 0.000 |
| 17 | ASMRMFLHT01 | Heater | 469,625 | 6,346,240 | 276 | 8.00 | 0.300 | 18.3 | 448 | 0.000 | 0.007 | 0.011 | 0.001 | 0.000 | 0.001 | 0.000 |
| 18 | ASMRMFLHT02 | Heater | 469,640 | 6,346,240 | 276 | 8.00 | 0.300 | 18.3 | 448 | 0.000 | 0.007 | 0.011 | 0.001 | 0.000 | 0.001 | 0.000 |
| **Baytex Energy Corp. - Cold Lake (formerly Koch Exploration Canada, L.P. Gemini Oil Sands Project)** | | | | | | | | | | | | | | | | |
| 19 | KCGEMNSGEN01 | Steam Generators, Flares | 542,618 | 6,004,214 | 588 | 30.32 | 1.680 | 8.9 | 453 | 0.750 | 0.490 | 1.563 | 0.038 | 0.001 | 0.046 | 0.000 |
| **BlackPearl E&P Ltd. - Blackrod SAGD Pilot Project** | | | | | | | | | | | | | | | | |
| 20 | PRBLRPOTSG01 | Power Generators, Steam Generators, Flares | 395,822 | 6,165,199 | 618 | 13.20 | 0.914 | 10.0 | 427 | 0.007 | 0.250 | 0.396 | 0.010 | 0.000 | 0.008 | 0.000 |
| **Canadian Natural Resources Limited (Canadian Natural) - Burnt Lake Pilot Project** | | | | | | | | | | | | | | | | |
| 21 | CNBRLKSGEN01 | Steam Generators, Glycol Heater and Flare | 541,396 | 6,072,999 | 680 | 13.50 | 1.100 | 6.1 | 423 | 0.300 | 0.270 | 0.227 | 0.021 | 0.000 | 0.015 | 0.000 |
| **Canadian Natural - Horizon Oilsands Project** | | | | | | | | | | | | | | | | |
| 22 | CNHRZNSRU | Sulphur Plant | 455,573 | 6,355,395 | 277 | 106.70 | 3.400 | 17.0 | 811 | 11.706 | 0.277 | 0.123 | 0.011 | 0.000 | 0.008 | 0.000 |
| 23 | CNHRZNCOGN01 | Cogeneration Units | 455,922 | 6,354,992 | 278 | 38.00 | 5.500 | 21.7 | 405 | 0.028 | 5.147 | 3.383 | 0.281 | 0.000 | 0.120 | 0.000 |
| 24 | CNHRZNH2PL01 | Hydrogen Plants | 455,448 | 6,355,106 | 276 | 60.96 | 3.920 | 15.0 | 421 | 0.061 | 3.115 | 2.759 | 0.250 | 0.000 | 0.181 | 0.000 |
| 25 | CNHRZNDRU01 | Utility Boiler, Heaters and Flares | 455,002 | 6,355,298 | 277 | 30.50 | 3.000 | 6.2 | 474 | 0.477 | 7.002 | 6.290 | 0.562 | 0.001 | 0.427 | 0.000 |
| **Canadian Natural - Kirby North In-Situ Oilsands Project** | | | | | | | | | | | | | | | | |
| 26 | EPKRBYSGEN01 | Steam Generators and Glycol Heaters[c] | 484,860 | 6,148,483 | 670 | 27.00 | 1.600 | 20.0 | 423 | 0.080 | 0.684 | 0.532 | 0.048 | 0.000 | 0.035 | 0.000 |
| **Canadian Natural - Kirby South In-Situ Oilsands Project** | | | | | | | | | | | | | | | | |
| 27 | CNKRBYSGEN01 | Steam Generators, Glycol Heaters, Flares and Plant Fugitives | 498,263 | 6,132,807 | 732 | 45.50 | 2.000 | 18.3 | 450 | 1.800 | 2.886 | 2.456 | 0.220 | 0.000 | 0.166 | 0.000 |
| **Canadian Natural - Primrose East In-Situ Oilsands Project** | | | | | | | | | | | | | | | | |
| 28 | CNPRSEOTSG01 | Steam Generators and Glycol Heater | 541,443 | 6,071,861 | 697 | 29.44 | 1.676 | 19.2 | 420 | 2.000 | 2.560 | 2.062 | 0.187 | 0.000 | 0.135 | 0.000 |
| **Canadian Natural - Primrose North In-Situ Project** | | | | | | | | | | | | | | | | |
| 29 | CNPRSNOTSG01 | Primrose North - Steam Generators and Glycol Heater | 526,716 | 6,081,213 | 693 | 29.44 | 1.676 | 19.2 | 420 | 2.000 | 2.881 | 1.640 | 0.148 | 0.000 | 0.107 | 0.000 |

**Table A-1 2013 Base Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Canadian Natural - Primrose South In-Situ Oilsands Project** | | | | | | | | | | | | | | | | |
| 30 | CNPRSSOTSG04 | Steam Generators, Cogeneration Unit, Boilers, Heaters and Flare | 527,226 | 6,069,608 | 677 | 27.00 | 1.372 | 18.5 | 444 | 3.350 | 5.070 | 3.071 | 0.269 | 0.000 | 0.167 | 0.000 |
| **Canadian Natural - Wolf Lake In-Situ Project** | | | | | | | | | | | | | | | | |
| 31 | CNWFLKOTSG01 | Wolf Lake - Steam Generators, Utility Boilers and Glycol Heater | 517,568 | 6,061,052 | 643 | 30.00 | 1.372 | 20.5 | 444 | 3.350 | 2.018 | 1.240 | 0.106 | 0.001 | 0.093 | 0.001 |
| **Cenovus FCCL Ltd. (Cenovus) – Christina Lake Thermal Project and Expansion** | | | | | | | | | | | | | | | | |
| 32 | ENCLP1SGEN01 | Steam Generators, Heaters, Flares and Incinerator | 506,880 | 6,159,498 | 573 | 26.62 | 1.372 | 27.0 | 463 | 0.905 | 3.309 | 10.577 | 0.271 | 0.000 | 0.196 | 0.000 |
| 33 | ENCLP1SGEN12 | Cogeneration units, Steam Generators, Heaters, Flares and Incinerator | 507,092 | 6,159,752 | 573 | 32.00 | 1.676 | 24.5 | 488 | 1.145 | 5.645 | 14.273 | 0.405 | 0.000 | 0.300 | 0.068 |
| **Cenovus - Foster Creek Thermal Project and Expansion** | | | | | | | | | | | | | | | | |
| 34 | ENFSC1COGN01 | Cogeneration units, Steam Generators, Heaters, Boilers, Incinerators and Plant Fugitives | 529,636 | 6,102,406 | 670 | 26.00 | 3.353 | 21.1 | 448 | 2.039 | 10.285 | 28.552 | 0.793 | 0.000 | 0.548 | 0.006 |
| **Cenovus Energy - Narrows Lake SAGD Project** | | | | | | | | | | | | | | | | |
| 35 | CENLSGEN01 | Steam Generators, Heaters, Plant Fugitives | 507,435 | 6,167,162 | 579 | 32.00 | 1.680 | 24.5 | 488 | 2.500 | 7.713 | 16.771 | 0.482 | 0.000 | 0.336 | 0.037 |
| **Cenovus Energy - Grand Rapids SAGD Pilot Project** | | | | | | | | | | | | | | | | |
| 36 | CEPPSGEN01 | Steam Generators and Heaters | 344,266 | 6,219,438 | 602 | 10.40 | 0.600 | 8.1 | 530 | 0.000 | 0.036 | 0.206 | 0.005 | 0.000 | 0.004 | 0.000 |
| **Connacher Oil and Gas Limited (Connacher) - Algar Oil Sands Project** | | | | | | | | | | | | | | | | |
| 37 | COALGRCOGN | Cogeneration Units, Steam Generators, Heaters, Boilers, Crystalizer and Mine Fleets | 455,573 | 6,219,011 | 740 | 20.00 | 1.830 | 8.9 | 473 | 0.426 | 0.683 | 1.887 | 0.045 | 0.000 | 0.033 | 0.000 |
| **Connacher - Great Divide Project and Expansion** | | | | | | | | | | | | | | | | |
| 38 | COGRDVSGEN01 | Steam Generators, Heaters, Boilers | 448,529 | 6,219,128 | 703 | 30.50 | 1.830 | 14.3 | 561 | 1.980 | 0.482 | 0.403 | 0.037 | 0.000 | 0.026 | 0.000 |
| 39 | COGDEXCOGN | Cogeneration Units, Steam Generators, Heaters, Boilers | 455,560 | 6,219,035 | 740 | 20.00 | 2.130 | 8.9 | 473 | 1.565 | 2.160 | 6.295 | 0.155 | 0.000 | 0.110 | 0.000 |
| **ConocoPhillips Canada - Surmont Pilot and Commercial SAGD Project** | | | | | | | | | | | | | | | | |
| 40 | CPSURPSGEN01 | Steam Generators, Heaters and Flare | 501,819 | 6,230,045 | 589 | 13.30 | 0.900 | 15.3 | 453 | 0.080 | 0.115 | 0.388 | 0.009 | 0.000 | 0.006 | 0.000 |
| 41 | CPSUR1SGEN01 | Steam Generators, Heaters and Flare | 503,434 | 6,227,513 | 629 | 27.00 | 1.676 | 20.1 | 469 | 0.000 | 1.079 | 3.397 | 0.087 | 0.000 | 0.063 | 0.000 |
| 42 | CPSUR2SGEN01 | Steam Generators, Heaters and Flare | 503,798 | 6,226,546 | 642 | 27.00 | 1.676 | 20.1 | 469 | 1.000 | 4.861 | 15.446 | 0.395 | 0.000 | 0.286 | 0.000 |
| **Devon - Jackfish SAGD Project** | | | | | | | | | | | | | | | | |
| 43 | DVJKF1SGEN01 | Steam Generators, Heaters, Flare and Plant Fugitives | 507,855 | 6,153,524 | 612 | 28.90 | 1.830 | 15.5 | 443 | 1.998 | 2.131 | 1.343 | 0.122 | 0.000 | 0.236 | 0.003 |
| **Devon - Jackfish 2 SAGD Project** | | | | | | | | | | | | | | | | |
| 44 | DVJKF2SGEN01 | Steam Generators, Heaters, Flares and Plant Fugitives | 500,046 | 6,153,268 | 671 | 28.90 | 1.830 | 15.5 | 443 | 1.998 | 2.131 | 1.343 | 0.122 | 0.000 | 0.234 | 0.003 |
| **Devon - Jackfish 3 SAGD Project** | | | | | | | | | | | | | | | | |
| 45 | DVJKF3SGEN01 | Steam Generators, Heaters, Flares and Plant Fugitives | 503,047 | 6,152,198 | 667 | 28.90 | 1.830 | 15.5 | 443 | 1.998 | 2.131 | 1.343 | 0.122 | 0.000 | 0.237 | 0.003 |
| **Dover Operating Corporation - Dover Pilot Project** | | | | | | | | | | | | | | | | |
| 46 | AODOVPSTBL | Boiler, Generators, Compressor, Heater and Flare | 395,728 | 6,332,846 | 528 | 30.40 | 1.524 | 11.7 | 447 | 0.070 | 0.206 | 1.059 | 0.015 | 0.000 | 0.010 | 0.000 |
| **E-T Energy - Poplar Creek In-Situ Pilot** | | | | | | | | | | | | | | | | |
| 47 | ETPOCPPRHT | Propane Heaters | 472,683 | 6,296,295 | 338 | 10.70 | 0.500 | 9.0 | 495 | 0.001 | 0.007 | 0.004 | 0.000 | 0.000 | 0.000 | 0.001 |
| **Grizzly Oilsands - Algar Lake SAGD Project** | | | | | | | | | | | | | | | | |
| 48 | GZAGLKSGEN01 | Steam Generators and Turbines | 450,756 | 6,246,276 | 521 | 28.00 | 1.800 | 18.4 | 444 | 1.050 | 0.422 | 0.740 | 0.048 | 0.000 | 0.046 | 0.000 |
| **Harvest Operations Corp. - BlackGold Oil Sands Project** | | | | | | | | | | | | | | | | |
| 49 | KNBLGDSGEN01 | Steam Generators, Heaters and Flare | 501,124 | 6,159,343 | 607 | 30.00 | 1.500 | 27.0 | 483 | 0.260 | 0.699 | 0.394 | 0.057 | 0.000 | 0.041 | 0.000 |

**Table A-1 2013 Base Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Husky Energy Inc. (Husky) - Caribou Lake Thermal Demonstration Project** | | | | | | | | | | | | | | | | |
| 50 | HUCRBSGEN01 | Steam Generators, Heater, Flare and Diesel Generator | 524,579 | 6,089,759 | 700 | 27.00 | 1.600 | 20.0 | 423 | 0.910 | 0.665 | 0.469 | 0.042 | 0.000 | 0.031 | 0.000 |
| **Husky - McMullen Thermal Pilot Project** | | | | | | | | | | | | | | | | |
| 51 | HUMCTPSGEN | Steam Generator, Heaters, Flare and Electrical Generator Engines | 307,972 | 6,191,205 | 605 | 14.05 | 1.524 | 6.8 | 473 | 0.117 | 0.144 | 0.161 | 0.009 | 0.000 | 0.039 | 0.000 |
| **Husky - Sunrise Thermal Project** | | | | | | | | | | | | | | | | |
| 52 | HUSR1SGEN01 | Steam Generators, Glycol Heaters and Flares | 496,251 | 6,344,268 | 479 | 27.00 | 1.650 | 24.0 | 458 | 0.322 | 1.814 | 5.593 | 0.000 | 0.001 | 0.038 | 0.000 |
| 53 | HUSR2SGEN01 | Steam Generators, Glycol Heaters and Flares | 496,482 | 6,344,247 | 484 | 27.00 | 1.650 | 24.0 | 458 | 0.429 | 2.398 | 7.484 | 0.000 | 0.002 | 0.076 | 0.000 |
| 54 | HUSR3SGEN01 | Steam Generators, Glycol Heaters and Flares | 496,482 | 6,344,076 | 483 | 27.00 | 1.650 | 24.0 | 458 | 0.429 | 2.398 | 7.484 | 0.000 | 0.002 | 0.076 | 0.000 |
| **Husky - Tucker Thermal Project** | | | | | | | | | | | | | | | | |
| 55 | HUTCKRSGEN01 | Steam Generators and Glycol Heaters | 528,572 | 6,046,671 | 617 | 26.00 | 1.600 | 21.0 | 421 | 1.200 | 1.441 | 0.419 | 0.136 | 0.000 | 0.118 | 0.000 |
| **Imperial Oil Resources Limited (Imperial Oil) - Cold Lake In-Situ Project, Manhihkan North and Nabiye Expansion Project** | | | | | | | | | | | | | | | | |
| 56 | EILEMNSGEN01 | Leming Steam Generators | 536,899 | 6,050,509 | 611 | 9.00 | 0.790 | 14.3 | 413 | 2.100 | 1.017 | 0.992 | 0.089 | 0.000 | 0.365 | 0.004 |
| 57 | EIMHNCOGN01 | Mahihkan Cogeneration Units, Steam Generators and Heaters | 539,241 | 6,048,749 | 645 | 24.00 | 5.180 | 20.3 | 417 | 1.801 | 3.436 | 3.402 | 0.307 | 0.000 | 0.567 | 0.005 |
| 58 | EIMKHECOGN | Makheses Cogeneration Units, Steam Generators and Heaters | 539,261 | 6,048,735 | 645 | 24.00 | 5.180 | 20.3 | 417 | 1.080 | 3.247 | 1.456 | 0.273 | 0.000 | 0.389 | 0.003 |
| 59 | EIMASSGEN01 | Maskwa Steam Generators | 534,025 | 6,051,941 | 609 | 18.50 | 1.300 | 11.0 | 443 | 4.000 | 2.416 | 2.340 | 0.217 | 0.000 | 0.575 | 0.004 |
| 60 | EINBYECOGN | Nabiye Cogeneration Units, Steam Generators and Heaters | 542,248 | 6,064,591 | 634 | 24.00 | 5.180 | 20.3 | 417 | 2.000 | 2.424 | 2.703 | 0.672 | 0.000 | 0.388 | 0.003 |
| **Imperial Oil - Kearl Oil Sands Project** | | | | | | | | | | | | | | | | |
| 61 | IMKERLAUBL01 | Auxiliary Boiler | 496,039 | 6,362,017 | 356 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 62 | IMKERLAUBL02 | Auxiliary Boiler | 496,039 | 6,362,117 | 356 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 63 | IMKERLAUBL03 | Auxiliary Boiler | 496,039 | 6,362,217 | 357 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 64 | IMKERLAUBL04 | Auxiliary Boiler | 495,954 | 6,362,017 | 353 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 65 | IMKERLAUBL05 | Auxiliary Boiler | 495,954 | 6,362,117 | 353 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 66 | IMKERLAUBL06 | Auxiliary Boiler | 495,954 | 6,362,217 | 354 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 67 | IMKERLAUBL07 | Auxiliary Boiler | 495,869 | 6,362,017 | 350 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 68 | IMKERLAUBL08 | Auxiliary Boiler | 495,869 | 6,362,117 | 350 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 69 | IMKERLAUBL09 | Auxiliary Boiler | 495,869 | 6,362,217 | 351 | 30.00 | 2.458 | 17.0 | 387 | 0.005 | 0.499 | 0.637 | 0.057 | 0.000 | 0.042 | 0.000 |
| 70 | IMKERLAUBL10 | Auxiliary Boiler | 495,784 | 6,362,017 | 346 | 30.00 | 2.458 | 17.0 | 387 | 0.005 | 0.499 | 0.637 | 0.057 | 0.000 | 0.042 | 0.000 |
| 71 | IMKERLAUBL11 | Auxiliary Boiler | 495,784 | 6,362,117 | 347 | 30.00 | 2.458 | 17.0 | 387 | 0.005 | 0.499 | 0.637 | 0.057 | 0.000 | 0.042 | 0.000 |
| 72 | IMKERLAUBL12 | Auxiliary Boiler | 495,784 | 6,362,217 | 348 | 30.00 | 2.458 | 17.0 | 387 | 0.005 | 0.499 | 0.637 | 0.057 | 0.000 | 0.042 | 0.000 |
| **Japan Canada Oil Sands Ltd. (JACOS) - Hangingstone Demonstration** | | | | | | | | | | | | | | | | |
| 73 | JAHANGSGEN1 | Steam Generators, Heaters, Flares and Plant Fugitives | 460,379 | 6,241,764 | 560 | 12.00 | 0.900 | 9.3 | 416 | 1.630 | 0.646 | 0.565 | 0.035 | 0.001 | 0.052 | 0.000 |
| **Laricina Energy Ltd. (Laricina) - Germain Phase 1** | | | | | | | | | | | | | | | | |
| 74 | LAGERPOTSG01 | Steam Generators, Heaters and Flares | 351,298 | 6,246,478 | 608 | 21.00 | 0.914 | 8.0 | 437 | 0.300 | 0.119 | 0.477 | 0.012 | 0.000 | 0.027 | 0.000 |
| **Laricina - Saleski Pilot** | | | | | | | | | | | | | | | | |
| 75 | LASLKPOTSG1 | Steam Generators, Heaters, Flares and Electrical Generator | 383,346 | 6,251,533 | 587 | 11.30 | 1.370 | 5.3 | 463 | 0.170 | 0.086 | 0.120 | 0.009 | 0.001 | 0.018 | 0.000 |
| **MacKay Operating Corp. - MacKay River Commercial Project** | | | | | | | | | | | | | | | | |
| 76 | AOMRCPSGEN01 | Steam Generators and Heaters | 432,430 | 6,294,473 | 490 | 38.10 | 2.440 | 16.1 | 443 | 0.366 | 1.650 | 5.160 | 0.117 | 0.000 | 0.085 | 0.000 |

**Table A-1 2013 Base Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 77 | AOMRCPSGEN04 | Steam Generators | 432,456 | 6,294,459 | 490 | 38.10 | 2.440 | 16.1 | 443 | 0.325 | 1.431 | 4.471 | 0.102 | 0.000 | 0.074 | 0.000 |
| 78 | AOMRCPSGEN07 | Steam Generators | 432,532 | 6,294,583 | 490 | 38.10 | 2.440 | 12.0 | 443 | 0.314 | 1.340 | 4.185 | 0.101 | 0.000 | 0.073 | 0.000 |
| 79 | AOMRCPCOGN | Cogeneration Units, Heaters, Flares | 432,488 | 6,294,550 | 490 | 38.10 | 5.790 | 25.1 | 399 | 0.314 | 4.468 | 6.773 | 0.187 | 0.001 | 0.162 | 0.000 |
| 80 | AOMRCPSGEN10 | Steam Generators | 418,260 | 6,310,529 | 477 | 38.10 | 2.440 | 17.9 | 443 | 0.396 | 1.614 | 5.043 | 0.129 | 0.000 | 0.093 | 0.000 |
| 81 | AOMRCPSGEN13 | Steam Generators | 418,252 | 6,310,560 | 477 | 38.10 | 2.440 | 17.9 | 443 | 0.264 | 1.076 | 3.362 | 0.086 | 0.000 | 0.062 | 0.000 |
| **MEG Energy Corp. (MEG) - Christina Lake Regional Project Pilot, Phases 2, 2B and 3** | | | | | | | | | | | | | | | | |
| 82 | MGCLPTOTSG | Steam Generator, Heater and Flares | 517,795 | 6,168,843 | 579 | 30.00 | 1.384 | 25.2 | 445 | 0.031 | 0.187 | 0.572 | 0.015 | 0.000 | 0.012 | 0.001 |
| 83 | MGCLP2COGN | Steam Generators, Cogeneration Units, Heaters and Flares | 517,703 | 6,168,836 | 579 | 30.00 | 5.182 | 15.2 | 437 | 0.136 | 1.926 | 3.728 | 0.153 | 0.000 | 0.081 | 0.006 |
| 84 | MGCL2BCOGN | Steam Generators, Cogeneration Units, Heaters and Flares | 517,558 | 6,168,877 | 579 | 30.00 | 5.182 | 15.2 | 437 | 0.404 | 2.712 | 8.713 | 0.280 | 0.000 | 0.175 | 0.010 |
| 85 | MGCL3ACOGN | Steam Generators, Cogeneration Units, Heaters and Flares | 525,480 | 6,162,532 | 609 | 30.00 | 5.182 | 15.2 | 437 | 0.714 | 5.223 | 15.861 | 0.519 | 0.000 | 0.322 | 0.021 |
| 86 | MGCL3CCOGN | Steam Generators, Cogeneration Units, Heaters and Flares | 506,714 | 6,174,588 | 602 | 30.00 | 5.182 | 15.2 | 437 | 0.714 | 5.223 | 15.861 | 0.519 | 0.000 | 0.322 | 0.021 |
| **Nexen Canada Ltd. (Nexen) - Long Lake Pilot and Commercial Project** | | | | | | | | | | | | | | | | |
| 87 | OPLNGLSRU01 | Sulphur Incinerators | 503,410 | 6,251,145 | 498 | 115.00 | 1.524 | 30.0 | 811 | 15.545 | 0.079 | 0.060 | 0.000 | 0.000 | 0.004 | 0.000 |
| 88 | OPLNGLCOGN01 | Cogeneration Units | 503,159 | 6,251,532 | 499 | 30.00 | 5.180 | 18.2 | 433 | 1.182 | 4.840 | 3.664 | 0.256 | 0.000 | 0.159 | 0.000 |
| 89 | OPLNGLSGEN01 | Steam Generators and Heaters | 503,237 | 6,251,626 | 498 | 30.00 | 1.676 | 18.8 | 464 | 0.631 | 2.341 | 2.062 | 0.217 | 0.000 | 0.135 | 0.000 |
| 90 | OPLNGLVTHT01 | Vacuum Tower Heaters | 503,468 | 6,251,604 | 499 | 40.56 | 2.840 | 6.0 | 628 | 0.120 | 0.397 | 0.340 | 0.020 | 0.000 | 0.022 | 0.000 |
| 91 | OPLNGLVTHT03 | Vacuum Tower Heaters | 503,871 | 6,251,112 | 487 | 40.56 | 2.840 | 6.0 | 628 | 0.120 | 0.397 | 0.340 | 0.020 | 0.000 | 0.022 | 0.000 |
| 92 | OPLNGLCRKR01 | Thermal Crackers | 503,497 | 6,251,579 | 498 | 37.70 | 2.360 | 8.9 | 422 | 0.100 | 0.357 | 0.300 | 0.020 | 0.000 | 0.020 | 0.000 |
| 93 | OPLNGLCRKR03 | Thermal Crackers | 503,846 | 6,251,086 | 488 | 37.70 | 2.360 | 8.9 | 422 | 0.100 | 0.357 | 0.300 | 0.020 | 0.000 | 0.020 | 0.000 |
| 94 | OPLNGLHOHT01 | Thermal Oil Heater | 503,567 | 6,251,482 | 497 | 44.20 | 1.470 | 7.4 | 611 | 0.020 | 0.050 | 0.060 | 0.010 | 0.000 | 0.004 | 0.000 |
| 95 | OPLNGLHOHT02 | Thermal Oil Heater | 503,719 | 6,251,037 | 490 | 44.20 | 1.470 | 7.4 | 611 | 0.020 | 0.050 | 0.060 | 0.010 | 0.000 | 0.004 | 0.000 |
| 96 | OPLNGLHCHT01 | Thermal Oil Heater | 503,478 | 6,251,249 | 499 | 30.00 | 1.817 | 6.0 | 582 | 0.020 | 0.060 | 0.070 | 0.010 | 0.000 | 0.005 | 0.000 |
| 97 | OPLNGLHCHT02 | Thermal Oil Heater | 503,946 | 6,251,041 | 485 | 30.00 | 1.817 | 6.0 | 582 | 0.020 | 0.060 | 0.070 | 0.010 | 0.000 | 0.005 | 0.000 |
| 98 | OPLNGLBOLR01 | Utility Boilers | 503,307 | 6,251,378 | 500 | 30.00 | 1.511 | 29.5 | 416 | 0.240 | 0.893 | 0.721 | 0.059 | 0.000 | 0.047 | 0.000 |
| 99 | OPLNGLBOLR03 | Utility Boilers | 504,012 | 6,250,876 | 483 | 30.00 | 1.511 | 29.5 | 416 | 0.240 | 0.893 | 0.721 | 0.059 | 0.000 | 0.047 | 0.000 |
| 100 | OPLNGLSTSH01 | Super Steam Heaters | 503,335 | 6,251,343 | 500 | 51.42 | 1.888 | 6.5 | 578 | 0.040 | 0.119 | 0.140 | 0.020 | 0.000 | 0.009 | 0.000 |
| 101 | OPLNGLSTSH03 | Super Steam Heaters | 503,578 | 6,251,492 | 496 | 34.70 | 1.020 | 6.2 | 523 | 0.020 | 0.040 | 0.040 | 0.000 | 0.000 | 0.003 | 0.000 |
| 102 | OPLNGLPLFU | Plant Fugitives | 503,603 | 6,251,473 | 496 | 10.00 | 1.000 | 2.0 | 288 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.974 | 0.110 |
| 103 | OPLLPSGEN | Steam Generators, Power Generators, Heater and Incinerator | 504,204 | 6,251,133 | 482 | 12.92 | 1.520 | 15.2 | 453 | 0.150 | 0.499 | 0.268 | 0.018 | 0.000 | 0.031 | 0.000 |
| **Nexen - Long Lake South Project** | | | | | | | | | | | | | | | | |
| 104 | OPLLS1COGN | Cogenerator | 500,465 | 6,239,611 | 501 | 30.00 | 5.180 | 18.2 | 433 | 0.654 | 2.436 | 1.834 | 0.127 | 0.000 | 0.081 | 0.000 |
| 105 | OPLLS1SGEN01 | Steam Generators | 500,521 | 6,239,541 | 502 | 30.00 | 1.680 | 18.8 | 464 | 0.521 | 1.596 | 1.410 | 0.130 | 0.000 | 0.085 | 0.000 |
| 106 | OPLLS1SGEN06 | Steam Generators and Heater | 500,554 | 6,239,619 | 503 | 30.00 | 1.680 | 18.8 | 464 | 0.626 | 2.033 | 1.796 | 0.165 | 0.000 | 0.108 | 0.000 |
| 107 | OPLLS1LNHT01 | Line Heater | 500,941 | 6,240,033 | 507 | 7.40 | 0.510 | 1.4 | 477 | 0.000 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 |
| 108 | OPLLS1LNHT02 | Line Heater | 504,806 | 6,246,080 | 453 | 7.40 | 0.510 | 1.4 | 477 | 0.000 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 |
| 109 | OPLLS1FLRE | Flare | 501,160 | 6,239,853 | 513 | 37.46 | 3.853 | 0.0 | 1,273 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 |
| 110 | OPLLS2COGN01 | Cogenerator | 500,993 | 6,240,485 | 502 | 30.00 | 5.180 | 18.2 | 433 | 0.589 | 2.436 | 1.834 | 0.127 | 0.000 | 0.081 | 0.000 |
| 111 | OPLLS2COGN02 | Cogenerator | 501,033 | 6,240,460 | 503 | 30.00 | 5.180 | 18.2 | 433 | 0.589 | 2.436 | 1.834 | 0.127 | 0.000 | 0.081 | 0.000 |
| 112 | OPLLS2SGEN01 | Steam Generators | 501,084 | 6,240,393 | 503 | 30.00 | 1.680 | 18.8 | 464 | 0.282 | 0.958 | 0.846 | 0.078 | 0.000 | 0.051 | 0.000 |

## Table A-1 2013 Base Case Point Source Emission Characteristics (continued)

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 113 | OPLLS2SGEN04 | Steam Generators and Heater | 501,117 | 6,240,471 | 503 | 30.00 | 1.680 | 18.8 | 464 | 0.376 | 1.394 | 1.232 | 0.113 | 0.000 | 0.074 | 0.000 |
| 114 | OPLLS2LNHT | Line Heater | 501,474 | 6,240,603 | 502 | 7.40 | 0.510 | 1.4 | 477 | 0.000 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 |
| 115 | OPLLS2FLRE | Flare | 501,688 | 6,240,726 | 502 | 47.20 | 3.730 | 10.4 | 1,273 | 3.776 | 0.108 | 0.587 | 0.008 | 0.010 | 0.402 | 0.000 |
| | | | | | | | | | | | | | | | | |
| **Southern Pacific Resources Corp. - McKay SAGD Project and Expansion** | | | | | | | | | | | | | | | | |
| 116 | SPMCKYCOGN01 | Cogeneration Units and Boilers | 424,206 | 6,304,809 | 464 | 20.50 | 1.520 | 1.4 | 484 | 0.000 | 0.170 | 0.140 | 0.004 | 0.000 | 0.003 | 0.000 |
| 117 | SPMCKYSGEN01 | Steam Generators and Heaters | 424,249 | 6,304,792 | 464 | 30.32 | 1.680 | 9.1 | 450 | 0.500 | 0.515 | 1.566 | 0.041 | 0.000 | 0.029 | 0.000 |
| **StatoilHydro Canada Ltd. (StatoilHydro) - Kai Kos Dehseh SAGD Project** | | | | | | | | | | | | | | | | |
| 118 | SOKKC1OTSG01 | Steam Generators, Heaters and Flares | 484,246 | 6,203,282 | 728 | 27.00 | 1.680 | 16.7 | 444 | 1.000 | 2.245 | 1.615 | 0.204 | 0.000 | 0.151 | 0.000 |
| 119 | SOKKLDOTSG01 | Steam Generators, Heaters and Flares | 471,728 | 6,185,804 | 645 | 27.00 | 1.680 | 16.7 | 444 | 1.000 | 2.390 | 1.623 | 0.205 | 0.000 | 0.152 | 0.000 |
| **Suncor - Dover In-Situ Project SAGD Pilot and VAPEX Pilot** | | | | | | | | | | | | | | | | |
| 120 | PCDOVRSGEN01 | Steam Generators, Heaters and Flare | 444,012 | 6,324,240 | 429 | 10.90 | 0.540 | 39.7 | 466 | 0.500 | 0.330 | 0.120 | 0.020 | 0.001 | 0.010 | 0.000 |
| **Suncor - Firebag Enhanced Thermal Solvent Pilot Project** | | | | | | | | | | | | | | | | |
| 121 | SUETSPSGEN01 | Steam Generator | 509,627 | 6,341,492 | 579 | 3.80 | 0.152 | 79.5 | 813 | 0.002 | 0.096 | 0.022 | 0.003 | 0.000 | 0.008 | 0.000 |
| 122 | SUETSPSGEN03 | Steam Generator | 509,622 | 6,341,479 | 579 | 3.80 | 0.152 | 79.5 | 813 | 0.002 | 0.096 | 0.022 | 0.003 | 0.000 | 0.008 | 0.000 |
| 123 | SUETS2FLRE | Flare | 509,502 | 6,342,186 | 579 | 15.35 | 1.620 | 4.9 | 1,273 | 0.116 | 0.009 | 0.050 | 0.000 | 0.001 | 0.013 | 0.001 |
| 124 | SUETSPHTR01 | Heaters and Flare | 509,639 | 6,341,477 | 579 | 6.10 | 0.254 | 40.0 | 594 | 0.045 | 0.012 | 0.030 | 0.001 | 0.000 | 0.005 | 0.000 |
| **Suncor - Firebag In-Situ Oil Sands Project** | | | | | | | | | | | | | | | | |
| 125 | SUFBP1SGEN01 | Steam Generator | 508,941 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.107 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 126 | SUFBP2SGEN01 | Steam Generator | 509,147 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 127 | SUFBSC&ECOGN | Cogeneration Unit | 508,884 | 6,343,671 | 582 | 27.00 | 5.486 | 16.4 | 439 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 128 | SUFBP3COGN01 | Cogeneration Unit | 508,803 | 6,344,331 | 583 | 27.00 | 5.486 | 14.8 | 425 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 129 | SUFBP3SGEN01 | Steam Generators and Diluent Stripper Unit | 508,812 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.451 | 0.888 | 0.735 | 0.066 | 0.000 | 0.048 | 0.000 |
| 130 | SUFBP4COGN01 | Cogeneration Unit | 508,677 | 6,344,331 | 583 | 27.00 | 5.486 | 14.8 | 425 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 131 | SUFBP4SGEN01 | Steam Generators and Diluent Stripper Unit | 508,853 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.451 | 0.888 | 0.735 | 0.066 | 0.000 | 0.048 | 0.000 |
| 132 | SUFBP5SGEN01 | Steam Generators and Diluent Stripper Unit | 508,768 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.888 | 0.735 | 0.066 | 0.000 | 0.048 | 0.000 |
| 133 | SUFBP6SGEN01 | Steam Generators and Diluent Stripper Unit | 508,686 | 6,344,664 | 584 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.888 | 0.735 | 0.066 | 0.000 | 0.048 | 0.000 |
| 134 | SUFBP1SRU | SRU Thermal Oxidizing Unit | 509,308 | 6,343,114 | 581 | 55.00 | 0.610 | 20.0 | 811 | 2.407 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 |
| 135 | SUFBP1SGEN02 | Steam Generator | 508,941 | 6,343,593 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.000 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 136 | SUFBP1SGEN03 | Steam Generator | 508,965 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 137 | SUFBP1SGEN04 | Steam Generator | 508,965 | 6,343,593 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.000 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 138 | SUFBP2SGEN02 | Steam Generator | 509,172 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 139 | SUFBP2SGEN03 | Steam Generator | 509,172 | 6,343,593 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 140 | SUFBP2SGEN04 | Steam Generator | 509,147 | 6,343,593 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 141 | SUFBP2SGEN05 | Steam Generator | 509,196 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 142 | SUFBP3COGN02 | Cogeneration Unit | 508,744 | 6,344,331 | 583 | 27.00 | 5.486 | 14.8 | 425 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 143 | SUFBP3SGEN02 | Steam Generator | 508,836 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.370 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 144 | SUFBP4COGN02 | Cogeneration Unit | 508,618 | 6,344,331 | 583 | 27.00 | 5.486 | 14.8 | 425 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 145 | SUFBP4SGEN02 | Steam Generator | 508,877 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.370 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 146 | SUFBP5SGEN02 | Steam Generator | 508,792 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 147 | SUFBP5SGEN03 | Steam Generator | 508,894 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 148 | SUFBP5SGEN04 | Steam Generator | 508,918 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 149 | SUFBP6SGEN02 | Steam Generator | 508,711 | 6,344,664 | 584 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |

**Table A-1 2013 Base Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 150 | SUFBP6SGEN03 | Steam Generator | 508,728 | 6,344,664 | 584 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 151 | SUFBP6SGEN04 | Steam Generator | 508,751 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| **Suncor - Meadow Creek In-Situ Project** | | | | | | | | | | | | | | | | |
| 152 | PCMDWCCOGN01 | Cogeneration Units and Heaters | 482,144 | 6,242,326 | 719 | 30.50 | 6.096 | 23.6 | 478 | 0.752 | 6.007 | 4.388 | 0.368 | 0.000 | 0.160 | 0.000 |
| 153 | PCMDWCSGEN01 | Steam Generators | 482,251 | 6,242,013 | 718 | 27.00 | 1.756 | 20.6 | 478 | 0.728 | 1.173 | 1.232 | 0.112 | 0.000 | 0.081 | 0.000 |
| **Suncor - MacKay River In-Situ Project** | | | | | | | | | | | | | | | | |
| 154 | PCMCKYSGEN01 | Steam Generators, Glycol Heaters and ZLD Dryer | 445,071 | 6,322,225 | 418 | 27.00 | 1.340 | 27.5 | 553 | 0.667 | 0.670 | 0.662 | 0.048 | 0.000 | 0.123 | 0.000 |
| 155 | PCMCKYCOGN01 | Cogeneration Unit | 445,002 | 6,322,389 | 420 | 26.20 | 6.310 | 20.0 | 452 | 0.333 | 3.600 | 3.720 | 0.156 | 0.000 | 0.087 | 0.000 |
| **Suncor - MacKay River Expansion SAGD Project** | | | | | | | | | | | | | | | | |
| 156 | PCMCKEDBLR01 | Boilers, Heater and ZLD Dryer | 446,150 | 6,324,048 | 400 | 35.00 | 2.300 | 18.1 | 453 | 0.900 | 1.567 | 7.522 | 0.049 | 0.000 | 0.184 | 0.000 |
| **Suncor - Millennium Coker Unit (MCU)** | | | | | | | | | | | | | | | | |
| 157 | SUMCU52F302 | Heaters | 470,912 | 6,318,381 | 245 | 60.66 | 3.280 | 10.3 | 487 | 0.473 | 0.445 | 0.455 | 0.041 | 0.000 | 0.030 | 0.000 |
| 158 | SUMCUNHT3 | Reactor Charge Heater | 470,411 | 6,318,623 | 261 | 38.10 | 0.520 | 5.6 | 533 | 0.034 | 0.021 | 0.026 | 0.002 | 0.000 | 0.002 | 0.000 |
| 159 | SUMCUH2PL3 | Hydrogen Plant | 470,465 | 6,318,577 | 260 | 42.67 | 3.502 | 13.7 | 422 | 0.175 | 0.402 | 0.324 | 0.029 | 0.000 | 0.021 | 0.000 |
| 160 | SUMCU59F102 | Flare | 471,121 | 6,318,473 | 236 | 130.93 | 10.775 | 1.0 | 1,273 | 1.422 | 0.000 | 0.003 | 0.000 | 0.000 | 0.001 | 0.015 |
| **Suncor - Millennium Vacuum Unit (MVU)** | | | | | | | | | | | | | | | | |
| 161 | SUMVU57F1A | Heaters | 470,733 | 6,318,662 | 247 | 49.06 | 1.727 | 14.0 | 483 | 0.803 | 0.757 | 0.776 | 0.070 | 0.000 | 0.051 | 0.000 |
| **Suncor - Upgrader Complex** | | | | | | | | | | | | | | | | |
| 162 | SUPLNTFGD | FGD Stack | 471,043 | 6,317,825 | 251 | 137.20 | 7.010 | 10.9 | 328 | 18.749 | 31.971 | 0.781 | 4.053 | 0.000 | 0.172 | 0.000 |
| 163 | SUPLNTGTG01 | Gas Turbine Generators | 470,360 | 6,318,450 | 267 | 30.50 | 6.100 | 15.9 | 383 | 0.000 | 4.512 | 3.456 | 0.289 | 0.000 | 0.133 | 0.000 |
| 164 | SUPLNTPOWRHS | Powerhouse | 471,026 | 6,317,764 | 254 | 106.68 | 5.790 | 4.8 | 416 | 16.153 | 4.780 | 2.053 | 0.485 | 0.000 | 0.143 | 0.000 |
| 165 | SUMIL53F611 | Millennium TOU | 470,933 | 6,318,211 | 247 | 106.07 | 3.353 | 9.7 | 918 | 5.959 | 0.332 | 0.108 | 0.010 | 0.000 | 0.007 | 0.000 |
| 166 | SUBSPL8F5 | Sulphur Plant Incinerator | 471,003 | 6,318,016 | 248 | 106.68 | 1.981 | 22.0 | 673 | 12.417 | 0.113 | 0.027 | 0.002 | 0.000 | 0.002 | 0.000 |
| 167 | SUBSPL5F1A | (Plants, 5, 6 and 7) Process Heaters, Furnace, Hydrogen Waste Gas, Reboilers | 470,986 | 6,317,928 | 250 | 48.77 | 1.803 | 3.3 | 733 | 0.625 | 3.340 | 1.555 | 0.141 | 0.000 | 0.102 | 0.000 |
| 168 | SUBSPL25F1 | (Plant 25) Process Heaters | 470,750 | 6,318,076 | 256 | 67.03 | 1.493 | 9.1 | 486 | 0.165 | 0.802 | 0.411 | 0.037 | 0.000 | 0.027 | 0.000 |
| 169 | SUMIL52F101A | (Plant 52) Process Heaters | 470,804 | 6,318,588 | 245 | 58.22 | 2.926 | 3.7 | 497 | 0.468 | 1.387 | 1.165 | 0.105 | 0.000 | 0.076 | 0.000 |
| 170 | SUMIL54F101 | (Plants 54 and 55) Process Heaters, Reformers, Reboiler and Flare | 470,529 | 6,318,514 | 258 | 38.10 | 2.845 | 25.1 | 566 | 0.365 | 1.082 | 0.909 | 0.082 | 0.000 | 0.060 | 0.000 |
| 171 | SUBSPL19F2 | Acid Gas Flare | 471,202 | 6,318,106 | 242 | 88.81 | 3.864 | 15.5 | 1,273 | 3.648 | 0.019 | 0.106 | 0.000 | 0.002 | 0.026 | 0.037 |
| 172 | SUBSPL7F1 | Heaters | 470,971 | 6,317,907 | 251 | 41.15 | 1.270 | 5.4 | 728 | 0.124 | 0.367 | 0.309 | 0.028 | 0.000 | 0.020 | 0.000 |
| 173 | SUMIL59F101 | Acid Gas Flare | 471,157 | 6,318,390 | 237 | 130.93 | 10.775 | 1.0 | 1,273 | 1.422 | 0.000 | 0.003 | 0.000 | 0.000 | 0.001 | 0.015 |
| 174 | SUMIL53F612 | SWAG Flare | 470,936 | 6,318,211 | 247 | 105.78 | 1.512 | 6.1 | 1,273 | 0.493 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.005 |
| **Suncor - Voyageur Project** | | | | | | | | | | | | | | | | |
| 175 | SUVYGRSRU | (Plant 208) SRU and Sulphur Plant Incinerator | 469,120 | 6,314,086 | 321 | 89.92 | 4.174 | 15.2 | 673 | 7.074 | 0.362 | 0.104 | 0.009 | 0.000 | 0.007 | 0.000 |
| 176 | SUVYGRH2PL01 | (Plant 206 and 216) Hydrogen Plants and Hydrogen Reforming Furnaces | 469,248 | 6,314,274 | 322 | 42.67 | 4.041 | 13.7 | 422 | 0.021 | 2.346 | 2.001 | 0.181 | 0.000 | 0.131 | 0.000 |
| 177 | SUVYGRBOLR | Boiler Package Heater | 469,205 | 6,314,572 | 322 | 38.10 | 3.215 | 7.6 | 478 | 0.219 | 0.295 | 0.261 | 0.024 | 0.000 | 0.017 | 0.000 |
| 178 | SUVYGRDCU01 | (Plant 205) Coker and Coker Charge Heaters | 468,914 | 6,314,251 | 319 | 39.62 | 4.311 | 7.6 | 444 | 1.170 | 1.576 | 1.396 | 0.126 | 0.000 | 0.091 | 0.000 |
| 179 | SUVYGRDSHT01 | (Plant 207) Diesel Hydrotreaters, Fired Heater Combined Feed Heater and Reboiler | 469,012 | 6,314,457 | 320 | 39.62 | 1.495 | 7.6 | 478 | 0.048 | 0.043 | 0.057 | 0.005 | 0.000 | 0.004 | 0.000 |
| 180 | SUVYGRFGPH | Fuel Gas Pipeline Heater | 469,404 | 6,314,474 | 324 | 45.72 | 0.686 | 7.6 | 478 | 0.010 | 0.009 | 0.012 | 0.001 | 0.000 | 0.001 | 0.000 |
| 181 | SUVYGRGOHT01 | (Plant 207) Gas Oil Hydrotreater, Fired Heater Comb and Feed Heater | 469,141 | 6,314,343 | 321 | 39.62 | 1.512 | 7.6 | 478 | 0.078 | 0.068 | 0.093 | 0.008 | 0.000 | 0.006 | 0.000 |

**Table A-1 2013 Base Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 182 | SUVYGRSTSH02 | Steam Superheater | 469,257 | 6,314,546 | 322 | 45.72 | 0.654 | 7.6 | 478 | 0.010 | 0.009 | 0.012 | 0.001 | 0.000 | 0.001 | 0.000 |
| 183 | SUVYGRHBHF | Hot Bitumen Heating Furnace | 468,904 | 6,314,127 | 319 | 45.72 | 0.610 | 7.6 | 478 | 0.010 | 0.008 | 0.011 | 0.001 | 0.000 | 0.001 | 0.000 |
| 184 | SUVYGRVRUC | VRU Combustion Unit | 468,786 | 6,314,288 | 318 | 45.72 | 1.341 | 7.6 | 478 | 0.048 | 0.042 | 0.057 | 0.005 | 0.000 | 0.004 | 0.000 |
| 185 | SUVYGRVACT01 | (Plant 202) Vacuum Tower Heater | 468,804 | 6,314,324 | 318 | 47.76 | 2.058 | 10.1 | 483 | 0.146 | 0.197 | 0.175 | 0.016 | 0.000 | 0.011 | 0.000 |
| 186 | SUVYGRHPBL | (Plant 203) Gasifier and HP Boiler Package Heater | 469,230 | 6,314,560 | 322 | 38.10 | 0.762 | 7.6 | 478 | 0.017 | 0.014 | 0.020 | 0.002 | 0.000 | 0.001 | 0.000 |
| 187 | SUVYGRLPFL01 | Low Pressure Flare | 468,795 | 6,313,746 | 319 | 127.63 | 5.677 | 1.4 | 1,273 | 0.671 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.007 |
| 188 | SUVYGRDSHT02 | (Plant 207) Diesel Hydrotreater, Fired Heater Stripper Reboiler | 468,976 | 6,314,380 | 320 | 45.72 | 2.461 | 7.6 | 444 | 0.127 | 0.174 | 0.152 | 0.014 | 0.000 | 0.010 | 0.000 |
| 189 | SUVYGRLPFL02 | Low Pressure Flare | 468,865 | 6,313,711 | 319 | 136.15 | 14.761 | 1.4 | 1,273 | 4.538 | 0.001 | 0.007 | 0.000 | 0.000 | 0.002 | 0.046 |
| 190 | SUVYGRVACT02 | (Plant 202) Vacuum Tower Heater | 468,769 | 6,314,250 | 318 | 47.76 | 2.058 | 10.1 | 483 | 0.146 | 0.197 | 0.175 | 0.016 | 0.000 | 0.011 | 0.000 |
| **Suncor - Fort Hills Oil Sands Project** | | | | | | | | | | | | | | | | |
| 191 | PCFTHLGSTR01 | Gas Turbine 1 | 462,000 | 6,360,000 | 280 | 38.00 | 4.000 | 28.6 | 378 | 0.010 | 2.364 | 0.165 | 0.095 | 0.000 | 0.000 | 0.000 |
| 192 | PCFTHLGSTR02 | Gas Turbine 2 | 462,500 | 6,360,100 | 279 | 38.00 | 4.000 | 28.6 | 378 | 0.010 | 2.364 | 0.165 | 0.095 | 0.000 | 0.000 | 0.000 |
| 193 | PCFTHLAUBL01 | Auxiliary Boiler 1 | 462,100 | 6,360,200 | 280 | 38.00 | 2.000 | 15.0 | 378 | 0.031 | 0.601 | 0.110 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Sunshine Oilsands Ltd. - Harper Pilot** | | | | | | | | | | | | | | | | |
| 194 | SNHARPSGEN | Steam Generator, Continuous Flare | 328,562 | 6,349,790 | 762 | 7.62 | 0.914 | 4.8 | 473 | 0.000 | 0.049 | 0.032 | 0.003 | 0.000 | 0.004 | 0.000 |
| **Sunshine Oilsands Ltd. - West Ells** | | | | | | | | | | | | | | | | |
| 195 | SNWTELSGEN01 | Steam Generators, Heaters, Boilers | 395,777 | 6,341,089 | 537 | 30.00 | 1.540 | 15.6 | 450 | 1.530 | 0.569 | 1.810 | 0.072 | 0.000 | 0.052 | 0.000 |
| 196 | SNWTELCOGN | Cogeneration Unit | 395,716 | 6,341,054 | 537 | 20.00 | 1.080 | 12.0 | 484 | 0.000 | 0.142 | 0.080 | 0.007 | 0.000 | 0.003 | 0.000 |
| **Syncrude Canada Ltd. (Syncrude) - Aurora North Mine** | | | | | | | | | | | | | | | | |
| 197 | SYAURNCOGN01 | Cogeneration Units, Steam Generators and Plant Fugitives | 469,402 | 6,350,746 | 288 | 25.00 | 3.270 | 33.9 | 460 | 0.000 | 1.240 | 0.280 | 0.120 | 0.000 | 0.020 | 0.000 |
| 198 | SYAURNBOLR01 | Boilers | 469,370 | 6,350,733 | 288 | 25.00 | 2.740 | 37.7 | 455 | 0.000 | 1.140 | 0.260 | 0.100 | 0.000 | 0.020 | 0.000 |
| **Syncrude - Aurora South Mine** | | | | | | | | | | | | | | | | |
| 199 | SYAURSCOGN01 | Cogeneration Units, Steam Generators and Plant Fugitives | 483,072 | 6,341,745 | 341 | 25.00 | 3.270 | 33.9 | 460 | 0.000 | 1.240 | 0.280 | 0.120 | 0.000 | 0.020 | 0.000 |
| 200 | SYAURSBOLR01 | Boilers and Space Heaters | 483,059 | 6,341,731 | 341 | 25.00 | 2.740 | 37.7 | 455 | 0.000 | 1.140 | 0.260 | 0.100 | 0.000 | 0.020 | 0.000 |
| **Syncrude - Mildred Lake Mining and Upgrading, Upgrader Expansion and Emissions Reduction Program** | | | | | | | | | | | | | | | | |
| 201 | SYMLLK8-3 | 8-3 Diverter Sack | 462,807 | 6,322,880 | 306 | 94.49 | 6.600 | 10.5 | 348 | 15.000 | 3.500 | 13.500 | 2.100 | 0.002 | 0.000 | 0.000 |
| 202 | SYMLLKMAIN | Main Stack | 462,632 | 6,322,111 | 308 | 183.00 | 7.900 | 18.2 | 381 | 81.000 | 14.800 | 55.200 | 1.550 | 0.001 | 0.000 | 0.000 |
| 203 | SYMLLKGTGN01 | Gas Turbine Generators | 462,693 | 6,322,003 | 308 | 45.70 | 3.300 | 15.8 | 423 | 0.000 | 4.560 | 0.720 | 0.270 | 0.000 | 0.018 | 0.000 |
| 204 | SYMLLKBCFH01 | Bitumen Column Feed Heaters | 462,596 | 6,322,427 | 307 | 51.80 | 3.200 | 5.7 | 422 | 0.000 | 3.440 | 0.936 | 0.296 | 0.000 | 0.032 | 0.000 |
| 205 | SYMLLKSTSH01 | Steam Superheaters | 462,662 | 6,322,261 | 308 | 39.60 | 2.100 | 5.2 | 616 | 0.000 | 0.330 | 0.116 | 0.045 | 0.000 | 0.009 | 0.000 |
| 206 | SYMLLKRFRF01 | Reformer Furnaces | 463,084 | 6,322,453 | 306 | 23.50 | 4.100 | 11.6 | 540 | 0.000 | 13.650 | 4.825 | 1.509 | 0.000 | 0.172 | 0.000 |
| 207 | SYMLLKH2HT01 | Diluent Reboiler, Hydrogen Heaters and Plant Fugitives | 462,879 | 6,322,400 | 307 | 41.80 | 1.700 | 7.7 | 426 | 0.000 | 0.980 | 0.293 | 0.113 | 0.000 | 7.216 | 1.084 |
| 208 | SYMLLKFRRB01 | Bitumen Feed and Fractionator Reboilers | 462,820 | 6,322,545 | 307 | 45.70 | 1.900 | 8.0 | 653 | 0.000 | 0.610 | 0.170 | 0.072 | 0.000 | 0.016 | 0.000 |
| 209 | SYMLLKBMHT01 | Bitumen Heaters and Sulfeen Regeneration | 462,865 | 6,323,038 | 305 | 6.10 | 0.300 | 29.0 | 839 | 0.000 | 0.262 | 0.059 | 0.025 | 0.000 | 0.008 | 0.000 |
| 210 | SYMLLKVDUH01 | VDU Bitumen Feed Heaters | 462,578 | 6,322,525 | 307 | 54.30 | 3.300 | 4.0 | 435 | 0.000 | 0.400 | 0.195 | 0.060 | 0.000 | 0.006 | 0.000 |
| 211 | SYMLLKDIVR01 | Coker Diverter Stacks | 462,742 | 6,322,246 | 308 | 73.20 | 3.700 | 34.6 | 761 | 2.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 212 | SYMLLKH2SF | Acid Gas Flare | 461,836 | 6,321,982 | 291 | 85.40 | 2.900 | 20.0 | 1,273 | 2.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Total E&P Joslyn Ltd. - Joslyn North Mine Project** | | | | | | | | | | | | | | | | |
| 213 | TCJSNMCOGN01 | Steam Generators | 450,500 | 6,347,350 | 307 | 36.60 | 4.600 | 22.0 | 393 | 0.043 | 2.179 | 1.132 | 0.096 | 0.000 | 0.216 | 0.000 |
| 214 | TCJSNMSGEN01 | Cogeneration Units | 450,400 | 6,347,270 | 307 | 30.00 | 1.800 | 18.0 | 383 | 0.014 | 0.349 | 0.311 | 0.052 | 0.000 | 0.001 | 0.000 |

**Table A-1 2013 Base Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Value Creation Inc. - Terre de Grace Pilot and SAGD Project** | | | | | | | | | | | | | | | | |
| 215 | VCTGRPMAIN01 | Phase 1 Main Stack | 438,110 | 6,360,694 | 492 | 70.00 | 0.300 | 14.9 | 443 | 0.160 | 0.030 | 0.100 | 0.010 | 0.000 | 0.007 | 0.000 |
| 216 | VCTGRPMAIN02 | Phase 2 Main Stack | 436,684 | 6,351,647 | 431 | 70.00 | 1.300 | 10.1 | 443 | 1.660 | 0.390 | 0.020 | 0.030 | 0.000 | 0.001 | 0.000 |
| 217 | VCTGRPSTBL01 | Phase 1 Steam Boiler | 438,447 | 6,360,740 | 485 | 30.00 | 0.900 | 19.7 | 443 | 1.080 | 0.029 | 0.020 | 0.002 | 0.000 | 0.001 | 0.000 |
| 218 | VCTGRPSTBL03 | Phase 2 Steam Boiler | 436,524 | 6,351,711 | 432 | 25.00 | 2.000 | 17.9 | 443 | 0.880 | 0.120 | 0.060 | 0.010 | 0.000 | 0.004 | 0.000 |
| **Other Industries** | | | | | | | | | | | | | | | | |
| 219 | BMHMSACT01 | Birch Mountain Hammerstone Quarry - Activation | 466,006 | 6,338,958 | 255 | 65.00 | 3.260 | 20.0 | 538 | 1.227 | 0.918 | 2.283 | 0.165 | 0.000 | 0.522 | 0.000 |
| 220 | BMHMSASF | Birch Mountain Hammerstone Quarry - Air Separator Filter | 466,195 | 6,338,830 | 256 | 35.00 | 1.630 | 20.0 | 353 | 0.000 | 0.000 | 0.000 | 0.041 | 0.000 | 0.000 | 0.000 |
| 221 | BMHMSCCF | Birch Mountain Hammerstone Quarry - Clinker Cooler Filter | 466,223 | 6,338,849 | 256 | 40.00 | 2.260 | 20.0 | 503 | 0.000 | 0.000 | 0.000 | 0.052 | 0.000 | 0.000 | 0.000 |
| 222 | BMHMSCDF | Birch Mountain Hammerstone Quarry - Clinker Dome Filter | 466,238 | 6,338,734 | 256 | 30.00 | 0.780 | 20.0 | 293 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.000 | 0.000 |
| 223 | BMHMSCM1_2 | Birch Mountain Hammerstone Quarry - PFC-1, PFC-2 and Coke Grinding Mill | 466,255 | 6,339,126 | 256 | 35.00 | 0.350 | 20.0 | 358 | 0.000 | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 |
| 224 | BMHMSCMF | Birch Mountain Hammerstone Quarry - Coke Mill Filter | 466,285 | 6,338,846 | 256 | 35.00 | 0.780 | 20.0 | 273 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.000 | 0.000 |
| 225 | BMHMSHDVT | Birch Mountain Hammerstone Quarry - Hydrator Vent | 466,159 | 6,339,143 | 256 | 30.00 | 0.460 | 20.0 | 373 | 0.000 | 0.000 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 |
| 226 | BMHMSLGM01 | Birch Mountain Hammerstone Quarry - Limestone Grinding Mill | 466,041 | 6,339,042 | 255 | 35.00 | 1.260 | 20.0 | 293 | 0.000 | 0.000 | 0.000 | 0.025 | 0.000 | 0.000 | 0.000 |
| 227 | BMHMSMF | Birch Mountain Hammerstone Quarry - Mill Filter | 466,182 | 6,338,830 | 256 | 35.00 | 0.780 | 20.0 | 293 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.000 | 0.000 |
| 228 | BMHMSMKFS | Birch Mountain Hammerstone Quarry - Mill-Kiln Filter Stack | 466,329 | 6,338,858 | 256 | 65.00 | 2.090 | 20.0 | 383 | 1.977 | 3.000 | 1.280 | 0.073 | 0.000 | 0.292 | 0.000 |
| 229 | BMHMSPCLM01 | Birch Mountain Hammerstone Quarry - PFC-1 and Limestone Mill 1 | 466,232 | 6,339,126 | 256 | 50.00 | 1.290 | 20.0 | 518 | 0.299 | 0.366 | 0.372 | 0.026 | 0.000 | 0.085 | 0.000 |
| 230 | BMHMSPCLM02 | Birch Mountain Hammerstone Quarry - PFC-2 and Limestone Mill 1 | 466,217 | 6,339,126 | 256 | 50.00 | 1.580 | 20.0 | 518 | 0.448 | 0.549 | 0.558 | 0.039 | 0.000 | 0.127 | 0.000 |
| 231 | BMHMSQLK01 | Birch Mountain Hammerstone Quarry - Quicklime-1 | 466,034 | 6,338,924 | 255 | 65.00 | 3.260 | 20.0 | 538 | 1.227 | 0.918 | 2.283 | 0.165 | 0.000 | 0.522 | 0.000 |
| 232 | BMHMSQLK02 | Birch Mountain Hammerstone Quarry - Quicklime-2 | 466,034 | 6,338,974 | 255 | 65.00 | 2.140 | 20.0 | 539 | 1.126 | 0.878 | 0.987 | 0.071 | 0.000 | 0.226 | 0.000 |
| 233 | BMHMSQLK03 | Birch Mountain Hammerstone Quarry - Quicklime-3 | 466,034 | 6,339,024 | 255 | 65.00 | 3.580 | 20.0 | 539 | 3.065 | 2.400 | 2.763 | 0.200 | 0.000 | 0.631 | 0.000 |
| 234 | BMHMSRCM01 | Birch Mountain Hammerstone Quarry - Rotary Klin Coke Mill-1 | 465,195 | 6,339,038 | 256 | 35.00 | 0.780 | 20.0 | 373 | 0.000 | 0.000 | 0.000 | 0.010 | 0.000 | 0.000 | 0.000 |
| 235 | BMHMSRCM02 | Birch Mountain Hammerstone Quarry - Rotary Klin Coke Mill-2 | 465,915 | 6,339,038 | 255 | 35.00 | 1.300 | 20.0 | 373 | 0.000 | 0.000 | 0.000 | 0.026 | 0.000 | 0.000 | 0.000 |
| 236 | WICHPLHMHT | Williams Energy Chemical Plant | 471,754 | 6,314,125 | 322 | 32.40 | 1.400 | 6.2 | 553 | 0.000 | 0.020 | 0.017 | 0.002 | 0.000 | 0.240 | 0.000 |
| 237 | NFTOTAL | Northland Forest Products Mill | 473,235 | 6,303,199 | 241 | 25.91 | 1.397 | 15.6 | 555 | 0.010 | 0.084 | 0.229 | 0.170 | 0.000 | 0.006 | 0.000 |
| **Gas Plants and Compressor Stations** | | | | | | | | | | | | | | | | |
| 238 | BPLEISCOMP | BP Canada Energy Co. (BP) - Leismer Compressor Station | 482,578 | 6,171,801 | 579 | 12.20 | 0.660 | 34.3 | 672 | 0.000 | 2.304 | 0.306 | 0.010 | 0.000 | 0.112 | 0.000 |
| 239 | BPLINACOMP | BP - St. Lina North Sweet Compressor Station | 486,624 | 6,032,149 | 565 | 14.00 | 0.250 | 56.0 | 862 | 0.000 | 0.913 | 0.133 | 0.004 | 0.000 | 0.049 | 0.000 |
| 240 | CNGASPCHARD | Canadian Natural - Chard Gas Plant | 510,967 | 6,195,656 | 489 | 18.30 | 0.250 | 60.6 | 863 | 0.000 | 0.136 | 0.011 | 0.000 | 0.000 | 0.004 | 0.000 |
| 241 | CNGASPCOWPAR | Canadian Natural - Cowpar Gas Plant | 523,589 | 6,200,560 | 484 | 18.00 | 0.177 | 20.0 | 1,273 | 0.500 | 0.460 | 0.036 | 0.001 | 0.000 | 0.013 | 0.000 |
| 242 | CNGASPJNCHD | Canadian Natural - Janvier Chard Gas Plant | 513,034 | 6,186,355 | 553 | 14.63 | 0.254 | 43.9 | 977 | 0.000 | 1.610 | 0.076 | 0.002 | 0.000 | 0.028 | 0.000 |
| 243 | CNKEHICOMP | Canadian Natural - Kehiwin Compressor Station | 507,197 | 5,997,740 | 589 | 11.00 | 0.300 | 21.0 | 928 | 0.000 | 0.479 | 0.032 | 0.001 | 0.000 | 0.012 | 0.000 |
| 244 | CNGASPKETRIV | Canadian Natural - Kettle River Gas Plant | 520,207 | 6,228,483 | 477 | 29.00 | 0.247 | 20.0 | 1,237 | 0.600 | 0.029 | 0.002 | 0.000 | 0.000 | 0.001 | 0.000 |

**Table A-1 2013 Base Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 245 | CNGASPNEWBY | Canadian Natural - Newby Gas Plant | 510,363 | 6,243,820 | 480 | 20.00 | 0.247 | 20.0 | 1,237 | 1.080 | 0.062 | 0.005 | 0.000 | 0.000 | 0.002 | 0.000 |
| 246 | CNGASPWEST | Canadian Natural - Kirby West Gas Plant | 493,678 | 6,135,368 | 701 | 18.30 | 0.250 | 31.3 | 863 | 0.000 | 0.037 | 0.003 | 0.000 | 0.000 | 0.001 | 0.000 |
| 247 | CNGASPWIAULK | Canadian Natural - Wiau Lake Gas Plant | 486,375 | 6,137,409 | 675 | 18.30 | 0.250 | 31.3 | 863 | 0.000 | 0.040 | 0.003 | 0.000 | 0.000 | 0.001 | 0.000 |
| 248 | DVKRBNCOMP | Devon - Kirby North Compressor Station | 505,784 | 6,157,211 | 581 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 0.040 | 0.140 | 0.000 | 0.000 | 0.001 | 0.000 |
| 249 | DVKRBSCOMP | Devon - Kirby South Compressor Station | 517,659 | 6,147,123 | 641 | 11.00 | 0.250 | 34.5 | 878 | 0.000 | 0.739 | 0.057 | 0.002 | 0.000 | 0.021 | 0.000 |
| 250 | DVLEIECOMP | Devon - Leismer East Compressor Station | 494,777 | 6,167,326 | 555 | 13.80 | 0.590 | 35.8 | 644 | 0.000 | 3.012 | 0.234 | 0.007 | 0.000 | 0.087 | 0.000 |
| 251 | DVCHARCOMP | Devon - Chard Compressor Station | 508,197 | 6,175,417 | 613 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 0.304 | 0.024 | 0.001 | 0.000 | 0.009 | 0.000 |
| 252 | DVHANGCOMP | Devon - Hangingstone Compressor Stations | 469,198 | 6,236,234 | 648 | 11.60 | 0.310 | 37.4 | 862 | 0.000 | 1.146 | 0.089 | 0.003 | 0.000 | 0.033 | 0.000 |
| 253 | DVPNY1COMP | Devon - Pony Creek Compressor Station | 491,500 | 6,198,700 | 648 | 8.54 | 0.250 | 60.6 | 863 | 0.000 | 0.055 | 0.004 | 0.000 | 0.000 | 0.002 | 0.000 |
| 254 | DVPNY2COMP | Devon - Pony Creek Compressor Station | 491,500 | 6,198,700 | 648 | 8.54 | 0.250 | 60.6 | 863 | 0.000 | 0.055 | 0.004 | 0.000 | 0.000 | 0.002 | 0.000 |
| 255 | DVSRMCCOMP | Devon - Surmont Compressor Station | 501,167 | 6,216,280 | 679 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 4.359 | 0.339 | 0.011 | 0.000 | 0.126 | 0.000 |
| 256 | DVSRMWCOMP | Devon - Surmont West Compressor Station | 486,562 | 6,218,730 | 740 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 1.743 | 0.135 | 0.004 | 0.000 | 0.050 | 0.000 |
| 257 | ENNCRB | EnCana - North Caribou Gas Plant | 526,855 | 6,099,971 | 674 | 8.79 | 0.510 | 29.6 | 632 | 0.000 | 0.860 | 2.311 | 0.135 | 0.000 | 0.025 | 0.000 |
| 258 | ENNPRMRS | EnCana - Primrose North Gas Plant | 512,775 | 6,127,525 | 704 | 11.81 | 0.450 | 34.2 | 748 | 0.000 | 0.830 | 0.190 | 0.020 | 0.000 | 0.024 | 0.000 |
| 259 | ENSCRB | EnCana - South Caribou Gas Plant | 524,250 | 6,089,020 | 701 | 12.20 | 1.520 | 32.3 | 733 | 0.000 | 0.660 | 1.450 | 0.070 | 0.000 | 0.019 | 0.000 |
| 260 | HUGASPAGNESL | Husky - Agnes Lake Gas Plant | 429,749 | 6,194,185 | 697 | 20.70 | 0.310 | 37.7 | 863 | 0.000 | 0.706 | 0.055 | 0.002 | 0.000 | 0.020 | 0.000 |
| 261 | HUGASPTHORN | Husky - Thornbury Gas Plant | 448,802 | 6,217,386 | 733 | 20.70 | 0.310 | 37.7 | 863 | 0.000 | 0.441 | 0.034 | 0.001 | 0.000 | 0.013 | 0.000 |
| 262 | NSFRENCOMP | Northstar Energy Corp. (Northstar) - Frenman Lake Compressor Station | 480,139 | 6,045,128 | 631 | 14.90 | 0.305 | 33.4 | 851 | 0.000 | 0.492 | 0.034 | 0.001 | 0.000 | 0.013 | 0.000 |
| 263 | PAHANGCOMP01 | Paramount Resources Ltd. (Paramount) - Hangingstone Gas Plant | 477,850 | 6,205,850 | 699 | 15.43 | 0.440 | 31.3 | 683 | 0.000 | 0.198 | 0.018 | 0.001 | 0.000 | 0.006 | 0.000 |
| 264 | PAKETRCOMP01 | Paramount - Kettle River Gas Plant | 511,100 | 6,205,700 | 470 | 8.00 | 0.432 | 26.8 | 672 | 0.000 | 0.230 | 0.036 | 0.002 | 0.000 | 0.007 | 0.000 |
| 265 | PAQUIGCOMP01 | Paramount - Quigley Gas Plant | 510,225 | 6,224,400 | 513 | 12.40 | 0.432 | 27.6 | 683 | 0.000 | 0.264 | 0.028 | 0.001 | 0.000 | 0.008 | 0.000 |
| 266 | VEWAPPCOMP | Viking Energy - compressor station | 451,854 | 6,137,651 | 655 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 0.355 | 0.028 | 0.001 | 0.000 | 0.010 | 0.000 |

(a) Source coordinates are in UTM NAD 83.

(b) For flare stacks pseudo stack height and pseudo stack diameter were used in the dispersion modelling.

(c) Includes formerly Enerplus Kirby Project.

## Table A-2 2013 Base Case Area Source Emission Characteristics

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Shell Canada Limited (Shell) - Jackpine Mine Phase 1 and Expansion** | | | | | | | | | | | | | | | |
| 1 | SHJKP1MFLT | Mine Fleet Exhaust and Mine Face Fugitives | 479,189 | 6,345,905 | 13,183,106 | 314 | 7.5 | 7.0 | 0.288 | 11.202 | 6.967 | 0.398 | 0.001 | 1.551 | 0.000 |
| 2 | SHJKP1MNFU | Mine Fleet Exhaust, Mine Face Fugitives and Space Heating | 479,189 | 6,345,905 | 13,183,106 | 314 | 7.5 | 7.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 6.205 | 0.040 |
| 3 | SHJKP1TPFU | Mine Fleet Exhaust and Mine Face Fugitives | 478,938 | 6,341,956 | 3,275,384 | 325 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.920 | 0.048 |
| 4 | SHJKP1SPHT | Tailing Pond | 476,626 | 6,344,555 | 53,280 | 313 | 9.0 | 4.5 | 0.003 | 0.234 | 0.358 | 0.032 | 0.000 | 0.194 | 0.057 |
| **Shell/Albian Sands Energy Inc. - Muskeg River Mine and Expansion** | | | | | | | | | | | | | | | |
| 5 | ASMRMEMFLT90 | Mine Fleet Exhaust and Mine Face Fugitives | 468,138 | 6,338,213 | 4,534,313 | 274 | 7.5 | 7.0 | 0.053 | 1.943 | 1.835 | 0.083 | 0.000 | 1.037 | 0.005 |
| 6 | ASMRMEMFLTNW | Mine Fleet Exhaust and Mine Face Fugitives | 463,677 | 6,347,888 | 4,500,000 | 274 | 7.5 | 7.0 | 0.560 | 20.598 | 19.447 | 0.877 | 0.003 | 10.990 | 0.052 |
| 7 | ASMRMETPFU10 | Tailings Pond Cell 10 | 464,195 | 6,346,514 | 3,037,608 | 270 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 14.384 | 0.070 |
| **Canadian Natural Resources Ltd. (Canadian Natural) - Horizon Oil Sands Project** | | | | | | | | | | | | | | | |
| 8 | CNHRZNMFLT | Mine Fleet Exhaust and Mine Face Fugitives | 456,164 | 6,352,842 | 7,282,341 | 280 | 7.5 | 7.0 | 0.432 | 33.125 | 20.886 | 1.205 | 0.002 | 13.051 | 0.054 |
| 9 | CNHRZNPLFU | Plant Fugitives | 455,389 | 6,355,125 | 977,900 | 276 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 4.130 | 0.623 |
| 10 | CNHRZNTPFU | Tailings Pond | 445,625 | 6,355,250 | 16,875,000 | 335 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 139.361 | 1.635 |
| **Canadian Natural - Primrose East In-Situ Oilsands Project** | | | | | | | | | | | | | | | |
| 11 | CNPRSEPLFU | Plant Fugitives | 541,477 | 6,071,777 | 39,614 | 694 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.009 |
| **Canadian Natural -Primrose North In-Situ Oilsands Project and Expansion[(a)]** | | | | | | | | | | | | | | | |
| 12 | CNPRSNPLFU | Primrose North - Plant Fugitives | 526,786 | 6,081,227 | 40,716 | 693 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.009 |
| **Canadian Natural - Primrose South In-Situ Oilsands Project and Expansion** | | | | | | | | | | | | | | | |
| 13 | CNPRSSPLFU | Primrose South - Plant Fugitives | 527,180 | 6,069,628 | 137,530 | 677 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.008 | 0.016 |
| **Canadian Natural - Wolf Lake In-Situ Oilsands Project** | | | | | | | | | | | | | | | |
| 14 | CNWFLKPLFU | Wolf Lake - Plant Fugitives | 517,629 | 6,061,112 | 184,404 | 642 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.018 | 0.036 |
| **Canadian Natural - Kirby South In-Situ Oilsands Project** | | | | | | | | | | | | | | | |
| 15 | CNKRBYPLFU | Kirby South - Plant Fugitives | 498,450 | 6,132,880 | 179,564 | 732 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.009 |
| **Imperial Oil Resources Limited - Kearl Oil Sands Project** | | | | | | | | | | | | | | | |
| 16 | IMKERLMFLTN1 | Mine Fleet Exhaust and Mine Face Fugitives | 489,618 | 6,363,496 | 3,027,544 | 298 | 7.5 | 7.0 | 0.061 | 3.009 | 1.908 | 0.109 | 0.000 | 1.544 | 0.007 |
| 17 | IMKERLMFLTN2 | Mine Fleet Exhaust and Mine Face Fugitives | 491,265 | 6,362,400 | 6,732,296 | 302 | 7.5 | 7.0 | 0.136 | 6.691 | 4.242 | 0.242 | 0.001 | 3.434 | 0.016 |
| 18 | IMKERLMFLTN3 | Mine Fleet Exhaust and Mine Face Fugitives | 493,593 | 6,361,619 | 3,113,700 | 319 | 7.5 | 7.0 | 0.063 | 3.095 | 1.962 | 0.112 | 0.000 | 1.588 | 0.007 |
| 19 | IMKERLMFLTN4 | Mine Fleet Exhaust and Mine Face Fugitives | 493,098 | 6,359,780 | 7,974,591 | 320 | 7.5 | 7.0 | 0.162 | 7.926 | 5.025 | 0.287 | 0.001 | 4.067 | 0.019 |
| 20 | IMKERLMFLTN5 | Mine Fleet Exhaust and Mine Face Fugitives | 493,121 | 6,357,627 | 7,779,471 | 331 | 7.5 | 7.0 | 0.158 | 7.732 | 4.902 | 0.280 | 0.001 | 3.968 | 0.018 |
| 21 | IMKERLPLFU | Plant Fugitives | 495,750 | 6,362,000 | 1,500,000 | 345 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 3.545 | 0.014 |
| 22 | IMKERLSPHT01 | Space Heating | 495,750 | 6,362,000 | 1,500,000 | 345 | 9.0 | 4.5 | 0.002 | 0.576 | 0.255 | 0.023 | 0.000 | 0.017 | 0.000 |
| 23 | IMKERLTPFU | Tailings Pond | 496,208 | 6,364,433 | 19,160,717 | 415 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 137.949 | 0.690 |
| 24 | IMKERLSPHT02 | Space Heating | 496,319 | 6,361,103 | 319,184 | 363 | 9.0 | 4.5 | 0.021 | 2.413 | 2.471 | 0.229 | 0.000 | 0.167 | 0.000 |
| **Suncor Energy Inc. - Fort Hills Mining Project** | | | | | | | | | | | | | | | |
| 25 | PCFTHLMFLT | Mine Fleet Exhaust and Mine Face Fugitives | 463,000 | 6,358,000 | 8,000,000 | 285 | 7.5 | 7.0 | 1.682 | 21.411 | 4.800 | 0.534 | 0.001 | 0.921 | 0.000 |
| 26 | PCFTHLTPFU | Tailings Pond | 465,946 | 6,362,145 | 8,000,000 | 331 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 14.220 | 0.000 |
| **Suncor Energy Inc. (Suncor) - Firebag In-Situ Oil Sands Project** | | | | | | | | | | | | | | | |
| 27 | SUFBP6PLFU | Plant Fugitives | 509,033 | 6,343,966 | 1,523,598 | 582 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.058 | 0.099 |
| **Suncor - MacKay River Project** | | | | | | | | | | | | | | | |
| 28 | PCMCKYPLFU | Plant Fugitives | 445,011 | 6,322,211 | 149,928 | 419 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.263 | 0.000 |
| **Suncor - Millennium Dump 9 Project** | | | | | | | | | | | | | | | |
| 29 | SUMD9MFLT01 | Haul Roads Fugitive Emissions | 478,104 | 6,309,869 | 2,720,121 | 343 | 7.5 | 7.0 | 0.001 | 3.241 | 3.644 | 0.176 | 0.000 | 0.449 | 0.000 |
| 30 | SUMD9MFLT02 | Haul Roads Fugitive Emissions | 480,108 | 6,309,245 | 1,483,038 | 355 | 7.5 | 7.0 | 0.000 | 1.767 | 1.987 | 0.096 | 0.000 | 0.245 | 0.000 |
| 31 | SUMD9MFLT03 | Haul Roads Fugitive Emissions | 482,434 | 6,308,746 | 1,593,461 | 384 | 7.5 | 7.0 | 0.000 | 1.898 | 2.134 | 0.103 | 0.000 | 0.263 | 0.000 |

**Table A-2 2013 Base Case Area Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 32 | SUMD9MFLT04 | Haul Roads Fugitive Emissions | 484,181 | 6,307,810 | 963,804 | 449 | 7.5 | 7.0 | 0.000 | 1.148 | 1.291 | 0.062 | 0.000 | 0.159 | 0.000 |
| 33 | SUMD9MFLT05 | Dump Fleet Fugitive Emissions | 484,971 | 6,306,264 | 2,461,230 | 472 | 7.5 | 7.0 | 0.002 | 2.126 | 2.325 | 0.114 | 0.000 | 0.294 | 0.000 |
| **Suncor - Lease 86/17, Steepbank Mine and Millennium Mine** | | | | | | | | | | | | | | | |
| 34 | SUTPFUPND23 | Mine Fleet Exhaust and Mine Face Fugitives | 468,846 | 6,316,410 | 1,595,400 | 312 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 157.214 | 1.891 |
| 35 | SUMILMFLT01 | Mine Fleet Exhaust and Mine Face Fugitives | 477,484 | 6,312,951 | 19,075,116 | 343 | 7.5 | 7.0 | 0.005 | 12.307 | 13.759 | 0.667 | 0.001 | 7.067 | 0.034 |
| 36 | SUPLNTPLFU | Plant Fugitives | 470,840 | 6,317,948 | 795,855 | 256 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 16.982 | 0.048 |
| **Suncor - South Tailings Pond** | | | | | | | | | | | | | | | |
| 37 | SUTPFUSTP | South Tailings Pond | 479,946 | 6,303,293 | 13,499,746 | 357 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 4.536 | 0.101 |
| **Suncor -TRO** | | | | | | | | | | | | | | | |
| 38 | SUTRODRY01 | Drying Operations Fugitive Emissions | 479,946 | 6,303,293 | 13,499,746 | 357 | 0.0 | 1.4 | 0.001 | 1.703 | 0.448 | 0.145 | 0.000 | 0.095 | 0.000 |
| 39 | SUTRODRY02 | Drying Operations Fugitive Emissions | 477,484 | 6,312,951 | 19,075,116 | 343 | 7.5 | 7.0 | 0.001 | 2.407 | 0.632 | 0.205 | 0.000 | 0.135 | 0.000 |
| **Suncor - Voyageur Project** | | | | | | | | | | | | | | | |
| 40 | SUVYGRCFLT | Coke Handling Fleet | 469,453 | 6,312,758 | 2,696,581 | 318 | 7.5 | 7.0 | 0.009 | 0.771 | 0.478 | 0.027 | 0.000 | 0.107 | 0.000 |
| 41 | SUVYGRPLFU | Plant Fugitives | 469,284 | 6,314,266 | 772,176 | 322 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.609 | 0.000 |
| 42 | SUVYGRTFFU | Tank Farm Fugitives | 471,383 | 6,313,327 | 431,354 | 321 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.261 | 0.000 |
| 43 | SUPIT4MFLT01 | Mine Fleet Exhaust and Mine Face Fugitives | 475,888 | 6,319,693 | 3,423,903 | 336 | 7.5 | 7.0 | 0.041 | 7.199 | 7.725 | 0.378 | 0.000 | 3.052 | 0.013 |
| 44 | SUPIT4MFLT02 | Mine Fleet Exhaust and Mine Face Fugitives | 478,653 | 6,317,607 | 2,759,239 | 341 | 7.5 | 7.0 | 0.033 | 5.802 | 6.225 | 0.304 | 0.000 | 2.460 | 0.011 |
| 45 | SUPIT4MFLT03 | Mine Fleet Exhaust and Mine Face Fugitives | 476,490 | 6,317,776 | 1,800,591 | 338 | 7.5 | 7.0 | 0.022 | 3.786 | 4.062 | 0.199 | 0.000 | 1.605 | 0.007 |
| **Syncrude Canada Ltd. (Syncrude) - Aurora North Mine** | | | | | | | | | | | | | | | |
| 46 | SYAURNMFLT | Mine Fleet Exhaust | 467,965 | 6,353,037 | 6,000,000 | 300 | 7.5 | 7.0 | 0.035 | 13.100 | 3.200 | 0.340 | 0.001 | 0.536 | 0.000 |
| 47 | SYAURNMNFU | Mine Face Fugitives | 467,965 | 6,353,037 | 6,000,000 | 300 | 7.5 | 7.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 6.205 | 0.040 |
| 48 | SYAURNTPFU | Tailings Pond | 473,940 | 6,351,540 | 3,610,000 | 288 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.120 | 0.025 |
| **Syncrude - Aurora South Mine** | | | | | | | | | | | | | | | |
| 49 | SYAURSMFLT | Mine Fleet Exhaust | 486,311 | 6,344,136 | 6,000,000 | 360 | 7.5 | 7.0 | 0.027 | 9.900 | 2.400 | 0.260 | 0.001 | 0.406 | 0.000 |
| 50 | SYAURSMNFU | Mine Face Fugitives | 486,311 | 6,344,136 | 6,000,000 | 360 | 7.5 | 7.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 6.205 | 0.040 |
| 51 | SYAURSTPFU | Tailings Pond | 480,453 | 6,337,883 | 3,610,000 | 339 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.120 | 0.025 |
| **Syncrude - Mildred Lake Mining and Upgrading, Upgrader Expansion and Emissions Reduction Program** | | | | | | | | | | | | | | | |
| 52 | SYMLLKBBTP | Mildred Lake Basin Beach Tailings Ponds | 461,490 | 6,325,460 | 18,490,000 | 289 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.315 | 0.065 |
| 53 | SYMLLKBNTP | Mildred Lake Basin Tailings Ponds | 462,170 | 6,325,360 | 11,560,000 | 308 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 33.216 | 0.160 |
| 54 | SYMLLKEMTP | East Mine In-Pit Tailings Ponds | 464,259 | 6,318,850 | 10,236,800 | 311 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.708 | 0.037 |
| 55 | SYMLLKMFLN | North Mine Area Fleet Exhaust and Mine Fugitives | 457,682 | 6,322,263 | 8,140,000 | 335 | 7.5 | 7.0 | 0.051 | 17.200 | 4.500 | 0.490 | 0.001 | 6.953 | 0.029 |
| 56 | SYMLLKMFLW | West Base Mine Area Fleet Exhaust and Mine Fugitives | 459,594 | 6,317,471 | 3,680,000 | 325 | 7.5 | 7.0 | 0.006 | 2.000 | 0.500 | 0.060 | 0.000 | 0.887 | 0.003 |
| 57 | SYMLLKSWTP01 | Southwest Sand Storage Area Tailings Pond | 455,050 | 6,316,790 | 23,040,000 | 357 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 7.504 | 0.203 |
| 58 | SYMLLKSWTP02 | Southwest Sand Storage Pond Area Tailings Pond | 453,480 | 6,315,780 | 1,960,000 | 376 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.650 | 0.014 |
| 59 | SYMLLKWMTP | West Mine In-Pit Tailings Ponds | 461,312 | 6,318,630 | 6,250,000 | 312 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.461 | 0.024 |
| **Total E&P Joslyn Ltd. - Joslyn North Mine Project** | | | | | | | | | | | | | | | |
| 60 | TCJSNMMFLT | North Mine Fleet and Fugitives | 454,730 | 6,349,926 | 9,411,674 | 294 | 7.5 | 7.0 | 0.006 | 7.302 | 8.054 | 0.086 | 0.001 | 0.432 | 0.000 |
| 61 | TCJSNMSPHT | North Mine Space Heating | 451,150 | 6,347,415 | 1,231,200 | 307 | 5.0 | 2.3 | 0.000 | 0.023 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 62 | TCJSNMTPFU | North Mine Tailings Pond | 452,570 | 6,350,110 | 2,513,200 | 305 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 43.200 | 0.000 |
| **Other Industries** | | | | | | | | | | | | | | | |
| 63 | BMHMSAG1 | Birch Mountain Hammerstone Quarry - Aggregate 1 | 466,650 | 6,336,219 | 90,000 | 264 | 5.0 | 4.7 | 0.011 | 0.419 | 0.141 | 0.036 | 0.000 | 0.024 | 0.000 |
| 64 | BMHMSAG2 | Birch Mountain Hammerstone Quarry - Aggregate 2 | 465,860 | 6,336,164 | 35,721 | 257 | 5.0 | 4.7 | 0.004 | 0.168 | 0.056 | 0.014 | 0.000 | 0.010 | 0.000 |
| 65 | BMHMSAG3 | Birch Mountain Hammerstone Quarry - Aggregate 3 | 466,065 | 6,335,550 | 71,289 | 258 | 5.0 | 4.7 | 0.009 | 0.335 | 0.113 | 0.029 | 0.000 | 0.019 | 0.000 |

**Table A-2 2013 Base Case Area Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 66 | BMHMSAG4 | Birch Mountain Hammerstone Quarry - Aggregate 4 | 466,634 | 6,335,550 | 71,289 | 264 | 5.0 | 4.7 | 0.009 | 0.335 | 0.113 | 0.029 | 0.000 | 0.019 | 0.000 |
| 67 | BMHMSEAU1 | Birch Mountain Hammerstone Quarry - Off-Site Unpaved Section 1 | 466,650 | 6,336,219 | 90,000 | 264 | 5.0 | 4.7 | 0.007 | 0.291 | 0.098 | 0.023 | 0.000 | 0.017 | 0.000 |
| 68 | BMHMSEAU2 | Birch Mountain Hammerstone Quarry - Off-Site Unpaved Section 2 | 466,609 | 6,339,112 | 149,606 | 258 | 5.0 | 4.7 | 0.000 | 0.010 | 0.003 | 0.002 | 0.000 | 0.001 | 0.000 |
| 69 | BMHMSEAP1 | Birch Mountain Hammerstone Quarry - Off-Site Paved Section | 466,862 | 6,338,658 | 1,069,588 | 259 | 5.0 | 4.7 | 0.036 | 1.418 | 0.477 | 0.057 | 0.000 | 0.081 | 0.000 |
| 70 | BMHMSEWOU1 | Birch Mountain Hammerstone Quarry - Waste & Overburden Unpaved Section 1 | 466,474 | 6,335,879 | 1,032,852 | 262 | 5.0 | 4.7 | 0.015 | 0.576 | 0.193 | 0.006 | 0.000 | 0.034 | 0.000 |
| 71 | BMHMSEWOU2 | Birch Mountain Hammerstone Quarry - Waste & Overburden Unpaved Section 2 | 466,862 | 6,338,658 | 1,069,588 | 259 | 5.0 | 4.7 | 0.001 | 0.027 | 0.009 | 0.000 | 0.000 | 0.002 | 0.000 |
| 72 | BMHMSEWOP1 | Birch Mountain Hammerstone Quarry - Waste & Overburden Paved Section | 466,862 | 6,338,658 | 1,069,588 | 259 | 5.0 | 4.7 | 0.005 | 0.184 | 0.062 | 0.000 | 0.000 | 0.011 | 0.000 |
| 73 | BMMVQP | Birch Mountain Muskeg Valley Quarry | 466,281 | 6,338,172 | 62,500 | 255 | 5.0 | 4.7 | 0.020 | 0.880 | 0.300 | 0.050 | 0.000 | 0.050 | 0.000 |
| 74 | CFBCLAFB | Canadian Air Force Cold Lake Air Force Base | 547,389 | 6,029,644 | 20,599,370 | 521 | 5.0 | 5.0 | 0.001 | 0.060 | 0.040 | 0.004 | 0.000 | 0.003 | 0.000 |
| 75 | CFBCLAWR | Canadian Air Force Cold Weapons Range | 521,964 | 6,100,208 | 5,281,660,440 | 682 | 0.0 | 30.5 | 0.530 | 9.990 | 40.190 | 0.210 | 0.000 | 0.142 | 0.000 |
| 76 | PRGRAVOPIT | Parsons Creek Aggregates - Sand and Gravel Quarry | 473,948 | 6,298,563 | 52,750 | 241 | 5.0 | 4.7 | 0.000 | 0.155 | 0.160 | 0.015 | 0.000 | 0.035 | 0.000 |
| 77 | PRGRAVPROC | Parsons Creek Aggregates - Sand and Gravel Quarry | 473,158 | 6,300,875 | 79,000 | 261 | 5.0 | 4.7 | 0.000 | 0.053 | 0.057 | 0.010 | 0.000 | 0.019 | 0.000 |
| 78 | FMFBAERDRM | Fort McKay/ Firebag Aerodrome | 501,505 | 6,348,036 | 6,250,000 | 525 | 25.0 | 5.8 | 0.005 | 0.077 | 0.113 | 0.000 | 0.000 | 0.038 | 0.000 |
| **Community Sources** | | | | | | | | | | | | | | | |
| 79 | FMMRes | Fort McMurray Residential | 472,193 | 6,288,908 | 14,503,640 | 339 | 5.0 | 5.0 | 0.163 | 1.072 | —[b] | —[b] | 0.011 | 3.091 | 0.000 |
| 80 | FMMDt | Fort McMurray Downtown | 477,473 | 6,286,111 | 3,869,522 | 234 | 7.5 | 7.5 | 0.044 | 0.286 | —[b] | —[b] | 0.003 | 0.825 | 0.000 |
| 81 | FMMInd | Fort McMurray Industrial | 478,669 | 6,281,475 | 6,529,683 | 359 | 3.5 | 3.5 | 0.073 | 0.482 | —[b] | —[b] | 0.005 | 1.392 | 0.000 |
| 82 | McKay | Fort MacKay | 461,459 | 6,337,560 | 951,254 | 254 | 0.0 | 7.0 | 0.005 | 0.025 | —[b] | —[b] | 0.000 | 0.092 | 0.000 |
| 83 | Anzac | Anzac | 497,400 | 6,255,500 | 8,400,000 | 485 | 0.0 | 7.0 | 0.006 | 0.021 | —[b] | —[b] | 0.000 | 0.069 | 0.000 |
| 84 | janchr | Janvier | 516,660 | 6,198,690 | 25,000,000 | 451 | 0.0 | 7.0 | 0.002 | 0.005 | —[b] | —[b] | 0.000 | 0.018 | 0.000 |
| 85 | conk | Conklin | 494,254 | 6,165,275 | 2,000,000 | 578 | 0.0 | 7.0 | 0.003 | 0.010 | —[b] | —[b] | 0.000 | 0.033 | 0.000 |
| 86 | ftchp | Fort Chipewyan | 490,435 | 6,508,214 | 6,000,000 | 227 | 0.0 | 7.0 | 0.012 | 0.044 | —[b] | —[b] | 0.002 | 0.347 | 0.000 |
| 87 | LaLoche | La Loche | 596,482 | 6,260,975 | 15,586,704 | 445 | 0.0 | 7.0 | 0.015 | 0.075 | —[b] | —[b] | 0.001 | 0.259 | 0.000 |

(a) Includes formerly Enerplus Kirby Project.

(b) Background data were added to model predictions to represent CO and $PM_{2.5}$ emissions from the communities. Therefore, community emissions of CO and $PM_{2.5}$ were not modelled. A description of the background data used is provided in 2007 EIA, Volume 3, Appendix 3-8, Section 2.3.

## Table A-3 Project Point Source Emission Characteristics

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Shell Canada Limited (Shell) - Pierre River Mine** | | | | | | | | | | | | | | | | |
| 1 | SHPRRVCOGN01 | Cogeneration Unit | 465,980 | 6,376,404 | 267 | 40.00 | 4.300 | 23.0 | 360 | 0.012 | 2.240 | 1.424 | 0.119 | 0.000 | 0.054 | 0.000 |
| 2 | SHPRRVCOGN02 | Cogeneration Unit | 465,946 | 6,376,782 | 270 | 40.00 | 4.300 | 23.0 | 360 | 0.01 | 2.240 | 1.424 | 0.119 | 0.000 | 0.054 | 0.000 |
| 3 | SHPRRBOLR01 | Auxiliary Boiler | 466,108 | 6,376,675 | 267 | 40.00 | 2.740 | 21.9 | 436 | 0.01 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| 4 | SHPRRBOLR02 | Auxiliary Boiler | 466,115 | 6,376,689 | 267 | 40.00 | 2.740 | 21.9 | 436 | 0.01 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| 5 | SHPRRBOLR03 | Auxiliary Boiler | 466,122 | 6,376,702 | 267 | 40.00 | 2.740 | 21.9 | 436 | 0.01 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| 6 | SHPRRBOLR04 | Auxiliary Boiler | 466,130 | 6,376,716 | 267 | 40.00 | 2.740 | 21.9 | 436 | 0.01 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |

## Table A-4 Project Area Source Emission Characteristics

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Shell Canada Limited (Shell) - Pierre River Mine** | | | | | | | | | | | | | | | |
| 1 | SHPRRVMFLT01 | Mine fleet | 461,677 | 6,371,102 | 33,987,901 | 274 | 7.5 | 7.0 | 0.008 | 5.272 | 5.785 | 0.152 | 0.001 | 5.104 | 0.029 |
| 2 | SHPRRVMFLT02 | Mine fleet | 462,885 | 6,375,145 | 9,505,012 | 279 | 7.5 | 7.0 | 0.002 | 1.483 | 1.625 | 0.043 | 0.000 | 1.428 | 0.008 |
| 3 | SHPRRVMFLT03 | Mine fleet | 463,578 | 6,376,780 | 3,651,076 | 271 | 7.5 | 7.0 | 0.001 | 0.566 | 0.621 | 0.016 | 0.000 | 0.548 | 0.003 |
| 4 | SHPRRVTPFU | Tailings Pond | 465,616 | 6,385,700 | 4,752,942 | 276 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.920 | 0.048 |
| 5 | SHPRRVPLFU | Plant Fugitives | 466,355 | 6,375,805 | 3,056,589 | 259 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.170 | 0.057 |

## Table A-5 2013 Planned Development Case Point Source Emission Characteristics

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Shell Canada Limited (Shell) - Jackpine Mine Phase 1 and Expansion** | | | | | | | | | | | | | | | | |
| 1 | SHJKP1OTSG | Steam Generator | 476,376 | 6,343,975 | 311 | 13.00 | 0.900 | 14.3 | 392 | 0.001 | 0.054 | 0.068 | 0.006 | 0.000 | 0.004 | 0.000 |
| 2 | SHJKPECOGN01 | Cogeneration Unit | 476,180 | 6,344,235 | 311 | 40.00 | 4.300 | 23.0 | 360 | 0.012 | 2.240 | 1.424 | 0.119 | 0.000 | 0.054 | 0.000 |
| 3 | SHJKPECOGN02 | Cogeneration Unit | 476,141 | 6,344,215 | 310 | 40.00 | 4.300 | 23.0 | 360 | 0.012 | 2.240 | 1.424 | 0.119 | 0.000 | 0.054 | 0.000 |
| 4 | SHJKPECOGN03 | Cogeneration Unit | 476,567 | 6,344,273 | 313 | 40.00 | 4.300 | 23.0 | 360 | 0.012 | 2.240 | 1.424 | 0.119 | 0.000 | 0.054 | 0.000 |
| 5 | SHJKPBOLR01 | Auxiliary Boiler | 476,333 | 6,343,978 | 311 | 40.00 | 2.740 | 21.9 | 436 | 0.006 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| 6 | SHJKPBOLR02 | Auxiliary Boiler | 476,340 | 6,343,965 | 311 | 40.00 | 2.740 | 21.9 | 436 | 0.006 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| 7 | SHJKPBOLR03 | Auxiliary Boiler | 476,347 | 6,343,952 | 311 | 40.00 | 2.740 | 21.9 | 436 | 0.006 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| **Shell - Pierre River Mine** | | | | | | | | | | | | | | | | |
| 8 | SHPRRVCOGN01 | Cogeneration Unit | 465,980 | 6,376,404 | 267 | 40.00 | 4.300 | 23.0 | 360 | 0.012 | 2.240 | 1.424 | 0.119 | 0.000 | 0.054 | 0.000 |
| 9 | SHPRRVCOGN02 | Cogeneration Unit | 465,946 | 6,376,782 | 270 | 40.00 | 4.300 | 23.0 | 360 | 0.012 | 2.240 | 1.424 | 0.119 | 0.000 | 0.054 | 0.000 |
| 10 | SHPRRBOLR01 | Auxiliary Boiler | 466,108 | 6,376,675 | 267 | 40.00 | 2.740 | 21.9 | 436 | 0.006 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| 11 | SHPRRBOLR02 | Auxiliary Boiler | 466,115 | 6,376,689 | 267 | 40.00 | 2.740 | 21.9 | 436 | 0.006 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| 12 | SHPRRBOLR03 | Auxiliary Boiler | 466,122 | 6,376,702 | 267 | 40.00 | 2.740 | 21.9 | 436 | 0.006 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| 13 | SHPRRBOLR04 | Auxiliary Boiler | 466,130 | 6,376,716 | 267 | 40.00 | 2.740 | 21.9 | 436 | 0.006 | 0.415 | 0.675 | 0.061 | 0.000 | 0.044 | 0.000 |
| **Shell - Orion EOR Project** | | | | | | | | | | | | | | | | |
| 14 | SHOEORSGEN01 | Steam Generators | 538,730 | 6,043,490 | 556 | 27.40 | 1.680 | 21.0 | 471 | 0.900 | 1.260 | 0.406 | 0.095 | 0.000 | 0.093 | 0.000 |
| **Shell/Albian Sands Energy Inc. - Muskeg River Mine and Expansion** | | | | | | | | | | | | | | | | |
| 15 | ASMRMCOGN01 | Cogeneration Unit and Plant Fugitives | 469,565 | 6,346,240 | 276 | 37.50 | 5.000 | 18.3 | 398 | 0.000 | 2.126 | 0.990 | 0.121 | 0.000 | 0.056 | 0.000 |
| 16 | ASMRMEAUBL01 | Boiler and Heater | 469,565 | 6,345,851 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.387 | 0.035 | 0.000 | 0.025 | 0.000 |
| 17 | ASMRMEBOLR01 | Boiler | 469,549 | 6,345,847 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.379 | 0.034 | 0.000 | 0.025 | 0.000 |
| 18 | ASMRMBOLR01 | Boiler | 469,600 | 6,346,125 | 275 | 37.50 | 2.400 | 18.3 | 448 | 0.000 | 0.950 | 0.620 | 0.078 | 0.000 | 0.056 | 0.000 |
| 19 | ASMRMBOLR02 | Boiler and Flare | 469,575 | 6,346,125 | 276 | 37.50 | 2.400 | 18.3 | 448 | 0.000 | 1.073 | 0.691 | 0.105 | 0.000 | 0.061 | 0.000 |
| 20 | ASMRMCOGN02 | Cogeneration Unit | 469,580 | 6,346,240 | 276 | 37.50 | 5.000 | 18.3 | 398 | 0.000 | 2.126 | 0.990 | 0.121 | 0.000 | 0.056 | 0.000 |
| 21 | ASMRMEAUBL02 | Boiler and Heater | 469,581 | 6,345,855 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.394 | 0.514 | 0.047 | 0.000 | 0.034 | 0.000 |
| 22 | ASMRMEAUBL03 | Boiler | 469,578 | 6,345,802 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.387 | 0.035 | 0.000 | 0.025 | 0.000 |
| 23 | ASMRMEAUBL04 | Boiler | 469,594 | 6,345,806 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.387 | 0.035 | 0.000 | 0.025 | 0.000 |
| 24 | ASMRMEBOLR02 | Boiler | 469,562 | 6,345,798 | 275 | 38.00 | 1.975 | 18.0 | 442 | 0.000 | 0.300 | 0.379 | 0.034 | 0.000 | 0.025 | 0.000 |
| 25 | ASMRMEGSHT | Heater | 469,571 | 6,345,606 | 274 | 8.00 | 0.250 | 18.0 | 453 | 0.000 | 0.009 | 0.008 | 0.001 | 0.000 | 0.001 | 0.000 |
| 26 | ASMRMFLHT01 | Heater | 469,625 | 6,346,240 | 276 | 8.00 | 0.300 | 18.3 | 448 | 0.000 | 0.007 | 0.011 | 0.001 | 0.000 | 0.001 | 0.000 |
| 27 | ASMRMFLHT02 | Heater | 469,640 | 6,346,240 | 276 | 8.00 | 0.300 | 18.3 | 448 | 0.000 | 0.007 | 0.011 | 0.001 | 0.000 | 0.001 | 0.000 |
| **Alberta Oilsands Inc. - Clearwater West Pilot Project** | | | | | | | | | | | | | | | | |
| 28 | ALCWTRPBOLR | Generators | 487,284 | 6,277,413 | 379 | 30.00 | 0.600 | 15.6 | 333 | 0.166 | 0.125 | 0.413 | 0.011 | 0.000 | 0.008 | 0.000 |
| **Athabasca Oil Corp. (AOC) - Dover West Clastics Phase 1** | | | | | | | | | | | | | | | | |
| 29 | AODWC1OTSG01 | Steam Generators, Heater and Flare | 385,525 | 6,316,618 | 522 | 36.00 | 2.130 | 16.5 | 443 | 0.274 | 1.023 | 3.221 | 0.084 | 0.000 | 0.060 | 0.000 |
| **AOC - Leduc TAGD Pilot** | | | | | | | | | | | | | | | | |
| 30 | AODWLPHOHT | Steam Generators, Heater and Flare | 384,832 | 6,343,348 | 653 | 7.80 | 0.310 | 20.5 | 673 | 0.069 | 0.019 | 0.017 | 0.001 | 0.000 | 0.001 | 0.000 |
| **AOC - Birch Project** | | | | | | | | | | | | | | | | |
| 31 | AOBRCHOTSG01 | Steam Generators and Flare | 391,604 | 6,419,134 | 728 | 30.00 | 2.438 | 17.6 | 443 | 0.231 | 0.888 | 2.820 | 0.074 | 0.000 | 0.053 | 0.000 |
| **AOC - Hangingstone Experimental In-Situ and Phase 1** | | | | | | | | | | | | | | | | |
| 32 | AOHANGVSTS | Vent | 482,882 | 6,254,293 | 496 | 42.00 | 0.305 | 74.0 | 623 | 1.026 | 0.000 | 2.420 | 0.000 | 0.000 | 0.000 | 0.000 |
| 33 | AOHANGINCR1 | Incinerators | 482,901 | 6,254,297 | 496 | 36.00 | 1.524 | 4.7 | 811 | 0.000 | 0.020 | 0.000 | 0.002 | 0.000 | 0.002 | 0.000 |

**Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 34 | AOHANGSGEN1 | Steam Generators | 482,957 | 6,255,015 | 484 | 10.70 | 0.400 | 8.5 | 473 | 0.006 | 0.026 | 0.124 | 0.003 | 0.000 | 0.004 | 0.000 |
| 35 | AOHSP1OTSG01 | Steam Generators, Heater and Flare | 473,826 | 6,259,488 | 449 | 30.00 | 2.438 | 17.6 | 443 | 0.231 | 0.888 | 2.820 | 0.074 | 0.000 | 0.053 | 0.000 |
| **AOC - MacKay River Commercial** | | | | | | | | | | | | | | | | |
| 36 | AOMRCPCOGN | Cogeneration, Heaters and Flare | 432,488 | 6,294,550 | 490 | 38.10 | 5.790 | 25.1 | 399 | 0.314 | 4.468 | 6.773 | 0.187 | 0.001 | 0.162 | 0.000 |
| 37 | AOMRCPSGEN01 | Steam Generators and Heaters | 432,430 | 6,294,473 | 490 | 38.10 | 2.440 | 16.1 | 443 | 0.366 | 1.650 | 5.160 | 0.117 | 0.000 | 0.085 | 0.000 |
| 38 | AOMRCPSGEN04 | Steam Generators | 432,456 | 6,294,459 | 490 | 38.10 | 2.440 | 16.1 | 443 | 0.325 | 1.431 | 4.471 | 0.102 | 0.000 | 0.074 | 0.000 |
| 39 | AOMRCPSGEN07 | Steam Generators | 432,532 | 6,294,583 | 490 | 38.10 | 2.440 | 12.0 | 443 | 0.314 | 1.340 | 4.185 | 0.101 | 0.000 | 0.073 | 0.000 |
| 40 | AOMRCPSGEN10 | Steam Generators | 418,260 | 6,310,529 | 477 | 38.10 | 2.440 | 17.9 | 443 | 0.396 | 1.614 | 5.043 | 0.129 | 0.000 | 0.093 | 0.000 |
| 41 | AOMRCPSGEN13 | Steam Generators | 418,252 | 6,310,560 | 477 | 38.10 | 2.440 | 17.9 | 443 | 0.264 | 1.076 | 3.362 | 0.086 | 0.000 | 0.062 | 0.000 |
| **Baytex Energy Corp. - Cold Lake (formerly Koch Exploration Canada, L.P. Gemini Oil Sands Project)** | | | | | | | | | | | | | | | | |
| 42 | KCGEMNSGEN01 | Steam Boilers and Flare | 542,618 | 6,004,214 | 588 | 30.32 | 1.680 | 8.9 | 453 | 0.750 | 0.490 | 1.563 | 0.038 | 0.001 | 0.046 | 0.000 |
| **BlackPearl E&P Ltd. - Blackrod SAGD Pilot and Commercial Project** | | | | | | | | | | | | | | | | |
| 43 | PRBLRPOTSG01 | Pilot Power Generators, Steam Generators, Flares | 395,822 | 6,165,199 | 618 | 13.20 | 0.914 | 10.0 | 427 | 0.007 | 0.250 | 0.396 | 0.010 | 0.000 | 0.008 | 0.000 |
| 44 | PRBLRP1OTSG1 | Phase 1 Steam Generators, Heaters, Flares | 397,712 | 6,163,490 | 717 | 30.00 | 1.680 | 24.1 | 483 | 0.126 | 1.272 | 4.018 | 0.111 | 0.000 | 0.083 | 0.000 |
| 45 | PRBLRP2OTSG1 | Phase 2 Steam Generators, Heaters, Flares | 397,895 | 6,163,490 | 724 | 30.00 | 1.680 | 24.1 | 483 | 0.188 | 1.895 | 5.964 | 0.160 | 0.001 | 0.122 | 0.000 |
| 46 | PRBLRP3OTSG1 | Phase 3 Steam Generators, Heaters, Flares | 398,078 | 6,163,490 | 727 | 30.00 | 1.680 | 24.1 | 483 | 0.188 | 1.895 | 5.964 | 0.160 | 0.001 | 0.122 | 0.000 |
| **Canadian Natural Resources Limited (Canadian Natural) - Birch Mountain East Project** | | | | | | | | | | | | | | | | |
| 47 | CNBMESGEN01 | Steam Generators, Heater, Flares and Plant Fugitives | 451,350 | 6,354,385 | 289 | 45.50 | 2.000 | 18.3 | 450 | 1.091 | 5.772 | 4.913 | 0.440 | 0.001 | 0.340 | 0.017 |
| **Canadian Natural - Burnt Lake Pilot Project** | | | | | | | | | | | | | | | | |
| 48 | CNBRLKSGEN01 | Steam Generators, Glycol Heater and Flare | 541,396 | 6,072,999 | 680 | 13.50 | 1.100 | 6.1 | 423 | 0.300 | 0.270 | 0.227 | 0.021 | 0.000 | 0.015 | 0.000 |
| **Canadian Natural - Grouse In-Situ Project** | | | | | | | | | | | | | | | | |
| 49 | CNGRSESGEN01 | Steam Generators, Heater, Flares and Plant Fugitives | 451,672 | 6,147,254 | 674 | 45.50 | 1.981 | 17.2 | 467 | 1.980 | 3.703 | 3.191 | 0.285 | 0.000 | 0.213 | 0.000 |
| **Canadian Natural - Horizon Oilsands Project** | | | | | | | | | | | | | | | | |
| 50 | CNHRZNSRU | Sulphur Plant | 455,573 | 6,355,395 | 277 | 106.70 | 3.400 | 17.0 | 811 | 11.706 | 0.277 | 0.123 | 0.011 | 0.000 | 0.008 | 0.000 |
| 51 | CNHRZNCOGN01 | Cogeneration Units | 455,922 | 6,354,992 | 278 | 38.00 | 5.500 | 21.7 | 405 | 0.028 | 5.147 | 3.383 | 0.281 | 0.000 | 0.120 | 0.000 |
| 52 | CNHRZNH2PL01 | Hydrogen Plants | 455,448 | 6,355,106 | 276 | 60.96 | 3.920 | 15.0 | 421 | 0.061 | 3.115 | 2.759 | 0.250 | 0.000 | 0.181 | 0.000 |
| 53 | CNHRZNDRU01 | Utility Boiler, Heaters and Flares | 455,002 | 6,355,298 | 277 | 30.50 | 3.000 | 6.2 | 474 | 0.477 | 7.002 | 6.290 | 0.562 | 0.001 | 0.427 | 0.000 |
| **Canadian Natural - Kirby North In-Situ Oilsands Project and Expansion[c]** | | | | | | | | | | | | | | | | |
| 54 | CNKBN1SGEN01 | Steam Generators, Glycol Heaters, Flare | 485,140 | 6,146,503 | 694 | 45.50 | 1.981 | 17.2 | 467 | 0.000 | 3.703 | 3.191 | 0.285 | 0.000 | 0.213 | 0.000 |
| 55 | CNKBN2SGEN01 | Steam Generators, Glycol Heaters, Flare | 485,599 | 6,146,544 | 700 | 45.50 | 1.981 | 17.2 | 467 | 1.600 | 2.060 | 1.777 | 0.159 | 0.000 | 0.119 | 0.000 |
| **Canadian Natural - Kirby South In-Situ Oilsands Project and Expansion** | | | | | | | | | | | | | | | | |
| 56 | CNKBS1SGEN01 | Steam Generators, Glycol Heaters, Flare | 498,263 | 6,132,807 | 732 | 45.50 | 1.981 | 17.2 | 467 | 0.000 | 2.875 | 2.441 | 0.220 | 0.000 | 0.144 | 0.000 |
| 57 | CNKBS2SGEN01 | Steam Generators, Glycol Heaters, Flare | 497,450 | 6,133,407 | 723 | 45.50 | 1.981 | 17.2 | 467 | 0.000 | 2.060 | 1.777 | 0.159 | 0.000 | 0.119 | 0.000 |
| **Canadian Natural - Primrose East In-Situ Oilsands Project** | | | | | | | | | | | | | | | | |
| 58 | CNPRSEOTSG01 | Steam Generators and Glycol Heater | 541,443 | 6,071,861 | 697 | 29.44 | 1.676 | 19.2 | 420 | 2.000 | 2.560 | 2.062 | 0.187 | 0.000 | 0.135 | 0.000 |
| **Canadian Natural - Primrose North In-Situ Project** | | | | | | | | | | | | | | | | |
| 59 | CNPRSNOTSG01 | Primrose North - Steam Generators and Glycol Heater | 526,716 | 6,081,213 | 693 | 29.44 | 1.676 | 19.2 | 420 | 2.000 | 2.881 | 1.640 | 0.148 | 0.000 | 0.107 | 0.000 |
| **Canadian Natural - Primrose South In-Situ Oilsands Project** | | | | | | | | | | | | | | | | |
| 60 | CNPRSSOTSG04 | Steam Generators, Cogeneration Unit, Boilers, Heaters and Flare | 527,226 | 6,069,608 | 677 | 27.00 | 1.372 | 18.5 | 444 | 3.350 | 5.070 | 3.071 | 0.269 | 0.000 | 0.167 | 0.000 |
| **Canadian Natural - Wolf Lake In-Situ Project** | | | | | | | | | | | | | | | | |
| 61 | CNWFLKOTSG01 | Wolf Lake - Steam Generators, Utility Boilers and Glycol Heater | 517,568 | 6,061,052 | 643 | 30.00 | 1.372 | 20.5 | 444 | 3.350 | 2.018 | 1.240 | 0.106 | 0.001 | 0.093 | 0.001 |

## Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Canadian Natural -Gregoire Phase 1 In Situ Oil Sands Project** | | | | | | | | | | | | | | | | |
| 62 | CNGRGRSGEN01 | Steam Generators and Flare | 490,470 | 6,255,000 | 475 | 45.50 | 1.981 | 17.2 | 467 | 1.980 | 4.444 | 3.829 | 0.342 | 0.000 | 0.256 | 0.000 |
| **Cavalier Energy - Hoole Project** | | | | | | | | | | | | | | | | |
| 63 | CAHOOLBOLR01 | Steam Generators, Heater, Flares and Plant Fugitives | 336,175 | 6,210,243 | 608 | 30.50 | 1.490 | 32.1 | 433 | 1.704 | 0.695 | 2.198 | 0.070 | 0.000 | 0.041 | 0.000 |
| **Cenovus Energy - Telephone Lake SAGD Project[d]** | | | | | | | | | | | | | | | | |
| 64 | ENTELECOGN01 | Steam Generators, Heaters and Compressor | 535,460 | 6,336,370 | 524 | 25.90 | 3.400 | 22.0 | 473 | 3.030 | 1.940 | 10.990 | 0.400 | 0.000 | 0.300 | 0.000 |
| **Cenovus FCCL Ltd. (Cenovus) – Christina Lake Thermal Project and Expansion** | | | | | | | | | | | | | | | | |
| 65 | ENCLP1SGEN01 | Steam Generators, Heaters | 506,880 | 6,159,498 | 573 | 26.62 | 1.372 | 27.0 | 463 | 0.674 | 3.309 | 10.577 | 0.271 | 0.000 | 0.196 | 0.000 |
| 66 | ENCLP1SGEN25 | Cogeneration units, Steam Generators, Heaters | 507,062 | 6,159,805 | 573 | 32.00 | 1.830 | 26.3 | 442 | 1.041 | 6.556 | 17.119 | 0.478 | 0.000 | 0.319 | 0.000 |
| 67 | ENCLP1SGEN27 | Steam Generators, Heaters, Plant Fugitives | 507,366 | 6,159,944 | 573 | 32.00 | 1.680 | 24.5 | 488 | 0.335 | 1.646 | 5.186 | 0.133 | 0.000 | 0.187 | 0.083 |
| **Cenovus - Foster Creek Thermal Project and Expansion** | | | | | | | | | | | | | | | | |
| 68 | ENFSC1COGN01 | Cogeneration units, Steam Generators, Heaters, Boilers, Incinerators and Plant Fugitives | 529,636 | 6,102,406 | 670 | 26.00 | 3.353 | 21.1 | 448 | 2.039 | 12.342 | 34.263 | 0.951 | 0.000 | 0.657 | 0.007 |
| **Cenovus Energy - Grand Rapids SAGD Pilot Project** | | | | | | | | | | | | | | | | |
| 69 | CEPPSGEN01 | Steam Generators and Heaters | 344,266 | 6,219,438 | 602 | 10.40 | 0.600 | 8.1 | 530 | 0.000 | 0.052 | 0.304 | 0.008 | 0.000 | 0.006 | 0.000 |
| **Cenovus Energy - Narrows Lake Project** | | | | | | | | | | | | | | | | |
| 70 | CENLSGEN01 | Steam Generators, Turbines and Heaters | 507,435 | 6,167,162 | 579 | 32.00 | 1.680 | 24.5 | 488 | 2.500 | 7.713 | 16.771 | 0.482 | 0.000 | 0.336 | 0.037 |
| **Cenovus Energy - Pelican Lake SAGD Project** | | | | | | | | | | | | | | | | |
| 71 | CEPLSGEN01 | Steam Generators | 350,914 | 6,223,950 | 632 | 32.00 | 1.680 | 26.0 | 488 | 2.056 | 11.982 | 35.303 | 0.939 | 0.000 | 0.664 | 0.051 |
| **Connacher Oil and Gas Limited (Connacher) - Algar Oil Sands Project** | | | | | | | | | | | | | | | | |
| 72 | COALGRCOGN | Cogeneration Units, Heaters, Boilers, Crystalizer and Mine Fleets | 455,573 | 6,219,011 | 740 | 20.00 | 1.830 | 8.9 | 473 | 0.426 | 0.683 | 1.887 | 0.045 | 0.000 | 0.033 | 0.000 |
| **Connacher - Great Divide Project and Expansion** | | | | | | | | | | | | | | | | |
| 73 | COGRDVSGEN01 | Steam Generators, Boiler, Heaters | 448,529 | 6,219,128 | 703 | 30.50 | 1.830 | 14.3 | 561 | 1.980 | 0.482 | 0.403 | 0.037 | 0.000 | 0.026 | 0.000 |
| 74 | COGDEXCOGN | Cogeneration Unit, Steam Generators, Boiler and Heater | 455,560 | 6,219,035 | 740 | 20.00 | 2.130 | 8.9 | 473 | 1.565 | 2.160 | 6.295 | 0.155 | 0.000 | 0.110 | 0.000 |
| **ConocoPhillips Canada - Surmont Pilot and Commercial SAGD Project** | | | | | | | | | | | | | | | | |
| 75 | CPSURPSGEN01 | Steam Generators, Heaters and Flare | 501,819 | 6,230,045 | 589 | 13.30 | 0.900 | 15.3 | 453 | 0.080 | 0.115 | 0.388 | 0.009 | 0.000 | 0.006 | 0.000 |
| 76 | CPSUR1SGEN01 | Steam Generators, Heaters and Flare | 503,434 | 6,227,513 | 629 | 27.00 | 1.676 | 20.1 | 469 | 0.000 | 1.079 | 3.397 | 0.087 | 0.000 | 0.063 | 0.000 |
| 77 | CPSUR2SGEN01 | Steam Generators, Heaters and Flare | 503,798 | 6,226,546 | 642 | 27.00 | 1.676 | 20.1 | 469 | 1.000 | 4.861 | 15.446 | 0.395 | 0.000 | 0.286 | 0.000 |
| **Devon - Jackfish SAGD Project** | | | | | | | | | | | | | | | | |
| 78 | DVJKF1SGEN01 | Steam Generators, Heaters, Flare and Plant Fugitives | 507,855 | 6,153,524 | 612 | 28.90 | 1.830 | 15.5 | 443 | 1.998 | 2.131 | 1.343 | 0.122 | 0.000 | 0.236 | 0.003 |
| **Devon - Jackfish 2 SAGD Project** | | | | | | | | | | | | | | | | |
| 79 | DVJKF2SGEN01 | Steam Generators, Heaters, Flares and Plant Fugitives | 500,046 | 6,153,268 | 671 | 28.90 | 1.830 | 15.5 | 443 | 1.998 | 2.131 | 1.343 | 0.122 | 0.000 | 0.234 | 0.003 |
| **Devon - Jackfish 3 SAGD Project** | | | | | | | | | | | | | | | | |
| 80 | DVJKF3SGEN01 | Steam Generators, Heaters, Flare and Plant Fugitives | 503,047 | 6,152,198 | 667 | 28.90 | 1.830 | 15.5 | 443 | 1.998 | 2.131 | 1.343 | 0.122 | 0.000 | 0.237 | 0.003 |
| **Devon and BP Canada - Pike Project** | | | | | | | | | | | | | | | | |
| 81 | DVPKP1SGEN01 | Steam Generators, Heaters, Flare and Plant Fugitives | 511,027 | 6,144,536 | 675 | 28.90 | 1.830 | 15.5 | 443 | 3.780 | 4.410 | 21.122 | 0.210 | 0.001 | 0.908 | 0.000 |
| **Devon - Walleye Project** | | | | | | | | | | | | | | | | |
| 82 | DVWEYESGEN01 | Steam Generators | 507,529 | 6,044,141 | 586 | 30.50 | 2.000 | 12.4 | 423 | 0.280 | 0.320 | 1.720 | 0.040 | 0.000 | 0.032 | 0.000 |
| **Dover Operating Corporation - Dover Pilot Project** | | | | | | | | | | | | | | | | |
| 83 | AODOVPSTBL | Boiler, Generators, Compressor, Heater and Flare | 395,728 | 6,332,846 | 528 | 30.40 | 1.524 | 11.7 | 447 | 0.070 | 0.206 | 1.059 | 0.015 | 0.000 | 0.010 | 0.000 |

## Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Dover Operating Corporation - Dover Commercial Project** | | | | | | | | | | | | | | | | |
| 84 | DODOVNCOGN01 | Cogeneration Unit, Heaters, Flares and Incinerator | 401,184 | 6,347,703 | 571 | 38.10 | 5.800 | 24.5 | 399 | 0.447 | 2.959 | 6.698 | 0.003 | 0.000 | 0.076 | 0.000 |
| 85 | DODOVNSGEN01 | Steam Generators | 400,962 | 6,347,726 | 567 | 38.10 | 2.400 | 16.5 | 443 | 0.762 | 1.444 | 4.467 | 0.002 | 0.000 | 0.083 | 0.000 |
| 86 | DODOVNSGEN04 | Steam Generators | 400,975 | 6,347,642 | 567 | 38.10 | 2.400 | 16.5 | 443 | 0.762 | 1.444 | 4.467 | 0.002 | 0.000 | 0.083 | 0.000 |
| 87 | DODOVNSGEN07 | Steam Generators | 401,106 | 6,347,722 | 569 | 38.10 | 2.400 | 16.5 | 443 | 1.016 | 1.925 | 5.956 | 0.002 | 0.000 | 0.111 | 0.000 |
| 88 | DODOVSCOGN01 | Cogeneration Unit, Heaters, Flares and Incinerator | 406,075 | 6,332,613 | 517 | 38.10 | 5.800 | 24.5 | 399 | 0.183 | 2.955 | 6.698 | 0.003 | 0.000 | 0.076 | 0.000 |
| 89 | DODOVSSGEN01 | Steam Generators | 406,004 | 6,332,422 | 516 | 38.10 | 2.400 | 18.1 | 443 | 0.335 | 1.564 | 4.917 | 0.002 | 0.000 | 0.091 | 0.000 |
| 90 | DODOVSSGEN04 | Steam Generators | 406,088 | 6,332,437 | 515 | 38.10 | 2.400 | 18.1 | 443 | 0.335 | 1.564 | 4.917 | 0.002 | 0.000 | 0.091 | 0.000 |
| 91 | DODOVSSGEN07 | Steam Generators | 406,007 | 6,332,543 | 517 | 38.10 | 2.400 | 18.1 | 443 | 0.447 | 2.086 | 6.556 | 0.003 | 0.000 | 0.122 | 0.000 |
| 92 | DODOVSSGEN11 | Steam Generators | 406,093 | 6,332,668 | 517 | 38.10 | 2.400 | 18.1 | 443 | 0.335 | 1.564 | 4.917 | 0.002 | 0.000 | 0.091 | 0.000 |
| 93 | DODOVSSGEN14 | Steam Generators | 406,094 | 6,332,698 | 518 | 38.10 | 2.400 | 18.1 | 443 | 0.335 | 1.564 | 4.917 | 0.002 | 0.000 | 0.091 | 0.000 |
| **E-T Energy - Poplar Creek In-Situ Pilot** | | | | | | | | | | | | | | | | |
| 94 | ETPOCPPRHT | Propane Heaters | 472,683 | 6,296,295 | 338 | 10.70 | 0.500 | 9.0 | 495 | 0.001 | 0.007 | 0.004 | 0.000 | 0.000 | 0.000 | 0.001 |
| **Grizzly Oilsands - Algar Lake SAGD Project** | | | | | | | | | | | | | | | | |
| 95 | GZAGLKSGEN01 | Steam Generators and Turbines | 450,756 | 6,246,276 | 521 | 28.00 | 1.800 | 18.4 | 444 | 1.050 | 0.422 | 0.740 | 0.048 | 0.000 | 0.046 | 0.000 |
| **Harvest Operations Corp. - BlackGold Oil Sands Project and Expansion** | | | | | | | | | | | | | | | | |
| 96 | KNBLGDSGEN01 | Steam Generators, Heaters and Flare | 500,996 | 6,159,358 | 608 | 30.00 | 1.500 | 27.0 | 483 | 0.840 | 1.239 | 0.909 | 0.123 | 0.000 | 0.083 | 0.000 |
| **Husky Energy Inc. (Husky) - Caribou Lake Thermal Demonstration Project** | | | | | | | | | | | | | | | | |
| 97 | HUCRBSGEN01 | Steam Generators, Heater, Flare and Diesel Generator | 524,579 | 6,089,759 | 700 | 27.00 | 1.600 | 20.0 | 423 | 0.910 | 0.665 | 0.469 | 0.042 | 0.000 | 0.031 | 0.000 |
| **Husky - McMullen Thermal Pilot Project** | | | | | | | | | | | | | | | | |
| 98 | HUMCTPSGEN | Steam Generator, Heaters, Flare and Electrical Generator Engines | 307,972 | 6,191,205 | 605 | 14.05 | 1.524 | 6.8 | 473 | 0.117 | 0.144 | 0.161 | 0.009 | 0.000 | 0.039 | 0.000 |
| **Husky - Sunrise Thermal Project** | | | | | | | | | | | | | | | | |
| 99 | HUSR1SGEN01 | Steam Generators, Glycol Heaters and Flares | 496,251 | 6,344,268 | 479 | 27.00 | 1.650 | 24.0 | 458 | 0.322 | 1.814 | 5.593 | 0.000 | 0.001 | 0.038 | 0.000 |
| 100 | HUSR2SGEN01 | Steam Generators, Glycol Heaters and Flares | 496,482 | 6,344,247 | 484 | 27.00 | 1.650 | 24.0 | 458 | 0.429 | 2.398 | 7.484 | 0.000 | 0.002 | 0.076 | 0.000 |
| 101 | HUSR3SGEN01 | Steam Generators, Glycol Heaters and Flares | 496,482 | 6,344,076 | 483 | 27.00 | 1.650 | 24.0 | 458 | 0.429 | 2.398 | 7.484 | 0.000 | 0.002 | 0.076 | 0.000 |
| **Husky - Tucker Thermal Project** | | | | | | | | | | | | | | | | |
| 102 | HUTCKRSGEN01 | Steam Generators and Glycol Heaters | 528,572 | 6,046,671 | 617 | 26.00 | 1.600 | 21.0 | 421 | 1.200 | 1.441 | 0.419 | 0.136 | 0.000 | 0.118 | 0.000 |
| **Imperial Oil Resources Limited (Imperial Oil) - Cold Lake In-Situ Project, Manhihkan North and Nabiye Expansion Project** | | | | | | | | | | | | | | | | |
| 103 | EILEMNSGEN01 | Leming Steam Generators | 536,899 | 6,050,509 | 611 | 9.00 | 0.790 | 14.3 | 413 | 2.100 | 1.017 | 0.992 | 0.089 | 0.000 | 0.365 | 0.004 |
| 104 | EIMHNCOGN01 | Mahihkan Cogeneration Units, Steam Generators and Heaters | 539,241 | 6,048,749 | 645 | 24.00 | 5.180 | 20.3 | 417 | 1.801 | 3.436 | 3.402 | 0.307 | 0.000 | 0.567 | 0.005 |
| 105 | EIMKHECOGN | Makheses Cogeneration Units, Steam Generators and Heaters | 539,261 | 6,048,735 | 645 | 24.00 | 5.180 | 20.3 | 417 | 1.080 | 3.247 | 1.456 | 0.273 | 0.000 | 0.389 | 0.003 |
| 106 | EIMASSGEN01 | Maskwa Steam Generators | 534,025 | 6,051,941 | 609 | 18.50 | 1.300 | 11.0 | 443 | 4.000 | 2.416 | 2.340 | 0.217 | 0.000 | 0.575 | 0.004 |
| 107 | EINBYECOGN | Nabiye Cogeneration Units, Steam Generators and Heaters | 542,248 | 6,064,591 | 634 | 24.00 | 5.180 | 20.3 | 417 | 2.000 | 2.424 | 2.703 | 0.672 | 0.000 | 0.388 | 0.003 |
| **Imperial Oil - Kearl Oil Sands Project** | | | | | | | | | | | | | | | | |
| 108 | IMKERLAUBL01 | Auxiliary Boiler | 496,039 | 6,362,017 | 356 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 109 | IMKERLAUBL02 | Auxiliary Boiler | 496,039 | 6,362,117 | 356 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 110 | IMKERLAUBL03 | Auxiliary Boiler | 496,039 | 6,362,217 | 357 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 111 | IMKERLAUBL04 | Auxiliary Boiler | 495,954 | 6,362,017 | 353 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 112 | IMKERLAUBL05 | Auxiliary Boiler | 495,954 | 6,362,117 | 353 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 113 | IMKERLAUBL06 | Auxiliary Boiler | 495,954 | 6,362,217 | 354 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 114 | IMKERLAUBL07 | Auxiliary Boiler | 495,869 | 6,362,017 | 350 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |
| 115 | IMKERLAUBL08 | Auxiliary Boiler | 495,869 | 6,362,117 | 350 | 30.00 | 2.596 | 17.0 | 387 | 0.006 | 0.557 | 0.710 | 0.064 | 0.000 | 0.047 | 0.000 |

**Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 116 | IMKERLAUBL09 | Auxiliary Boiler | 495,869 | 6,362,217 | 351 | 30.00 | 2.458 | 17.0 | 387 | 0.005 | 0.499 | 0.637 | 0.057 | 0.000 | 0.042 | 0.000 |
| 117 | IMKERLAUBL10 | Auxiliary Boiler | 495,784 | 6,362,017 | 346 | 30.00 | 2.458 | 17.0 | 387 | 0.005 | 0.499 | 0.637 | 0.057 | 0.000 | 0.042 | 0.000 |
| 118 | IMKERLAUBL11 | Auxiliary Boiler | 495,784 | 6,362,117 | 347 | 30.00 | 2.458 | 17.0 | 387 | 0.005 | 0.499 | 0.637 | 0.057 | 0.000 | 0.042 | 0.000 |
| 119 | IMKERLAUBL12 | Auxiliary Boiler | 495,784 | 6,362,217 | 348 | 30.00 | 2.458 | 17.0 | 387 | 0.005 | 0.499 | 0.637 | 0.057 | 0.000 | 0.042 | 0.000 |
| **Ivanhoe Energy Inc. - Tamarack Integrated Oil Sands Project** | | | | | | | | | | | | | | | | |
| 120 | IVTMRP1COGN1 | Cogeneration Units | 481,862 | 6,298,152 | 404 | 18.00 | 0.250 | 18.0 | 806 | 0.000 | 0.600 | 0.680 | 0.060 | 0.000 | 0.024 | 0.000 |
| 121 | IVTMRP1FGDS | FGD | 481,756 | 6,298,236 | 404 | 50.00 | 8.000 | 2.8 | 353 | 6.460 | 6.040 | 1.480 | 0.140 | 0.000 | 0.097 | 0.000 |
| 122 | IVTMRP1PFHT | Heaters and Flare | 481,564 | 6,298,149 | 402 | 15.00 | 1.900 | 4.1 | 523 | 0.180 | 0.100 | 0.090 | 0.010 | 0.000 | 0.006 | 0.000 |
| 123 | IVTMRP1SGEN1 | Steam Generators, Heater and Flares | 481,818 | 6,298,136 | 404 | 30.00 | 1.660 | 17.3 | 469 | 0.480 | 0.760 | 0.670 | 0.030 | 0.000 | 0.044 | 0.000 |
| 124 | IVTMRP2FGDS | FGD | 481,987 | 6,298,262 | 403 | 50.00 | 8.000 | 2.8 | 353 | 6.460 | 6.040 | 1.480 | 0.140 | 0.000 | 0.097 | 0.000 |
| 125 | IVTMRP2PFHT | Heaters and Flare | 482,195 | 6,298,224 | 403 | 15.00 | 1.900 | 4.1 | 523 | 0.180 | 0.100 | 0.090 | 0.010 | 0.000 | 0.006 | 0.000 |
| 126 | IVTMRP2SGEN1 | Steam Generators, Heater and Flare | 481,888 | 6,298,153 | 404 | 30.00 | 1.660 | 17.3 | 469 | 0.480 | 0.760 | 0.670 | 0.030 | 0.000 | 0.044 | 0.000 |
| **Japan Canada Oil Sands Ltd. (JACOS) - Hangingstone Demonstration and Commercial Expansion** | | | | | | | | | | | | | | | | |
| 127 | JAHANGSGEN01 | Steam Generators, Heaters, Flares and Plant Fugitives | 460,387 | 6,241,760 | 560 | 12.00 | 0.911 | 21.6 | 533 | 3.632 | 2.465 | 9.717 | 0.233 | 0.001 | 0.585 | 0.012 |
| **Koch Exploration Canada, L.P. - Muskwa Oil Sands Project** | | | | | | | | | | | | | | | | |
| 128 | KCMUSKSGEN01 | Steam Generators, Cogeneration Unit, Flare | 343,507 | 6,242,119 | 590 | 25.00 | 0.600 | 11.5 | 453 | 0.786 | 0.969 | 2.647 | 0.083 | 0.000 | 0.060 | 0.000 |
| **Laricina Energy Ltd. (Laricina) - Germain Phase 1 and Expansion** | | | | | | | | | | | | | | | | |
| 129 | LAGERPOTSG01 | Steam Generators, Heaters and Flares | 351,298 | 6,246,478 | 608 | 21.00 | 0.914 | 8.0 | 437 | 0.300 | 0.119 | 0.477 | 0.012 | 0.000 | 0.027 | 0.000 |
| 130 | LAGER2OTSG01 | Steam Generators, Heaters and Flare | 351,631 | 6,246,370 | 611 | 26.00 | 2.030 | 15.1 | 493 | 0.792 | 1.877 | 6.019 | 0.020 | 0.000 | 0.235 | 0.000 |
| 131 | LAGER3OTSG01 | Steam Generators, Heaters and Flare | 352,986 | 6,247,014 | 602 | 26.00 | 2.030 | 15.1 | 493 | 1.379 | 2.478 | 7.984 | 0.029 | 0.001 | 0.355 | 0.000 |
| 132 | LAGER4OTSG01 | Steam Generators, Heaters and Flare | 352,956 | 6,246,155 | 614 | 26.00 | 2.030 | 15.1 | 493 | 1.576 | 2.478 | 7.984 | 0.029 | 0.001 | 0.355 | 0.000 |
| **Laricina - Saleski Pilot and Phase 1** | | | | | | | | | | | | | | | | |
| 133 | LASLKPOTSG1 | Steam Generators, Heaters, Flares and Electrical Generator | 383,346 | 6,251,533 | 587 | 11.30 | 1.370 | 5.3 | 463 | 0.170 | 0.086 | 0.120 | 0.009 | 0.001 | 0.018 | 0.000 |
| 134 | LASLKP1OTSG1 | Steam Generators, Heaters and Flares | 382,572 | 6,250,735 | 591 | 14.00 | 1.680 | 13.5 | 446 | 0.888 | 0.407 | 1.329 | 0.000 | 0.000 | 0.021 | 0.000 |
| **Marathon Oil Corporation Canada - Birchwood Project** | | | | | | | | | | | | | | | | |
| 135 | MOBCHPBOLR1 | Boilers | 420,907 | 6,307,092 | 479 | 30.00 | 1.500 | 27.0 | 443 | 0.519 | 0.477 | 2.233 | 0.058 | 0.000 | 0.042 | 0.000 |
| 136 | MOBCHGTG1 | Gas Turbines | 420,821 | 6,307,183 | 479 | 15.00 | 2.000 | 26.5 | 757 | 0.000 | 0.216 | 0.165 | 0.013 | 0.000 | 0.004 | 0.000 |
| **MEG Energy Corp. (MEG) - Christina Lake Regional Project Pilot, Phases 2, 2B and 3** | | | | | | | | | | | | | | | | |
| 137 | MGCLPTOTSG | Steam Generator, Heater and Flares | 517,795 | 6,168,843 | 579 | 30.00 | 1.384 | 25.2 | 445 | 0.031 | 0.187 | 0.572 | 0.015 | 0.000 | 0.012 | 0.001 |
| 138 | MGCLP2COGN | Steam Generators, Cogeneration Units, Heaters and Flares | 517,703 | 6,168,836 | 579 | 30.00 | 5.182 | 15.2 | 437 | 0.136 | 1.926 | 3.728 | 0.153 | 0.000 | 0.081 | 0.006 |
| 139 | MGCL2BCOGN | Steam Generators, Cogeneration Units, Heaters and Flares | 517,558 | 6,168,877 | 579 | 30.00 | 5.182 | 15.2 | 437 | 0.404 | 2.712 | 8.713 | 0.280 | 0.000 | 0.175 | 0.010 |
| 140 | MGCL3ACOGN | Steam Generators, Cogeneration Units, Heaters and Flares | 525,480 | 6,162,532 | 609 | 30.00 | 5.182 | 15.2 | 437 | 0.714 | 5.223 | 15.861 | 0.519 | 0.000 | 0.322 | 0.021 |
| 141 | MGCL3CCOGN | Steam Generators, Cogeneration Units, Heaters and Flares | 506,714 | 6,174,588 | 602 | 30.00 | 5.182 | 15.2 | 437 | 0.714 | 5.223 | 15.861 | 0.519 | 0.000 | 0.322 | 0.021 |
| **MEG - Surmont Project** | | | | | | | | | | | | | | | | |
| 142 | MGSURMCOGN01 | Steam Generators, Cogeneration Units, Heaters, Flares, Plant Fugitives | 516,978 | 6,210,148 | 459 | 30.00 | 5.182 | 21.4 | 440 | 2.894 | 10.182 | 20.970 | 0.695 | 0.000 | 1.612 | 0.035 |
| **Nexen Canada Ltd. (Nexen) - Long Lake Pilot and Commercial Project** | | | | | | | | | | | | | | | | |
| 143 | OPLNGLSRU01 | Sulphur Incinerators | 503,410 | 6,251,145 | 498 | 115.00 | 1.524 | 30.0 | 811 | 15.545 | 0.079 | 0.060 | 0.000 | 0.000 | 0.004 | 0.000 |
| 144 | OPLNGLCOGN01 | Cogeneration Units | 503,159 | 6,251,532 | 499 | 30.00 | 5.180 | 18.2 | 433 | 1.182 | 4.840 | 3.664 | 0.256 | 0.000 | 0.159 | 0.000 |
| 145 | OPLNGLSGEN01 | Steam Generators and Heaters | 503,237 | 6,251,626 | 498 | 30.00 | 1.676 | 18.8 | 464 | 0.631 | 2.341 | 2.062 | 0.217 | 0.000 | 0.135 | 0.000 |
| 146 | OPLNGLVTHT01 | Vacuum Tower Heaters | 503,468 | 6,251,604 | 499 | 40.56 | 2.840 | 6.0 | 628 | 0.120 | 0.397 | 0.340 | 0.020 | 0.000 | 0.022 | 0.000 |
| 147 | OPLNGLVTHT03 | Vacuum Tower Heaters | 503,871 | 6,251,112 | 487 | 40.56 | 2.840 | 6.0 | 628 | 0.120 | 0.397 | 0.340 | 0.020 | 0.000 | 0.022 | 0.000 |
| 148 | OPLNGLCRKR01 | Thermal Crackers | 503,497 | 6,251,579 | 498 | 37.70 | 2.360 | 8.9 | 422 | 0.100 | 0.357 | 0.300 | 0.020 | 0.000 | 0.020 | 0.000 |

**Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 149 | OPLNGLCRKR03 | Thermal Crackers | 503,846 | 6,251,086 | 488 | 37.70 | 2.360 | 8.9 | 422 | 0.100 | 0.357 | 0.300 | 0.020 | 0.000 | 0.020 | 0.000 |
| 150 | OPLNGLHOHT01 | Thermal Oil Heater | 503,567 | 6,251,482 | 497 | 44.20 | 1.470 | 7.4 | 611 | 0.020 | 0.050 | 0.060 | 0.010 | 0.000 | 0.004 | 0.000 |
| 151 | OPLNGLHOHT02 | Thermal Oil Heater | 503,719 | 6,251,037 | 490 | 44.20 | 1.470 | 7.4 | 611 | 0.020 | 0.050 | 0.060 | 0.010 | 0.000 | 0.004 | 0.000 |
| 152 | OPLNGLHCHT01 | Thermal Oil Heater | 503,478 | 6,251,249 | 499 | 30.00 | 1.817 | 6.0 | 582 | 0.020 | 0.060 | 0.070 | 0.010 | 0.000 | 0.005 | 0.000 |
| 153 | OPLNGLHCHT02 | Thermal Oil Heater | 503,946 | 6,251,041 | 485 | 30.00 | 1.817 | 6.0 | 582 | 0.020 | 0.060 | 0.070 | 0.010 | 0.000 | 0.005 | 0.000 |
| 154 | OPLNGLBOLR01 | Utility Boilers | 503,307 | 6,251,378 | 500 | 30.00 | 1.511 | 29.5 | 416 | 0.240 | 0.893 | 0.721 | 0.059 | 0.000 | 0.047 | 0.000 |
| 155 | OPLNGLBOLR03 | Utility Boilers | 504,012 | 6,250,876 | 483 | 30.00 | 1.511 | 29.5 | 416 | 0.240 | 0.893 | 0.721 | 0.059 | 0.000 | 0.047 | 0.000 |
| 156 | OPLNGLSTSH01 | Super Steam Heaters | 503,335 | 6,251,343 | 500 | 51.42 | 1.888 | 6.5 | 578 | 0.040 | 0.119 | 0.140 | 0.020 | 0.000 | 0.009 | 0.000 |
| 157 | OPLNGLSTSH03 | Super Steam Heaters | 503,578 | 6,251,492 | 496 | 34.70 | 1.020 | 6.2 | 523 | 0.020 | 0.040 | 0.040 | 0.000 | 0.000 | 0.003 | 0.000 |
| 158 | OPLNGLPLFU | Plant Fugitives | 503,603 | 6,251,473 | 496 | 10.00 | 1.000 | 2.0 | 288 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.974 | 0.110 |
| 159 | OPLLPSGEN | Steam Generators, Power Generators, Heater and Incinerator | 504,204 | 6,251,133 | 482 | 12.92 | 1.520 | 15.2 | 453 | 0.150 | 0.499 | 0.268 | 0.018 | 0.000 | 0.031 | 0.000 |
| **Nexen - Long Lake South Project** | | | | | | | | | | | | | | | | |
| 160 | OPLLS1COGN | Cogenerator | 500,465 | 6,239,611 | 501 | 30.00 | 5.180 | 18.2 | 433 | 0.654 | 2.436 | 1.834 | 0.127 | 0.000 | 0.081 | 0.000 |
| 161 | OPLLS1SGEN01 | Steam Generators | 500,521 | 6,239,541 | 502 | 30.00 | 1.680 | 18.8 | 464 | 0.521 | 1.596 | 1.410 | 0.130 | 0.000 | 0.085 | 0.000 |
| 162 | OPLLS1SGEN06 | Steam Generators and Heater | 500,554 | 6,239,619 | 503 | 30.00 | 1.680 | 18.8 | 464 | 0.626 | 2.033 | 1.796 | 0.165 | 0.000 | 0.108 | 0.000 |
| 163 | OPLLS1LNHT01 | Line Heater | 500,941 | 6,240,033 | 507 | 7.40 | 0.510 | 1.4 | 477 | 0.000 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 |
| 164 | OPLLS1LNHT02 | Line Heater | 504,806 | 6,246,080 | 453 | 7.40 | 0.510 | 1.4 | 477 | 0.000 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 |
| 165 | OPLLS1FLRE | Flare | 501,160 | 6,239,853 | 513 | 37.46 | 3.853 | 0.0 | 1,273 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 | 0.001 | 0.000 |
| 166 | OPLLS2COGN01 | Cogenerator | 500,993 | 6,240,485 | 502 | 30.00 | 5.180 | 18.2 | 433 | 0.589 | 2.436 | 1.834 | 0.127 | 0.000 | 0.081 | 0.000 |
| 167 | OPLLS2COGN02 | Cogenerator | 501,033 | 6,240,460 | 503 | 30.00 | 5.180 | 18.2 | 433 | 0.589 | 2.436 | 1.834 | 0.127 | 0.000 | 0.081 | 0.000 |
| 168 | OPLLS2SGEN01 | Steam Generators | 501,084 | 6,240,393 | 503 | 30.00 | 1.680 | 18.8 | 464 | 0.282 | 0.958 | 0.846 | 0.078 | 0.000 | 0.051 | 0.000 |
| 169 | OPLLS2SGEN04 | Steam Generators and Heater | 501,117 | 6,240,471 | 503 | 30.00 | 1.680 | 18.8 | 464 | 0.376 | 1.394 | 1.232 | 0.113 | 0.000 | 0.074 | 0.000 |
| 170 | OPLLS2LNHT | Line Heater | 501,474 | 6,240,603 | 502 | 7.40 | 0.510 | 1.4 | 477 | 0.000 | 0.002 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 |
| 171 | OPLLS2FLRE | Flare | 501,688 | 6,240,726 | 502 | 47.20 | 3.730 | 10.4 | 1,273 | 3.776 | 0.108 | 0.587 | 0.008 | 0.010 | 0.402 | 0.000 |
| **Oak Point Energy Ltd. - Lewis Pilot** | | | | | | | | | | | | | | | | |
| 172 | OALEWBOLR | Power Generators, Compressor, Boiler and Flare | 496,451 | 6,322,840 | 496 | 25.00 | 1.000 | 0.7 | 425 | 0.160 | 0.085 | 0.352 | 0.008 | 0.000 | 0.011 | 0.000 |
| **OSUM Oil Sands Corp. - Taiga Project** | | | | | | | | | | | | | | | | |
| 173 | OSTAIGOTSG01 | Steam Generators, Cogeneration Unit, Heater, Flare and Plant Fugitives | 560,251 | 6,061,042 | 610 | 30.00 | 1.800 | 17.1 | 453 | 1.850 | 1.597 | 6.477 | 0.226 | 0.000 | 0.824 | 0.022 |
| **Petrobank Energy and Resources Ltd. - May River Phase 1 Project and Expansions** | | | | | | | | | | | | | | | | |
| 174 | PWMAYRBOLR | Sulphur Burner and Boilers | 482,987 | 6,168,349 | 613 | 30.50 | 2.500 | 8.0 | 398 | 6.605 | 3.770 | 5.728 | 0.518 | 0.000 | 0.375 | 0.000 |
| **SilverBirch Energy - Frontier Project** | | | | | | | | | | | | | | | | |
| 175 | UTFNTRFLRE | Flare Stack | 464,385 | 6,394,547 | 291 | 69.07 | 5.514 | 0.1 | 1,275 | 0.000 | 0.001 | 0.002 | 0.001 | 0.000 | 0.005 | 0.000 |
| 176 | UTFNTRNAUBL1 | Auxiliary Steam Boiler | 463,811 | 6,393,368 | 288 | 38.00 | 2.290 | 23.5 | 403 | 0.105 | 0.467 | 2.250 | 0.059 | 0.000 | 0.043 | 0.000 |
| 177 | UTFNTRNAUBL2 | Auxiliary Steam Boiler | 463,856 | 6,393,368 | 288 | 38.00 | 2.290 | 23.5 | 403 | 0.105 | 0.467 | 2.250 | 0.059 | 0.000 | 0.043 | 0.000 |
| 178 | UTFNTRNAUBL3 | Auxiliary Steam Boiler | 463,514 | 6,393,368 | 290 | 38.00 | 2.290 | 23.5 | 403 | 0.105 | 0.467 | 2.247 | 0.059 | 0.000 | 0.043 | 0.000 |
| 179 | UTFNTRNAUBL4 | Auxiliary Steam Boiler | 463,559 | 6,393,368 | 289 | 38.00 | 2.290 | 23.5 | 403 | 0.105 | 0.467 | 2.247 | 0.059 | 0.000 | 0.043 | 0.000 |
| 180 | UTFNTRNAUBL5 | Auxiliary Steam Boiler | 463,604 | 6,393,368 | 289 | 38.00 | 2.290 | 23.5 | 403 | 0.105 | 0.467 | 2.247 | 0.059 | 0.000 | 0.043 | 0.000 |
| 181 | UTFNTRNCOGN1 | Cogeneration Unit | 463,760 | 6,393,362 | 289 | 50.00 | 4.240 | 27.7 | 401 | 0.308 | 2.610 | 4.220 | 0.130 | 0.000 | 0.081 | 0.000 |
| 182 | UTFNTRNCOGN2 | Cogeneration Unit | 463,700 | 6,393,362 | 289 | 50.00 | 4.240 | 24.1 | 401 | 0.308 | 2.610 | 4.220 | 0.130 | 0.000 | 0.081 | 0.000 |
| 183 | UTFNTRNGHT1 | Natural Gas Heater | 463,526 | 6,393,235 | 289 | 9.00 | 0.914 | 10.0 | 723 | 0.004 | 0.018 | 0.085 | 0.002 | 0.000 | 0.002 | 0.000 |
| 184 | UTFNTRNGHT10 | Heater | 459,388 | 6,379,248 | 294 | 13.30 | 2.740 | 8.2 | 403 | 0.052 | 0.234 | 1.120 | 0.029 | 0.000 | 0.021 | 0.000 |
| 185 | UTFNTRNGHT2 | Natural Gas Heater | 463,532 | 6,393,235 | 289 | 9.00 | 0.914 | 10.0 | 723 | 0.004 | 0.018 | 0.085 | 0.002 | 0.000 | 0.002 | 0.000 |

**Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 186 | UTFNTRNGHT3 | Natural Gas Heater | 463,526 | 6,393,005 | 289 | 9.00 | 0.914 | 10.0 | 723 | 0.004 | 0.018 | 0.085 | 0.002 | 0.000 | 0.002 | 0.000 |
| 187 | UTFNTRNGHT4 | Natural Gas Heater | 463,532 | 6,393,005 | 289 | 9.00 | 0.914 | 10.0 | 723 | 0.004 | 0.018 | 0.085 | 0.002 | 0.000 | 0.002 | 0.000 |
| 188 | UTFNTRNGHT5 | Natural Gas Heater | 463,526 | 6,393,490 | 290 | 9.00 | 0.914 | 10.0 | 723 | 0.004 | 0.018 | 0.085 | 0.002 | 0.000 | 0.002 | 0.000 |
| 189 | UTFNTRNGHT6 | Natural Gas Heater | 463,532 | 6,393,490 | 290 | 9.00 | 0.914 | 10.0 | 723 | 0.004 | 0.018 | 0.085 | 0.002 | 0.000 | 0.002 | 0.000 |
| 190 | UTFNTRNGHT7 | Natural Gas Heater | 459,525 | 6,379,327 | 294 | 9.00 | 0.800 | 9.0 | 723 | 0.002 | 0.011 | 0.053 | 0.001 | 0.000 | 0.001 | 0.000 |
| 191 | UTFNTRNGHT8 | Natural Gas Heater | 459,537 | 6,379,316 | 294 | 9.00 | 0.800 | 9.0 | 723 | 0.002 | 0.011 | 0.053 | 0.001 | 0.000 | 0.001 | 0.000 |
| 192 | UTFNTRNGHT9 | Heater | 459,388 | 6,379,264 | 294 | 13.30 | 2.740 | 8.2 | 403 | 0.052 | 0.234 | 1.120 | 0.029 | 0.000 | 0.021 | 0.000 |
| 193 | UTFNTRNOTSG1 | Steam Generator | 463,728 | 6,393,627 | 290 | 13.00 | 1.540 | 11.1 | 393 | 0.022 | 0.100 | 0.481 | 0.013 | 0.000 | 0.009 | 0.000 |
| 194 | UTFNTRNOTSG2 | Steam Generator | 463,728 | 6,393,608 | 290 | 13.00 | 1.540 | 11.1 | 393 | 0.022 | 0.100 | 0.481 | 0.013 | 0.000 | 0.009 | 0.000 |
| 195 | UTFNTRNOTSG3 | Steam Generator | 464,343 | 6,393,627 | 288 | 13.25 | 1.520 | 11.1 | 393 | 0.022 | 0.100 | 0.481 | 0.013 | 0.000 | 0.009 | 0.000 |
| 196 | UTFNTRNOTSG4 | Steam Generator | 464,343 | 6,393,608 | 288 | 13.25 | 1.520 | 11.1 | 393 | 0.022 | 0.100 | 0.481 | 0.013 | 0.000 | 0.009 | 0.000 |
| 197 | UTFNTRNOTSG5 | Steam Generator | 464,958 | 6,393,627 | 285 | 13.25 | 1.520 | 11.1 | 393 | 0.022 | 0.100 | 0.481 | 0.013 | 0.000 | 0.009 | 0.000 |
| 198 | UTFNTRNOTSG6 | Steam Generator | 464,958 | 6,393,608 | 285 | 13.25 | 1.520 | 11.1 | 393 | 0.022 | 0.100 | 0.481 | 0.013 | 0.000 | 0.009 | 0.000 |
| 199 | UTFNTRNOTSG7 | Steam Generator | 459,388 | 6,379,223 | 294 | 13.25 | 1.200 | 9.4 | 393 | 0.012 | 0.054 | 0.261 | 0.007 | 0.000 | 0.005 | 0.000 |
| **Southern Pacific Resources Corp. - McKay SAGD Project and Expansion** | | | | | | | | | | | | | | | | |
| 200 | SPMCKYSGEN01 | Phase 1 Steam Generators, Boilers, Heaters | 424,249 | 6,304,792 | 464 | 30.32 | 1.680 | 9.1 | 450 | 0.500 | 0.515 | 1.566 | 0.041 | 0.000 | 0.029 | 0.000 |
| 201 | SPMCKYCOGN01 | Phase 1 Cogeneration Units | 424,206 | 6,304,809 | 464 | 20.50 | 1.520 | 1.4 | 484 | 0.000 | 0.170 | 0.140 | 0.004 | 0.000 | 0.003 | 0.000 |
| 202 | SPMCK2SGEN01 | Phase 2 Steam Generators, Boilers, Heaters | 428,819 | 6,304,902 | 469 | 34.00 | 2.030 | 15.2 | 423 | 1.145 | 1.757 | 5.506 | 0.146 | 0.000 | 0.273 | 0.000 |
| 203 | SPMCK2COGN01 | Phase 2 Cogeneration Units | 428,952 | 6,304,922 | 470 | 20.00 | 1.830 | 24.4 | 473 | 0.000 | 1.082 | 1.378 | 0.016 | 0.000 | 0.015 | 0.000 |
| **StatoilHydro Canada Ltd. (StatoilHydro) - Kai Kos Dehseh SAGD Project** | | | | | | | | | | | | | | | | |
| 204 | SOKKC1OTSG01 | Steam Generators, Heaters and Flares | 484,246 | 6,203,282 | 728 | 27.00 | 1.680 | 16.7 | 444 | 0.477 | 2.245 | 1.615 | 0.204 | 0.000 | 0.151 | 0.000 |
| 205 | SOKKLDOTSG01 | Steam Generators, Heaters and Flares | 471,728 | 6,185,804 | 645 | 27.00 | 1.680 | 16.7 | 444 | 0.477 | 2.390 | 1.623 | 0.205 | 0.000 | 0.152 | 0.000 |
| 206 | SOKKC2OTSG01 | Steam Generators, Heaters and Flares | 485,144 | 6,203,282 | 730 | 27.00 | 1.680 | 16.7 | 444 | 0.238 | 1.354 | 0.814 | 0.103 | 0.000 | 0.076 | 0.000 |
| 207 | SOKKCESGLHT | Heaters and Flares | 484,077 | 6,203,674 | 731 | 16.00 | 0.760 | 5.1 | 616 | 0.000 | 0.010 | 0.007 | 0.001 | 0.000 | 0.001 | 0.000 |
| 208 | SOKKCWOTSG01 | Steam Generators, Heaters and Flares | 480,326 | 6,210,475 | 704 | 27.00 | 1.680 | 16.7 | 444 | 0.238 | 1.346 | 0.809 | 0.102 | 0.000 | 0.075 | 0.000 |
| 209 | SOKKHOTSG01 | Steam Generators, Heaters and Flares | 475,538 | 6,226,253 | 723 | 27.00 | 1.680 | 16.7 | 444 | 0.238 | 1.354 | 0.814 | 0.103 | 0.000 | 0.076 | 0.000 |
| 210 | SOKKLNOTSG01 | Steam Generators, Heaters and Flares | 467,349 | 6,189,167 | 672 | 27.00 | 1.680 | 16.7 | 444 | 0.238 | 1.346 | 0.809 | 0.102 | 0.000 | 0.075 | 0.000 |
| 211 | SOKKLSOTSG01 | Steam Generators, Heaters and Flares | 465,824 | 6,171,911 | 674 | 27.00 | 1.680 | 16.7 | 444 | 0.238 | 1.346 | 0.809 | 0.102 | 0.000 | 0.075 | 0.000 |
| 212 | SOKKT1OTSG01 | Steam Generators, Heaters and Flares | 455,774 | 6,194,258 | 684 | 27.00 | 1.680 | 16.7 | 444 | 0.477 | 2.690 | 1.615 | 0.204 | 0.000 | 0.151 | 0.000 |
| 213 | SOKKT2SGLHT | Heaters and Flares | 455,932 | 6,195,139 | 678 | 16.00 | 0.760 | 5.1 | 616 | 0.000 | 0.010 | 0.007 | 0.001 | 0.000 | 0.001 | 0.000 |
| 214 | SOKKTEOTSG01 | Steam Generators, Heaters and Flares | 448,888 | 6,199,480 | 704 | 27.00 | 1.680 | 16.7 | 444 | 0.238 | 1.346 | 0.809 | 0.102 | 0.000 | 0.075 | 0.000 |
| **Suncor Energy Inc. (Suncor) - Chard Project** | | | | | | | | | | | | | | | | |
| 215 | SUCHARCOGN01 | Cogeneration Units | 498,965 | 6,196,935 | 664 | 30.50 | 6.096 | 23.6 | 478 | 0.694 | 5.944 | 4.288 | 0.359 | 0.000 | 0.154 | 0.000 |
| 216 | SUCHARSGEN01 | Steam Generators and Heaters | 499,071 | 6,196,622 | 666 | 27.00 | 1.756 | 20.6 | 478 | 0.786 | 1.236 | 1.332 | 0.121 | 0.000 | 0.087 | 0.000 |
| **Suncor - Dover In-Situ Project SAGD Pilot and VAPEX Pilot** | | | | | | | | | | | | | | | | |
| 217 | PCDOVRSGEN01 | Steam Generators, Heaters and Flare | 444,012 | 6,324,240 | 429 | 10.90 | 0.540 | 39.7 | 466 | 0.500 | 0.330 | 0.120 | 0.020 | 0.001 | 0.010 | 0.000 |
| **Suncor - Firebag Enhanced Thermal Solvent Pilot Project** | | | | | | | | | | | | | | | | |
| 218 | SUETSPSGEN01 | Steam Generator | 509,627 | 6,341,492 | 579 | 3.80 | 0.152 | 79.5 | 813 | 0.002 | 0.096 | 0.022 | 0.003 | 0.000 | 0.008 | 0.000 |
| 219 | SUETSPSGEN03 | Steam Generator | 509,622 | 6,341,479 | 579 | 3.80 | 0.152 | 79.5 | 813 | 0.002 | 0.096 | 0.022 | 0.003 | 0.000 | 0.008 | 0.000 |
| 220 | SUETS2FLRE | Flare | 509,502 | 6,342,186 | 579 | 15.35 | 1.620 | 4.9 | 1,273 | 0.116 | 0.009 | 0.050 | 0.000 | 0.001 | 0.013 | 0.001 |
| 221 | SUETSPHTR01 | Heaters and Flare | 509,639 | 6,341,477 | 579 | 6.10 | 0.254 | 40.0 | 594 | 0.045 | 0.012 | 0.030 | 0.001 | 0.000 | 0.005 | 0.000 |

**Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Suncor - Firebag In-Situ Oil Sands Project** | | | | | | | | | | | | | | | | |
| 222 | SUFBP1SGEN01 | Steam Generator | 508,941 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.107 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 223 | SUFBP2SGEN01 | Steam Generator | 509,147 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 224 | SUFBSC&ECOGN | Cogeneration Unit | 508,884 | 6,343,671 | 582 | 27.00 | 5.486 | 16.4 | 439 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 225 | SUFBP3COGN01 | Cogeneration Unit | 508,803 | 6,344,331 | 583 | 27.00 | 5.486 | 14.8 | 425 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 226 | SUFBP3SGEN01 | Steam Generators and Diluent Stripper Unit | 508,812 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.451 | 0.888 | 0.735 | 0.066 | 0.000 | 0.048 | 0.000 |
| 227 | SUFBP4COGN01 | Cogeneration Unit | 508,677 | 6,344,331 | 583 | 27.00 | 5.486 | 14.8 | 425 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 228 | SUFBP4SGEN01 | Steam Generators and Diluent Stripper Unit | 508,853 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.451 | 0.888 | 0.735 | 0.066 | 0.000 | 0.048 | 0.000 |
| 229 | SUFBP5SGEN01 | Steam Generators and Diluent Stripper Unit | 508,768 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.888 | 0.735 | 0.066 | 0.000 | 0.048 | 0.000 |
| 230 | SUFBP6SGEN01 | Steam Generators and Diluent Stripper Unit | 508,686 | 6,344,664 | 584 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.888 | 0.735 | 0.066 | 0.000 | 0.048 | 0.000 |
| 231 | SUFBP1SRU | SRU Thermal Oxidizing Unit | 509,308 | 6,343,114 | 581 | 55.00 | 0.610 | 20.0 | 811 | 2.407 | 0.004 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 |
| 232 | SUFBP1SGEN02 | Steam Generator | 508,941 | 6,343,593 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.000 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 233 | SUFBP1SGEN03 | Steam Generator | 508,965 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 234 | SUFBP1SGEN04 | Steam Generator | 508,965 | 6,343,593 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.000 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 235 | SUFBP2SGEN02 | Steam Generator | 509,172 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 236 | SUFBP2SGEN03 | Steam Generator | 509,172 | 6,343,593 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 237 | SUFBP2SGEN04 | Steam Generator | 509,147 | 6,343,593 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 238 | SUFBP2SGEN05 | Steam Generator | 509,196 | 6,343,673 | 582 | 30.00 | 1.700 | 22.2 | 431 | 0.175 | 0.357 | 0.285 | 0.026 | 0.000 | 0.019 | 0.000 |
| 239 | SUFBP3COGN02 | Cogeneration Unit | 508,744 | 6,344,331 | 583 | 27.00 | 5.486 | 14.8 | 425 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 240 | SUFBP3SGEN02 | Steam Generator | 508,836 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.370 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 241 | SUFBP4COGN02 | Cogeneration Unit | 508,618 | 6,344,331 | 583 | 27.00 | 5.486 | 14.8 | 425 | 0.248 | 1.846 | 1.282 | 0.107 | 0.000 | 0.049 | 0.000 |
| 242 | SUFBP4SGEN02 | Steam Generator | 508,877 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.370 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 243 | SUFBP5SGEN02 | Steam Generator | 508,792 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 244 | SUFBP5SGEN03 | Steam Generator | 508,894 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 245 | SUFBP5SGEN04 | Steam Generator | 508,918 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 246 | SUFBP6SGEN02 | Steam Generator | 508,711 | 6,344,664 | 584 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 247 | SUFBP6SGEN03 | Steam Generator | 508,728 | 6,344,664 | 584 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| 248 | SUFBP6SGEN04 | Steam Generator | 508,751 | 6,344,664 | 583 | 33.00 | 2.438 | 20.9 | 426 | 0.000 | 0.729 | 0.602 | 0.055 | 0.000 | 0.039 | 0.000 |
| **Suncor - Fort Hills Oil Sands Project** | | | | | | | | | | | | | | | | |
| 249 | PCFTHLAUBL01 | Boilers and Heaters | 465,722 | 6,361,155 | 340 | 40.00 | 2.740 | 21.9 | 436 | 0.053 | 4.821 | 6.351 | 0.321 | 0.000 | 0.416 | 0.000 |
| **Suncor - Lewis SAGD Project** | | | | | | | | | | | | | | | | |
| 250 | PCLEWSCOGN01 | Cogeneration Units, Heaters and Flares | 494,816 | 6,305,173 | 461 | 30.50 | 6.100 | 24.8 | 478 | 1.300 | 6.140 | 4.490 | 0.380 | 0.002 | 0.160 | 0.000 |
| 251 | PCLEWSSGEN01 | Steam Generators | 495,045 | 6,304,972 | 461 | 27.00 | 1.760 | 21.6 | 478 | 0.330 | 0.870 | 0.900 | 0.090 | 0.000 | 0.060 | 0.000 |
| **Suncor - Meadow Creek In-Situ Project** | | | | | | | | | | | | | | | | |
| 252 | PCMDWCCOGN01 | Cogeneration Units and Heaters | 482,144 | 6,242,326 | 719 | 30.50 | 6.096 | 23.6 | 478 | 0.752 | 6.007 | 4.388 | 0.368 | 0.000 | 0.160 | 0.000 |
| 253 | PCMDWCSGEN01 | Steam Generators | 482,251 | 6,242,013 | 718 | 27.00 | 1.756 | 20.6 | 478 | 0.728 | 1.173 | 1.232 | 0.112 | 0.000 | 0.081 | 0.000 |
| **Suncor - MacKay River In-Situ Project** | | | | | | | | | | | | | | | | |
| 254 | PCMCKYSGEN01 | Steam Generators, Glycol Heaters and ZLD Dryer | 445,071 | 6,322,225 | 418 | 27.00 | 1.340 | 27.5 | 553 | 0.667 | 0.670 | 0.662 | 0.048 | 0.000 | 0.123 | 0.000 |
| 255 | PCMCKYCOGN01 | Cogeneration Unit | 445,002 | 6,322,389 | 420 | 26.20 | 6.310 | 20.0 | 452 | 0.333 | 3.600 | 3.720 | 0.156 | 0.000 | 0.087 | 0.000 |
| **Suncor - MacKay River Expansion SAGD Project** | | | | | | | | | | | | | | | | |
| 256 | PCMCKEDBLR01 | Boilers, Heater and ZLD Dryer | 446,150 | 6,324,048 | 400 | 35.00 | 2.300 | 18.1 | 453 | 0.900 | 1.567 | 7.522 | 0.049 | 0.000 | 0.184 | 0.000 |

**Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Suncor - Millennium Coker Unit (MCU)** | | | | | | | | | | | | | | | | |
| 257 | SUMCU52F302 | Heaters | 470,912 | 6,318,381 | 245 | 60.66 | 3.280 | 10.3 | 487 | 0.473 | 0.445 | 0.455 | 0.041 | 0.000 | 0.030 | 0.000 |
| 258 | SUMCUNHT3 | Reactor Charge Heater | 470,411 | 6,318,623 | 261 | 38.10 | 0.520 | 5.6 | 533 | 0.034 | 0.021 | 0.026 | 0.002 | 0.000 | 0.002 | 0.000 |
| 259 | SUMCUH2PL3 | Hydrogen Plant | 470,465 | 6,318,577 | 260 | 42.67 | 3.502 | 13.7 | 422 | 0.175 | 0.402 | 0.324 | 0.029 | 0.000 | 0.021 | 0.000 |
| 260 | SUMCU59F102 | Flare | 471,121 | 6,318,473 | 236 | 130.93 | 10.775 | 1.0 | 1,273 | 1.422 | 0.000 | 0.003 | 0.000 | 0.000 | 0.001 | 0.015 |
| **Suncor - Millennium Vacuum Unit (MVU)** | | | | | | | | | | | | | | | | |
| 261 | SUMVU57F1A | Heaters | 470,733 | 6,318,662 | 247 | 49.06 | 1.727 | 14.0 | 483 | 0.803 | 0.757 | 0.776 | 0.070 | 0.000 | 0.051 | 0.000 |
| **Suncor - Upgrader Complex** | | | | | | | | | | | | | | | | |
| 262 | SUPLNTFGD | FGD Stack | 471,043 | 6,317,825 | 251 | 137.20 | 7.010 | 10.9 | 328 | 18.749 | 31.971 | 0.781 | 4.053 | 0.000 | 0.172 | 0.000 |
| 263 | SUPLNTGTG01 | Gas Turbine Generators | 470,360 | 6,318,450 | 267 | 30.50 | 6.100 | 15.9 | 383 | 0.000 | 4.512 | 3.456 | 0.289 | 0.000 | 0.133 | 0.000 |
| 264 | SUPLNTPOWRHS | Powerhouse | 471,026 | 6,317,764 | 254 | 106.68 | 5.790 | 4.8 | 416 | 16.153 | 4.780 | 2.053 | 0.485 | 0.000 | 0.143 | 0.000 |
| 265 | SUMIL53F611 | Millennium TOU | 470,933 | 6,318,211 | 247 | 106.07 | 3.353 | 9.7 | 918 | 5.959 | 0.332 | 0.108 | 0.010 | 0.000 | 0.007 | 0.000 |
| 266 | SUBSPL8F5 | Sulphur Plant Incinerator | 471,003 | 6,318,016 | 248 | 106.68 | 1.981 | 22.0 | 673 | 12.417 | 0.113 | 0.027 | 0.002 | 0.000 | 0.002 | 0.000 |
| 267 | SUBSPL5F1A | (Plants, 5, 6 and 7) Process Heaters, Furnace, Hydrogen Waste Gas, Reboilers | 470,986 | 6,317,928 | 250 | 48.77 | 1.803 | 3.3 | 733 | 0.625 | 3.340 | 1.555 | 0.141 | 0.000 | 0.102 | 0.000 |
| 268 | SUBSPL25F1 | (Plant 25) Process Heaters | 470,750 | 6,318,076 | 256 | 67.03 | 1.493 | 9.1 | 486 | 0.165 | 0.802 | 0.411 | 0.037 | 0.000 | 0.027 | 0.000 |
| 269 | SUMIL52F101A | (Plant 52) Process Heaters | 470,804 | 6,318,588 | 245 | 58.22 | 2.926 | 3.7 | 497 | 0.468 | 1.387 | 1.165 | 0.105 | 0.000 | 0.076 | 0.000 |
| 270 | SUMIL54F101 | (Plants 54 and 55) Process Heaters, Reformers, Reboiler and Flare | 470,529 | 6,318,514 | 258 | 38.10 | 2.845 | 25.1 | 566 | 0.365 | 1.082 | 0.909 | 0.082 | 0.000 | 0.060 | 0.000 |
| 271 | SUBSPL19F2 | Acid Gas Flare | 471,202 | 6,318,106 | 242 | 88.81 | 3.864 | 15.5 | 1,273 | 3.648 | 0.019 | 0.106 | 0.000 | 0.002 | 0.026 | 0.037 |
| 272 | SUBSPL7F1 | Heaters | 470,971 | 6,317,907 | 251 | 41.15 | 1.270 | 5.4 | 728 | 0.124 | 0.367 | 0.309 | 0.028 | 0.000 | 0.020 | 0.000 |
| 273 | SUMIL59F101 | Acid Gas Flare | 471,157 | 6,318,390 | 237 | 130.93 | 10.775 | 1.0 | 1,273 | 1.422 | 0.000 | 0.003 | 0.000 | 0.000 | 0.001 | 0.015 |
| 274 | SUMIL53F612 | SWAG Flare | 470,936 | 6,318,211 | 247 | 105.78 | 1.512 | 6.1 | 1,273 | 0.493 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.005 |
| **Suncor - Voyageur Project** | | | | | | | | | | | | | | | | |
| 275 | SUVYGRSRU | (Plant 208) SRU and Sulphur Plant Incinerator | 469,120 | 6,314,086 | 321 | 89.92 | 4.174 | 15.2 | 673 | 7.074 | 0.362 | 0.104 | 0.009 | 0.000 | 0.007 | 0.000 |
| 276 | SUVYGRH2PL01 | (Plant 206 and 216) Hydrogen Plants and Hydrogen Reforming Furnaces | 469,248 | 6,314,274 | 322 | 42.67 | 4.041 | 13.7 | 422 | 0.021 | 2.346 | 2.001 | 0.181 | 0.000 | 0.131 | 0.000 |
| 277 | SUVYGRBOLR | Boiler Package Heater | 469,205 | 6,314,572 | 322 | 38.10 | 3.215 | 7.6 | 478 | 0.219 | 0.295 | 0.261 | 0.024 | 0.000 | 0.017 | 0.000 |
| 278 | SUVYGRDCU01 | (Plant 205) Coker and Coker Charge Heaters | 468,914 | 6,314,251 | 319 | 39.62 | 4.311 | 7.6 | 444 | 1.170 | 1.576 | 1.396 | 0.126 | 0.000 | 0.091 | 0.000 |
| 279 | SUVYGRDSHT01 | (Plant 207) Diesel Hydrotreaters, Fired Heater Combined Feed Heater and Reboiler | 469,012 | 6,314,457 | 320 | 39.62 | 1.495 | 7.6 | 478 | 0.048 | 0.043 | 0.057 | 0.005 | 0.000 | 0.004 | 0.000 |
| 280 | SUVYGRFGPH | Fuel Gas Pipeline Heater | 469,404 | 6,314,474 | 324 | 45.72 | 0.686 | 7.6 | 478 | 0.010 | 0.009 | 0.012 | 0.001 | 0.000 | 0.001 | 0.000 |
| 281 | SUVYGRGOHT01 | (Plant 207) Gas Oil Hydrotreater, Fired Heater Comb and Feed Heater | 469,141 | 6,314,343 | 321 | 39.62 | 1.512 | 7.6 | 478 | 0.078 | 0.068 | 0.093 | 0.008 | 0.000 | 0.006 | 0.000 |
| 282 | SUVYGRSTSH02 | Steam Superheater | 469,257 | 6,314,546 | 322 | 45.72 | 0.654 | 7.6 | 478 | 0.010 | 0.009 | 0.012 | 0.001 | 0.000 | 0.001 | 0.000 |
| 283 | SUVYGRHBHF | Hot Bitumen Heating Furnace | 468,904 | 6,314,127 | 319 | 45.72 | 0.610 | 7.6 | 478 | 0.010 | 0.008 | 0.011 | 0.001 | 0.000 | 0.001 | 0.000 |
| 284 | SUVYGRVRUC | VRU Combustion Unit | 468,786 | 6,314,288 | 318 | 45.72 | 1.341 | 7.6 | 478 | 0.048 | 0.042 | 0.057 | 0.005 | 0.000 | 0.004 | 0.000 |
| 285 | SUVYGRVACT01 | (Plant 202) Vacuum Tower Heater | 468,804 | 6,314,324 | 318 | 47.76 | 2.058 | 10.1 | 483 | 0.146 | 0.197 | 0.175 | 0.016 | 0.000 | 0.011 | 0.000 |
| 286 | SUVYGRHPBL | (Plant 203) Gasifier and HP Boiler Package Heater | 469,230 | 6,314,560 | 322 | 38.10 | 0.762 | 7.6 | 478 | 0.017 | 0.014 | 0.020 | 0.002 | 0.000 | 0.001 | 0.000 |
| 287 | SUVYGRLPFL01 | Low Pressure Flare | 468,795 | 6,313,746 | 319 | 127.63 | 5.677 | 1.4 | 1,273 | 0.671 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.007 |
| 288 | SUVYGRDSHT02 | (Plant 207) Diesel Hydrotreater, Fired Heater Stripper Reboiler | 468,976 | 6,314,380 | 320 | 45.72 | 2.461 | 7.6 | 444 | 0.127 | 0.174 | 0.152 | 0.014 | 0.000 | 0.010 | 0.000 |
| 289 | SUVYGRLPFL02 | Low Pressure Flare | 468,865 | 6,313,711 | 319 | 136.15 | 14.761 | 1.4 | 1,273 | 4.538 | 0.001 | 0.007 | 0.000 | 0.000 | 0.002 | 0.046 |
| 290 | SUVYGRVACT02 | (Plant 202) Vacuum Tower Heater | 468,769 | 6,314,250 | 318 | 47.76 | 2.058 | 10.1 | 483 | 0.146 | 0.197 | 0.175 | 0.016 | 0.000 | 0.011 | 0.000 |

**Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Suncor - Voyageur South Project** | | | | | | | | | | | | | | | | |
| 291 | SUVSMNBOLR01 | Boiler | 468,606 | 6,314,832 | 316 | 30.48 | 3.658 | 24.4 | 450 | 0.018 | 0.649 | 0.527 | 0.048 | 0.000 | 0.035 | 0.000 |
| 292 | SUVSMNBOLR02 | Boiler | 468,556 | 6,314,832 | 316 | 30.48 | 3.658 | 24.4 | 450 | 0.018 | 0.649 | 0.527 | 0.048 | 0.000 | 0.035 | 0.000 |
| 293 | SUVSMNCOGN01 | Cogeneration Unit | 468,452 | 6,314,717 | 316 | 30.48 | 5.182 | 18.9 | 366 | 0.041 | 1.846 | 1.199 | 0.100 | 0.000 | 0.046 | 0.000 |
| 294 | SUVSMNCOGN02 | Cogeneration Unit | 468,412 | 6,314,640 | 316 | 30.48 | 5.182 | 18.9 | 366 | 0.041 | 1.846 | 1.199 | 0.100 | 0.000 | 0.046 | 0.000 |
| **Sunshine Oilsands Ltd. - Harper Pilot** | | | | | | | | | | | | | | | | |
| 295 | SNHARPSGEN | Steam Generator, Continuous Flare | 328,562 | 6,349,790 | 762 | 7.62 | 0.914 | 4.8 | 473 | 0.000 | 0.049 | 0.032 | 0.003 | 0.000 | 0.004 | 0.000 |
| **Sunshine Oilsands Ltd. - Legend Lake SAGD Project Phase 1** | | | | | | | | | | | | | | | | |
| 296 | SNLKP1SGEN01 | Steam Generators, Boiler and Heater | 388,228 | 6,354,380 | 754 | 30.00 | 1.630 | 15.5 | 450 | 0.494 | 0.621 | 1.961 | 0.080 | 0.000 | 0.037 | 0.000 |
| 297 | SNLKP1COGN | Cogeneration Unit | 388,221 | 6,354,320 | 753 | 20.00 | 1.830 | 12.0 | 484 | 0.000 | 0.140 | 0.370 | 0.004 | 0.000 | 0.001 | 0.000 |
| **Sunshine Oilsands Ltd. - Thickwood SAGD Project Phase 1** | | | | | | | | | | | | | | | | |
| 298 | SNTWP1SGEN01 | Steam Generators, Boiler and Heater | 391,149 | 6,300,239 | 503 | 30.00 | 1.540 | 15.5 | 450 | 0.494 | 0.561 | 1.761 | 0.072 | 0.000 | 0.034 | 0.000 |
| 299 | SNTWP1COGN | Cogeneration Unit | 391,186 | 6,300,185 | 502 | 20.00 | 1.830 | 12.0 | 484 | 0.000 | 0.140 | 0.370 | 0.004 | 0.000 | 0.001 | 0.000 |
| **Sunshine Oilsands Ltd. - West Ells Project** | | | | | | | | | | | | | | | | |
| 300 | SNWTELSGEN01 | Steam Generators, Boiler and Heater | 395,741 | 6,341,044 | 537 | 30.00 | 1.540 | 15.6 | 450 | 1.534 | 0.583 | 1.781 | 0.072 | 0.000 | 0.052 | 0.000 |
| 301 | SNWTELCOGN01 | Cogeneration Unit | 395,685 | 6,341,095 | 538 | 20.00 | 1.080 | 12.0 | 484 | 0.000 | 0.220 | 0.180 | 0.015 | 0.000 | 0.015 | 0.000 |
| **Surmont Energy Ltd. - Wildwood Project** | | | | | | | | | | | | | | | | |
| 302 | SRWLWDSGEN01 | Steam Generators, Cogeneration Unit, Heater, Flare | 483,365 | 6,220,539 | 740 | 36.00 | 2.134 | 14.1 | 450 | 1.191 | 1.116 | 0.885 | 0.093 | 0.000 | 0.054 | 0.000 |
| **Syncrude Canada Ltd. (Syncrude) - Aurora North Mine** | | | | | | | | | | | | | | | | |
| 303 | SYAURNCOGN01 | Cogeneration Units, Steam Generators and Plant Fugitives | 469,402 | 6,350,746 | 288 | 25.00 | 3.270 | 33.9 | 460 | 0.000 | 1.240 | 0.280 | 0.120 | 0.000 | 0.020 | 0.000 |
| 304 | SYAURNBOLR01 | Boilers | 469,370 | 6,350,733 | 288 | 25.00 | 2.740 | 37.7 | 455 | 0.000 | 1.140 | 0.260 | 0.100 | 0.000 | 0.020 | 0.000 |
| **Syncrude - Aurora South Mine** | | | | | | | | | | | | | | | | |
| 305 | SYAURSBOLR01 | Boilers and Space Heaters | 485,750 | 6,341,025 | 361 | 30.00 | 1.400 | 17.0 | 387 | 0.048 | 4.347 | 5.924 | 0.536 | 0.000 | 0.388 | 0.000 |
| **Syncrude - Mildred Lake Mining and Upgrading, Upgrader Expansion and Emissions Reduction Program** | | | | | | | | | | | | | | | | |
| 306 | SYMLLK8-3 | 8-3 Diverter Sack | 462,807 | 6,322,880 | 306 | 94.49 | 6.600 | 10.5 | 348 | 15.000 | 3.500 | 13.500 | 2.100 | 0.002 | 0.000 | 0.000 |
| 307 | SYMLLKMAIN | Main Stack | 462,632 | 6,322,111 | 308 | 183.00 | 7.900 | 18.2 | 381 | 81.000 | 14.800 | 55.200 | 1.550 | 0.001 | 0.000 | 0.000 |
| 308 | SYMLLKGTGN01 | Gas Turbine Generators | 462,693 | 6,322,003 | 308 | 45.70 | 3.300 | 15.8 | 423 | 0.000 | 4.560 | 0.720 | 0.270 | 0.000 | 0.018 | 0.000 |
| 309 | SYMLLKBCFH01 | Bitumen Column Feed Heaters | 462,596 | 6,322,427 | 307 | 51.80 | 3.200 | 5.7 | 422 | 0.000 | 3.440 | 0.936 | 0.296 | 0.000 | 0.032 | 0.000 |
| 310 | SYMLLKSTSH01 | Steam Superheaters | 462,662 | 6,322,261 | 308 | 39.60 | 2.100 | 5.2 | 616 | 0.000 | 0.330 | 0.116 | 0.045 | 0.000 | 0.009 | 0.000 |
| 311 | SYMLLKRFRF01 | Reformer Furnaces | 463,084 | 6,322,453 | 306 | 23.50 | 4.100 | 11.6 | 540 | 0.000 | 13.650 | 4.825 | 1.509 | 0.000 | 0.172 | 0.000 |
| 312 | SYMLLKH2HT01 | Diluent Reboiler, Hydrogen Heaters and Plant Fugitives | 462,879 | 6,322,400 | 307 | 41.80 | 1.700 | 7.7 | 426 | 0.000 | 0.980 | 0.293 | 0.113 | 0.000 | 7.216 | 1.084 |
| 313 | SYMLLKFRRB01 | Bitumen Feed and Fractionator Reboilers | 462,820 | 6,322,545 | 307 | 45.70 | 1.900 | 8.0 | 653 | 0.000 | 0.610 | 0.170 | 0.072 | 0.000 | 0.016 | 0.000 |
| 314 | SYMLLKBMHT01 | Bitumen Heaters and Sulfeen Regeneration | 462,865 | 6,323,038 | 305 | 6.10 | 0.300 | 29.0 | 839 | 0.000 | 0.262 | 0.059 | 0.025 | 0.000 | 0.008 | 0.000 |
| 315 | SYMLLKVDUH01 | VDU Bitumen Feed Heaters | 462,578 | 6,322,525 | 307 | 54.30 | 3.300 | 4.0 | 435 | 0.000 | 0.400 | 0.195 | 0.060 | 0.000 | 0.006 | 0.000 |
| 316 | SYMLLKDIVR01 | Coker Diverter Stacks | 462,742 | 6,322,246 | 308 | 73.20 | 3.700 | 34.6 | 761 | 2.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 317 | SYMLLKH2SF | Acid Gas Flare | 461,836 | 6,321,982 | 291 | 85.40 | 2.900 | 20.0 | 1,273 | 2.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| **Total E&P Joslyn Ltd. - Joslyn North Mine Project** | | | | | | | | | | | | | | | | |
| 318 | TCJSNMCOGN01 | Cogeneration Units | 450,500 | 6,347,350 | 307 | 36.60 | 4.600 | 22.0 | 393 | 0.043 | 2.179 | 1.132 | 0.096 | 0.000 | 0.216 | 0.000 |
| 319 | TCJSNMSGEN01 | Steam Generators | 450,400 | 6,347,270 | 307 | 30.00 | 1.800 | 18.0 | 383 | 0.014 | 0.349 | 0.311 | 0.052 | 0.000 | 0.001 | 0.000 |
| **Total E&P Joslyn Ltd. - Joslyn Mine Expansion** | | | | | | | | | | | | | | | | |
| 320 | TCJSSMCOGN01 | Cogeneration Units | 445,500 | 6,344,030 | 318 | 36.60 | 4.600 | 22.0 | 393 | 0.043 | 2.179 | 1.132 | 0.096 | 0.000 | 0.216 | 0.000 |
| 321 | TCJSSMSGEN01 | Steam Generators | 445,400 | 6,343,950 | 319 | 30.00 | 1.800 | 18.0 | 383 | 0.014 | 0.349 | 0.311 | 0.052 | 0.000 | 0.001 | 0.000 |

**Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][a] | | Base Elevation [m] | Stack Height [m][b] | Stack Diameter [m][b] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Value Creation Inc. - Terre de Grace Pilot and SAGD Project** | | | | | | | | | | | | | | | | |
| 322 | VCTGRPMAIN01 | Phase 1 Main Stack | 438,110 | 6,360,694 | 492 | 70.00 | 0.300 | 14.9 | 443 | 0.160 | 0.030 | 0.100 | 0.010 | 0.000 | 0.007 | 0.000 |
| 323 | VCTGRPMAIN02 | Phase 2 Main Stack | 436,684 | 6,351,647 | 431 | 70.00 | 1.300 | 10.1 | 443 | 1.660 | 0.390 | 0.020 | 0.030 | 0.000 | 0.001 | 0.000 |
| 324 | VCTGRPSTBL01 | Phase 1 Steam Boiler | 438,447 | 6,360,740 | 485 | 30.00 | 0.900 | 19.7 | 443 | 1.080 | 0.029 | 0.020 | 0.002 | 0.000 | 0.001 | 0.000 |
| 325 | VCTGRPSTBL03 | Phase 2 Steam Boiler | 436,524 | 6,351,711 | 432 | 25.00 | 2.000 | 17.9 | 443 | 0.880 | 0.120 | 0.060 | 0.010 | 0.000 | 0.004 | 0.000 |
| **Value Creation Inc. - TriStar Pilot and Commercial Phase 1 Project** | | | | | | | | | | | | | | | | |
| 326 | VCTSPPSGEN | Pilot Steam Boiler and USP Unit | 484,997 | 6,270,118 | 400 | 28.00 | 1.000 | 16.4 | 623 | 1.000 | 0.050 | 0.100 | 0.010 | 0.000 | 0.007 | 0.000 |
| 327 | VCTSPP1SGEN | Phase 1 Steam Boiler and USP Unit | 484,997 | 6,270,118 | 400 | 28.00 | 1.000 | 16.4 | 623 | 3.075 | 3.750 | 7.500 | 0.750 | 0.000 | 0.491 | 0.000 |
| **Other Industries** | | | | | | | | | | | | | | | | |
| 328 | BMHMSACT01 | Birch Mountain Hammerstone Quarry - Activation | 466,006 | 6,338,958 | 255 | 65.00 | 3.260 | 20.0 | 538 | 1.227 | 0.918 | 2.283 | 0.165 | 0.000 | 0.522 | 0.000 |
| 329 | BMHMSASF | Birch Mountain Hammerstone Quarry - Air Separator Filter | 466,195 | 6,338,830 | 256 | 35.00 | 1.630 | 20.0 | 353 | 0.000 | 0.000 | 0.000 | 0.041 | 0.000 | 0.000 | 0.000 |
| 330 | BMHMSCCF | Birch Mountain Hammerstone Quarry - Clinker Cooler Filter | 466,223 | 6,338,849 | 256 | 40.00 | 2.260 | 20.0 | 503 | 0.000 | 0.000 | 0.000 | 0.052 | 0.000 | 0.000 | 0.000 |
| 331 | BMHMSCDF | Birch Mountain Hammerstone Quarry - Clinker Dome Filter | 466,238 | 6,338,734 | 256 | 30.00 | 0.780 | 20.0 | 293 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.000 | 0.000 |
| 332 | BMHMSCM1_2 | Birch Mountain Hammerstone Quarry - PFC-1, PFC-2 and Coke Grinding Mill | 466,255 | 6,339,126 | 256 | 35.00 | 0.350 | 20.0 | 358 | 0.000 | 0.000 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 |
| 333 | BMHMSCMF | Birch Mountain Hammerstone Quarry - Coke Mill Filter | 466,285 | 6,338,846 | 256 | 35.00 | 0.780 | 20.0 | 273 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.000 | 0.000 |
| 334 | BMHMSHDVT | Birch Mountain Hammerstone Quarry - Hydrator Vent | 466,159 | 6,339,143 | 256 | 30.00 | 0.460 | 20.0 | 373 | 0.000 | 0.000 | 0.000 | 0.003 | 0.000 | 0.000 | 0.000 |
| 335 | BMHMSLGM01 | Birch Mountain Hammerstone Quarry - Limestone Grinding Mill | 466,041 | 6,339,042 | 255 | 35.00 | 1.260 | 20.0 | 293 | 0.000 | 0.000 | 0.000 | 0.025 | 0.000 | 0.000 | 0.000 |
| 336 | BMHMSMF | Birch Mountain Hammerstone Quarry - Mill Filter | 466,182 | 6,338,830 | 256 | 35.00 | 0.780 | 20.0 | 293 | 0.000 | 0.000 | 0.000 | 0.009 | 0.000 | 0.000 | 0.000 |
| 337 | BMHMSMKFS | Birch Mountain Hammerstone Quarry - Mill-Kiln Filter Stack | 466,329 | 6,338,858 | 256 | 65.00 | 2.090 | 20.0 | 383 | 1.977 | 3.000 | 1.280 | 0.073 | 0.000 | 0.292 | 0.000 |
| 338 | BMHMSPCLM01 | Birch Mountain Hammerstone Quarry - PFC-1 and Limestone Mill 1 | 466,232 | 6,339,126 | 256 | 50.00 | 1.290 | 20.0 | 518 | 0.299 | 0.366 | 0.372 | 0.026 | 0.000 | 0.085 | 0.000 |
| 339 | BMHMSPCLM02 | Birch Mountain Hammerstone Quarry - PFC-2 and Limestone Mill 1 | 466,217 | 6,339,126 | 256 | 50.00 | 1.580 | 20.0 | 518 | 0.448 | 0.549 | 0.558 | 0.039 | 0.000 | 0.127 | 0.000 |
| 340 | BMHMSQLK01 | Birch Mountain Hammerstone Quarry - Quicklime-1 | 466,034 | 6,338,924 | 255 | 65.00 | 3.260 | 20.0 | 538 | 1.227 | 0.918 | 2.283 | 0.165 | 0.000 | 0.522 | 0.000 |
| 341 | BMHMSQLK02 | Birch Mountain Hammerstone Quarry - Quicklime-2 | 466,034 | 6,338,974 | 255 | 65.00 | 2.140 | 20.0 | 539 | 1.126 | 0.878 | 0.987 | 0.071 | 0.000 | 0.226 | 0.000 |
| 342 | BMHMSQLK03 | Birch Mountain Hammerstone Quarry - Quicklime-3 | 466,034 | 6,339,024 | 255 | 65.00 | 3.580 | 20.0 | 539 | 3.065 | 2.400 | 2.763 | 0.200 | 0.000 | 0.631 | 0.000 |
| 343 | BMHMSRCM01 | Birch Mountain Hammerstone Quarry - Rotary Klin Coke Mill-1 | 465,195 | 6,339,038 | 256 | 35.00 | 0.780 | 20.0 | 373 | 0.000 | 0.000 | 0.000 | 0.010 | 0.000 | 0.000 | 0.000 |
| 344 | BMHMSRCM02 | Birch Mountain Hammerstone Quarry - Rotary Klin Coke Mill-2 | 465,915 | 6,339,038 | 255 | 35.00 | 1.300 | 20.0 | 373 | 0.000 | 0.000 | 0.000 | 0.026 | 0.000 | 0.000 | 0.000 |
| 345 | WICHPLHMHT | Williams Energy Chemical Plant | 471,754 | 6,314,125 | 322 | 32.40 | 1.400 | 6.2 | 553 | 0.000 | 0.020 | 0.017 | 0.002 | 0.000 | 0.240 | 0.000 |
| 346 | NFTOTAL | Northland Forest Products Mill | 473,235 | 6,303,199 | 241 | 25.91 | 1.397 | 15.6 | 555 | 0.010 | 0.084 | 0.229 | 0.170 | 0.000 | 0.006 | 0.000 |
| **Gas Plants and Compressor Stations** | | | | | | | | | | | | | | | | |
| 347 | BPLEISCOMP | BP Canada Energy Co. (BP) - Leismer Compressor Station | 482,578 | 6,171,801 | 579 | 12.20 | 0.660 | 34.3 | 672 | 0.000 | 2.304 | 0.306 | 0.010 | 0.000 | 0.112 | 0.000 |
| 348 | BPLINACOMP | BP - St. Lina North Sweet Compressor Station | 486,624 | 6,032,149 | 565 | 14.00 | 0.250 | 56.0 | 862 | 0.000 | 0.913 | 0.133 | 0.004 | 0.000 | 0.049 | 0.000 |
| 349 | CNGASPCHARD | Canadian Natural - Chard Gas Plant | 510,967 | 6,195,656 | 489 | 18.30 | 0.250 | 60.6 | 863 | 0.000 | 0.136 | 0.011 | 0.000 | 0.000 | 0.004 | 0.000 |
| 350 | CNGASPCOWPAR | Canadian Natural - Cowpar Gas Plant | 523,589 | 6,200,560 | 484 | 18.00 | 0.177 | 20.0 | 1,273 | 0.500 | 0.460 | 0.036 | 0.001 | 0.000 | 0.013 | 0.000 |
| 351 | CNGASPJNCHD | Canadian Natural - Janvier Chard Gas Plant | 513,034 | 6,186,355 | 553 | 14.63 | 0.254 | 43.9 | 977 | 0.000 | 1.610 | 0.076 | 0.002 | 0.000 | 0.028 | 0.000 |
| 352 | CNKEHICOMP | Canadian Natural - Kehiwin Compressor Station | 507,197 | 5,997,740 | 589 | 11.00 | 0.300 | 21.0 | 928 | 0.000 | 0.479 | 0.032 | 0.001 | 0.000 | 0.012 | 0.000 |
| 353 | CNGASPKETRIV | Canadian Natural - Kettle River Gas Plant | 520,207 | 6,228,483 | 477 | 29.00 | 0.247 | 20.0 | 1,237 | 0.600 | 0.029 | 0.002 | 0.000 | 0.000 | 0.001 | 0.000 |
| 354 | CNGASPNEWBY | Canadian Natural - Newby Gas Plant | 510,363 | 6,243,820 | 480 | 20.00 | 0.247 | 20.0 | 1,237 | 1.080 | 0.062 | 0.005 | 0.000 | 0.000 | 0.002 | 0.000 |
| 355 | CNGASPWEST | Canadian Natural - Kirby West Gas Plant | 493,678 | 6,135,368 | 701 | 18.30 | 0.250 | 31.3 | 863 | 0.000 | 0.037 | 0.003 | 0.000 | 0.000 | 0.001 | 0.000 |
| 356 | CNGASPWIAULK | Canadian Natural - Wiau Lake Gas Plant | 486,375 | 6,137,409 | 675 | 18.30 | 0.250 | 31.3 | 863 | 0.000 | 0.040 | 0.003 | 0.000 | 0.000 | 0.001 | 0.000 |
| 357 | DVKRBNCOMP | Devon - Kirby North Compressor Station | 505,784 | 6,157,211 | 581 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 0.040 | 0.140 | 0.000 | 0.000 | 0.001 | 0.000 |
| 358 | DVKRBSCOMP | Devon - Kirby South Compressor Station | 517,659 | 6,147,123 | 641 | 11.00 | 0.250 | 34.5 | 878 | 0.000 | 0.739 | 0.057 | 0.002 | 0.000 | 0.021 | 0.000 |
| 359 | DVLEIECOMP | Devon - Leismer East Compressor Station | 494,777 | 6,167,326 | 555 | 13.80 | 0.590 | 35.8 | 644 | 0.000 | 3.012 | 0.234 | 0.007 | 0.000 | 0.087 | 0.000 |

**Table A-5 2013 Planned Development Case Point Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | UTM Coordinates [m][(a)] | | Base Elevation [m] | Stack Height [m][(b)] | Stack Diameter [m][(b)] | Exit Velocity [m/s] | Exit Temperature [K] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Easting | Northing | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 360 | DVCHARCOMP | Devon - Chard Compressor Station | 508,197 | 6,175,417 | 613 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 0.304 | 0.024 | 0.001 | 0.000 | 0.009 | 0.000 |
| 361 | DVHANGCOMP | Devon - Hangingstone Compressor Stations | 469,198 | 6,236,234 | 648 | 11.60 | 0.310 | 37.4 | 862 | 0.000 | 1.146 | 0.089 | 0.003 | 0.000 | 0.033 | 0.000 |
| 362 | DVPNY1COMP | Devon - Pony Creek Compressor Station | 491,500 | 6,198,700 | 648 | 8.54 | 0.250 | 60.6 | 863 | 0.000 | 0.055 | 0.004 | 0.000 | 0.000 | 0.002 | 0.000 |
| 363 | DVPNY2COMP | Devon - Pony Creek Compressor Station | 491,500 | 6,198,700 | 648 | 8.54 | 0.250 | 60.6 | 863 | 0.000 | 0.055 | 0.004 | 0.000 | 0.000 | 0.002 | 0.000 |
| 364 | DVSRMCCOMP | Devon - Surmont Compressor Station | 501,167 | 6,216,280 | 679 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 4.359 | 0.339 | 0.011 | 0.000 | 0.126 | 0.000 |
| 365 | DVSRMWCOMP | Devon - Surmont West Compressor Station | 486,562 | 6,218,730 | 740 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 1.743 | 0.135 | 0.004 | 0.000 | 0.050 | 0.000 |
| 366 | ENNCRB | EnCana - North Caribou Gas Plant | 526,855 | 6,099,971 | 674 | 8.79 | 0.510 | 29.6 | 632 | 0.000 | 0.860 | 2.311 | 0.135 | 0.000 | 0.025 | 0.000 |
| 367 | ENNPRMRS | EnCana - Primrose North Gas Plant | 512,775 | 6,127,525 | 704 | 11.81 | 0.450 | 34.2 | 748 | 0.000 | 0.830 | 0.190 | 0.020 | 0.000 | 0.024 | 0.000 |
| 368 | ENSCRB | EnCana - South Caribou Gas Plant | 524,250 | 6,089,020 | 701 | 12.20 | 1.520 | 32.3 | 733 | 0.000 | 0.660 | 1.450 | 0.070 | 0.000 | 0.019 | 0.000 |
| 369 | HUGASPAGNESL | Husky - Agnes Lake Gas Plant | 429,749 | 6,194,185 | 697 | 20.70 | 0.310 | 37.7 | 863 | 0.000 | 0.706 | 0.055 | 0.002 | 0.000 | 0.020 | 0.000 |
| 370 | HUGASPTHORN | Husky - Thornbury Gas Plant | 448,802 | 6,217,386 | 733 | 20.70 | 0.310 | 37.7 | 863 | 0.000 | 0.441 | 0.034 | 0.001 | 0.000 | 0.013 | 0.000 |
| 371 | NSFRENCOMP | Northstar Energy Corp. (Northstar) - Frenman Lake Compressor Station | 480,139 | 6,045,128 | 631 | 14.90 | 0.305 | 33.4 | 851 | 0.000 | 0.492 | 0.034 | 0.001 | 0.000 | 0.013 | 0.000 |
| 372 | PAHANGCOMP01 | Paramount Resources Ltd. (Paramount) - Hangingstone Gas Plant | 477,850 | 6,205,850 | 699 | 15.43 | 0.440 | 31.3 | 683 | 0.000 | 0.198 | 0.018 | 0.001 | 0.000 | 0.006 | 0.000 |
| 373 | PAKETRCOMP01 | Paramount - Kettle River Gas Plant | 511,100 | 6,205,700 | 470 | 8.00 | 0.432 | 26.8 | 672 | 0.000 | 0.230 | 0.036 | 0.002 | 0.000 | 0.007 | 0.000 |
| 374 | PAQUIGCOMP01 | Paramount - Quigley Gas Plant | 510,225 | 6,224,400 | 513 | 12.40 | 0.432 | 27.6 | 683 | 0.000 | 0.264 | 0.028 | 0.001 | 0.000 | 0.008 | 0.000 |
| 375 | VEWAPPCOMP | Viking Energy - compressor station | 451,854 | 6,137,651 | 655 | 10.00 | 0.300 | 20.0 | 773 | 0.000 | 0.355 | 0.028 | 0.001 | 0.000 | 0.010 | 0.000 |

(a) Source coordinates are in UTM NAD 83.

(b) For flare stacks pseudo stack height and pseudo stack diameter were used in the dispersion modelling.

(c) Includes formerly Enerplus Kirby Project.

## Table A-6 2013 Planned Development Case Area Source Emission Characteristics

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Shell Canada Limited (Shell) - Jackpine Mine Phase 1 and Expansion** | | | | | | | | | | | | | | | |
| 1 | SHJKPEMFLT01 | Mine Fleet Exhaust and Mine Face Fugitives | 478,248 | 6,345,451 | 16,467,407 | 312 | 7.5 | 7.0 | 0.009 | 7.515 | 6.671 | 0.262 | 0.002 | 6.061 | 0.032 |
| 2 | SHJKPEMFLT02 | Mine Fleet Exhaust, Mine Face Fugitives and Space Heating | 479,390 | 6,347,520 | 9,365,825 | 309 | 7.5 | 7.0 | 0.005 | 4.287 | 3.805 | 0.150 | 0.001 | 3.447 | 0.018 |
| 3 | SHJKPEMFLT03 | Mine Fleet Exhaust and Mine Face Fugitives | 480,806 | 6,348,419 | 4,562,754 | 307 | 7.5 | 7.0 | 0.003 | 2.082 | 1.848 | 0.073 | 0.000 | 1.679 | 0.009 |
| 4 | SHJKPETPFU | Tailing Pond | 478,938 | 6,341,956 | 3,275,384 | 325 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 14.880 | 0.072 |
| 5 | SHJKPEPLFU | Plant Fugitives | 476,460 | 6,343,823 | 1,196,490 | 312 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.047 | 0.086 |
| 6 | SHJKPETFFU | Tank Farm Fugitives | 475,463 | 6,342,323 | 152,032 | 305 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.208 | 0.000 |
| **Shell - Pierre River Mine** | | | | | | | | | | | | | | | |
| 7 | SHPRRVMFLT01 | Mine Fleet Exhaust and Mine Face Fugitives | 461,677 | 6,371,102 | 33,987,901 | 274 | 7.5 | 7.0 | 0.008 | 5.272 | 5.785 | 0.152 | 0.001 | 5.104 | 0.029 |
| 8 | SHPRRVMFLT02 | Mine Fleet Exhaust, Mine Face Fugitives and Space Heating | 462,885 | 6,375,145 | 9,505,012 | 279 | 7.5 | 7.0 | 0.002 | 1.483 | 1.625 | 0.043 | 0.000 | 1.428 | 0.008 |
| 9 | SHPRRVMFLT03 | Mine Fleet Exhaust and Mine Face Fugitives | 463,578 | 6,376,780 | 3,651,076 | 271 | 7.5 | 7.0 | 0.001 | 0.566 | 0.621 | 0.016 | 0.000 | 0.548 | 0.003 |
| 10 | SHPRRVTPFU | Tailing Pond | 465,616 | 6,385,700 | 4,752,942 | 276 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 9.920 | 0.048 |
| 11 | SHPRRVPLFU | Plant Fugitives and Plant Farm Fugitives | 466,355 | 6,375,805 | 3,056,589 | 259 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.170 | 0.057 |
| **Shell/Albian Sands Energy Inc. - Muskeg River Mine and Expansion** | | | | | | | | | | | | | | | |
| 12 | ASMRMEMFLT90 | Mine Fleet Exhaust and Mine Face Fugitives | 468,138 | 6,338,213 | 4,534,313 | 274 | 7.5 | 7.0 | 0.053 | 1.943 | 1.835 | 0.083 | 0.000 | 1.037 | 0.005 |
| 13 | ASMRMEMFLTNW | Mine Fleet Exhaust and Mine Face Fugitives | 463,677 | 6,347,888 | 4,500,000 | 274 | 7.5 | 7.0 | 0.560 | 20.598 | 19.447 | 0.877 | 0.003 | 10.990 | 0.052 |
| 14 | ASMRMETPFU10 | Tailings Pond Cell 10 | 464,195 | 6,346,514 | 3,037,608 | 270 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 14.384 | 0.070 |
| **BlackPearl E&P Ltd. - Blackrod SAGD Pilot and Commercial Project** | | | | | | | | | | | | | | | |
| 15 | PRBLRP1PLFU2 | Plant Fugitives | 397,741 | 6,163,199 | 13,741 | 712 | 3.0 | 5.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 58.994 | 0.000 |
| 16 | PRBLRP2PLFU2 | Plant Fugitives | 397,925 | 6,163,200 | 13,741 | 715 | 3.0 | 5.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 59.006 | 0.000 |
| 17 | PRBLRP3PLFU2 | Plant Fugitives | 398,109 | 6,163,199 | 13,590 | 719 | 3.0 | 5.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 57.826 | 0.000 |
| **Canadian Natural Resources Ltd. (Canadian Natural) - Horizon Oil Sands Project** | | | | | | | | | | | | | | | |
| 18 | CNHRZNMFLT | Mine Fleet Exhaust and Mine Face Fugitives | 456,164 | 6,352,842 | 7,282,341 | 280 | 7.5 | 7.0 | 0.432 | 33.125 | 20.886 | 1.205 | 0.002 | 13.051 | 0.054 |
| 19 | CNHRZNPLFU | Plant Fugitives | 455,389 | 6,355,125 | 977,900 | 276 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 4.130 | 0.623 |
| 20 | CNHRZNTPFU | Tailings Pond | 445,625 | 6,355,250 | 16,875,000 | 335 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 139.361 | 1.635 |
| **Canadian Natural - Primrose East In-Situ Oilsands Project** | | | | | | | | | | | | | | | |
| 21 | CNPRSEPLFU | Plant Fugitives | 541,477 | 6,071,777 | 39,614 | 694 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.009 |
| **Canadian Natural - Primrose North In-Situ Oilsands Project** | | | | | | | | | | | | | | | |
| 22 | CNPRSNPLFU | Plant Fugitives | 526,786 | 6,081,227 | 40,716 | 693 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.009 |
| **Canadian Natural - Primrose South In-Situ Oilsands Project** | | | | | | | | | | | | | | | |
| 23 | CNPRSSPLFU | Plant Fugitives | 527,180 | 6,069,628 | 137,530 | 677 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.008 | 0.016 |
| **Canadian Natural - Wolf Lake In-Situ Oilsands Project** | | | | | | | | | | | | | | | |
| 24 | CNWFLKPLFU | Plant Fugitives | 517,629 | 6,061,112 | 184,404 | 642 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.018 | 0.036 |
| **Canadian Natural - Kirby North In-Situ Oilsands Project** | | | | | | | | | | | | | | | |
| 25 | CNKBN1PLFU | Plant Fugitives | 485,132 | 6,146,575 | 56,540 | 693 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.430 | 0.006 |
| 26 | CNKBN2PLFU | Plant Fugitives | 485,470 | 6,146,521 | 68,074 | 700 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.258 | 0.003 |
| **Canadian Natural -Kirby South In-Situ Oilsands Project** | | | | | | | | | | | | | | | |
| 27 | CNKBS1PLFU | Plant Fugitives | 498,463 | 6,132,880 | 83,809 | 732 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.387 | 0.005 |
| 28 | CNKBS2PLFU | Plant Fugitives | 497,607 | 6,133,288 | 75,046 | 725 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.129 | 0.002 |
| **Canadian Natural - Grouse In-Situ Project** | | | | | | | | | | | | | | | |
| 29 | CNGRSEPLFU | Plant Fugitives | 451,536 | 6,147,396 | 146,895 | 675 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.387 | 0.005 |
| **Canadian Natural -Gregoire Phase 1 In Situ Oil Sands Project** | | | | | | | | | | | | | | | |
| 30 | CNGRGRPLFU | Plant Fugitives | 490,335 | 6,256,084 | 146,895 | 475 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.464 | 0.006 |

**Table A-6 2013 Planned Development Case Area Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| **Dover Operating Corp. - Dover Commercial Project** | | | | | | | | | | | | | | | |
| 31 | DODOVNPLFU | Plant Fugitives | 400,949 | 6,347,760 | 124,800 | 567 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.034 | 0.003 |
| 32 | DODOVNTKFU | Tank Fugitives | 401,099 | 6,347,955 | 33,000 | 570 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.048 | 0.001 |
| 33 | DODOVSPLFU | Plant Fugitives | 406,122 | 6,332,336 | 177,600 | 514 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.053 | 0.003 |
| 34 | DODOVSTKFU | Tank Fugitives | 407,817 | 6,332,576 | 819,000 | 515 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.071 | 0.001 |
| **Ivanhoe Energy Inc. - Tamarack Integrated Oil Sands Project** | | | | | | | | | | | | | | | |
| 35 | IVTMRPLFU1 | SAGD and HTL Plant Fugitives | 481,857 | 6,298,004 | 627,264 | 404 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.004 | 0.000 |
| **Imperial Oil Resources Limited - Kearl Oil Sands Project** | | | | | | | | | | | | | | | |
| 36 | IMKERLMFLTN1 | Mine Fleet Exhaust and Mine Face Fugitives | 489,618 | 6,363,496 | 3,027,544 | 298 | 7.5 | 7.0 | 0.061 | 3.009 | 1.908 | 0.109 | 0.000 | 1.544 | 0.007 |
| 37 | IMKERLMFLTN2 | Mine Fleet Exhaust and Mine Face Fugitives | 491,265 | 6,362,400 | 6,732,296 | 302 | 7.5 | 7.0 | 0.136 | 6.691 | 4.242 | 0.242 | 0.001 | 3.434 | 0.016 |
| 38 | IMKERLMFLTN3 | Mine Fleet Exhaust and Mine Face Fugitives | 493,593 | 6,361,619 | 3,113,700 | 319 | 7.5 | 7.0 | 0.063 | 3.095 | 1.962 | 0.112 | 0.000 | 1.588 | 0.007 |
| 39 | IMKERLMFLTN4 | Mine Fleet Exhaust and Mine Face Fugitives | 493,098 | 6,359,780 | 7,974,591 | 320 | 7.5 | 7.0 | 0.162 | 7.926 | 5.025 | 0.287 | 0.001 | 4.067 | 0.019 |
| 40 | IMKERLMFLTN5 | Mine Fleet Exhaust and Mine Face Fugitives | 493,121 | 6,357,627 | 7,779,471 | 331 | 7.5 | 7.0 | 0.158 | 7.732 | 4.902 | 0.280 | 0.001 | 3.968 | 0.018 |
| 41 | IMKERLPLFU | Plant Fugitives | 495,750 | 6,362,000 | 1,500,000 | 345 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 3.545 | 0.014 |
| 42 | IMKERLSPHT01 | Space Heating | 495,750 | 6,362,000 | 1,500,000 | 345 | 9.0 | 4.5 | 0.002 | 0.576 | 0.255 | 0.023 | 0.000 | 0.017 | 0.000 |
| 43 | IMKERLTPFU | Tailings Pond | 496,208 | 6,364,433 | 19,160,717 | 415 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 137.949 | 0.690 |
| 44 | IMKERLSPHT02 | Space Heating | 496,319 | 6,361,103 | 319,184 | 363 | 9.0 | 4.5 | 0.021 | 2.413 | 2.471 | 0.229 | 0.000 | 0.167 | 0.000 |
| **SilverBirch Energy - Frontier Project** | | | | | | | | | | | | | | | |
| 45 | UTFNTRSPHT1 | Space Heating | 463,775 | 6,393,550 | 308,000 | 289 | 5.0 | 3.0 | 0.002 | 0.017 | 0.007 | 0.001 | 0.000 | 0.001 | 0.000 |
| 46 | UTFNTRSPHT2 | Space Heating | 464,375 | 6,393,145 | 62,500 | 286 | 5.0 | 3.0 | 0.000 | 0.002 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |
| 47 | UTFNTRSPHT3 | Space Heating | 459,800 | 6,394,650 | 280,000 | 305 | 5.0 | 3.0 | 0.004 | 0.029 | 0.012 | 0.002 | 0.000 | 0.002 | 0.000 |
| 48 | UTFNTRSPHT4 | Space Heating | 466,010 | 6,390,175 | 243,000 | 276 | 5.0 | 3.0 | 0.003 | 0.018 | 0.008 | 0.001 | 0.000 | 0.001 | 0.000 |
| 49 | UTFNTRSPHT5 | Space Heating | 464,350 | 6,393,550 | 336,000 | 288 | 5.0 | 3.0 | 0.001 | 0.010 | 0.004 | 0.001 | 0.000 | 0.001 | 0.000 |
| 50 | UTFNTRSPHT6 | Space Heating | 459,800 | 6,394,650 | 280,000 | 305 | 5.0 | 3.0 | 0.002 | 0.012 | 0.005 | 0.001 | 0.000 | 0.001 | 0.000 |
| 51 | UTFNTRSPHT7 | Space Heating | 466,010 | 6,390,175 | 243,000 | 276 | 5.0 | 3.0 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 52 | UTFNTRSPHT8 | Space Heating | 464,950 | 6,393,550 | 336,000 | 285 | 5.0 | 3.0 | 0.001 | 0.009 | 0.004 | 0.001 | 0.000 | 0.001 | 0.000 |
| 53 | UTFNTRSPHT9 | Space Heating | 459,800 | 6,394,650 | 280,000 | 305 | 5.0 | 3.0 | 0.003 | 0.018 | 0.008 | 0.001 | 0.000 | 0.001 | 0.000 |
| 54 | UTFNTRSPHT10 | Space Heating | 466,010 | 6,390,175 | 243,000 | 276 | 5.0 | 3.0 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 55 | UTFNTRSPHT11 | Space Heating | 459,350 | 6,379,175 | 100,000 | 294 | 5.0 | 3.0 | 0.001 | 0.005 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 |
| 56 | UTFNTRSPHT12 | Space Heating | 466,010 | 6,390,175 | 243,000 | 276 | 5.0 | 3.0 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 57 | UTFNTRPLFU1 | Plant Fugitives | 464,378 | 6,393,710 | 1,525,366 | 288 | 3.0 | 5.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.261 | 0.001 |
| 58 | UTFNTRPLFU2 | Plant Fugitives | 466,034 | 6,393,368 | 272,144 | 282 | 3.0 | 5.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.010 | 0.001 |
| 59 | UTFNTRPLFU3 | Plant Fugitives | 459,285 | 6,394,678 | 968,370 | 309 | 3.0 | 5.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.086 | 0.000 |
| 60 | UTFNTRPLFU4 | Plant Fugitives | 459,176 | 6,379,187 | 89,248 | 295 | 3.0 | 5.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.064 | 0.000 |
| 61 | UTFNTRMFLT1 | Mine Fleet Exhaust | 466,860 | 6,397,596 | 23,271,150 | 282 | 7.5 | 7.0 | 0.002 | 0.900 | 1.730 | 0.011 | 0.000 | 0.060 | 0.000 |
| 62 | UTFNTRMFLT2 | Mine Fleet Exhaust | 468,208 | 6,394,110 | 13,476,460 | 278 | 7.5 | 7.0 | 0.001 | 0.450 | 0.860 | 0.005 | 0.000 | 0.030 | 0.000 |
| 63 | UTFNTRMFLT3 | Mine Fleet Exhaust | 459,078 | 6,393,896 | 2,004,133 | 312 | 7.5 | 7.0 | 0.003 | 1.440 | 2.760 | 0.017 | 0.000 | 0.090 | 0.000 |
| 64 | UTFNTRMFLT4 | Mine Fleet Exhaust | 457,288 | 6,391,822 | 7,245,766 | 346 | 7.5 | 7.0 | 0.001 | 0.450 | 0.860 | 0.005 | 0.000 | 0.030 | 0.000 |
| 65 | UTFNTRMFLT5 | Mine Fleet Exhaust | 458,638 | 6,389,566 | 9,103,313 | 319 | 7.5 | 7.0 | 0.009 | 3.860 | 7.430 | 0.046 | 0.001 | 0.250 | 0.000 |
| 66 | UTFNTRMFLT6 | Mine Fleet Exhaust | 463,156 | 6,388,831 | 8,344,587 | 288 | 7.5 | 7.0 | 0.003 | 1.440 | 2.760 | 0.017 | 0.000 | 0.090 | 0.000 |
| 67 | UTFNTRMFLT7 | Mine Fleet Exhaust | 459,454 | 6,387,657 | 7,258,842 | 304 | 7.5 | 7.0 | 0.001 | 0.450 | 0.860 | 0.005 | 0.000 | 0.030 | 0.000 |
| 68 | UTFNTRMFLT8 | Mine Fleet Exhaust | 462,539 | 6,380,409 | 12,623,908 | 283 | 7.5 | 7.0 | 0.001 | 0.450 | 0.890 | 0.005 | 0.000 | 0.030 | 0.000 |
| 69 | UTFNTRMFLT9 | Mine Fleet Exhaust | 461,088 | 6,378,370 | 3,303,825 | 282 | 7.5 | 7.0 | 0.001 | 0.600 | 1.200 | 0.007 | 0.000 | 0.040 | 0.000 |

**Table A-6 2013 Planned Development Case Area Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 70 | UTFNTRMFLT10 | Mine Fleet Exhaust | 464,740 | 6,378,508 | 2,968,236 | 275 | 7.5 | 7.0 | 0.001 | 0.350 | 0.690 | 0.004 | 0.000 | 0.020 | 0.000 |
| 71 | UTFNTRMNFU1 | Mine Face Fugitives | 458,638 | 6,389,566 | 9,103,313 | 319 | 7.5 | 7.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 17.060 | 0.160 |
| 72 | UTFNTRMNFU2 | Mine Face Fugitives | 461,088 | 6,378,370 | 3,303,825 | 282 | 7.5 | 7.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.900 | 0.030 |
| 73 | UTFNTRTPFU | Tailings Pond | 468,158 | 6,394,187 | 4,453,308 | 278 | 0.0 | 1.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 58.500 | 0.293 |
| **Southern Pacific Resources Corp. - McKay SAGD Project and Expansion** | | | | | | | | | | | | | | | |
| 74 | SPMCK2PLFU01 | Plant Fugitives | 428,946 | 6,304,667 | 10,005 | 471 | 16.1 | 15.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.050 | 0.001 |
| 75 | SPMCK2PLFU02 | Plant Fugitives | 429,056 | 6,304,706 | 6,163 | 472 | 16.1 | 15.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.020 | 0.001 |
| **Suncor Energy Inc. (Suncor) - Firebag In-Situ Oil Sands Project** | | | | | | | | | | | | | | | |
| 76 | SUFBP6PLFU | Plant Fugitives | 509,033 | 6,343,966 | 1,523,598 | 582 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.058 | 0.099 |
| **Suncor - MacKay River Project** | | | | | | | | | | | | | | | |
| 77 | PCMCKYPLFU | Plant Fugitives | 445,011 | 6,322,211 | 149,928 | 419 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.263 | 0.000 |
| **Suncor - Millennium Dump 9 Project** | | | | | | | | | | | | | | | |
| 78 | SUMD9MFLT01 | Haul Roads Fugitive Emissions | 478,104 | 6,309,869 | 2,720,121 | 343 | 7.5 | 7.0 | 0.001 | 0.869 | 0.222 | 0.038 | 0.000 | 0.046 | 0.000 |
| 79 | SUMD9MFLT02 | Haul Roads Fugitive Emissions | 480,108 | 6,309,245 | 1,483,038 | 355 | 7.5 | 7.0 | 0.000 | 0.474 | 0.121 | 0.021 | 0.000 | 0.025 | 0.000 |
| 80 | SUMD9MFLT03 | Haul Roads Fugitive Emissions | 482,434 | 6,308,746 | 1,593,461 | 384 | 7.5 | 7.0 | 0.000 | 0.509 | 0.130 | 0.022 | 0.000 | 0.027 | 0.000 |
| 81 | SUMD9MFLT04 | Haul Roads Fugitive Emissions | 484,181 | 6,307,810 | 963,804 | 449 | 7.5 | 7.0 | 0.000 | 0.308 | 0.079 | 0.014 | 0.000 | 0.016 | 0.000 |
| 82 | SUMD9MFLT05 | Dump Fleet Fugitive Emissions | 484,971 | 6,306,264 | 2,461,230 | 472 | 7.5 | 7.0 | 0.000 | 0.786 | 0.201 | 0.035 | 0.000 | 0.042 | 0.000 |
| **Suncor - Lease 86/17, Steepbank Mine and Millennium Mine** | | | | | | | | | | | | | | | |
| 83 | SUTPFUPND23 | Mine Fleet Exhaust and Mine Face Fugitives | 468,846 | 6,316,410 | 1,595,400 | 312 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 157.214 | 1.891 |
| 84 | SUMILMFLT01 | Mine Fleet Exhaust and Mine Face Fugitives | 477,484 | 6,312,951 | 19,075,116 | 343 | 7.5 | 7.0 | 0.007 | 12.236 | 3.125 | 0.538 | 0.001 | 6.011 | 0.034 |
| 85 | SUPLNTPLFU | Plant Fugitives | 470,840 | 6,317,948 | 795,855 | 256 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 16.982 | 0.048 |
| **Suncor - South Tailings Pond** | | | | | | | | | | | | | | | |
| 86 | SUTPFUSTP | South Tailings Pond | 479,946 | 6,303,293 | 13,499,746 | 357 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 4.536 | 0.101 |
| **Suncor -TRO** | | | | | | | | | | | | | | | |
| 87 | SUTRODRY01 | Drying Operations Fugitive Emissions | 479,946 | 6,303,293 | 13,499,746 | 357 | 0.0 | 1.4 | 0.001 | 1.703 | 0.448 | 0.145 | 0.000 | 0.095 | 0.000 |
| 88 | SUTRODRY02 | Drying Operations Fugitive Emissions | 477,484 | 6,312,951 | 19,075,116 | 343 | 7.5 | 7.0 | 0.001 | 2.407 | 0.632 | 0.205 | 0.000 | 0.135 | 0.000 |
| **Suncor - Voyageur Project** | | | | | | | | | | | | | | | |
| 89 | SUVYGRCFLT | Coke Handling Fleet | 469,453 | 6,312,758 | 2,696,581 | 318 | 7.5 | 7.0 | 0.009 | 0.771 | 0.478 | 0.027 | 0.000 | 0.107 | 0.000 |
| 90 | SUVYGRPLFU | Plant Fugitives | 469,284 | 6,314,266 | 772,176 | 322 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.609 | 0.000 |
| 91 | SUVYGRTFFU | Tank Farm Fugitives | 471,383 | 6,313,327 | 431,354 | 321 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.261 | 0.000 |
| 92 | SUPIT4MFLT01 | Mine Fleet Exhaust and Mine Face Fugitives | 475,888 | 6,319,693 | 3,423,903 | 336 | 7.5 | 7.0 | 0.003 | 4.919 | 1.256 | 0.216 | 0.000 | 2.316 | 0.013 |
| 93 | SUPIT4MFLT02 | Mine Fleet Exhaust and Mine Face Fugitives | 478,653 | 6,317,607 | 2,759,239 | 341 | 7.5 | 7.0 | 0.002 | 3.964 | 1.012 | 0.174 | 0.000 | 1.866 | 0.011 |
| 94 | SUPIT4MFLT03 | Mine Fleet Exhaust and Mine Face Fugitives | 476,490 | 6,317,776 | 1,800,591 | 338 | 7.5 | 7.0 | 0.002 | 2.587 | 0.661 | 0.114 | 0.000 | 1.218 | 0.007 |
| **Suncor - Voyageur South Project** | | | | | | | | | | | | | | | |
| 95 | SUVSMNMFLT01 | Mine Fleet Exhaust | 458,987 | 6,311,238 | 9,029,534 | 352 | 7.5 | 7.0 | 0.002 | 3.345 | 2.131 | 0.122 | 0.000 | 0.463 | 0.000 |
| 96 | SUVSMNMFLT02 | Mine Fleet Exhaust | 464,814 | 6,308,902 | 10,034,149 | 325 | 7.5 | 7.0 | 0.002 | 3.717 | 2.368 | 0.135 | 0.000 | 0.515 | 0.000 |
| 97 | SUVSMNMFLT03 | Mine Fleet Exhaust | 467,902 | 6,306,238 | 4,297,413 | 319 | 7.5 | 7.0 | 0.001 | 1.592 | 1.014 | 0.058 | 0.000 | 0.220 | 0.000 |
| 98 | SUVSMNTPFU01 | Tailings Pond | 459,427 | 6,306,137 | 20,508,453 | 376 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 59.907 | 0.738 |
| 99 | SUVSMNMNFU | Mine Face Fugitives | 463,376 | 6,311,402 | 15,948,083 | 325 | 7.5 | 7.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 3.763 | 0.024 |
| **Suncor - Fort Hills Oil Sands Project** | | | | | | | | | | | | | | | |
| 100 | PCFTHLMFLT | Mine Fleet Exhaust and Mine Face Fugitives | 463,000 | 6,358,000 | 8,000,000 | 285 | 7.5 | 7.0 | 0.009 | 12.390 | 4.148 | 0.590 | 0.002 | 6.512 | 0.036 |
| 101 | PCFTHLTPFU | Tailings Pond | 468,358 | 6,359,824 | 5,500,000 | 340 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 76.338 | 0.386 |
| 102 | PCFTHLTDFU | Tailings Drying Fugitives and Tailings Pond | 468,358 | 6,359,824 | 5,500,000 | 340 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.076 | 0.002 |

**Table A-6 2013 Planned Development Case Area Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 103 | PCFTHLPLFU | Plant Fugitives | 465,659 | 6,361,070 | 73,629 | 340 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.957 | 0.008 |
| **Syncrude Canada Ltd. (Syncrude) - Aurora North Mine** | | | | | | | | | | | | | | | |
| 104 | SYAURNMFLT | Mine Fleet Exhaust | 467,965 | 6,353,037 | 6,000,000 | 300 | 7.5 | 7.0 | 0.035 | 13.100 | 3.200 | 0.340 | 0.001 | 0.536 | 0.000 |
| 105 | SYAURNMNFU | Mine Face Fugitives | 467,965 | 6,353,037 | 6,000,000 | 300 | 7.5 | 7.0 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 6.205 | 0.040 |
| 106 | SYAURNTPFU | Tailings Pond | 473,940 | 6,351,540 | 3,610,000 | 288 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.120 | 0.025 |
| **Syncrude - Aurora South Mine** | | | | | | | | | | | | | | | |
| 107 | SYAURSSPHT01 | Space Heating | 485,805 | 6,340,900 | 2,494,800 | 362 | 9.0 | 4.5 | 0.002 | 0.437 | 0.192 | 0.015 | 0.000 | 0.008 | 0.000 |
| 108 | SYAURSSPHT02 | Space Heating | 485,805 | 6,340,900 | 2,494,800 | 362 | 9.0 | 4.5 | 0.015 | 1.849 | 1.895 | 0.169 | 0.000 | 0.123 | 0.000 |
| 109 | SYAURSMFLT1 | Mine Fleet Exhaust and Mine Face Fugitives | 484,469 | 6,344,619 | 2,291,538 | 346 | 7.5 | 7.0 | 0.011 | 10.617 | 3.619 | 0.515 | 0.002 | 8.717 | 0.054 |
| 110 | SYAURSMFLT3 | Mine Fleet Exhaust | 484,818 | 6,340,768 | 3,685,000 | 355 | 7.5 | 7.0 | 0.001 | 0.808 | 0.302 | 0.044 | 0.000 | 0.043 | 0.000 |
| 111 | SYAURSMFLT4 | Mine Fleet Exhaust | 486,991 | 6,337,494 | 12,286,025 | 378 | 7.5 | 7.0 | 0.001 | 1.036 | 0.384 | 0.056 | 0.000 | 0.055 | 0.000 |
| 112 | SYAURSMFLT5 | Mine Fleet Exhaust | 482,319 | 6,340,564 | 445,938 | 336 | 7.5 | 7.0 | 0.002 | 1.933 | 0.648 | 0.091 | 0.000 | 0.097 | 0.000 |
| 113 | SYAURSMFLT6 | Mine Fleet Exhaust | 480,709 | 6,338,529 | 4,803,750 | 338 | 7.5 | 7.0 | 0.003 | 2.971 | 1.011 | 0.143 | 0.000 | 0.150 | 0.000 |
| 114 | SYAURSTPFU | Tailings Pond | 483,528 | 6,336,045 | 8,723,175 | 353 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 102.971 | 0.515 |
| 115 | SYAURSPLFU | Plant Fugitives | 485,805 | 6,340,900 | 2,494,800 | 362 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.647 | 0.011 |
| 116 | SYAURSCTFG | MFT Centrifuge | 485,805 | 6,340,900 | 2,494,800 | 362 | 3.0 | 1.5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.694 | 0.223 |
| 117 | SYAURSMFTODA | MFT Centrifuge Cake ODA | 480,562 | 6,336,930 | 3,484,294 | 342 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.990 | 0.318 |
| 118 | SYAURSMFTDDA | MFT Centrifuge Cake DDA | 489,561 | 6,336,055 | 527,443 | 410 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.990 | 0.318 |
| **Syncrude - Mildred Lake Mining and Upgrading, Upgrader Expansion and Emissions Reduction Program** | | | | | | | | | | | | | | | |
| 119 | SYMLLKBBTP | Mildred Lake Basin Beach Tailings Ponds | 461,490 | 6,325,460 | 18,490,000 | 289 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.315 | 0.065 |
| 120 | SYMLLKBNTP | Mildred Lake Basin Tailings Ponds | 462,170 | 6,325,360 | 11,560,000 | 308 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 33.216 | 0.160 |
| 121 | SYMLLKEMTP | East Mine In-Pit Tailings Ponds | 464,259 | 6,318,850 | 10,236,800 | 311 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.708 | 0.037 |
| 122 | SYMLLKMFLN | North Mine Area Fleet Exhaust and Mine Fugitives | 457,682 | 6,322,263 | 8,140,000 | 335 | 7.5 | 7.0 | 0.051 | 17.200 | 4.500 | 0.490 | 0.001 | 6.953 | 0.029 |
| 123 | SYMLLKMFLW | West Base Mine Area Fleet Exhaust and Mine Fugitives | 459,594 | 6,317,471 | 3,680,000 | 325 | 7.5 | 7.0 | 0.006 | 2.000 | 0.500 | 0.060 | 0.000 | 0.887 | 0.003 |
| 124 | SYMLLKSWTP01 | Southwest Sand Storage Area Tailings Pond | 455,050 | 6,316,790 | 23,040,000 | 357 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 7.504 | 0.203 |
| 125 | SYMLLKSWTP02 | Southwest Sand Storage Pond Area Tailings Pond | 453,480 | 6,315,780 | 1,960,000 | 376 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.650 | 0.014 |
| 126 | SYMLLKWMTP | West Mine In-Pit Tailings Ponds | 461,312 | 6,318,630 | 6,250,000 | 312 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.461 | 0.024 |
| **Total E&P Joslyn Ltd. - Joslyn North Mine Project** | | | | | | | | | | | | | | | |
| 127 | TCJSNMMFLT | North Mine Fleet and Fugitives | 454,730 | 6,349,926 | 9,411,674 | 294 | 7.5 | 7.0 | 0.006 | 7.302 | 8.054 | 0.086 | 0.001 | 0.432 | 0.000 |
| 128 | TCJSNMSPHT | North Mine Space Heating | 451,150 | 6,347,415 | 1,231,200 | 307 | 5.0 | 2.3 | 0.000 | 0.023 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 129 | TCJSNMTPFU | North Mine Tailings Pond | 452,570 | 6,350,110 | 2,513,200 | 305 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 43.200 | 0.000 |
| **Total E&P Joslyn Ltd. - Joslyn Mine Expansion** | | | | | | | | | | | | | | | |
| 130 | TCJSSMMFLT | South Mine Fleet and Fugitives | 450,830 | 6,341,113 | 19,494,750 | 309 | 7.5 | 7.0 | 0.006 | 7.302 | 8.054 | 0.086 | 0.001 | 0.432 | 0.000 |
| 131 | TCJSSMSPHT | South Mine Space Heating | 445,554 | 6,344,030 | 829,681 | 317 | 5.0 | 2.3 | 0.000 | 0.023 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 132 | TCJSSMTPFU | South Mine Tailings Pond | 448,421 | 6,340,775 | 9,355,620 | 318 | 0.0 | 1.4 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 43.200 | 0.000 |
| **Other Industries** | | | | | | | | | | | | | | | |
| 133 | BMHMSAG1 | Birch Mountain Hammerstone Quarry - Aggregate 1 | 466,650 | 6,336,219 | 90,000 | 264 | 5.0 | 4.7 | 0.011 | 0.419 | 0.141 | 0.036 | 0.000 | 0.024 | 0.000 |
| 134 | BMHMSAG2 | Birch Mountain Hammerstone Quarry - Aggregate 2 | 465,860 | 6,336,164 | 35,721 | 257 | 5.0 | 4.7 | 0.004 | 0.168 | 0.056 | 0.014 | 0.000 | 0.010 | 0.000 |
| 135 | BMHMSAG3 | Birch Mountain Hammerstone Quarry - Aggregate 3 | 466,065 | 6,335,550 | 71,289 | 258 | 5.0 | 4.7 | 0.009 | 0.335 | 0.113 | 0.029 | 0.000 | 0.019 | 0.000 |
| 136 | BMHMSAG4 | Birch Mountain Hammerstone Quarry - Aggregate 4 | 466,634 | 6,335,550 | 71,289 | 264 | 5.0 | 4.7 | 0.009 | 0.335 | 0.113 | 0.029 | 0.000 | 0.019 | 0.000 |
| 137 | BMHMSEAU1 | Birch Mountain Hammerstone Quarry - Off-Site Unpaved Section 1 | 466,650 | 6,336,219 | 90,000 | 264 | 5.0 | 4.7 | 0.007 | 0.291 | 0.098 | 0.023 | 0.000 | 0.017 | 0.000 |
| 138 | BMHMSEAU2 | Birch Mountain Hammerstone Quarry - Off-Site Unpaved Section 2 | 466,609 | 6,339,112 | 149,606 | 258 | 5.0 | 4.7 | 0.000 | 0.010 | 0.003 | 0.002 | 0.000 | 0.001 | 0.000 |
| 139 | BMHMSEAP1 | Birch Mountain Hammerstone Quarry - Off-Site Paved Section | 466,862 | 6,338,658 | 1,069,588 | 259 | 5.0 | 4.7 | 0.036 | 1.418 | 0.477 | 0.057 | 0.000 | 0.081 | 0.000 |

**Table A-6 2013 Planned Development Case Area Source Emission Characteristics (continued)**

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Calendar-Day $SO_2$ | $NO_X$ | CO | $PM_{2.5}$ | PAH | VOC | TRS |
| 140 | BMHMSEWOU1 | Birch Mountain Hammerstone Quarry - Waste & Overburden Unpaved Section 1 | 466,474 | 6,335,879 | 1,032,852 | 262 | 5.0 | 4.7 | 0.015 | 0.576 | 0.193 | 0.006 | 0.000 | 0.034 | 0.000 |
| 141 | BMHMSEWOU2 | Birch Mountain Hammerstone Quarry - Waste & Overburden Unpaved Section 2 | 466,862 | 6,338,658 | 1,069,588 | 259 | 5.0 | 4.7 | 0.001 | 0.027 | 0.009 | 0.000 | 0.000 | 0.002 | 0.000 |
| 142 | BMHMSEWOP1 | Birch Mountain Hammerstone Quarry - Waste & Overburden Paved Section | 466,862 | 6,338,658 | 1,069,588 | 259 | 5.0 | 4.7 | 0.005 | 0.184 | 0.062 | 0.000 | 0.000 | 0.011 | 0.000 |
| 143 | BMMVQP | Birch Mountain Muskeg Valley Quarry | 466,281 | 6,338,172 | 62,500 | 255 | 5.0 | 4.7 | 0.020 | 0.880 | 0.300 | 0.050 | 0.000 | 0.050 | 0.000 |
| 144 | CFBCLAFB | Canadian Air Force Cold Lake Air Force Base | 547,389 | 6,029,644 | 20,599,370 | 521 | 5.0 | 5.0 | 0.001 | 0.060 | 0.040 | 0.004 | 0.000 | 0.003 | 0.000 |
| 145 | CFBCLAWR | Canadian Air Force Cold Weapons Range | 521,964 | 6,100,208 | 5.28E+09 | 682 | 0.0 | 30.5 | 0.530 | 9.990 | 40.190 | 0.210 | 0.000 | 0.142 | 0.000 |
| 146 | PRGRAVOPIT | Parsons Creek Aggregates - Sand and Gravel Quarry | 473,948 | 6,298,563 | 52,750 | 241 | 5.0 | 4.7 | 0.000 | 0.155 | 0.160 | 0.015 | 0.000 | 0.035 | 0.000 |
| 147 | PRGRAVPROC | Parsons Creek Aggregates - Sand and Gravel Quarry | 473,158 | 6,300,875 | 79,000 | 261 | 5.0 | 4.7 | 0.000 | 0.053 | 0.057 | 0.010 | 0.000 | 0.019 | 0.000 |
| 148 | PRLIMEOPIT01 | Parsons Creek - Limestone Quarry | 473,763 | 6,295,344 | 161,184 | 257 | 5.0 | 4.7 | 0.000 | 0.087 | 0.255 | 0.007 | 0.000 | 0.017 | 0.000 |
| 149 | PRLIMEOPIT02 | Parsons Creek - Limestone Quarry | 474,106 | 6,295,250 | 26,250 | 250 | 5.0 | 4.7 | 0.000 | 0.014 | 0.042 | 0.001 | 0.000 | 0.003 | 0.000 |
| 150 | PRLIMEOPIT03 | Parsons Creek - Limestone Quarry | 474,263 | 6,295,188 | 184,188 | 247 | 5.0 | 4.7 | 0.000 | 0.099 | 0.292 | 0.008 | 0.000 | 0.019 | 0.000 |
| 151 | PRLIMEPROC | Parsons Creek - Limestone Quarry | 474,106 | 6,295,500 | 26,250 | 250 | 5.0 | 4.7 | 0.000 | 0.080 | 0.142 | 0.005 | 0.000 | 0.007 | 0.000 |
| 152 | FMFBAERDRM | Fort McKay/ Firebag Aerodrome | 501,505 | 6,348,036 | 6,250,000 | 525 | 25.0 | 5.8 | 0.005 | 0.077 | 0.113 | 0.000 | 0.000 | 0.038 | 0.000 |
| **Community Sources** | | | | | | | | | | | | | | | |
| 153 | FMMRes | Fort McMurray Residential | 472,193 | 6,288,908 | 14,503,640 | 339 | 5.0 | 5.0 | 0.354 | 2.328 | —[(a)] | —[(a)] | 0.025 | 6.715 | 0.000 |
| 154 | FMMDt | Fort McMurray Downtown | 477,473 | 6,286,111 | 3,869,522 | 234 | 7.5 | 7.5 | 0.095 | 0.621 | —[(a)] | —[(a)] | 0.007 | 1.792 | 0.000 |
| 155 | FMMInd | Fort McMurray Industrial | 478,669 | 6,281,475 | 6,529,683 | 359 | 3.5 | 3.5 | 0.159 | 1.048 | —[(a)] | —[(a)] | 0.011 | 3.023 | 0.000 |
| 156 | McKay | Fort MacKay | 461,459 | 6,337,560 | 951,254 | 254 | 0.0 | 7.0 | 0.005 | 0.025 | —[(a)] | —[(a)] | 0.000 | 0.092 | 0.000 |
| 157 | Anzac | Anzac | 497,400 | 6,255,500 | 8,400,000 | 485 | 0.0 | 7.0 | 0.006 | 0.021 | —[(a)] | —[(a)] | 0.000 | 0.069 | 0.000 |
| 158 | janchr | Janvier | 516,660 | 6,198,690 | 25,000,000 | 451 | 0.0 | 7.0 | 0.002 | 0.005 | —[(a)] | —[(a)] | 0.000 | 0.018 | 0.000 |
| 159 | conk | Conklin | 494,254 | 6,165,275 | 2,000,000 | 578 | 0.0 | 7.0 | 0.003 | 0.010 | —[(a)] | —[(a)] | 0.000 | 0.033 | 0.000 |
| 160 | ftchp | Fort Chipewyan | 490,435 | 6,508,214 | 6,000,000 | 227 | 0.0 | 7.0 | 0.012 | 0.044 | —[(a)] | —[(a)] | 0.002 | 0.347 | 0.000 |
| 161 | LaLoche | La Loche | 596,482 | 6,260,975 | 15,586,704 | 445 | 0.0 | 7.0 | 0.015 | 0.075 | —[(a)] | —[(a)] | 0.001 | 0.259 | 0.000 |

[(a)] Background data were added to model predictions to represent CO and $PM_{2.5}$ emissions from the communities. Therefore, community emissions of CO and $PM_{2.5}$ were not modelled. A description of the background data used is provided in 2007 EIA, Volume 3, Appendix 3-8, Section 2.3.

**Table A-7 2013 Planned Development Case Tier 4 Mine Fleet Emission Sources Used in PAI Assessment**

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | $SO_2$ [t/cd] | $NO_x$ [t/d] |
| **Shell Canada Limited (Shell) - Jackpine Mine Phase 1 and Expansion** | | | | | | | | | | |
| 1 | SHJKPEMFLT01 | Mine Fleet Exhaust | 482,236 | 6,355,310 | 8,738,065 | 299 | 7.5 | 7.0 | 0.002 | 1.773 |
| 2 | SHJKPEMFLT02 | Mine Fleet Exhaust | 483,078 | 6,360,514 | 37,318,876 | 294 | 7.5 | 7.0 | 0.009 | 7.587 |
| 3 | SHJKPEMFLT03 | Mine Fleet Exhaust | 487,815 | 6,358,321 | 15,458,518 | 305 | 7.5 | 7.0 | 0.004 | 3.137 |
| 4 | SHJKPEMFLT04 | Mine Fleet Exhaust | 483,171 | 6,363,896 | 6,834,408 | 300 | 7.5 | 7.0 | 0.002 | 1.387 |
| **Shell - Pierre River Mine** | | | | | | | | | | |
| 5 | SHPRRVMFLT01 | Mine Fleet Exhaust | 461,677 | 6,371,102 | 33,987,901 | 274 | 7.5 | 7.0 | 0.008 | 5.272 |
| 6 | SHPRRVMFLT02 | Mine Fleet Exhaust | 462,885 | 6,375,145 | 9,505,012 | 279 | 7.5 | 7.0 | 0.002 | 1.483 |
| 7 | SHPRRVMFLT03 | Mine Fleet Exhaust | 463,578 | 6,376,780 | 3,651,076 | 271 | 7.5 | 7.0 | 0.001 | 0.566 |
| **Albian Sands Energy Inc. - Muskeg River Mine and Expansion** | | | | | | | | | | |
| 8 | ASMRMEMFLTNW | Mine Fleet Exhaust | 463,677 | 6,347,888 | 4,500,000 | 274 | 7.5 | 7.0 | 0.017 | 12.053 |
| 9 | ASMRMEMFLT90 | Mine Fleet Exhaust | 468,138 | 6,338,213 | 4,534,313 | 274 | 7.5 | 7.0 | 0.002 | 1.137 |
| **Canadian Natural Resources Ltd. (Canadian Natural) - Horizon Oil Sands Project** | | | | | | | | | | |
| 10 | CNHRZNMFLT | Mine Fleet Exhaust | 456,164 | 6,352,842 | 7,282,341 | 280 | 7.5 | 7.0 | 0.009 | 15.060 |
| **Imperial Oil Resources Limited - Kearl Oil Sands Project** | | | | | | | | | | |
| 11 | IMKERLMFLTN1 | Mine Fleet Exhaust | 489,618 | 6,363,496 | 3,027,544 | 298 | 7.5 | 7.0 | 0.002 | 1.820 |
| 12 | IMKERLMFLTN2 | Mine Fleet Exhaust | 491,265 | 6,362,400 | 6,732,296 | 302 | 7.5 | 7.0 | 0.004 | 4.047 |
| 13 | IMKERLMFLTN3 | Mine Fleet Exhaust | 493,593 | 6,361,619 | 3,113,700 | 319 | 7.5 | 7.0 | 0.002 | 1.872 |
| 14 | IMKERLMFLTN4 | Mine Fleet Exhaust | 493,098 | 6,359,780 | 7,974,591 | 320 | 7.5 | 7.0 | 0.005 | 4.794 |
| 15 | IMKERLMFLTN5 | Mine Fleet Exhaust | 493,121 | 6,357,627 | 7,779,471 | 331 | 7.5 | 7.0 | 0.005 | 4.676 |
| **Suncor - Fort Hills Oil Sands Project** | | | | | | | | | | |
| 16 | PCFTHLMFLT | Mine Fleet Exhaust | 463,000 | 6,358,000 | 8,000,000 | 285 | 7.5 | 7.0 | 0.009 | 7.402 |
| **SilverBirch Energy - Frontier Project** | | | | | | | | | | |
| 17 | UTFNTRMFLT1 | Mine Fleet Exhaust | 466,860 | 6,397,596 | 23,271,150 | 282 | 7.5 | 7.0 | 0.002 | 0.900 |
| 18 | UTFNTRMFLT2 | Mine Fleet Exhaust | 468,208 | 6,394,110 | 13,476,460 | 278 | 7.5 | 7.0 | 0.001 | 0.450 |
| 19 | UTFNTRMFLT3 | Mine Fleet Exhaust | 459,078 | 6,393,896 | 2,004,133 | 312 | 7.5 | 7.0 | 0.003 | 1.440 |
| 20 | UTFNTRMFLT4 | Mine Fleet Exhaust | 457,288 | 6,391,822 | 7,245,766 | 346 | 7.5 | 7.0 | 0.001 | 0.450 |
| 21 | UTFNTRMFLT5 | Mine Fleet Exhaust | 458,638 | 6,389,566 | 9,103,313 | 319 | 7.5 | 7.0 | 0.009 | 3.860 |
| 22 | UTFNTRMFLT6 | Mine Fleet Exhaust | 463,156 | 6,388,831 | 8,344,587 | 288 | 7.5 | 7.0 | 0.003 | 1.440 |
| 23 | UTFNTRMFLT7 | Mine Fleet Exhaust | 459,454 | 6,387,657 | 7,258,842 | 304 | 7.5 | 7.0 | 0.001 | 0.450 |
| 24 | UTFNTRMFLT8 | Mine Fleet Exhaust | 462,539 | 6,380,409 | 12,623,908 | 283 | 7.5 | 7.0 | 0.001 | 0.450 |
| 25 | UTFNTRMFLT9 | Mine Fleet Exhaust | 461,088 | 6,378,370 | 3,303,825 | 282 | 7.5 | 7.0 | 0.001 | 0.600 |
| 26 | UTFNTRMFLT10 | Mine Fleet Exhaust | 464,740 | 6,378,508 | 2,968,236 | 275 | 7.5 | 7.0 | 0.001 | 0.350 |
| **Suncor - Millennium Mine** | | | | | | | | | | |
| 27 | SUMILMFLT01 | Mine Fleet Exhaust | 477,484 | 6,312,951 | 19,075,116 | 343 | 7.5 | 7.0 | 0.007 | 5.052 |
| **Suncor - Millennium Dump 9 Project** | | | | | | | | | | |
| 28 | SUMD9MFLT01 | Mine Fleet Exhaust | 478,104 | 6,309,869 | 2,720,121 | 343 | 7.5 | 7.0 | 0.001 | 0.869 |
| 29 | SUMD9MFLT02 | Mine Fleet Exhaust | 480,108 | 6,309,245 | 1,483,038 | 355 | 7.5 | 7.0 | 0.000 | 0.474 |
| 30 | SUMD9MFLT03 | Mine Fleet Exhaust | 482,434 | 6,308,746 | 1,593,461 | 384 | 7.5 | 7.0 | 0.000 | 0.509 |
| 31 | SUMD9MFLT04 | Mine Fleet Exhaust | 484,181 | 6,307,810 | 963,804 | 449 | 7.5 | 7.0 | 0.000 | 0.308 |
| 32 | SUMD9MFLT05 | Dump Fleet Exhaust | 484,971 | 6,306,264 | 2,461,230 | 472 | 7.5 | 7.0 | 0.000 | 0.786 |

**Table A-7 2013 Planned Development Case Tier 4 Mine Fleet Emission Sources Used in PAI Assessment (continued)**

| No. | Source ID | Source Description | Centre Easting [m] | Centre Northing [m] | Source Area [m²] | Base Elevation [m] | Effective Height [m] | Initial $\sigma_z$ [m] | Emission Rate [t/d] | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | $SO_2$ [t/cd] | $NO_x$ [t/d] |
| **Suncor - Voyageur Project** | | | | | | | | | | |
| 33 | SUVYGRCFLT | Coke Handling Fleet | 469,453 | 6,312,758 | 2,696,581 | 318 | 7.5 | 7.0 | 0.009 | 0.771 |
| 34 | SUPIT4MFLT01 | Mine Fleet Exhaust | 475,888 | 6,319,693 | 3,423,903 | 336 | 7.5 | 7.0 | 0.003 | 4.919 |
| 35 | SUPIT4MFLT02 | Mine Fleet Exhaust | 478,653 | 6,317,607 | 2,759,239 | 341 | 7.5 | 7.0 | 0.002 | 3.964 |
| 36 | SUPIT4MFLT03 | Mine Fleet Exhaust | 476,490 | 6,317,776 | 1,800,591 | 338 | 7.5 | 7.0 | 0.002 | 2.587 |
| **Suncor - Voyageur South Project** | | | | | | | | | | |
| 37 | SUVSMNMFLT01 | Mine Fleet Exhaust | 458,987 | 6,311,238 | 9,029,534 | 352 | 7.5 | 7.0 | 0.002 | 1.653 |
| 38 | SUVSMNMFLT02 | Mine Fleet Exhaust | 464,814 | 6,308,902 | 10,034,149 | 325 | 7.5 | 7.0 | 0.002 | 1.837 |
| 39 | SUVSMNMFLT03 | Mine Fleet Exhaust | 467,902 | 6,306,238 | 4,297,413 | 319 | 7.5 | 7.0 | 0.001 | 0.787 |
| **Syncrude - Mildred Lake Mining and Upgrading, Upgrader Expansion and Emissions Reduction Program** | | | | | | | | | | |
| 40 | SYMLLKMFLN | Mine Fleet Exhaust | 457,682 | 6,322,263 | 8,140,000 | 335 | 7.5 | 7.0 | 0.002 | 7.172 |
| 41 | SYMLLKMFLW | Mine Fleet Exhaust | 459,594 | 6,317,471 | 3,680,000 | 325 | 7.5 | 7.0 | 0.000 | 0.834 |
| **Syncrude - Aurora North Mine** | | | | | | | | | | |
| 42 | SYAURNMFLT | Mine Fleet Exhaust | 467,965 | 6,353,037 | 6,000,000 | 300 | 7.5 | 7.0 | 0.001 | 5.462 |
| **Syncrude - Aurora South Mine** | | | | | | | | | | |
| 43 | SYAURSMFLT1 | Mine Fleet Exhaust | 484,469 | 6,344,619 | 2,291,538 | 346 | 7.5 | 7.0 | 0.011 | 10.617 |
| 45 | SYAURSMFLT3 | Mine Fleet Exhaust | 484,818 | 6,340,768 | 3,685,000 | 355 | 7.5 | 7.0 | 0.001 | 0.808 |
| 46 | SYAURSMFLT4 | Mine Fleet Exhaust | 486,991 | 6,337,494 | 12,286,025 | 378 | 7.5 | 7.0 | 0.001 | 1.036 |
| 47 | SYAURSMFLT5 | Mine Fleet Exhaust | 482,319 | 6,340,564 | 445,938 | 336 | 7.5 | 7.0 | 0.002 | 1.933 |
| 48 | SYAURSMFLT6 | Mine Fleet Exhaust | 480,709 | 6,338,529 | 4,803,750 | 338 | 7.5 | 7.0 | 0.003 | 2.971 |
| **Total E&P Joslyn Ltd. - Joslyn North Mine Project** | | | | | | | | | | |
| 49 | TCJSNMMFLT | North Mine Fleet Exhaust | 454,730 | 6,349,926 | 9,411,674 | 294 | 7.5 | 7.0 | 0.006 | 7.302 |
| **Total E&P Joslyn Ltd. - Joslyn Mine Expansion** | | | | | | | | | | |
| 50 | TCJSSMMFLT | South Mine Fleet Exhaust | 450,830 | 6,341,113 | 19,494,750 | 309 | 7.5 | 7.0 | 0.006 | 7.302 |

# ATTACHMENT B

## Supporting Information for Air Emissions Effects on Ecological Receptors

**October 2013**
**Project No.** 13-1346-0001

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Birch Lake (2) | Birch Lake-2 | 504672 | 6250565 | 3.7 | 943,687 | 8 | 14 | 8 | 10 | 7 | 7.8 | 7 |
| 2 | Christina Lake | Christina Lake | 510499 | 6163433 | 1,234 | 718,751 | 8 | 25 | 8 | 7.6 | 8 | 6.3 | 8 |
| 3 | Gregoire Lake | Gregoire Lake | 489729 | 6258036 | 231 | 908,045 | 173 | 17 | 168 | 4.6 | 168 | 3.0 | 167 |
| 4 | Kearl Lake | Kearl Lake | 485939 | 6349881 | 71 | 749,682 | 28 | 20 | 28 | 7.2 | 28 | 11 | 24 |
| 5 | McClelland Lake, WQ22 | McClelland Lake, WQ22 | 480016 | 6371236 | 230 | 537,786 | 23 | 25 | 25 | 17 | 25 | 4.9 | 24 |
| 6 | LK-1(7), WQ21 | LK-1[e], WQ21 | 457730 | 6374675 | 3.8 | 196,516 | 7 | 11 | 7 | 109 | 7 | 220 | 7 |
| 7 | LK-2(7) | LK-2[e] | 440554 | 6382003 | 7.3 | 786,274 | 2 | 3.9 | 2 | 1.2 | 2 | 0 | 2 |
| 10 | LK-5(7) | LK-5[e] | 444669 | 6379654 | 0.75 | 837,907 | 3 | 21 | 3 | 7.7 | 3 | 7.0 | 3 |
| 11 | LK-6(7) | LK-6[e] | 444494 | 6382690 | 3.8 | 877,879 | 3 | 24 | 3 | 7.0 | 3 | 2.7 | 3 |
| 12 | LK-7(7) | LK-7[e] | 455211 | 6364522 | 2.1 | 162,379 | 2 | 30 | 2 | 10 | 2 | 4.5 | 2 |
| 17 | LK-12(7) | LK-12[e] | 445617 | 6381379 | 2.5 | 983,140 | 3 | 16 | 3 | 6.5 | 3 | 2.7 | 3 |
| 18 | Lillian Lake | Lillian Lake | 455932 | 6365954 | 7.4 | 150,841 | 4 | 66 | 4 | 18 | 4 | 8.8 | 4 |
| 19 | Calumet Lake | Calumet Lake | 453963 | 6363973 | 58 | 184,206 | 3 | 48 | 3 | 18 | 3 | 75 | 3 |
| 20 | Isodore's Lake | Isodore's Lake | 463522 | 6343138 | 28 | 992,148 | 7 | 54 | 7 | 23 | 7 | 7.0 | 7 |
| 25 | Canoe Lake | Canoe Lake | 498871 | 6257215 | 6.1 | 623,672 | 8 | 10.0 | 8 | 3.2 | 8 | 4.3 | 8 |
| 26 | Long Lake (1) | Long Lake-1 | 502017 | 6251357 | 4.5 | 843,431 | 8 | 9.4 | 8 | 2.6 | 8 | 3.6 | 8 |
| 27 | Pushup Lake | Pushup Lake | 503226 | 6248721 | 0.88 | 635,321 | 4 | 9.8 | 4 | 2.4 | 4 | 1.9 | 4 |
| 28 | Sucker Lake | Sucker Lake | 508895 | 6252653 | 5.1 | 774,914 | 5 | 26 | 5 | 7.8 | 5 | 10 | 5 |
| 29 | Frog Lake | Frog Lake | 504488 | 6254133 | 8.3 | 948,527 | 4 | 24 | 4 | 7.1 | 4 | 8.6 | 4 |
| 30 | Poison Lake | Poison Lake | 505212 | 6252653 | 0.88 | 527,861 | 4 | 23 | 4 | 6.2 | 4 | 8.1 | 4 |
| 31 | Rat Lake | Rat Lake | 507487 | 6251545 | 21 | 951,059 | 4 | 26 | 4 | 7.8 | 4 | 6.9 | 4 |
| 32 | Caribou Horn | Caribou Horn | 501467 | 6264562 | 8.5 | 886,601 | 4 | 23 | 4 | 7.6 | 4 | 5.6 | 4 |
| 33 | Kiskatinaw Lake | Kiskatinaw Lake | 499571 | 6266398 | 30 | 946,074 | 4 | 24 | 4 | 7.4 | 4 | 6.6 | 4 |
| 34 | UNL1(7) | UNL1[e] | 502641 | 6249587 | 2.3 | 934,031 | 5 | 2.7 | 5 | 0.78 | 5 | 0.12 | 5 |
| 35 | PF12(5), UNL2(7) | PF12[b], UNL2[e] | 500505 | 6255692 | 3.3 | 913,662 | 7 | 8.5 | 7 | 2.3 | 7 | 2.1 | 7 |
| 36 | UNL3(7) | UNL3[e] | 509942 | 6244399 | 1.6 | 690,473 | 4 | 25 | 4 | 6.8 | 4 | 11 | 4 |
| 37 | Surmont Lake | Surmont Lake | 489222 | 6240033 | 82 | 1,200,615 | 3 | 9.8 | 3 | 2.5 | 3 | 0.33 | 3 |
| 38 | L8(7) | L8[e] | 490427 | 6237963 | 0.83 | 1,153,517 | 3 | 9.7 | 3 | 2.5 | 3 | 0 | 3 |
| 39 | L10(7) | L10[e] | 480727 | 6243329 | 1.9 | 652,126 | 3 | 2.1 | 3 | 0.7 | 3 | 0 | 3 |
| 40 | L11(7) | L11[e] | 481229 | 6244129 | 0.5 | 1,087,544 | 3 | 3.3 | 3 | 1.0 | 3 | 0 | 3 |
| 41 | Maqua Lake | Maqua Lake | 482249 | 6246921 | 6.1 | 1,148,296 | 5 | 8.1 | 5 | 2.3 | 5 | 0.2 | 5 |
| 42 | Wiau Lake | Wiau Lake | 479375 | 6142060 | 339 | 1,039,679 | 4 | 23 | 4 | 7.4 | 4 | 2.8 | 4 |
| 43 | Ipiatik Lake | Ipiatik Lake | 496692 | 6127900 | 56 | 1,027,525 | 2 | 17 | 2 | 5.4 | 2 | 1.5 | 2 |
| 44 | UNL1(7) | UNL1[e] | 491437 | 6137987 | 72 | 1,114,749 | 3 | 18 | 3 | 6.4 | 3 | 2.3 | 3 |
| 45 | UNL3(7) | UNL3[e] | 497711 | 6132160 | 3.7 | 1,150,922 | 3 | 10 | 3 | 3.7 | 3 | 1.0 | 3 |
| 46 | UNL4(7) | UNL4[e] | 498367 | 6133579 | 0.93 | 535,339 | 3 | 22 | 3 | 8.5 | 3 | 2.0 | 3 |
| 47 | UNL5(7) | UNL5[e] | 493933 | 6132222 | 5.1 | 1,079,777 | 3 | 13 | 3 | 4.9 | 3 | 1.0 | 3 |
| 48 | UNL7(7) | UNL7[e] | 491151 | 6134421 | 1.5 | 957,922 | 4 | 11 | 4 | 4.4 | 4 | 1.3 | 4 |
| 49 | UNL12(7) | UNL12[e] | 493107 | 6134651 | 1.8 | 1,161,694 | 2 | 11 | 2 | 4.3 | 2 | 0.5 | 2 |
| 50 | UNL13(7) | UNL13[e] | 489844 | 6137549 | 2.0 | 1,177,632 | 3 | 4.4 | 3 | 1.5 | 3 | 0 | 3 |
| 51 | UW1(7) | UW1[e] | 468396 | 6341424 | 21 | 593,919 | 3 | 71 | 3 | 13 | 3 | 8.3 | 3 |
| 52 | UW2(7) | UW2[e] | 468346 | 6341324 | 37 | 597,835 | 2 | 36 | 2 | 7.0 | 2 | 4.5 | 2 |
| 53 | UW3(7) | UW3[e] | 468546 | 6341424 | 21 | 594,873 | 3 | 72 | 3 | 13 | 3 | 7.7 | 3 |
| 54 | UW4(7) | UW4[e] | 468946 | 6341924 | 13 | 574,758 | 2 | 71 | 2 | 12 | 2 | 14 | 2 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | UW5(7) | UW5[e] | 469046 | 6341224 | 12 | 594,278 | 2 | 49 | 2 | 11 | 2 | 8.0 | 2 |
| 56 | UW6(7) | UW6[e] | 467296 | 6340324 | 9.7 | 541,608 | 2 | 32 | 2 | 8.9 | 2 | 9.5 | 2 |
| 58 | Shipyard Lake | Shipyard Lake | 473350 | 6313235 | 43 | 953,356 | 21 | 45 | 21 | 10 | 18 | 15 | 18 |
| 60 | Burnt Lake | Burnt Lake | 536930 | 6072588 | 141 | 589,834 | 4 | 28 | 4 | 40 | 4 | 3.3 | 4 |
| 61 | LK1(7) | LK1[e] | 540333 | 6069577 | 12 | 637,521 | 3 | 30 | 3 | 10 | 3 | 4.0 | 3 |
| 62 | LK2(7) | LK2[e] | 539546 | 6071719 | 0.8 | 497,365 | 2 | 13 | 2 | 6.1 | 2 | 2.0 | 2 |
| 63 | LK3(7) | LK3[e] | 539930 | 6072774 | 2.0 | 621,432 | 3 | 16 | 3 | 6.4 | 3 | 2.3 | 3 |
| 64 | LK4(7) | LK4[e] | 540067 | 6073823 | 6.6 | 598,310 | 3 | 18 | 3 | 6.3 | 3 | 2.0 | 3 |
| 65 | LK5(7) | LK5[e] | 543092 | 6075676 | 18 | 637,773 | 3 | 14 | 3 | 4.9 | 3 | 2.0 | 3 |
| 66 | LK6(7) | LK6[e] | 544835 | 6076985 | 3.8 | 639,626 | 3 | 26 | 3 | 8.0 | 3 | 3.3 | 3 |
| 67 | LK7(7) | LK7[e] | 538930 | 6078203 | 8.1 | 653,613 | 3 | 26 | 3 | 8.1 | 3 | 2.0 | 3 |
| 68 | LK8(7) | LK8[e] | 541457 | 6082627 | 3.2 | 612,494 | 2 | 13 | 2 | 4.9 | 2 | 1.5 | 2 |
| 69 | May Lake | May Lake | 539000 | 6063000 | 189 | 500,618 | 20 | 32 | 28 | 11 | 28 | 5.9 | 25 |
| 78 | UNL-1(7), WQ17 | UNL-1[e], WQ17 | 485427 | 6357465 | 13 | 795,774 | 4 | 64 | 4 | 16 | 4 | 12 | 4 |
| 79 | UNL-2(7) | UNL-2[e] | 494650 | 6362557 | 7.4 | 902,908 | 3 | 72 | 3 | 31 | 3 | 3.0 | 3 |
| 80 | P5(5), UNL-3(7) | P5[b], UNL-3[e] | 499429 | 6365047 | 3.0 | 771,694 | 7 | 38 | 7 | 14 | 7 | 1.9 | 7 |
| 81 | L1(4), L1(6) | L1[d], L1[c] | 504587 | 6349147 | 4.3 | 1,174,236 | 2 | 2.9 | 2 | 0.91 | 2 | 0.63 | 2 |
| 82 | 170(1), 14(3), L4(4), A170 (L4)(6) | 170[f], 14[g], L4[d], A170 (L4)[c] | 509075 | 6334093 | 18 | 1,441,125 | 34 | 3.3 | 34 | 0.93 | 34 | 0.57 | 34 |
| 83 | L7(4), L7(6) | L7[d], L7[c] | 515032 | 6327463 | 22 | 1,480,408 | 30 | 4.3 | 30 | 1.2 | 30 | 0.59 | 30 |
| 84 | L8(4), L8(6) | L8[d], L8[c] | 524421 | 6322560 | 11 | 1,344,784 | 7 | 5.7 | 7 | 2.3 | 7 | 2.3 | 7 |
| 85 | 164(1), 17(3), L10(4) | 164[f], 17[g], L10[d] | 533760 | 6369378 | 11 | 960,328 | 3 | 16 | 3 | 6.1 | 3 | 1.2 | 3 |
| 86 | 166(1), L12(4) | 166[f], L12[d] | 544341 | 6349563 | 7.1 | 960,449 | 2 | 11 | 2 | 3.6 | 2 | 2.9 | 2 |
| 87 | 167(1), L13(4) | 167[f], L13[d] | 545725 | 6348186 | 16 | 942,499 | 2 | 9.5 | 2 | 3.0 | 2 | 1.8 | 2 |
| 88 | 168(1), 12(3), L14(4) | 168[f], 12[g], L14[d] | 548190 | 6346767 | 29 | 1,025,863 | 3 | 13 | 3 | 4.2 | 3 | 2.9 | 3 |
| 89 | Rabbit | Rabbit | 381972 | 6323180 | 15 | 750,033 | 2 | 22 | 2 | 12 | 2 | 28 | 2 |
| 91 | Namur | Namur | 402704 | 6368016 | 224 | 457,887 | 7 | 6.2 | 7 | 2.0 | 7 | 2.4 | 7 |
| 92 | Otasan | Otasan | 417321 | 6396959 | 23 | 578,915 | 7 | 2.7 | 7 | 0.95 | 7 | 0.82 | 7 |
| 93 | Legend | Legend | 383849 | 6364923 | 93 | 598,272 | 28 | 2.9 | 28 | 0.74 | 28 | 0.68 | 28 |
| 95 | 29(3), L27(4) | 29[g], L27[d] | 362195 | 6386208 | 13 | 573,317 | 2 | 4.8 | 2 | 0.5 | 2 | 0.5 | 2 |
| 96 | 28(3), L28(4), L28(6) | 28[g], L28[d], L28[c] | 382996 | 6414339 | 19 | 744,095 | 8 | 2.0 | 8 | 0.63 | 8 | 1.1 | 8 |
| 97 | Clayton | Clayton | 424694 | 6435790 | 13 | 798,008 | 5 | 0.53 | 5 | 0.23 | 5 | 0.8 | 5 |
| 98 | 146(1), L40(4) | 146[f], L40[d] | 519356 | 6422417 | 5.6 | 84,004 | 2 | 16 | 2 | 3.9 | 2 | 0.75 | 2 |
| 99 | 144(1), L43(4) | 144[f], L43[d] | 499704 | 6419587 | 23 | 647,862 | 2 | 20 | 2 | 7.4 | 2 | 0.89 | 2 |
| 100 | 27(3), L47(4), L47(6) | 27[g], L47[d], L47[c] | 396500 | 6395456 | 49 | 651,545 | 8 | 7.5 | 8 | 2.5 | 8 | 3.0 | 8 |
| 101 | L49(4), L49(6) | L49[d], L49[c] | 404995 | 6403111 | 31 | 675,582 | 7 | 5.5 | 7 | 1.8 | 7 | 3.7 | 7 |
| 102 | 33(3), L33(4) | 33[g], L33[d] | 425151 | 6365349 | 10 | 677,995 | 2 | 35 | 2 | 9.0 | 2 | 5.0 | 2 |
| 103 | Audet | Audet | 504973 | 6388824 | 96 | 678,781 | 3 | 32 | 3 | 16 | 3 | 6.5 | 3 |
| 104 | Johnson | Johnson | 536807 | 6389912 | 73 | 650,221 | 3 | 33 | 3 | 16 | 3 | 6.4 | 3 |
| 105 | 150(1), 9(3), L39(4), A-150 (L39)(6) | 150[f], 9[g], L39[d], A-150 (L39)[c] | 536495 | 6424234 | 19 | 822,171 | 9 | 2.9 | 9 | 1.3 | 9 | 2.2 | 9 |
| 106 | Bayard | Bayard | 416941 | 6404239 | 57 | 932,384 | 8 | 5.7 | 8 | 2.0 | 8 | 3.5 | 8 |
| 107 | L60(4), L60(6) | L60[d], L60[c] | 403796 | 6392247 | 60 | 854,325 | 7 | 6.2 | 7 | 2.1 | 7 | 2.7 | 7 |
| 108 | Waterlily | Waterlily | 407519 | 6391915 | 23 | 1,153,485 | 2 | 7.0 | 2 | 2.4 | 2 | 3.5 | 2 |
| 109 | Gordon | Gordon | 530780 | 6261842 | 535 | 382,893 | 1 | 24 | 1 | 10 | 1 | 21 | 1 |
| 110 | Birch Lake (1) | Birch Lake [f] | 536018 | 6248894 | 74 | 541,232 | 2 | 17 | 2 | 11 | 2 | 25 | 2 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 115 | 21(1), A21(6) | 21[f], A21[c] | 483819 | 6235130 | 15 | 1,874,135 | 7 | 1.5 | 7 | 0.44 | 7 | 0.78 | 7 |
| 116 | 24(1), A24(6) | 24[f], A24[c] | 484387 | 6230872 | 8.8 | 1,207,671 | 7 | 0.93 | 7 | 0.33 | 7 | 0.66 | 7 |
| 117 | 26(1), A26(6) | 26[f], A26[c] | 489502 | 6230877 | 12 | 990,730 | 7 | 1.7 | 7 | 0.48 | 7 | 0.6 | 7 |
| 118 | 29(1), A29(6) | 29[f], A29[c] | 466180 | 6224950 | 5.2 | 1,045,459 | 7 | 1.3 | 7 | 0.48 | 7 | 0.89 | 7 |
| 119 | 42(1), A42(6) | 42[f], A42[c] | 365015 | 6247322 | 25 | 1,103,070 | 7 | 6.2 | 7 | 1.4 | 7 | 3.4 | 7 |
| 120 | 47(1), A47(6) | 47[f], A47[c] | 367321 | 6235430 | 8.6 | 1,237,409 | 6 | 3.9 | 6 | 0.84 | 6 | 0.67 | 6 |
| 121 | 59(1), A59(6) | 59[f], A59[c] | 383467 | 6197733 | 45 | 1,227,396 | 7 | 3.0 | 7 | 0.75 | 7 | 1.2 | 7 |
| 122 | 86(1), A86(6) | 86[f], A86[c] | 448014 | 6170896 | 4.8 | 759,231 | 7 | 2.2 | 7 | 0.89 | 7 | 0.77 | 7 |
| 129 | 2(1), 15(3), E15 (L15b)(6) | 2[f], 15[g], E15 (L15b)[c] | 506092 | 6305335 | 25 | 1,019,573 | 7 | 6.5 | 7 | 1.6 | 7 | 3.8 | 7 |
| 130 | 32(1), 2(3) | 32[f], 2[g] | 493516 | 6226026 | 30 | 1,329,205 | 2 | 15 | 2 | 3.4 | 2 | 1.6 | 2 |
| 131 | Base | Base | 446510 | 6167454 | 64 | 1,612,091 | 2 | 17 | 2 | 4.9 | 2 | 1.9 | 2 |
| 132 | Grist | Grist | 533788 | 6137575 | 118 | 1,155,634 | 2 | 30 | 2 | 8.5 | 2 | 4.0 | 2 |
| 134 | 1(1), 25(3), 1 (267)(6) | 1[f], 25[g], 1 (267)[c] | 441917 | 6290884 | 35 | 1,081,191 | 5 | 11 | 5 | 3.4 | 5 | 1.6 | 5 |
| 135 | 3(1), 16(3) | 3[f], 16[g] | 554892 | 6301050 | 11 | 1,084,883 | 2 | 11 | 2 | 5.8 | 2 | 8.4 | 2 |
| 136 | 34(1), 1(3) | 34[f], 1[g] | 474056 | 6213581 | 74 | 1,286,678 | 2 | 14 | 2 | 3.6 | 2 | 2.1 | 2 |
| 137 | Wood Buffalo | Wood Buffalo | 368566 | 6243357 | 81 | 1,289,071 | 2 | 9.2 | 2 | 2.4 | 2 | 2.3 | 2 |
| 138 | Goodwin | Goodwin | 457796 | 6141365 | 35 | 907,247 | 2 | 12 | 2 | 4.3 | 2 | 0.83 | 2 |
| 139 | 91(1), 7(3) | 91[f], 7[g] | 538503 | 6201610 | 316 | 1,007,470 | 2 | 18 | 2 | 5.9 | 2 | 7.0 | 2 |
| 140 | L5(4), P28(5) | L5[d], P28[b] | 507166 | 6322123 | 12 | 1,285,878 | 2 | 9.2 | 2 | 2.4 | 2 | 0.25 | 2 |
| 141 | 4(1), 4(270)(6) | 4[f], 4(270)[c] | 506113 | 6291421 | 18 | 717,377 | 4 | 21 | 4 | 7.4 | 4 | 2.0 | 4 |
| 142 | 6(1), 6 (271)(6) | 6[f], 6 (271)[c] | 549064 | 6277789 | 22 | 694,439 | 4 | 17 | 4 | 5.7 | 4 | 5.8 | 4 |
| 143 | 25(1), 25 (287)(6) | 25[f], 25 (287)[c] | 487594 | 6229281 | 7.8 | 905,707 | 4 | 1.1 | 4 | 0.32 | 4 | 0.63 | 4 |
| 144 | 27(1), 27 (289)(6) | 27[f], 27 (289)[c] | 477248 | 6228400 | 7.1 | 966,871 | 4 | 1.9 | 4 | 0.56 | 4 | 0.59 | 4 |
| 145 | 28(1), 28 (290)(6) | 28[f], 28 (290)[c] | 487068 | 6225576 | 3.2 | 1,207,760 | 4 | 2.0 | 4 | 0.82 | 4 | 0.61 | 4 |
| 146 | 82(1), 82 (342)(6) | 82[f], 82 (342)[c] | 448271 | 6183205 | 6.1 | 719,099 | 4 | 2.9 | 4 | 1.4 | 4 | 1.5 | 4 |
| 147 | 94(1), 94 (354)(6) | 94[f], 94 (354)[c] | 515689 | 6179208 | 8.5 | 599,335 | 4 | 6.3 | 4 | 2.2 | 4 | 1.4 | 4 |
| 148 | P13(5), P13(6) | P13[b], P13[c] | 416003 | 6353212 | 3.8 | 1,005,286 | 4 | 11 | 4 | 4.5 | 4 | 8.2 | 4 |
| 149 | P23(5), P23(6) | P23[b], P23[c] | 509000 | 6346712 | 7.3 | 1,273,664 | 4 | 9.5 | 4 | 2.4 | 4 | 1.4 | 4 |
| 150 | P27(5), P27(6) | P27[b], P27[c] | 508300 | 6333712 | 4.0 | 1,345,206 | 4 | 3.4 | 4 | 0.95 | 4 | 0.39 | 4 |
| 151 | P49(5), P49(6) | P49[b], P49[c] | 446002 | 6394961 | 0.84 | 1,651,052 | 4 | 2.6 | 4 | 1.3 | 4 | 1.2 | 4 |
| 152 | P7(5), P7(6) | P7[b], P7[c] | 515399 | 6343212 | 1.9 | 1,180,336 | 4 | 4.2 | 4 | 1.3 | 4 | 0.43 | 4 |
| 153 | P94(5), P94(6) | P94[b], P94[c] | 440557 | 6334112 | 0.7 | 852,908 | 4 | 13 | 4 | 5.4 | 4 | 6.6 | 4 |
| 154 | P96(5), P96(6) | P96[b], P96[c] | 444002 | 6295513 | 1.3 | 854,947 | 4 | 10 | 4 | 3.7 | 4 | 0.83 | 4 |
| 155 | P97(5), P97(6) | P97[b], P97[c] | 456002 | 6296463 | 1.8 | 997,661 | 4 | 5.6 | 4 | 1.9 | 4 | 0.87 | 4 |
| 156 | P98(5), P98(6) | P98[b], P98[c] | 451762 | 6293513 | 1.9 | 1,148,146 | 4 | 12 | 4 | 3.9 | 4 | 0.91 | 4 |
| 161 | 49(1), A300(6) | 49[f], A300[c] | 366124 | 6230034 | 25 | 330,327 | 2 | 5.8 | 2 | 1.2 | 2 | 1.4 | 2 |
| 167 | Wappau | Wappau | 463161 | 6151511 | 76 | 790,499 | 1 | 28 | 1 | 7.4 | 1 | 3.5 | 1 |
| 168 | 8(1) | 8[f] | 559470 | 6264932 | 22 | 1,051,920 | 1 | 19 | 1 | 18 | 1 | 5.5 | 1 |
| 169 | Shortt Lake | Shortt Lake | 548241 | 6260147 | 169 | 549,550 | 1 | 33 | 1 | 9.9 | 1 | 7.7 | 1 |
| 170 | Nora Lake | Nora Lake | 526686 | 6259956 | 4.9 | 551,933 | 1 | 17 | 1 | 9.2 | 1 | 3.3 | 1 |
| 171 | Gipsy Lake | Gipsy Lake | 546271 | 6252711 | 95 | 210,007 | 1 | 27 | 1 | 13 | 1 | 12 | 1 |
| 172 | Baker Lake | Baker Lake | 554471 | 6254656 | 16 | 672,131 | 1 | 30 | 1 | 13 | 1 | 6.2 | 1 |
| 173 | Garson Lake | Garson Lake | 561829 | 6243625 | 340 | 733,814 | 1 | 23 | 1 | 6.5 | 1 | 7.6 | 1 |
| 174 | 17(1) | 17[f] | 487107 | 6238565 | 41 | 1,455,609 | 1 | 9.0 | 1 | 2.3 | 1 | 1.3 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | Georges Lake | Georges Lake | 513419 | 6236708 | 156 | 1,100,606 | 1 | 42 | 1 | 12 | 1 | 9.6 | 1 |
| 176 | 20(1) | 20[f] | 525809 | 6235841 | 54 | 1,072,760 | 1 | 22 | 1 | 6.4 | 1 | 15 | 1 |
| 177 | 22(1) | 22[f] | 489154 | 6232994 | 19 | 1,134,391 | 1 | 3.5 | 1 | 1.0 | 1 | 0.43 | 1 |
| 178 | 30(1) | 30[f] | 487070 | 6226500 | 22 | 1,497,922 | 1 | 0.98 | 1 | 0.3 | 1 | 0.3 | 1 |
| 179 | 31(1) | 31[f] | 480350 | 6228385 | 6.4 | 1,247,395 | 1 | 1.4 | 1 | 0.3 | 1 | 0.34 | 1 |
| 180 | 33(1) | 33[f] | 491196 | 6222316 | 14 | 1,494,365 | 1 | 2.8 | 1 | 1.3 | 1 | 0.94 | 1 |
| 181 | 35(1) | 35[f] | 540312 | 6230388 | 202 | 929,049 | 1 | 29 | 1 | 7.2 | 1 | 8.5 | 1 |
| 182 | Formby Lake | Formby Lake | 559900 | 6234325 | 51 | 814,589 | 1 | 27 | 1 | 6.8 | 1 | 8.4 | 1 |
| 183 | 37(1) | 37[f] | 554289 | 6228684 | 37 | 576,024 | 1 | 31 | 1 | 11 | 1 | 9.6 | 1 |
| 184 | Watchusk Lake | Watchusk Lake | 543469 | 6224854 | 302 | 922,765 | 1 | 25 | 1 | 6.5 | 1 | 7.5 | 1 |
| 185 | 39(1) | 39[f] | 554875 | 6223126 | 27 | 903,292 | 1 | 17 | 1 | 5.8 | 1 | 5.9 | 1 |
| 186 | 40(1) | 40[f] | 521815 | 6208917 | 28 | 1,076,885 | 1 | 24 | 1 | 7.7 | 1 | 16 | 1 |
| 187 | 41(1) | 41[f] | 355095 | 6256783 | 73 | 1,301,550 | 1 | 14 | 1 | 4.6 | 1 | 9.4 | 1 |
| 188 | 44(1) | 44[f] | 360775 | 6241744 | 157 | 1,315,822 | 1 | 13 | 1 | 2.8 | 1 | 1.9 | 1 |
| 189 | 45(1) | 45[f] | 363355 | 6241661 | 120 | 1,310,257 | 1 | 15 | 1 | 3.3 | 1 | 2.6 | 1 |
| 190 | 46(1) | 46[f] | 370920 | 6235856 | 34 | 1,227,813 | 1 | 4.4 | 1 | 1.0 | 1 | 0.79 | 1 |
| 191 | 48(1) | 48[f] | 367765 | 6234093 | 3.3 | 769,698 | 1 | 5.7 | 1 | 0.8 | 1 | 0.8 | 1 |
| 193 | 50(1) | 50[f] | 360472 | 6232476 | 38 | 1,221,052 | 1 | 11 | 1 | 2.5 | 1 | 0.9 | 1 |
| 194 | Algar Lake | Algar Lake | 420102 | 6242078 | 63 | 883,034 | 1 | 5.0 | 1 | 1.3 | 1 | 7.8 | 1 |
| 195 | 53(1) | 53[f] | 422698 | 6242954 | 17 | 1,135,271 | 1 | 4.7 | 1 | 1.3 | 1 | 7.6 | 1 |
| 196 | 54(1) | 54[f] | 423111 | 6237380 | 5.2 | 947,331 | 1 | 5.6 | 1 | 1.5 | 1 | 7.7 | 1 |
| 197 | 55(1) | 55[f] | 413272 | 6235709 | 18 | 1,051,920 | 1 | 4.7 | 1 | 1.2 | 1 | 9.6 | 1 |
| 198 | 56(1) | 56[f] | 432715 | 6224227 | 21 | 1,233,197 | 1 | 6.1 | 1 | 1.4 | 1 | 8.0 | 1 |
| 199 | 57(1) | 57[f] | 420621 | 6214236 | 18 | 1,039,709 | 1 | 7.0 | 1 | 1.4 | 1 | 3.9 | 1 |
| 200 | 58(1) | 58[f] | 376102 | 6200433 | 22 | 1,145,424 | 1 | 5.2 | 1 | 1.2 | 1 | 1.3 | 1 |
| 201 | 60(1) | 60[f] | 413544 | 6197673 | 54 | 1,299,913 | 1 | 12 | 1 | 2.7 | 1 | 3.7 | 1 |
| 202 | Mariana Lake | Mariana Lake | 435473 | 6200997 | 2.4 | 978,025 | 1 | 9.0 | 1 | 2.6 | 1 | 15 | 1 |
| 203 | 62(1) | 62[f] | 432308 | 6198262 | 7.1 | 1,284,685 | 1 | 6.6 | 1 | 2.1 | 1 | 4.7 | 1 |
| 204 | 63(1) | 63[f] | 437499 | 6197260 | 40 | 1,298,829 | 1 | 9.9 | 1 | 2.3 | 1 | 2.0 | 1 |
| 205 | Crow Lake | Crow Lake | 426862 | 6184436 | 66 | 1,360,282 | 1 | 30 | 1 | 7.1 | 1 | 3.7 | 1 |
| 206 | 65(1) | 65[f] | 425742 | 6179813 | 111 | 1,345,389 | 1 | 30 | 1 | 7.1 | 1 | 5.1 | 1 |
| 207 | 66(1) | 66[f] | 429371 | 6177905 | 15 | 1,225,076 | 1 | 28 | 1 | 5.6 | 1 | 1.1 | 1 |
| 208 | 67(1) | 67[f] | 414088 | 6172614 | 35 | 1,416,853 | 1 | 11 | 1 | 2.7 | 1 | 1.4 | 1 |
| 209 | Agnes (1) | Agnes-1 | 404923 | 6184861 | 44 | 1,254,691 | 1 | 5.7 | 1 | 1.2 | 1 | 0.75 | 1 |
| 210 | 69(1) | 69[f] | 383412 | 6181678 | 13 | 1,021,128 | 1 | 5.3 | 1 | 1.0 | 1 | 1.6 | 1 |
| 211 | 70(1) | 70[f] | 388380 | 6191747 | 11 | 1,046,413 | 1 | 8.7 | 1 | 1.8 | 1 | 2.2 | 1 |
| 212 | 71(1) | 71[f] | 381000 | 6189159 | 22 | 1,209,756 | 1 | 7.8 | 1 | 1.6 | 1 | 2.3 | 1 |
| 213 | 72(1) | 72[f] | 376691 | 6184647 | 7.7 | 1,035,484 | 1 | 7.1 | 1 | 2.1 | 1 | 1.8 | 1 |
| 214 | 73(1) | 73[f] | 376481 | 6177226 | 25 | 1,165,184 | 1 | 6.3 | 1 | 1.9 | 1 | 2.9 | 1 |
| 215 | Long Lake (2) | Long Lake-2 | 369298 | 6182079 | 31 | 1,128,146 | 1 | 12 | 1 | 3.3 | 1 | 3.5 | 1 |
| 216 | 75(1) | 75[f] | 363259 | 6189683 | 4.1 | 519,592 | 1 | 15 | 1 | 5.0 | 1 | 3.5 | 1 |
| 217 | Pelican Lake | Pelican Lake | 358952 | 6185800 | 283 | 1,072,499 | 1 | 15 | 1 | 4.6 | 1 | 4.1 | 1 |
| 218 | 77(1) | 77[f] | 452595 | 6196133 | 147 | 1,518,869 | 1 | 11 | 1 | 2.7 | 1 | 1.6 | 1 |
| 219 | 78(1) | 78[f] | 444220 | 6193451 | 23 | 1,381,323 | 1 | 13 | 1 | 2.7 | 1 | 1.1 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 220 | 79(1) | 79[f] | 448879 | 6190611 | 16 | 1,214,998 | 1 | 10 | 1 | 2.4 | 1 | 1.7 | 1 |
| 221 | 80(1) | 80[f] | 458295 | 6193292 | 2.7 | 666,216 | 1 | 6.4 | 1 | 2.1 | 1 | 1.2 | 1 |
| 222 | 81(1) | 81[f] | 471892 | 6199682 | 40 | 1,472,162 | 1 | 9.6 | 1 | 2.7 | 1 | 1.5 | 1 |
| 223 | 83(1) | 83[f] | 438372 | 6185182 | 38 | 1,372,718 | 1 | 16 | 1 | 2.5 | 1 | 0.79 | 1 |
| 224 | 84(1) | 84[f] | 443436 | 6173058 | 9.3 | 975,727 | 1 | 4.1 | 1 | 1.3 | 1 | 0.76 | 1 |
| 225 | 85(1) | 85[f] | 446589 | 6173942 | 6.4 | 1,019,252 | 1 | 3.6 | 1 | 1.3 | 1 | 0.72 | 1 |
| 226 | 88(1) | 88[f] | 438648 | 6204657 | 8.1 | 1,022,014 | 1 | 16 | 1 | 4.7 | 1 | 4.1 | 1 |
| 227 | Bohn Lake | Bohn Lake | 520832 | 6196859 | 201 | 887,120 | 1 | 26 | 1 | 7.6 | 1 | 8.4 | 1 |
| 228 | 90(1) | 90[f] | 530201 | 6197838 | 20 | 974,293 | 1 | 21 | 1 | 5.5 | 1 | 10 | 1 |
| 229 | Cow per Lake | Cow per Lake | 534391 | 6195087 | 281 | 1,025,445 | 1 | 19 | 1 | 5.9 | 1 | 6.1 | 1 |
| 230 | 93(1) | 93[f] | 533411 | 6186731 | 11 | 1,079,012 | 1 | 15 | 1 | 5.9 | 1 | 2.1 | 1 |
| 231 | 95(1) | 95[f] | 516751 | 6175506 | 16 | 1,159,139 | 1 | 9.3 | 1 | 2.9 | 1 | 2.1 | 1 |
| 232 | 97(1) | 97[f] | 528841 | 6167222 | 51 | 1,229,931 | 1 | 14 | 1 | 4.5 | 1 | 1.5 | 1 |
| 233 | 98(1) | 98[f] | 502625 | 6165269 | 26 | 1,127,232 | 1 | 14 | 1 | 4.5 | 1 | 3.5 | 1 |
| 234 | 100(1) | 100[f] | 547077 | 6178511 | 50 | 1,302,761 | 1 | 22 | 1 | 7.3 | 1 | 5.0 | 1 |
| 235 | 101(1) | 101[f] | 548176 | 6173881 | 6.5 | 1,022,968 | 1 | 20 | 1 | 7.5 | 1 | 1.4 | 1 |
| 236 | 102(1) | 102[f] | 558657 | 6173086 | 16 | 1,182,921 | 1 | 13 | 1 | 4.4 | 1 | 1.3 | 1 |
| 237 | Winefred Lake | Winefred Lake | 531585 | 6150547 | 1186 | 1,087,551 | 1 | 27 | 1 | 8.0 | 1 | 3.8 | 1 |
| 238 | 104(1) | 104[f] | 544256 | 6146950 | 8.7 | 1,054,335 | 1 | 21 | 1 | 6.4 | 1 | 2.8 | 1 |
| 239 | 106(1) | 106[f] | 525364 | 6133813 | 3.5 | 513,938 | 1 | 30 | 1 | 8.8 | 1 | 2.0 | 1 |
| 240 | Kirby Lake | Kirby Lake | 514750 | 6146752 | 22 | 861,304 | 1 | 32 | 1 | 10 | 1 | 3.6 | 1 |
| 241 | 108(1) | 108[f] | 510533 | 6149522 | 51 | 1,057,482 | 1 | 28 | 1 | 8.5 | 1 | 3.3 | 1 |
| 242 | 110(1) | 110[f] | 464179 | 6147797 | 12 | 1,087,074 | 1 | 11 | 1 | 4.0 | 1 | 1.3 | 1 |
| 243 | 111(1) | 111[f] | 475751 | 6144012 | 25 | 1,171,846 | 1 | 14 | 1 | 2.7 | 1 | 2.4 | 1 |
| 244 | 113(1) | 113[f] | 492606 | 6137452 | 35 | 1,329,498 | 1 | 17 | 1 | 6.4 | 1 | 1.6 | 1 |
| 245 | 114(1) | 114[f] | 468315 | 6136636 | 7.2 | 1,057,748 | 1 | 7.6 | 1 | 3.7 | 1 | 1.6 | 1 |
| 246 | 116(1) | 116[f] | 452463 | 6135855 | 11 | 1,034,954 | 1 | 7.9 | 1 | 3.5 | 1 | 0.91 | 1 |
| 247 | 117(1) | 117[f] | 467222 | 6132003 | 9.3 | 1,219,503 | 1 | 13 | 1 | 7.4 | 1 | 1.9 | 1 |
| 248 | Clyde Lake | Clyde Lake | 470369 | 6128275 | 470 | 327,640 | 1 | 22 | 1 | 6.8 | 1 | 2.5 | 1 |
| 249 | Behan Lake | Behan Lake | 465073 | 6127390 | 65 | 383,320 | 1 | 15 | 1 | 5.8 | 1 | 1.9 | 1 |
| 250 | 120(1) | 120[f] | 475613 | 6118973 | 16 | 1,118,497 | 1 | 17 | 1 | 6.8 | 1 | 2.1 | 1 |
| 251 | Big Chief Lake | Big Chief Lake | 458671 | 6121881 | 13 | 929,021 | 1 | 15 | 1 | 4.8 | 1 | 1.7 | 1 |
| 252 | 122(1) | 122[f] | 458438 | 6096843 | 19 | 820,464 | 1 | 12 | 1 | 4.2 | 1 | 1.4 | 1 |
| 253 | 123(1) | 123[f] | 444801 | 6114608 | 7.9 | 1,075,918 | 1 | 30 | 1 | 15 | 1 | 7.7 | 1 |
| 254 | 124(1) | 124[f] | 446862 | 6109018 | 125 | 788,751 | 1 | 26 | 1 | 8.0 | 1 | 7.9 | 1 |
| 255 | 125(1) | 125[f] | 443614 | 6104417 | 22 | 1,189,853 | 1 | 35 | 1 | 11 | 1 | 13 | 1 |
| 256 | Piche Lake | Piche Lake | 461651 | 6098662 | 555 | 1,126,278 | 1 | 36 | 1 | 15 | 1 | 17 | 1 |
| 257 | Heart Lake | Heart Lake | 468042 | 6098611 | 495 | 1,122,040 | 1 | 32 | 1 | 14 | 1 | 17 | 1 |
| 258 | 128(1) | 128[f] | 470756 | 6106015 | 12 | 1,077,257 | 1 | 39 | 1 | 17 | 1 | 5.9 | 1 |
| 259 | Logan Lake | Logan Lake | 476591 | 6104122 | 245 | 1,201,524 | 1 | 33 | 1 | 12 | 1 | 14 | 1 |
| 260 | 131(1) | 131[f] | 458576 | 6424282 | 12 | 332,605 | 1 | 50 | 1 | 14 | 1 | 10 | 1 |
| 261 | Ronald Lake | Ronald Lake | 460556 | 6425197 | 346 | 514,046 | 1 | 43 | 1 | 12 | 1 | 14 | 1 |
| 262 | Dianne Lakes | Dianne Lakes | 463961 | 6419598 | 296 | 549,538 | 1 | 37 | 1 | 10 | 1 | 10 | 1 |
| 263 | 134(1) | 134[f] | 467958 | 6426055 | 8.2 | 258,795 | 1 | 34 | 1 | 9.6 | 1 | 5.6 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 264 | 136(1) | 136[f] | 484228 | 6426882 | 5.2 | 177,359 | 1 | 26 | 1 | 6.3 | 1 | 2.2 | 1 |
| 265 | Pearson Lake | Pearson Lake | 486197 | 6425027 | 17 | 256,886 | 1 | 22 | 1 | 6.7 | 1 | 1.7 | 1 |
| 266 | Kress Lake | Kress Lake | 492117 | 6426859 | 31 | 671,070 | 1 | 12 | 1 | 3.9 | 1 | 2.5 | 1 |
| 267 | 139(1) | 139[f] | 499012 | 6425927 | 10 | 325,523 | 1 | 17 | 1 | 5.6 | 1 | 1.3 | 1 |
| 268 | 141(1) | 141[f] | 503947 | 6424693 | 43 | 572,636 | 1 | 26 | 1 | 8.9 | 1 | 1.2 | 1 |
| 269 | 142(1) | 142[f] | 505917 | 6424695 | 37 | 752,070 | 1 | 26 | 1 | 8.5 | 1 | 1.2 | 1 |
| 270 | 143(1) | 143[f] | 498027 | 6419437 | 28 | 504,743 | 1 | 22 | 1 | 7.6 | 1 | 1.3 | 1 |
| 271 | 145(1) | 145[f] | 511855 | 6417594 | 19 | 447,674 | 1 | 30 | 1 | 12 | 1 | 1.2 | 1 |
| 272 | Poplar Lake | Poplar Lake | 522662 | 6427850 | 48 | 771,350 | 1 | 31 | 1 | 7.6 | 1 | 1.2 | 1 |
| 273 | 148(1) | 148[f] | 521711 | 6422278 | 6.2 | 512,430 | 1 | 23 | 1 | 5.7 | 1 | 0.88 | 1 |
| 274 | 149(1) | 149[f] | 522212 | 6420422 | 7.1 | 580,267 | 1 | 34 | 1 | 8.6 | 1 | 1.0 | 1 |
| 275 | 151(1) | 151[f] | 541491 | 6417792 | 92 | 918,457 | 1 | 4.5 | 1 | 1.6 | 1 | 2.2 | 1 |
| 276 | 152(1) | 152[f] | 519738 | 6421333 | 22 | 396,452 | 1 | 29 | 1 | 7.0 | 1 | 0.99 | 1 |
| 277 | 153(1) | 153[f] | 513886 | 6400901 | 17 | 765,749 | 1 | 14 | 1 | 4.0 | 1 | 1.3 | 1 |
| 278 | 157(1) | 157[f] | 508959 | 6386971 | 42 | 765,236 | 1 | 39 | 1 | 15 | 1 | 5.0 | 1 |
| 279 | 158(1) | 158[f] | 527848 | 6390764 | 14 | 641,184 | 1 | 25 | 1 | 17 | 1 | 2.9 | 1 |
| 280 | 160(1) | 160[f] | 527874 | 6387057 | 24 | 813,220 | 1 | 23 | 1 | 9.3 | 1 | 1.9 | 1 |
| 281 | 161(1) | 161[f] | 528885 | 6384281 | 8.1 | 419,215 | 1 | 24 | 1 | 14 | 1 | 4.7 | 1 |
| 282 | 162(1) | 162[f] | 513963 | 6378636 | 10 | 285,477 | 1 | 28 | 1 | 12 | 1 | 1.3 | 1 |
| 283 | 163(1) | 163[f] | 506991 | 6374911 | 10 | 762,276 | 1 | 22 | 1 | 10 | 1 | 0.75 | 1 |
| 284 | Big Snuff Lake | Big Snuff Lake | 542056 | 6363054 | 17 | 978,304 | 1 | 9.3 | 1 | 3.7 | 1 | 1.3 | 1 |
| 299 | Chipew yan lake | Chipew yan lake | 350513 | 6315437 | 100 | 1,015,524 | 1 | 24 | 1 | 9.2 | 1 | 9.1 | 1 |
| 300 | D221(2) | D221[h] | 365323 | 6302862 | 7.0 | 45,082 | 1 | 30 | 1 | 22 | 1 | 49 | 1 |
| 301 | D222(2) | D222[h] | 349070 | 6289492 | 4.6 | 68,603 | 1 | 42 | 1 | 15 | 1 | 9.2 | 1 |
| 302 | D223(2) | D223[h] | 361754 | 6287198 | 12 | 773,161 | 1 | 17 | 1 | 7.1 | 1 | 4.3 | 1 |
| 304 | D226(2) | D226[h] | 351247 | 6264347 | 15 | 470,099 | 1 | 33 | 1 | 8.9 | 1 | 9.6 | 1 |
| 306 | Horsetail Lake | Horsetail Lake | 350527 | 6214242 | 125 | 994,305 | 1 | 9.7 | 1 | 2.6 | 1 | 0.97 | 1 |
| 314 | Sandy Lake (1) | Sandy-1 | 349626 | 6188281 | 395 | 864,761 | 1 | 22 | 1 | 6.2 | 1 | 3.9 | 1 |
| 316 | D254(2) | D254[h] | 374162 | 6271211 | 391 | 1,199,205 | 1 | 22 | 1 | 6.3 | 1 | 6.2 | 1 |
| 317 | L2(4) | L2[d] | 505832 | 6347134 | 9.8 | 1,325,678 | 1 | 18 | 1 | 3.0 | 1 | 0.5 | 1 |
| 318 | L3(4) | L3[d] | 503318 | 6346085 | 7.2 | 1,324,095 | 1 | 14 | 1 | 3.0 | 1 | 0.5 | 1 |
| 319 | L6(4) | L6[d] | 510355 | 6325681 | 32 | 1,336,029 | 1 | 15 | 1 | 4.0 | 1 | 0.5 | 1 |
| 320 | L9(4) | L9[d] | 533212 | 6338082 | 33 | 1,276,678 | 1 | 19 | 1 | 5.0 | 1 | 4.0 | 1 |
| 321 | L11(4) | L11[d] | 543215 | 6362610 | 20 | 946,087 | 1 | 7.5 | 1 | 2.5 | 1 | 0.5 | 1 |
| 322 | L15(4) | L15[d] | 548424 | 6332453 | 8.0 | 1,021,790 | 1 | 6.5 | 1 | 2.5 | 1 | 13 | 1 |
| 323 | S. Gardiner | S. Gardiner | 410108 | 6374038 | 1201 | 873,236 | 1 | 14 | 1 | 4.0 | 1 | 2.0 | 1 |
| 324 | N. Gardiner | N. Gardiner | 410554 | 6378483 | 1026 | 844,832 | 1 | 15 | 1 | 4.0 | 1 | 2.0 | 1 |
| 325 | L21(4) | L21[d] | 410374 | 6386071 | 103 | 367,056 | 1 | 11 | 1 | 3.5 | 1 | 4.0 | 1 |
| 326 | Sand | Sand | 418434 | 6390656 | 605 | 836,205 | 1 | 14 | 1 | 4.0 | 1 | 2.0 | 1 |
| 327 | Eaglenest | Eaglenest | 432609 | 6405149 | 128 | 754,531 | 1 | 11 | 1 | 4.0 | 1 | 2.0 | 1 |
| 328 | Clear | Clear | 433258 | 6399414 | 107 | 892,306 | 1 | 12 | 1 | 4.5 | 1 | 0.5 | 1 |
| 329 | Mildred | Mildred | 464280 | 6323724 | 9.1 | 509,777 | 1 | 54 | 1 | 15 | 1 | 23 | 1 |
| 330 | L41(4) | L41[d] | 509160 | 6422381 | 37 | 395,983 | 1 | 20 | 1 | 7.0 | 1 | 0.5 | 1 |
| 331 | L42(4) | L42[d] | 501166 | 6427071 | 50 | 472,728 | 1 | 24 | 1 | 8.5 | 1 | 0.5 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 332 | L44(4) | L44[d] | 494569 | 6419374 | 9.4 | 63,787 | 1 | 16 | 1 | 9.5 | 1 | 0.5 | 1 |
| 333 | L45(4) | L45[d] | 491985 | 6411117 | 36 | 602,678 | 1 | 17 | 1 | 8.0 | 1 | 0.5 | 1 |
| 334 | L48(4) | L48[d] | 429234 | 6396488 | 103 | 855,153 | 1 | 16 | 1 | 4.0 | 1 | 2.0 | 1 |
| 335 | L50(4) | L50[d] | 392149 | 6393777 | 14 | 615,384 | 1 | 7.0 | 1 | 4.0 | 1 | 3.0 | 1 |
| 336 | L51(4) | L51[d] | 399507 | 6338927 | 66 | 859,573 | 1 | 14 | 1 | 5.0 | 1 | 6.0 | 1 |
| 337 | L52(4) | L52[d] | 399323 | 6341684 | 11 | 978,001 | 1 | 14 | 1 | 4.4 | 1 | 6.0 | 1 |
| 338 | L53(4) | L53[d] | 396115 | 6344270 | 51 | 1,122,602 | 1 | 44 | 1 | 12 | 1 | 17 | 1 |
| 339 | L54(4) | L54[d] | 391449 | 6339131 | 237 | 1,218,877 | 1 | 43 | 1 | 13 | 1 | 15 | 1 |
| 340 | L55(4) | L55[d] | 376224 | 6344078 | 26 | 1,116,561 | 1 | 22 | 1 | 6.0 | 1 | 4.0 | 1 |
| 341 | L56(4) | L56[d] | 375397 | 6341720 | 38 | 1,394,696 | 1 | 11 | 1 | 3.0 | 1 | 3.0 | 1 |
| 342 | L57(4) | L57[d] | 365956 | 6368725 | 198 | 814,031 | 1 | 19 | 1 | 5.0 | 1 | 2.0 | 1 |
| 343 | L58(4) | L58[d] | 373071 | 6372273 | 14 | 640,331 | 1 | 13 | 1 | 4.0 | 1 | 1.0 | 1 |
| 344 | L59(4) | L59[d] | 393655 | 6384983 | 201 | 816,042 | 1 | 6.0 | 1 | 2.0 | 1 | 2.0 | 1 |
| 345 | Buoy | Buoy | 418473 | 6380143 | 25 | 814,632 | 1 | 27 | 1 | 8.0 | 1 | 3.0 | 1 |
| 346 | Canopener | Canopener | 420461 | 6379858 | 11 | 606,877 | 1 | 20 | 1 | 6.0 | 1 | 2.0 | 1 |
| 347 | L64(4) | L64[d] | 514035 | 6443734 | 9.7 | 58,560 | 1 | 12 | 1 | 3.0 | 1 | 1.0 | 1 |
| 348 | Currie | Currie | 515504 | 6436008 | 16 | 458,094 | 1 | 7.9 | 1 | 1.6 | 1 | 2.0 | 1 |
| 349 | Archer | Archer | 539134 | 6441490 | 43 | 637,772 | 1 | 4.0 | 1 | 2.0 | 1 | 1.0 | 1 |
| 350 | Harwood | Harwood | 536958 | 6436149 | 9.1 | 478,566 | 1 | 5.0 | 1 | 3.0 | 1 | 1.0 | 1 |
| 351 | L68(4) | L68[d] | 413276 | 6411466 | 2.1 | 598,248 | 1 | 5.0 | 1 | 1.0 | 1 | 3.0 | 1 |
| 352 | L69(4) | L69[d] | 419591 | 6414486 | 2.4 | 534,875 | 1 | 33 | 1 | 6.0 | 1 | 8.0 | 1 |
| 373 | 22(3) | 22[g] | 361308 | 6293772 | 506 | 1,073,183 | 1 | 20 | 1 | 6.0 | 1 | 21 | 1 |
| 374 | Carrot | Carrot | 354281 | 6317284 | 180 | 1,019,216 | 1 | 20 | 1 | 6.0 | 1 | 7.0 | 1 |
| 405 | P101(5) | P101[b] | 448002 | 6287963 | 1.1 | 1,060,291 | 1 | 16 | 1 | 4.9 | 1 | 0 | 1 |
| 406 | P11(5) | P11[b] | 423003 | 6353012 | 2.0 | 1,254,775 | 1 | 10 | 1 | 4.4 | 1 | 10 | 1 |
| 407 | P14(5) | P14[b] | 418303 | 6353462 | 8.9 | 1,192,121 | 1 | 22 | 1 | 6.9 | 1 | 9.0 | 1 |
| 408 | P16(5) | P16[b] | 427803 | 6363462 | 1.0 | 1,359,696 | 1 | 15 | 1 | 4.3 | 1 | 5.0 | 1 |
| 409 | P17(5) | P17[b] | 428803 | 6363212 | 0.47 | 1,153,719 | 1 | 21 | 1 | 5.6 | 1 | 7.0 | 1 |
| 410 | P18(5) | P18[b] | 429003 | 6364212 | 0.57 | 1,156,561 | 1 | 15 | 1 | 4.5 | 1 | 5.0 | 1 |
| 411 | P2(5),WQ16 | P2[b], WQ16 | 481401 | 6362412 | 2.6 | 763,875 | 4 | 60 | 4 | 14 | 4 | 2.0 | 4 |
| 412 | P20(5) | P20[b] | 438802 | 6390961 | 0.82 | 1,535,650 | 1 | 9.4 | 1 | 3.1 | 1 | 1.0 | 1 |
| 413 | P24(5) | P24[b] | 505000 | 6342512 | 7.6 | 1,329,487 | 1 | 10 | 1 | 2.5 | 1 | 0 | 1 |
| 414 | P25(5) | P25[b] | 510500 | 6340812 | 8.6 | 1,337,404 | 1 | 17 | 1 | 3.8 | 1 | 2.0 | 1 |
| 415 | P3(5), WQ15 | P3[b], WQ15 | 483501 | 6360762 | 1.9 | 763,490 | 1 | 50 | 1 | 11 | 1 | 6.0 | 1 |
| 416 | P30(5) | P30[b] | 498500 | 6314213 | 1.8 | 1,024,043 | 3 | 44 | 3 | 9.3 | 3 | 6.0 | 3 |
| 417 | P34(5) | P34[b] | 514199 | 6382911 | 0.89 | 711,558 | 1 | 20 | 1 | 11 | 1 | 0 | 1 |
| 418 | P35(5) | P35[b] | 510100 | 6378311 | 1.3 | 716,657 | 1 | 17 | 1 | 7.8 | 1 | 0 | 1 |
| 419 | P38(5) | P38[b] | 518699 | 6364212 | 0.35 | 638,449 | 1 | 12 | 1 | 4.3 | 1 | 1.0 | 1 |
| 420 | P4(5) | P4[b] | 479201 | 6352812 | 2.6 | 799,233 | 1 | 41 | 1 | 14 | 1 | 18 | 1 |
| 421 | P43(5) | P43[b] | 512450 | 6345512 | 3.5 | 1,250,344 | 1 | 12 | 1 | 2.9 | 1 | 0 | 1 |
| 422 | P44(5) | P44[b] | 522999 | 6333312 | 2.3 | 1,215,880 | 1 | 26 | 1 | 9.5 | 1 | 15 | 1 |
| 423 | P45(5) | P45[b] | 529099 | 6334462 | 1.3 | 954,844 | 1 | 38 | 1 | 12 | 1 | 4.0 | 1 |
| 424 | P46(5) | P46[b] | 500600 | 6320312 | 1.4 | 1,072,456 | 1 | 30 | 1 | 7.9 | 1 | 4.0 | 1 |
| 425 | P47(5) | P47[b] | 502300 | 6317712 | 17 | 1,183,952 | 1 | 21 | 1 | 5.6 | 1 | 3.0 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 426 | P48(5) | P48[b] | 447802 | 6388211 | 4.6 | 1,457,972 | 1 | 12 | 1 | 4.7 | 1 | 6.0 | 1 |
| 428 | P50(5) | P50[b] | 444752 | 6392311 | 2.9 | 1,619,461 | 1 | 30 | 1 | 11 | 1 | 3.0 | 1 |
| 429 | P51(5) | P51[b] | 451552 | 6394711 | 0.44 | 1,296,888 | 1 | 12 | 1 | 4.9 | 1 | 3.0 | 1 |
| 430 | P52(5) | P52[b] | 461502 | 6391111 | 0.93 | 339,329 | 1 | 32 | 1 | 28 | 1 | 17 | 1 |
| 431 | P54(5) | P54[b] | 451302 | 6395711 | 0.44 | 936,641 | 1 | 11 | 1 | 5.0 | 1 | 2.0 | 1 |
| 432 | P6(5) | P6[b] | 512600 | 6343712 | 4.0 | 1,240,632 | 1 | 20 | 1 | 4.0 | 1 | 1.0 | 1 |
| 433 | P60(5) | P60[b] | 437402 | 6398711 | 3.5 | 1,668,605 | 1 | 14 | 1 | 5.6 | 1 | 3.0 | 1 |
| 434 | P61(5) | P61[b] | 425103 | 6385111 | 0.84 | 1,611,611 | 1 | 11 | 1 | 3.4 | 1 | 0 | 1 |
| 435 | P69(5) | P69[b] | 427503 | 6387611 | 0.97 | 1,782,000 | 1 | 7.6 | 1 | 2.8 | 1 | 1.0 | 1 |
| 436 | P70(5) | P70[b] | 429803 | 6377462 | 1.7 | 1,725,074 | 1 | 5.8 | 1 | 1.8 | 1 | 0 | 1 |
| 437 | P72(5) | P72[b] | 428903 | 6400411 | 1.7 | 1,538,954 | 1 | 4.3 | 1 | 2.1 | 1 | 4.0 | 1 |
| 438 | P77(5) | P77[b] | 438202 | 6391811 | 1.3 | 1,602,926 | 1 | 9.6 | 1 | 2.8 | 1 | 0 | 1 |
| 439 | P79(5) | P79[b] | 438752 | 6392211 | 2.3 | 1,645,892 | 1 | 9.6 | 1 | 2.6 | 1 | 0 | 1 |
| 440 | P8(5) | P8[b] | 516249 | 6343212 | 2.1 | 1,229,132 | 1 | 9.1 | 1 | 2.1 | 1 | 0 | 1 |
| 441 | P84(5) | P84[b] | 416203 | 6370462 | 0.94 | 1,609,739 | 1 | 9.9 | 1 | 3.3 | 1 | 0 | 1 |
| 442 | P85(5) | P85[b] | 422403 | 6371812 | 2.2 | 1,671,732 | 1 | 11 | 1 | 3.1 | 1 | 0 | 1 |
| 443 | P86(5) | P86[b] | 411153 | 6350112 | 3.8 | 1,252,744 | 1 | 39 | 1 | 11 | 1 | 22 | 1 |
| 444 | P87(5) | P87[b] | 426003 | 6373212 | 4.1 | 1,676,974 | 1 | 11 | 1 | 3.2 | 1 | 0 | 1 |
| 445 | P9(5) | P9[b] | 524699 | 6341212 | 4.9 | 1,262,304 | 1 | 23 | 1 | 5.0 | 1 | 2.0 | 1 |
| 446 | P90(5) | P90[b] | 436852 | 6332462 | 0.65 | 777,999 | 1 | 24 | 1 | 8.7 | 1 | 13 | 1 |
| 447 | P91(5) | P91[b] | 433852 | 6330512 | 14 | 978,905 | 1 | 33 | 1 | 12 | 1 | 14 | 1 |
| 449 | P95(5) | P95[b] | 443552 | 6301613 | 1.6 | 1,129,108 | 1 | 22 | 1 | 7.1 | 1 | 10 | 1 |
| 450 | P99(5) | P99[b] | 451402 | 6281113 | 0.51 | 931,819 | 1 | 23 | 1 | 4.2 | 1 | 0 | 1 |
| 451 | PF1(5) | PF1[b] | 445481 | 6278365 | 0.61 | 989,430 | 1 | 53 | 1 | 6.9 | 1 | 2.0 | 1 |
| 452 | PF10(5) | PF10[b] | 493296 | 6259805 | 1.1 | 1,071,768 | 1 | 8.7 | 1 | 2.6 | 1 | 0 | 1 |
| 453 | PF11(5) | PF11[b] | 495869 | 6259633 | 1.3 | 1,122,602 | 1 | 5.4 | 1 | 2.0 | 1 | 0 | 1 |
| 455 | PF13(5) | PF13[b] | 498560 | 6265951 | 1.6 | 989,963 | 1 | 25 | 1 | 8.1 | 1 | 5.0 | 1 |
| 456 | PF2(5) | PF2[b] | 448416 | 6280450 | 0.73 | 1,001,138 | 1 | 43 | 1 | 6.0 | 1 | 2.0 | 1 |
| 457 | PF3(5) | PF3[b] | 442406 | 6276535 | 0.74 | 815,775 | 1 | 42 | 1 | 6.3 | 1 | 2.0 | 1 |
| 458 | PF4(5) | PF4[b] | 446055 | 6279117 | 0.26 | 971,003 | 1 | 64 | 1 | 10 | 1 | 2.0 | 1 |
| 459 | PF5(5) | PF5[b] | 451429 | 6268553 | 0.53 | 833,597 | 1 | 34 | 1 | 6.7 | 1 | 1.0 | 1 |
| 460 | PF6(5) | PF6[b] | 450033 | 6268135 | 0.69 | 1,003,276 | 1 | 29 | 1 | 5.2 | 1 | 0 | 1 |
| 461 | PF7(5) | PF7[b] | 479616 | 6256890 | 1.6 | 1,088,864 | 1 | 21 | 1 | 9.5 | 1 | 8.0 | 1 |
| 462 | PF8(5) | PF8[b] | 471630 | 6268385 | 1.6 | 933,312 | 1 | 14 | 1 | 5.2 | 1 | 20 | 1 |
| 463 | PF9(5) | PF9[b] | 488075 | 6256727 | 1.3 | 1,005,820 | 1 | 12 | 1 | 4.3 | 1 | 3.0 | 1 |
| 464 | PM1(5) | PM1[b] | 505194 | 6347380 | 0.51 | 1,301,983 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 465 | PM2(5) | PM2[b] | 507264 | 6347115 | 0.73 | 1,305,832 | 1 | 11 | 1 | 2.6 | 1 | 0 | 1 |
| 466 | PM3(5) | PM3[b] | 505393 | 6346711 | 1.0 | 1,317,514 | 1 | 13 | 1 | 3.1 | 1 | 0 | 1 |
| 467 | PM4(5) | PM4[b] | 502509 | 6317128 | 17 | 1,195,680 | 1 | 21 | 1 | 5.6 | 1 | 4.0 | 1 |
| 468 | PT1(5) | PT1[b] | 429874 | 6398738 | 1.3 | 1,271,903 | 1 | 14 | 1 | 5.3 | 1 | 0 | 1 |
| 469 | PT2(5) | PT2[b] | 430065 | 6401484 | 0.96 | 1,476,187 | 1 | 3.7 | 1 | 1.7 | 1 | 2.0 | 1 |
| 470 | PT3(5) | PT3[b] | 433955 | 6393613 | 0.6 | 1,627,763 | 1 | 9.8 | 1 | 3.4 | 1 | 1.0 | 1 |
| 471 | PT4(5) | PT4[b] | 438235 | 6392291 | 1.7 | 1,649,478 | 1 | 12 | 1 | 3.2 | 1 | 0 | 1 |
| 472 | PT5(5) | PT5[b] | 448974 | 6395163 | 1.5 | 1,579,959 | 1 | 7.6 | 1 | 2.9 | 1 | 0 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 473 | PT6(5) | PT6[b] | 460733 | 6391206 | 0.18 | 344,892 | 1 | 36 | 1 | 19 | 1 | 8.0 | 1 |
| 474 | PT8(5) | PT8[b] | 445573 | 6383359 | 0.083 | 1,140,636 | 1 | 19 | 1 | 7.0 | 1 | 3.0 | 1 |
| 475 | PT9(5) | PT9[b] | 436094 | 6371181 | 0.58 | 1,372,070 | 1 | 15 | 1 | 4.7 | 1 | 2.0 | 1 |
| 476 | PTH1(5) | PTH1[b] | 511576 | 6415521 | 0.96 | 426,454 | 1 | 27 | 1 | 12 | 1 | 1.0 | 1 |
| 477 | PTH10(5) | PTH10[b] | 495763 | 6333877 | 8.4 | 1,033,938 | 1 | 11 | 1 | 3.6 | 1 | 1.0 | 1 |
| 478 | PTH11(5) | PTH11[b] | 492308 | 6313536 | 2.7 | 1,127,879 | 1 | 18 | 1 | 6.5 | 1 | 3.0 | 1 |
| 479 | PTH12(5) | PTH12[b] | 491531 | 6306260 | 1.2 | 1,079,332 | 1 | 20 | 1 | 6.2 | 1 | 2.0 | 1 |
| 480 | PTH2(5) | PTH2[b] | 513560 | 6419693 | 1.2 | 554,569 | 1 | 29 | 1 | 11 | 1 | 1.0 | 1 |
| 481 | PTH5(5) | PTH5[b] | 513190 | 6386987 | 0.96 | 758,438 | 1 | 29 | 1 | 13 | 1 | 5.0 | 1 |
| 482 | PTH6(5) | PTH6[b] | 514631 | 6383486 | 0.88 | 823,865 | 1 | 23 | 1 | 11 | 1 | 0 | 1 |
| 483 | PTH7(5) | PTH7[b] | 511202 | 6379065 | 0.93 | 848,323 | 1 | 24 | 1 | 14 | 1 | 0 | 1 |
| 484 | PTH8(5) | PTH8[b] | 510279 | 6375937 | 0.61 | 782,420 | 1 | 16 | 1 | 8.5 | 1 | 0 | 1 |
| 485 | PTH9(5) | PTH9[b] | 495957 | 6334968 | 2.6 | 859,360 | 1 | 13 | 1 | 4.3 | 1 | 2.0 | 1 |
| 486 | PW1(5) | PW1[b] | 414747 | 6351741 | 1.8 | 1,325,950 | 1 | 14 | 1 | 5.6 | 1 | 7.0 | 1 |
| 487 | PW2(5) | PW2[b] | 419555 | 6351513 | 0.56 | 1,177,104 | 1 | 26 | 1 | 9.0 | 1 | 17 | 1 |
| 488 | PW3(5) | PW3[b] | 412268 | 6345506 | 0.72 | 1,267,549 | 1 | 13 | 1 | 3.6 | 1 | 2.0 | 1 |
| 515 | Unnamed 5(7) | Unnamed 5[e] | 522785 | 6041366 | 5.8 | 416,740 | 1 | 97 | 1 | 52 | 1 | 48 | 1 |
| 516 | Sinclair (1) | Sinclair-1 | 522000 | 6064200 | 57 | 524,085 | 3 | 36 | 3 | 24 | 3 | 30 | 3 |
| 517 | Bourque | Bourque | 529300 | 6059500 | 100 | 471,363 | 19 | 33 | 28 | 19 | 28 | 11 | 27 |
| 518 | Marguerite | Marguerite | 516000 | 6052000 | 39 | 76,286 | 1 | 17 | 1 | 124 | 1 | 55 | 1 |
| 519 | Marie | Marie | 545000 | 6054000 | 478 | 439,091 | 34 | 26 | 45 | 13 | 45 | 5.8 | 44 |
| 520 | Leming | Leming | 532000 | 6050000 | 44 | 425,564 | 3 | 19 | 3 | 14 | 3 | 8.6 | 2 |
| 521 | Tucker | Tucker | 525300 | 6042700 | 277 | 525,602 | 53 | 28 | 58 | 24 | 58 | 21 | 58 |
| 522 | Ethel | Ethel | 542102 | 6042790 | 594 | 343,885 | 137 | 29 | 142 | 16 | 142 | 12 | 142 |
| 523 | Hilda | Hilda | 537000 | 6041000 | 80 | 203,588 | 27 | 21 | 44 | 38 | 45 | 73 | 45 |
| 524 | Patterson | Patterson | 598819 | 6389537 | 265 | 1,421,476 | 5 | 3.6 | 5 | 1.2 | 5 | 1.4 | 5 |
| 525 | Forrest | Forrest | 604633 | 6383668 | 434 | 1,505,645 | 4 | 4.0 | 4 | 1.8 | 4 | 2.0 | 4 |
| 526 | Preston | Preston | 612119 | 6365312 | 253 | 1,504,382 | 4 | 4.3 | 4 | 1.8 | 4 | 2.8 | 4 |
| 527 | Beet | Beet | 611405 | 6391278 | 456 | 1,666,111 | 4 | 4.3 | 4 | 1.5 | 4 | 2.0 | 4 |
| 528 | Lloyd | Lloyd | 624328 | 6360129 | 4250 | 1,678,061 | 5 | 3.0 | 5 | 1.0 | 5 | 1.4 | 5 |
| 529 | Sandy (2) | Sandy-2 | 573917 | 6468241 | 453 | 435,186 | 6 | 17 | 6 | 9.2 | 6 | 6.1 | 6 |
| 530 | La Loche | La Loche | 592417 | 6259032 | 1410 | 400,780 | 4 | 26 | 4 | 9.3 | 4 | 7.8 | 4 |
| 531 | Cluff | Cluff | 595873 | 6468054 | 219 | 1,810,524 | 3 | 15 | 3 | 8.9 | 3 | 1.7 | 3 |
| 532 | unnamed | unnamed | 635067 | 6306584 | 21 | 1,614,989 | 4 | 8.3 | 4 | 3.5 | 4 | 4.3 | 4 |
| 533 | McLean | McLean | 607818 | 6259397 | 235 | 437,764 | 4 | 22 | 4 | 8.0 | 4 | 5.5 | 4 |
| 534 | Proudfoot | Proudfoot | 657119 | 6314790 | 31 | 1,371,416 | 3 | 2.7 | 3 | 1.7 | 3 | 2.0 | 3 |
| 535 | Turnor | Turnor | 648429 | 6273616 | 2551 | 442,659 | 7 | 10 | 7 | 4.0 | 7 | 4.7 | 7 |
| 536 | Touchwood | Touchwood | 474032 | 6075393 | 137 | 490,376 | 20 | 31 | 20 | 12 | 20 | 7.9 | 20 |
| 537 | La Biche | La Biche | 433387 | 6079917 | 4279 | 822,570 | 1 | 29 | 1 | 9.0 | 1 | 11 | 1 |
| 538 | Wolf | Wolf | 503222 | 6061410 | 755 | 695,507 | 10 | 29 | 10 | 16 | 10 | 11 | 10 |
| 539 | Field | Field | 436317 | 6065106 | 13 | 827,025 | 53 | 39 | 53 | 29 | 53 | 69 | 53 |
| 540 | Pinehurst | Pinehurst | 467751 | 6057818 | 186 | 470,936 | 8 | 32 | 8 | 13 | 8 | 8.4 | 8 |
| 546 | Cold | Cold | 560000 | 6045000 | 6513 | 880,880 | 35 | 31 | 58 | 12 | 59 | 9.5 | 59 |
| 546 | Manatokan | Manatokan | 503000 | 6035000 | 409 | 880,880 | 2 | 35 | 2 | 27 | 2 | 8.5 | 2 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Easting[b] | Northing[b] | Gross Catchment Area [km$^2$] | Net Annual InFlow [L/ha/yr] | Calcium N | Calcium Average [mg/L] | Magnesium N | Magnesium Average [mg/L] | Sodium N | Sodium Average [mg/L] | Potassium N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 596 | UN-2(7) | UN-2[e] | 522600 | 6078500 | 237 | 893,893 | 1 | 29 | 1 | 8.7 | 1 | 10 | 1 |
| 597 | UN-5(7) | UN-5[e] | 526700 | 6079500 | 248 | 893,452 | 1 | 7.0 | 1 | 2.3 | 1 | 0 | 1 |
| 598 | UN-6(7) | UN-6[e] | 529300 | 6074800 | 248 | 892,911 | 1 | 7.9 | 1 | 3.4 | 1 | 0.7 | 1 |
| 599 | Dolly | Dolly | 549700 | 6048200 | 244 | 892,786 | 2 | 14 | 2 | 32 | 2 | 22 | 2 |
| 600 | P1 | P1[e] | 468548 | 6341335 | 18 | 596,849 | 4 | 77 | 4 | 13 | 4 | 8.5 | 4 |
| 605 | P2 | P4[e] | 468605 | 6336285 | 9.5 | 594,384 | 4 | 84 | 4 | 15 | 4 | 17 | 4 |
| 606 | P4 | P2[e] | 468831 | 6341793 | 6.6 | 585,987 | 4 | 43 | 4 | 7.1 | 4 | 4.3 | 4 |
| 607 | Suncor_VS_UW1 | Suncor_VS_UW1 | 472298 | 6310391 | 5.8 | 921,786 | 6 | 53 | 6 | 20 | 6 | 38 | 6 |
| 612 | Shell_AOSP_WQ18 | Shell_AOSP_WQ18 | 482615 | 6367794 | 5.2 | 242,751 | 4 | 65 | 4 | 18 | 4 | 2.5 | 4 |
| 615 | Shell_AOSP_WQ26 | Shell_AOSP_WQ26 | 463743 | 6376095 | 18 | 196,565 | 2 | 58 | 2 | 13 | 2 | 17 | 2 |
| 616 | Shell_AOSP_WQ19 | Shell_AOSP_WQ19 | 456629 | 6383089 | 7.2 | 350,640 | 4 | 31 | 4 | 12 | 4 | 35 | 4 |
| 617 | Shell_AOSP_WQ28 | Shell_AOSP_WQ28 | 464916 | 6382834 | 18 | 227,916 | 3 | 41 | 3 | 17 | 3 | 59 | 3 |
| 618 | Shell_AOSP_WQ29 | Shell_AOSP_WQ29 | 467305 | 6379227 | 4.2 | 225,411 | 6 | 47 | 6 | 29 | 6 | 7.8 | 6 |
| 619 | Shell_AOSP_WQ38 | Shell_AOSP_WQ38 | 462833 | 6390882 | 80 | 330,117 | 2 | 43 | 2 | 16 | 2 | 22 | 2 |
| 620 | Shell_AOSP_WQ39 | Shell_AOSP_WQ39 | 464427 | 6390720 | 3.4 | 185,633 | 4 | 25 | 4 | 63 | 4 | 26 | 4 |
| 621 | Shell_AOSP_WQ40 | Shell_AOSP_WQ40 | 461088 | 6389640 | 19 | 357,870 | 5 | 58 | 5 | 23 | 5 | 33 | 5 |
| 622 | Shell_AOSP_WQ46 | Shell_AOSP_WQ46 | 473579 | 6403076 | 2.0 | 157,788 | 3 | 31 | 3 | 15 | 3 | 15 | 3 |
| 623 | Shell_AOSP_WQ47 | Shell_AOSP_WQ47 | 468315 | 6397621 | 133 | 296,594 | 2 | 51 | 2 | 23 | 2 | 25 | 2 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Birch Lake (2) | Birch Lake-2 | 2.4 | 7 | 138 | 6 | 118 | 4 | 24 | 5 | 97 | 8 | 7.7 | 8 |
| 2 | Christina Lake | Christina Lake | 0.86 | 8 | 200 | 8 | 125 | 2 | 13 | 2 | 35 | 8 | 7.9 | 9 |
| 3 | Gregoire Lake | Gregoire Lake | 0.93 | 174 | 127 | 154 | 77 | 94 | 13 | 94 | 25 | 162 | 7.4 | 175 |
| 4 | Kearl Lake | Kearl Lake | 1.0 | 22 | 187 | 26 | 132 | 20 | 22 | 24 | 70 | 22 | 8.0 | 28 |
| 5 | McClelland Lake, WQ22 | McClelland Lake, WQ22 | 3.1 | 25 | 265 | 19 | 161 | 20 | 13 | 19 | 7.9 | 28 | 8.4 | 25 |
| 6 | LK-1(7), WQ21 | LK-1[e], WQ21 | 28 | 7 | 1,529 | 7 | 1079 | 7 | 47 | 7 | 24 | 7 | 9.6 | 7 |
| 7 | LK-2(7) | LK-2[e] | 0.25 | 2 | 30 | 2 | 55 | 2 | 14 | 2 | 138 | 2 | 6.7 | 2 |
| 10 | LK-5(7) | LK-5[e] | 2.9 | 3 | 207 | 3 | 140 | 3 | 11 | 3 | 28 | 3 | 7.5 | 3 |
| 11 | LK-6(7) | LK-6[e] | 1.6 | 3 | 189 | 3 | 127 | 3 | 12 | 3 | 43 | 3 | 7.5 | 3 |
| 12 | LK-7(7) | LK-7[e] | 2.0 | 2 | 255 | 2 | 185 | 2 | 30 | 2 | 55 | 2 | 7.7 | 2 |
| 17 | LK-12(7) | LK-12[e] | 1.2 | 3 | 151 | 3 | 121 | 3 | 17 | 3 | 80 | 3 | 7.2 | 3 |
| 18 | Lillian Lake | Lillian Lake | 2.3 | 4 | 479 | 4 | 318 | 4 | 23 | 4 | 61 | 4 | 7.6 | 4 |
| 19 | Calumet Lake | Calumet Lake | 4.8 | 3 | 633 | 3 | 473 | 3 | 51 | 3 | 188 | 3 | 7.8 | 3 |
| 20 | Isodore's Lake | Isodore's Lake | 1.8 | 7 | 456 | 7 | 284 | 7 | 11 | 7 | 27 | 7 | 7.9 | 7 |
| 25 | Canoe Lake | Canoe Lake | 0.88 | 8 | 90 | 8 | 100 | 8 | 20 | 8 | 61 | 8 | 7.1 | 8 |
| 26 | Long Lake (1) | Long Lake-1 | 1.1 | 8 | 80 | 8 | 100 | 8 | 23 | 8 | 67 | 8 | 7.2 | 8 |
| 27 | Pushup Lake | Pushup Lake | 2.4 | 4 | 84 | 4 | 79 | 4 | 20 | 4 | 26 | 4 | 7.8 | 4 |
| 28 | Sucker Lake | Sucker Lake | 1.6 | 5 | 223 | 4 | 164 | 4 | 19 | 5 | 31 | 5 | 7.8 | 5 |
| 29 | Frog Lake | Frog Lake | 1.1 | 4 | 184 | 4 | 158 | 4 | 29 | 4 | 75 | 4 | 7.7 | 4 |
| 30 | Poison Lake | Poison Lake | 1.2 | 4 | 180 | 4 | 141 | 4 | 25 | 4 | 31 | 4 | 7.8 | 4 |
| 31 | Rat Lake | Rat Lake | 1.3 | 4 | 207 | 4 | 141 | 4 | 18 | 4 | 31 | 4 | 7.8 | 4 |
| 32 | Caribou Horn | Caribou Horn | 0.78 | 4 | 183 | 4 | 139 | 4 | 19 | 4 | 53 | 4 | 7.7 | 4 |
| 33 | Kiskatinaw Lake | Kiskatinaw Lake | 0.78 | 4 | 191 | 4 | 143 | 4 | 24 | 4 | 52 | 4 | 7.8 | 4 |
| 34 | UNL1(7) | UNL1[e] | 1.3 | 5 | 29 | 5 | 65 | 5 | 21 | 5 | 75 | 5 | 6.1 | 6 |
| 35 | PF12(5), UNL2(7) | PF12[b], UNL2[e] | 0.98 | 6 | 37 | 4 | 74 | 6 | 26 | 6 | 118 | 6 | 6.2 | 7 |
| 36 | UNL3(7) | UNL3[e] | 2.3 | 4 | 207 | 4 | 172 | 4 | 35 | 4 | 50 | 4 | 7.8 | 4 |
| 37 | Surmont Lake | Surmont Lake | 0.63 | 3 | 66 | 3 | 73 | 3 | 16 | 3 | 108 | 3 | 7.0 | 3 |
| 38 | L8(7) | L8[e] | 0.63 | 3 | 64 | 3 | 103 | 3 | 23 | 3 | 217 | 3 | 6.8 | 3 |
| 39 | L10(7) | L10[e] | 0.33 | 3 | 41 | 3 | 83 | 3 | 9.7 | 3 | 33 | 3 | 5.8 | 3 |
| 40 | L11(7) | L11[e] | 0.27 | 3 | 26 | 3 | 73 | 3 | 17 | 3 | 167 | 3 | 6.0 | 3 |
| 41 | Maqua Lake | Maqua Lake | 0.46 | 5 | 59 | 5 | 72 | 5 | 12 | 5 | 84 | 5 | 6.9 | 5 |
| 42 | Wiau Lake | Wiau Lake | 0.74 | 4 | 164 | 3 | 106 | 4 | 16 | 4 | 24 | 4 | 8.2 | 4 |
| 43 | Ipiatik Lake | Ipiatik Lake | 0.4 | 2 | 136 | 2 | 67 | 2 | 14 | 1 | 30 | 2 | 7.5 | 2 |
| 44 | UNL1(7) | UNL1[e] | 0.63 | 3 | 142 | 3 | 82 | 3 | 14 | 3 | 18 | 3 | 8.0 | 3 |
| 45 | UNL3(7) | UNL3[e] | 0.43 | 3 | 80 | 3 | 55 | 3 | 18 | 2 | 40 | 3 | 7.3 | 3 |
| 46 | UNL4(7) | UNL4[e] | 0.47 | 3 | 178 | 3 | 121 | 3 | 19 | 2 | 18 | 3 | 7.9 | 3 |
| 47 | UNL5(7) | UNL5[e] | 0.6 | 3 | 106 | 3 | 80 | 3 | 15 | 2 | 30 | 3 | 7.7 | 3 |
| 48 | UNL7(7) | UNL7[e] | 0.58 | 4 | 94 | 4 | 55 | 4 | 24 | 3 | 32 | 4 | 7.4 | 4 |
| 49 | UNL12(7) | UNL12[e] | 0.35 | 2 | 96 | 2 | 45 | 2 | 15 | 1 | 35 | 2 | 7.4 | 2 |
| 50 | UNL13(7) | UNL13[e] | 0.4 | 3 | 35 | 3 | 17 | 3 | 24 | 1 | 150 | 3 | 6.5 | 3 |
| 51 | UW1(7) | UW1[e] | 1.1 | 3 | 453 | 3 | 267 | 3 | 14 | 3 | 35 | 3 | 8.0 | 3 |
| 52 | UW2(7) | UW2[e] | 2.9 | 2 | 260 | 2 | 145 | 2 | 9.0 | 2 | 10 | 2 | 8.1 | 2 |
| 53 | UW3(7) | UW3[e] | 1.0 | 3 | 464 | 3 | 277 | 3 | 13 | 3 | 37 | 3 | 7.9 | 3 |
| 54 | UW4(7) | UW4[e] | 1.1 | 2 | 479 | 2 | 295 | 2 | 18 | 2 | 50 | 2 | 8.2 | 2 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | UW5(7) | UW5[e] | 1.0 | 2 | 356 | 2 | 250 | 2 | 16 | 2 | 38 | 2 | 8.2 | 2 |
| 56 | UW6(7) | UW6[e] | 1.4 | 2 | 256 | 2 | 185 | 2 | 24 | 2 | 25 | 2 | 8.0 | 2 |
| 58 | Shipyard Lake | Shipyard Lake | 2.0 | 21 | 339 | 18 | 246 | 15 | 20 | 15 | 93 | 21 | 7.6 | 21 |
| 60 | Burnt Lake | Burnt Lake | 0.65 | 4 | 200 | 4 | 142 | 3 | 17 | 3 | 43 | 4 | 8.1 | 4 |
| 61 | LK1(7) | LK1[e] | 1.3 | 3 | 207 | 3 | 153 | 3 | 25 | 3 | 30 | 3 | 8.2 | 3 |
| 62 | LK2(7) | LK2[e] | 0.7 | 2 | 105 | 2 | 110 | 2 | 30 | 2 | 53 | 2 | 7.8 | 2 |
| 63 | LK3(7) | LK3[e] | 0.73 | 3 | 124 | 3 | 113 | 3 | 24 | 3 | 55 | 3 | 7.9 | 3 |
| 64 | LK4(7) | LK4[e] | 0.47 | 3 | 127 | 3 | 120 | 3 | 24 | 3 | 73 | 3 | 7.9 | 3 |
| 65 | LK5(7) | LK5[e] | 0.57 | 3 | 105 | 3 | 100 | 3 | 18 | 3 | 52 | 3 | 7.8 | 3 |
| 66 | LK6(7) | LK6[e] | 0.53 | 3 | 182 | 3 | 140 | 3 | 23 | 3 | 60 | 3 | 8.1 | 3 |
| 67 | LK7(7) | LK7[e] | 0.63 | 3 | 180 | 3 | 137 | 3 | 16 | 3 | 47 | 3 | 8.1 | 3 |
| 68 | LK8(7) | LK8[e] | 0.35 | 2 | 96 | 2 | 125 | 2 | 23 | 2 | 80 | 2 | 7.8 | 2 |
| 69 | May Lake | May Lake | 1.2 | 26 | 254 | 30 | 144 | 10 | 6.8 | 0 | - | 26 | 8.1 | 31 |
| 78 | UNL-1(7), WQ17 | UNL-1[e], WQ17 | 1.9 | 4 | 436 | 4 | 215 | 4 | 26 | 4 | 59 | 4 | 7.8 | 4 |
| 79 | UNL-2(7) | UNL-2[e] | 1.0 | 3 | 514 | 3 | 337 | 3 | 17 | 3 | 40 | 3 | 8.2 | 3 |
| 80 | P5(5), UNL-3(7) | P5[b], UNL-3[e] | 0.91 | 7 | 268 | 6 | 193 | 7 | 13 | 7 | 60 | 7 | 7.9 | 7 |
| 81 | L1(4), L1(6) | L1[d], L1[c] | 0.29 | 2 | 26 | 2 | 33 | 1 | 0.014 | 1 | 38 | 2 | 6.3 | 2 |
| 82 | 170(1), 14(3), L4(4), A170 (L4)(6) | 170[f], 14[g], L4[d], A170 (L4)[c] | 0.2 | 33 | 27 | 32 | 23 | 31 | 27 | 30 | 217 | 34 | 6.0 | 34 |
| 83 | L7(4), L7(6) | L7[d], L7[c] | 0.25 | 29 | 31 | 29 | 30 | 28 | 30 | 28 | 250 | 30 | 6.4 | 30 |
| 84 | L8(4), L8(6) | L8[d], L8[c] | 0.13 | 6 | 49 | 6 | 64 | 6 | 19 | 6 | 148 | 7 | 7.0 | 7 |
| 85 | 164(1), 17(3), L10(4) | 164[f], 17[g], L10[d] | 0.34 | 3 | 142 | 2 | 73 | 2 | 11 | 2 | 7.9 | 3 | 8.6 | 3 |
| 86 | 166(1), L12(4) | 166[f], L12[d] | 0.18 | 2 | 90 | 1 | 46 | 2 | 27 | 2 | 50 | 2 | 8.9 | 2 |
| 87 | 167(1), L13(4) | 167[f], L13[d] | 0.22 | 2 | 80 | 1 | 41 | 2 | 19 | 2 | 49 | 2 | 7.5 | 2 |
| 88 | 168(1), 12(3), L14(4) | 168[f], 12[g], L14[d] | 0.36 | 3 | 112 | 2 | 55 | 2 | 22 | 2 | 34 | 3 | 8.2 | 3 |
| 89 | Rabbit | Rabbit | 4.5 | 2 | 315 | 2 | 171 | 1 | 53 | 1 | 76 | 2 | 8.4 | 2 |
| 91 | Namur | Namur | 1.1 | 6 | 62 | 6 | 38 | 7 | 10 | 7 | 13 | 7 | 7.2 | 7 |
| 92 | Otasan | Otasan | 0.41 | 6 | 25 | 6 | 37 | 7 | 12 | 7 | 49 | 7 | 6.7 | 7 |
| 93 | Legend | Legend | 0.65 | 27 | 29 | 27 | 19 | 26 | 9.5 | 25 | 29 | 28 | 6.9 | 28 |
| 95 | 29(3), L27(4) | 29[g], L27[d] | 0.7 | 2 | 34 | 2 | 20 | 1 | 23 | 1 | 231 | 2 | 6.3 | 2 |
| 96 | 28(3), L28(4), L28(6) | 28[g], L28[d], L28[c] | 0.34 | 7 | 21 | 7 | 56 | 7 | 24 | 7 | 423 | 8 | 5.2 | 8 |
| 97 | Clayton | Clayton | 0.15 | 5 | 17 | 4 | 33 | 5 | 16 | 4 | 203 | 5 | 4.3 | 5 |
| 98 | 146(1), L40(4) | 146[f], L40[d] | 0.63 | 2 | 119 | 1 | 73 | 2 | 6.2 | 2 | 3.1 | 2 | 8.0 | 2 |
| 99 | 144(1), L43(4) | 144[f], L43[d] | 0.57 | 2 | 160 | 1 | 89 | 1 | 2.4 | 2 | 5.6 | 2 | 8.1 | 2 |
| 100 | 27(3), L47(4), L47(6) | 27[g], L47[d], L47[c] | 0.97 | 7 | 57 | 7 | 67 | 7 | 20 | 7 | 142 | 8 | 6.7 | 8 |
| 101 | L49(4), L49(6) | L49[d], L49[c] | 0.79 | 6 | 61 | 6 | 73 | 7 | 20 | 7 | 191 | 7 | 6.6 | 7 |
| 102 | 33(3), L33(4) | 33[g], L33[d] | 2.2 | 2 | 268 | 2 | 146 | 1 | 15 | 1 | 29 | 2 | 8.4 | 2 |
| 103 | Audet | Audet | 2.2 | 3 | 304 | 2 | 165 | 2 | 18 | 2 | 21 | 3 | 8.2 | 3 |
| 104 | Johnson | Johnson | 1.1 | 3 | 300 | 2 | 150 | 2 | 14 | 2 | 30 | 3 | 8.4 | 3 |
| 105 | 150(1), 9(3), L39(4), A-150 (L39)(6) | 150[f], 9[g], L39[d], A-150 (L39)[c] | 0.55 | 8 | 32 | 7 | 46 | 8 | 14 | 8 | 78 | 9 | 6.8 | 9 |
| 106 | Bayard | Bayard | 0.76 | 7 | 60 | 7 | 69 | 7 | 21 | 7 | 260 | 8 | 6.7 | 8 |
| 107 | L60(4), L60(6) | L60[d], L60[c] | 0.59 | 6 | 58 | 6 | 67 | 7 | 18 | 7 | 153 | 7 | 7.2 | 7 |
| 108 | Waterlily | Waterlily | 0.58 | 2 | 70 | 1 | 33 | 2 | 22 | 1 | 198 | 2 | 7.7 | 2 |
| 109 | Gordon | Gordon | 1.8 | 1 | 257 | 0 | - | 1 | 21 | 1 | 19 | 1 | 8.4 | 1 |
| 110 | Birch Lake (1) | Birch Lake [f] | 1.8 | 2 | 271 | 1 | 130 | 1 | 26 | 1 | 17 | 2 | 8.8 | 2 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 115 | 21(1), A21(6) | 21[f], A21[c] | 0.36 | 6 | 15 | 5 | 54 | 7 | 17 | 7 | 280 | 7 | 5.0 | 7 |
| 116 | 24(1), A24(6) | 24[f], A24[c] | 0.41 | 6 | 34 | 5 | 44 | 7 | 18 | 6 | 241 | 7 | 4.7 | 7 |
| 117 | 26(1), A26(6) | 26[f], A26[c] | 0.48 | 6 | 14 | 5 | 49 | 7 | 11 | 7 | 107 | 7 | 5.6 | 7 |
| 118 | 29(1), A29(6) | 29[f], A29[c] | 0.34 | 6 | 13 | 5 | 36 | 7 | 13 | 7 | 70 | 7 | 5.8 | 7 |
| 119 | 42(1), A42(6) | 42[f], A42[c] | 0.51 | 6 | 40 | 4 | 125 | 7 | 38 | 7 | 71 | 7 | 6.8 | 7 |
| 120 | 47(1), A47(6) | 47[f], A47[c] | 0.68 | 5 | 32 | 4 | 42 | 6 | 15 | 6 | 85 | 6 | 6.4 | 6 |
| 121 | 59(1), A59(6) | 59[f], A59[c] | 0.45 | 6 | 23 | 5 | 85 | 7 | 30 | 7 | 304 | 7 | 5.2 | 7 |
| 122 | 86(1), A86(6) | 86[f], A86[c] | 1.6 | 6 | 25 | 5 | 43 | 7 | 14 | 6 | 48 | 7 | 6.6 | 7 |
| 129 | 2(1), 15(3), E15 (L15b)(6) | 2[f], 15[g], E15 (L15b)[c] | 1.2 | 6 | 55 | 5 | 121 | 6 | 38 | 6 | 122 | 7 | 7.0 | 7 |
| 130 | 32(1), 2(3) | 32[f], 2[g] | 0.51 | 2 | 110 | 1 | 46 | 1 | 14 | 1 | 79 | 2 | 7.7 | 2 |
| 131 | Base | Base | 0.83 | 2 | 129 | 1 | 69 | 1 | 11 | 1 | 62 | 2 | 7.6 | 2 |
| 132 | Grist | Grist | 0.92 | 2 | 222 | 1 | 119 | 1 | 7.3 | 1 | 10 | 2 | 8.5 | 2 |
| 134 | 1(1), 25(3), 1 (267)(6) | 1[f], 25[g], 1 (267)[c] | 0.93 | 5 | 88 | 3 | 67 | 4 | 21 | 3 | 26 | 5 | 7.4 | 5 |
| 135 | 3(1), 16(3) | 3[f], 16[g] | 0.42 | 2 | 170 | 1 | 83 | 1 | 17 | 1 | 32 | 2 | 8.7 | 2 |
| 136 | 34(1), 1(3) | 34[f], 1[g] | 0.63 | 2 | 101 | 1 | 76 | 1 | 24 | 1 | 56 | 2 | 7.5 | 2 |
| 137 | Wood Buffalo | Wood Buffalo | 0.36 | 2 | 76 | 1 | 51 | 1 | 24 | 1 | 168 | 2 | 6.9 | 2 |
| 138 | Goodwin | Goodwin | 0.87 | 2 | 100 | 1 | 52 | 1 | 9.1 | 1 | 16 | 2 | 7.7 | 2 |
| 139 | 91(1), 7(3) | 91[f], 7[g] | 0.88 | 2 | 154 | 1 | 87 | 1 | 16 | 1 | 48 | 2 | 9.2 | 2 |
| 140 | L5(4), P28(5) | L5[d], P28[b] | 0.15 | 2 | 61 | 1 | 33 | 2 | 27 | 2 | 109 | 2 | 7.1 | 2 |
| 141 | 4(1), 4(270)(6) | 4[f], 4(270)[c] | 0.34 | 4 | 151 | 2 | 138 | 4 | 39 | 4 | 34 | 4 | 8.1 | 4 |
| 142 | 6(1), 6 (271)(6) | 6[f], 6 (271)[c] | 0.93 | 4 | 140 | 2 | 111 | 4 | 30 | 3 | 26 | 4 | 9.0 | 4 |
| 143 | 25(1), 25 (287)(6) | 25[f], 25 (287)[c] | 0.45 | 4 | 13 | 2 | 54 | 4 | 16 | 3 | 161 | 4 | 5.2 | 4 |
| 144 | 27(1), 27 (289)(6) | 27[f], 27 (289)[c] | 0.39 | 4 | 16 | 2 | 32 | 4 | 12 | 4 | 42 | 4 | 6.5 | 4 |
| 145 | 28(1), 28 (290)(6) | 28[f], 28 (290)[c] | 0.43 | 4 | 18 | 2 | 56 | 4 | 20 | 4 | 175 | 4 | 5.9 | 4 |
| 146 | 82(1), 82 (342)(6) | 82[f], 82 (342)[c] | 1.1 | 4 | 32 | 2 | 107 | 4 | 24 | 4 | 62 | 4 | 6.8 | 4 |
| 147 | 94(1), 94 (354)(6) | 94[f], 94 (354)[c] | 0.86 | 4 | 51 | 2 | 84 | 4 | 23 | 4 | 35 | 4 | 7.2 | 4 |
| 148 | P13(5), P13(6) | P13[b], P13[c] | 0.72 | 4 | 108 | 2 | 144 | 4 | 45 | 3 | 138 | 4 | 8.0 | 4 |
| 149 | P23(5), P23(6) | P23[b], P23[c] | 0.13 | 4 | 66 | 2 | 59 | 4 | 18 | 3 | 124 | 4 | 7.6 | 4 |
| 150 | P27(5), P27(6) | P27[b], P27[c] | 0.063 | 4 | 23 | 2 | 66 | 4 | 34 | 3 | 285 | 4 | 5.2 | 4 |
| 151 | P49(5), P49(6) | P49[b], P49[c] | 0.43 | 4 | 25 | 2 | 32 | 4 | 17 | 4 | 69 | 4 | 6.7 | 4 |
| 152 | P7(5), P7(6) | P7[b], P7[c] | 0.075 | 4 | 27 | 2 | 53 | 4 | 27 | 3 | 258 | 4 | 6.4 | 4 |
| 153 | P94(5), P94(6) | P94[b], P94[c] | 1.3 | 4 | 117 | 2 | 165 | 4 | 48 | 3 | 137 | 4 | 7.4 | 4 |
| 154 | P96(5), P96(6) | P96[b], P96[c] | 0.92 | 4 | 77 | 2 | 92 | 4 | 31 | 3 | 74 | 4 | 7.3 | 4 |
| 155 | P97(5), P97(6) | P97[b], P97[c] | 0.83 | 4 | 43 | 2 | 86 | 4 | 29 | 3 | 136 | 4 | 6.8 | 4 |
| 156 | P98(5), P98(6) | P98[b], P98[c] | 0.55 | 4 | 80 | 2 | 110 | 4 | 31 | 3 | 120 | 4 | 7.3 | 4 |
| 161 | 49(1), A300(6) | 49[f], A300[c] | 1.4 | 2 | 42 | 1 | 64 | 2 | 29 | 2 | 49 | 2 | 7.1 | 2 |
| 167 | Wappau | Wappau | 1.2 | 1 | 185 | 0 | - | 1 | 10 | 1 | 65 | 1 | 9.1 | 1 |
| 168 | 8(1) | 8[f] | 1.6 | 1 | 236 | 0 | - | 1 | 18 | 1 | 10 | 1 | 8.9 | 1 |
| 169 | Shortt Lake | Shortt Lake | 1.8 | 1 | 251 | 0 | - | 1 | 16 | 1 | 26 | 1 | 7.9 | 1 |
| 170 | Nora Lake | Nora Lake | 1.1 | 1 | 157 | 0 | - | 1 | 21 | 1 | 31 | 1 | 9.1 | 1 |
| 171 | Gipsy Lake | Gipsy Lake | 3.1 | 1 | 271 | 0 | - | 1 | 5.2 | 1 | 4.4 | 1 | 8.5 | 1 |
| 172 | Baker Lake | Baker Lake | 2.5 | 1 | 253 | 0 | - | 1 | 17 | 1 | 20 | 1 | 8.7 | 1 |
| 173 | Garson Lake | Garson Lake | 0.91 | 1 | 191 | 0 | - | 1 | 19 | 1 | 20 | 1 | 8.1 | 1 |
| 174 | 17(1) | 17[f] | 0.5 | 1 | 61 | 0 | - | 1 | 12 | 1 | 142 | 1 | 7.4 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | Georges Lake | Georges Lake | 1.6 | 1 | 316 | 0 | - | 1 | 12 | 1 | 31 | 1 | 8.4 | 1 |
| 176 | 20(1) | 20[f] | 0.53 | 1 | 204 | 0 | - | 1 | 24 | 1 | 73 | 1 | 7.9 | 1 |
| 177 | 22(1) | 22[f] | 0.4 | 1 | 26 | 0 | - | 1 | 7.3 | 1 | 61 | 1 | 6.9 | 1 |
| 178 | 30(1) | 30[f] | 0.32 | 1 | 11 | 0 | - | 1 | 12 | 1 | 116 | 1 | 5.2 | 1 |
| 179 | 31(1) | 31[f] | 0.28 | 1 | 15 | 0 | - | 1 | 14 | 1 | 221 | 1 | 5.6 | 1 |
| 180 | 33(1) | 33[f] | 0.27 | 1 | 24 | 0 | - | 1 | 18 | 1 | 93 | 1 | 6.6 | 1 |
| 181 | 35(1) | 35[f] | 1.3 | 1 | 213 | 0 | - | 1 | 21 | 1 | 66 | 1 | 7.9 | 1 |
| 182 | Formby Lake | Formby Lake | 0.72 | 1 | 206 | 0 | - | 1 | 13 | 1 | 26 | 1 | 8.1 | 1 |
| 183 | 37(1) | 37[f] | 2.8 | 1 | 254 | 0 | - | 1 | 13 | 1 | 19 | 1 | 8.5 | 1 |
| 184 | Watchusk Lake | Watchusk Lake | 1.1 | 1 | 184 | 0 | - | 1 | 20 | 1 | 58 | 1 | 8.6 | 1 |
| 185 | 39(1) | 39[f] | 0.47 | 1 | 139 | 0 | - | 1 | 20 | 1 | 63 | 1 | 7.9 | 1 |
| 186 | 40(1) | 40[f] | 1.5 | 1 | 226 | 0 | - | 1 | 27 | 1 | 68 | 1 | 8.1 | 1 |
| 187 | 41(1) | 41[f] | 0.42 | 1 | 134 | 0 | - | 1 | 22 | 1 | 100 | 1 | 7.8 | 1 |
| 188 | 44(1) | 44[f] | 0.46 | 1 | 86 | 0 | - | 1 | 22 | 1 | 95 | 1 | 7.7 | 1 |
| 189 | 45(1) | 45[f] | 0.51 | 1 | 97 | 0 | - | 1 | 25 | 1 | 98 | 1 | 8.6 | 1 |
| 190 | 46(1) | 46[f] | 0.33 | 1 | 28 | 0 | - | 1 | 24 | 1 | 195 | 1 | 6.5 | 1 |
| 191 | 48(1) | 48[f] | 0.24 | 1 | 31 | 0 | - | 1 | 31 | 1 | 86 | 1 | 7.0 | 1 |
| 193 | 50(1) | 50[f] | 0.51 | 1 | 71 | 0 | - | 1 | 31 | 1 | 79 | 1 | 8.4 | 1 |
| 194 | Algar Lake | Algar Lake | 0.61 | 1 | 69 | 0 | - | 1 | 18 | 1 | 111 | 1 | 7.5 | 1 |
| 195 | 53(1) | 53[f] | 0.76 | 1 | 58 | 0 | - | 1 | 26 | 1 | 335 | 1 | 7.2 | 1 |
| 196 | 54(1) | 54[f] | 0.23 | 1 | 60 | 0 | - | 1 | 28 | 1 | 327 | 1 | 7.2 | 1 |
| 197 | 55(1) | 55[f] | 0.3 | 1 | 64 | 0 | - | 1 | 30 | 1 | 291 | 1 | 7.1 | 1 |
| 198 | 56(1) | 56[f] | 0.26 | 1 | 64 | 0 | - | 1 | 33 | 1 | 273 | 1 | 7.1 | 1 |
| 199 | 57(1) | 57[f] | 0.24 | 1 | 54 | 0 | - | 1 | 27 | 1 | 170 | 1 | 7.0 | 1 |
| 200 | 58(1) | 58[f] | 0.43 | 1 | 31 | 0 | - | 1 | 29 | 1 | 178 | 1 | 6.5 | 1 |
| 201 | 60(1) | 60[f] | 1.1 | 1 | 78 | 0 | - | 1 | 27 | 1 | 291 | 1 | 7.5 | 1 |
| 202 | Mariana Lake | Mariana Lake | 1.2 | 1 | 150 | 0 | - | 1 | 11 | 1 | 54 | 1 | 7.2 | 1 |
| 203 | 62(1) | 62[f] | 0.56 | 1 | 73 | 0 | - | 1 | 15 | 1 | 126 | 1 | 6.9 | 1 |
| 204 | 63(1) | 63[f] | 0.5 | 1 | 70 | 0 | - | 1 | 13 | 1 | 80 | 1 | 7.5 | 1 |
| 205 | Crow Lake | Crow Lake | 1.0 | 1 | 201 | 0 | - | 1 | 12 | 1 | 60 | 1 | 8.8 | 1 |
| 206 | 65(1) | 65[f] | 0.98 | 1 | 213 | 0 | - | 1 | 14 | 1 | 75 | 1 | 8.5 | 1 |
| 207 | 66(1) | 66[f] | 0.86 | 1 | 172 | 0 | - | 1 | 11 | 1 | 36 | 1 | 8.1 | 1 |
| 208 | 67(1) | 67[f] | 0.73 | 1 | 73 | 0 | - | 1 | 19 | 1 | 140 | 1 | 7.3 | 1 |
| 209 | Agnes (1) | Agnes-1 | 0.75 | 1 | 33 | 0 | - | 1 | 28 | 1 | 317 | 1 | 6.5 | 1 |
| 210 | 69(1) | 69[f] | 0.32 | 1 | 33 | 0 | - | 1 | 25 | 1 | 212 | 1 | 6.7 | 1 |
| 211 | 70(1) | 70[f] | 0.56 | 1 | 56 | 0 | - | 1 | 33 | 1 | 109 | 1 | 7.3 | 1 |
| 212 | 71(1) | 71[f] | 0.39 | 1 | 54 | 0 | - | 1 | 28 | 1 | 204 | 1 | 7.2 | 1 |
| 213 | 72(1) | 72[f] | 0.49 | 1 | 57 | 0 | - | 1 | 20 | 1 | 118 | 1 | 6.7 | 1 |
| 214 | 73(1) | 73[f] | 0.87 | 1 | 54 | 0 | - | 1 | 21 | 1 | 188 | 1 | 7.1 | 1 |
| 215 | Long Lake (2) | Long Lake-2 | 1.0 | 1 | 87 | 0 | - | 1 | 22 | 1 | 145 | 1 | 7.5 | 1 |
| 216 | 75(1) | 75[f] | 1.1 | 1 | 117 | 0 | - | 1 | 21 | 1 | 56 | 1 | 8.5 | 1 |
| 217 | Pelican Lake | Pelican Lake | 1.5 | 1 | 116 | 0 | - | 1 | 26 | 1 | 58 | 1 | 7.9 | 1 |
| 218 | 77(1) | 77[f] | 0.54 | 1 | 68 | 0 | - | 1 | 23 | 1 | 291 | 1 | 7.1 | 1 |
| 219 | 78(1) | 78[f] | 0.26 | 1 | 86 | 0 | - | 1 | 13 | 1 | 140 | 1 | 7.3 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 220 | 79(1) | 79[f] | 0.6 | 1 | 68 | 0 | - | 1 | 16 | 1 | 77 | 1 | 7.5 | 1 |
| 221 | 80(1) | 80[f] | 0.59 | 1 | 47 | 0 | - | 1 | 19 | 1 | 38 | 1 | 7.3 | 1 |
| 222 | 81(1) | 81[f] | 0.62 | 1 | 68 | 0 | - | 1 | 15 | 1 | 41 | 1 | 7.6 | 1 |
| 223 | 83(1) | 83[f] | 0.65 | 1 | 95 | 0 | - | 1 | 10 | 1 | 41 | 1 | 7.9 | 1 |
| 224 | 84(1) | 84[f] | 0.87 | 1 | 33 | 0 | - | 1 | 11 | 1 | 60 | 1 | 7.1 | 1 |
| 225 | 85(1) | 85[f] | 1.2 | 1 | 32 | 0 | - | 1 | 11 | 1 | 56 | 1 | 7.2 | 1 |
| 226 | 88(1) | 88[f] | 0.67 | 1 | 134 | 0 | - | 1 | 11 | 1 | 23 | 1 | 8.0 | 1 |
| 227 | Bohn Lake | Bohn Lake | 1.4 | 1 | 193 | 0 | - | 1 | 22 | 1 | 32 | 1 | 8.7 | 1 |
| 228 | 90(1) | 90[f] | 1.6 | 1 | 157 | 0 | - | 1 | 25 | 1 | 96 | 1 | 8.0 | 1 |
| 229 | Cowper Lake | Cowper Lake | 0.9 | 1 | 143 | 0 | - | 1 | 17 | 1 | 50 | 1 | 9.1 | 1 |
| 230 | 93(1) | 93[f] | 0.5 | 1 | 112 | 0 | - | 1 | 18 | 1 | 22 | 1 | 7.9 | 1 |
| 231 | 95(1) | 95[f] | 0.67 | 1 | 67 | 0 | - | 1 | 22 | 1 | 77 | 1 | 7.7 | 1 |
| 232 | 97(1) | 97[f] | 0.11 | 1 | 98 | 0 | - | 1 | 17 | 1 | 50 | 1 | 7.7 | 1 |
| 233 | 98(1) | 98[f] | 0.77 | 1 | 105 | 0 | - | 1 | 21 | 1 | 86 | 1 | 7.8 | 1 |
| 234 | 100(1) | 100[f] | 0.72 | 1 | 152 | 0 | - | 1 | 26 | 1 | 69 | 1 | 8.1 | 1 |
| 235 | 101(1) | 101[f] | 0.39 | 1 | 142 | 0 | - | 1 | 19 | 1 | 19 | 1 | 8.3 | 1 |
| 236 | 102(1) | 102[f] | 0.32 | 1 | 97 | 0 | - | 1 | 9.5 | 1 | 25 | 1 | 7.9 | 1 |
| 237 | Winefred Lake | Winefred Lake | 0.85 | 1 | 195 | 0 | - | 1 | 7.3 | 1 | 10 | 1 | 8.2 | 1 |
| 238 | 104(1) | 104[f] | 1.1 | 1 | 144 | 0 | - | 1 | 20 | 1 | 20 | 1 | 9.0 | 1 |
| 239 | 106(1) | 106[f] | 1.8 | 1 | 208 | 0 | - | 1 | 9.5 | 1 | 7.3 | 1 | 8.3 | 1 |
| 240 | Kirby Lake | Kirby Lake | 1.1 | 1 | 228 | 0 | - | 1 | 6.7 | 1 | 6.9 | 1 | 8.6 | 1 |
| 241 | 108(1) | 108[f] | 0.69 | 1 | 198 | 0 | - | 1 | 11 | 1 | 29 | 1 | 8.2 | 1 |
| 242 | 110(1) | 110[f] | 0.7 | 1 | 87 | 0 | - | 1 | 9.6 | 1 | 18 | 1 | 8.3 | 1 |
| 243 | 111(1) | 111[f] | 0.44 | 1 | 68 | 0 | - | 1 | 19 | 1 | 291 | 1 | 7.7 | 1 |
| 244 | 113(1) | 113[f] | 0.49 | 1 | 128 | 0 | - | 1 | 14 | 1 | 39 | 1 | 8.0 | 1 |
| 245 | 114(1) | 114[f] | 0.73 | 1 | 66 | 0 | - | 1 | 17 | 1 | 33 | 1 | 7.6 | 1 |
| 246 | 116(1) | 116[f] | 1.5 | 1 | 70 | 0 | - | 1 | 11 | 1 | 41 | 1 | 7.7 | 1 |
| 247 | 117(1) | 117[f] | 1.3 | 1 | 120 | 0 | - | 1 | 22 | 1 | 57 | 1 | 7.8 | 1 |
| 248 | Clyde Lake | Clyde Lake | 0.96 | 1 | 159 | 0 | - | 1 | 16 | 1 | 48 | 1 | 8.1 | 1 |
| 249 | Behan Lake | Behan Lake | 1.1 | 1 | 118 | 0 | - | 1 | 15 | 1 | 30 | 1 | 8.2 | 1 |
| 250 | 120(1) | 120[f] | 0.49 | 1 | 135 | 0 | - | 1 | 17 | 1 | 24 | 1 | 8.7 | 1 |
| 251 | Big Chief Lake | Big Chief Lake | 2.4 | 1 | 114 | 0 | - | 1 | 18 | 1 | 57 | 1 | 7.9 | 1 |
| 252 | 122(1) | 122[f] | 3.1 | 1 | 101 | 0 | - | 1 | 12 | 1 | 29 | 1 | 7.9 | 1 |
| 253 | 123(1) | 123[f] | 4.8 | 1 | 285 | 0 | - | 1 | 8.3 | 1 | 12 | 1 | 8.7 | 1 |
| 254 | 124(1) | 124[f] | 2.1 | 1 | 200 | 0 | - | 1 | 16 | 1 | 64 | 1 | 9.5 | 1 |
| 255 | 125(1) | 125[f] | 3.0 | 1 | 289 | 0 | - | 1 | 23 | 1 | 73 | 1 | 8.5 | 1 |
| 256 | Piche Lake | Piche Lake | 2.7 | 1 | 316 | 0 | - | 1 | 12 | 1 | 27 | 1 | 8.7 | 1 |
| 257 | Heart Lake | Heart Lake | 2.4 | 1 | 304 | 0 | - | 1 | 15 | 1 | 31 | 1 | 8.9 | 1 |
| 258 | 128(1) | 128[f] | 2.8 | 1 | 315 | 0 | - | 1 | 21 | 1 | 56 | 1 | 8.5 | 1 |
| 259 | Logan Lake | Logan Lake | 1.7 | 1 | 267 | 0 | - | 1 | 16 | 1 | 48 | 1 | 9.2 | 1 |
| 260 | 131(1) | 131[f] | 2.7 | 1 | 383 | 0 | - | 1 | 11 | 1 | 27 | 1 | 8.0 | 1 |
| 261 | Ronald Lake | Ronald Lake | 3.4 | 1 | 367 | 0 | - | 1 | 13 | 1 | 26 | 1 | 8.0 | 1 |
| 262 | Dianne Lakes | Dianne Lakes | 3.3 | 1 | 300 | 0 | - | 1 | 15 | 1 | 48 | 1 | 7.9 | 1 |
| 263 | 134(1) | 134[f] | 1.2 | 1 | 261 | 0 | - | 1 | 5.9 | 1 | 12 | 1 | 8.1 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 264 | 136(1) | 136[f] | 1.2 | 1 | 185 | 0 | - | 0 | - | 1 | 2.7 | 1 | 8.0 | 1 |
| 265 | Pearson Lake | Pearson Lake | 0.51 | 1 | 169 | 0 | - | 0 | - | 1 | 3.6 | 1 | 8.1 | 1 |
| 266 | Kress Lake | Kress Lake | 0.49 | 1 | 100 | 0 | - | 1 | 8.3 | 1 | 23 | 1 | 7.9 | 1 |
| 267 | 139(1) | 139[f] | 0.7 | 1 | 134 | 0 | - | 1 | 5.9 | 1 | 2.7 | 1 | 8.1 | 1 |
| 268 | 141(1) | 141[f] | 0.76 | 1 | 198 | 0 | - | 0 | - | 1 | 4.0 | 1 | 8.3 | 1 |
| 269 | 142(1) | 142[f] | 0.7 | 1 | 194 | 0 | - | 1 | 6.6 | 1 | 8.6 | 1 | 8.3 | 1 |
| 270 | 143(1) | 143[f] | 0.62 | 1 | 171 | 0 | - | 0 | - | 1 | 4.8 | 1 | 8.1 | 1 |
| 271 | 145(1) | 145[f] | 0.88 | 1 | 242 | 0 | - | 0 | - | 1 | 5.2 | 1 | 8.4 | 1 |
| 272 | Poplar Lake | Poplar Lake | 0.83 | 1 | 199 | 0 | - | 1 | 7.9 | 1 | 10 | 1 | 8.4 | 1 |
| 273 | 148(1) | 148[f] | 0.58 | 1 | 156 | 0 | - | 0 | - | 1 | 7.3 | 1 | 8.2 | 1 |
| 274 | 149(1) | 149[f] | 0.63 | 1 | 227 | 0 | - | 1 | 5.7 | 1 | 7.3 | 1 | 8.3 | 1 |
| 275 | 151(1) | 151[f] | 0.76 | 1 | 41 | 0 | - | 1 | 13 | 1 | 117 | 1 | 7.2 | 1 |
| 276 | 152(1) | 152[f] | 0.6 | 1 | 198 | 0 | - | 0 | - | 1 | 7.3 | 1 | 8.3 | 1 |
| 277 | 153(1) | 153[f] | 0.5 | 1 | 100 | 0 | - | 1 | 17 | 1 | 40 | 1 | 8.7 | 1 |
| 278 | 157(1) | 157[f] | 1.1 | 1 | 307 | 0 | - | 1 | 19 | 1 | 34 | 1 | 8.3 | 1 |
| 279 | 158(1) | 158[f] | 1.0 | 1 | 254 | 0 | - | 1 | 17 | 1 | 17 | 1 | 8.5 | 1 |
| 280 | 160(1) | 160[f] | 0.49 | 1 | 184 | 0 | - | 1 | 14 | 1 | 22 | 1 | 8.3 | 1 |
| 281 | 161(1) | 161[f] | 1.2 | 1 | 234 | 0 | - | 1 | 16 | 1 | 7.8 | 1 | 8.5 | 1 |
| 282 | 162(1) | 162[f] | 0.38 | 1 | 228 | 0 | - | 1 | 15 | 1 | 21 | 1 | 8.0 | 1 |
| 283 | 163(1) | 163[f] | 0.23 | 1 | 172 | 0 | - | 1 | 19 | 1 | 27 | 1 | 8.4 | 1 |
| 284 | Big Snuff Lake | Big Snuff Lake | 0.09 | 1 | 68 | 0 | - | 1 | 17 | 1 | 47 | 1 | 7.5 | 1 |
| 299 | Chipew yan lake | Chipew yan lake | 2.3 | 1 | 215 | 0 | - | 1 | 14 | 0 | - | 1 | 8.9 | 1 |
| 300 | D221(2) | D221[h] | 12 | 1 | 481 | 0 | - | 1 | 38 | 0 | - | 1 | 8.6 | 1 |
| 301 | D222(2) | D222[h] | 5.7 | 1 | 327 | 0 | - | 1 | 36 | 0 | - | 1 | 8.7 | 1 |
| 302 | D223(2) | D223[h] | 2.0 | 1 | 147 | 0 | - | 1 | 32 | 0 | - | 1 | 9.3 | 1 |
| 304 | D226(2) | D226[h] | 2.2 | 1 | 264 | 0 | - | 1 | 23 | 0 | - | 1 | 8.2 | 1 |
| 306 | Horsetail Lake | Horsetail Lake | 0.5 | 1 | 70 | 0 | - | 1 | 15 | 0 | - | 1 | 6.9 | 1 |
| 314 | Sandy Lake (1) | Sandy-1 | 1.6 | 1 | 168 | 0 | - | 1 | 16 | 0 | - | 1 | 8.1 | 1 |
| 316 | D254(2) | D254[h] | 0.84 | 1 | 164 | 0 | - | 1 | 20 | 0 | - | 1 | 8.4 | 1 |
| 317 | L2(4) | L2[d] | 0.1 | 1 | 107 | 1 | 62 | 0 | - | 0 | - | 1 | 7.8 | 1 |
| 318 | L3(4) | L3[d] | 0.1 | 1 | 85 | 1 | 49 | 0 | - | 0 | - | 1 | 7.8 | 1 |
| 319 | L6(4) | L6[d] | 0.1 | 1 | 106 | 1 | 56 | 1 | 21 | 1 | 99 | 1 | 7.7 | 1 |
| 320 | L9(4) | L9[d] | 0.22 | 1 | 154 | 1 | 81 | 1 | 16 | 1 | 54 | 1 | 8.5 | 1 |
| 321 | L11(4) | L11[d] | 0.1 | 1 | 59 | 1 | 34 | 1 | 28 | 1 | 68 | 1 | 8.1 | 1 |
| 322 | L15(4) | L15[d] | 0.7 | 1 | 101 | 1 | 57 | 1 | 36 | 1 | 278 | 1 | 7.5 | 1 |
| 323 | S. Gardiner | S. Gardiner | 0.8 | 1 | 109 | 1 | 57 | 1 | 9.9 | 1 | 59 | 1 | 7.6 | 1 |
| 324 | N. Gardiner | N. Gardiner | 0.8 | 1 | 117 | 1 | 61 | 1 | 15 | 1 | 64 | 1 | 7.8 | 1 |
| 325 | L21(4) | L21[d] | 1.0 | 1 | 106 | 1 | 56 | 1 | 0.2 | 1 | 15 | 1 | 7.9 | 1 |
| 326 | Sand | Sand | 0.7 | 1 | 105 | 1 | 55 | 1 | 16 | 1 | 79 | 1 | 8.0 | 1 |
| 327 | Eaglenest | Eaglenest | 0.5 | 1 | 81 | 1 | 55 | 1 | 19 | 1 | 167 | 1 | 7.5 | 1 |
| 328 | Clear | Clear | 0.29 | 1 | 83 | 1 | 57 | 1 | 21 | 1 | 125 | 1 | 7.4 | 1 |
| 329 | Mildred | Mildred | 1.2 | 1 | 463 | 1 | 261 | 1 | 7.4 | 1 | 14 | 1 | 8.2 | 1 |
| 330 | L41(4) | L41[d] | 0.6 | 1 | 159 | 1 | 84 | 1 | 13 | 1 | 1.0 | 1 | 7.8 | 1 |
| 331 | L42(4) | L42[d] | 0.6 | 1 | 184 | 1 | 104 | 1 | 4.7 | 1 | 6.0 | 1 | 8.1 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 332 | L44(4) | L44[d] | 0.55 | 1 | 150 | 1 | 92 | 1 | 6.6 | 1 | 3.0 | 1 | 8.7 | 1 |
| 333 | L45(4) | L45[d] | 0.44 | 1 | 141 | 1 | 91 | 1 | 8.7 | 1 | 19 | 1 | 8.0 | 1 |
| 334 | L48(4) | L48[d] | 0.3 | 1 | 114 | 1 | 59 | 1 | 29 | 1 | 124 | 1 | 7.4 | 1 |
| 335 | L50(4) | L50[d] | 0.2 | 1 | 78 | 1 | 42 | 1 | 30 | 1 | 136 | 1 | 7.0 | 1 |
| 336 | L51(4) | L51[d] | 1.4 | 1 | 125 | 1 | 66 | 1 | 28 | 1 | 71 | 1 | 8.5 | 1 |
| 337 | L52(4) | L52[d] | 3.1 | 1 | 152 | 1 | 81 | 1 | 21 | 1 | 41 | 1 | 7.4 | 1 |
| 338 | L53(4) | L53[d] | 2.2 | 1 | 385 | 1 | 228 | 1 | 28 | 1 | 65 | 1 | 7.4 | 1 |
| 339 | L54(4) | L54[d] | 1.8 | 1 | 374 | 1 | 213 | 1 | 23 | 1 | 150 | 1 | 7.6 | 1 |
| 340 | L55(4) | L55[d] | 1.3 | 1 | 174 | 1 | 92 | 1 | 13 | 1 | 21 | 1 | 7.8 | 1 |
| 341 | L56(4) | L56[d] | 0.8 | 1 | 91 | 1 | 47 | 1 | 21 | 1 | 110 | 1 | 7.2 | 1 |
| 342 | L57(4) | L57[d] | 0.1 | 1 | 120 | 1 | 67 | 1 | 31 | 1 | 2.2 | 1 | 7.7 | 1 |
| 343 | L58(4) | L58[d] | 0.1 | 1 | 101 | 1 | 51 | 1 | 19 | 1 | 42 | 1 | 9.3 | 1 |
| 344 | L59(4) | L59[d] | 0.4 | 1 | 54 | 1 | 33 | 1 | 28 | 1 | 270 | 1 | 7.3 | 1 |
| 345 | Buoy | Buoy | 1.1 | 1 | 202 | 1 | 107 | 1 | 12 | 1 | 24 | 1 | 8.3 | 1 |
| 346 | Canopener | Canopener | 0.5 | 1 | 142 | 1 | 72 | 1 | 21 | 1 | 132 | 1 | 7.6 | 1 |
| 347 | L64(4) | L64[d] | 0.4 | 1 | 90 | 1 | 46 | 1 | 7.6 | 1 | 47 | 1 | 7.9 | 1 |
| 348 | Currie | Currie | 1.0 | 1 | 82 | 1 | 41 | 1 | 6.6 | 1 | 3.0 | 1 | 7.3 | 1 |
| 349 | Archer | Archer | 0.4 | 1 | 46 | 1 | 24 | 1 | 9.9 | 1 | 15 | 1 | 7.8 | 1 |
| 350 | Harw ood | Harw ood | 0.5 | 1 | 60 | 1 | 31 | 1 | 6.7 | 1 | 12 | 1 | 7.7 | 1 |
| 351 | L68(4) | L68[d] | 0.3 | 1 | 40 | 1 | 25 | 1 | 40 | 1 | 347 | 1 | 6.9 | 1 |
| 352 | L69(4) | L69[d] | 0.8 | 1 | 230 | 1 | 124 | 1 | 28 | 1 | 103 | 1 | 8.0 | 1 |
| 373 | 22(3) | 22[g] | 1.6 | 1 | 278 | 1 | 143 | 0 | - | 0 | - | 1 | 7.7 | 1 |
| 374 | Carrot | Carrot | 1.6 | 1 | 200 | 1 | 100 | 0 | - | 0 | - | 1 | 7.3 | 1 |
| 405 | P101(5) | P101[b] | 1.1 | 1 | 121 | 0 | - | 1 | 21 | 1 | 50 | 1 | 7.5 | 1 |
| 406 | P11(5) | P11[b] | 0.9 | 1 | 110 | 0 | - | 1 | 32 | 1 | 300 | 1 | 7.4 | 1 |
| 407 | P14(5) | P14[b] | 0.8 | 1 | 177 | 0 | - | 1 | 37 | 1 | 400 | 1 | 7.6 | 1 |
| 408 | P16(5) | P16[b] | 0.9 | 1 | 122 | 0 | - | 1 | 33 | 1 | 250 | 1 | 6.9 | 1 |
| 409 | P17(5) | P17[b] | 1.8 | 1 | 171 | 0 | - | 1 | 29 | 1 | 120 | 1 | 7.3 | 1 |
| 410 | P18(5) | P18[b] | 2.2 | 1 | 141 | 0 | - | 1 | 22 | 1 | 60 | 1 | 7.5 | 1 |
| 411 | P2(5),WQ16 | P2[b], WQ16 | 1.0 | 4 | 297 | 3 | 260 | 4 | 18 | 4 | 34 | 4 | 8.6 | 4 |
| 412 | P20(5) | P20[b] | 0 | 1 | 67 | 0 | - | 1 | 26 | 1 | 150 | 1 | 7.5 | 1 |
| 413 | P24(5) | P24[b] | 0 | 1 | 64 | 0 | - | 1 | 27 | 1 | 200 | 1 | 7.2 | 1 |
| 414 | P25(5) | P25[b] | 0.1 | 1 | 110 | 0 | - | 1 | 29 | 1 | 120 | 1 | 7.7 | 1 |
| 415 | P3(5), WQ15 | P3[b], WQ15 | 1.0 | 1 | 328 | 0 | - | 1 | 20 | 1 | 55 | 1 | 7.8 | 1 |
| 416 | P30(5) | P30[b] | 0.97 | 3 | 297 | 2 | 300 | 3 | 18 | 3 | 40 | 3 | 7.5 | 3 |
| 417 | P34(5) | P34[b] | 0 | 1 | 163 | 0 | - | 1 | 24 | 1 | 90 | 1 | 7.8 | 1 |
| 418 | P35(5) | P35[b] | 0.3 | 1 | 143 | 0 | - | 1 | 20 | 1 | 20 | 1 | 8.1 | 1 |
| 419 | P38(5) | P38[b] | 0 | 1 | 87 | 0 | - | 1 | 16 | 1 | 30 | 1 | 7.5 | 1 |
| 420 | P4(5) | P4[b] | 1.1 | 1 | 372 | 0 | - | 1 | 20 | 1 | 15 | 1 | 8.2 | 1 |
| 421 | P43(5) | P43[b] | 0.2 | 1 | 82 | 0 | - | 1 | 17 | 1 | 40 | 1 | 7.5 | 1 |
| 422 | P44(5) | P44[b] | 0.8 | 1 | 231 | 0 | - | 1 | 51 | 1 | 250 | 1 | 9.0 | 1 |
| 423 | P45(5) | P45[b] | 1.6 | 1 | 280 | 0 | - | 1 | 39 | 1 | 25 | 1 | 8.3 | 1 |
| 424 | P46(5) | P46[b] | 0 | 1 | 213 | 0 | - | 1 | 37 | 1 | 70 | 1 | 8.3 | 1 |
| 425 | P47(5) | P47[b] | 0 | 1 | 144 | 0 | - | 1 | 37 | 1 | 120 | 1 | 7.8 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 426 | P48(5) | P48[b] | 0.4 | 1 | 116 | 0 | - | 1 | 24 | 1 | 100 | 1 | 7.7 | 1 |
| 428 | P50(5) | P50[b] | 0.5 | 1 | 230 | 0 | - | 1 | 15 | 1 | 80 | 1 | 8.2 | 1 |
| 429 | P51(5) | P51[b] | 2.1 | 1 | 126 | 0 | - | 1 | 13 | 1 | 150 | 1 | 7.3 | 1 |
| 430 | P52(5) | P52[b] | 14 | 1 | 439 | 0 | - | 1 | 30 | 1 | 35 | 1 | 8.3 | 1 |
| 431 | P54(5) | P54[b] | 0.8 | 1 | 110 | 0 | - | 1 | 5.0 | 1 | 20 | 1 | 7.8 | 1 |
| 432 | P6(5) | P6[b] | 0.2 | 1 | 127 | 0 | - | 1 | 30 | 1 | 120 | 1 | 7.7 | 1 |
| 433 | P60(5) | P60[b] | 0.6 | 1 | 110 | 0 | - | 1 | 22 | 1 | 125 | 1 | 7.7 | 1 |
| 434 | P61(5) | P61[b] | 0.5 | 1 | 79 | 0 | - | 1 | 23 | 1 | 125 | 1 | 7.5 | 1 |
| 435 | P69(5) | P69[b] | 0.2 | 1 | 55 | 0 | - | 1 | 26 | 1 | 125 | 1 | 7.4 | 1 |
| 436 | P70(5) | P70[b] | 0.2 | 1 | 38 | 0 | - | 1 | 29 | 1 | 150 | 1 | 6.6 | 1 |
| 437 | P72(5) | P72[b] | 0.3 | 1 | 58 | 0 | - | 1 | 33 | 1 | 150 | 1 | 5.9 | 1 |
| 438 | P77(5) | P77[b] | 0 | 1 | 65 | 0 | - | 1 | 27 | 1 | 125 | 1 | 7.1 | 1 |
| 439 | P79(5) | P79[b] | 0 | 1 | 63 | 0 | - | 1 | 30 | 1 | 150 | 1 | 7.0 | 1 |
| 440 | P8(5) | P8[b] | 0.2 | 1 | 58 | 0 | - | 1 | 38 | 1 | 300 | 1 | 7.0 | 1 |
| 441 | P84(5) | P84[b] | 0.5 | 1 | 68 | 0 | - | 1 | 18 | 1 | 120 | 1 | 7.1 | 1 |
| 442 | P85(5) | P85[b] | 0.2 | 1 | 71 | 0 | - | 1 | 24 | 1 | 160 | 1 | 7.2 | 1 |
| 443 | P86(5) | P86[b] | 2.2 | 1 | 360 | 0 | - | 1 | 31 | 1 | 100 | 1 | 7.7 | 1 |
| 444 | P87(5) | P87[b] | 0 | 1 | 71 | 0 | - | 1 | 18 | 1 | 120 | 1 | 7.3 | 1 |
| 445 | P9(5) | P9[b] | 0.2 | 1 | 152 | 0 | - | 1 | 30 | 1 | 50 | 1 | 7.8 | 1 |
| 446 | P90(5) | P90[b] | 2.7 | 1 | 231 | 0 | - | 1 | 26 | 1 | 70 | 1 | 7.9 | 1 |
| 447 | P91(5) | P91[b] | 2.1 | 1 | 300 | 0 | - | 1 | 24 | 1 | 70 | 1 | 7.7 | 1 |
| 449 | P95(5) | P95[b] | 0.5 | 1 | 162 | 0 | - | 1 | 30 | 1 | 160 | 1 | 7.5 | 1 |
| 450 | P99(5) | P99[b] | 0.7 | 1 | 151 | 0 | - | 1 | 21 | 1 | 30 | 1 | 7.5 | 1 |
| 451 | PF1(5) | PF1[b] | 0.5 | 1 | 310 | 0 | - | 1 | 11 | 1 | 10 | 1 | 7.9 | 1 |
| 452 | PF10(5) | PF10[b] | 1.3 | 1 | 65 | 0 | - | 1 | 22 | 1 | 90 | 1 | 6.9 | 1 |
| 453 | PF11(5) | PF11[b] | 0.7 | 1 | 43 | 0 | - | 1 | 32 | 1 | 150 | 1 | 6.1 | 1 |
| 455 | PF13(5) | PF13[b] | 0.4 | 1 | 200 | 0 | - | 1 | 17 | 1 | 55 | 1 | 7.7 | 1 |
| 456 | PF2(5) | PF2[b] | 0.3 | 1 | 259 | 0 | - | 1 | 9.0 | 1 | 8.0 | 1 | 7.8 | 1 |
| 457 | PF3(5) | PF3[b] | 0.6 | 1 | 247 | 0 | - | 1 | 15 | 1 | 25 | 1 | 7.9 | 1 |
| 458 | PF4(5) | PF4[b] | 0.5 | 1 | 369 | 0 | - | 1 | 16 | 1 | 35 | 1 | 7.7 | 1 |
| 459 | PF5(5) | PF5[b] | 0.8 | 1 | 212 | 0 | - | 1 | 11 | 1 | 13 | 1 | 7.9 | 1 |
| 460 | PF6(5) | PF6[b] | 0.4 | 1 | 179 | 0 | - | 1 | 24 | 1 | 45 | 1 | 7.7 | 1 |
| 461 | PF7(5) | PF7[b] | 0.5 | 1 | 190 | 0 | - | 1 | 25 | 1 | 150 | 1 | 7.5 | 1 |
| 462 | PF8(5) | PF8[b] | 3.0 | 1 | 197 | 0 | - | 1 | 29 | 1 | 125 | 1 | 7.4 | 1 |
| 463 | PF9(5) | PF9[b] | 0.5 | 1 | 99 | 0 | - | 1 | 26 | 1 | 100 | 1 | 7.1 | 1 |
| 464 | PM1(5) | PM1[b] | 0.3 | 1 | 27 | 0 | - | 1 | 21 | 1 | 100 | 1 | 4.2 | 1 |
| 465 | PM2(5) | PM2[b] | 0.2 | 1 | 73 | 0 | - | 1 | 18 | 1 | 120 | 1 | 7.1 | 1 |
| 466 | PM3(5) | PM3[b] | 0 | 1 | 86 | 0 | - | 1 | 19 | 1 | 80 | 1 | 7.4 | 1 |
| 467 | PM4(5) | PM4[b] | 0.2 | 1 | 144 | 0 | - | 1 | 26 | 1 | 120 | 1 | 7.6 | 1 |
| 468 | PT1(5) | PT1[b] | 0 | 1 | 115 | 0 | - | 1 | 19 | 1 | 100 | 1 | 8.0 | 1 |
| 469 | PT2(5) | PT2[b] | 0.2 | 1 | 51 | 0 | - | 1 | 30 | 1 | 250 | 1 | 5.0 | 1 |
| 470 | PT3(5) | PT3[b] | 0.2 | 1 | 75 | 0 | - | 1 | 30 | 1 | 150 | 1 | 7.5 | 1 |
| 471 | PT4(5) | PT4[b] | 0 | 1 | 77 | 0 | - | 1 | 28 | 1 | 125 | 1 | 7.6 | 1 |
| 472 | PT5(5) | PT5[b] | 0.5 | 1 | 61 | 0 | - | 1 | 21 | 1 | 150 | 1 | 7.5 | 1 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 473 | PT6(5) | PT6[b] | 6.2 | 1 | 345 | 0 | - | 1 | 33 | 1 | 50 | 1 | 8.4 | 1 |
| 474 | PT8(5) | PT8[b] | 1.5 | 1 | 176 | 0 | - | 1 | 13 | 1 | 50 | 1 | 7.8 | 1 |
| 475 | PT9(5) | PT9[b] | 1.3 | 1 | 119 | 0 | - | 1 | 16 | 1 | 50 | 1 | 7.9 | 1 |
| 476 | PTH1(5) | PTH1[b] | 0.7 | 1 | 229 | 0 | - | 1 | 10 | 1 | 10 | 1 | 8.3 | 1 |
| 477 | PTH10(5) | PTH10[b] | 0.2 | 1 | 77 | 0 | - | 1 | 20 | 1 | 100 | 1 | 7.0 | 1 |
| 478 | PTH11(5) | PTH11[b] | 0 | 1 | 133 | 0 | - | 1 | 20 | 1 | 65 | 1 | 7.3 | 1 |
| 479 | PTH12(5) | PTH12[b] | 0.1 | 1 | 134 | 0 | - | 1 | 25 | 1 | 90 | 1 | 7.6 | 1 |
| 480 | PTH2(5) | PTH2[b] | 0.5 | 1 | 226 | 0 | - | 1 | 9.0 | 1 | 10 | 1 | 8.1 | 1 |
| 481 | PTH5(5) | PTH5[b] | 1.2 | 1 | 256 | 0 | - | 1 | 18 | 1 | 30 | 1 | 8.0 | 1 |
| 482 | PTH6(5) | PTH6[b] | 0.3 | 1 | 182 | 0 | - | 1 | 25 | 1 | 70 | 1 | 7.8 | 1 |
| 483 | PTH7(5) | PTH7[b] | 0 | 1 | 204 | 0 | - | 1 | 24 | 1 | 60 | 1 | 8.0 | 1 |
| 484 | PTH8(5) | PTH8[b] | 0 | 1 | 127 | 0 | - | 1 | 25 | 1 | 70 | 1 | 7.7 | 1 |
| 485 | PTH9(5) | PTH9[b] | 0.5 | 1 | 97 | 0 | - | 1 | 17 | 1 | 60 | 1 | 7.4 | 1 |
| 486 | PW1(5) | PW1[b] | 1.6 | 1 | 134 | 0 | - | 1 | 31 | 1 | 300 | 1 | 7.2 | 1 |
| 487 | PW2(5) | PW2[b] | 1.1 | 1 | 233 | 0 | - | 1 | 31 | 1 | 140 | 1 | 7.9 | 1 |
| 488 | PW3(5) | PW3[b] | 3.8 | 1 | 117 | 0 | - | 1 | 17 | 1 | 50 | 1 | 7.3 | 1 |
| 515 | Unnamed 5(7) | Unnamed 5[e] | 2.6 | 1 | 822 | 1 | 426 | 1 | 48 | 0 | - | 1 | 7.7 | 1 |
| 516 | Sinclair (1) | Sinclair-1 | 2.9 | 3 | 430 | 3 | 248 | 1 | 15 | 0 | - | 3 | 8.3 | 3 |
| 517 | Bourque | Bourque | 2.5 | 50 | 334 | 29 | 176 | 29 | 6.6 | 0 | - | 30 | 8.2 | 33 |
| 518 | Marguerite | Marguerite | 46 | 1 | 951 | 1 | 660 | 1 | 95 | 0 | - | 1 | 8.8 | 1 |
| 519 | Marie | Marie | 2.2 | 44 | 258 | 48 | 156 | 41 | 7.8 | 0 | - | 46 | 8.1 | 50 |
| 520 | Leming | Leming | 5.5 | 2 | 194 | 3 | 168 | 1 | 35 | 0 | - | 6 | 8.2 | 6 |
| 521 | Tucker | Tucker | 3.4 | 61 | 400 | 64 | 234 | 59 | 13 | 0 | - | 61 | 8.1 | 58 |
| 522 | Ethel | Ethel | 2.7 | 142 | 302 | 138 | 167 | 140 | 11 | 0 | - | 138 | 8.3 | 142 |
| 523 | Hilda | Hilda | 6.7 | 45 | 670 | 42 | 382 | 30 | 17 | 0 | - | 45 | 8.4 | 45 |
| 524 | Patterson | Patterson | 1.0 | 5 | 42 | 6 | 30 | 5 | 2.9 | 0 | - | 5 | 6.9 | 5 |
| 525 | Forrest | Forrest | 1.0 | 4 | 55 | 4 | 39 | 4 | 2.2 | 0 | - | 4 | 6.9 | 4 |
| 526 | Preston | Preston | 1.0 | 4 | 49 | 4 | 40 | 4 | 3.0 | 0 | - | 4 | 6.8 | 4 |
| 527 | Beet | Beet | 1.0 | 4 | 45 | 4 | 35 | 4 | 3.0 | 0 | - | 4 | 6.9 | 4 |
| 528 | Lloyd | Lloyd | 1.0 | 5 | 39 | 6 | 23 | 5 | 4.0 | 0 | - | 5 | 6.9 | 5 |
| 529 | Sandy (2) | Sandy-2 | 1.2 | 6 | 218 | 0 | - | 0 | - | 0 | - | 6 | 7.3 | 0 |
| 530 | La Loche | La Loche | 1.0 | 4 | 229 | 4 | 190 | 4 | 9.2 | 0 | - | 4 | 8.1 | 4 |
| 531 | Cluff | Cluff | 0.7 | 3 | 155 | 0 | - | 0 | - | 0 | - | 3 | 8.1 | 0 |
| 532 | unnamed | unnamed | 1.8 | 4 | 91 | 4 | 73 | 4 | 8.8 | 0 | - | 4 | 7.0 | 4 |
| 533 | McLean | McLean | 1.5 | 4 | 190 | 4 | 155 | 4 | 18 | 0 | - | 4 | 7.9 | 4 |
| 534 | Proudfoot | Proudfoot | 1.0 | 3 | 44 | 3 | 30 | 3 | 14 | 0 | - | 3 | 7.0 | 3 |
| 535 | Turnor | Turnor | 1.3 | 7 | 115 | 7 | 91 | 7 | 8.4 | 0 | - | 7 | 7.3 | 7 |
| 536 | Touchwood | Touchwood | 2.6 | 20 | 266 | 19 | 143 | 8 | 11 | 13 | 9.3 | 20 | 8.3 | 20 |
| 537 | La Biche | La Biche | 2.3 | 1 | 268 | 1 | 138 | 0 | - | 0 | - | 1 | 8.6 | 1 |
| 538 | Wolf | Wolf | 2.1 | 10 | 297 | 7 | 182 | 14 | 13 | 0 | - | 10 | 8.0 | 10 |
| 539 | Field | Field | 9.6 | 46 | 722 | 53 | 443 | 38 | 22 | 0 | - | 53 | 8.3 | 53 |
| 540 | Pinehurst | Pinehurst | 3.8 | 8 | 279 | 8 | 152 | 8 | 13 | 0 | - | 8 | 8.5 | 8 |
| 546 | Cold | Cold | 2.1 | 66 | 240 | 37 | 155 | 21 | 8.4 | 0 | - | 59 | 8.3 | 44 |
| 546 | Manatokan | Manatokan | 7.1 | 2 | 392 | 2 | 211 | 1 | 16 | 0 | - | 2 | 8.7 | 2 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/ Original Identifier 2 | Potassium Average [mg/L] | Conductivity N | Conductivity [µs/cm] | TDS N | TDS [mg/L] | DOC N | DOC [mg/L] | Color N | Color [TCU] | pH N | pH | Alkalinity N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 596 | UN-2(7) | UN-2[e] | 1.0 | 1 | 270 | 1 | 146 | 1 | 21 | 0 | - | 1 | 7.9 | 1 |
| 597 | UN-5(7) | UN-5[e] | 0 | 1 | 63 | 1 | 27 | 1 | 28 | 0 | - | 1 | 7.2 | 1 |
| 598 | UN-6(7) | UN-6[e] | 8.1 | 1 | 86 | 1 | 46 | 1 | 26 | 0 | - | 1 | 6.8 | 1 |
| 599 | Dolly | Dolly | 5.0 | 2 | 441 | 2 | 239 | 2 | 40 | 0 | - | 2 | 8.5 | 2 |
| 600 | P1 | P1[e] | 1.3 | 4 | 485 | 4 | 300 | 4 | 11 | 4 | 59 | 4 | 8.1 | 4 |
| 605 | P2 | P4[e] | 1.8 | 4 | 485 | 4 | 350 | 4 | 19 | 4 | 53 | 4 | 8.2 | 4 |
| 606 | P4 | P2[e] | 0.75 | 4 | 260 | 4 | 193 | 4 | 14 | 4 | 64 | 4 | 8.0 | 4 |
| 607 | Suncor_VS_UW1 | Suncor_VS_UW1 | 2.3 | 6 | 574 | 6 | 307 | 6 | 18 | 6 | 74 | 6 | 7.9 | 6 |
| 612 | Shell_AOSP_WQ18 | Shell_AOSP_WQ18 | 0.63 | 4 | 404 | 4 | 270 | 4 | 29 | 4 | 39 | 4 | 6.4 | 4 |
| 615 | Shell_AOSP_WQ26 | Shell_AOSP_WQ26 | 1.7 | 2 | 409 | 2 | 290 | 2 | 28 | 2 | 140 | 2 | 7.5 | 2 |
| 616 | Shell_AOSP_WQ19 | Shell_AOSP_WQ19 | 4.6 | 4 | 377 | 4 | 400 | 4 | 43 | 4 | 133 | 4 | 7.9 | 4 |
| 617 | Shell_AOSP_WQ28 | Shell_AOSP_WQ28 | 14 | 3 | 554 | 3 | 530 | 3 | 108 | 3 | 590 | 3 | 7.2 | 3 |
| 618 | Shell_AOSP_WQ29 | Shell_AOSP_WQ29 | 3.7 | 6 | 427 | 6 | 339 | 6 | 50 | 6 | 37 | 6 | 9.3 | 6 |
| 619 | Shell_AOSP_WQ38 | Shell_AOSP_WQ38 | 3.8 | 2 | 422 | 2 | 308 | 2 | 17 | 2 | 20 | 2 | 7.8 | 2 |
| 620 | Shell_AOSP_WQ39 | Shell_AOSP_WQ39 | 13 | 4 | 650 | 4 | 497 | 4 | 40 | 4 | 25 | 4 | 8.7 | 4 |
| 621 | Shell_AOSP_WQ40 | Shell_AOSP_WQ40 | 6.1 | 5 | 558 | 5 | 362 | 5 | 29 | 5 | 101 | 5 | 7.4 | 5 |
| 622 | Shell_AOSP_WQ46 | Shell_AOSP_WQ46 | 2.0 | 3 | 321 | 3 | 205 | 3 | 17 | 3 | 14 | 3 | 8.2 | 3 |
| 623 | Shell_AOSP_WQ47 | Shell_AOSP_WQ47 | 4.9 | 2 | 593 | 2 | 400 | 2 | 10 | 2 | 12 | 2 | 7.9 | 2 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Birch Lake (2) | Birch Lake-2 | 96 | 8 | 15 | 5 | 0.081 | 1,921 | least | 144 | 163 | 1,981 | 1.8 | 1.8 |
| 2 | Christina Lake | Christina Lake | 106 | 9 | 6.1 | 2 | 0.013 | 2,114 | least | 91 | 99 | 2,195 | 1.5 | 1.5 |
| 3 | Gregoire Lake | Gregoire Lake | 55 | 161 | 8.5 | 5 | 0.041 | 1,108 | least | 64 | 100 | 1,356 | 1.1 | 1.2 |
| 4 | Kearl Lake | Kearl Lake | 95 | 28 | 4.9 | 25 | 0.039 | 1,897 | least | 171 | 153 | 2,105 | 1.5 | 1.5 |
| 5 | McClelland Lake, WQ22 | McClelland Lake, WQ22 | 137 | 25 | 4.2 | 17 | 0.0048 | 2,745 | least | 143 | 100 | 2,951 | 1.6 | 1.5 |
| 6 | LK-1(7), WQ21 | LK-1[e], WQ21 | 825 | 7 | 91 | 7 | 0.1 | 16,494 | least | 1466 | 304 | 19,815 | 4.1 | 3.9 |
| 7 | LK-2(7) | LK-2[e] | 10 | 2 | 1.8 | 2 | 0.1 | 200 | moderate | 34 | 106 | 294 | 0.12 | 0.17 |
| 10 | LK-5(7) | LK-5[e] | 71 | 3 | 30 | 3 | 0.1 | 1,413 | least | 55 | 86 | 2,066 | 1.6 | 1.7 |
| 11 | LK-6(7) | LK-6[e] | 65 | 3 | 26 | 3 | 0.1 | 1,300 | least | 61 | 96 | 1,948 | 1.6 | 1.6 |
| 12 | LK-7(7) | LK-7[e] | 130 | 2 | 3.8 | 2 | 0.1 | 2,600 | least | 183 | 203 | 2,572 | 0.4 | 0.41 |
| 17 | LK-12(7) | LK-12[e] | 44 | 3 | 25 | 3 | 0.1 | 887 | least | 64 | 122 | 1,470 | 1.3 | 1.4 |
| 18 | Lillian Lake | Lillian Lake | 262 | 4 | 3.1 | 4 | 0.13 | 5,230 | least | 122 | 159 | 5,259 | 0.78 | 0.78 |
| 19 | Calumet Lake | Calumet Lake | 263 | 3 | 41 | 3 | 0.13 | 5,267 | least | 343 | 332 | 7,229 | 1.3 | 1.3 |
| 20 | Isodore's Lake | Isodore's Lake | 186 | 7 | 55 | 7 | 0.067 | 3,717 | least | 78 | 87 | 4,937 | 4.8 | 4.8 |
| 25 | Canoe Lake | Canoe Lake | 40 | 8 | 2.2 | 8 | 0.11 | 800 | least | 75 | 144 | 972 | 0.52 | 0.56 |
| 26 | Long Lake (1) | Long Lake-1 | 34 | 8 | 4.5 | 8 | 0.1 | 678 | low | 94 | 160 | 873 | 0.62 | 0.67 |
| 27 | Pushup Lake | Pushup Lake | 39 | 4 | 1.1 | 3 | 0.069 | 780 | low | 127 | 139 | 829 | 0.47 | 0.48 |
| 28 | Sucker Lake | Sucker Lake | 112 | 5 | 4.4 | 5 | 0.1 | 2,232 | least | 132 | 136 | 2,427 | 1.8 | 1.8 |
| 29 | Frog Lake | Frog Lake | 91 | 4 | 3.2 | 4 | 0.1 | 1,815 | least | 171 | 193 | 2,186 | 2.0 | 2.0 |
| 30 | Poison Lake | Poison Lake | 91 | 4 | 2.2 | 4 | 0.1 | 1,815 | least | 160 | 169 | 2,022 | 1.0 | 1.0 |
| 31 | Rat Lake | Rat Lake | 104 | 4 | 4.5 | 4 | 0.077 | 2,075 | least | 117 | 127 | 2,298 | 2.1 | 2.1 |
| 32 | Caribou Horn | Caribou Horn | 87 | 4 | 6.7 | 4 | 0.1 | 1,730 | least | 119 | 136 | 2,035 | 1.7 | 1.7 |
| 33 | Kiskatinaw Lake | Kiskatinaw Lake | 97 | 4 | 3.1 | 4 | 0.1 | 1,935 | least | 163 | 166 | 2,117 | 1.9 | 1.9 |
| 34 | UNL1(7) | UNL1[e] | 9.0 | 5 | 2.1 | 4 | 0.1 | 180 | high | 30 | 146 | 238 | 0.044 | 0.15 |
| 35 | PF12(5), UNL2(7) | PF12[b], UNL2[e] | 10 | 6 | 3.2 | 6 | 0.1 | 203 | moderate | 43 | 176 | 730 | 0.48 | 0.6 |
| 36 | UNL3(7) | UNL3[e] | 104 | 4 | 4.7 | 4 | 0.077 | 2,085 | least | 231 | 234 | 2,351 | 1.6 | 1.6 |
| 37 | Surmont Lake | Surmont Lake | 30 | 3 | 2.7 | 3 | 0.17 | 593 | low | 54 | 120 | 726 | 0.7 | 0.78 |
| 38 | L8(7) | L8[e] | 28 | 3 | 2.3 | 0 | - | 553 | low | 62 | 160 | 706 | 0.61 | 0.73 |
| 39 | L10(7) | L10[e] | 8.0 | 3 | 5.8 | 3 | 0.13 | 160 | high | 11 | 80 | 173 | 0.019 | 0.064 |
| 40 | L11(7) | L11[e] | 7.7 | 3 | 2.0 | 0 | - | 153 | high | 22 | 124 | 254 | 0.084 | 0.19 |
| 41 | Maqua Lake | Maqua Lake | 27 | 5 | 1.8 | 0 | - | 540 | low | 39 | 96 | 616 | 0.56 | 0.62 |
| 42 | Wiau Lake | Wiau Lake | 88 | 4 | 1.2 | 4 | 0.063 | 1,770 | least | 152 | 119 | 1,893 | 1.9 | 1.9 |
| 43 | Ipiatik Lake | Ipiatik Lake | 67 | 2 | 1.5 | 1 | 0.1 | 1,340 | least | 69 | 103 | 1,367 | 1.3 | 1.3 |
| 44 | UNL1(7) | UNL1[e] | 70 | 3 | 2.1 | 3 | 0.083 | 1,400 | least | 113 | 104 | 1,560 | 1.7 | 1.7 |
| 45 | UNL3(7) | UNL3[e] | 38 | 3 | 0.9 | 2 | 0.075 | 760 | low | 79 | 132 | 866 | 0.85 | 0.91 |
| 46 | UNL4(7) | UNL4[e] | 89 | 3 | 1.3 | 2 | 0.075 | 1,787 | least | 140 | 134 | 1,899 | 0.98 | 0.98 |
| 47 | UNL5(7) | UNL5[e] | 52 | 3 | 0.82 | 2 | 0.075 | 1,033 | least | 89 | 112 | 1,126 | 1.1 | 1.1 |
| 48 | UNL7(7) | UNL7[e] | 43 | 4 | 1.3 | 2 | 0.075 | 850 | least | 114 | 168 | 993 | 0.83 | 0.88 |
| 49 | UNL12(7) | UNL12[e] | 46 | 2 | 1.0 | 1 | 0.1 | 920 | least | 70 | 112 | 943 | 0.96 | 1.0 |
| 50 | UNL13(7) | UNL13[e] | 13 | 3 | 2.1 | 2 | 0.1 | 253 | moderate | 52 | 164 | 356 | 0.2 | 0.33 |
| 51 | UW1(7) | UW1[e] | 231 | 3 | 5.8 | 3 | 0.1 | 4,613 | least | 106 | 104 | 4,993 | 2.9 | 2.9 |
| 52 | UW2(7) | UW2[e] | 131 | 2 | 3.6 | 2 | 0.1 | 2,610 | least | 75 | 75 | 2,641 | 1.5 | 1.5 |
| 53 | UW3(7) | UW3[e] | 235 | 3 | 5.9 | 3 | 0.1 | 4,693 | least | 94 | 102 | 4,986 | 2.9 | 2.9 |
| 54 | UW4(7) | UW4[e] | 240 | 2 | 5.0 | 2 | 0.1 | 4,800 | least | 164 | 130 | 5,176 | 2.9 | 2.9 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | UW5(7) | UW5[e] | 173 | 2 | 5.2 | 2 | 0.1 | 3,450 | least | 146 | 118 | 3,738 | 2.2 | 2.2 |
| 56 | UW6(7) | UW6[e] | 122 | 2 | 8.8 | 2 | 0.1 | 2,430 | least | 183 | 166 | 2,792 | 1.5 | 1.5 |
| 58 | Shipyard Lake | Shipyard Lake | 161 | 21 | 5.3 | 21 | 0.076 | 3,227 | least | 109 | 139 | 3,750 | 3.5 | 3.5 |
| 60 | Burnt Lake | Burnt Lake | 108 | 4 | 5.3 | 3 | 0.13 | 2,165 | least | 148 | 124 | 4,890 | 2.9 | 2.8 |
| 61 | LK1(7) | LK1[e] | 117 | 3 | 1.8 | 1 | 0.1 | 2,340 | least | 238 | 172 | 2,538 | 1.6 | 1.6 |
| 62 | LK2(7) | LK2[e] | 53 | 2 | 1.0 | 0 | - | 1,050 | least | 197 | 200 | 1,233 | 0.57 | 0.58 |
| 63 | LK3(7) | LK3[e] | 61 | 3 | 1.0 | 1 | 0.1 | 1,220 | least | 180 | 166 | 1,439 | 0.86 | 0.85 |
| 64 | LK4(7) | LK4[e] | 65 | 3 | 1.0 | 1 | 0.1 | 1,300 | least | 175 | 166 | 1,491 | 0.85 | 0.85 |
| 65 | LK5(7) | LK5[e] | 52 | 3 | 1.5 | 3 | 0.1 | 1,040 | least | 122 | 128 | 1,193 | 0.71 | 0.71 |
| 66 | LK6(7) | LK6[e] | 98 | 3 | 1.4 | 1 | 0.1 | 1,953 | least | 200 | 160 | 2,116 | 1.3 | 1.3 |
| 67 | LK7(7) | LK7[e] | 98 | 3 | 1.2 | 1 | 0.1 | 1,953 | least | 139 | 118 | 2,061 | 1.3 | 1.3 |
| 68 | LK8(7) | LK8[e] | 49 | 2 | 0.9 | 0 | - | 970 | least | 154 | 160 | 1,135 | 0.64 | 0.65 |
| 69 | May Lake | May Lake | 140 | 29 | 3.6 | 20 | 0.045 | 2,793 | least | 58 | 62 | 2,804 | 1.4 | 1.4 |
| 78 | UNL-1(7), WQ17 | UNL-1[e], WQ17 | 228 | 4 | 4.6 | 4 | 0.05 | 4,560 | least | 174 | 177 | 5,065 | 4.0 | 4.0 |
| 79 | UNL-2(7) | UNL-2[e] | 293 | 3 | 5.0 | 3 | 0.1 | 5,853 | least | 160 | 126 | 6,353 | 5.7 | 5.7 |
| 80 | P5(5), UNL-3(7) | P5[b], UNL-3[e] | 145 | 7 | 2.6 | 7 | 0.1 | 2,897 | least | 96 | 102 | 3,144 | 2.4 | 2.4 |
| 81 | L1(4), L1(6) | L1[d], L1[c] | 5.5 | 2 | 3.1 | 2 | 0.0055 | 110 | high | 0.024 | 21 | 252 | 0.18 | 0.21 |
| 82 | 170(1), 14(3), L4(4), A170 (L4)(6) | 170[f], 14[g], L4[d], A170 (L4)[c] | 6.7 | 34 | 3.8 | 34 | 0.031 | 135 | high | 36 | 185 | 272 | 0.069 | 0.28 |
| 83 | L7(4), L7(6) | L7[d], L7[c] | 10 | 30 | 3.7 | 30 | 0.0085 | 203 | moderate | 56 | 200 | 346 | 0.19 | 0.4 |
| 84 | L8(4), L8(6) | L8[d], L8[c] | 20 | 7 | 1.4 | 7 | 0.015 | 398 | moderate | 63 | 134 | 580 | 0.58 | 0.68 |
| 85 | 164(1), 17(3), L10(4) | 164[f], 17[g], L10[d] | 73 | 3 | 1.7 | 3 | 0.0091 | 1,453 | least | 142 | 87 | 1,377 | 1.3 | 1.2 |
| 86 | 166(1), L12(4) | 166[f], L12[d] | 42 | 2 | 1.5 | 2 | 0.00096 | 845 | least | 463 | 183 | 954 | 1.1 | 0.84 |
| 87 | 167(1), L13(4) | 167[f], L13[d] | 37 | 2 | 1.4 | 2 | 0.044 | 743 | low | 99 | 134 | 801 | 0.65 | 0.68 |
| 88 | 168(1), 12(3), L14(4) | 168[f], 12[g], L14[d] | 55 | 3 | 1.7 | 3 | 0.0094 | 1,104 | least | 215 | 152 | 1,136 | 1.2 | 1.1 |
| 89 | Rabbit | Rabbit | 146 | 2 | 17 | 2 | 0.015 | 2,910 | least | 573 | 340 | 3,378 | 2.7 | 2.5 |
| 91 | Namur | Namur | 21 | 7 | 7.1 | 7 | 0.0034 | 414 | low | 39 | 83 | 605 | 0.22 | 0.24 |
| 92 | Otasan | Otasan | 8.5 | 7 | 1.4 | 7 | 0.002 | 169 | high | 32 | 94 | 260 | 0.071 | 0.11 |
| 93 | Legend | Legend | 11 | 28 | 2.8 | 28 | 0.011 | 219 | moderate | 27 | 79 | 253 | 0.076 | 0.11 |
| 95 | 29(3), L27(4) | 29[g], L27[d] | 8.3 | 2 | 4.3 | 2 | 0.018 | 166 | high | 40 | 158 | 318 | 0.072 | 0.14 |
| 96 | 28(3), L28(4), L28(6) | 28[g], L28[d], L28[c] | 2.7 | 8 | 2.2 | 8 | 0.023 | 53 | high | 17 | 169 | 210 | -0.013 | 0.1 |
| 97 | Clayton | Clayton | 0 | 5 | 0.61 | 5 | 0.0021 | 0 | high | 5.2 | 120 | 84 | -0.084 | 0.0074 |
| 98 | 146(1), L40(4) | 146[f], L40[d] | 61 | 2 | 1.5 | 2 | 0.00065 | 1,219 | least | 48 | 58 | 1,192 | 0.093 | 0.094 |
| 99 | 144(1), L43(4) | 144[f], L43[d] | 81 | 2 | 2.2 | 2 | 0.00065 | 1,616 | least | 20 | 36 | 1,685 | 1.0 | 1.0 |
| 100 | 27(3), L47(4), L47(6) | 27[g], L47[d], L47[c] | 14 | 8 | 9.4 | 8 | 0.098 | 276 | moderate | 53 | 143 | 735 | 0.37 | 0.43 |
| 101 | L49(4), L49(6) | L49[d], L49[c] | 8.6 | 7 | 15 | 7 | 0.11 | 172 | high | 45 | 145 | 606 | 0.29 | 0.36 |
| 102 | 33(3), L33(4) | 33[g], L33[d] | 129 | 2 | 18 | 2 | 0.014 | 2,584 | least | 168 | 113 | 2,740 | 1.8 | 1.8 |
| 103 | Audet | Audet | 147 | 2 | 2.5 | 3 | 0.0089 | 2,941 | least | 161 | 127 | 3,266 | 2.2 | 2.2 |
| 104 | Johnson | Johnson | 148 | 3 | 2.3 | 3 | 0.0088 | 2,955 | least | 160 | 108 | 3,228 | 2.1 | 2.0 |
| 105 | 150(1), 9(3), L39(4), A-150 (L39)(6) | 150[f], 9[g], L39[d], A-150 (L39)[c] | 13 | 9 | 2.0 | 9 | 0.0052 | 252 | moderate | 37 | 104 | 359 | 0.18 | 0.23 |
| 106 | Bayard | Bayard | 14 | 8 | 10 | 8 | 0.067 | 278 | moderate | 54 | 147 | 623 | 0.42 | 0.51 |
| 107 | L60(4), L60(6) | L60[d], L60[c] | 15 | 7 | 8.7 | 7 | 0.013 | 296 | moderate | 72 | 131 | 613 | 0.41 | 0.46 |
| 108 | Waterlily | Waterlily | 22 | 2 | 8.8 | 2 | 0.0072 | 444 | low | 139 | 154 | 712 | 0.72 | 0.73 |
| 109 | Gordon | Gordon | 141 | 1 | 2.2 | 1 | 0.00065 | 2,811 | least | 228 | 147 | 2,986 | 1.1 | 1.1 |
| 110 | Birch Lake (1) | Birch Lake [f] | 143 | 2 | 2.1 | 2 | 0.013 | 2,863 | least | 416 | 179 | 2,944 | 1.7 | 1.6 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 115 | 21(1), A21(6) | 21[f], A21[c] | 1.6 | 7 | 3.4 | 7 | 0.013 | 32 | high | 9.3 | 126 | 155 | -0.068 | 0.15 |
| 116 | 24(1), A24(6) | 24[f], A24[c] | 0.93 | 7 | 1.0 | 7 | 0.014 | 19 | high | 8.0 | 132 | 113 | -0.1 | 0.046 |
| 117 | 26(1), A26(6) | 26[f], A26[c] | 3.3 | 7 | 1.4 | 7 | 0.032 | 65 | high | 11 | 90 | 163 | 0.0093 | 0.088 |
| 118 | 29(1), A29(6) | 29[f], A29[c] | 3.0 | 7 | 0.81 | 7 | 0.0018 | 60 | high | 14 | 97 | 153 | -0.0049 | 0.082 |
| 119 | 42(1), A42(6) | 42[f], A42[c] | 14 | 7 | 0.81 | 6 | 0.027 | 283 | moderate | 107 | 252 | 584 | 0.4 | 0.56 |
| 120 | 47(1), A47(6) | 47[f], A47[c] | 7.7 | 6 | 1.4 | 6 | 0.3 | 154 | high | 31 | 114 | 309 | 0.19 | 0.29 |
| 121 | 59(1), A59(6) | 59[f], A59[c] | 3.3 | 7 | 1.6 | 7 | 0.01 | 65 | high | 21 | 202 | 275 | 0.023 | 0.25 |
| 122 | 86(1), A86(6) | 86[f], A86[c] | 7.1 | 7 | 1.5 | 7 | 0.0086 | 141 | high | 32 | 105 | 259 | 0.084 | 0.14 |
| 129 | 2(1), 15(3), E15 (L15b)(6) | 2[f], 15[g], E15 (L15b)[c] | 22 | 7 | 0.65 | 7 | 0.0065 | 436 | low | 128 | 248 | 650 | 0.46 | 0.59 |
| 130 | 32(1), 2(3) | 32[f], 2[g] | 55 | 2 | 1.4 | 2 | 0.017 | 1,101 | least | 83 | 107 | 1,131 | 1.4 | 1.4 |
| 131 | Base | Base | 62 | 2 | 2.2 | 2 | 0.014 | 1,248 | least | 65 | 89 | 1,351 | 2.0 | 2.1 |
| 132 | Grist | Grist | 117 | 2 | 2.0 | 2 | 0.013 | 2,344 | least | 87 | 65 | 2,403 | 2.7 | 2.7 |
| 134 | 1(1), 25(3), 1 (267)(6) | 1[f], 25[g], 1 (267)[c] | 41 | 5 | 0.92 | 5 | 0.0058 | 826 | least | 102 | 150 | 907 | 0.85 | 0.9 |
| 135 | 3(1), 16(3) | 3[f], 16[g] | 89 | 2 | 1.3 | 2 | 0.013 | 1,782 | least | 247 | 123 | 1,411 | 1.6 | 1.4 |
| 136 | 34(1), 1(3) | 34[f], 1[g] | 51 | 2 | 1.4 | 2 | 0.013 | 1,023 | least | 124 | 163 | 1,118 | 1.3 | 1.3 |
| 137 | Wood Buffalo | Wood Buffalo | 31 | 2 | 5.2 | 2 | 0.013 | 624 | low | 74 | 166 | 766 | 0.77 | 0.89 |
| 138 | Goodwin | Goodwin | 50 | 2 | 1.4 | 2 | 0.013 | 996 | least | 54 | 76 | 992 | 0.81 | 0.83 |
| 139 | 91(1), 7(3) | 91[f], 7[g] | 79 | 2 | 1.6 | 2 | 0.013 | 1,587 | least | 371 | 120 | 1,686 | 1.9 | 1.6 |
| 140 | L5(4), P28(5) | L5[d], P28[b] | 30 | 2 | 2.6 | 2 | 0.051 | 591 | low | 99 | 186 | 670 | 0.65 | 0.76 |
| 141 | 4(1), 4(270)(6) | 4[f], 4(270)[c] | 75 | 4 | 0.27 | 4 | 0.0031 | 1,490 | least | 351 | 259 | 1,748 | 1.3 | 1.2 |
| 142 | 6(1), 6 (271)(6) | 6[f], 6 (271)[c] | 70 | 3 | 0.32 | 4 | 0.023 | 1,399 | least | 599 | 203 | 1,573 | 1.3 | 1.0 |
| 143 | 25(1), 25 (287)(6) | 25[f], 25 (287)[c] | 1.8 | 4 | 1.6 | 4 | 0.0023 | 37 | high | 10 | 117 | 122 | -0.054 | 0.042 |
| 144 | 27(1), 27 (289)(6) | 27[f], 27 (289)[c] | 5.3 | 4 | 0.76 | 4 | 0.00061 | 106 | high | 24 | 93 | 178 | 0.033 | 0.10 |
| 145 | 28(1), 28 (290)(6) | 28[f], 28 (290)[c] | 4.1 | 4 | 0.74 | 4 | 0.0072 | 83 | high | 25 | 144 | 207 | 0.016 | 0.16 |
| 146 | 82(1), 82 (342)(6) | 82[f], 82 (342)[c] | 11 | 4 | 0.62 | 4 | 0.011 | 215 | moderate | 65 | 163 | 351 | 0.13 | 0.2 |
| 147 | 94(1), 94 (354)(6) | 94[f], 94 (354)[c] | 21 | 4 | 0.36 | 4 | 0.002 | 420 | low | 88 | 161 | 579 | 0.26 | 0.3 |
| 148 | P13(5), P13(6) | P13[b], P13[c] | 44 | 4 | 6.6 | 4 | 0.028 | 880 | least | 351 | 292 | 1,310 | 1.3 | 1.2 |
| 149 | P23(5), P23(6) | P23[b], P23[c] | 31 | 4 | 1.0 | 4 | 0.026 | 614 | low | 108 | 133 | 739 | 0.81 | 0.85 |
| 150 | P27(5), P27(6) | P27[b], P27[c] | 3.8 | 4 | 0.83 | 4 | 0.043 | 76 | high | 23 | 227 | 264 | -0.019 | 0.25 |
| 151 | P49(5), P49(6) | P49[b], P49[c] | 8.9 | 4 | 1.4 | 4 | 0.026 | 178 | high | 44 | 122 | 295 | 0.23 | 0.36 |
| 152 | P7(5), P7(6) | P7[b], P7[c] | 8.6 | 4 | 0.57 | 4 | 0.025 | 171 | high | 54 | 187 | 335 | 0.15 | 0.31 |
| 153 | P94(5), P94(6) | P94[b], P94[c] | 40 | 4 | 12 | 4 | 0.03 | 799 | low | 216 | 309 | 1,393 | 1.0 | 1.1 |
| 154 | P96(5), P96(6) | P96[b], P96[c] | 34 | 4 | 1.7 | 4 | 0.029 | 670 | low | 139 | 210 | 887 | 0.63 | 0.69 |
| 155 | P97(5), P97(6) | P97[b], P97[c] | 15 | 4 | 1.4 | 4 | 0.031 | 295 | moderate | 82 | 198 | 494 | 0.3 | 0.42 |
| 156 | P98(5), P98(6) | P98[b], P98[c] | 35 | 4 | 2.2 | 4 | 0.037 | 694 | low | 135 | 208 | 948 | 0.92 | 1.0 |
| 161 | 49(1), A300(6) | 49[f], A300[c] | 16 | 2 | 0.18 | 2 | 0.0021 | 315 | moderate | 104 | 196 | 483 | 0.1 | 0.13 |
| 167 | Wappau | Wappau | 100 | 1 | 0.2 | 1 | 0.00048 | 1,994 | least | 205 | 83 | 2,178 | 1.8 | 1.7 |
| 168 | 8(1) | 8[f] | 123 | 1 | 0.06 | 1 | 0.0012 | 2,466 | least | 307 | 130 | 2,670 | 2.9 | 2.7 |
| 169 | Shortt Lake | Shortt Lake | 133 | 1 | 0.42 | 1 | 0.0022 | 2,652 | least | 116 | 115 | 2,833 | 1.5 | 1.5 |
| 170 | Nora Lake | Nora Lake | 79 | 1 | 0.18 | 1 | 0.0016 | 1,589 | least | 455 | 151 | 1,783 | 1.1 | 0.94 |
| 171 | Gipsy Lake | Gipsy Lake | 145 | 1 | 0.42 | 1 | 0.00012 | 2,904 | least | 66 | 53 | 3,058 | 0.63 | 0.63 |
| 172 | Baker Lake | Baker Lake | 133 | 1 | 0.23 | 1 | 0.00033 | 2,666 | least | 249 | 122 | 2,947 | 2.0 | 1.9 |
| 173 | Garson Lake | Garson Lake | 87 | 1 | 0.66 | 1 | 0.0096 | 1,733 | least | 159 | 137 | 2,037 | 1.5 | 1.4 |
| 174 | 17(1) | 17[f] | 28 | 1 | 1.3 | 1 | 0.0093 | 553 | low | 53 | 93 | 710 | 0.87 | 0.92 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | Georges Lake | Georges Lake | 155 | 1 | 6.8 | 1 | 0.0018 | 3,096 | least | 143 | 95 | 3,495 | 3.8 | 3.8 |
| 176 | 20(1) | 20[f] | 96 | 1 | 0.77 | 1 | 0.0025 | 1,926 | least | 175 | 169 | 2,279 | 2.4 | 2.4 |
| 177 | 22(1) | 22[f] | 11 | 1 | 1.3 | 1 | 0.0043 | 210 | moderate | 22 | 65 | 285 | 0.19 | 0.24 |
| 178 | 30(1) | 30[f] | 2.1 | 1 | 0.63 | 1 | 0.0024 | 41 | high | 7.6 | 91 | 95 | -0.095 | 0.03 |
| 179 | 31(1) | 31[f] | 2.7 | 1 | 1.4 | 1 | 0.28 | 54 | high | 13 | 104 | 118 | -0.06 | 0.053 |
| 180 | 33(1) | 33[f] | 7.4 | 1 | 0.59 | 1 | 0.00054 | 148 | high | 42 | 129 | 294 | 0.2 | 0.33 |
| 181 | 35(1) | 35[f] | 102 | 1 | 0.7 | 1 | 0.042 | 2,044 | least | 150 | 145 | 2,442 | 2.2 | 2.2 |
| 182 | Formby Lake | Formby Lake | 97 | 1 | 0.32 | 1 | 0.0045 | 1,935 | least | 118 | 102 | 2,301 | 1.8 | 1.8 |
| 183 | 37(1) | 37[f] | 134 | 1 | 0.6 | 1 | 0.00034 | 2,683 | least | 168 | 102 | 2,924 | 1.7 | 1.6 |
| 184 | Watchusk Lake | Watchusk Lake | 90 | 1 | 0.9 | 1 | 0.00026 | 1,795 | least | 273 | 139 | 2,132 | 2.0 | 1.9 |
| 185 | 39(1) | 39[f] | 69 | 1 | 0.55 | 1 | 0.0015 | 1,381 | least | 139 | 139 | 1,615 | 1.4 | 1.4 |
| 186 | 40(1) | 40[f] | 104 | 1 | 3.3 | 1 | 0.0016 | 2,082 | least | 241 | 183 | 2,541 | 2.7 | 2.7 |
| 187 | 41(1) | 41[f] | 56 | 1 | 6.9 | 1 | 0.00025 | 1,111 | least | 145 | 156 | 1,513 | 1.9 | 1.9 |
| 188 | 44(1) | 44[f] | 39 | 1 | 0.31 | 1 | 0.0023 | 781 | low | 141 | 156 | 994 | 1.2 | 1.2 |
| 189 | 45(1) | 45[f] | 45 | 1 | 0.65 | 1 | 0.00047 | 905 | least | 338 | 172 | 1,132 | 1.6 | 1.4 |
| 190 | 46(1) | 46[f] | 8.0 | 1 | 0.61 | 1 | 0.00073 | 160 | high | 51 | 166 | 344 | 0.19 | 0.33 |
| 191 | 48(1) | 48[f] | 10 | 1 | 0.45 | 1 | 0.0003 | 202 | moderate | 104 | 206 | 392 | 0.17 | 0.24 |
| 193 | 50(1) | 50[f] | 32 | 1 | 0.38 | 1 | 0.00038 | 632 | low | 354 | 210 | 823 | 1.1 | 0.91 |
| 194 | Algar Lake | Algar Lake | 22 | 1 | 6.2 | 1 | 0.0003 | 439 | low | 88 | 128 | 715 | 0.53 | 0.56 |
| 195 | 53(1) | 53[f] | 22 | 1 | 1.5 | 1 | 0.001 | 430 | low | 100 | 181 | 692 | 0.61 | 0.7 |
| 196 | 54(1) | 54[f] | 21 | 1 | 2.8 | 1 | 0.00079 | 410 | low | 110 | 191 | 743 | 0.56 | 0.63 |
| 197 | 55(1) | 55[f] | 21 | 1 | 3.4 | 1 | 0.00076 | 428 | low | 113 | 204 | 758 | 0.62 | 0.72 |
| 198 | 56(1) | 56[f] | 23 | 1 | 1.1 | 1 | 0.0004 | 455 | low | 121 | 218 | 777 | 0.75 | 0.87 |
| 199 | 57(1) | 57[f] | 17 | 1 | 3.5 | 1 | 0.00053 | 334 | moderate | 90 | 184 | 641 | 0.49 | 0.59 |
| 200 | 58(1) | 58[f] | 9.1 | 1 | 0.81 | 1 | 0.00038 | 182 | high | 64 | 198 | 425 | 0.25 | 0.4 |
| 201 | 60(1) | 60[f] | 34 | 1 | 1.4 | 1 | 0.0014 | 688 | low | 138 | 184 | 992 | 1.1 | 1.2 |
| 202 | Mariana Lake | Mariana Lake | 19 | 1 | 3.2 | 1 | 0.00022 | 384 | moderate | 41 | 86 | 1,362 | 1.2 | 1.3 |
| 203 | 62(1) | 62[f] | 14 | 1 | 2.1 | 1 | 0.0016 | 272 | moderate | 45 | 109 | 717 | 0.74 | 0.82 |
| 204 | 63(1) | 63[f] | 29 | 1 | 0.36 | 1 | 0.00061 | 580 | low | 62 | 97 | 784 | 0.87 | 0.92 |
| 205 | Crow Lake | Crow Lake | 98 | 1 | 3.2 | 1 | 0.004 | 1,953 | least | 194 | 94 | 2,260 | 3.1 | 3.0 |
| 206 | 65(1) | 65[f] | 97 | 1 | 3.3 | 1 | 0.0036 | 1,942 | least | 176 | 106 | 2,344 | 3.1 | 3.1 |
| 207 | 66(1) | 66[f] | 85 | 1 | 1.3 | 1 | 0.003 | 1,703 | least | 90 | 85 | 1,904 | 2.2 | 2.2 |
| 208 | 67(1) | 67[f] | 29 | 1 | 3.6 | 1 | 0.0034 | 587 | low | 78 | 134 | 848 | 1.0 | 1.1 |
| 209 | Agnes (1) | Agnes-1 | 9.1 | 1 | 1.2 | 1 | 0.00058 | 182 | high | 61 | 189 | 436 | 0.29 | 0.45 |
| 210 | 69(1) | 69[f] | 11 | 1 | 1.2 | 1 | 0.0014 | 214 | moderate | 60 | 172 | 427 | 0.25 | 0.36 |
| 211 | 70(1) | 70[f] | 21 | 1 | 2.3 | 1 | 0.00041 | 413 | low | 142 | 219 | 692 | 0.56 | 0.64 |
| 212 | 71(1) | 71[f] | 16 | 1 | 5.2 | 1 | 0.07 | 324 | moderate | 110 | 187 | 635 | 0.58 | 0.68 |
| 213 | 72(1) | 72[f] | 11 | 1 | 11 | 1 | 0.00001 | 221 | moderate | 50 | 143 | 621 | 0.47 | 0.57 |
| 214 | 73(1) | 73[f] | 178 | 1 | 3.8 | 1 | 0.15 | 3,555 | least | 76 | 147 | 615 | 0.55 | 0.63 |
| 215 | Long Lake (2) | Long Lake-2 | 35 | 1 | 4.5 | 1 | 0.064 | 692 | low | 113 | 153 | 1,033 | 1.0 | 1.1 |
| 216 | 75(1) | 75[f] | 50 | 1 | 5.3 | 1 | 0.00001 | 1,008 | least | 259 | 150 | 1,347 | 0.72 | 0.66 |
| 217 | Pelican Lake | Pelican Lake | 49 | 1 | 7.1 | 1 | 0.00036 | 978 | least | 184 | 180 | 1,345 | 1.4 | 1.4 |
| 218 | 77(1) | 77[f] | 31 | 1 | 0.52 | 1 | 0.014 | 614 | low | 84 | 159 | 842 | 1.0 | 1.2 |
| 219 | 78(1) | 78[f] | 41 | 1 | 0.62 | 1 | 0.047 | 815 | least | 54 | 97 | 945 | 1.1 | 1.2 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 220 | 79(1) | 79[f] | 32 | 1 | 0.43 | 1 | 0.00001 | 635 | low | 83 | 115 | 796 | 0.84 | 0.88 |
| 221 | 80(1) | 80[f] | 20 | 1 | 0.21 | 1 | 0.00038 | 405 | low | 82 | 138 | 559 | 0.28 | 0.32 |
| 222 | 81(1) | 81[f] | 31 | 1 | 0.2 | 1 | 0.0025 | 624 | low | 80 | 109 | 785 | 1.0 | 1.0 |
| 223 | 83(1) | 83[f] | 46 | 1 | 0.49 | 1 | 0.00001 | 918 | least | 76 | 83 | 1,062 | 1.3 | 1.4 |
| 224 | 84(1) | 84[f] | 13 | 1 | 0.57 | 1 | 0.0018 | 267 | moderate | 40 | 89 | 367 | 0.24 | 0.28 |
| 225 | 85(1) | 85[f] | 14 | 1 | 0.54 | 1 | 0.0005 | 275 | moderate | 41 | 87 | 350 | 0.23 | 0.28 |
| 226 | 88(1) | 88[f] | 50 | 1 | 0.49 | 1 | 0.0013 | 1,008 | least | 82 | 86 | 1,403 | 1.4 | 1.4 |
| 227 | Bohn Lake | Bohn Lake | 101 | 1 | 1.4 | 1 | 0.00027 | 2,018 | least | 337 | 154 | 2,328 | 2.2 | 2.0 |
| 228 | 90(1) | 90[f] | 81 | 1 | 1.8 | 1 | 0.0012 | 1,613 | least | 205 | 172 | 1,962 | 1.9 | 1.8 |
| 229 | Cow per Lake | Cow per Lake | 74 | 1 | 0.92 | 1 | 0.0004 | 1,489 | least | 353 | 125 | 1,718 | 1.9 | 1.7 |
| 230 | 93(1) | 93[f] | 58 | 1 | 0.6 | 1 | 0.0011 | 1,168 | least | 129 | 129 | 1,361 | 1.4 | 1.4 |
| 231 | 95(1) | 95[f] | 30 | 1 | 0.38 | 1 | 0.00082 | 608 | low | 134 | 151 | 813 | 0.84 | 0.86 |
| 232 | 97(1) | 97[f] | 48 | 1 | 0.16 | 1 | 0.00073 | 955 | least | 102 | 124 | 1,136 | 1.3 | 1.3 |
| 233 | 98(1) | 98[f] | 50 | 1 | 0.46 | 1 | 0.00055 | 998 | least | 136 | 147 | 1,246 | 1.3 | 1.3 |
| 234 | 100(1) | 100[f] | 82 | 1 | 0.19 | 1 | 0.00099 | 1,640 | least | 220 | 175 | 1,927 | 2.5 | 2.4 |
| 235 | 101(1) | 101[f] | 73 | 0 | - | 1 | 0.0009 | 1,466 | least | 200 | 138 | 1,672 | 1.7 | 1.6 |
| 236 | 102(1) | 102[f] | 49 | 1 | 0.48 | 1 | 0.002 | 973 | least | 69 | 79 | 1,096 | 1.2 | 1.2 |
| 237 | Winefred Lake | Winefred Lake | 102 | 1 | 0.52 | 1 | 0.01 | 2,037 | least | 66 | 65 | 2,202 | 2.3 | 2.3 |
| 238 | 104(1) | 104[f] | 77 | 1 | 0.28 | 1 | 0.00061 | 1,535 | least | 376 | 144 | 1,730 | 2.0 | 1.7 |
| 239 | 106(1) | 106[f] | 108 | 1 | 0.23 | 1 | 0.00074 | 2,168 | least | 100 | 79 | 2,332 | 1.2 | 1.2 |
| 240 | Kirby Lake | Kirby Lake | 123 | 1 | 0.21 | 1 | 0.00007 | 2,470 | least | 88 | 62 | 2,635 | 2.2 | 2.2 |
| 241 | 108(1) | 108[f] | 101 | 1 | 0.49 | 1 | 0.0052 | 2,025 | least | 107 | 89 | 2,250 | 2.3 | 2.3 |
| 242 | 110(1) | 110[f] | 42 | 1 | 0.3 | 1 | 0.0011 | 847 | least | 101 | 79 | 952 | 0.98 | 0.95 |
| 243 | 111(1) | 111[f] | 52 | 1 | 0.37 | 1 | 0.00009 | 1,039 | least | 109 | 134 | 1,057 | 1.1 | 1.1 |
| 244 | 113(1) | 113[f] | 64 | 1 | 0.18 | 1 | 0.00023 | 1,279 | least | 110 | 104 | 1,472 | 1.9 | 1.9 |
| 245 | 114(1) | 114[f] | 30 | 1 | 0.16 | 1 | 0.0001 | 605 | low | 94 | 123 | 772 | 0.71 | 0.74 |
| 246 | 116(1) | 116[f] | 32 | 1 | 1.1 | 1 | 0.00094 | 644 | low | 65 | 87 | 760 | 0.69 | 0.71 |
| 247 | 117(1) | 117[f] | 57 | 1 | 0.46 | 1 | 0.0012 | 1,147 | least | 147 | 154 | 1,382 | 1.6 | 1.6 |
| 248 | Clyde Lake | Clyde Lake | 79 | 1 | 0.27 | 1 | 0.00001 | 1,570 | least | 132 | 115 | 1,786 | 0.57 | 0.56 |
| 249 | Behan Lake | Behan Lake | 58 | 1 | 0.19 | 1 | 0.00002 | 1,161 | least | 138 | 112 | 1,337 | 0.49 | 0.48 |
| 250 | 120(1) | 120[f] | 66 | 1 | 0.24 | 1 | 0.00093 | 1,329 | least | 241 | 122 | 1,511 | 1.7 | 1.6 |
| 251 | Big Chief Lake | Big Chief Lake | 54 | 1 | 0.93 | 1 | 0.0005 | 1,076 | least | 129 | 129 | 1,282 | 1.1 | 1.1 |
| 252 | 122(1) | 122[f] | 47 | 1 | 0.79 | 1 | 0.001 | 940 | least | 90 | 96 | 1,084 | 0.82 | 0.83 |
| 253 | 123(1) | 123[f] | 148 | 1 | 1.8 | 1 | 0.00041 | 2,959 | least | 120 | 71 | 3,197 | 3.4 | 3.4 |
| 254 | 124(1) | 124[f] | 106 | 1 | 0.54 | 1 | 0.00001 | 2,129 | least | 486 | 119 | 2,371 | 2.1 | 1.8 |
| 255 | 125(1) | 125[f] | 143 | 1 | 3.0 | 1 | 0.00001 | 2,863 | least | 291 | 158 | 3,345 | 4.0 | 3.9 |
| 256 | Piche Lake | Piche Lake | 160 | 1 | 3.6 | 1 | 0.00038 | 3,208 | least | 171 | 92 | 3,793 | 4.3 | 4.2 |
| 257 | Heart Lake | Heart Lake | 157 | 1 | 3.4 | 1 | 0.00063 | 3,136 | least | 258 | 109 | 3,551 | 4.1 | 3.9 |
| 258 | 128(1) | 128[f] | 162 | 1 | 3.0 | 1 | 0.00091 | 3,241 | least | 261 | 145 | 3,675 | 4.0 | 3.9 |
| 259 | Logan Lake | Logan Lake | 147 | 1 | 4.7 | 1 | 0.00052 | 2,939 | least | 378 | 118 | 3,310 | 4.2 | 3.9 |
| 260 | 131(1) | 131[f] | 135 | 1 | 56 | 1 | 0.0044 | 2,707 | least | 90 | 88 | 4,112 | 1.3 | 1.3 |
| 261 | Ronald Lake | Ronald Lake | 137 | 1 | 34 | 1 | 0.025 | 2,737 | least | 99 | 98 | 3,862 | 1.9 | 1.9 |
| 262 | Dianne Lakes | Dianne Lakes | 119 | 1 | 28 | 1 | 0.096 | 2,377 | least | 109 | 111 | 3,192 | 1.7 | 1.7 |
| 263 | 134(1) | 134[f] | 122 | 0 | - | 1 | 0.00017 | 2,432 | least | 51 | 57 | 2,768 | 0.69 | 0.7 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 264 | 136(1) | 136[f] | 92 | 1 | 0.21 | 1 | 0.00045 | 1,836 | least | - | - | 1,943 | - | 0.33 |
| 265 | Pearson Lake | Pearson Lake | 80 | 1 | 1.3 | 1 | 0.00001 | 1,599 | least | - | - | 1,757 | - | 0.43 |
| 266 | Kress Lake | Kress Lake | 46 | 1 | 0.1 | 1 | 0.00001 | 920 | least | 62 | 71 | 1,053 | 0.65 | 0.66 |
| 267 | 139(1) | 139[f] | 66 | 1 | 0.77 | 1 | 0.00001 | 1,321 | least | 50 | 57 | 1,397 | 0.43 | 0.43 |
| 268 | 141(1) | 141[f] | 98 | 1 | 1.3 | 1 | 0.00031 | 1,951 | least | - | - | 2,089 | - | 1.2 |
| 269 | 142(1) | 142[f] | 97 | 1 | 1.4 | 1 | 0.00025 | 1,933 | least | 68 | 61 | 2,073 | 1.5 | 1.5 |
| 270 | 143(1) | 143[f] | 83 | 1 | 1.9 | 1 | 0.0014 | 1,657 | least | - | - | 1,815 | - | 0.88 |
| 271 | 145(1) | 145[f] | 121 | 1 | 2.0 | 1 | 0.00095 | 2,428 | least | - | - | 2,586 | - | 1.1 |
| 272 | Poplar Lake | Poplar Lake | 99 | 1 | 1.1 | 1 | 0.00044 | 1,979 | least | 87 | 69 | 2,249 | 1.7 | 1.7 |
| 273 | 148(1) | 148[f] | 78 | 1 | 0.46 | 1 | 0.0002 | 1,552 | least | - | - | 1,662 | - | 0.81 |
| 274 | 149(1) | 149[f] | 134 | 1 | 0.83 | 1 | 0.00044 | 2,678 | least | 61 | 56 | 2,459 | 1.4 | 1.4 |
| 275 | 151(1) | 151[f] | 15 | 1 | 0.96 | 1 | 0.00044 | 308 | moderate | 50 | 100 | 469 | 0.32 | 0.36 |
| 276 | 152(1) | 152[f] | 99 | 1 | 0.59 | 1 | 0.00043 | 1,971 | least | - | - | 2,075 | - | 0.79 |
| 277 | 153(1) | 153[f] | 47 | 0 | - | 1 | 0.00048 | 934 | least | 243 | 124 | 1,090 | 0.87 | 0.78 |
| 278 | 157(1) | 157[f] | 148 | 1 | 0.21 | 1 | 0.0015 | 2,959 | least | 194 | 134 | 3,397 | 2.6 | 2.5 |
| 279 | 158(1) | 158[f] | 128 | 0 | - | 1 | 0.0015 | 2,568 | least | 212 | 121 | 2,843 | 1.8 | 1.8 |
| 280 | 160(1) | 160[f] | 90 | 1 | 0.23 | 1 | 0.00045 | 1,804 | least | 145 | 105 | 2,026 | 1.6 | 1.6 |
| 281 | 161(1) | 161[f] | 115 | 0 | - | 1 | 0.0019 | 2,294 | least | 194 | 117 | 2,535 | 1.1 | 1.0 |
| 282 | 162(1) | 162[f] | 113 | 0 | - | 1 | 0.0012 | 2,265 | least | 123 | 113 | 2,497 | 0.69 | 0.69 |
| 283 | 163(1) | 163[f] | 86 | 1 | 0.1 | 1 | 0.0013 | 1,715 | least | 206 | 136 | 1,982 | 1.5 | 1.5 |
| 284 | Big Snuff Lake | Big Snuff Lake | 30 | 1 | 0.13 | 1 | 0.0076 | 608 | low | 90 | 123 | 831 | 0.71 | 0.74 |
| 299 | Chipew yan lake | Chipew yan lake | 103 | 1 | 10 | 1 | 0.007 | 2,053 | least | 234 | 104 | 2,410 | 2.5 | 2.4 |
| 300 | D221(2) | D221[h] | 240 | 1 | 15 | 1 | 0.001 | 4,797 | least | 487 | 249 | 5,774 | 0.27 | 0.26 |
| 301 | D222(2) | D222[h] | 147 | 1 | 22 | 1 | 0.00079 | 2,947 | least | 507 | 238 | 3,851 | 0.28 | 0.26 |
| 302 | D223(2) | D223[h] | 49 | 1 | 16 | 1 | 0.0004 | 976 | least | 795 | 218 | 1,674 | 1.7 | 1.2 |
| 304 | D226(2) | D226[h] | 73 | 1 | 51 | 1 | 0.00001 | 1,467 | least | 223 | 159 | 2,829 | 1.3 | 1.3 |
| 306 | Horsetail Lake | Horsetail Lake | 29 | 1 | 1.1 | 1 | 0.34 | 583 | low | 47 | 115 | 755 | 0.61 | 0.68 |
| 314 | Sandy Lake (1) | Sandy-1 | 68 | 1 | 13 | 1 | 0.001 | 1,368 | least | 134 | 117 | 1,844 | 1.5 | 1.5 |
| 316 | D254(2) | D254[h] | 78 | 1 | 3.4 | 1 | 0.00078 | 1,564 | least | 230 | 139 | 1,883 | 2.3 | 2.2 |
| 317 | L2(4) | L2[d] | 51 | 1 | 2.5 | 1 | 0.01 | 1,020 | least | - | - | 1,171 | - | 1.5 |
| 318 | L3(4) | L3[d] | 40 | 1 | 2.5 | 1 | 0.01 | 806 | least | - | - | 971 | - | 1.2 |
| 319 | L6(4) | L6[d] | 52 | 1 | 2.5 | 1 | 0.002 | 1,030 | least | 124 | 149 | 1,104 | 1.3 | 1.4 |
| 320 | L9(4) | L9[d] | 78 | 1 | 2.5 | 1 | 0.002 | 1,560 | least | 202 | 120 | 1,541 | 2.0 | 1.9 |
| 321 | L11(4) | L11[d] | 28 | 1 | 2.5 | 1 | 0.002 | 560 | low | 239 | 187 | 605 | 0.55 | 0.5 |
| 322 | L15(4) | L15[d] | 26 | 1 | 16 | 1 | 0.01 | 510 | low | 180 | 239 | 1,114 | 1.0 | 1.1 |
| 323 | S. Gardiner | S. Gardiner | 53 | 1 | 6.0 | 1 | 0.002 | 1,066 | least | 57 | 81 | 1,137 | 0.91 | 0.93 |
| 324 | N. Gardiner | N. Gardiner | 53 | 1 | 6.0 | 1 | 0.002 | 1,050 | least | 96 | 111 | 1,187 | 0.93 | 0.94 |
| 325 | L21(4) | L21[d] | 44 | 1 | 10 | 1 | 0.002 | 888 | least | 1.4 | 22 | 1,038 | 0.35 | 0.35 |
| 326 | Sand | Sand | 52 | 1 | 2.5 | 1 | 0.003 | 1,036 | least | 129 | 118 | 1,134 | 0.89 | 0.89 |
| 327 | Eaglenest | Eaglenest | 34 | 1 | 2.5 | 1 | 0.01 | 674 | low | 95 | 134 | 979 | 0.65 | 0.68 |
| 328 | Clear | Clear | 37 | 1 | 2.5 | 1 | 0.01 | 734 | low | 97 | 148 | 1,000 | 0.78 | 0.82 |
| 329 | Mildred | Mildred | 179 | 1 | 42 | 1 | 0.14 | 3,580 | least | 70 | 66 | 4,965 | 2.5 | 2.5 |
| 330 | L41(4) | L41[d] | 81 | 1 | 6.0 | 1 | 0.007 | 1,620 | least | 85 | 98 | 1,613 | 0.6 | 0.61 |
| 331 | L42(4) | L42[d] | 100 | 1 | 2.5 | 1 | 0.001 | 1,994 | least | 42 | 49 | 1,937 | 0.88 | 0.88 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 332 | L44(4) | L44[d] | 99 | 1 | 2.5 | 1 | 0.001 | 1,980 | least | 98 | 61 | 1,618 | 0.1 | 0.098 |
| 333 | L45(4) | L45[d] | 75 | 1 | 2.5 | 1 | 0.001 | 1,490 | least | 71 | 74 | 1,541 | 0.88 | 0.88 |
| 334 | L48(4) | L48[d] | 58 | 1 | 1.5 | 1 | 0.002 | 1,160 | least | 137 | 193 | 1,224 | 0.93 | 0.98 |
| 335 | L50(4) | L50[d] | 26 | 1 | 11 | 1 | 0.004 | 520 | low | 98 | 203 | 815 | 0.39 | 0.45 |
| 336 | L51(4) | L51[d] | 57 | 1 | 5.0 | 1 | 0.001 | 1,140 | least | 354 | 189 | 1,408 | 1.3 | 1.1 |
| 337 | L52(4) | L52[d] | 58 | 1 | 17 | 1 | 0.14 | 1,160 | least | 99 | 148 | 1,402 | 1.2 | 1.3 |
| 338 | L53(4) | L53[d] | 105 | 1 | 87 | 1 | 0.48 | 2,100 | least | 134 | 190 | 3,959 | 4.3 | 4.4 |
| 339 | L54(4) | L54[d] | 157 | 1 | 44 | 1 | 0.048 | 3,140 | least | 123 | 158 | 3,918 | 4.6 | 4.7 |
| 340 | L55(4) | L55[d] | 77 | 1 | 13 | 1 | 0.003 | 1,540 | least | 87 | 98 | 1,801 | 1.9 | 1.9 |
| 341 | L56(4) | L56[d] | 35 | 1 | 8.0 | 1 | 0.003 | 700 | low | 82 | 149 | 948 | 1.1 | 1.2 |
| 342 | L57(4) | L57[d] | 58 | 1 | 5.0 | 1 | 0.003 | 1,160 | least | 196 | 209 | 1,451 | 1.1 | 1.1 |
| 343 | L58(4) | L58[d] | 50 | 1 | 1.5 | 1 | 0.005 | 1,000 | least | 464 | 138 | 1,025 | 0.82 | 0.61 |
| 344 | L59(4) | L59[d] | 18 | 1 | 4.0 | 1 | 0.004 | 364 | moderate | 115 | 190 | 562 | 0.34 | 0.4 |
| 345 | Buoy | Buoy | 104 | 1 | 6.0 | 1 | 0.017 | 2,080 | least | 129 | 95 | 2,167 | 1.7 | 1.7 |
| 346 | Canopener | Canopener | 69 | 1 | 1.5 | 1 | 0.005 | 1,380 | least | 123 | 149 | 1,594 | 0.9 | 0.92 |
| 347 | L64(4) | L64[d] | 50 | 1 | 1.5 | 1 | 0.002 | 1,002 | least | 54 | 67 | 901 | 0.048 | 0.048 |
| 348 | Currie | Currie | 42 | 1 | 1.5 | 1 | 0.004 | 840 | least | 29 | 61 | 639 | 0.24 | 0.26 |
| 349 | Archer | Archer | 25 | 1 | 1.5 | 1 | 0.018 | 502 | low | 66 | 81 | 418 | 0.21 | 0.22 |
| 350 | Harwood | Harwood | 34 | 1 | 1.5 | 1 | 0.002 | 672 | low | 42 | 62 | 553 | 0.22 | 0.23 |
| 351 | L68(4) | L68[d] | 11 | 1 | 6.0 | 1 | 0.005 | 228 | moderate | 116 | 263 | 470 | 0.15 | 0.24 |
| 352 | L69(4) | L69[d] | 109 | 1 | 10 | 1 | 0.003 | 2,180 | least | 217 | 190 | 2,512 | 1.3 | 1.3 |
| 373 | 22(3) | 22[g] | 120 | 1 | 21 | 1 | 0.025 | 2,400 | least | - | - | 2,448 | - | 2.5 |
| 374 | Carrot | Carrot | 93 | 1 | 8.0 | 1 | 0.025 | 1,860 | least | - | - | 1,839 | - | 1.8 |
| 405 | P101(5) | P101[b] | 61 | 1 | 3.7 | 1 | 0.1 | 1,220 | least | 108 | 148 | 1,211 | 1.2 | 1.2 |
| 406 | P11(5) | P11[b] | 47 | 1 | 7.4 | 1 | 0.1 | 940 | least | 150 | 215 | 1,340 | 1.5 | 1.6 |
| 407 | P14(5) | P14[b] | 65 | 1 | 25 | 1 | 0.1 | 1,300 | least | 207 | 245 | 2,070 | 2.3 | 2.4 |
| 408 | P16(5) | P16[b] | 23 | 1 | 33 | 1 | 0.1 | 460 | low | 100 | 221 | 1,324 | 1.5 | 1.7 |
| 409 | P17(5) | P17[b] | 52 | 1 | 32 | 1 | 0.1 | 1,040 | least | 125 | 196 | 1,866 | 2.0 | 2.1 |
| 410 | P18(5) | P18[b] | 39 | 1 | 28 | 1 | 0.1 | 780 | low | 113 | 154 | 1,389 | 1.5 | 1.5 |
| 411 | P2(5),WQ16 | P2[b], WQ16 | 196 | 4 | 8.0 | 4 | 0.013 | 3,915 | least | 244 | 130 | 4,290 | 3.3 | 3.2 |
| 412 | P20(5) | P20[b] | 29 | 1 | 3.2 | 1 | 0.1 | 580 | low | 133 | 178 | 769 | 1.0 | 1.1 |
| 413 | P24(5) | P24[b] | 30 | 1 | 1.6 | 1 | 0.1 | 600 | low | 106 | 184 | 706 | 0.73 | 0.84 |
| 414 | P25(5) | P25[b] | 55 | 1 | 1.9 | 1 | 0.1 | 1,100 | least | 177 | 196 | 1,252 | 1.5 | 1.6 |
| 415 | P3(5), WQ15 | P3[b], WQ15 | 173 | 1 | 5.3 | 1 | 0.1 | 3,460 | least | 134 | 142 | 3,682 | 2.7 | 2.8 |
| 416 | P30(5) | P30[b] | 155 | 3 | 3.6 | 3 | 0.017 | 3,093 | least | 96 | 130 | 3,265 | 3.2 | 3.3 |
| 417 | P34(5) | P34[b] | 83 | 1 | 2.5 | 1 | 0.1 | 1,660 | least | 160 | 166 | 1,915 | 1.3 | 1.3 |
| 418 | P35(5) | P35[b] | 73 | 1 | 1.8 | 1 | 0.1 | 1,460 | least | 174 | 142 | 1,510 | 1.1 | 1.0 |
| 419 | P38(5) | P38[b] | 43 | 1 | 1.4 | 1 | 0.1 | 860 | least | 82 | 118 | 997 | 0.57 | 0.59 |
| 420 | P4(5) | P4[b] | 185 | 1 | 3.8 | 1 | 0.1 | 3,700 | least | 190 | 142 | 4,051 | 3.2 | 3.2 |
| 421 | P43(5) | P43[b] | 39 | 1 | 2.4 | 1 | 0.1 | 780 | low | 87 | 124 | 819 | 0.88 | 0.93 |
| 422 | P44(5) | P44[b] | 126 | 1 | 3.8 | 1 | 0.1 | 2,520 | least | 983 | 330 | 2,750 | 4.0 | 3.2 |
| 423 | P45(5) | P45[b] | 144 | 1 | 8.2 | 1 | 0.2 | 2,880 | least | 405 | 257 | 3,107 | 3.0 | 2.9 |
| 424 | P46(5) | P46[b] | 111 | 1 | 2.9 | 1 | 0.1 | 2,220 | least | 384 | 245 | 2,339 | 2.6 | 2.4 |
| 425 | P47(5) | P47[b] | 73 | 1 | 3.2 | 1 | 0.1 | 1,460 | least | 247 | 245 | 1,641 | 1.9 | 1.9 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 426 | P48(5) | P48[b] | 41 | 1 | 15 | 1 | 0.1 | 820 | least | 147 | 166 | 1,253 | 1.7 | 1.7 |
| 428 | P50(5) | P50[b] | 118 | 1 | 7.5 | 1 | 0.1 | 2,360 | least | 143 | 112 | 2,531 | 4.0 | 4.0 |
| 429 | P51(5) | P51[b] | 34 | 1 | 24 | 1 | 0.1 | 680 | low | 56 | 100 | 1,168 | 1.4 | 1.4 |
| 430 | P52(5) | P52[b] | 180 | 1 | 53 | 1 | 0.1 | 3,600 | least | 312 | 203 | 4,946 | 1.7 | 1.7 |
| 431 | P54(5) | P54[b] | 44 | 1 | 11 | 1 | 0.1 | 880 | least | 33 | 51 | 1,074 | 0.92 | 0.94 |
| 432 | P6(5) | P6[b] | 64 | 1 | 2.5 | 1 | 0.1 | 1,280 | least | 183 | 203 | 1,353 | 1.6 | 1.6 |
| 433 | P60(5) | P60[b] | 50 | 1 | 4.7 | 1 | 0.1 | 1,000 | least | 135 | 154 | 1,292 | 2.0 | 2.0 |
| 434 | P61(5) | P61[b] | 35 | 1 | 2.5 | 1 | 0.2 | 700 | low | 118 | 160 | 863 | 1.2 | 1.3 |
| 435 | P69(5) | P69[b] | 23 | 1 | 1.8 | 1 | 0.1 | 460 | low | 122 | 178 | 659 | 0.94 | 1.0 |
| 436 | P70(5) | P70[b] | 14 | 1 | 2.1 | 1 | 0.1 | 280 | moderate | 67 | 196 | 443 | 0.41 | 0.63 |
| 437 | P72(5) | P72[b] | 8.0 | 1 | 14 | 1 | 0.1 | 160 | high | 41 | 221 | 569 | 0.48 | 0.76 |
| 438 | P77(5) | P77[b] | 28 | 1 | 2.7 | 1 | 0.1 | 560 | low | 97 | 184 | 710 | 0.88 | 1.0 |
| 439 | P79(5) | P79[b] | 26 | 1 | 2.8 | 1 | 0.1 | 520 | low | 99 | 203 | 694 | 0.85 | 1.0 |
| 440 | P8(5) | P8[b] | 25 | 1 | 1.7 | 1 | 0.1 | 500 | low | 125 | 251 | 633 | 0.53 | 0.69 |
| 441 | P84(5) | P84[b] | 31 | 1 | 3.2 | 1 | 0.1 | 620 | low | 65 | 130 | 779 | 1.0 | 1.1 |
| 442 | P85(5) | P85[b] | 29 | 1 | 5.6 | 1 | 0.1 | 580 | low | 94 | 166 | 805 | 1.1 | 1.2 |
| 443 | P86(5) | P86[b] | 139 | 1 | 51 | 1 | 0.1 | 2,780 | least | 190 | 209 | 3,845 | 4.7 | 4.7 |
| 444 | P87(5) | P87[b] | 33 | 1 | 3.2 | 1 | 0.1 | 660 | low | 77 | 130 | 818 | 1.2 | 1.2 |
| 445 | P9(5) | P9[b] | 75 | 1 | 2.2 | 1 | 0.1 | 1,500 | least | 200 | 203 | 1,644 | 2.0 | 2.0 |
| 446 | P90(5) | P90[b] | 122 | 1 | 5.2 | 1 | 0.1 | 2,440 | least | 190 | 178 | 2,550 | 1.9 | 1.9 |
| 447 | P91(5) | P91[b] | 156 | 1 | 6.7 | 1 | 0.1 | 3,120 | least | 147 | 166 | 3,308 | 3.1 | 3.2 |
| 449 | P95(5) | P95[b] | 79 | 1 | 5.5 | 1 | 0.1 | 1,580 | least | 154 | 203 | 2,117 | 2.2 | 2.3 |
| 450 | P99(5) | P99[b] | 75 | 1 | 2.9 | 1 | 0.1 | 1,500 | least | 108 | 148 | 1,519 | 1.3 | 1.3 |
| 451 | PF1(5) | PF1[b] | 163 | 1 | 4.0 | 1 | 0.1 | 3,260 | least | 80 | 88 | 3,313 | 3.2 | 3.2 |
| 452 | PF10(5) | PF10[b] | 22 | 1 | 5.6 | 1 | 0.2 | 440 | low | 66 | 154 | 682 | 0.56 | 0.65 |
| 453 | PF11(5) | PF11[b] | 10 | 1 | 2.5 | 1 | 0.1 | 200 | moderate | 48 | 215 | 453 | 0.24 | 0.42 |
| 455 | PF13(5) | PF13[b] | 99 | 1 | 3.9 | 1 | 0.1 | 1,980 | least | 104 | 124 | 2,159 | 2.0 | 2.1 |
| 456 | PF2(5) | PF2[b] | 136 | 1 | 3.3 | 1 | 0.1 | 2,720 | least | 60 | 75 | 2,753 | 2.7 | 2.7 |
| 457 | PF3(5) | PF3[b] | 130 | 1 | 3.9 | 1 | 0.1 | 2,600 | least | 109 | 112 | 2,741 | 2.2 | 2.2 |
| 458 | PF4(5) | PF4[b] | 199 | 1 | 5.3 | 1 | 0.1 | 3,980 | least | 98 | 118 | 4,124 | 3.9 | 3.9 |
| 459 | PF5(5) | PF5[b] | 111 | 1 | 2.8 | 1 | 0.1 | 2,220 | least | 80 | 88 | 2,305 | 1.9 | 1.9 |
| 460 | PF6(5) | PF6[b] | 89 | 1 | 2.8 | 1 | 0.1 | 1,780 | least | 147 | 166 | 1,888 | 1.8 | 1.8 |
| 461 | PF7(5) | PF7[b] | 83 | 1 | 9.4 | 1 | 0.1 | 1,660 | least | 128 | 172 | 2,178 | 2.2 | 2.3 |
| 462 | PF8(5) | PF8[b] | 67 | 1 | 19 | 1 | 0.1 | 1,340 | least | 136 | 196 | 2,054 | 1.8 | 1.8 |
| 463 | PF9(5) | PF9[b] | 32 | 1 | 12 | 1 | 0.1 | 640 | low | 94 | 178 | 1,082 | 0.93 | 1.0 |
| 464 | PM1(5) | PM1[b] | 2.5 | 1 | 1.1 | 1 | 0.1 | 50 | high | 5.8 | 148 | 8 | -0.27 | -0.088 |
| 465 | PM2(5) | PM2[b] | 35 | 1 | 1.2 | 1 | 0.1 | 700 | low | 65 | 130 | 754 | 0.8 | 0.89 |
| 466 | PM3(5) | PM3[b] | 42 | 1 | 1.7 | 1 | 0.1 | 840 | least | 89 | 136 | 910 | 1.0 | 1.1 |
| 467 | PM4(5) | PM4[b] | 74 | 1 | 2.8 | 1 | 0.1 | 1,480 | least | 146 | 178 | 1,670 | 1.9 | 1.9 |
| 468 | PT1(5) | PT1[b] | 50 | 1 | 6.2 | 1 | 0.1 | 1,000 | least | 151 | 136 | 1,126 | 1.4 | 1.3 |
| 469 | PT2(5) | PT2[b] | 2.5 | 1 | 12 | 1 | 0.1 | 50 | high | 17 | 203 | 417 | 0.23 | 0.5 |
| 470 | PT3(5) | PT3[b] | 30 | 1 | 3.8 | 1 | 0.1 | 600 | low | 154 | 203 | 818 | 1.1 | 1.2 |
| 471 | PT4(5) | PT4[b] | 34 | 1 | 3.0 | 1 | 0.1 | 680 | low | 157 | 190 | 843 | 1.2 | 1.3 |
| 472 | PT5(5) | PT5[b] | 28 | 1 | 1.9 | 1 | 0.1 | 560 | low | 108 | 148 | 632 | 0.81 | 0.88 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 473 | PT6(5) | PT6[b] | 157 | 1 | 27 | 1 | 0.1 | 3,140 | least | 374 | 221 | 3,849 | 1.4 | 1.3 |
| 474 | PT8(5) | PT8[b] | 50 | 1 | 32 | 1 | 0.1 | 1,000 | least | 87 | 100 | 1,685 | 1.8 | 1.8 |
| 475 | PT9(5) | PT9[b] | 56 | 1 | 4.7 | 1 | 0.1 | 1,120 | least | 117 | 118 | 1,257 | 1.6 | 1.6 |
| 476 | PTH1(5) | PTH1[b] | 118 | 1 | 5.8 | 1 | 0.1 | 2,360 | least | 104 | 82 | 2,452 | 1.0 | 1.0 |
| 477 | PTH10(5) | PTH10[b] | 35 | 1 | 2.4 | 1 | 0.1 | 700 | low | 66 | 142 | 900 | 0.77 | 0.85 |
| 478 | PTH11(5) | PTH11[b] | 68 | 1 | 2.5 | 1 | 0.1 | 1,360 | least | 86 | 142 | 1,555 | 1.6 | 1.7 |
| 479 | PTH12(5) | PTH12[b] | 67 | 1 | 2.9 | 1 | 0.1 | 1,340 | least | 140 | 172 | 1,575 | 1.6 | 1.6 |
| 480 | PTH2(5) | PTH2[b] | 116 | 1 | 4.8 | 1 | 0.1 | 2,320 | least | 78 | 75 | 2,427 | 1.3 | 1.3 |
| 481 | PTH5(5) | PTH5[b] | 122 | 1 | 2.8 | 1 | 0.1 | 2,440 | least | 143 | 130 | 2,740 | 2.0 | 2.0 |
| 482 | PTH6(5) | PTH6[b] | 92 | 1 | 3.2 | 1 | 0.1 | 1,840 | least | 167 | 172 | 2,065 | 1.6 | 1.6 |
| 483 | PTH7(5) | PTH7[b] | 105 | 1 | 3.5 | 1 | 0.1 | 2,100 | least | 191 | 166 | 2,343 | 1.9 | 1.9 |
| 484 | PTH8(5) | PTH8[b] | 65 | 1 | 2.2 | 1 | 0.1 | 1,300 | least | 153 | 172 | 1,500 | 1.1 | 1.1 |
| 485 | PTH9(5) | PTH9[b] | 47 | 1 | 3.9 | 1 | 0.1 | 940 | least | 80 | 124 | 1,099 | 0.84 | 0.88 |
| 486 | PW1(5) | PW1[b] | 38 | 1 | 23 | 1 | 0.2 | 760 | low | 122 | 209 | 1,491 | 1.8 | 1.9 |
| 487 | PW2(5) | PW2[b] | 113 | 1 | 13 | 1 | 0.1 | 2,260 | least | 226 | 209 | 2,803 | 3.2 | 3.2 |
| 488 | PW3(5) | PW3[b] | 54 | 1 | 6.4 | 1 | 0.1 | 1,080 | least | 73 | 124 | 1,141 | 1.3 | 1.3 |
| 515 | Unnamed 5(7) | Unnamed 5[e] | 429 | 1 | 13 | 1 | 0.015 | 8,580 | least | 299 | 311 | 11,281 | 4.7 | 4.7 |
| 516 | Sinclair (1) | Sinclair-1 | 243 | 3 | 7.9 | 3 | 0.056 | 4,860 | least | 153 | 114 | 5,159 | 2.7 | 2.7 |
| 517 | Bourque | Bourque | 186 | 33 | 3.1 | 16 | 0.056 | 3,725 | least | 64 | 61 | 3,713 | 1.7 | 1.7 |
| 518 | Marguerite | Marguerite | 679 | 1 | 0.7 | 1 | 0.009 | 13,580 | least | 1508 | 596 | 14,613 | 1.2 | 1.1 |
| 519 | Marie | Marie | 141 | 48 | 2.8 | 36 | 0.0099 | 2,813 | least | 69 | 68 | 2,706 | 1.2 | 1.2 |
| 520 | Leming | Leming | 118 | 3 | 2.4 | 1 | 0.2 | 2,362 | least | 320 | 231 | 2,613 | 1.1 | 1.1 |
| 521 | Tucker | Tucker | 212 | 61 | 5.3 | 64 | 0.032 | 4,242 | least | 115 | 99 | 4,421 | 2.3 | 2.3 |
| 522 | Ethel | Ethel | 158 | 142 | 4.0 | 151 | 0.014 | 3,167 | least | 109 | 87 | 3,325 | 1.1 | 1.1 |
| 523 | Hilda | Hilda | 327 | 45 | 16 | 34 | 0.016 | 6,540 | least | 198 | 123 | 7,484 | 1.5 | 1.5 |
| 524 | Patterson | Patterson | 19 | 0 | - | 0 | - | 384 | moderate | 8.5 | 38 | 365 | 0.37 | 0.41 |
| 525 | Forrest | Forrest | 24 | 0 | - | 0 | - | 475 | low | 6.5 | 34 | 457 | 0.53 | 0.57 |
| 526 | Preston | Preston | 25 | 0 | - | 0 | - | 500 | low | 8.0 | 39 | 502 | 0.59 | 0.64 |
| 527 | Beet | Beet | 22 | 0 | - | 0 | - | 440 | low | 8.9 | 39 | 449 | 0.57 | 0.62 |
| 528 | Lloyd | Lloyd | 15 | 0 | - | 0 | - | 296 | moderate | 12 | 45 | 319 | 0.35 | 0.41 |
| 529 | Sandy (2) | Sandy-2 | - | 0 | - | 0 | - | - | - | - | - | 1,908 | - | 0.8 |
| 530 | La Loche | La Loche | 119 | 0 | - | 0 | - | 2,375 | least | 76 | 77 | 2,424 | 0.94 | 0.94 |
| 531 | Cluff | Cluff | - | 0 | - | 0 | - | - | - | - | - | 1,576 | - | 2.7 |
| 532 | unnamed | unnamed | 43 | 0 | - | 0 | - | 860 | least | 29 | 74 | 930 | 1.3 | 1.4 |
| 533 | McLean | McLean | 98 | 0 | - | 0 | - | 1,955 | least | 132 | 128 | 2,024 | 0.85 | 0.85 |
| 534 | Proudfoot | Proudfoot | 19 | 0 | - | 0 | - | 387 | moderate | 45 | 106 | 383 | 0.34 | 0.42 |
| 535 | Turnor | Turnor | 57 | 0 | - | 0 | - | 1,140 | least | 37 | 72 | 1,081 | 0.43 | 0.45 |
| 536 | Touchwood | Touchwood | 141 | 20 | 3.7 | 0 | - | 2,826 | least | 114 | 87 | 2,977 | 1.4 | 1.4 |
| 537 | La Biche | La Biche | 133 | 1 | 0.05 | 0 | - | 2,660 | least | - | - | 2,728 | - | 2.2 |
| 538 | Wolf | Wolf | 158 | 10 | 2.8 | 2 | 0.001 | 3,150 | least | 107 | 102 | 3,290 | 2.2 | 2.2 |
| 539 | Field | Field | 231 | 53 | 95 | 0 | - | 4,630 | least | 236 | 157 | 7,573 | 6.3 | 6.2 |
| 540 | Pinehurst | Pinehurst | 148 | 8 | 5.0 | 0 | - | 2,970 | least | 164 | 100 | 3,109 | 1.5 | 1.4 |
| 546 | Cold | Cold | 140 | 59 | 6.5 | 33 | 0.16 | 2,801 | least | 89 | 72 | 2,966 | 2.6 | 2.5 |
| 546 | Manatokan | Manatokan | 203 | 2 | 8.5 | 2 | 0.22 | 4,050 | least | 243 | 120 | 4,524 | 4.1 | 3.9 |

**Table B-1 Chemistry of Waterbodies Included in the Air Emissions Effects on Ecological Receptors Assessment (continued)**

| Waterbody Identifier[a] | Lake Name/Original Identifier 1 | Lake Name/Original Identifier 2 | Alkalinity [mg/L as $CaCO_3$] | Sulphate N | Sulphate [mg/L] | Nitrate +Nitrite N | Nitrate + Nitrite [mg/L] | Alkalinity [µeq/L] | Acid Sensitivity[c] | $ANC_{org}$[d] [µeq/L] | $A_{sa}$[d] [µeq/L] | Sum of Base Cations [µeq/L] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 596 | UN-2(7) | UN-2[e] | 162 | 1 | 0.1 | 1 | 0.003 | 3,240 | least | 148 | 148 | 2,625 | 2.3 | 2.3 |
| 597 | UN-5(7) | UN-5[e] | 28 | 1 | 0.1 | 1 | 0.003 | 564 | low | 113 | 193 | 539 | 0.34 | 0.41 |
| 598 | UN-6(7) | UN-6[e] | 41 | 1 | 0.1 | 1 | 0.073 | 810 | least | 74 | 180 | 913 | 0.65 | 0.75 |
| 599 | Dolly | Dolly | 244 | 2 | 5.0 | 2 | 0.55 | 4,880 | least | 496 | 263 | 4,417 | 4.1 | 3.9 |
| 600 | P1 | P1[e] | 256 | 4 | 5.5 | 4 | 0.1 | 5,125 | least | 92 | 86 | 5,364 | 3.2 | 3.2 |
| 605 | P2 | P4[e] | 269 | 4 | 4.6 | 4 | 0.1 | 5,375 | least | 178 | 134 | 6,150 | 3.6 | 3.6 |
| 606 | P4 | P2[e] | 141 | 4 | 2.5 | 4 | 0.1 | 2,815 | least | 105 | 104 | 2,945 | 1.7 | 1.7 |
| 607 | Suncor_VS_UW1 | Suncor_VS_UW1 | 200 | 6 | 7.3 | 6 | 0.17 | 3,990 | least | 126 | 129 | 6,022 | 5.5 | 5.5 |
| 612 | Shell_AOSP_WQ18 | Shell_AOSP_WQ18 | 222 | 4 | 1.7 | 4 | 0.1 | 4,445 | least | 54 | 195 | 4,864 | 1.1 | 1.2 |
| 615 | Shell_AOSP_WQ26 | Shell_AOSP_WQ26 | 224 | 2 | 7.7 | 2 | 0.1 | 4,470 | least | 143 | 187 | 4,798 | 0.92 | 0.93 |
| 616 | Shell_AOSP_WQ19 | Shell_AOSP_WQ19 | 140 | 4 | 48 | 4 | 0 | 2,800 | least | 313 | 278 | 4,132 | 1.4 | 1.4 |
| 617 | Shell_AOSP_WQ28 | Shell_AOSP_WQ28 | 111 | 3 | 152 | 3 | 0.1 | 2,220 | least | 413 | 676 | 6,322 | 1.4 | 1.4 |
| 618 | Shell_AOSP_WQ29 | Shell_AOSP_WQ29 | 228 | 6 | 14 | 6 | 0.1 | 4,560 | least | 1255 | 324 | 5,147 | 1.4 | 1.1 |
| 619 | Shell_AOSP_WQ38 | Shell_AOSP_WQ38 | 98 | 2 | 108 | 2 | 0.6 | 1,950 | least | 116 | 124 | 4,523 | 1.5 | 1.5 |
| 620 | Shell_AOSP_WQ39 | Shell_AOSP_WQ39 | 308 | 4 | 55 | 4 | 0.025 | 6,150 | least | 582 | 260 | 7,821 | 1.5 | 1.4 |
| 621 | Shell_AOSP_WQ40 | Shell_AOSP_WQ40 | 265 | 5 | 37 | 5 | 0.04 | 5,304 | least | 133 | 195 | 6,346 | 2.2 | 2.2 |
| 622 | Shell_AOSP_WQ46 | Shell_AOSP_WQ46 | 123 | 3 | 42 | 3 | 0.1 | 2,467 | least | 159 | 124 | 3,527 | 0.55 | 0.54 |
| 623 | Shell_AOSP_WQ47 | Shell_AOSP_WQ47 | 53 | 2 | 227 | 2 | 0.1 | 1,050 | least | 71 | 82 | 5,639 | 1.6 | 1.6 |

(a) Identifier used in Volume 3 of the EIA.
(b) UTM coordinates are NAD83, Zone 12.
(c) Acid Sensitivity using categories as defined by Saffran and Trew (1996).
(d) Contribution of organic acids and bases to the acid neutralizing capacity based on WRS (2006).
(e) Identifier used in the EIA, Volume 3, Appendix 3-13, Table 20.
(f) Identifier used by Syncrude (2000).
(g) Identifier used by Erickson (1987).
(h) Identifier used by WRS (2004) for a survey of 34 lakes conducted by Alberta-Pacific Forest Industries in 1999.
(i) Identifier used by WRS (2004) for one hundred ponds sampled within Oil Sands Region during September 2000.
(j) Identifier used by RAMP (2004).
(k) Identifier used by Saffran and Trew (1996).

Note: N = number of samples; $ANC_{org}$ = organic bases, $ANC_{sa}$ = organic acids.

**Table B-2 Air Modelling Results**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 1 | 504672 | 6250565 | 132 | SSE | 0.09 | 0.10 | 0.07 | 0.61 | 1.23 | 0.01 | 0.30 | 0.31 | 0.24 | 0.36 | 0.49 | 0.61 | 3.42 |
| 2 | 510499 | 6163433 | 218 | SSE | 0.09 | 0.10 | 0.07 | 0.18 | 1.23 | 0.00 | 0.09 | 0.09 | 0.18 | 0.17 | 0.22 | 0.18 | 2.48 |
| 3 | 489729 | 6258036 | 121 | SSE | 0.09 | 0.10 | 0.07 | 0.26 | 1.23 | 0.00 | 0.16 | 0.16 | 0.15 | 0.18 | 0.21 | 0.26 | 2.11 |
| 4 | 485939 | 6349881 | 33 | SE | 0.08 | 0.09 | 0.04 | 0.23 | 1.08 | 0.00 | 0.08 | 0.08 | 0.36 | 0.17 | 0.41 | 0.23 | 4.99 |
| 5 | 480016 | 6371236 | 15 | ESE | 0.08 | 0.09 | 0.04 | 0.16 | 1.08 | 0.00 | 0.05 | 0.05 | 0.24 | 0.15 | 0.28 | 0.16 | 3.41 |
| 6 | 457730 | 6374675 | 8 | WSW | 0.07 | 0.08 | 0.03 | 0.47 | 1.01 | 0.00 | 0.37 | 0.38 | 0.22 | 0.13 | 0.24 | 0.49 | 3.10 |
| 7 | 440554 | 6382003 | 26 | WNW | 0.07 | 0.08 | 0.03 | 0.09 | 1.01 | 0.01 | 0.03 | 0.03 | 0.12 | 0.12 | 0.12 | 0.09 | 1.66 |
| 10 | 444669 | 6379654 | 22 | W | 0.07 | 0.08 | 0.03 | 0.60 | 1.01 | 0.01 | 0.53 | 0.54 | 0.13 | 0.13 | 0.14 | 0.60 | 1.84 |
| 11 | 444494 | 6382690 | 22 | WNW | 0.07 | 0.08 | 0.03 | 0.55 | 1.01 | 0.01 | 0.48 | 0.49 | 0.13 | 0.12 | 0.13 | 0.55 | 1.77 |
| 12 | 455211 | 6364522 | 16 | SW | 0.08 | 0.09 | 0.05 | 0.15 | 1.11 | 0.00 | 0.01 | 0.01 | 0.33 | 0.16 | 0.37 | 0.16 | 4.62 |
| 17 | 445617 | 6381379 | 21 | WNW | 0.07 | 0.08 | 0.03 | 0.59 | 1.01 | 0.01 | 0.52 | 0.53 | 0.13 | 0.13 | 0.14 | 0.59 | 1.84 |
| 18 | 455932 | 6365954 | 14 | SW | 0.08 | 0.09 | 0.05 | 0.14 | 1.11 | 0.00 | 0.01 | 0.01 | 0.32 | 0.15 | 0.36 | 0.15 | 4.49 |
| 19 | 453963 | 6363973 | 17 | SW | 0.08 | 0.09 | 0.05 | 0.28 | 1.11 | 0.00 | 0.16 | 0.16 | 0.30 | 0.16 | 0.34 | 0.29 | 4.21 |
| 20 | 463522 | 6343138 | 33 | S | 0.08 | 0.09 | 0.05 | 1.38 | 1.11 | 0.00 | 1.13 | 1.14 | 0.57 | 0.20 | 0.66 | 1.38 | 8.04 |
| 25 | 498871 | 6257215 | 124 | SSE | 0.09 | 0.10 | 0.07 | 0.15 | 1.23 | 0.00 | 0.03 | 0.03 | 0.17 | 0.20 | 0.25 | 0.15 | 2.42 |
| 26 | 502017 | 6251357 | 130 | SSE | 0.09 | 0.10 | 0.07 | 0.29 | 1.23 | 0.01 | 0.08 | 0.09 | 0.21 | 0.28 | 0.36 | 0.29 | 2.93 |
| 27 | 503226 | 6248721 | 133 | SSE | 0.09 | 0.10 | 0.07 | 0.23 | 1.23 | 0.00 | 0.01 | 0.02 | 0.21 | 0.28 | 0.36 | 0.23 | 2.87 |
| 28 | 508895 | 6252653 | 131 | SSE | 0.09 | 0.10 | 0.07 | 0.22 | 1.23 | 0.01 | 0.07 | 0.08 | 0.18 | 0.22 | 0.28 | 0.23 | 2.47 |
| 29 | 504488 | 6254133 | 128 | SSE | 0.09 | 0.10 | 0.07 | 0.26 | 1.23 | 0.01 | 0.06 | 0.07 | 0.20 | 0.26 | 0.34 | 0.26 | 2.79 |
| 30 | 505212 | 6252653 | 130 | SSE | 0.09 | 0.10 | 0.07 | 0.26 | 1.23 | 0.00 | 0.02 | 0.03 | 0.22 | 0.30 | 0.39 | 0.26 | 3.01 |
| 31 | 507487 | 6251545 | 132 | SSE | 0.09 | 0.10 | 0.07 | 0.31 | 1.23 | 0.01 | 0.09 | 0.09 | 0.20 | 0.28 | 0.36 | 0.31 | 2.84 |
| 32 | 501467 | 6264562 | 117 | SSE | 0.08 | 0.09 | 0.04 | 0.22 | 1.08 | 0.01 | 0.12 | 0.13 | 0.15 | 0.16 | 0.19 | 0.22 | 2.07 |
| 33 | 499562 | 6256374 | 125 | SSE | 0.09 | 0.10 | 0.07 | 0.20 | 1.23 | 0.01 | 0.06 | 0.07 | 0.18 | 0.20 | 0.26 | 0.20 | 2.50 |
| 34 | 502641 | 6249587 | 132 | SSE | 0.09 | 0.10 | 0.07 | 0.26 | 1.23 | 0.01 | 0.04 | 0.05 | 0.21 | 0.28 | 0.36 | 0.26 | 2.90 |
| 35 | 500505 | 6255692 | 126 | SSE | 0.09 | 0.10 | 0.07 | 0.21 | 1.23 | 0.01 | 0.06 | 0.07 | 0.18 | 0.22 | 0.28 | 0.21 | 2.58 |
| 36 | 509942 | 6244399 | 139 | SSE | 0.09 | 0.10 | 0.07 | 0.27 | 1.23 | 0.00 | 0.07 | 0.07 | 0.18 | 0.28 | 0.33 | 0.27 | 2.48 |
| 37 | 489222 | 6240033 | 138 | S | 0.09 | 0.10 | 0.07 | 0.18 | 1.23 | 0.01 | 0.07 | 0.08 | 0.17 | 0.17 | 0.22 | 0.18 | 2.42 |
| 38 | 490427 | 6237963 | 141 | S | 0.09 | 0.10 | 0.07 | 0.23 | 1.23 | - | 0.06 | - | 0.17 | 0.17 | 0.22 | 0.23 | 2.38 |
| 39 | 480727 | 6243329 | 134 | S | 0.09 | 0.10 | 0.07 | 0.18 | 1.23 | 0.01 | 0.08 | 0.08 | 0.17 | 0.18 | 0.22 | 0.18 | 2.32 |
| 40 | 481229 | 6244129 | 133 | S | 0.09 | 0.10 | 0.07 | 0.23 | 1.23 | - | 0.05 | - | 0.17 | 0.18 | 0.23 | 0.23 | 2.36 |
| 41 | 482249 | 6246921 | 131 | S | 0.09 | 0.10 | 0.07 | 0.23 | 1.23 | - | 0.04 | - | 0.17 | 0.18 | 0.23 | 0.23 | 2.39 |
| 42 | 479375 | 6142060 | 235 | S | 0.10 | 0.12 | 0.10 | 0.07 | 1.44 | 0.00 | 0.03 | 0.03 | 0.14 | 0.14 | 0.16 | 0.07 | 1.91 |
| 43 | 496692 | 6127900 | 250 | S | 0.10 | 0.12 | 0.10 | 0.08 | 1.44 | 0.01 | 0.03 | 0.04 | 0.15 | 0.15 | 0.18 | 0.08 | 2.10 |
| 44 | 491437 | 6137987 | 240 | S | 0.10 | 0.12 | 0.10 | 0.10 | 1.44 | 0.01 | 0.05 | 0.06 | 0.15 | 0.15 | 0.18 | 0.10 | 2.08 |
| 45 | 497711 | 6132160 | 246 | S | 0.10 | 0.12 | 0.10 | 0.08 | 1.44 | 0.01 | 0.02 | 0.03 | 0.15 | 0.15 | 0.18 | 0.08 | 2.14 |
| 46 | 498367 | 6133579 | 245 | S | 0.10 | 0.12 | 0.10 | 0.07 | 1.44 | 0.00 | 0.01 | 0.02 | 0.15 | 0.15 | 0.19 | 0.07 | 2.15 |
| 47 | 493933 | 6132222 | 246 | S | 0.10 | 0.12 | 0.10 | 0.07 | 1.44 | 0.01 | 0.02 | 0.02 | 0.15 | 0.15 | 0.18 | 0.07 | 2.10 |
| 48 | 491151 | 6134421 | 243 | S | 0.10 | 0.12 | 0.10 | 0.08 | 1.44 | 0.01 | 0.03 | 0.03 | 0.15 | 0.15 | 0.18 | 0.08 | 2.06 |
| 49 | 493107 | 6134651 | 243 | S | 0.10 | 0.12 | 0.10 | 0.08 | 1.44 | 0.01 | 0.02 | 0.03 | 0.15 | 0.15 | 0.18 | 0.08 | 2.10 |
| 50 | 489844 | 6137549 | 240 | S | 0.10 | 0.12 | 0.10 | 0.10 | 1.44 | 0.01 | 0.05 | 0.06 | 0.15 | 0.15 | 0.18 | 0.10 | 2.05 |
| 51 | 468396 | 6341424 | 35 | S | 0.08 | 0.09 | 0.05 | 0.37 | 1.11 | 0.00 | 0.07 | 0.08 | 0.70 | 0.23 | 0.81 | 0.37 | 9.86 |
| 52 | 468346 | 6341324 | 35 | S | 0.08 | 0.09 | 0.05 | 0.35 | 1.11 | 0.00 | 0.04 | 0.05 | 0.73 | 0.23 | 0.83 | 0.35 | 10.16 |
| 53 | 468546 | 6341424 | 35 | S | 0.08 | 0.09 | 0.04 | 0.37 | 1.08 | 0.00 | 0.07 | 0.08 | 0.69 | 0.22 | 0.79 | 0.37 | 9.61 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 54 | 468946 | 6341924 | 35 | S | 0.08 | 0.09 | 0.04 | 0.32 | 1.08 | 0.00 | 0.06 | 0.06 | 0.60 | 0.21 | 0.70 | 0.32 | 8.46 |
| 55 | 469046 | 6341224 | 35 | S | 0.08 | 0.09 | 0.04 | 0.35 | 1.08 | 0.00 | 0.06 | 0.07 | 0.65 | 0.22 | 0.75 | 0.35 | 9.06 |
| 56 | 467296 | 6340324 | 36 | S | 0.08 | 0.09 | 0.05 | 0.87 | 1.11 | 0.00 | 0.10 | 0.10 | 1.17 | 0.29 | 1.34 | 0.87 | 16.33 |
| 58 | 473350 | 6313235 | 64 | S | 0.08 | 0.09 | 0.04 | 0.44 | 1.08 | 0.01 | 0.10 | 0.11 | 0.38 | 0.34 | 0.60 | 0.44 | 5.33 |
| 60 | 536930 | 6072588 | 312 | SSE | 0.10 | 0.11 | 0.09 | 0.15 | 1.41 | 0.01 | 0.06 | 0.07 | 0.16 | 0.17 | 0.22 | 0.15 | 2.26 |
| 61 | 540333 | 6069577 | 316 | SSE | 0.10 | 0.11 | 0.09 | 0.10 | 1.41 | 0.00 | 0.02 | 0.03 | 0.16 | 0.17 | 0.21 | 0.10 | 2.18 |
| 62 | 539546 | 6071719 | 313 | SSE | 0.10 | 0.11 | 0.09 | 0.19 | 1.41 | - | 0.01 | - | 0.16 | 0.17 | 0.21 | 0.19 | 2.23 |
| 63 | 539930 | 6072774 | 313 | SSE | 0.10 | 0.11 | 0.09 | 0.09 | 1.41 | 0.00 | 0.01 | 0.02 | 0.16 | 0.17 | 0.21 | 0.09 | 2.24 |
| 64 | 540067 | 6073823 | 312 | SSE | 0.10 | 0.11 | 0.09 | 0.09 | 1.41 | 0.00 | 0.01 | 0.02 | 0.16 | 0.17 | 0.21 | 0.09 | 2.26 |
| 65 | 543092 | 6075676 | 310 | SSE | 0.10 | 0.11 | 0.09 | 0.09 | 1.41 | 0.00 | 0.02 | 0.02 | 0.16 | 0.17 | 0.20 | 0.09 | 2.22 |
| 66 | 544835 | 6076985 | 310 | SSE | 0.10 | 0.11 | 0.09 | 0.09 | 1.41 | 0.00 | 0.02 | 0.02 | 0.16 | 0.16 | 0.20 | 0.09 | 2.18 |
| 67 | 538930 | 6078203 | 307 | SSE | 0.10 | 0.11 | 0.09 | 0.10 | 1.41 | 0.00 | 0.02 | 0.02 | 0.16 | 0.17 | 0.21 | 0.10 | 2.29 |
| 68 | 541457 | 6082627 | 303 | SSE | 0.10 | 0.11 | 0.09 | 0.18 | 1.41 | - | 0.01 | - | 0.16 | 0.16 | 0.20 | 0.18 | 2.23 |
| 69 | 539000 | 6063000 | 322 | SSE | 0.10 | 0.11 | 0.09 | 0.11 | 1.41 | 0.00 | 0.04 | 0.04 | 0.15 | 0.17 | 0.20 | 0.11 | 2.08 |
| 78 | 485427 | 6357465 | 27 | SE | 0.08 | 0.09 | 0.04 | 0.22 | 1.08 | 0.00 | 0.08 | 0.08 | 0.33 | 0.16 | 0.37 | 0.22 | 4.65 |
| 79 | 494650 | 6362557 | 32 | ESE | 0.08 | 0.09 | 0.04 | 0.74 | 1.08 | 0.01 | 0.09 | 0.10 | 1.17 | 0.16 | 1.20 | 0.75 | 16.34 |
| 80 | 499429 | 6365047 | 35 | ESE | 0.08 | 0.09 | 0.04 | 0.18 | 1.08 | 0.01 | 0.04 | 0.05 | 0.36 | 0.15 | 0.39 | 0.18 | 5.04 |
| 81 | 504587 | 6349147 | 47 | SE | 0.08 | 0.09 | 0.04 | 0.21 | 1.08 | 0.00 | 0.08 | 0.08 | 0.23 | 0.18 | 0.29 | 0.21 | 3.24 |
| 82 | 509075 | 6334093 | 60 | SE | 0.08 | 0.09 | 0.04 | 0.23 | 1.08 | 0.00 | 0.12 | 0.12 | 0.17 | 0.17 | 0.23 | 0.23 | 2.45 |
| 83 | 515032 | 6327463 | 69 | SE | 0.08 | 0.09 | 0.04 | 0.21 | 1.08 | 0.00 | 0.11 | 0.11 | 0.16 | 0.16 | 0.21 | 0.21 | 2.28 |
| 84 | 524421 | 6322560 | 79 | SE | 0.08 | 0.09 | 0.04 | 0.13 | 1.08 | 0.00 | 0.04 | 0.04 | 0.15 | 0.16 | 0.19 | 0.13 | 2.13 |
| 85 | 533760 | 6369378 | 68 | E | 0.08 | 0.09 | 0.04 | 0.08 | 1.09 | 0.00 | 0.03 | 0.03 | 0.13 | 0.12 | 0.13 | 0.09 | 1.76 |
| 86 | 544341 | 6349563 | 83 | ESE | 0.08 | 0.09 | 0.04 | 0.08 | 1.09 | 0.00 | 0.03 | 0.03 | 0.12 | 0.12 | 0.12 | 0.08 | 1.67 |
| 87 | 545725 | 6348186 | 85 | ESE | 0.08 | 0.09 | 0.04 | 0.08 | 1.09 | 0.00 | 0.03 | 0.03 | 0.12 | 0.12 | 0.12 | 0.08 | 1.66 |
| 88 | 548190 | 6346767 | 87 | ESE | 0.08 | 0.09 | 0.04 | 0.08 | 1.09 | 0.00 | 0.04 | 0.04 | 0.12 | 0.12 | 0.12 | 0.08 | 1.64 |
| 89 | 381972 | 6323180 | 99 | WSW | 0.08 | 0.09 | 0.05 | 0.29 | 1.16 | 0.00 | 0.26 | 0.26 | 0.11 | 0.12 | 0.10 | 0.29 | 1.50 |
| 91 | 402704 | 6368016 | 64 | W | 0.08 | 0.09 | 0.05 | 0.10 | 1.16 | 0.00 | 0.07 | 0.07 | 0.11 | 0.12 | 0.10 | 0.10 | 1.49 |
| 92 | 417321 | 6396959 | 53 | WNW | 0.07 | 0.08 | 0.03 | 0.05 | 1.01 | 0.00 | 0.02 | 0.02 | 0.10 | 0.11 | 0.08 | 0.05 | 1.34 |
| 93 | 383849 | 6364923 | 83 | W | 0.08 | 0.09 | 0.05 | 0.06 | 1.16 | 0.00 | 0.03 | 0.03 | 0.10 | 0.11 | 0.09 | 0.06 | 1.43 |
| 95 | 362195 | 6386208 | 104 | W | 0.08 | 0.08 | 0.04 | 0.07 | 1.06 | 0.00 | 0.05 | 0.05 | 0.09 | 0.10 | 0.07 | 0.07 | 1.26 |
| 96 | 382996 | 6414339 | 91 | WNW | 0.08 | 0.08 | 0.04 | 0.06 | 1.06 | 0.00 | 0.03 | 0.04 | 0.09 | 0.10 | 0.07 | 0.06 | 1.28 |
| 97 | 424694 | 6435790 | 72 | NW | 0.07 | 0.08 | 0.03 | 0.03 | 1.01 | 0.00 | 0.01 | 0.01 | 0.09 | 0.10 | 0.07 | 0.04 | 1.28 |
| 98 | 519356 | 6422417 | 70 | NE | 0.07 | 0.08 | 0.03 | 0.03 | 0.99 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.09 | 0.03 | 1.46 |
| 99 | 499704 | 6419587 | 55 | NE | 0.07 | 0.08 | 0.03 | 0.07 | 0.99 | 0.00 | 0.03 | 0.03 | 0.12 | 0.10 | 0.10 | 0.07 | 1.61 |
| 100 | 396500 | 6395456 | 72 | WNW | 0.08 | 0.08 | 0.04 | 0.16 | 1.06 | 0.00 | 0.13 | 0.13 | 0.09 | 0.11 | 0.08 | 0.16 | 1.33 |
| 101 | 404995 | 6403111 | 67 | WNW | 0.08 | 0.08 | 0.04 | 0.24 | 1.06 | 0.01 | 0.21 | 0.21 | 0.10 | 0.11 | 0.08 | 0.24 | 1.33 |
| 102 | 425151 | 6365349 | 42 | WSW | 0.08 | 0.09 | 0.05 | 0.31 | 1.11 | 0.00 | 0.25 | 0.25 | 0.12 | 0.13 | 0.13 | 0.31 | 1.67 |
| 103 | 504973 | 6388824 | 41 | ENE | 0.07 | 0.08 | 0.03 | 0.10 | 0.99 | 0.00 | 0.04 | 0.04 | 0.16 | 0.12 | 0.16 | 0.10 | 2.17 |
| 104 | 536807 | 6389912 | 72 | E | 0.07 | 0.08 | 0.02 | 0.07 | 0.95 | 0.00 | 0.03 | 0.03 | 0.11 | 0.11 | 0.10 | 0.07 | 1.51 |
| 105 | 536495 | 6424234 | 85 | NE | 0.07 | 0.08 | 0.02 | 0.06 | 0.95 | 0.00 | 0.04 | 0.04 | 0.10 | 0.10 | 0.07 | 0.06 | 1.34 |
| 106 | 416941 | 6404239 | 56 | WNW | 0.07 | 0.08 | 0.03 | 0.23 | 1.01 | 0.00 | 0.20 | 0.20 | 0.09 | 0.11 | 0.08 | 0.24 | 1.31 |
| 107 | 403796 | 6392247 | 64 | WNW | 0.08 | 0.08 | 0.04 | 0.19 | 1.06 | 0.00 | 0.16 | 0.16 | 0.10 | 0.11 | 0.08 | 0.19 | 1.36 |
| 108 | 407519 | 6391915 | 60 | WNW | 0.07 | 0.08 | 0.03 | 0.25 | 1.01 | 0.00 | 0.21 | 0.21 | 0.09 | 0.11 | 0.08 | 0.25 | 1.32 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 109 | 530780 | 6261842 | 132 | SSE | 0.08 | 0.09 | 0.04 | 0.09 | 1.08 | 0.00 | 0.02 | 0.02 | 0.13 | 0.15 | 0.16 | 0.09 | 1.78 |
| 110 | 536018 | 6248894 | 145 | SSE | 0.09 | 0.10 | 0.06 | 0.10 | 1.20 | 0.00 | 0.02 | 0.02 | 0.14 | 0.16 | 0.18 | 0.10 | 1.95 |
| 115 | 483819 | 6235130 | 142 | S | 0.09 | 0.10 | 0.07 | 0.21 | 1.23 | 0.00 | 0.13 | 0.13 | 0.16 | 0.16 | 0.20 | 0.21 | 2.19 |
| 116 | 484387 | 6230872 | 147 | S | 0.09 | 0.10 | 0.07 | 0.10 | 1.23 | 0.00 | 0.03 | 0.03 | 0.15 | 0.16 | 0.19 | 0.10 | 2.13 |
| 117 | 489502 | 6230877 | 147 | S | 0.09 | 0.10 | 0.07 | 0.11 | 1.23 | 0.00 | 0.03 | 0.03 | 0.16 | 0.16 | 0.20 | 0.11 | 2.22 |
| 118 | 466180 | 6224950 | 151 | S | 0.09 | 0.10 | 0.06 | 0.08 | 1.19 | 0.00 | 0.02 | 0.02 | 0.13 | 0.15 | 0.16 | 0.08 | 1.85 |
| 119 | 365015 | 6247322 | 164 | SW | 0.09 | 0.10 | 0.08 | 0.05 | 1.29 | 0.00 | 0.02 | 0.02 | 0.11 | 0.12 | 0.11 | 0.05 | 1.54 |
| 120 | 367321 | 6235430 | 172 | SW | 0.09 | 0.10 | 0.08 | 0.09 | 1.29 | 0.03 | 0.04 | 0.06 | 0.11 | 0.12 | 0.11 | 0.09 | 1.54 |
| 121 | 383467 | 6197733 | 197 | SSW | 0.09 | 0.10 | 0.08 | 0.06 | 1.29 | 0.00 | 0.04 | 0.04 | 0.11 | 0.12 | 0.11 | 0.06 | 1.53 |
| 122 | 448014 | 6170896 | 206 | S | 0.09 | 0.10 | 0.06 | 0.06 | 1.19 | 0.00 | 0.02 | 0.02 | 0.11 | 0.12 | 0.11 | 0.06 | 1.59 |
| 129 | 506092 | 6305335 | 82 | SSE | 0.08 | 0.09 | 0.04 | 0.13 | 1.08 | 0.00 | 0.01 | 0.01 | 0.17 | 0.18 | 0.23 | 0.13 | 2.36 |
| 130 | 493516 | 6226026 | 153 | S | 0.09 | 0.10 | 0.07 | 0.12 | 1.23 | 0.00 | 0.04 | 0.04 | 0.16 | 0.16 | 0.20 | 0.12 | 2.28 |
| 131 | 446510 | 6167454 | 210 | S | 0.09 | 0.10 | 0.06 | 0.11 | 1.19 | 0.00 | 0.07 | 0.07 | 0.11 | 0.12 | 0.11 | 0.11 | 1.57 |
| 132 | 533788 | 6137575 | 248 | SSE | 0.10 | 0.11 | 0.09 | 0.09 | 1.41 | 0.00 | 0.05 | 0.05 | 0.15 | 0.15 | 0.18 | 0.09 | 2.05 |
| 134 | 441917 | 6290884 | 89 | SSW | 0.08 | 0.09 | 0.05 | 0.10 | 1.11 | 0.00 | 0.02 | 0.02 | 0.15 | 0.15 | 0.18 | 0.10 | 2.11 |
| 135 | 554892 | 6301050 | 117 | SE | 0.08 | 0.09 | 0.04 | 0.09 | 1.09 | 0.00 | 0.03 | 0.03 | 0.12 | 0.14 | 0.14 | 0.09 | 1.71 |
| 136 | 474056 | 6213581 | 163 | S | 0.09 | 0.10 | 0.07 | 0.10 | 1.23 | 0.00 | 0.04 | 0.04 | 0.13 | 0.14 | 0.16 | 0.10 | 1.86 |
| 137 | 368566 | 6243357 | 165 | SW | 0.09 | 0.10 | 0.08 | 0.16 | 1.29 | 0.00 | 0.14 | 0.14 | 0.11 | 0.12 | 0.11 | 0.17 | 1.55 |
| 138 | 457796 | 6141365 | 235 | S | 0.11 | 0.12 | 0.10 | 0.06 | 1.47 | 0.00 | 0.03 | 0.03 | 0.13 | 0.14 | 0.15 | 0.06 | 1.83 |
| 139 | 538503 | 6201610 | 189 | SSE | 0.09 | 0.10 | 0.06 | 0.10 | 1.20 | 0.00 | 0.03 | 0.04 | 0.14 | 0.14 | 0.16 | 0.10 | 1.96 |
| 140 | 507166 | 6322123 | 68 | SE | 0.08 | 0.09 | 0.04 | 0.19 | 1.08 | 0.00 | 0.07 | 0.07 | 0.18 | 0.18 | 0.23 | 0.19 | 2.45 |
| 141 | 506113 | 6291421 | 94 | SSE | 0.08 | 0.09 | 0.04 | 0.10 | 1.08 | 0.00 | 0.00 | 0.00 | 0.16 | 0.16 | 0.20 | 0.10 | 2.23 |
| 142 | 549064 | 6277789 | 129 | SE | 0.08 | 0.09 | 0.04 | 0.07 | 1.09 | 0.00 | 0.00 | 0.01 | 0.13 | 0.14 | 0.15 | 0.07 | 1.82 |
| 143 | 487594 | 6229281 | 149 | S | 0.09 | 0.10 | 0.07 | 0.10 | 1.23 | 0.00 | 0.03 | 0.03 | 0.15 | 0.16 | 0.19 | 0.10 | 2.16 |
| 144 | 477248 | 6228400 | 148 | S | 0.09 | 0.10 | 0.07 | 0.08 | 1.23 | 0.00 | 0.02 | 0.02 | 0.15 | 0.15 | 0.18 | 0.08 | 2.05 |
| 145 | 487068 | 6225576 | 152 | S | 0.09 | 0.10 | 0.07 | 0.09 | 1.23 | 0.00 | 0.02 | 0.02 | 0.15 | 0.15 | 0.19 | 0.09 | 2.16 |
| 146 | 448271 | 6183205 | 194 | S | 0.09 | 0.10 | 0.06 | 0.05 | 1.19 | 0.00 | 0.01 | 0.01 | 0.12 | 0.12 | 0.12 | 0.05 | 1.62 |
| 147 | 515689 | 6179208 | 203 | SSE | 0.09 | 0.10 | 0.07 | 0.07 | 1.23 | 0.00 | 0.00 | 0.00 | 0.16 | 0.15 | 0.19 | 0.07 | 2.27 |
| 148 | 416003 | 6353212 | 55 | WSW | 0.08 | 0.09 | 0.05 | 0.19 | 1.11 | 0.00 | 0.14 | 0.14 | 0.11 | 0.12 | 0.12 | 0.19 | 1.60 |
| 149 | 509000 | 6346712 | 52 | SE | 0.08 | 0.09 | 0.04 | 0.20 | 1.08 | 0.00 | 0.03 | 0.03 | 0.26 | 0.21 | 0.35 | 0.20 | 3.62 |
| 150 | 508300 | 6333712 | 60 | SE | 0.08 | 0.09 | 0.04 | 0.14 | 1.08 | 0.00 | 0.02 | 0.03 | 0.18 | 0.17 | 0.23 | 0.14 | 2.46 |
| 151 | 446002 | 6394961 | 27 | NW | 0.07 | 0.08 | 0.03 | 0.10 | 1.01 | 0.00 | 0.05 | 0.05 | 0.12 | 0.12 | 0.12 | 0.10 | 1.67 |
| 152 | 515399 | 6343212 | 60 | SE | 0.08 | 0.09 | 0.04 | 0.12 | 1.08 | 0.00 | 0.01 | 0.02 | 0.17 | 0.17 | 0.22 | 0.12 | 2.41 |
| 153 | 440557 | 6334112 | 49 | SSW | 0.08 | 0.09 | 0.05 | 0.30 | 1.11 | 0.00 | 0.22 | 0.22 | 0.18 | 0.14 | 0.20 | 0.30 | 2.48 |
| 154 | 444002 | 6295513 | 84 | SSW | 0.08 | 0.09 | 0.05 | 0.12 | 1.11 | 0.00 | 0.03 | 0.03 | 0.16 | 0.16 | 0.20 | 0.12 | 2.27 |
| 155 | 456002 | 6296463 | 81 | S | 0.08 | 0.09 | 0.05 | 0.17 | 1.11 | 0.00 | 0.03 | 0.03 | 0.19 | 0.20 | 0.27 | 0.17 | 2.63 |
| 156 | 451762 | 6293513 | 84 | S | 0.08 | 0.09 | 0.05 | 0.17 | 1.11 | 0.00 | 0.05 | 0.05 | 0.17 | 0.18 | 0.23 | 0.17 | 2.42 |
| 161 | 366124 | 6230034 | 177 | SW | 0.09 | 0.10 | 0.08 | 0.02 | 1.29 | 0.00 | 0.00 | 0.00 | 0.11 | 0.12 | 0.11 | 0.02 | 1.53 |
| 167 | 463161 | 6151511 | 225 | S | 0.09 | 0.10 | 0.06 | 0.04 | 1.19 | 0.00 | 0.00 | 0.00 | 0.11 | 0.12 | 0.15 | 0.04 | 1.59 |
| 168 | 559470 | 6264932 | 145 | SE | 0.08 | 0.09 | 0.04 | 0.06 | 1.09 | 0.00 | 0.00 | 0.00 | 0.12 | 0.13 | 0.14 | 0.06 | 1.74 |
| 169 | 548241 | 6260147 | 142 | SE | 0.09 | 0.10 | 0.06 | 0.07 | 1.20 | 0.00 | 0.00 | 0.00 | 0.13 | 0.15 | 0.16 | 0.07 | 1.86 |
| 170 | 526686 | 6259956 | 131 | SSE | 0.09 | 0.10 | 0.07 | 0.08 | 1.23 | 0.00 | 0.00 | 0.00 | 0.15 | 0.16 | 0.18 | 0.08 | 2.04 |
| 171 | 546271 | 6252711 | 147 | SSE | 0.09 | 0.10 | 0.06 | 0.07 | 1.20 | 0.00 | 0.00 | 0.00 | 0.13 | 0.15 | 0.16 | 0.07 | 1.85 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 172 | 554471 | 6254656 | 151 | SE | 0.09 | 0.10 | 0.06 | 0.06 | 1.20 | 0.00 | 0.00 | 0.00 | 0.13 | 0.15 | 0.16 | 0.07 | 1.84 |
| 173 | 561829 | 6243625 | 164 | SE | 0.09 | 0.10 | 0.06 | 0.07 | 1.20 | 0.00 | 0.01 | 0.01 | 0.13 | 0.15 | 0.15 | 0.07 | 1.77 |
| 174 | 487107 | 6238565 | 139 | S | 0.09 | 0.10 | 0.07 | 0.13 | 1.23 | 0.00 | 0.04 | 0.04 | 0.17 | 0.17 | 0.21 | 0.13 | 2.33 |
| 175 | 513419 | 6236708 | 148 | SSE | 0.09 | 0.10 | 0.07 | 0.27 | 1.23 | 0.00 | 0.16 | 0.16 | 0.17 | 0.19 | 0.23 | 0.27 | 2.32 |
| 176 | 525809 | 6235841 | 153 | SSE | 0.09 | 0.10 | 0.07 | 0.11 | 1.23 | 0.00 | 0.02 | 0.02 | 0.15 | 0.17 | 0.20 | 0.11 | 2.15 |
| 177 | 489154 | 6232994 | 145 | S | 0.09 | 0.10 | 0.07 | 0.11 | 1.23 | 0.00 | 0.03 | 0.03 | 0.16 | 0.16 | 0.20 | 0.11 | 2.25 |
| 178 | 487070 | 6226500 | 151 | S | 0.09 | 0.10 | 0.07 | 0.09 | 1.23 | 0.00 | 0.02 | 0.02 | 0.15 | 0.15 | 0.19 | 0.09 | 2.15 |
| 179 | 480350 | 6228385 | 149 | S | 0.09 | 0.10 | 0.07 | 0.13 | 1.23 | 0.02 | 0.04 | 0.06 | 0.15 | 0.15 | 0.18 | 0.13 | 2.06 |
| 180 | 491196 | 6222316 | 156 | S | 0.09 | 0.10 | 0.07 | 0.09 | 1.23 | 0.00 | 0.02 | 0.02 | 0.17 | 0.15 | 0.20 | 0.09 | 2.35 |
| 181 | 540312 | 6230388 | 164 | SSE | 0.09 | 0.10 | 0.06 | 0.09 | 1.20 | 0.00 | 0.01 | 0.02 | 0.14 | 0.15 | 0.17 | 0.09 | 1.97 |
| 182 | 559900 | 6234325 | 170 | SSE | 0.09 | 0.10 | 0.06 | 0.07 | 1.20 | 0.00 | 0.01 | 0.01 | 0.13 | 0.15 | 0.15 | 0.07 | 1.80 |
| 183 | 554289 | 6228684 | 172 | SSE | 0.09 | 0.10 | 0.06 | 0.07 | 1.20 | 0.00 | 0.01 | 0.01 | 0.13 | 0.15 | 0.16 | 0.07 | 1.87 |
| 184 | 543469 | 6224854 | 170 | SSE | 0.09 | 0.10 | 0.06 | 0.08 | 1.20 | 0.00 | 0.02 | 0.02 | 0.14 | 0.15 | 0.17 | 0.08 | 1.94 |
| 185 | 554875 | 6223126 | 177 | SSE | 0.09 | 0.10 | 0.06 | 0.07 | 1.20 | 0.00 | 0.01 | 0.01 | 0.13 | 0.14 | 0.16 | 0.07 | 1.88 |
| 186 | 521815 | 6208917 | 177 | SSE | 0.09 | 0.10 | 0.07 | 0.14 | 1.23 | 0.00 | 0.07 | 0.08 | 0.15 | 0.15 | 0.18 | 0.14 | 2.10 |
| 187 | 355095 | 6256783 | 163 | SW | 0.09 | 0.10 | 0.08 | 0.21 | 1.29 | 0.00 | 0.19 | 0.19 | 0.11 | 0.12 | 0.11 | 0.21 | 1.52 |
| 188 | 360775 | 6241744 | 171 | SW | 0.09 | 0.10 | 0.08 | 0.03 | 1.29 | 0.00 | 0.01 | 0.01 | 0.11 | 0.12 | 0.11 | 0.03 | 1.53 |
| 189 | 363355 | 6241661 | 169 | SW | 0.09 | 0.10 | 0.08 | 0.04 | 1.29 | 0.00 | 0.02 | 0.02 | 0.11 | 0.12 | 0.11 | 0.04 | 1.53 |
| 190 | 370920 | 6235856 | 170 | SW | 0.09 | 0.10 | 0.08 | 0.04 | 1.29 | 0.00 | 0.02 | 0.02 | 0.11 | 0.12 | 0.11 | 0.04 | 1.55 |
| 191 | 367765 | 6234093 | 173 | SW | 0.09 | 0.10 | 0.08 | 0.03 | 1.29 | 0.00 | 0.01 | 0.01 | 0.11 | 0.12 | 0.11 | 0.03 | 1.54 |
| 193 | 360472 | 6232476 | 178 | SW | 0.09 | 0.10 | 0.08 | 0.03 | 1.29 | 0.00 | 0.01 | 0.01 | 0.11 | 0.12 | 0.11 | 0.03 | 1.52 |
| 194 | 420102 | 6242078 | 142 | SSW | 0.09 | 0.10 | 0.06 | 0.15 | 1.19 | 0.00 | 0.11 | 0.11 | 0.12 | 0.13 | 0.12 | 0.15 | 1.61 |
| 195 | 422698 | 6242954 | 140 | SSW | 0.09 | 0.10 | 0.06 | 0.08 | 1.19 | 0.00 | 0.04 | 0.04 | 0.12 | 0.13 | 0.12 | 0.08 | 1.63 |
| 196 | 423111 | 6237380 | 145 | SSW | 0.09 | 0.10 | 0.06 | 0.09 | 1.19 | 0.00 | 0.06 | 0.06 | 0.11 | 0.13 | 0.12 | 0.09 | 1.61 |
| 197 | 413272 | 6235709 | 150 | SSW | 0.09 | 0.10 | 0.06 | 0.11 | 1.19 | 0.00 | 0.07 | 0.07 | 0.11 | 0.12 | 0.11 | 0.11 | 1.57 |
| 198 | 432715 | 6224227 | 156 | SSW | 0.09 | 0.10 | 0.06 | 0.07 | 1.19 | 0.00 | 0.03 | 0.03 | 0.11 | 0.12 | 0.12 | 0.07 | 1.58 |
| 199 | 420621 | 6214236 | 168 | SSW | 0.09 | 0.10 | 0.06 | 0.11 | 1.19 | 0.00 | 0.08 | 0.08 | 0.11 | 0.12 | 0.11 | 0.11 | 1.54 |
| 200 | 376102 | 6200433 | 198 | SSW | 0.09 | 0.10 | 0.08 | 0.04 | 1.29 | 0.00 | 0.02 | 0.02 | 0.11 | 0.12 | 0.11 | 0.04 | 1.52 |
| 201 | 413544 | 6197673 | 186 | SSW | 0.09 | 0.10 | 0.06 | 0.06 | 1.19 | 0.00 | 0.04 | 0.04 | 0.11 | 0.12 | 0.10 | 0.06 | 1.50 |
| 202 | 435473 | 6200997 | 178 | S | 0.09 | 0.10 | 0.06 | 0.10 | 1.19 | 0.00 | 0.07 | 0.07 | 0.11 | 0.12 | 0.11 | 0.10 | 1.59 |
| 203 | 432308 | 6198262 | 181 | S | 0.09 | 0.10 | 0.06 | 0.09 | 1.19 | 0.00 | 0.06 | 0.06 | 0.12 | 0.12 | 0.12 | 0.09 | 1.65 |
| 204 | 437499 | 6197260 | 181 | S | 0.09 | 0.10 | 0.06 | 0.04 | 1.19 | 0.00 | 0.01 | 0.01 | 0.12 | 0.12 | 0.12 | 0.04 | 1.61 |
| 205 | 426862 | 6184436 | 196 | SSW | 0.09 | 0.10 | 0.06 | 0.12 | 1.19 | 0.00 | 0.09 | 0.09 | 0.11 | 0.12 | 0.11 | 0.12 | 1.54 |
| 206 | 425742 | 6179813 | 201 | SSW | 0.09 | 0.10 | 0.06 | 0.12 | 1.19 | 0.00 | 0.09 | 0.09 | 0.11 | 0.12 | 0.11 | 0.12 | 1.52 |
| 207 | 429371 | 6177905 | 202 | S | 0.09 | 0.10 | 0.06 | 0.06 | 1.19 | 0.00 | 0.03 | 0.03 | 0.11 | 0.12 | 0.11 | 0.06 | 1.53 |
| 208 | 414088 | 6172614 | 210 | SSW | 0.09 | 0.10 | 0.06 | 0.13 | 1.19 | 0.00 | 0.11 | 0.11 | 0.11 | 0.11 | 0.10 | 0.13 | 1.48 |
| 209 | 404923 | 6184861 | 201 | SSW | 0.09 | 0.10 | 0.08 | 0.06 | 1.29 | 0.00 | 0.03 | 0.03 | 0.11 | 0.12 | 0.10 | 0.06 | 1.56 |
| 210 | 383412 | 6181678 | 212 | SSW | 0.09 | 0.10 | 0.08 | 0.04 | 1.29 | 0.00 | 0.02 | 0.02 | 0.11 | 0.12 | 0.11 | 0.04 | 1.51 |
| 211 | 388380 | 6191747 | 200 | SSW | 0.09 | 0.10 | 0.08 | 0.07 | 1.29 | 0.00 | 0.05 | 0.05 | 0.11 | 0.12 | 0.11 | 0.07 | 1.53 |
| 212 | 381000 | 6189159 | 206 | SSW | 0.09 | 0.10 | 0.08 | 0.16 | 1.29 | 0.01 | 0.13 | 0.14 | 0.11 | 0.12 | 0.11 | 0.16 | 1.51 |
| 213 | 376691 | 6184647 | 212 | SSW | 0.09 | 0.10 | 0.08 | 0.26 | 1.29 | 0.00 | 0.24 | 0.24 | 0.11 | 0.12 | 0.11 | 0.26 | 1.50 |
| 214 | 376481 | 6177226 | 218 | SSW | 0.09 | 0.10 | 0.08 | 0.12 | 1.29 | 0.01 | 0.09 | 0.10 | 0.11 | 0.12 | 0.10 | 0.12 | 1.49 |
| 215 | 369298 | 6182079 | 217 | SSW | 0.09 | 0.10 | 0.08 | 0.13 | 1.29 | 0.01 | 0.11 | 0.11 | 0.11 | 0.12 | 0.10 | 0.13 | 1.49 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 216 | 363259 | 6189683 | 213 | SSW | 0.09 | 0.10 | 0.08 | 0.08 | 1.29 | 0.00 | 0.06 | 0.06 | 0.11 | 0.12 | 0.10 | 0.08 | 1.48 |
| 217 | 358952 | 6185800 | 219 | SSW | 0.09 | 0.10 | 0.08 | 0.18 | 1.29 | 0.00 | 0.16 | 0.16 | 0.11 | 0.12 | 0.10 | 0.18 | 1.47 |
| 218 | 452595 | 6196133 | 181 | S | 0.09 | 0.10 | 0.06 | 0.06 | 1.19 | 0.00 | 0.02 | 0.02 | 0.12 | 0.13 | 0.12 | 0.06 | 1.64 |
| 219 | 444220 | 6193451 | 184 | S | 0.09 | 0.10 | 0.06 | 0.06 | 1.19 | 0.00 | 0.02 | 0.02 | 0.12 | 0.12 | 0.12 | 0.06 | 1.61 |
| 220 | 448879 | 6190611 | 187 | S | 0.09 | 0.10 | 0.06 | 0.05 | 1.19 | 0.00 | 0.01 | 0.01 | 0.12 | 0.12 | 0.12 | 0.05 | 1.63 |
| 221 | 458295 | 6193292 | 183 | S | 0.09 | 0.10 | 0.06 | 0.04 | 1.19 | 0.00 | 0.00 | 0.00 | 0.12 | 0.13 | 0.13 | 0.04 | 1.68 |
| 222 | 471892 | 6199682 | 177 | S | 0.09 | 0.10 | 0.07 | 0.06 | 1.23 | 0.00 | 0.01 | 0.01 | 0.13 | 0.14 | 0.15 | 0.06 | 1.81 |
| 223 | 438372 | 6185182 | 193 | S | 0.09 | 0.10 | 0.06 | 0.05 | 1.19 | 0.00 | 0.01 | 0.01 | 0.11 | 0.12 | 0.11 | 0.05 | 1.58 |
| 224 | 443436 | 6173058 | 205 | S | 0.09 | 0.10 | 0.06 | 0.04 | 1.19 | 0.00 | 0.01 | 0.01 | 0.11 | 0.12 | 0.11 | 0.04 | 1.57 |
| 225 | 446589 | 6173942 | 203 | S | 0.09 | 0.10 | 0.06 | 0.04 | 1.19 | 0.00 | 0.01 | 0.01 | 0.11 | 0.12 | 0.11 | 0.04 | 1.59 |
| 226 | 438648 | 6204657 | 174 | S | 0.09 | 0.10 | 0.06 | 0.04 | 1.19 | 0.00 | 0.01 | 0.01 | 0.11 | 0.12 | 0.11 | 0.04 | 1.57 |
| 227 | 520832 | 6196859 | 188 | SSE | 0.09 | 0.10 | 0.07 | 0.09 | 1.23 | 0.00 | 0.03 | 0.03 | 0.15 | 0.15 | 0.18 | 0.09 | 2.08 |
| 228 | 530201 | 6197838 | 190 | SSE | 0.09 | 0.10 | 0.07 | 0.10 | 1.23 | 0.00 | 0.04 | 0.04 | 0.15 | 0.15 | 0.17 | 0.10 | 2.06 |
| 229 | 534391 | 6195087 | 194 | SSE | 0.09 | 0.10 | 0.06 | 0.08 | 1.20 | 0.00 | 0.02 | 0.02 | 0.14 | 0.14 | 0.16 | 0.08 | 1.98 |
| 230 | 533411 | 6186731 | 201 | SSE | 0.09 | 0.10 | 0.06 | 0.07 | 1.20 | 0.00 | 0.01 | 0.01 | 0.14 | 0.14 | 0.17 | 0.07 | 2.02 |
| 231 | 516751 | 6175506 | 207 | SSE | 0.09 | 0.10 | 0.07 | 0.08 | 1.23 | 0.00 | 0.01 | 0.01 | 0.16 | 0.15 | 0.19 | 0.08 | 2.25 |
| 232 | 528841 | 6167222 | 218 | SSE | 0.09 | 0.10 | 0.07 | 0.07 | 1.23 | 0.00 | 0.00 | 0.00 | 0.16 | 0.15 | 0.18 | 0.07 | 2.18 |
| 233 | 502625 | 6165269 | 214 | S | 0.09 | 0.10 | 0.07 | 0.09 | 1.23 | 0.00 | 0.01 | 0.01 | 0.17 | 0.15 | 0.21 | 0.09 | 2.44 |
| 234 | 547077 | 6178511 | 214 | SSE | 0.09 | 0.10 | 0.06 | 0.06 | 1.20 | 0.00 | 0.01 | 0.01 | 0.14 | 0.14 | 0.15 | 0.06 | 1.92 |
| 235 | 548176 | 6173881 | 219 | SSE | 0.09 | 0.10 | 0.06 | 0.15 | 1.20 | 0.00 | - | - | 0.14 | 0.14 | 0.15 | 0.15 | 1.90 |
| 236 | 558657 | 6173086 | 223 | SSE | 0.09 | 0.10 | 0.06 | 0.06 | 1.20 | 0.00 | 0.01 | 0.01 | 0.13 | 0.13 | 0.14 | 0.06 | 1.80 |
| 237 | 531585 | 6150547 | 235 | SSE | 0.10 | 0.11 | 0.09 | 0.07 | 1.41 | 0.00 | 0.01 | 0.01 | 0.15 | 0.15 | 0.18 | 0.07 | 2.08 |
| 238 | 544256 | 6146950 | 242 | SSE | 0.10 | 0.11 | 0.09 | 0.05 | 1.41 | 0.00 | 0.01 | 0.01 | 0.14 | 0.15 | 0.17 | 0.05 | 2.01 |
| 239 | 525364 | 6133813 | 250 | SSE | 0.10 | 0.12 | 0.10 | 0.05 | 1.44 | 0.00 | 0.00 | 0.00 | 0.15 | 0.15 | 0.18 | 0.05 | 2.16 |
| 240 | 514750 | 6146752 | 235 | SSE | 0.10 | 0.12 | 0.10 | 0.08 | 1.44 | 0.00 | 0.00 | 0.00 | 0.17 | 0.17 | 0.22 | 0.08 | 2.34 |
| 241 | 510533 | 6149522 | 231 | S | 0.10 | 0.12 | 0.10 | 0.10 | 1.44 | 0.00 | 0.01 | 0.01 | 0.18 | 0.18 | 0.24 | 0.10 | 2.48 |
| 242 | 464179 | 6147797 | 229 | S | 0.11 | 0.12 | 0.10 | 0.04 | 1.47 | 0.00 | 0.01 | 0.01 | 0.13 | 0.14 | 0.15 | 0.04 | 1.86 |
| 243 | 475751 | 6144012 | 233 | S | 0.10 | 0.12 | 0.10 | 0.04 | 1.44 | 0.00 | 0.01 | 0.01 | 0.13 | 0.14 | 0.16 | 0.04 | 1.89 |
| 244 | 492606 | 6137452 | 240 | S | 0.10 | 0.12 | 0.10 | 0.05 | 1.44 | 0.00 | 0.00 | 0.01 | 0.15 | 0.15 | 0.18 | 0.05 | 2.10 |
| 245 | 468315 | 6136636 | 240 | S | 0.11 | 0.12 | 0.10 | 0.03 | 1.47 | 0.00 | 0.00 | 0.00 | 0.13 | 0.14 | 0.15 | 0.0333 | 1.84 |
| 246 | 452463 | 6135855 | 241 | S | 0.11 | 0.12 | 0.10 | 0.05 | 1.47 | 0.00 | 0.02 | 0.02 | 0.13 | 0.14 | 0.15 | 0.05 | 1.81 |
| 247 | 467222 | 6132003 | 244 | S | 0.11 | 0.12 | 0.10 | 0.04 | 1.47 | 0.00 | 0.01 | 0.01 | 0.13 | 0.14 | 0.15 | 0.04 | 1.83 |
| 248 | 470369 | 6128275 | 248 | S | 0.10 | 0.12 | 0.10 | 0.03 | 1.44 | 0.00 | 0.00 | 0.00 | 0.13 | 0.14 | 0.15 | 0.03 | 1.81 |
| 249 | 465073 | 6127390 | 249 | S | 0.11 | 0.12 | 0.10 | 0.03 | 1.47 | 0.00 | 0.00 | 0.00 | 0.13 | 0.14 | 0.15 | 0.03 | 1.81 |
| 250 | 475613 | 6118973 | 258 | S | 0.10 | 0.12 | 0.10 | 0.04 | 1.44 | 0.00 | 0.01 | 0.01 | 0.13 | 0.14 | 0.15 | 0.04 | 1.84 |
| 251 | 458671 | 6121881 | 255 | S | 0.11 | 0.12 | 0.10 | 0.04 | 1.47 | 0.00 | 0.02 | 0.02 | 0.13 | 0.14 | 0.14 | 0.04 | 1.77 |
| 252 | 458438 | 6096843 | 280 | S | 0.11 | 0.12 | 0.10 | 0.03 | 1.47 | 0.00 | 0.01 | 0.01 | 0.12 | 0.13 | 0.14 | 0.03 | 1.71 |
| 253 | 444801 | 6114608 | 263 | S | 0.11 | 0.12 | 0.10 | 0.06 | 1.47 | 0.00 | 0.04 | 0.04 | 0.12 | 0.13 | 0.14 | 0.06 | 1.72 |
| 254 | 446862 | 6109018 | 268 | S | 0.11 | 0.12 | 0.10 | 0.03 | 1.47 | 0.00 | 0.01 | 0.01 | 0.12 | 0.13 | 0.14 | 0.03 | 1.71 |
| 255 | 443614 | 6104417 | 273 | S | 0.11 | 0.12 | 0.10 | 0.09 | 1.47 | 0.00 | 0.07 | 0.07 | 0.12 | 0.13 | 0.13 | 0.09 | 1.69 |
| 256 | 461651 | 6098662 | 278 | S | 0.11 | 0.12 | 0.10 | 0.11 | 1.47 | 0.00 | 0.08 | 0.08 | 0.12 | 0.13 | 0.14 | 0.11 | 1.73 |
| 257 | 468042 | 6098611 | 278 | S | 0.11 | 0.12 | 0.10 | 0.10 | 1.47 | 0.00 | 0.08 | 0.08 | 0.13 | 0.14 | 0.14 | 0.10 | 1.77 |
| 258 | 470756 | 6106015 | 270 | S | 0.10 | 0.12 | 0.10 | 0.09 | 1.44 | 0.00 | 0.07 | 0.07 | 0.13 | 0.13 | 0.14 | 0.09 | 1.77 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 259 | 476591 | 6104122 | 272 | S | 0.10 | 0.12 | 0.10 | 0.14 | 1.44 | 0.00 | 0.12 | 0.12 | 0.13 | 0.14 | 0.15 | 0.14 | 1.80 |
| 260 | 458576 | 6424282 | 48 | N | 0.07 | 0.08 | 0.03 | 0.42 | 1.01 | 0.00 | 0.39 | 0.39 | 0.11 | 0.11 | 0.10 | 0.42 | 1.55 |
| 261 | 460556 | 6425197 | 49 | N | 0.07 | 0.08 | 0.03 | 0.40 | 1.01 | 0.00 | 0.36 | 0.37 | 0.11 | 0.11 | 0.10 | 0.40 | 1.56 |
| 262 | 463961 | 6419598 | 43 | N | 0.07 | 0.08 | 0.03 | 0.36 | 1.01 | 0.00 | 0.32 | 0.32 | 0.12 | 0.11 | 0.11 | 0.36 | 1.67 |
| 263 | 467958 | 6426055 | 50 | N | 0.07 | 0.08 | 0.03 | 0.12 | 1.01 | 0.00 | - | - | 0.11 | 0.11 | 0.10 | 0.12 | 1.60 |
| 264 | 484228 | 6426882 | 54 | NNE | 0.07 | 0.08 | 0.03 | 0.03 | 0.99 | 0.00 | 0.00 | 0.00 | 0.11 | 0.10 | 0.10 | 0.04 | 1.59 |
| 265 | 486197 | 6425027 | 53 | NNE | 0.07 | 0.08 | 0.03 | 0.04 | 0.99 | 0.00 | 0.01 | 0.01 | 0.12 | 0.10 | 0.10 | 0.04 | 1.62 |
| 266 | 492117 | 6426859 | 57 | NNE | 0.07 | 0.08 | 0.03 | 0.03 | 0.99 | 0.00 | 0.00 | 0.00 | 0.11 | 0.10 | 0.09 | 0.04 | 1.57 |
| 267 | 499012 | 6425927 | 60 | NNE | 0.07 | 0.08 | 0.03 | 0.04 | 0.99 | 0.00 | 0.01 | 0.01 | 0.11 | 0.10 | 0.09 | 0.04 | 1.53 |
| 268 | 503947 | 6424693 | 61 | NE | 0.07 | 0.08 | 0.03 | 0.05 | 0.99 | 0.00 | 0.02 | 0.02 | 0.11 | 0.10 | 0.09 | 0.05 | 1.52 |
| 269 | 505917 | 6424695 | 63 | NE | 0.07 | 0.08 | 0.03 | 0.05 | 0.99 | 0.00 | 0.02 | 0.02 | 0.11 | 0.10 | 0.09 | 0.05 | 1.51 |
| 270 | 498027 | 6419437 | 54 | NE | 0.07 | 0.08 | 0.03 | 0.06 | 0.99 | 0.00 | 0.02 | 0.02 | 0.12 | 0.10 | 0.10 | 0.06 | 1.62 |
| 271 | 511855 | 6417594 | 62 | NE | 0.07 | 0.08 | 0.03 | 0.05 | 0.99 | 0.00 | 0.02 | 0.02 | 0.11 | 0.10 | 0.10 | 0.05 | 1.55 |
| 272 | 522662 | 6427850 | 77 | NE | 0.07 | 0.08 | 0.03 | 0.05 | 0.99 | 0.00 | 0.02 | 0.02 | 0.10 | 0.10 | 0.08 | 0.05 | 1.42 |
| 273 | 521711 | 6422278 | 72 | NE | 0.07 | 0.08 | 0.03 | 0.04 | 0.99 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.09 | 0.04 | 1.45 |
| 274 | 522212 | 6420422 | 71 | NE | 0.07 | 0.08 | 0.03 | 0.04 | 0.99 | 0.00 | 0.01 | 0.01 | 0.10 | 0.10 | 0.09 | 0.04 | 1.46 |
| 275 | 541491 | 6417792 | 86 | ENE | 0.07 | 0.08 | 0.02 | 0.05 | 0.95 | 0.00 | 0.02 | 0.02 | 0.10 | 0.10 | 0.07 | 0.05 | 1.34 |
| 276 | 519738 | 6421333 | 70 | NE | 0.07 | 0.08 | 0.03 | 0.04 | 0.99 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.09 | 0.04 | 1.47 |
| 277 | 513886 | 6400901 | 54 | ENE | 0.07 | 0.08 | 0.03 | 0.13 | 0.99 | 0.00 | - | - | 0.13 | 0.11 | 0.12 | 0.13 | 1.78 |
| 278 | 508959 | 6386971 | 44 | ENE | 0.07 | 0.08 | 0.03 | 0.07 | 0.99 | 0.00 | 0.00 | 0.00 | 0.15 | 0.12 | 0.15 | 0.07 | 2.12 |
| 279 | 527848 | 6390764 | 64 | ENE | 0.07 | 0.08 | 0.03 | 0.13 | 0.99 | 0.00 | - | - | 0.12 | 0.11 | 0.12 | 0.13 | 1.69 |
| 280 | 527874 | 6387057 | 63 | E | 0.07 | 0.08 | 0.03 | 0.05 | 0.99 | 0.00 | 0.00 | 0.00 | 0.12 | 0.12 | 0.12 | 0.05 | 1.72 |
| 281 | 528885 | 6384281 | 63 | E | 0.07 | 0.08 | 0.03 | 0.13 | 0.99 | 0.00 | - | - | 0.12 | 0.12 | 0.12 | 0.13 | 1.71 |
| 282 | 513963 | 6378636 | 48 | E | 0.07 | 0.08 | 0.03 | 0.15 | 0.99 | 0.00 | - | - | 0.15 | 0.13 | 0.16 | 0.15 | 2.13 |
| 283 | 506991 | 6374911 | 41 | E | 0.07 | 0.08 | 0.03 | 0.08 | 0.99 | 0.00 | 0.00 | 0.00 | 0.19 | 0.13 | 0.20 | 0.08 | 2.60 |
| 284 | 542056 | 6363054 | 77 | E | 0.08 | 0.09 | 0.04 | 0.05 | 1.09 | 0.00 | 0.00 | 0.00 | 0.12 | 0.12 | 0.12 | 0.05 | 1.69 |
| 299 | 350513 | 6315437 | 131 | WSW | 0.08 | 0.09 | 0.05 | 0.24 | 1.16 | 0.00 | 0.22 | 0.22 | 0.10 | 0.11 | 0.09 | 0.24 | 1.39 |
| 300 | 365323 | 6302862 | 125 | SW | 0.08 | 0.09 | 0.05 | 0.04 | 1.16 | 0.00 | 0.01 | 0.01 | 0.10 | 0.11 | 0.09 | 0.04 | 1.43 |
| 301 | 349070 | 6289492 | 146 | SW | 0.08 | 0.09 | 0.05 | 0.05 | 1.16 | 0.00 | 0.03 | 0.03 | 0.10 | 0.11 | 0.08 | 0.05 | 1.38 |
| 302 | 361754 | 6287198 | 137 | SW | 0.08 | 0.09 | 0.05 | 0.28 | 1.16 | 0.00 | 0.26 | 0.26 | 0.10 | 0.11 | 0.09 | 0.28 | 1.41 |
| 304 | 351247 | 6264347 | 160 | SW | 0.08 | 0.09 | 0.05 | 0.52 | 1.16 | 0.00 | 0.50 | 0.50 | 0.10 | 0.11 | 0.09 | 0.52 | 1.38 |
| 306 | 350527 | 6214242 | 199 | SW | 0.09 | 0.10 | 0.08 | 0.06 | 1.29 | 0.02 | 0.02 | 0.05 | 0.11 | 0.12 | 0.10 | 0.07 | 1.48 |
| 314 | 349626 | 6188281 | 221 | SSW | 0.09 | 0.10 | 0.08 | 0.26 | 1.29 | 0.00 | 0.24 | 0.24 | 0.10 | 0.12 | 0.10 | 0.26 | 1.46 |
| 316 | 374162 | 6271211 | 140 | SW | 0.08 | 0.09 | 0.05 | 0.11 | 1.16 | 0.00 | 0.08 | 0.08 | 0.10 | 0.11 | 0.10 | 0.11 | 1.45 |
| 317 | 505832 | 6347134 | 49 | SE | 0.08 | 0.09 | 0.04 | 0.21 | 1.08 | 0.00 | 0.07 | 0.07 | 0.23 | 0.19 | 0.30 | 0.21 | 3.23 |
| 318 | 503318 | 6346085 | 48 | SE | 0.08 | 0.09 | 0.04 | 0.20 | 1.08 | 0.00 | 0.07 | 0.07 | 0.23 | 0.18 | 0.28 | 0.20 | 3.18 |
| 319 | 510355 | 6325681 | 67 | SE | 0.08 | 0.09 | 0.04 | 0.18 | 1.08 | 0.00 | 0.07 | 0.07 | 0.17 | 0.17 | 0.22 | 0.18 | 2.35 |
| 320 | 533212 | 6338082 | 77 | ESE | 0.08 | 0.09 | 0.04 | 0.13 | 1.09 | 0.00 | 0.07 | 0.07 | 0.13 | 0.14 | 0.15 | 0.13 | 1.88 |
| 321 | 543215 | 6362610 | 78 | E | 0.08 | 0.09 | 0.04 | 0.10 | 1.09 | 0.00 | 0.05 | 0.05 | 0.12 | 0.12 | 0.12 | 0.10 | 1.68 |
| 322 | 548424 | 6332453 | 93 | ESE | 0.08 | 0.09 | 0.04 | 0.39 | 1.09 | 0.00 | 0.34 | 0.34 | 0.12 | 0.12 | 0.12 | 0.39 | 1.62 |
| 323 | 410108 | 6374038 | 56 | W | 0.07 | 0.08 | 0.03 | 0.15 | 1.01 | 0.00 | 0.11 | 0.11 | 0.10 | 0.11 | 0.10 | 0.15 | 1.36 |
| 324 | 410554 | 6378483 | 55 | W | 0.07 | 0.08 | 0.03 | 0.14 | 1.01 | 0.00 | 0.11 | 0.11 | 0.10 | 0.11 | 0.09 | 0.14 | 1.36 |
| 325 | 410374 | 6386071 | 56 | W | 0.07 | 0.08 | 0.03 | 0.11 | 1.01 | 0.00 | 0.08 | 0.08 | 0.10 | 0.11 | 0.09 | 0.11 | 1.34 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 326 | 418434 | 6390656 | 50 | WNW | 0.07 | 0.08 | 0.03 | 0.08 | 1.01 | 0.00 | 0.04 | 0.04 | 0.10 | 0.11 | 0.09 | 0.08 | 1.36 |
| 327 | 432609 | 6405149 | 44 | NW | 0.07 | 0.08 | 0.03 | 0.07 | 1.01 | 0.00 | 0.04 | 0.04 | 0.10 | 0.11 | 0.09 | 0.07 | 1.39 |
| 328 | 433258 | 6399414 | 40 | NW | 0.07 | 0.08 | 0.03 | 0.08 | 1.01 | 0.00 | 0.05 | 0.05 | 0.10 | 0.11 | 0.09 | 0.08 | 1.43 |
| 329 | 464280 | 6323724 | 53 | S | 0.08 | 0.09 | 0.05 | 1.00 | 1.11 | 0.01 | 0.45 | 0.45 | 0.39 | 0.56 | 0.83 | 1.00 | 5.46 |
| 330 | 509160 | 6422381 | 63 | NE | 0.07 | 0.08 | 0.03 | 0.08 | 0.99 | 0.00 | 0.05 | 0.05 | 0.11 | 0.10 | 0.09 | 0.08 | 1.51 |
| 331 | 501166 | 6427071 | 62 | NE | 0.07 | 0.08 | 0.03 | 0.06 | 0.99 | 0.00 | 0.02 | 0.02 | 0.11 | 0.10 | 0.09 | 0.06 | 1.51 |
| 332 | 494569 | 6419374 | 52 | NNE | 0.07 | 0.08 | 0.03 | 0.04 | 0.99 | 0.00 | 0.00 | 0.00 | 0.12 | 0.10 | 0.10 | 0.04 | 1.65 |
| 333 | 491985 | 6411117 | 43 | NE | 0.07 | 0.08 | 0.03 | 0.08 | 0.99 | 0.00 | 0.03 | 0.03 | 0.13 | 0.11 | 0.12 | 0.08 | 1.80 |
| 334 | 429234 | 6396488 | 42 | WNW | 0.07 | 0.08 | 0.03 | 0.06 | 1.01 | 0.00 | 0.03 | 0.03 | 0.10 | 0.11 | 0.09 | 0.06 | 1.41 |
| 335 | 392149 | 6393777 | 76 | WNW | 0.08 | 0.08 | 0.04 | 0.17 | 1.06 | 0.00 | 0.14 | 0.14 | 0.09 | 0.11 | 0.08 | 0.17 | 1.32 |
| 336 | 399507 | 6338927 | 76 | WSW | 0.08 | 0.09 | 0.05 | 0.13 | 1.16 | 0.00 | 0.09 | 0.09 | 0.12 | 0.13 | 0.12 | 0.13 | 1.61 |
| 337 | 399323 | 6341684 | 75 | WSW | 0.08 | 0.09 | 0.05 | 0.40 | 1.16 | 0.01 | 0.35 | 0.36 | 0.11 | 0.13 | 0.12 | 0.40 | 1.60 |
| 338 | 396115 | 6344270 | 77 | WSW | 0.08 | 0.09 | 0.05 | 2.11 | 1.16 | 0.04 | 2.03 | 2.07 | 0.11 | 0.13 | 0.12 | 2.11 | 1.57 |
| 339 | 391449 | 6339131 | 83 | WSW | 0.08 | 0.09 | 0.05 | 1.16 | 1.16 | 0.00 | 1.12 | 1.12 | 0.11 | 0.12 | 0.11 | 1.16 | 1.55 |
| 340 | 376224 | 6344078 | 95 | WSW | 0.08 | 0.09 | 0.05 | 0.33 | 1.16 | 0.00 | 0.30 | 0.30 | 0.10 | 0.12 | 0.10 | 0.33 | 1.46 |
| 341 | 375397 | 6341720 | 97 | WSW | 0.08 | 0.09 | 0.05 | 0.26 | 1.16 | 0.00 | 0.23 | 0.23 | 0.10 | 0.12 | 0.10 | 0.26 | 1.46 |
| 342 | 365956 | 6368725 | 100 | W | 0.08 | 0.09 | 0.05 | 0.11 | 1.16 | 0.00 | 0.08 | 0.08 | 0.10 | 0.11 | 0.08 | 0.11 | 1.38 |
| 343 | 373071 | 6372273 | 93 | W | 0.08 | 0.09 | 0.05 | 0.04 | 1.16 | 0.00 | 0.02 | 0.02 | 0.10 | 0.11 | 0.08 | 0.04 | 1.38 |
| 344 | 393655 | 6384983 | 73 | W | 0.08 | 0.08 | 0.04 | 0.10 | 1.06 | 0.00 | 0.07 | 0.07 | 0.10 | 0.11 | 0.08 | 0.10 | 1.33 |
| 345 | 418473 | 6380143 | 48 | W | 0.07 | 0.08 | 0.03 | 0.14 | 1.01 | 0.00 | 0.10 | 0.10 | 0.10 | 0.11 | 0.09 | 0.14 | 1.40 |
| 346 | 420461 | 6379858 | 46 | W | 0.07 | 0.08 | 0.03 | 0.06 | 1.01 | 0.00 | 0.02 | 0.02 | 0.10 | 0.12 | 0.10 | 0.06 | 1.42 |
| 347 | 514035 | 6443734 | 83 | NE | 0.07 | 0.08 | 0.03 | 0.03 | 0.99 | 0.00 | 0.00 | 0.00 | 0.10 | 0.10 | 0.08 | 0.03 | 1.37 |
| 348 | 515504 | 6436008 | 77 | NE | 0.07 | 0.08 | 0.03 | 0.04 | 0.99 | 0.00 | 0.01 | 0.01 | 0.10 | 0.10 | 0.08 | 0.04 | 1.39 |
| 349 | 539134 | 6441490 | 98 | NE | 0.07 | 0.08 | 0.02 | 0.05 | 0.95 | 0.00 | 0.02 | 0.02 | 0.09 | 0.10 | 0.07 | 0.05 | 1.31 |
| 350 | 536958 | 6436149 | 93 | NE | 0.07 | 0.08 | 0.02 | 0.04 | 0.95 | 0.00 | 0.01 | 0.02 | 0.09 | 0.10 | 0.07 | 0.04 | 1.32 |
| 351 | 413276 | 6411466 | 63 | WNW | 0.07 | 0.08 | 0.03 | 0.10 | 1.01 | 0.00 | 0.07 | 0.07 | 0.09 | 0.10 | 0.07 | 0.10 | 1.27 |
| 352 | 419591 | 6414486 | 60 | NW | 0.07 | 0.08 | 0.03 | 0.14 | 1.01 | 0.00 | 0.11 | 0.11 | 0.09 | 0.10 | 0.07 | 0.14 | 1.29 |
| 373 | 361308 | 6293772 | 133 | SW | 0.08 | 0.09 | 0.05 | 0.49 | 1.16 | 0.00 | 0.47 | 0.47 | 0.10 | 0.11 | 0.09 | 0.49 | 1.41 |
| 374 | 354281 | 6317284 | 126 | WSW | 0.08 | 0.09 | 0.05 | 0.19 | 1.16 | 0.00 | 0.17 | 0.17 | 0.10 | 0.11 | 0.09 | 0.19 | 1.40 |
| 405 | 448002 | 6287963 | 90 | SSW | 0.08 | 0.09 | 0.05 | 0.18 | 1.11 | 0.01 | 0.08 | 0.09 | 0.15 | 0.16 | 0.19 | 0.18 | 2.16 |
| 406 | 423003 | 6353012 | 49 | WSW | 0.08 | 0.09 | 0.05 | 0.26 | 1.11 | 0.01 | 0.19 | 0.20 | 0.12 | 0.13 | 0.14 | 0.26 | 1.73 |
| 407 | 418303 | 6353462 | 53 | WSW | 0.08 | 0.09 | 0.05 | 0.66 | 1.11 | 0.01 | 0.61 | 0.62 | 0.12 | 0.13 | 0.12 | 0.66 | 1.63 |
| 408 | 427803 | 6363462 | 40 | WSW | 0.08 | 0.09 | 0.05 | 0.99 | 1.11 | 0.01 | 0.92 | 0.93 | 0.12 | 0.14 | 0.14 | 0.99 | 1.74 |
| 409 | 428803 | 6363212 | 39 | WSW | 0.08 | 0.09 | 0.05 | 0.83 | 1.11 | 0.01 | 0.76 | 0.77 | 0.13 | 0.14 | 0.15 | 0.83 | 1.77 |
| 410 | 429003 | 6364212 | 39 | WSW | 0.08 | 0.09 | 0.05 | 0.74 | 1.11 | 0.01 | 0.66 | 0.67 | 0.13 | 0.14 | 0.15 | 0.74 | 1.76 |
| 411 | 481401 | 6362412 | 21 | SE | 0.08 | 0.09 | 0.04 | 0.26 | 1.08 | 0.00 | 0.13 | 0.13 | 0.30 | 0.16 | 0.34 | 0.26 | 4.17 |
| 412 | 438802 | 6390961 | 31 | WNW | 0.07 | 0.08 | 0.03 | 0.16 | 1.01 | 0.01 | 0.10 | 0.11 | 0.11 | 0.12 | 0.11 | 0.16 | 1.54 |
| 413 | 505000 | 6342512 | 52 | SE | 0.08 | 0.09 | 0.04 | 0.17 | 1.08 | 0.01 | 0.04 | 0.05 | 0.20 | 0.17 | 0.25 | 0.17 | 2.79 |
| 414 | 510500 | 6340812 | 57 | SE | 0.08 | 0.09 | 0.04 | 0.20 | 1.08 | 0.01 | 0.05 | 0.06 | 0.20 | 0.20 | 0.27 | 0.20 | 2.79 |
| 415 | 483501 | 6360762 | 23 | SE | 0.08 | 0.09 | 0.04 | 0.22 | 1.08 | 0.01 | 0.08 | 0.09 | 0.31 | 0.16 | 0.35 | 0.22 | 4.34 |
| 416 | 498500 | 6314213 | 70 | SSE | 0.08 | 0.09 | 0.04 | 0.21 | 1.08 | 0.00 | 0.08 | 0.08 | 0.19 | 0.19 | 0.26 | 0.21 | 2.67 |
| 417 | 514199 | 6382911 | 49 | E | 0.07 | 0.08 | 0.03 | 0.11 | 0.99 | 0.01 | 0.04 | 0.04 | 0.15 | 0.12 | 0.15 | 0.11 | 2.07 |
| 418 | 510100 | 6378311 | 44 | E | 0.07 | 0.08 | 0.03 | 0.10 | 0.99 | 0.01 | 0.03 | 0.03 | 0.17 | 0.13 | 0.17 | 0.11 | 2.31 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 419 | 518699 | 6364212 | 54 | ESE | 0.08 | 0.09 | 0.04 | 0.09 | 1.08 | 0.00 | 0.02 | 0.02 | 0.15 | 0.14 | 0.17 | 0.09 | 2.16 |
| 420 | 479201 | 6352812 | 27 | SSE | 0.08 | 0.09 | 0.04 | 0.23 | 1.08 | 0.01 | 0.06 | 0.07 | 0.38 | 0.17 | 0.43 | 0.23 | 5.29 |
| 421 | 512450 | 6345512 | 56 | ESE | 0.08 | 0.09 | 0.04 | 0.22 | 1.08 | 0.01 | 0.06 | 0.07 | 0.22 | 0.20 | 0.30 | 0.22 | 3.06 |
| 422 | 522999 | 6333312 | 71 | SE | 0.08 | 0.09 | 0.04 | 0.19 | 1.08 | 0.01 | 0.10 | 0.10 | 0.15 | 0.15 | 0.18 | 0.19 | 2.07 |
| 423 | 529099 | 6334462 | 76 | ESE | 0.08 | 0.09 | 0.04 | 0.25 | 1.08 | 0.01 | 0.16 | 0.18 | 0.14 | 0.14 | 0.16 | 0.25 | 1.92 |
| 424 | 500600 | 6320312 | 66 | SSE | 0.08 | 0.09 | 0.04 | 0.20 | 1.08 | 0.01 | 0.06 | 0.07 | 0.19 | 0.18 | 0.25 | 0.20 | 2.60 |
| 425 | 502300 | 6317712 | 69 | SSE | 0.08 | 0.09 | 0.04 | 0.21 | 1.08 | 0.01 | 0.08 | 0.09 | 0.18 | 0.18 | 0.25 | 0.21 | 2.53 |
| 426 | 447802 | 6388211 | 22 | WNW | 0.07 | 0.08 | 0.03 | 0.51 | 1.01 | 0.01 | 0.45 | 0.46 | 0.13 | 0.12 | 0.13 | 0.52 | 1.81 |
| 428 | 444752 | 6392311 | 27 | NW | 0.07 | 0.08 | 0.03 | 0.32 | 1.01 | 0.01 | 0.25 | 0.26 | 0.12 | 0.12 | 0.12 | 0.32 | 1.66 |
| 429 | 451552 | 6394711 | 23 | NW | 0.07 | 0.08 | 0.03 | 0.71 | 1.01 | 0.01 | 0.64 | 0.65 | 0.13 | 0.13 | 0.14 | 0.71 | 1.88 |
| 430 | 461502 | 6391111 | 15 | NNW | 0.07 | 0.08 | 0.03 | 0.44 | 1.01 | 0.00 | 0.37 | 0.37 | 0.16 | 0.12 | 0.17 | 0.44 | 2.30 |
| 431 | 451302 | 6395711 | 24 | NW | 0.07 | 0.08 | 0.03 | 0.28 | 1.01 | 0.01 | 0.21 | 0.22 | 0.13 | 0.13 | 0.14 | 0.28 | 1.85 |
| 432 | 512600 | 6343712 | 57 | SE | 0.08 | 0.09 | 0.04 | 0.22 | 1.08 | 0.01 | 0.06 | 0.07 | 0.20 | 0.20 | 0.28 | 0.22 | 2.86 |
| 433 | 437402 | 6398711 | 36 | NW | 0.07 | 0.08 | 0.03 | 0.21 | 1.01 | 0.01 | 0.16 | 0.18 | 0.11 | 0.11 | 0.10 | 0.21 | 1.47 |
| 434 | 425103 | 6385111 | 42 | WNW | 0.07 | 0.08 | 0.03 | 0.15 | 1.01 | 0.02 | 0.08 | 0.11 | 0.10 | 0.11 | 0.10 | 0.15 | 1.42 |
| 435 | 427503 | 6387611 | 40 | WNW | 0.07 | 0.08 | 0.03 | 0.12 | 1.01 | 0.01 | 0.07 | 0.08 | 0.10 | 0.11 | 0.10 | 0.12 | 1.43 |
| 436 | 429803 | 6377462 | 36 | W | 0.07 | 0.08 | 0.03 | 0.14 | 1.01 | 0.01 | 0.08 | 0.09 | 0.11 | 0.12 | 0.11 | 0.14 | 1.52 |
| 437 | 428903 | 6400411 | 44 | WNW | 0.07 | 0.08 | 0.03 | 0.48 | 1.01 | 0.01 | 0.44 | 0.45 | 0.10 | 0.11 | 0.09 | 0.48 | 1.39 |
| 438 | 438202 | 6391811 | 32 | WNW | 0.07 | 0.08 | 0.03 | 0.14 | 1.01 | 0.01 | 0.09 | 0.10 | 0.11 | 0.11 | 0.10 | 0.15 | 1.53 |
| 439 | 438752 | 6392211 | 31 | WNW | 0.07 | 0.08 | 0.03 | 0.15 | 1.01 | 0.01 | 0.10 | 0.11 | 0.11 | 0.11 | 0.10 | 0.15 | 1.53 |
| 440 | 516249 | 6343212 | 60 | ESE | 0.08 | 0.09 | 0.04 | 0.15 | 1.08 | 0.01 | 0.04 | 0.05 | 0.17 | 0.16 | 0.21 | 0.15 | 2.36 |
| 441 | 416203 | 6370462 | 50 | W | 0.08 | 0.09 | 0.05 | 0.16 | 1.11 | 0.01 | 0.11 | 0.12 | 0.11 | 0.12 | 0.11 | 0.16 | 1.52 |
| 442 | 422403 | 6371812 | 44 | W | 0.08 | 0.09 | 0.05 | 0.25 | 1.11 | 0.01 | 0.19 | 0.21 | 0.11 | 0.13 | 0.12 | 0.25 | 1.58 |
| 443 | 411153 | 6350112 | 61 | WSW | 0.08 | 0.09 | 0.05 | 1.38 | 1.11 | 0.01 | 1.33 | 1.34 | 0.11 | 0.12 | 0.11 | 1.38 | 1.57 |
| 444 | 426003 | 6373212 | 40 | W | 0.07 | 0.08 | 0.03 | 0.17 | 1.01 | 0.01 | 0.11 | 0.12 | 0.11 | 0.12 | 0.12 | 0.17 | 1.51 |
| 445 | 524699 | 6341212 | 68 | ESE | 0.08 | 0.09 | 0.04 | 0.15 | 1.08 | 0.01 | 0.06 | 0.07 | 0.15 | 0.15 | 0.18 | 0.15 | 2.05 |
| 446 | 436852 | 6332462 | 53 | SSW | 0.08 | 0.09 | 0.05 | 0.16 | 1.11 | 0.01 | 0.08 | 0.09 | 0.16 | 0.14 | 0.18 | 0.16 | 2.23 |
| 447 | 433852 | 6330512 | 56 | SW | 0.08 | 0.09 | 0.05 | 0.21 | 1.11 | 0.01 | 0.14 | 0.14 | 0.15 | 0.13 | 0.16 | 0.21 | 2.08 |
| 449 | 443552 | 6301613 | 78 | SSW | 0.08 | 0.09 | 0.05 | 0.23 | 1.11 | 0.01 | 0.13 | 0.14 | 0.17 | 0.16 | 0.20 | 0.23 | 2.31 |
| 450 | 451402 | 6281113 | 96 | S | 0.08 | 0.09 | 0.05 | 0.15 | 1.11 | 0.01 | 0.06 | 0.06 | 0.15 | 0.16 | 0.18 | 0.15 | 2.06 |
| 451 | 445481 | 6278365 | 100 | SSW | 0.08 | 0.09 | 0.05 | 0.16 | 1.11 | 0.01 | 0.08 | 0.09 | 0.14 | 0.15 | 0.16 | 0.16 | 1.93 |
| 452 | 493296 | 6259805 | 120 | SSE | 0.09 | 0.10 | 0.07 | 0.24 | 1.23 | 0.02 | 0.12 | 0.14 | 0.16 | 0.18 | 0.21 | 0.24 | 2.20 |
| 453 | 495869 | 6259633 | 121 | SSE | 0.09 | 0.10 | 0.07 | 0.17 | 1.23 | 0.01 | 0.06 | 0.07 | 0.16 | 0.18 | 0.22 | 0.17 | 2.27 |
| 455 | 498560 | 6265951 | 115 | SSE | 0.08 | 0.09 | 0.04 | 0.18 | 1.08 | 0.01 | 0.08 | 0.09 | 0.15 | 0.16 | 0.19 | 0.18 | 2.07 |
| 456 | 448416 | 6280450 | 98 | S | 0.08 | 0.09 | 0.05 | 0.16 | 1.11 | 0.01 | 0.07 | 0.08 | 0.14 | 0.15 | 0.18 | 0.16 | 2.01 |
| 457 | 442406 | 6276535 | 103 | SSW | 0.08 | 0.09 | 0.05 | 0.14 | 1.11 | 0.01 | 0.07 | 0.07 | 0.13 | 0.14 | 0.15 | 0.14 | 1.87 |
| 458 | 446055 | 6279117 | 99 | SSW | 0.08 | 0.09 | 0.05 | 0.19 | 1.11 | 0.01 | 0.11 | 0.11 | 0.14 | 0.15 | 0.17 | 0.19 | 1.95 |
| 459 | 451429 | 6268553 | 109 | S | 0.08 | 0.09 | 0.05 | 0.13 | 1.11 | 0.01 | 0.05 | 0.05 | 0.13 | 0.15 | 0.16 | 0.13 | 1.88 |
| 460 | 450033 | 6268135 | 109 | S | 0.08 | 0.09 | 0.05 | 0.13 | 1.11 | 0.01 | 0.06 | 0.07 | 0.13 | 0.14 | 0.15 | 0.13 | 1.84 |
| 461 | 479616 | 6256890 | 120 | S | 0.09 | 0.10 | 0.07 | 0.31 | 1.23 | 0.01 | 0.21 | 0.22 | 0.15 | 0.17 | 0.20 | 0.31 | 2.12 |
| 462 | 471630 | 6268385 | 108 | S | 0.08 | 0.09 | 0.04 | 0.47 | 1.08 | 0.01 | 0.37 | 0.38 | 0.14 | 0.16 | 0.18 | 0.47 | 1.97 |
| 463 | 488075 | 6256727 | 122 | S | 0.09 | 0.10 | 0.07 | 0.36 | 1.23 | 0.01 | 0.26 | 0.26 | 0.15 | 0.17 | 0.20 | 0.36 | 2.13 |
| 464 | 505194 | 6347380 | 49 | SE | 0.08 | 0.09 | 0.04 | 0.17 | 1.08 | 0.01 | 0.03 | 0.04 | 0.23 | 0.18 | 0.29 | 0.17 | 3.19 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 465 | 507264 | 6347115 | 51 | SE | 0.08 | 0.09 | 0.04 | 0.20 | 1.08 | 0.01 | 0.03 | 0.04 | 0.25 | 0.20 | 0.33 | 0.20 | 3.45 |
| 466 | 505393 | 6346711 | 49 | SE | 0.08 | 0.09 | 0.04 | 0.19 | 1.08 | 0.01 | 0.05 | 0.06 | 0.22 | 0.18 | 0.29 | 0.19 | 3.15 |
| 467 | 502509 | 6317128 | 70 | SSE | 0.08 | 0.09 | 0.04 | 0.20 | 1.08 | 0.01 | 0.07 | 0.08 | 0.18 | 0.19 | 0.25 | 0.20 | 2.53 |
| 468 | 429874 | 6398738 | 42 | WNW | 0.07 | 0.08 | 0.03 | 0.21 | 1.01 | 0.01 | 0.16 | 0.17 | 0.10 | 0.11 | 0.09 | 0.21 | 1.41 |
| 469 | 430065 | 6401484 | 44 | NW | 0.07 | 0.08 | 0.03 | 0.42 | 1.01 | 0.01 | 0.37 | 0.39 | 0.10 | 0.11 | 0.09 | 0.42 | 1.39 |
| 470 | 433955 | 6393613 | 36 | WNW | 0.07 | 0.08 | 0.03 | 0.18 | 1.01 | 0.01 | 0.13 | 0.14 | 0.10 | 0.11 | 0.10 | 0.18 | 1.46 |
| 471 | 438235 | 6392291 | 32 | WNW | 0.07 | 0.08 | 0.03 | 0.16 | 1.01 | 0.01 | 0.10 | 0.11 | 0.11 | 0.11 | 0.10 | 0.16 | 1.52 |
| 472 | 448974 | 6395163 | 25 | NW | 0.07 | 0.08 | 0.03 | 0.13 | 1.01 | 0.01 | 0.06 | 0.07 | 0.13 | 0.12 | 0.13 | 0.13 | 1.77 |
| 473 | 460733 | 6391206 | 16 | NNW | 0.07 | 0.08 | 0.03 | 0.26 | 1.01 | 0.00 | 0.20 | 0.20 | 0.16 | 0.12 | 0.16 | 0.27 | 2.26 |
| 474 | 445573 | 6383359 | 22 | WNW | 0.07 | 0.08 | 0.03 | 0.82 | 1.01 | 0.01 | 0.76 | 0.76 | 0.13 | 0.12 | 0.13 | 0.82 | 1.79 |
| 475 | 436094 | 6371181 | 30 | W | 0.08 | 0.09 | 0.05 | 0.21 | 1.11 | 0.01 | 0.13 | 0.14 | 0.13 | 0.14 | 0.15 | 0.21 | 1.82 |
| 476 | 511576 | 6415521 | 60 | NE | 0.07 | 0.08 | 0.03 | 0.09 | 0.99 | 0.00 | 0.05 | 0.05 | 0.11 | 0.11 | 0.10 | 0.09 | 1.58 |
| 477 | 495763 | 6333877 | 52 | SE | 0.08 | 0.09 | 0.04 | 0.19 | 1.08 | 0.01 | 0.05 | 0.06 | 0.22 | 0.19 | 0.28 | 0.19 | 3.02 |
| 478 | 492308 | 6313536 | 68 | SSE | 0.08 | 0.09 | 0.04 | 0.23 | 1.08 | 0.01 | 0.06 | 0.07 | 0.22 | 0.21 | 0.31 | 0.23 | 3.11 |
| 479 | 491531 | 6306260 | 75 | SSE | 0.08 | 0.09 | 0.04 | 0.22 | 1.08 | 0.01 | 0.07 | 0.07 | 0.22 | 0.20 | 0.30 | 0.22 | 3.14 |
| 480 | 513560 | 6419693 | 64 | NE | 0.07 | 0.08 | 0.03 | 0.09 | 0.99 | 0.00 | 0.06 | 0.06 | 0.11 | 0.10 | 0.09 | 0.09 | 1.52 |
| 481 | 513190 | 6386987 | 48 | ENE | 0.07 | 0.08 | 0.03 | 0.11 | 0.99 | 0.01 | 0.04 | 0.05 | 0.14 | 0.12 | 0.14 | 0.11 | 2.01 |
| 482 | 514631 | 6383486 | 49 | E | 0.07 | 0.08 | 0.03 | 0.12 | 0.99 | 0.01 | 0.05 | 0.06 | 0.15 | 0.12 | 0.15 | 0.12 | 2.04 |
| 483 | 511202 | 6379065 | 45 | E | 0.07 | 0.08 | 0.03 | 0.14 | 0.99 | 0.01 | 0.06 | 0.07 | 0.16 | 0.13 | 0.17 | 0.14 | 2.24 |
| 484 | 510279 | 6375937 | 44 | E | 0.07 | 0.08 | 0.03 | 0.12 | 0.99 | 0.01 | 0.04 | 0.04 | 0.17 | 0.13 | 0.18 | 0.12 | 2.35 |
| 485 | 495957 | 6334968 | 51 | SE | 0.08 | 0.09 | 0.04 | 0.21 | 1.08 | 0.01 | 0.07 | 0.08 | 0.22 | 0.19 | 0.28 | 0.21 | 3.05 |
| 486 | 414747 | 6351741 | 57 | WSW | 0.08 | 0.09 | 0.05 | 0.70 | 1.11 | 0.02 | 0.64 | 0.66 | 0.11 | 0.12 | 0.12 | 0.70 | 1.60 |
| 487 | 419555 | 6351513 | 53 | WSW | 0.08 | 0.09 | 0.05 | 0.38 | 1.11 | 0.01 | 0.33 | 0.33 | 0.12 | 0.13 | 0.13 | 0.39 | 1.67 |
| 488 | 412268 | 6345506 | 62 | WSW | 0.08 | 0.09 | 0.05 | 0.22 | 1.11 | 0.01 | 0.17 | 0.18 | 0.12 | 0.12 | 0.12 | 0.22 | 1.62 |
| 515 | 526700 | 6079500 | 303 | SSE | 0.10 | 0.12 | 0.10 | 0.19 | 1.44 | 0.00 | 0.11 | 0.11 | 0.17 | 0.18 | 0.23 | 0.19 | 2.35 |
| 516 | 522000 | 6064200 | 317 | S | 0.10 | 0.12 | 0.10 | 0.15 | 1.44 | 0.00 | 0.09 | 0.09 | 0.15 | 0.17 | 0.20 | 0.15 | 2.08 |
| 517 | 529300 | 6059500 | 323 | SSE | 0.10 | 0.12 | 0.10 | 0.10 | 1.44 | 0.00 | 0.03 | 0.03 | 0.15 | 0.17 | 0.20 | 0.10 | 2.08 |
| 518 | 516000 | 6052000 | 328 | S | 0.10 | 0.12 | 0.10 | 0.04 | 1.44 | 0.00 | 0.00 | 0.00 | 0.13 | 0.15 | 0.16 | 0.04 | 1.83 |
| 519 | 545000 | 6054000 | 332 | SSE | 0.10 | 0.11 | 0.09 | 0.09 | 1.41 | 0.00 | 0.03 | 0.03 | 0.14 | 0.17 | 0.19 | 0.09 | 1.94 |
| 520 | 532000 | 6050000 | 333 | SSE | 0.10 | 0.11 | 0.09 | 0.09 | 1.41 | 0.01 | 0.02 | 0.03 | 0.14 | 0.17 | 0.19 | 0.09 | 1.94 |
| 521 | 525300 | 6042700 | 339 | S | 0.10 | 0.12 | 0.10 | 0.10 | 1.44 | 0.00 | 0.06 | 0.06 | 0.13 | 0.15 | 0.16 | 0.10 | 1.80 |
| 522 | 542102 | 6042790 | 342 | SSE | 0.10 | 0.11 | 0.09 | 0.09 | 1.41 | 0.00 | 0.03 | 0.03 | 0.13 | 0.17 | 0.18 | 0.09 | 1.89 |
| 523 | 537000 | 6041000 | 343 | SSE | 0.10 | 0.11 | 0.09 | 0.12 | 1.41 | 0.00 | 0.07 | 0.07 | 0.13 | 0.16 | 0.17 | 0.12 | 1.86 |
| 524 | 598819 | 6389537 | 133 | E | 0.07 | 0.08 | 0.03 | 0.17 | 0.99 | - | - | - | 0.09 | 0.10 | 0.06 | 0.17 | 1.22 |
| 525 | 604633 | 6383668 | 139 | E | 0.07 | 0.08 | 0.03 | 0.17 | 0.99 | - | - | - | 0.09 | 0.10 | 0.06 | 0.17 | 1.22 |
| 526 | 612119 | 6365312 | 147 | E | 0.08 | 0.09 | 0.04 | 0.19 | 1.09 | - | - | - | 0.09 | 0.11 | 0.08 | 0.19 | 1.33 |
| 527 | 611405 | 6391278 | 146 | E | 0.07 | 0.08 | 0.03 | 0.17 | 0.99 | - | - | - | 0.09 | 0.10 | 0.06 | 0.17 | 1.20 |
| 528 | 624328 | 6360129 | 159 | E | 0.08 | 0.09 | 0.04 | 0.19 | 1.09 | - | - | - | 0.09 | 0.10 | 0.08 | 0.19 | 1.32 |
| 529 | 573917 | 6468241 | 142 | NE | 0.07 | 0.08 | 0.02 | 0.16 | 0.95 | - | - | - | 0.08 | 0.09 | 0.05 | 0.16 | 1.17 |
| 530 | 592417 | 6259032 | 173 | SE | 0.09 | 0.10 | 0.06 | 0.23 | 1.20 | - | - | - | 0.12 | 0.13 | 0.13 | 0.23 | 1.62 |
| 531 | 595873 | 6468054 | 159 | NE | 0.07 | 0.08 | 0.03 | 0.16 | 0.99 | - | - | - | 0.08 | 0.09 | 0.05 | 0.16 | 1.18 |
| 532 | 635067 | 6306584 | 183 | ESE | 0.08 | 0.09 | 0.04 | 0.19 | 1.09 | - | - | - | 0.10 | 0.11 | 0.09 | 0.19 | 1.40 |
| 533 | 607818 | 6259397 | 184 | SE | 0.09 | 0.10 | 0.06 | 0.22 | 1.20 | - | - | - | 0.11 | 0.13 | 0.12 | 0.22 | 1.61 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | RELAD Results | | | | | Calibrated Background | | | 2013 Base Case Deposition (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Background Nitrate [keq $H^+$/ha/yr] | Background Sulphate [keq $H^+$/ha/yr] | Background Total PAI [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Background Nitrogen [kg/ha/yr] | Nitrate [keq $H^+$/ha/y] | Sulphate [keq $H^+$/ha/yr] | Total PAI [keq $H^+$/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 534 | 657119 | 6314790 | 201 | ESE | 0.08 | 0.09 | 0.04 | 0.19 | 1.09 | - | - | - | 0.10 | 0.11 | 0.08 | 0.19 | 1.34 |
| 535 | 648429 | 6273616 | 209 | ESE | 0.08 | 0.09 | 0.04 | 0.19 | 1.09 | - | - | - | 0.10 | 0.11 | 0.09 | 0.19 | 1.35 |
| 536 | 474032 | 6075393 | 301 | S | 0.10 | 0.12 | 0.10 | 0.16 | 1.44 | - | 0.04 | - | 0.12 | 0.13 | 0.14 | 0.16 | 1.70 |
| 537 | 433387 | 6079917 | 298 | S | 0.11 | 0.12 | 0.10 | 0.12 | 1.47 | - | 0.00 | - | 0.12 | 0.13 | 0.12 | 0.12 | 1.62 |
| 538 | 503222 | 6061410 | 317 | S | 0.10 | 0.12 | 0.10 | 0.07 | 1.44 | 0.00 | 0.04 | 0.04 | 0.13 | 0.14 | 0.15 | 0.07 | 1.80 |
| 539 | 436317 | 6065106 | 313 | S | 0.11 | 0.12 | 0.10 | 1.76 | 1.47 | - | 1.64 | - | 0.11 | 0.13 | 0.12 | 1.76 | 1.61 |
| 540 | 467751 | 6057818 | 319 | S | 0.11 | 0.12 | 0.10 | 0.17 | 1.47 | - | 0.05 | - | 0.12 | 0.13 | 0.13 | 0.17 | 1.72 |
| 546 | 560000 | 6045000 | 344 | SSE | 0.10 | 0.11 | 0.09 | 0.18 | 1.41 | 0.01 | 0.12 | 0.13 | 0.12 | 0.15 | 0.15 | 0.18 | 1.63 |
| 596 | 503000 | 6035000 | 343 | S | 0.11 | 0.13 | 0.08 | 0.18 | 1.53 | 0.01 | 0.16 | 0.17 | 0.12 | 0.15 | 0.12 | 0.18 | 1.74 |
| 597 | 522600 | 6078500 | 303 | S | 0.10 | 0.12 | 0.10 | 0.02 | 1.44 | 0.00 | 0.00 | 0.00 | 0.16 | 0.17 | 0.22 | 0.02 | 2.30 |
| 598 | 526700 | 6079500 | 303 | SSE | 0.10 | 0.12 | 0.10 | 0.08 | 1.44 | 0.00 | 0.00 | 0.00 | 0.17 | 0.18 | 0.23 | 0.08 | 2.35 |
| 599 | 529300 | 6074800 | 308 | SSE | 0.10 | 0.12 | 0.10 | 0.09 | 1.44 | 0.00 | 0.00 | 0.01 | 0.16 | 0.18 | 0.22 | 0.09 | 2.30 |
| 600 | 549700 | 6048200 | 339 | SSE | 0.10 | 0.11 | 0.09 | 0.20 | 1.41 | 0.04 | 0.09 | 0.13 | 0.13 | 0.17 | 0.17 | 0.20 | 1.79 |
| 605 | 468548 | 6341335 | 35 | S | 0.08 | 0.09 | 0.04 | 0.13 | 1.08 | 0.00 | 0.07 | 0.07 | 0.70 | 0.23 | 0.81 | 0.13 | 9.78 |
| 606 | 468605 | 6336285 | 40 | S | 0.08 | 0.09 | 0.04 | 0.36 | 1.08 | 0.00 | 0.06 | 0.06 | 0.94 | 0.26 | 1.09 | 0.36 | 13.23 |
| 607 | 468831 | 6341793 | 35 | S | 0.08 | 0.09 | 0.04 | 0.56 | 1.08 | 0.00 | 0.03 | 0.03 | 0.62 | 0.21 | 0.72 | 0.56 | 8.71 |
| 612 | 482615 | 6367794 | 19 | ESE | 0.08 | 0.09 | 0.04 | 0.13 | 1.08 | 0.00 | 0.01 | 0.01 | 0.27 | 0.15 | 0.30 | 0.13 | 3.72 |
| 615 | 463743 | 6376095 | 2 | W | 0.07 | 0.08 | 0.03 | 0.13 | 1.01 | 0.00 | 0.03 | 0.03 | 0.25 | 0.14 | 0.27 | 0.26 | 3.56 |
| 616 | 456629 | 6383089 | 11 | NW | 0.07 | 0.08 | 0.03 | 0.42 | 1.01 | 0.00 | 0.35 | 0.35 | 0.17 | 0.13 | 0.18 | 0.42 | 2.38 |
| 617 | 464916 | 6382834 | 7 | N | 0.07 | 0.08 | 0.03 | 0.81 | 1.01 | 0.00 | 0.72 | 0.72 | 0.21 | 0.13 | 0.22 | 0.82 | 2.96 |
| 618 | 467305 | 6379227 | 3 | NNE | 0.07 | 0.08 | 0.03 | 0.17 | 1.01 | 0.00 | 0.07 | 0.07 | 0.24 | 0.14 | 0.26 | 0.19 | 3.39 |
| 619 | 462833 | 6390882 | 15 | NNW | 0.07 | 0.08 | 0.03 | 0.82 | 1.01 | 0.01 | 0.74 | 0.76 | 0.17 | 0.12 | 0.17 | 0.83 | 2.37 |
| 620 | 464427 | 6390720 | 14 | N | 0.07 | 0.08 | 0.03 | 0.28 | 1.01 | 0.00 | 0.21 | 0.21 | 0.17 | 0.12 | 0.18 | 0.29 | 2.44 |
| 621 | 461088 | 6389640 | 14 | NNW | 0.07 | 0.08 | 0.03 | 0.34 | 1.01 | 0.00 | 0.28 | 0.28 | 0.17 | 0.12 | 0.17 | 0.35 | 2.34 |
| 622 | 473579 | 6403076 | 28 | NNE | 0.07 | 0.08 | 0.03 | 0.19 | 0.99 | 0.00 | 0.14 | 0.14 | 0.15 | 0.12 | 0.14 | 0.20 | 2.07 |
| 623 | 468315 | 6397621 | 21 | N | 0.07 | 0.08 | 0.03 | 1.46 | 1.01 | 0.00 | 1.40 | 1.40 | 0.16 | 0.12 | 0.16 | 1.47 | 2.23 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 1 | 504672 | 6250565 | 132 | SSE | 0.25 | 0.36 | 0.49 | 0.61 | 3.44 | 0.28 | 0.39 | 0.55 | 0.65 | 3.94 |
| 2 | 510499 | 6163433 | 218 | SSE | 0.18 | 0.17 | 0.23 | 0.18 | 2.49 | 0.21 | 0.19 | 0.27 | 0.21 | 2.87 |
| 3 | 489729 | 6258036 | 121 | SSE | 0.15 | 0.18 | 0.21 | 0.26 | 2.13 | 0.19 | 0.22 | 0.29 | 0.31 | 2.61 |
| 4 | 485939 | 6349881 | 33 | SE | 0.36 | 0.17 | 0.42 | 0.23 | 5.05 | 0.60 | 0.18 | 0.66 | 0.31 | 8.38 |
| 5 | 480016 | 6371236 | 15 | ESE | 0.25 | 0.15 | 0.29 | 0.16 | 3.55 | 0.36 | 0.17 | 0.41 | 0.20 | 5.10 |
| 6 | 457730 | 6374675 | 8 | WSW | 0.31 | 0.13 | 0.35 | 0.49 | 4.41 | 0.40 | 0.15 | 0.43 | 0.52 | 5.61 |
| 7 | 440554 | 6382003 | 26 | WNW | 0.12 | 0.12 | 0.12 | 0.09 | 1.70 | 0.15 | 0.13 | 0.16 | 0.10 | 2.06 |
| 10 | 444669 | 6379654 | 22 | W | 0.14 | 0.13 | 0.15 | 0.60 | 1.91 | 0.17 | 0.14 | 0.19 | 0.62 | 2.37 |
| 11 | 444494 | 6382690 | 22 | WNW | 0.13 | 0.12 | 0.14 | 0.55 | 1.83 | 0.16 | 0.13 | 0.18 | 0.56 | 2.26 |
| 12 | 455211 | 6364522 | 16 | SW | 0.37 | 0.16 | 0.41 | 0.16 | 5.19 | 0.44 | 0.17 | 0.49 | 0.19 | 6.18 |
| 17 | 445617 | 6381379 | 21 | WNW | 0.14 | 0.13 | 0.14 | 0.59 | 1.91 | 0.17 | 0.14 | 0.19 | 0.61 | 2.38 |
| 18 | 455932 | 6365954 | 14 | SW | 0.37 | 0.15 | 0.41 | 0.15 | 5.20 | 0.44 | 0.17 | 0.49 | 0.18 | 6.23 |
| 19 | 453963 | 6363973 | 17 | SW | 0.33 | 0.16 | 0.37 | 0.29 | 4.64 | 0.40 | 0.17 | 0.45 | 0.32 | 5.57 |
| 20 | 463522 | 6343138 | 33 | S | 0.58 | 0.20 | 0.69 | 1.38 | 8.16 | 0.66 | 0.22 | 0.76 | 1.41 | 9.23 |
| 25 | 498871 | 6257215 | 124 | SSE | 0.17 | 0.20 | 0.25 | 0.15 | 2.44 | 0.21 | 0.23 | 0.32 | 0.20 | 2.94 |
| 26 | 502017 | 6251357 | 130 | SSE | 0.21 | 0.28 | 0.36 | 0.29 | 2.94 | 0.25 | 0.31 | 0.43 | 0.33 | 3.46 |
| 27 | 503226 | 6248721 | 133 | SSE | 0.21 | 0.28 | 0.36 | 0.23 | 2.89 | 0.24 | 0.31 | 0.43 | 0.26 | 3.38 |
| 28 | 508895 | 6252653 | 131 | SSE | 0.18 | 0.22 | 0.28 | 0.23 | 2.48 | 0.21 | 0.25 | 0.34 | 0.26 | 2.93 |
| 29 | 504488 | 6254133 | 128 | SSE | 0.20 | 0.26 | 0.32 | 0.26 | 2.80 | 0.24 | 0.29 | 0.40 | 0.30 | 3.30 |
| 30 | 505212 | 6252653 | 130 | SSE | 0.22 | 0.30 | 0.38 | 0.26 | 3.03 | 0.25 | 0.33 | 0.46 | 0.30 | 3.52 |
| 31 | 507487 | 6251545 | 132 | SSE | 0.20 | 0.28 | 0.36 | 0.31 | 2.85 | 0.24 | 0.31 | 0.42 | 0.34 | 3.32 |
| 32 | 501467 | 6264562 | 117 | SSE | 0.15 | 0.16 | 0.19 | 0.22 | 2.09 | 0.19 | 0.19 | 0.26 | 0.26 | 2.60 |
| 33 | 499562 | 6256374 | 125 | SSE | 0.18 | 0.20 | 0.26 | 0.20 | 2.51 | 0.22 | 0.24 | 0.34 | 0.24 | 3.03 |
| 34 | 502641 | 6249587 | 132 | SSE | 0.21 | 0.28 | 0.36 | 0.26 | 2.92 | 0.24 | 0.31 | 0.43 | 0.30 | 3.41 |
| 35 | 500505 | 6255692 | 126 | SSE | 0.19 | 0.22 | 0.28 | 0.21 | 2.59 | 0.22 | 0.25 | 0.35 | 0.25 | 3.11 |
| 36 | 509942 | 6244399 | 139 | SSE | 0.18 | 0.28 | 0.33 | 0.27 | 2.49 | 0.21 | 0.30 | 0.39 | 0.30 | 2.92 |
| 37 | 489222 | 6240033 | 138 | S | 0.17 | 0.17 | 0.22 | 0.18 | 2.43 | 0.21 | 0.20 | 0.29 | 0.21 | 2.89 |
| 38 | 490427 | 6237963 | 141 | S | 0.17 | 0.17 | 0.22 | 0.23 | 2.39 | 0.20 | 0.19 | 0.28 | 0.27 | 2.85 |
| 39 | 480727 | 6243329 | 134 | S | 0.17 | 0.18 | 0.22 | 0.18 | 2.34 | 0.20 | 0.20 | 0.28 | 0.22 | 2.79 |
| 40 | 481229 | 6244129 | 133 | S | 0.17 | 0.18 | 0.23 | 0.23 | 2.37 | 0.20 | 0.20 | 0.29 | 0.27 | 2.84 |
| 41 | 482249 | 6246921 | 131 | S | 0.17 | 0.18 | 0.23 | 0.23 | 2.40 | 0.21 | 0.21 | 0.29 | 0.27 | 2.90 |
| 42 | 479375 | 6142060 | 235 | S | 0.14 | 0.14 | 0.16 | 0.07 | 1.91 | 0.16 | 0.16 | 0.19 | 0.08 | 2.18 |
| 43 | 496692 | 6127900 | 250 | S | 0.15 | 0.15 | 0.18 | 0.08 | 2.10 | 0.17 | 0.16 | 0.21 | 0.10 | 2.39 |
| 44 | 491437 | 6137987 | 240 | S | 0.15 | 0.15 | 0.18 | 0.10 | 2.09 | 0.17 | 0.16 | 0.22 | 0.12 | 2.42 |
| 45 | 497711 | 6132160 | 246 | S | 0.15 | 0.15 | 0.18 | 0.08 | 2.14 | 0.18 | 0.16 | 0.22 | 0.09 | 2.47 |
| 46 | 498367 | 6133579 | 245 | S | 0.15 | 0.15 | 0.19 | 0.07 | 2.15 | 0.18 | 0.16 | 0.22 | 0.08 | 2.50 |
| 47 | 493933 | 6132222 | 246 | S | 0.15 | 0.15 | 0.18 | 0.07 | 2.10 | 0.17 | 0.16 | 0.21 | 0.09 | 2.42 |
| 48 | 491151 | 6134421 | 243 | S | 0.15 | 0.15 | 0.18 | 0.08 | 2.07 | 0.17 | 0.16 | 0.21 | 0.09 | 2.39 |
| 49 | 493107 | 6134651 | 243 | S | 0.15 | 0.15 | 0.18 | 0.08 | 2.10 | 0.17 | 0.16 | 0.22 | 0.10 | 2.44 |
| 50 | 489844 | 6137549 | 240 | S | 0.15 | 0.15 | 0.18 | 0.10 | 2.06 | 0.17 | 0.16 | 0.21 | 0.12 | 2.38 |
| 51 | 468396 | 6341424 | 35 | S | 0.71 | 0.23 | 0.80 | 0.37 | 9.95 | 0.79 | 0.24 | 0.91 | 0.41 | 11.02 |
| 52 | 468346 | 6341324 | 35 | S | 0.73 | 0.23 | 0.81 | 0.35 | 10.25 | 0.81 | 0.24 | 0.93 | 0.41 | 11.32 |
| 53 | 468546 | 6341424 | 35 | S | 0.69 | 0.22 | 0.78 | 0.37 | 9.70 | 0.77 | 0.24 | 0.89 | 0.40 | 10.78 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 54 | 468946 | 6341924 | 35 | S | 0.61 | 0.21 | 0.72 | 0.32 | 8.55 | 0.69 | 0.23 | 0.80 | 0.36 | 9.64 |
| 55 | 469046 | 6341224 | 35 | S | 0.65 | 0.22 | 0.76 | 0.35 | 9.15 | 0.73 | 0.24 | 0.85 | 0.38 | 10.24 |
| 56 | 467296 | 6340324 | 36 | S | 1.17 | 0.29 | 1.29 | 0.87 | 16.42 | 1.25 | 0.30 | 1.43 | 0.96 | 17.48 |
| 58 | 473350 | 6313235 | 64 | S | 0.38 | 0.34 | 0.65 | 0.44 | 5.36 | 0.45 | 0.36 | 0.69 | 0.47 | 6.32 |
| 60 | 536930 | 6072588 | 312 | SSE | 0.16 | 0.17 | 0.21 | 0.15 | 2.26 | 0.17 | 0.18 | 0.23 | 0.16 | 2.39 |
| 61 | 540333 | 6069577 | 316 | SSE | 0.16 | 0.17 | 0.20 | 0.10 | 2.18 | 0.17 | 0.18 | 0.22 | 0.11 | 2.31 |
| 62 | 539546 | 6071719 | 313 | SSE | 0.16 | 0.17 | 0.21 | 0.19 | 2.23 | 0.17 | 0.18 | 0.23 | 0.20 | 2.36 |
| 63 | 539930 | 6072774 | 313 | SSE | 0.16 | 0.17 | 0.21 | 0.09 | 2.25 | 0.17 | 0.18 | 0.23 | 0.10 | 2.38 |
| 64 | 540067 | 6073823 | 312 | SSE | 0.16 | 0.17 | 0.21 | 0.09 | 2.27 | 0.17 | 0.18 | 0.23 | 0.10 | 2.40 |
| 65 | 543092 | 6075676 | 310 | SSE | 0.16 | 0.17 | 0.20 | 0.09 | 2.22 | 0.17 | 0.17 | 0.22 | 0.10 | 2.36 |
| 66 | 544835 | 6076985 | 310 | SSE | 0.16 | 0.16 | 0.20 | 0.09 | 2.18 | 0.17 | 0.17 | 0.22 | 0.10 | 2.33 |
| 67 | 538930 | 6078203 | 307 | SSE | 0.16 | 0.17 | 0.21 | 0.10 | 2.29 | 0.17 | 0.18 | 0.23 | 0.11 | 2.44 |
| 68 | 541457 | 6082627 | 303 | SSE | 0.16 | 0.16 | 0.20 | 0.18 | 2.24 | 0.17 | 0.17 | 0.22 | 0.19 | 2.39 |
| 69 | 539000 | 6063000 | 322 | SSE | 0.15 | 0.17 | 0.20 | 0.11 | 2.08 | 0.16 | 0.17 | 0.21 | 0.12 | 2.20 |
| 78 | 485427 | 6357465 | 27 | SE | 0.34 | 0.16 | 0.39 | 0.22 | 4.72 | 1.29 | 0.18 | 1.35 | 0.85 | 18.05 |
| 79 | 494650 | 6362557 | 32 | ESE | 1.17 | 0.16 | 1.20 | 0.75 | 16.41 | 1.27 | 0.17 | 1.32 | 0.86 | 17.82 |
| 80 | 499429 | 6365047 | 35 | ESE | 0.36 | 0.15 | 0.41 | 0.18 | 5.10 | 0.43 | 0.16 | 0.47 | 0.21 | 6.00 |
| 81 | 504587 | 6349147 | 47 | SE | 0.23 | 0.18 | 0.30 | 0.21 | 3.29 | 0.28 | 0.19 | 0.35 | 0.23 | 3.90 |
| 82 | 509075 | 6334093 | 60 | SE | 0.18 | 0.17 | 0.23 | 0.23 | 2.48 | 0.21 | 0.19 | 0.28 | 0.25 | 2.96 |
| 83 | 515032 | 6327463 | 69 | SE | 0.16 | 0.16 | 0.21 | 0.21 | 2.30 | 0.20 | 0.18 | 0.25 | 0.24 | 2.73 |
| 84 | 524421 | 6322560 | 79 | SE | 0.15 | 0.16 | 0.19 | 0.13 | 2.15 | 0.18 | 0.18 | 0.24 | 0.16 | 2.54 |
| 85 | 533760 | 6369378 | 68 | E | 0.13 | 0.12 | 0.13 | 0.09 | 1.79 | 0.15 | 0.13 | 0.16 | 0.10 | 2.04 |
| 86 | 544341 | 6349563 | 83 | ESE | 0.12 | 0.12 | 0.12 | 0.08 | 1.69 | 0.14 | 0.13 | 0.15 | 0.09 | 1.91 |
| 87 | 545725 | 6348186 | 85 | ESE | 0.12 | 0.12 | 0.12 | 0.08 | 1.67 | 0.14 | 0.13 | 0.15 | 0.09 | 1.89 |
| 88 | 548190 | 6346767 | 87 | ESE | 0.12 | 0.12 | 0.12 | 0.08 | 1.65 | 0.13 | 0.13 | 0.14 | 0.10 | 1.87 |
| 89 | 381972 | 6323180 | 99 | WSW | 0.11 | 0.12 | 0.10 | 0.29 | 1.51 | 0.12 | 0.12 | 0.13 | 0.30 | 1.72 |
| 91 | 402704 | 6368016 | 64 | W | 0.11 | 0.12 | 0.10 | 0.10 | 1.50 | 0.12 | 0.13 | 0.13 | 0.12 | 1.71 |
| 92 | 417321 | 6396959 | 53 | WNW | 0.10 | 0.11 | 0.09 | 0.05 | 1.36 | 0.11 | 0.11 | 0.10 | 0.06 | 1.54 |
| 93 | 383849 | 6364923 | 83 | W | 0.10 | 0.11 | 0.09 | 0.06 | 1.44 | 0.12 | 0.12 | 0.11 | 0.07 | 1.64 |
| 95 | 362195 | 6386208 | 104 | W | 0.09 | 0.10 | 0.07 | 0.07 | 1.26 | 0.10 | 0.10 | 0.08 | 0.08 | 1.38 |
| 96 | 382996 | 6414339 | 91 | WNW | 0.09 | 0.10 | 0.07 | 0.06 | 1.28 | 0.10 | 0.11 | 0.09 | 0.06 | 1.41 |
| 97 | 424694 | 6435790 | 72 | NW | 0.09 | 0.10 | 0.07 | 0.04 | 1.30 | 0.10 | 0.10 | 0.09 | 0.04 | 1.45 |
| 98 | 519356 | 6422417 | 70 | NE | 0.11 | 0.10 | 0.09 | 0.03 | 1.49 | 0.12 | 0.11 | 0.11 | 0.04 | 1.69 |
| 99 | 499704 | 6419587 | 55 | NE | 0.12 | 0.10 | 0.10 | 0.07 | 1.65 | 0.14 | 0.11 | 0.13 | 0.08 | 1.94 |
| 100 | 396500 | 6395456 | 72 | WNW | 0.10 | 0.11 | 0.08 | 0.16 | 1.34 | 0.11 | 0.11 | 0.10 | 0.17 | 1.49 |
| 101 | 404995 | 6403111 | 67 | WNW | 0.10 | 0.11 | 0.08 | 0.24 | 1.34 | 0.11 | 0.11 | 0.09 | 0.25 | 1.49 |
| 102 | 425151 | 6365349 | 42 | WSW | 0.12 | 0.13 | 0.13 | 0.31 | 1.70 | 0.14 | 0.14 | 0.17 | 0.33 | 2.02 |
| 103 | 504973 | 6388824 | 41 | ENE | 0.16 | 0.12 | 0.16 | 0.10 | 2.22 | 0.19 | 0.13 | 0.20 | 0.12 | 2.72 |
| 104 | 536807 | 6389912 | 72 | E | 0.11 | 0.11 | 0.10 | 0.07 | 1.53 | 0.13 | 0.11 | 0.12 | 0.08 | 1.75 |
| 105 | 536495 | 6424234 | 85 | NE | 0.10 | 0.10 | 0.07 | 0.06 | 1.36 | 0.11 | 0.10 | 0.09 | 0.07 | 1.53 |
| 106 | 416941 | 6404239 | 56 | WNW | 0.09 | 0.11 | 0.08 | 0.24 | 1.33 | 0.11 | 0.11 | 0.10 | 0.24 | 1.49 |
| 107 | 403796 | 6392247 | 64 | WNW | 0.10 | 0.11 | 0.08 | 0.19 | 1.37 | 0.11 | 0.12 | 0.10 | 0.20 | 1.54 |
| 108 | 407519 | 6391915 | 60 | WNW | 0.09 | 0.11 | 0.08 | 0.25 | 1.33 | 0.11 | 0.11 | 0.10 | 0.25 | 1.51 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 109 | 530780 | 6261842 | 132 | SSE | 0.13 | 0.15 | 0.16 | 0.09 | 1.79 | 0.15 | 0.17 | 0.20 | 0.12 | 2.11 |
| 110 | 536018 | 6248894 | 145 | SSE | 0.14 | 0.16 | 0.18 | 0.10 | 1.96 | 0.16 | 0.17 | 0.22 | 0.12 | 2.28 |
| 115 | 483819 | 6235130 | 142 | S | 0.16 | 0.16 | 0.20 | 0.21 | 2.20 | 0.19 | 0.18 | 0.25 | 0.24 | 2.63 |
| 116 | 484387 | 6230872 | 147 | S | 0.15 | 0.16 | 0.19 | 0.10 | 2.14 | 0.18 | 0.18 | 0.24 | 0.13 | 2.56 |
| 117 | 489502 | 6230877 | 147 | S | 0.16 | 0.16 | 0.20 | 0.11 | 2.23 | 0.19 | 0.18 | 0.25 | 0.14 | 2.66 |
| 118 | 466180 | 6224950 | 151 | S | 0.13 | 0.15 | 0.16 | 0.08 | 1.86 | 0.16 | 0.16 | 0.20 | 0.10 | 2.20 |
| 119 | 365015 | 6247322 | 164 | SW | 0.11 | 0.12 | 0.11 | 0.05 | 1.55 | 0.13 | 0.14 | 0.15 | 0.07 | 1.84 |
| 120 | 367321 | 6235430 | 172 | SW | 0.11 | 0.12 | 0.11 | 0.09 | 1.54 | 0.13 | 0.14 | 0.15 | 0.11 | 1.87 |
| 121 | 383467 | 6197733 | 197 | SSW | 0.11 | 0.12 | 0.11 | 0.06 | 1.53 | 0.12 | 0.13 | 0.13 | 0.08 | 1.74 |
| 122 | 448014 | 6170896 | 206 | S | 0.11 | 0.12 | 0.11 | 0.06 | 1.59 | 0.13 | 0.13 | 0.14 | 0.07 | 1.85 |
| 129 | 506092 | 6305335 | 82 | SSE | 0.17 | 0.18 | 0.23 | 0.13 | 2.39 | 0.21 | 0.20 | 0.29 | 0.16 | 2.95 |
| 130 | 493516 | 6226026 | 153 | S | 0.16 | 0.16 | 0.20 | 0.12 | 2.29 | 0.19 | 0.18 | 0.25 | 0.15 | 2.72 |
| 131 | 446510 | 6167454 | 210 | S | 0.11 | 0.12 | 0.11 | 0.11 | 1.58 | 0.13 | 0.13 | 0.14 | 0.12 | 1.83 |
| 132 | 533788 | 6137575 | 248 | SSE | 0.15 | 0.15 | 0.18 | 0.09 | 2.06 | 0.16 | 0.16 | 0.21 | 0.11 | 2.29 |
| 134 | 441917 | 6290884 | 89 | SSW | 0.15 | 0.15 | 0.18 | 0.10 | 2.13 | 0.18 | 0.17 | 0.23 | 0.12 | 2.57 |
| 135 | 554892 | 6301050 | 117 | SE | 0.12 | 0.14 | 0.14 | 0.09 | 1.72 | 0.14 | 0.15 | 0.17 | 0.11 | 1.97 |
| 136 | 474056 | 6213581 | 163 | S | 0.13 | 0.14 | 0.16 | 0.10 | 1.87 | 0.16 | 0.16 | 0.20 | 0.12 | 2.22 |
| 137 | 368566 | 6243357 | 165 | SW | 0.11 | 0.12 | 0.11 | 0.17 | 1.55 | 0.13 | 0.14 | 0.15 | 0.19 | 1.85 |
| 138 | 457796 | 6141365 | 235 | S | 0.13 | 0.14 | 0.15 | 0.06 | 1.83 | 0.15 | 0.15 | 0.18 | 0.07 | 2.06 |
| 139 | 538503 | 6201610 | 189 | SSE | 0.14 | 0.14 | 0.16 | 0.10 | 1.97 | 0.16 | 0.16 | 0.20 | 0.12 | 2.29 |
| 140 | 507166 | 6322123 | 68 | SE | 0.18 | 0.18 | 0.24 | 0.19 | 2.48 | 0.22 | 0.20 | 0.30 | 0.22 | 3.04 |
| 141 | 506113 | 6291421 | 94 | SSE | 0.16 | 0.16 | 0.20 | 0.10 | 2.25 | 0.20 | 0.20 | 0.28 | 0.14 | 2.82 |
| 142 | 549064 | 6277789 | 129 | SE | 0.13 | 0.14 | 0.15 | 0.07 | 1.84 | 0.15 | 0.15 | 0.19 | 0.09 | 2.15 |
| 143 | 487594 | 6229281 | 149 | S | 0.16 | 0.16 | 0.19 | 0.10 | 2.18 | 0.19 | 0.18 | 0.24 | 0.13 | 2.59 |
| 144 | 477248 | 6228400 | 148 | S | 0.15 | 0.15 | 0.18 | 0.08 | 2.06 | 0.18 | 0.18 | 0.24 | 0.12 | 2.58 |
| 145 | 487068 | 6225576 | 152 | S | 0.16 | 0.15 | 0.19 | 0.09 | 2.17 | 0.19 | 0.18 | 0.24 | 0.12 | 2.60 |
| 146 | 448271 | 6183205 | 194 | S | 0.12 | 0.12 | 0.12 | 0.05 | 1.63 | 0.14 | 0.14 | 0.15 | 0.06 | 1.89 |
| 147 | 515689 | 6179208 | 203 | SSE | 0.16 | 0.15 | 0.19 | 0.07 | 2.28 | 0.19 | 0.17 | 0.23 | 0.10 | 2.63 |
| 148 | 416003 | 6353212 | 55 | WSW | 0.12 | 0.12 | 0.12 | 0.19 | 1.63 | 0.14 | 0.14 | 0.16 | 0.20 | 1.95 |
| 149 | 509000 | 6346712 | 52 | SE | 0.26 | 0.21 | 0.35 | 0.20 | 3.65 | 0.30 | 0.23 | 0.40 | 0.22 | 4.15 |
| 150 | 508300 | 6333712 | 60 | SE | 0.18 | 0.17 | 0.23 | 0.14 | 2.49 | 0.21 | 0.19 | 0.28 | 0.16 | 2.98 |
| 151 | 446002 | 6394961 | 27 | NW | 0.12 | 0.12 | 0.12 | 0.10 | 1.72 | 0.15 | 0.13 | 0.16 | 0.12 | 2.10 |
| 152 | 515399 | 6343212 | 60 | SE | 0.17 | 0.17 | 0.22 | 0.12 | 2.44 | 0.20 | 0.18 | 0.26 | 0.14 | 2.84 |
| 153 | 440557 | 6334112 | 49 | SSW | 0.18 | 0.14 | 0.20 | 0.30 | 2.53 | 0.24 | 0.16 | 0.27 | 0.33 | 3.33 |
| 154 | 444002 | 6295513 | 84 | SSW | 0.16 | 0.16 | 0.20 | 0.12 | 2.29 | 0.20 | 0.17 | 0.25 | 0.15 | 2.78 |
| 155 | 456002 | 6296463 | 81 | S | 0.19 | 0.20 | 0.27 | 0.17 | 2.66 | 0.24 | 0.22 | 0.34 | 0.20 | 3.31 |
| 156 | 451762 | 6293513 | 84 | S | 0.17 | 0.18 | 0.23 | 0.17 | 2.45 | 0.21 | 0.20 | 0.29 | 0.20 | 3.00 |
| 161 | 366124 | 6230034 | 177 | SW | 0.11 | 0.12 | 0.11 | 0.02 | 1.53 | 0.14 | 0.14 | 0.15 | 0.05 | 1.89 |
| 167 | 463161 | 6151511 | 225 | S | 0.11 | 0.12 | 0.15 | 0.04 | 1.59 | 0.13 | 0.13 | 0.18 | 0.05 | 1.86 |
| 168 | 559470 | 6264932 | 145 | SE | 0.13 | 0.13 | 0.14 | 0.06 | 1.75 | 0.15 | 0.15 | 0.17 | 0.08 | 2.04 |
| 169 | 548241 | 6260147 | 142 | SE | 0.13 | 0.15 | 0.16 | 0.07 | 1.88 | 0.16 | 0.17 | 0.20 | 0.09 | 2.17 |
| 170 | 526686 | 6259956 | 131 | SSE | 0.15 | 0.16 | 0.18 | 0.08 | 2.05 | 0.17 | 0.18 | 0.23 | 0.11 | 2.42 |
| 171 | 546271 | 6252711 | 147 | SSE | 0.13 | 0.15 | 0.16 | 0.07 | 1.86 | 0.15 | 0.17 | 0.20 | 0.09 | 2.15 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 172 | 554471 | 6254656 | 151 | SE | 0.13 | 0.15 | 0.16 | 0.07 | 1.85 | 0.15 | 0.16 | 0.19 | 0.08 | 2.13 |
| 173 | 561829 | 6243625 | 164 | SE | 0.13 | 0.15 | 0.15 | 0.07 | 1.78 | 0.15 | 0.16 | 0.19 | 0.09 | 2.03 |
| 174 | 487107 | 6238565 | 139 | S | 0.17 | 0.17 | 0.22 | 0.13 | 2.35 | 0.20 | 0.19 | 0.27 | 0.16 | 2.79 |
| 175 | 513419 | 6236708 | 148 | SSE | 0.17 | 0.19 | 0.23 | 0.27 | 2.33 | 0.19 | 0.21 | 0.28 | 0.29 | 2.72 |
| 176 | 525809 | 6235841 | 153 | SSE | 0.15 | 0.17 | 0.20 | 0.11 | 2.16 | 0.18 | 0.19 | 0.25 | 0.13 | 2.54 |
| 177 | 489154 | 6232994 | 145 | S | 0.16 | 0.16 | 0.20 | 0.11 | 2.26 | 0.19 | 0.18 | 0.26 | 0.14 | 2.69 |
| 178 | 487070 | 6226500 | 151 | S | 0.15 | 0.15 | 0.19 | 0.09 | 2.16 | 0.18 | 0.17 | 0.24 | 0.12 | 2.58 |
| 179 | 480350 | 6228385 | 149 | S | 0.15 | 0.15 | 0.18 | 0.13 | 2.07 | 0.18 | 0.18 | 0.23 | 0.16 | 2.52 |
| 180 | 491196 | 6222316 | 156 | S | 0.17 | 0.15 | 0.20 | 0.09 | 2.36 | 0.20 | 0.18 | 0.26 | 0.13 | 2.80 |
| 181 | 540312 | 6230388 | 164 | SSE | 0.14 | 0.15 | 0.17 | 0.09 | 1.98 | 0.17 | 0.17 | 0.21 | 0.11 | 2.31 |
| 182 | 559900 | 6234325 | 170 | SSE | 0.13 | 0.15 | 0.16 | 0.07 | 1.81 | 0.15 | 0.16 | 0.19 | 0.08 | 2.08 |
| 183 | 554289 | 6228684 | 172 | SSE | 0.13 | 0.15 | 0.16 | 0.07 | 1.88 | 0.16 | 0.16 | 0.20 | 0.09 | 2.17 |
| 184 | 543469 | 6224854 | 170 | SSE | 0.14 | 0.15 | 0.17 | 0.08 | 1.95 | 0.16 | 0.16 | 0.21 | 0.10 | 2.26 |
| 185 | 554875 | 6223126 | 177 | SSE | 0.13 | 0.14 | 0.16 | 0.07 | 1.89 | 0.16 | 0.16 | 0.19 | 0.09 | 2.18 |
| 186 | 521815 | 6208917 | 177 | SSE | 0.15 | 0.15 | 0.18 | 0.14 | 2.11 | 0.18 | 0.18 | 0.24 | 0.18 | 2.57 |
| 187 | 355095 | 6256783 | 163 | SW | 0.11 | 0.12 | 0.11 | 0.21 | 1.53 | 0.13 | 0.13 | 0.14 | 0.23 | 1.76 |
| 188 | 360775 | 6241744 | 171 | SW | 0.11 | 0.12 | 0.11 | 0.03 | 1.53 | 0.13 | 0.14 | 0.15 | 0.06 | 1.84 |
| 189 | 363355 | 6241661 | 169 | SW | 0.11 | 0.12 | 0.11 | 0.04 | 1.54 | 0.13 | 0.14 | 0.15 | 0.06 | 1.85 |
| 190 | 370920 | 6235856 | 170 | SW | 0.11 | 0.12 | 0.11 | 0.04 | 1.55 | 0.13 | 0.14 | 0.15 | 0.06 | 1.86 |
| 191 | 367765 | 6234093 | 173 | SW | 0.11 | 0.12 | 0.11 | 0.03 | 1.54 | 0.13 | 0.14 | 0.15 | 0.05 | 1.87 |
| 193 | 360472 | 6232476 | 178 | SW | 0.11 | 0.12 | 0.11 | 0.03 | 1.52 | 0.14 | 0.14 | 0.15 | 0.06 | 1.90 |
| 194 | 420102 | 6242078 | 142 | SSW | 0.12 | 0.13 | 0.12 | 0.15 | 1.62 | 0.14 | 0.14 | 0.15 | 0.17 | 1.89 |
| 195 | 422698 | 6242954 | 140 | SSW | 0.12 | 0.13 | 0.12 | 0.08 | 1.64 | 0.14 | 0.14 | 0.16 | 0.09 | 1.91 |
| 196 | 423111 | 6237380 | 145 | SSW | 0.12 | 0.13 | 0.12 | 0.09 | 1.62 | 0.13 | 0.14 | 0.15 | 0.11 | 1.88 |
| 197 | 413272 | 6235709 | 150 | SSW | 0.11 | 0.12 | 0.11 | 0.11 | 1.58 | 0.13 | 0.13 | 0.14 | 0.12 | 1.83 |
| 198 | 432715 | 6224227 | 156 | SSW | 0.11 | 0.12 | 0.12 | 0.07 | 1.59 | 0.13 | 0.13 | 0.15 | 0.08 | 1.84 |
| 199 | 420621 | 6214236 | 168 | SSW | 0.11 | 0.12 | 0.11 | 0.11 | 1.54 | 0.13 | 0.13 | 0.14 | 0.12 | 1.78 |
| 200 | 376102 | 6200433 | 198 | SSW | 0.11 | 0.12 | 0.11 | 0.04 | 1.52 | 0.12 | 0.13 | 0.13 | 0.05 | 1.72 |
| 201 | 413544 | 6197673 | 186 | SSW | 0.11 | 0.12 | 0.10 | 0.06 | 1.51 | 0.12 | 0.13 | 0.13 | 0.08 | 1.75 |
| 202 | 435473 | 6200997 | 178 | S | 0.11 | 0.12 | 0.11 | 0.10 | 1.60 | 0.13 | 0.13 | 0.14 | 0.11 | 1.86 |
| 203 | 432308 | 6198262 | 181 | S | 0.12 | 0.12 | 0.12 | 0.09 | 1.65 | 0.14 | 0.13 | 0.15 | 0.11 | 1.91 |
| 204 | 437499 | 6197260 | 181 | S | 0.12 | 0.12 | 0.12 | 0.04 | 1.62 | 0.13 | 0.13 | 0.15 | 0.06 | 1.88 |
| 205 | 426862 | 6184436 | 196 | SSW | 0.11 | 0.12 | 0.11 | 0.12 | 1.55 | 0.13 | 0.13 | 0.14 | 0.14 | 1.80 |
| 206 | 425742 | 6179813 | 201 | SSW | 0.11 | 0.12 | 0.11 | 0.12 | 1.53 | 0.13 | 0.13 | 0.13 | 0.13 | 1.77 |
| 207 | 429371 | 6177905 | 202 | S | 0.11 | 0.12 | 0.11 | 0.06 | 1.53 | 0.13 | 0.13 | 0.13 | 0.08 | 1.78 |
| 208 | 414088 | 6172614 | 210 | SSW | 0.11 | 0.11 | 0.10 | 0.13 | 1.48 | 0.12 | 0.12 | 0.13 | 0.15 | 1.73 |
| 209 | 404923 | 6184861 | 201 | SSW | 0.11 | 0.12 | 0.10 | 0.06 | 1.56 | 0.13 | 0.13 | 0.13 | 0.07 | 1.78 |
| 210 | 383412 | 6181678 | 212 | SSW | 0.11 | 0.12 | 0.11 | 0.04 | 1.51 | 0.12 | 0.13 | 0.13 | 0.06 | 1.69 |
| 211 | 388380 | 6191747 | 200 | SSW | 0.11 | 0.12 | 0.11 | 0.07 | 1.54 | 0.12 | 0.13 | 0.13 | 0.09 | 1.74 |
| 212 | 381000 | 6189159 | 206 | SSW | 0.11 | 0.12 | 0.11 | 0.16 | 1.52 | 0.12 | 0.13 | 0.13 | 0.17 | 1.70 |
| 213 | 376691 | 6184647 | 212 | SSW | 0.11 | 0.12 | 0.11 | 0.26 | 1.51 | 0.12 | 0.13 | 0.13 | 0.27 | 1.67 |
| 214 | 376481 | 6177226 | 218 | SSW | 0.11 | 0.12 | 0.10 | 0.12 | 1.50 | 0.12 | 0.12 | 0.12 | 0.13 | 1.65 |
| 215 | 369298 | 6182079 | 217 | SSW | 0.11 | 0.12 | 0.10 | 0.13 | 1.49 | 0.12 | 0.12 | 0.12 | 0.14 | 1.64 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 216 | 363259 | 6189683 | 213 | SSW | 0.11 | 0.12 | 0.10 | 0.08 | 1.49 | 0.12 | 0.12 | 0.12 | 0.09 | 1.64 |
| 217 | 358952 | 6185800 | 219 | SSW | 0.11 | 0.12 | 0.10 | 0.18 | 1.47 | 0.12 | 0.12 | 0.12 | 0.18 | 1.61 |
| 218 | 452595 | 6196133 | 181 | S | 0.12 | 0.13 | 0.12 | 0.06 | 1.65 | 0.15 | 0.14 | 0.17 | 0.08 | 2.07 |
| 219 | 444220 | 6193451 | 184 | S | 0.12 | 0.12 | 0.12 | 0.06 | 1.62 | 0.14 | 0.13 | 0.15 | 0.08 | 1.91 |
| 220 | 448879 | 6190611 | 187 | S | 0.12 | 0.12 | 0.12 | 0.05 | 1.64 | 0.14 | 0.14 | 0.16 | 0.07 | 1.94 |
| 221 | 458295 | 6193292 | 183 | S | 0.12 | 0.13 | 0.13 | 0.04 | 1.69 | 0.15 | 0.15 | 0.18 | 0.07 | 2.16 |
| 222 | 471892 | 6199682 | 177 | S | 0.13 | 0.14 | 0.15 | 0.06 | 1.81 | 0.15 | 0.15 | 0.18 | 0.08 | 2.15 |
| 223 | 438372 | 6185182 | 193 | S | 0.11 | 0.12 | 0.11 | 0.05 | 1.59 | 0.13 | 0.13 | 0.14 | 0.06 | 1.84 |
| 224 | 443436 | 6173058 | 205 | S | 0.11 | 0.12 | 0.11 | 0.04 | 1.58 | 0.13 | 0.13 | 0.14 | 0.06 | 1.82 |
| 225 | 446589 | 6173942 | 203 | S | 0.11 | 0.12 | 0.11 | 0.04 | 1.60 | 0.13 | 0.13 | 0.15 | 0.06 | 1.85 |
| 226 | 438648 | 6204657 | 174 | S | 0.11 | 0.12 | 0.11 | 0.04 | 1.58 | 0.13 | 0.13 | 0.14 | 0.06 | 1.84 |
| 227 | 520832 | 6196859 | 188 | SSE | 0.15 | 0.15 | 0.18 | 0.09 | 2.09 | 0.17 | 0.17 | 0.22 | 0.12 | 2.44 |
| 228 | 530201 | 6197838 | 190 | SSE | 0.15 | 0.15 | 0.18 | 0.10 | 2.07 | 0.17 | 0.17 | 0.22 | 0.13 | 2.42 |
| 229 | 534391 | 6195087 | 194 | SSE | 0.14 | 0.14 | 0.17 | 0.08 | 1.99 | 0.17 | 0.16 | 0.20 | 0.10 | 2.32 |
| 230 | 533411 | 6186731 | 201 | SSE | 0.14 | 0.14 | 0.17 | 0.07 | 2.03 | 0.17 | 0.16 | 0.21 | 0.10 | 2.35 |
| 231 | 516751 | 6175506 | 207 | SSE | 0.16 | 0.15 | 0.19 | 0.08 | 2.26 | 0.19 | 0.17 | 0.23 | 0.10 | 2.60 |
| 232 | 528841 | 6167222 | 218 | SSE | 0.16 | 0.15 | 0.18 | 0.07 | 2.18 | 0.18 | 0.16 | 0.22 | 0.09 | 2.50 |
| 233 | 502625 | 6165269 | 214 | S | 0.17 | 0.15 | 0.20 | 0.09 | 2.44 | 0.20 | 0.18 | 0.26 | 0.12 | 2.83 |
| 234 | 547077 | 6178511 | 214 | SSE | 0.14 | 0.14 | 0.15 | 0.06 | 1.92 | 0.16 | 0.15 | 0.19 | 0.08 | 2.21 |
| 235 | 548176 | 6173881 | 219 | SSE | 0.14 | 0.14 | 0.15 | 0.15 | 1.90 | 0.16 | 0.15 | 0.18 | 0.17 | 2.18 |
| 236 | 558657 | 6173086 | 223 | SSE | 0.13 | 0.13 | 0.14 | 0.06 | 1.81 | 0.15 | 0.14 | 0.17 | 0.07 | 2.05 |
| 237 | 531585 | 6150547 | 235 | SSE | 0.15 | 0.15 | 0.18 | 0.07 | 2.09 | 0.17 | 0.17 | 0.22 | 0.09 | 2.33 |
| 238 | 544256 | 6146950 | 242 | SSE | 0.14 | 0.15 | 0.17 | 0.05 | 2.01 | 0.16 | 0.16 | 0.20 | 0.07 | 2.23 |
| 239 | 525364 | 6133813 | 250 | SSE | 0.15 | 0.15 | 0.19 | 0.05 | 2.16 | 0.17 | 0.16 | 0.22 | 0.07 | 2.42 |
| 240 | 514750 | 6146752 | 235 | SSE | 0.17 | 0.17 | 0.22 | 0.08 | 2.35 | 0.19 | 0.20 | 0.27 | 0.11 | 2.71 |
| 241 | 510533 | 6149522 | 231 | S | 0.18 | 0.18 | 0.24 | 0.10 | 2.49 | 0.21 | 0.21 | 0.30 | 0.13 | 2.90 |
| 242 | 464179 | 6147797 | 229 | S | 0.13 | 0.14 | 0.15 | 0.04 | 1.86 | 0.15 | 0.15 | 0.19 | 0.06 | 2.11 |
| 243 | 475751 | 6144012 | 233 | S | 0.13 | 0.14 | 0.16 | 0.04 | 1.89 | 0.15 | 0.15 | 0.19 | 0.06 | 2.16 |
| 244 | 492606 | 6137452 | 240 | S | 0.15 | 0.15 | 0.18 | 0.05 | 2.10 | 0.17 | 0.16 | 0.22 | 0.07 | 2.45 |
| 245 | 468315 | 6136636 | 240 | S | 0.13 | 0.14 | 0.15 | 0.0333 | 1.85 | 0.15 | 0.15 | 0.18 | 0.0479 | 2.07 |
| 246 | 452463 | 6135855 | 241 | S | 0.13 | 0.14 | 0.15 | 0.05 | 1.82 | 0.14 | 0.15 | 0.17 | 0.06 | 2.01 |
| 247 | 467222 | 6132003 | 244 | S | 0.13 | 0.14 | 0.15 | 0.04 | 1.83 | 0.15 | 0.15 | 0.17 | 0.05 | 2.04 |
| 248 | 470369 | 6128275 | 248 | S | 0.13 | 0.14 | 0.15 | 0.03 | 1.81 | 0.14 | 0.15 | 0.17 | 0.04 | 2.01 |
| 249 | 465073 | 6127390 | 249 | S | 0.13 | 0.14 | 0.15 | 0.03 | 1.81 | 0.14 | 0.15 | 0.17 | 0.04 | 2.00 |
| 250 | 475613 | 6118973 | 258 | S | 0.13 | 0.14 | 0.15 | 0.04 | 1.84 | 0.14 | 0.15 | 0.17 | 0.05 | 2.02 |
| 251 | 458671 | 6121881 | 255 | S | 0.13 | 0.14 | 0.14 | 0.04 | 1.77 | 0.14 | 0.14 | 0.16 | 0.05 | 1.93 |
| 252 | 458438 | 6096843 | 280 | S | 0.12 | 0.13 | 0.14 | 0.03 | 1.72 | 0.13 | 0.14 | 0.15 | 0.04 | 1.83 |
| 253 | 444801 | 6114608 | 263 | S | 0.12 | 0.13 | 0.14 | 0.06 | 1.72 | 0.13 | 0.14 | 0.15 | 0.07 | 1.85 |
| 254 | 446862 | 6109018 | 268 | S | 0.12 | 0.13 | 0.14 | 0.03 | 1.71 | 0.13 | 0.14 | 0.15 | 0.04 | 1.83 |
| 255 | 443614 | 6104417 | 273 | S | 0.12 | 0.13 | 0.13 | 0.09 | 1.69 | 0.13 | 0.14 | 0.15 | 0.10 | 1.81 |
| 256 | 461651 | 6098662 | 278 | S | 0.12 | 0.13 | 0.14 | 0.11 | 1.73 | 0.13 | 0.14 | 0.15 | 0.11 | 1.85 |
| 257 | 468042 | 6098611 | 278 | S | 0.13 | 0.14 | 0.14 | 0.10 | 1.77 | 0.14 | 0.14 | 0.16 | 0.11 | 1.90 |
| 258 | 470756 | 6106015 | 270 | S | 0.13 | 0.13 | 0.14 | 0.09 | 1.77 | 0.14 | 0.14 | 0.16 | 0.10 | 1.91 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 259 | 476591 | 6104122 | 272 | S | 0.13 | 0.14 | 0.15 | 0.14 | 1.80 | 0.14 | 0.14 | 0.16 | 0.15 | 1.95 |
| 260 | 458576 | 6424282 | 48 | N | 0.11 | 0.11 | 0.10 | 0.42 | 1.61 | 0.14 | 0.11 | 0.13 | 0.44 | 1.95 |
| 261 | 460556 | 6425197 | 49 | N | 0.12 | 0.11 | 0.10 | 0.40 | 1.61 | 0.14 | 0.11 | 0.13 | 0.41 | 1.96 |
| 262 | 463961 | 6419598 | 43 | N | 0.12 | 0.11 | 0.11 | 0.36 | 1.74 | 0.16 | 0.12 | 0.15 | 0.38 | 2.17 |
| 263 | 467958 | 6426055 | 50 | N | 0.12 | 0.11 | 0.10 | 0.12 | 1.65 | 0.14 | 0.11 | 0.13 | 0.13 | 2.00 |
| 264 | 484228 | 6426882 | 54 | NNE | 0.12 | 0.10 | 0.10 | 0.04 | 1.64 | 0.14 | 0.11 | 0.13 | 0.05 | 1.95 |
| 265 | 486197 | 6425027 | 53 | NNE | 0.12 | 0.10 | 0.10 | 0.04 | 1.66 | 0.14 | 0.11 | 0.13 | 0.05 | 1.98 |
| 266 | 492117 | 6426859 | 57 | NNE | 0.11 | 0.10 | 0.10 | 0.04 | 1.61 | 0.13 | 0.11 | 0.12 | 0.05 | 1.89 |
| 267 | 499012 | 6425927 | 60 | NNE | 0.11 | 0.10 | 0.09 | 0.04 | 1.57 | 0.13 | 0.11 | 0.12 | 0.05 | 1.82 |
| 268 | 503947 | 6424693 | 61 | NE | 0.11 | 0.10 | 0.09 | 0.05 | 1.55 | 0.13 | 0.11 | 0.12 | 0.06 | 1.79 |
| 269 | 505917 | 6424695 | 63 | NE | 0.11 | 0.10 | 0.09 | 0.05 | 1.53 | 0.13 | 0.11 | 0.11 | 0.06 | 1.77 |
| 270 | 498027 | 6419437 | 54 | NE | 0.12 | 0.10 | 0.10 | 0.06 | 1.66 | 0.14 | 0.11 | 0.13 | 0.07 | 1.96 |
| 271 | 511855 | 6417594 | 62 | NE | 0.11 | 0.10 | 0.10 | 0.05 | 1.58 | 0.13 | 0.11 | 0.12 | 0.06 | 1.83 |
| 272 | 522662 | 6427850 | 77 | NE | 0.10 | 0.10 | 0.08 | 0.05 | 1.44 | 0.12 | 0.11 | 0.10 | 0.06 | 1.63 |
| 273 | 521711 | 6422278 | 72 | NE | 0.11 | 0.10 | 0.09 | 0.04 | 1.48 | 0.12 | 0.11 | 0.11 | 0.04 | 1.68 |
| 274 | 522212 | 6420422 | 71 | NE | 0.11 | 0.10 | 0.09 | 0.04 | 1.49 | 0.12 | 0.11 | 0.11 | 0.05 | 1.69 |
| 275 | 541491 | 6417792 | 86 | ENE | 0.10 | 0.10 | 0.07 | 0.05 | 1.36 | 0.11 | 0.10 | 0.09 | 0.05 | 1.52 |
| 276 | 519738 | 6421333 | 70 | NE | 0.11 | 0.10 | 0.09 | 0.04 | 1.49 | 0.12 | 0.11 | 0.11 | 0.05 | 1.70 |
| 277 | 513886 | 6400901 | 54 | ENE | 0.13 | 0.11 | 0.12 | 0.13 | 1.81 | 0.15 | 0.12 | 0.15 | 0.14 | 2.14 |
| 278 | 508959 | 6386971 | 44 | ENE | 0.15 | 0.12 | 0.16 | 0.07 | 2.16 | 0.19 | 0.13 | 0.20 | 0.08 | 2.60 |
| 279 | 527848 | 6390764 | 64 | ENE | 0.12 | 0.11 | 0.12 | 0.13 | 1.71 | 0.14 | 0.12 | 0.14 | 0.14 | 1.98 |
| 280 | 527874 | 6387057 | 63 | E | 0.12 | 0.12 | 0.12 | 0.05 | 1.74 | 0.14 | 0.12 | 0.15 | 0.07 | 2.02 |
| 281 | 528885 | 6384281 | 63 | E | 0.12 | 0.12 | 0.12 | 0.13 | 1.74 | 0.14 | 0.12 | 0.15 | 0.14 | 2.01 |
| 282 | 513963 | 6378636 | 48 | E | 0.16 | 0.13 | 0.16 | 0.15 | 2.17 | 0.19 | 0.13 | 0.20 | 0.16 | 2.59 |
| 283 | 506991 | 6374911 | 41 | E | 0.19 | 0.13 | 0.21 | 0.08 | 2.65 | 0.23 | 0.14 | 0.26 | 0.10 | 3.22 |
| 284 | 542056 | 6363054 | 77 | E | 0.12 | 0.12 | 0.13 | 0.05 | 1.71 | 0.14 | 0.13 | 0.15 | 0.06 | 1.94 |
| 299 | 350513 | 6315437 | 131 | WSW | 0.10 | 0.11 | 0.09 | 0.24 | 1.40 | 0.11 | 0.11 | 0.10 | 0.25 | 1.54 |
| 300 | 365323 | 6302862 | 125 | SW | 0.10 | 0.11 | 0.09 | 0.04 | 1.44 | 0.11 | 0.12 | 0.11 | 0.05 | 1.61 |
| 301 | 349070 | 6289492 | 146 | SW | 0.10 | 0.11 | 0.09 | 0.05 | 1.38 | 0.11 | 0.11 | 0.10 | 0.06 | 1.52 |
| 302 | 361754 | 6287198 | 137 | SW | 0.10 | 0.11 | 0.09 | 0.28 | 1.42 | 0.11 | 0.12 | 0.11 | 0.29 | 1.59 |
| 304 | 351247 | 6264347 | 160 | SW | 0.10 | 0.11 | 0.10 | 0.52 | 1.39 | 0.11 | 0.12 | 0.12 | 0.53 | 1.58 |
| 306 | 350527 | 6214242 | 199 | SW | 0.11 | 0.12 | 0.10 | 0.07 | 1.49 | 0.12 | 0.13 | 0.14 | 0.08 | 1.74 |
| 314 | 349626 | 6188281 | 221 | SSW | 0.10 | 0.12 | 0.10 | 0.26 | 1.46 | 0.11 | 0.12 | 0.12 | 0.27 | 1.59 |
| 316 | 374162 | 6271211 | 140 | SW | 0.10 | 0.11 | 0.10 | 0.11 | 1.46 | 0.12 | 0.12 | 0.12 | 0.12 | 1.67 |
| 317 | 505832 | 6347134 | 49 | SE | 0.23 | 0.19 | 0.30 | 0.21 | 3.27 | 0.27 | 0.20 | 0.35 | 0.23 | 3.84 |
| 318 | 503318 | 6346085 | 48 | SE | 0.23 | 0.18 | 0.29 | 0.20 | 3.22 | 0.28 | 0.19 | 0.35 | 0.22 | 3.87 |
| 319 | 510355 | 6325681 | 67 | SE | 0.17 | 0.17 | 0.22 | 0.18 | 2.38 | 0.20 | 0.19 | 0.27 | 0.20 | 2.87 |
| 320 | 533212 | 6338082 | 77 | ESE | 0.14 | 0.14 | 0.15 | 0.13 | 1.90 | 0.16 | 0.16 | 0.19 | 0.16 | 2.21 |
| 321 | 543215 | 6362610 | 78 | E | 0.12 | 0.12 | 0.12 | 0.10 | 1.70 | 0.14 | 0.13 | 0.15 | 0.11 | 1.92 |
| 322 | 548424 | 6332453 | 93 | ESE | 0.12 | 0.12 | 0.12 | 0.39 | 1.64 | 0.13 | 0.13 | 0.14 | 0.40 | 1.85 |
| 323 | 410108 | 6374038 | 56 | W | 0.10 | 0.11 | 0.10 | 0.15 | 1.38 | 0.11 | 0.12 | 0.12 | 0.16 | 1.59 |
| 324 | 410554 | 6378483 | 55 | W | 0.10 | 0.11 | 0.09 | 0.14 | 1.37 | 0.11 | 0.12 | 0.11 | 0.15 | 1.58 |
| 325 | 410374 | 6386071 | 56 | W | 0.10 | 0.11 | 0.09 | 0.11 | 1.35 | 0.11 | 0.12 | 0.11 | 0.12 | 1.54 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 326 | 418434 | 6390656 | 50 | WNW | 0.10 | 0.11 | 0.09 | 0.08 | 1.38 | 0.11 | 0.12 | 0.11 | 0.09 | 1.57 |
| 327 | 432609 | 6405149 | 44 | NW | 0.10 | 0.11 | 0.09 | 0.07 | 1.42 | 0.12 | 0.11 | 0.11 | 0.08 | 1.63 |
| 328 | 433258 | 6399414 | 40 | NW | 0.10 | 0.11 | 0.09 | 0.08 | 1.45 | 0.12 | 0.12 | 0.12 | 0.09 | 1.68 |
| 329 | 464280 | 6323724 | 53 | S | 0.39 | 0.56 | 0.82 | 1.00 | 5.51 | 0.46 | 0.58 | 0.92 | 1.04 | 6.50 |
| 330 | 509160 | 6422381 | 63 | NE | 0.11 | 0.10 | 0.09 | 0.08 | 1.54 | 0.13 | 0.11 | 0.11 | 0.09 | 1.78 |
| 331 | 501166 | 6427071 | 62 | NE | 0.11 | 0.10 | 0.09 | 0.06 | 1.54 | 0.13 | 0.11 | 0.11 | 0.07 | 1.78 |
| 332 | 494569 | 6419374 | 52 | NNE | 0.12 | 0.10 | 0.11 | 0.04 | 1.69 | 0.14 | 0.11 | 0.13 | 0.05 | 2.00 |
| 333 | 491985 | 6411117 | 43 | NE | 0.13 | 0.11 | 0.12 | 0.08 | 1.85 | 0.16 | 0.12 | 0.16 | 0.09 | 2.25 |
| 334 | 429234 | 6396488 | 42 | WNW | 0.10 | 0.11 | 0.09 | 0.06 | 1.43 | 0.12 | 0.12 | 0.11 | 0.07 | 1.65 |
| 335 | 392149 | 6393777 | 76 | WNW | 0.09 | 0.11 | 0.08 | 0.17 | 1.33 | 0.11 | 0.11 | 0.10 | 0.18 | 1.47 |
| 336 | 399507 | 6338927 | 76 | WSW | 0.12 | 0.13 | 0.12 | 0.13 | 1.63 | 0.14 | 0.14 | 0.17 | 0.16 | 1.98 |
| 337 | 399323 | 6341684 | 75 | WSW | 0.12 | 0.13 | 0.12 | 0.40 | 1.62 | 0.14 | 0.15 | 0.17 | 0.43 | 1.99 |
| 338 | 396115 | 6344270 | 77 | WSW | 0.11 | 0.13 | 0.12 | 2.11 | 1.58 | 0.14 | 0.15 | 0.17 | 2.14 | 1.97 |
| 339 | 391449 | 6339131 | 83 | WSW | 0.11 | 0.12 | 0.11 | 1.16 | 1.56 | 0.13 | 0.13 | 0.15 | 1.18 | 1.84 |
| 340 | 376224 | 6344078 | 95 | WSW | 0.10 | 0.12 | 0.10 | 0.33 | 1.47 | 0.12 | 0.12 | 0.12 | 0.34 | 1.68 |
| 341 | 375397 | 6341720 | 97 | WSW | 0.10 | 0.12 | 0.10 | 0.26 | 1.47 | 0.12 | 0.12 | 0.12 | 0.27 | 1.67 |
| 342 | 365956 | 6368725 | 100 | W | 0.10 | 0.11 | 0.08 | 0.11 | 1.38 | 0.11 | 0.11 | 0.09 | 0.11 | 1.52 |
| 343 | 373071 | 6372273 | 93 | W | 0.10 | 0.11 | 0.08 | 0.04 | 1.39 | 0.11 | 0.12 | 0.09 | 0.05 | 1.53 |
| 344 | 393655 | 6384983 | 73 | W | 0.10 | 0.11 | 0.08 | 0.10 | 1.34 | 0.11 | 0.11 | 0.10 | 0.11 | 1.50 |
| 345 | 418473 | 6380143 | 48 | W | 0.10 | 0.11 | 0.10 | 0.14 | 1.42 | 0.12 | 0.12 | 0.12 | 0.15 | 1.64 |
| 346 | 420461 | 6379858 | 46 | W | 0.10 | 0.12 | 0.10 | 0.06 | 1.44 | 0.12 | 0.12 | 0.12 | 0.07 | 1.67 |
| 347 | 514035 | 6443734 | 83 | NE | 0.10 | 0.10 | 0.08 | 0.03 | 1.39 | 0.11 | 0.10 | 0.09 | 0.03 | 1.56 |
| 348 | 515504 | 6436008 | 77 | NE | 0.10 | 0.10 | 0.08 | 0.04 | 1.41 | 0.11 | 0.10 | 0.10 | 0.05 | 1.59 |
| 349 | 539134 | 6441490 | 98 | NE | 0.09 | 0.10 | 0.07 | 0.05 | 1.32 | 0.11 | 0.10 | 0.08 | 0.05 | 1.48 |
| 350 | 536958 | 6436149 | 93 | NE | 0.10 | 0.10 | 0.07 | 0.04 | 1.34 | 0.11 | 0.10 | 0.09 | 0.05 | 1.50 |
| 351 | 413276 | 6411466 | 63 | WNW | 0.09 | 0.10 | 0.07 | 0.10 | 1.29 | 0.10 | 0.11 | 0.09 | 0.11 | 1.43 |
| 352 | 419591 | 6414486 | 60 | NW | 0.09 | 0.10 | 0.08 | 0.14 | 1.30 | 0.10 | 0.11 | 0.09 | 0.15 | 1.45 |
| 373 | 361308 | 6293772 | 133 | SW | 0.10 | 0.11 | 0.09 | 0.49 | 1.42 | 0.11 | 0.12 | 0.11 | 0.50 | 1.58 |
| 374 | 354281 | 6317284 | 126 | WSW | 0.10 | 0.11 | 0.09 | 0.19 | 1.41 | 0.11 | 0.12 | 0.11 | 0.20 | 1.56 |
| 405 | 448002 | 6287963 | 90 | SSW | 0.16 | 0.16 | 0.19 | 0.18 | 2.18 | 0.19 | 0.18 | 0.24 | 0.20 | 2.65 |
| 406 | 423003 | 6353012 | 49 | WSW | 0.13 | 0.13 | 0.14 | 0.26 | 1.76 | 0.15 | 0.15 | 0.18 | 0.28 | 2.13 |
| 407 | 418303 | 6353462 | 53 | WSW | 0.12 | 0.13 | 0.13 | 0.66 | 1.66 | 0.14 | 0.14 | 0.16 | 0.68 | 1.99 |
| 408 | 427803 | 6363462 | 40 | WSW | 0.13 | 0.14 | 0.15 | 0.99 | 1.78 | 0.15 | 0.15 | 0.18 | 1.01 | 2.13 |
| 409 | 428803 | 6363212 | 39 | WSW | 0.13 | 0.14 | 0.15 | 0.83 | 1.81 | 0.16 | 0.15 | 0.19 | 0.85 | 2.17 |
| 410 | 429003 | 6364212 | 39 | WSW | 0.13 | 0.14 | 0.15 | 0.74 | 1.80 | 0.15 | 0.15 | 0.18 | 0.75 | 2.16 |
| 411 | 481401 | 6362412 | 21 | SE | 0.31 | 0.16 | 0.34 | 0.26 | 4.27 | 1.37 | 0.17 | 1.42 | 0.97 | 19.14 |
| 412 | 438802 | 6390961 | 31 | WNW | 0.11 | 0.12 | 0.11 | 0.16 | 1.58 | 0.13 | 0.12 | 0.14 | 0.17 | 1.87 |
| 413 | 505000 | 6342512 | 52 | SE | 0.20 | 0.17 | 0.26 | 0.17 | 2.83 | 0.24 | 0.19 | 0.31 | 0.20 | 3.39 |
| 414 | 510500 | 6340812 | 57 | SE | 0.20 | 0.20 | 0.27 | 0.20 | 2.82 | 0.23 | 0.21 | 0.32 | 0.22 | 3.27 |
| 415 | 483501 | 6360762 | 23 | SE | 0.32 | 0.16 | 0.36 | 0.22 | 4.43 | 1.40 | 0.17 | 1.46 | 0.98 | 19.64 |
| 416 | 498500 | 6314213 | 70 | SSE | 0.19 | 0.19 | 0.27 | 0.21 | 2.70 | 0.25 | 0.22 | 0.34 | 0.25 | 3.43 |
| 417 | 514199 | 6382911 | 49 | E | 0.15 | 0.12 | 0.15 | 0.11 | 2.10 | 0.18 | 0.13 | 0.19 | 0.12 | 2.51 |
| 418 | 510100 | 6378311 | 44 | E | 0.17 | 0.13 | 0.18 | 0.11 | 2.35 | 0.20 | 0.14 | 0.22 | 0.12 | 2.84 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 419 | 518699 | 6364212 | 54 | ESE | 0.16 | 0.14 | 0.18 | 0.09 | 2.20 | 0.18 | 0.15 | 0.21 | 0.11 | 2.57 |
| 420 | 479201 | 6352812 | 27 | SSE | 0.38 | 0.17 | 0.44 | 0.23 | 5.38 | 0.51 | 0.19 | 0.57 | 0.28 | 7.13 |
| 421 | 512450 | 6345512 | 56 | ESE | 0.22 | 0.20 | 0.30 | 0.22 | 3.09 | 0.25 | 0.21 | 0.34 | 0.24 | 3.53 |
| 422 | 522999 | 6333312 | 71 | SE | 0.15 | 0.15 | 0.18 | 0.19 | 2.09 | 0.17 | 0.16 | 0.22 | 0.21 | 2.44 |
| 423 | 529099 | 6334462 | 76 | ESE | 0.14 | 0.14 | 0.16 | 0.25 | 1.94 | 0.16 | 0.15 | 0.19 | 0.27 | 2.25 |
| 424 | 500600 | 6320312 | 66 | SSE | 0.19 | 0.18 | 0.25 | 0.20 | 2.63 | 0.24 | 0.21 | 0.32 | 0.23 | 3.31 |
| 425 | 502300 | 6317712 | 69 | SSE | 0.18 | 0.18 | 0.25 | 0.21 | 2.56 | 0.23 | 0.21 | 0.32 | 0.25 | 3.22 |
| 426 | 447802 | 6388211 | 22 | WNW | 0.13 | 0.12 | 0.14 | 0.52 | 1.88 | 0.17 | 0.13 | 0.18 | 0.53 | 2.35 |
| 428 | 444752 | 6392311 | 27 | NW | 0.12 | 0.12 | 0.12 | 0.32 | 1.71 | 0.15 | 0.13 | 0.16 | 0.33 | 2.08 |
| 429 | 451552 | 6394711 | 23 | NW | 0.14 | 0.13 | 0.15 | 0.71 | 1.97 | 0.18 | 0.14 | 0.20 | 0.73 | 2.50 |
| 430 | 461502 | 6391111 | 15 | NNW | 0.18 | 0.12 | 0.19 | 0.44 | 2.58 | 0.66 | 0.14 | 0.68 | 0.58 | 9.21 |
| 431 | 451302 | 6395711 | 24 | NW | 0.14 | 0.13 | 0.14 | 0.28 | 1.93 | 0.17 | 0.14 | 0.19 | 0.30 | 2.44 |
| 432 | 512600 | 6343712 | 57 | SE | 0.21 | 0.20 | 0.28 | 0.22 | 2.89 | 0.24 | 0.21 | 0.33 | 0.24 | 3.32 |
| 433 | 437402 | 6398711 | 36 | NW | 0.11 | 0.11 | 0.10 | 0.21 | 1.50 | 0.13 | 0.12 | 0.12 | 0.23 | 1.76 |
| 434 | 425103 | 6385111 | 42 | WNW | 0.10 | 0.11 | 0.10 | 0.15 | 1.44 | 0.12 | 0.12 | 0.12 | 0.16 | 1.68 |
| 435 | 427503 | 6387611 | 40 | WNW | 0.10 | 0.11 | 0.10 | 0.12 | 1.45 | 0.12 | 0.12 | 0.12 | 0.13 | 1.69 |
| 436 | 429803 | 6377462 | 36 | W | 0.11 | 0.12 | 0.11 | 0.14 | 1.55 | 0.13 | 0.13 | 0.14 | 0.15 | 1.83 |
| 437 | 428903 | 6400411 | 44 | WNW | 0.10 | 0.11 | 0.09 | 0.48 | 1.41 | 0.12 | 0.11 | 0.11 | 0.49 | 1.62 |
| 438 | 438202 | 6391811 | 32 | WNW | 0.11 | 0.11 | 0.11 | 0.15 | 1.56 | 0.13 | 0.12 | 0.13 | 0.16 | 1.85 |
| 439 | 438752 | 6392211 | 31 | WNW | 0.11 | 0.11 | 0.11 | 0.15 | 1.57 | 0.13 | 0.12 | 0.13 | 0.16 | 1.86 |
| 440 | 516249 | 6343212 | 60 | ESE | 0.17 | 0.16 | 0.22 | 0.15 | 2.39 | 0.20 | 0.17 | 0.25 | 0.17 | 2.78 |
| 441 | 416203 | 6370462 | 50 | W | 0.11 | 0.12 | 0.11 | 0.16 | 1.54 | 0.13 | 0.13 | 0.14 | 0.17 | 1.80 |
| 442 | 422403 | 6371812 | 44 | W | 0.11 | 0.13 | 0.12 | 0.25 | 1.60 | 0.13 | 0.14 | 0.15 | 0.27 | 1.88 |
| 443 | 411153 | 6350112 | 61 | WSW | 0.11 | 0.12 | 0.11 | 1.38 | 1.59 | 0.14 | 0.14 | 0.15 | 1.40 | 1.94 |
| 444 | 426003 | 6373212 | 40 | W | 0.11 | 0.12 | 0.12 | 0.17 | 1.54 | 0.13 | 0.13 | 0.15 | 0.19 | 1.82 |
| 445 | 524699 | 6341212 | 68 | ESE | 0.15 | 0.15 | 0.18 | 0.15 | 2.08 | 0.17 | 0.16 | 0.21 | 0.17 | 2.42 |
| 446 | 436852 | 6332462 | 53 | SSW | 0.16 | 0.14 | 0.18 | 0.16 | 2.27 | 0.21 | 0.15 | 0.24 | 0.18 | 2.89 |
| 447 | 433852 | 6330512 | 56 | SW | 0.15 | 0.13 | 0.17 | 0.21 | 2.12 | 0.19 | 0.15 | 0.22 | 0.23 | 2.65 |
| 449 | 443552 | 6301613 | 78 | SSW | 0.17 | 0.16 | 0.20 | 0.23 | 2.34 | 0.21 | 0.18 | 0.26 | 0.26 | 2.88 |
| 450 | 451402 | 6281113 | 96 | S | 0.15 | 0.16 | 0.18 | 0.15 | 2.08 | 0.18 | 0.17 | 0.23 | 0.17 | 2.51 |
| 451 | 445481 | 6278365 | 100 | SSW | 0.14 | 0.15 | 0.16 | 0.16 | 1.95 | 0.17 | 0.16 | 0.21 | 0.18 | 2.34 |
| 452 | 493296 | 6259805 | 120 | SSE | 0.16 | 0.18 | 0.21 | 0.24 | 2.22 | 0.19 | 0.22 | 0.29 | 0.29 | 2.71 |
| 453 | 495869 | 6259633 | 121 | SSE | 0.16 | 0.18 | 0.22 | 0.17 | 2.29 | 0.20 | 0.22 | 0.30 | 0.22 | 2.78 |
| 455 | 498560 | 6265951 | 115 | SSE | 0.15 | 0.16 | 0.19 | 0.18 | 2.09 | 0.19 | 0.19 | 0.26 | 0.22 | 2.61 |
| 456 | 448416 | 6280450 | 98 | S | 0.15 | 0.15 | 0.18 | 0.16 | 2.03 | 0.17 | 0.17 | 0.22 | 0.18 | 2.45 |
| 457 | 442406 | 6276535 | 103 | SSW | 0.13 | 0.14 | 0.15 | 0.14 | 1.89 | 0.16 | 0.15 | 0.20 | 0.16 | 2.26 |
| 458 | 446055 | 6279117 | 99 | SSW | 0.14 | 0.15 | 0.17 | 0.19 | 1.97 | 0.17 | 0.16 | 0.21 | 0.21 | 2.37 |
| 459 | 451429 | 6268553 | 109 | S | 0.14 | 0.15 | 0.16 | 0.13 | 1.90 | 0.16 | 0.16 | 0.20 | 0.15 | 2.27 |
| 460 | 450033 | 6268135 | 109 | S | 0.13 | 0.14 | 0.16 | 0.13 | 1.86 | 0.16 | 0.16 | 0.20 | 0.16 | 2.22 |
| 461 | 479616 | 6256890 | 120 | S | 0.15 | 0.17 | 0.20 | 0.31 | 2.14 | 0.19 | 0.20 | 0.27 | 0.35 | 2.61 |
| 462 | 471630 | 6268385 | 108 | S | 0.14 | 0.16 | 0.18 | 0.47 | 1.99 | 0.17 | 0.18 | 0.23 | 0.50 | 2.43 |
| 463 | 488075 | 6256727 | 122 | S | 0.15 | 0.17 | 0.21 | 0.36 | 2.15 | 0.19 | 0.22 | 0.29 | 0.41 | 2.65 |
| 464 | 505194 | 6347380 | 49 | SE | 0.23 | 0.18 | 0.29 | 0.17 | 3.23 | 0.27 | 0.20 | 0.35 | 0.20 | 3.82 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 465 | 507264 | 6347115 | 51 | SE | 0.25 | 0.20 | 0.33 | 0.20 | 3.49 | 0.29 | 0.21 | 0.38 | 0.22 | 4.03 |
| 466 | 505393 | 6346711 | 49 | SE | 0.23 | 0.18 | 0.29 | 0.19 | 3.19 | 0.27 | 0.20 | 0.35 | 0.21 | 3.77 |
| 467 | 502509 | 6317128 | 70 | SSE | 0.18 | 0.19 | 0.25 | 0.20 | 2.56 | 0.23 | 0.21 | 0.32 | 0.24 | 3.21 |
| 468 | 429874 | 6398738 | 42 | WNW | 0.10 | 0.11 | 0.09 | 0.21 | 1.43 | 0.12 | 0.12 | 0.11 | 0.22 | 1.65 |
| 469 | 430065 | 6401484 | 44 | NW | 0.10 | 0.11 | 0.09 | 0.42 | 1.42 | 0.12 | 0.11 | 0.11 | 0.43 | 1.63 |
| 470 | 433955 | 6393613 | 36 | WNW | 0.11 | 0.11 | 0.10 | 0.18 | 1.49 | 0.12 | 0.12 | 0.12 | 0.19 | 1.74 |
| 471 | 438235 | 6392291 | 32 | WNW | 0.11 | 0.11 | 0.11 | 0.16 | 1.56 | 0.13 | 0.12 | 0.13 | 0.17 | 1.84 |
| 472 | 448974 | 6395163 | 25 | NW | 0.13 | 0.12 | 0.14 | 0.13 | 1.84 | 0.16 | 0.13 | 0.18 | 0.15 | 2.29 |
| 473 | 460733 | 6391206 | 16 | NNW | 0.18 | 0.12 | 0.18 | 0.27 | 2.52 | 0.64 | 0.14 | 0.66 | 0.40 | 8.98 |
| 474 | 445573 | 6383359 | 22 | WNW | 0.13 | 0.12 | 0.14 | 0.82 | 1.86 | 0.16 | 0.13 | 0.18 | 0.84 | 2.31 |
| 475 | 436094 | 6371181 | 30 | W | 0.13 | 0.14 | 0.15 | 0.21 | 1.87 | 0.16 | 0.15 | 0.19 | 0.22 | 2.24 |
| 476 | 511576 | 6415521 | 60 | NE | 0.11 | 0.11 | 0.10 | 0.09 | 1.61 | 0.13 | 0.11 | 0.12 | 0.10 | 1.87 |
| 477 | 495763 | 6333877 | 52 | SE | 0.22 | 0.19 | 0.28 | 0.19 | 3.06 | 0.28 | 0.20 | 0.37 | 0.23 | 3.97 |
| 478 | 492308 | 6313536 | 68 | SSE | 0.22 | 0.21 | 0.32 | 0.23 | 3.14 | 0.29 | 0.24 | 0.41 | 0.28 | 4.03 |
| 479 | 491531 | 6306260 | 75 | SSE | 0.23 | 0.20 | 0.31 | 0.22 | 3.17 | 0.29 | 0.24 | 0.41 | 0.28 | 4.03 |
| 480 | 513560 | 6419693 | 64 | NE | 0.11 | 0.10 | 0.09 | 0.09 | 1.54 | 0.13 | 0.11 | 0.11 | 0.10 | 1.78 |
| 481 | 513190 | 6386987 | 48 | ENE | 0.15 | 0.12 | 0.15 | 0.11 | 2.05 | 0.17 | 0.13 | 0.18 | 0.12 | 2.44 |
| 482 | 514631 | 6383486 | 49 | E | 0.15 | 0.12 | 0.15 | 0.12 | 2.08 | 0.18 | 0.13 | 0.19 | 0.14 | 2.47 |
| 483 | 511202 | 6379065 | 45 | E | 0.16 | 0.13 | 0.17 | 0.14 | 2.29 | 0.20 | 0.14 | 0.21 | 0.16 | 2.74 |
| 484 | 510279 | 6375937 | 44 | E | 0.17 | 0.13 | 0.18 | 0.12 | 2.39 | 0.21 | 0.14 | 0.23 | 0.13 | 2.88 |
| 485 | 495957 | 6334968 | 51 | SE | 0.22 | 0.19 | 0.29 | 0.21 | 3.09 | 0.29 | 0.20 | 0.37 | 0.24 | 4.00 |
| 486 | 414747 | 6351741 | 57 | WSW | 0.12 | 0.12 | 0.12 | 0.70 | 1.62 | 0.14 | 0.14 | 0.16 | 0.72 | 1.96 |
| 487 | 419555 | 6351513 | 53 | WSW | 0.12 | 0.13 | 0.13 | 0.39 | 1.70 | 0.15 | 0.14 | 0.17 | 0.40 | 2.06 |
| 488 | 412268 | 6345506 | 62 | WSW | 0.12 | 0.12 | 0.12 | 0.22 | 1.64 | 0.15 | 0.14 | 0.17 | 0.25 | 2.05 |
| 515 | 526700 | 6079500 | 303 | SSE | 0.17 | 0.18 | 0.23 | 0.19 | 2.36 | 0.18 | 0.18 | 0.24 | 0.20 | 2.50 |
| 516 | 522000 | 6064200 | 317 | S | 0.15 | 0.17 | 0.20 | 0.15 | 2.08 | 0.16 | 0.17 | 0.21 | 0.16 | 2.19 |
| 517 | 529300 | 6059500 | 323 | SSE | 0.15 | 0.17 | 0.20 | 0.10 | 2.08 | 0.16 | 0.18 | 0.21 | 0.11 | 2.19 |
| 518 | 516000 | 6052000 | 328 | S | 0.13 | 0.15 | 0.16 | 0.04 | 1.83 | 0.14 | 0.15 | 0.17 | 0.05 | 1.93 |
| 519 | 545000 | 6054000 | 332 | SSE | 0.14 | 0.17 | 0.18 | 0.09 | 1.94 | 0.15 | 0.17 | 0.20 | 0.10 | 2.04 |
| 520 | 532000 | 6050000 | 333 | SSE | 0.14 | 0.17 | 0.18 | 0.09 | 1.94 | 0.15 | 0.17 | 0.20 | 0.10 | 2.04 |
| 521 | 525300 | 6042700 | 339 | S | 0.13 | 0.15 | 0.16 | 0.10 | 1.80 | 0.13 | 0.15 | 0.17 | 0.11 | 1.89 |
| 522 | 542102 | 6042790 | 342 | SSE | 0.13 | 0.17 | 0.18 | 0.09 | 1.89 | 0.14 | 0.17 | 0.19 | 0.10 | 1.97 |
| 523 | 537000 | 6041000 | 343 | SSE | 0.13 | 0.16 | 0.17 | 0.12 | 1.87 | 0.14 | 0.17 | 0.18 | 0.13 | 1.95 |
| 524 | 598819 | 6389537 | 133 | E | 0.09 | 0.10 | 0.06 | 0.17 | 1.23 | 0.09 | 0.10 | 0.07 | 0.18 | 1.32 |
| 525 | 604633 | 6383668 | 139 | E | 0.09 | 0.10 | 0.06 | 0.17 | 1.23 | 0.09 | 0.10 | 0.07 | 0.18 | 1.32 |
| 526 | 612119 | 6365312 | 147 | E | 0.10 | 0.11 | 0.08 | 0.19 | 1.33 | 0.10 | 0.11 | 0.09 | 0.19 | 1.43 |
| 527 | 611405 | 6391278 | 146 | E | 0.09 | 0.10 | 0.06 | 0.17 | 1.21 | 0.09 | 0.10 | 0.07 | 0.18 | 1.30 |
| 528 | 624328 | 6360129 | 159 | E | 0.09 | 0.10 | 0.08 | 0.19 | 1.32 | 0.10 | 0.11 | 0.09 | 0.19 | 1.42 |
| 529 | 573917 | 6468241 | 142 | NE | 0.08 | 0.09 | 0.05 | 0.16 | 1.18 | 0.09 | 0.09 | 0.06 | 0.16 | 1.27 |
| 530 | 592417 | 6259032 | 173 | SE | 0.12 | 0.13 | 0.13 | 0.23 | 1.63 | 0.13 | 0.14 | 0.15 | 0.24 | 1.80 |
| 531 | 595873 | 6468054 | 159 | NE | 0.08 | 0.09 | 0.05 | 0.16 | 1.18 | 0.09 | 0.09 | 0.06 | 0.17 | 1.26 |
| 532 | 635067 | 6306584 | 183 | ESE | 0.10 | 0.11 | 0.09 | 0.19 | 1.40 | 0.11 | 0.12 | 0.10 | 0.20 | 1.53 |
| 533 | 607818 | 6259397 | 184 | SE | 0.12 | 0.13 | 0.12 | 0.22 | 1.61 | 0.13 | 0.14 | 0.14 | 0.23 | 1.79 |

**Table B-2 Air Modelling Results (continued)**

| Waterbody Identifier[a] | Easting[b] | Northing[b] | Distance[c] [km] | Direction[c] | 2013 PRM Application Case Deposition (includes background) | | | | | 2013 Planned Development Case (includes background) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] | Nitrate (including background) [keq $H^+$/ha/yr] | Sulphate (including background) [keq $H^+$/ha/yr] | Total PAI (includes background) [keq $H^+$/ha/yr] | Soil Net PAI[d] [keq $H^+$/ha/y] | Nitrogen (including background) [kg/ha/yr] |
| 534 | 657119 | 6314790 | 201 | ESE | 0.10 | 0.11 | 0.08 | 0.19 | 1.35 | 0.10 | 0.11 | 0.09 | 0.19 | 1.45 |
| 535 | 648429 | 6273616 | 209 | ESE | 0.10 | 0.11 | 0.09 | 0.19 | 1.36 | 0.11 | 0.12 | 0.10 | 0.20 | 1.47 |
| 536 | 474032 | 6075393 | 301 | S | 0.12 | 0.13 | 0.14 | 0.16 | 1.70 | 0.13 | 0.14 | 0.15 | 0.17 | 1.80 |
| 537 | 433387 | 6079917 | 298 | S | 0.12 | 0.13 | 0.12 | 0.12 | 1.62 | 0.12 | 0.13 | 0.13 | 0.13 | 1.69 |
| 538 | 503222 | 6061410 | 317 | S | 0.13 | 0.14 | 0.15 | 0.07 | 1.80 | 0.14 | 0.15 | 0.16 | 0.08 | 1.91 |
| 539 | 436317 | 6065106 | 313 | S | 0.11 | 0.13 | 0.12 | 1.76 | 1.61 | 0.12 | 0.13 | 0.13 | 1.77 | 1.67 |
| 540 | 467751 | 6057818 | 319 | S | 0.12 | 0.13 | 0.13 | 0.17 | 1.72 | 0.13 | 0.13 | 0.14 | 0.18 | 1.80 |
| 546 | 560000 | 6045000 | 344 | SSE | 0.12 | 0.15 | 0.15 | 0.18 | 1.64 | 0.12 | 0.16 | 0.16 | 0.18 | 1.71 |
| 596 | 503000 | 6035000 | 343 | S | 0.12 | 0.15 | 0.12 | 0.02 | 1.74 | 0.13 | 0.15 | 0.12 | 0.18 | 1.81 |
| 597 | 522600 | 6078500 | 303 | S | 0.16 | 0.17 | 0.22 | 0.08 | 2.30 | 0.17 | 0.18 | 0.23 | 0.03 | 2.44 |
| 598 | 526700 | 6079500 | 303 | SSE | 0.17 | 0.18 | 0.23 | 0.09 | 2.36 | 0.18 | 0.18 | 0.24 | 0.08 | 2.50 |
| 599 | 529300 | 6074800 | 308 | SSE | 0.16 | 0.18 | 0.21 | 0.20 | 2.30 | 0.17 | 0.18 | 0.23 | 0.10 | 2.44 |
| 600 | 549700 | 6048200 | 339 | SSE | 0.13 | 0.17 | 0.17 | 0.13 | 1.79 | 0.13 | 0.17 | 0.18 | 0.21 | 1.88 |
| 605 | 468548 | 6341335 | 35 | S | 0.71 | 0.23 | 0.79 | 0.36 | 9.87 | 0.78 | 0.24 | 0.90 | 0.14 | 10.95 |
| 606 | 468605 | 6336285 | 40 | S | 0.95 | 0.26 | 1.03 | 0.56 | 13.31 | 1.03 | 0.28 | 1.20 | 0.40 | 14.47 |
| 607 | 468831 | 6341793 | 35 | S | 0.63 | 0.21 | 0.74 | 0.42 | 8.80 | 0.71 | 0.23 | 0.82 | 0.66 | 9.88 |
| 612 | 482615 | 6367794 | 19 | ESE | 0.27 | 0.15 | 0.31 | 0.13 | 3.83 | 0.51 | 0.17 | 0.56 | 0.20 | 7.18 |
| 615 | 463743 | 6376095 | 2 | W | 0.76 | 0.14 | 0.77 | 0.26 | 10.61 | 0.90 | 0.15 | 0.93 | 0.40 | 12.65 |
| 616 | 456629 | 6383089 | 11 | NW | 0.19 | 0.13 | 0.20 | 0.42 | 2.67 | 0.29 | 0.14 | 0.31 | 0.46 | 4.07 |
| 617 | 464916 | 6382834 | 7 | N | 0.28 | 0.13 | 0.29 | 0.82 | 3.87 | 0.43 | 0.15 | 0.46 | 0.88 | 6.07 |
| 618 | 467305 | 6379227 | 3 | NNE | 0.34 | 0.14 | 0.36 | 0.19 | 4.80 | 0.48 | 0.15 | 0.51 | 0.24 | 6.68 |
| 619 | 462833 | 6390882 | 15 | NNW | 0.19 | 0.12 | 0.19 | 0.83 | 2.69 | 0.62 | 0.14 | 0.64 | 0.96 | 8.62 |
| 620 | 464427 | 6390720 | 14 | N | 0.20 | 0.12 | 0.20 | 0.29 | 2.80 | 0.54 | 0.15 | 0.56 | 0.40 | 7.51 |
| 621 | 461088 | 6389640 | 14 | NNW | 0.19 | 0.12 | 0.19 | 0.35 | 2.64 | 0.95 | 0.14 | 0.97 | 0.68 | 13.32 |
| 622 | 473579 | 6403076 | 28 | NNE | 0.16 | 0.12 | 0.15 | 0.20 | 2.20 | 0.21 | 0.12 | 0.22 | 0.22 | 2.96 |
| 623 | 468315 | 6397621 | 21 | N | 0.17 | 0.12 | 0.17 | 1.47 | 2.44 | 0.37 | 0.13 | 0.38 | 1.53 | 5.13 |

(a) Identifier used on map showing lake locations.

(b) UTM coordinates are NAD83, Zone 12.

(c) Distance and direction relative to the PRM plant site.

(d) Based on calibrated background and retention of 75% of nitrogen deposition below 10 kg/ha/y.

PAI = Potential acid input; - = data not available.

**Table B-3 Acidification Results**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 1 | 1.8 | 1.8 | 0.31 | 0.61 | 0.61 | 0.65 | 99% | 0% | 6% | 0.07 | 0.49 | 0.49 | 0.55 |
| 2 | 1.5 | 1.5 | 0.09 | 0.18 | 0.18 | 0.21 | 98% | 0% | 16% | 0.07 | 0.22 | 0.23 | 0.27 |
| 3 | 1.1 | 1.2 | 0.16 | 0.26 | 0.26 | 0.31 | 58% | 0% | 21% | 0.07 | 0.21 | 0.21 | 0.29 |
| 4 | 1.5 | 1.5 | 0.08 | 0.23 | 0.23 | 0.31 | 194% | 0% | 32% | 0.04 | 0.41 | 0.42 | 0.66 |
| 5 | 1.6 | 1.5 | 0.05 | 0.16 | 0.16 | 0.20 | 231% | 2% | 27% | 0.04 | 0.28 | 0.29 | 0.41 |
| 6 | 4.1 | 3.9 | 0.38 | 0.47 | 0.49 | 0.52 | 24% | 5% | 12% | 0.03 | 0.24 | 0.35 | 0.43 |
| 7 | 0.12 | 0.17 | 0.03 | 0.09 | 0.09 | 0.10 | 153% | 1% | 19% | 0.03 | 0.12 | 0.12 | 0.16 |
| 10 | 1.6 | 1.7 | 0.54 | 0.60 | 0.60 | 0.62 | 12% | 0% | 3% | 0.03 | 0.14 | 0.15 | 0.19 |
| 11 | 1.6 | 1.6 | 0.49 | 0.55 | 0.55 | 0.56 | 12% | 0% | 3% | 0.03 | 0.13 | 0.14 | 0.18 |
| 12 | 0.4 | 0.41 | 0.01 | 0.15 | 0.16 | 0.19 | 941% | 7% | 29% | 0.05 | 0.37 | 0.41 | 0.49 |
| 17 | 1.3 | 1.4 | 0.53 | 0.59 | 0.59 | 0.61 | 12% | 0% | 3% | 0.03 | 0.14 | 0.14 | 0.19 |
| 18 | 0.78 | 0.78 | 0.01 | 0.14 | 0.15 | 0.18 | 1,164% | 9% | 33% | 0.05 | 0.36 | 0.41 | 0.49 |
| 19 | 1.3 | 1.3 | 0.16 | 0.28 | 0.29 | 0.32 | 77% | 3% | 14% | 0.05 | 0.34 | 0.37 | 0.45 |
| 20 | 4.8 | 4.8 | 1.14 | 1.38 | 1.38 | 1.41 | 21% | 0% | 3% | 0.05 | 0.66 | 0.69 | 0.76 |
| 25 | 0.52 | 0.56 | 0.03 | 0.15 | 0.15 | 0.20 | 352% | 0% | 30% | 0.07 | 0.25 | 0.25 | 0.32 |
| 26 | 0.62 | 0.67 | 0.09 | 0.29 | 0.29 | 0.33 | 243% | 0% | 14% | 0.07 | 0.36 | 0.36 | 0.43 |
| 27 | 0.47 | 0.48 | 0.02 | 0.23 | 0.23 | 0.26 | 1,150% | 0% | 17% | 0.07 | 0.36 | 0.36 | 0.43 |
| 28 | 1.8 | 1.8 | 0.08 | 0.22 | 0.23 | 0.26 | 192% | 0% | 15% | 0.07 | 0.28 | 0.28 | 0.34 |
| 29 | 2.0 | 2.0 | 0.07 | 0.26 | 0.26 | 0.30 | 271% | 0% | 15% | 0.07 | 0.34 | 0.32 | 0.40 |
| 30 | 1.0 | 1.0 | 0.03 | 0.26 | 0.26 | 0.30 | 841% | 0% | 15% | 0.07 | 0.39 | 0.38 | 0.46 |
| 31 | 2.1 | 2.1 | 0.09 | 0.31 | 0.31 | 0.34 | 223% | 0% | 12% | 0.07 | 0.36 | 0.36 | 0.42 |
| 32 | 1.7 | 1.7 | 0.13 | 0.22 | 0.22 | 0.26 | 72% | 0% | 18% | 0.04 | 0.19 | 0.19 | 0.26 |
| 33 | 1.9 | 1.9 | 0.07 | 0.20 | 0.20 | 0.24 | 192% | 0% | 23% | 0.07 | 0.26 | 0.26 | 0.34 |
| 34 | 0.044 | 0.15 | 0.05 | 0.26 | 0.26 | 0.30 | 448% | 0% | 15% | 0.07 | 0.36 | 0.36 | 0.43 |
| 35 | 0.48 | 0.6 | 0.07 | 0.21 | 0.21 | 0.25 | 210% | 0% | 21% | 0.07 | 0.28 | 0.28 | 0.35 |
| 36 | 1.6 | 1.6 | 0.07 | 0.27 | 0.27 | 0.30 | 284% | 0% | 12% | 0.07 | 0.33 | 0.33 | 0.39 |
| 37 | 0.7 | 0.78 | 0.08 | 0.18 | 0.18 | 0.21 | 116% | 0% | 20% | 0.07 | 0.22 | 0.22 | 0.29 |
| 38 | 0.61 | 0.73 | 0.14 | 0.23 | 0.23 | 0.27 | 64% | 0% | 15% | 0.07 | 0.22 | 0.22 | 0.28 |
| 39 | 0.019 | 0.064 | 0.08 | 0.18 | 0.18 | 0.22 | 115% | 0% | 19% | 0.07 | 0.22 | 0.22 | 0.28 |
| 40 | 0.084 | 0.19 | 0.13 | 0.23 | 0.23 | 0.27 | 75% | 0% | 15% | 0.07 | 0.23 | 0.23 | 0.29 |
| 41 | 0.56 | 0.62 | 0.13 | 0.23 | 0.23 | 0.27 | 78% | 0% | 17% | 0.07 | 0.23 | 0.23 | 0.29 |
| 42 | 1.9 | 1.9 | 0.03 | 0.07 | 0.07 | 0.08 | 119% | 0% | 28% | 0.10 | 0.16 | 0.16 | 0.19 |
| 43 | 1.3 | 1.3 | 0.04 | 0.08 | 0.08 | 0.10 | 113% | 0% | 19% | 0.10 | 0.18 | 0.18 | 0.21 |
| 44 | 1.7 | 1.7 | 0.06 | 0.10 | 0.10 | 0.12 | 83% | 0% | 18% | 0.10 | 0.18 | 0.18 | 0.22 |
| 45 | 0.85 | 0.91 | 0.03 | 0.08 | 0.08 | 0.09 | 174% | 0% | 23% | 0.10 | 0.18 | 0.18 | 0.22 |
| 46 | 0.98 | 0.98 | 0.02 | 0.07 | 0.07 | 0.08 | 293% | 0% | 27% | 0.10 | 0.19 | 0.19 | 0.22 |
| 47 | 1.1 | 1.1 | 0.02 | 0.07 | 0.07 | 0.09 | 190% | 0% | 23% | 0.10 | 0.18 | 0.18 | 0.21 |
| 48 | 0.83 | 0.88 | 0.03 | 0.08 | 0.08 | 0.09 | 141% | 0% | 22% | 0.10 | 0.18 | 0.18 | 0.21 |
| 49 | 0.96 | 1.0 | 0.03 | 0.08 | 0.08 | 0.10 | 144% | 0% | 21% | 0.10 | 0.18 | 0.18 | 0.22 |
| 50 | 0.2 | 0.33 | 0.06 | 0.10 | 0.10 | 0.12 | 74% | 0% | 18% | 0.10 | 0.18 | 0.18 | 0.21 |
| 51 | 2.9 | 2.9 | 0.08 | 0.37 | 0.37 | 0.41 | 389% | 0% | 12% | 0.05 | 0.81 | 0.80 | 0.91 |
| 52 | 1.5 | 1.5 | 0.05 | 0.35 | 0.35 | 0.41 | 627% | 0% | 17% | 0.05 | 0.83 | 0.81 | 0.93 |
| 53 | 2.9 | 2.9 | 0.08 | 0.37 | 0.37 | 0.40 | 375% | 0% | 10% | 0.04 | 0.79 | 0.78 | 0.89 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 54 | 2.9 | 2.9 | 0.06 | 0.32 | 0.32 | 0.36 | 404% | 1% | 11% | 0.04 | 0.70 | 0.72 | 0.80 |
| 55 | 2.2 | 2.2 | 0.07 | 0.35 | 0.35 | 0.38 | 408% | 0% | 10% | 0.04 | 0.75 | 0.76 | 0.85 |
| 56 | 1.5 | 1.5 | 0.10 | 0.87 | 0.87 | 0.96 | 746% | 1% | 11% | 0.05 | 1.34 | 1.29 | 1.43 |
| 58 | 3.5 | 3.5 | 0.11 | 0.44 | 0.44 | 0.47 | 298% | 0% | 9% | 0.04 | 0.60 | 0.65 | 0.69 |
| 60 | 2.9 | 2.8 | 0.07 | 0.15 | 0.15 | 0.16 | 109% | 0% | 6% | 0.09 | 0.22 | 0.21 | 0.23 |
| 61 | 1.6 | 1.6 | 0.03 | 0.10 | 0.10 | 0.11 | 257% | 0% | 9% | 0.09 | 0.21 | 0.20 | 0.22 |
| 62 | 0.57 | 0.58 | 0.11 | 0.19 | 0.19 | 0.20 | 67% | 0% | 5% | 0.09 | 0.21 | 0.21 | 0.23 |
| 63 | 0.86 | 0.85 | 0.02 | 0.09 | 0.09 | 0.10 | 435% | 0% | 10% | 0.09 | 0.21 | 0.21 | 0.23 |
| 64 | 0.85 | 0.85 | 0.02 | 0.09 | 0.09 | 0.10 | 458% | 0% | 10% | 0.09 | 0.21 | 0.21 | 0.23 |
| 65 | 0.71 | 0.71 | 0.02 | 0.09 | 0.09 | 0.10 | 287% | 0% | 10% | 0.09 | 0.20 | 0.20 | 0.22 |
| 66 | 1.3 | 1.3 | 0.02 | 0.09 | 0.09 | 0.10 | 281% | 0% | 11% | 0.09 | 0.20 | 0.20 | 0.22 |
| 67 | 1.3 | 1.3 | 0.02 | 0.10 | 0.10 | 0.11 | 366% | 0% | 10% | 0.09 | 0.21 | 0.21 | 0.23 |
| 68 | 0.64 | 0.65 | 0.11 | 0.18 | 0.18 | 0.19 | 58% | 0% | 6% | 0.09 | 0.20 | 0.20 | 0.22 |
| 69 | 1.4 | 1.4 | 0.04 | 0.11 | 0.11 | 0.12 | 173% | 0% | 8% | 0.09 | 0.20 | 0.20 | 0.21 |
| 78 | 4.0 | 4.0 | 0.08 | 0.22 | 0.22 | 0.85 | 180% | 1% | 290% | 0.04 | 0.37 | 0.39 | 1.35 |
| 79 | 5.7 | 5.7 | 0.10 | 0.74 | 0.75 | 0.86 | 645% | 1% | 16% | 0.04 | 1.20 | 1.20 | 1.32 |
| 80 | 2.4 | 2.4 | 0.05 | 0.18 | 0.18 | 0.21 | 285% | 1% | 15% | 0.04 | 0.39 | 0.41 | 0.47 |
| 81 | 0.18 | 0.21 | 0.08 | 0.21 | 0.21 | 0.23 | 174% | 0% | 12% | 0.04 | 0.29 | 0.30 | 0.35 |
| 82 | 0.069 | 0.28 | 0.12 | 0.23 | 0.23 | 0.25 | 93% | 0% | 10% | 0.04 | 0.23 | 0.23 | 0.28 |
| 83 | 0.19 | 0.4 | 0.11 | 0.21 | 0.21 | 0.24 | 88% | 0% | 11% | 0.04 | 0.21 | 0.21 | 0.25 |
| 84 | 0.58 | 0.68 | 0.04 | 0.13 | 0.13 | 0.16 | 228% | 0% | 17% | 0.04 | 0.19 | 0.19 | 0.24 |
| 85 | 1.3 | 1.2 | 0.03 | 0.08 | 0.09 | 0.10 | 143% | 1% | 15% | 0.04 | 0.13 | 0.13 | 0.16 |
| 86 | 1.1 | 0.84 | 0.03 | 0.08 | 0.08 | 0.09 | 162% | 0% | 17% | 0.04 | 0.12 | 0.12 | 0.15 |
| 87 | 0.65 | 0.68 | 0.03 | 0.08 | 0.08 | 0.09 | 159% | 0% | 17% | 0.04 | 0.12 | 0.12 | 0.15 |
| 88 | 1.2 | 1.1 | 0.04 | 0.08 | 0.08 | 0.10 | 124% | 0% | 15% | 0.04 | 0.12 | 0.12 | 0.14 |
| 89 | 2.7 | 2.5 | 0.26 | 0.29 | 0.29 | 0.30 | 12% | 0% | 4% | 0.05 | 0.10 | 0.10 | 0.13 |
| 91 | 0.22 | 0.24 | 0.07 | 0.10 | 0.10 | 0.12 | 52% | 0% | 13% | 0.05 | 0.10 | 0.10 | 0.13 |
| 92 | 0.071 | 0.11 | 0.02 | 0.05 | 0.05 | 0.06 | 200% | 1% | 18% | 0.03 | 0.08 | 0.09 | 0.10 |
| 93 | 0.076 | 0.11 | 0.03 | 0.06 | 0.06 | 0.07 | 76% | 0% | 19% | 0.05 | 0.09 | 0.09 | 0.11 |
| 95 | 0.072 | 0.14 | 0.05 | 0.07 | 0.07 | 0.08 | 37% | 0% | 9% | 0.04 | 0.07 | 0.07 | 0.08 |
| 96 | -0.013 | 0.1 | 0.04 | 0.06 | 0.06 | 0.06 | 61% | 0% | 12% | 0.04 | 0.07 | 0.07 | 0.09 |
| 97 | -0.084 | 0.0074 | 0.01 | 0.03 | 0.04 | 0.04 | 243% | 1% | 20% | 0.03 | 0.07 | 0.07 | 0.09 |
| 98 | 0.093 | 0.094 | 0.00 | 0.03 | 0.03 | 0.04 | 1,185% | 1% | 25% | 0.03 | 0.09 | 0.09 | 0.11 |
| 99 | 1.0 | 1.0 | 0.03 | 0.07 | 0.07 | 0.08 | 124% | 1% | 17% | 0.03 | 0.10 | 0.10 | 0.13 |
| 100 | 0.37 | 0.43 | 0.13 | 0.16 | 0.16 | 0.17 | 21% | 0% | 5% | 0.04 | 0.08 | 0.08 | 0.10 |
| 101 | 0.29 | 0.36 | 0.21 | 0.24 | 0.24 | 0.25 | 13% | 0% | 3% | 0.04 | 0.08 | 0.08 | 0.09 |
| 102 | 1.8 | 1.8 | 0.25 | 0.31 | 0.31 | 0.33 | 22% | 0% | 5% | 0.05 | 0.13 | 0.13 | 0.17 |
| 103 | 2.2 | 2.2 | 0.04 | 0.10 | 0.10 | 0.12 | 177% | 1% | 18% | 0.03 | 0.16 | 0.16 | 0.20 |
| 104 | 2.1 | 2.0 | 0.03 | 0.07 | 0.07 | 0.08 | 136% | 0% | 14% | 0.02 | 0.10 | 0.10 | 0.12 |
| 105 | 0.18 | 0.23 | 0.04 | 0.06 | 0.06 | 0.07 | 79% | 1% | 11% | 0.02 | 0.07 | 0.07 | 0.09 |
| 106 | 0.42 | 0.51 | 0.20 | 0.23 | 0.24 | 0.24 | 15% | 0% | 3% | 0.03 | 0.08 | 0.08 | 0.10 |
| 107 | 0.41 | 0.46 | 0.16 | 0.19 | 0.19 | 0.20 | 20% | 0% | 5% | 0.04 | 0.08 | 0.08 | 0.10 |
| 108 | 0.72 | 0.73 | 0.21 | 0.25 | 0.25 | 0.25 | 15% | 0% | 4% | 0.03 | 0.08 | 0.08 | 0.10 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 109 | 1.1 | 1.1 | 0.02 | 0.09 | 0.09 | 0.12 | 423% | 0% | 28% | 0.04 | 0.16 | 0.16 | 0.20 |
| 110 | 1.7 | 1.6 | 0.02 | 0.10 | 0.10 | 0.12 | 311% | 0% | 24% | 0.06 | 0.18 | 0.18 | 0.22 |
| 115 | -0.068 | 0.15 | 0.13 | 0.21 | 0.21 | 0.24 | 61% | 0% | 14% | 0.07 | 0.20 | 0.20 | 0.25 |
| 116 | -0.1 | 0.046 | 0.03 | 0.10 | 0.10 | 0.13 | 270% | 0% | 29% | 0.07 | 0.19 | 0.19 | 0.24 |
| 117 | 0.0093 | 0.088 | 0.03 | 0.11 | 0.11 | 0.14 | 245% | 0% | 28% | 0.07 | 0.20 | 0.20 | 0.25 |
| 118 | -0.0049 | 0.082 | 0.02 | 0.08 | 0.08 | 0.10 | 362% | 0% | 27% | 0.06 | 0.16 | 0.16 | 0.20 |
| 119 | 0.4 | 0.56 | 0.02 | 0.05 | 0.05 | 0.07 | 118% | 0% | 46% | 0.08 | 0.11 | 0.11 | 0.15 |
| 120 | 0.19 | 0.29 | 0.06 | 0.09 | 0.09 | 0.11 | 38% | 0% | 25% | 0.08 | 0.11 | 0.11 | 0.15 |
| 121 | 0.023 | 0.25 | 0.04 | 0.06 | 0.06 | 0.08 | 51% | 0% | 19% | 0.08 | 0.11 | 0.11 | 0.13 |
| 122 | 0.084 | 0.14 | 0.02 | 0.06 | 0.06 | 0.07 | 132% | 0% | 31% | 0.06 | 0.11 | 0.11 | 0.14 |
| 129 | 0.46 | 0.59 | 0.01 | 0.13 | 0.13 | 0.16 | 805% | 0% | 27% | 0.04 | 0.23 | 0.23 | 0.29 |
| 130 | 1.4 | 1.4 | 0.04 | 0.12 | 0.12 | 0.15 | 197% | 0% | 27% | 0.07 | 0.20 | 0.20 | 0.25 |
| 131 | 2.0 | 2.1 | 0.07 | 0.11 | 0.11 | 0.12 | 42% | 0% | 16% | 0.06 | 0.11 | 0.11 | 0.14 |
| 132 | 2.7 | 2.7 | 0.05 | 0.09 | 0.09 | 0.11 | 95% | 0% | 19% | 0.09 | 0.18 | 0.18 | 0.21 |
| 134 | 0.85 | 0.9 | 0.02 | 0.10 | 0.10 | 0.12 | 374% | 0% | 24% | 0.05 | 0.18 | 0.18 | 0.23 |
| 135 | 1.6 | 1.4 | 0.03 | 0.09 | 0.09 | 0.11 | 191% | 0% | 18% | 0.04 | 0.14 | 0.14 | 0.17 |
| 136 | 1.3 | 1.3 | 0.04 | 0.10 | 0.10 | 0.12 | 147% | 0% | 23% | 0.07 | 0.16 | 0.16 | 0.20 |
| 137 | 0.77 | 0.89 | 0.14 | 0.16 | 0.17 | 0.19 | 18% | 0% | 13% | 0.08 | 0.11 | 0.11 | 0.15 |
| 138 | 0.81 | 0.83 | 0.03 | 0.06 | 0.06 | 0.07 | 105% | 0% | 30% | 0.10 | 0.15 | 0.15 | 0.18 |
| 139 | 1.9 | 1.6 | 0.04 | 0.10 | 0.10 | 0.12 | 173% | 0% | 22% | 0.06 | 0.16 | 0.16 | 0.20 |
| 140 | 0.65 | 0.76 | 0.07 | 0.19 | 0.19 | 0.22 | 161% | 0% | 16% | 0.04 | 0.23 | 0.24 | 0.30 |
| 141 | 1.3 | 1.2 | 0.00 | 0.10 | 0.10 | 0.14 | 2,324% | 0% | 40% | 0.04 | 0.20 | 0.20 | 0.28 |
| 142 | 1.3 | 1.0 | 0.01 | 0.07 | 0.07 | 0.09 | 1,111% | 0% | 30% | 0.04 | 0.15 | 0.15 | 0.19 |
| 143 | -0.054 | 0.042 | 0.03 | 0.10 | 0.10 | 0.13 | 249% | 0% | 28% | 0.07 | 0.19 | 0.19 | 0.24 |
| 144 | 0.033 | 0.10 | 0.02 | 0.08 | 0.08 | 0.12 | 455% | 0% | 40% | 0.07 | 0.18 | 0.18 | 0.24 |
| 145 | 0.016 | 0.16 | 0.02 | 0.09 | 0.09 | 0.12 | 368% | 0% | 34% | 0.07 | 0.19 | 0.19 | 0.24 |
| 146 | 0.13 | 0.2 | 0.01 | 0.05 | 0.05 | 0.06 | 362% | 0% | 40% | 0.06 | 0.12 | 0.12 | 0.15 |
| 147 | 0.26 | 0.3 | 0.00 | 0.07 | 0.07 | 0.10 | 1,473% | 0% | 34% | 0.07 | 0.19 | 0.19 | 0.23 |
| 148 | 1.3 | 1.2 | 0.14 | 0.19 | 0.19 | 0.20 | 32% | 0% | 10% | 0.05 | 0.12 | 0.12 | 0.16 |
| 149 | 0.81 | 0.85 | 0.03 | 0.20 | 0.20 | 0.22 | 584% | 0% | 11% | 0.04 | 0.35 | 0.35 | 0.40 |
| 150 | -0.019 | 0.25 | 0.03 | 0.14 | 0.14 | 0.16 | 408% | 0% | 17% | 0.04 | 0.23 | 0.23 | 0.28 |
| 151 | 0.23 | 0.36 | 0.05 | 0.10 | 0.10 | 0.12 | 100% | 1% | 16% | 0.03 | 0.12 | 0.12 | 0.16 |
| 152 | 0.15 | 0.31 | 0.02 | 0.12 | 0.12 | 0.14 | 648% | 0% | 16% | 0.04 | 0.22 | 0.22 | 0.26 |
| 153 | 1.0 | 1.1 | 0.22 | 0.30 | 0.30 | 0.33 | 35% | 0% | 10% | 0.05 | 0.20 | 0.20 | 0.27 |
| 154 | 0.63 | 0.69 | 0.03 | 0.12 | 0.12 | 0.15 | 274% | 0% | 22% | 0.05 | 0.20 | 0.20 | 0.25 |
| 155 | 0.3 | 0.42 | 0.03 | 0.17 | 0.17 | 0.20 | 446% | 0% | 20% | 0.05 | 0.27 | 0.27 | 0.34 |
| 156 | 0.92 | 1.0 | 0.05 | 0.17 | 0.17 | 0.20 | 206% | 0% | 18% | 0.05 | 0.23 | 0.23 | 0.29 |
| 161 | 0.1 | 0.13 | 0.00 | 0.02 | 0.02 | 0.05 | 1,759% | 0% | 91% | 0.08 | 0.11 | 0.11 | 0.15 |
| 167 | 1.8 | 1.7 | 0.00 | 0.04 | 0.04 | 0.05 | 963% | 0% | 54% | 0.06 | 0.15 | 0.15 | 0.18 |
| 168 | 2.9 | 2.7 | 0.00 | 0.06 | 0.06 | 0.08 | 4,102% | 0% | 32% | 0.04 | 0.14 | 0.14 | 0.17 |
| 169 | 1.5 | 1.5 | 0.00 | 0.07 | 0.07 | 0.09 | 1,331% | 0% | 31% | 0.06 | 0.16 | 0.16 | 0.20 |
| 170 | 1.1 | 0.94 | 0.00 | 0.08 | 0.08 | 0.11 | 3,726% | 0% | 34% | 0.07 | 0.18 | 0.18 | 0.23 |
| 171 | 0.63 | 0.63 | 0.00 | 0.07 | 0.07 | 0.09 | 3,672% | 0% | 31% | 0.06 | 0.16 | 0.16 | 0.20 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 172 | 2.0 | 1.9 | 0.00 | 0.06 | 0.07 | 0.08 | 1,908% | 0% | 31% | 0.06 | 0.16 | 0.16 | 0.19 |
| 173 | 1.5 | 1.4 | 0.01 | 0.07 | 0.07 | 0.09 | 570% | 0% | 26% | 0.06 | 0.15 | 0.15 | 0.19 |
| 174 | 0.87 | 0.92 | 0.04 | 0.13 | 0.13 | 0.16 | 222% | 0% | 25% | 0.07 | 0.21 | 0.22 | 0.27 |
| 175 | 3.8 | 3.8 | 0.16 | 0.27 | 0.27 | 0.29 | 70% | 0% | 10% | 0.07 | 0.23 | 0.23 | 0.28 |
| 176 | 2.4 | 2.4 | 0.02 | 0.11 | 0.11 | 0.13 | 514% | 0% | 24% | 0.07 | 0.20 | 0.20 | 0.25 |
| 177 | 0.19 | 0.24 | 0.03 | 0.11 | 0.11 | 0.14 | 266% | 0% | 28% | 0.07 | 0.20 | 0.20 | 0.26 |
| 178 | -0.095 | 0.03 | 0.02 | 0.09 | 0.09 | 0.12 | 357% | 0% | 33% | 0.07 | 0.19 | 0.19 | 0.24 |
| 179 | -0.06 | 0.053 | 0.06 | 0.13 | 0.13 | 0.16 | 113% | 0% | 23% | 0.07 | 0.18 | 0.18 | 0.23 |
| 180 | 0.2 | 0.33 | 0.02 | 0.09 | 0.09 | 0.13 | 409% | 0% | 35% | 0.07 | 0.20 | 0.20 | 0.26 |
| 181 | 2.2 | 2.2 | 0.02 | 0.09 | 0.09 | 0.11 | 431% | 0% | 26% | 0.06 | 0.17 | 0.17 | 0.21 |
| 182 | 1.8 | 1.8 | 0.01 | 0.07 | 0.07 | 0.08 | 1,063% | 0% | 28% | 0.06 | 0.15 | 0.16 | 0.19 |
| 183 | 1.7 | 1.6 | 0.01 | 0.07 | 0.07 | 0.09 | 858% | 0% | 28% | 0.06 | 0.16 | 0.16 | 0.20 |
| 184 | 2.0 | 1.9 | 0.02 | 0.08 | 0.08 | 0.10 | 378% | 0% | 25% | 0.06 | 0.17 | 0.17 | 0.21 |
| 185 | 1.4 | 1.4 | 0.01 | 0.07 | 0.07 | 0.09 | 579% | 0% | 27% | 0.06 | 0.16 | 0.16 | 0.19 |
| 186 | 2.7 | 2.7 | 0.08 | 0.14 | 0.14 | 0.18 | 91% | 0% | 24% | 0.07 | 0.18 | 0.18 | 0.24 |
| 187 | 1.9 | 1.9 | 0.19 | 0.21 | 0.21 | 0.23 | 12% | 0% | 8% | 0.08 | 0.11 | 0.11 | 0.14 |
| 188 | 1.2 | 1.2 | 0.01 | 0.03 | 0.03 | 0.06 | 269% | 0% | 72% | 0.08 | 0.11 | 0.11 | 0.15 |
| 189 | 1.6 | 1.4 | 0.02 | 0.04 | 0.04 | 0.06 | 134% | 0% | 54% | 0.08 | 0.11 | 0.11 | 0.15 |
| 190 | 0.19 | 0.33 | 0.02 | 0.04 | 0.04 | 0.06 | 157% | 0% | 50% | 0.08 | 0.11 | 0.11 | 0.15 |
| 191 | 0.17 | 0.24 | 0.01 | 0.03 | 0.03 | 0.05 | 329% | 0% | 69% | 0.08 | 0.11 | 0.11 | 0.15 |
| 193 | 1.1 | 0.91 | 0.01 | 0.03 | 0.03 | 0.06 | 230% | 0% | 75% | 0.08 | 0.11 | 0.11 | 0.15 |
| 194 | 0.53 | 0.56 | 0.11 | 0.15 | 0.15 | 0.17 | 33% | 0% | 11% | 0.06 | 0.12 | 0.12 | 0.15 |
| 195 | 0.61 | 0.7 | 0.04 | 0.08 | 0.08 | 0.09 | 109% | 0% | 23% | 0.06 | 0.12 | 0.12 | 0.16 |
| 196 | 0.56 | 0.63 | 0.06 | 0.09 | 0.09 | 0.11 | 68% | 0% | 18% | 0.06 | 0.12 | 0.12 | 0.15 |
| 197 | 0.62 | 0.72 | 0.07 | 0.11 | 0.11 | 0.12 | 46% | 0% | 15% | 0.06 | 0.11 | 0.11 | 0.14 |
| 198 | 0.75 | 0.87 | 0.03 | 0.07 | 0.07 | 0.08 | 122% | 0% | 24% | 0.06 | 0.12 | 0.12 | 0.15 |
| 199 | 0.49 | 0.59 | 0.08 | 0.11 | 0.11 | 0.12 | 40% | 0% | 14% | 0.06 | 0.11 | 0.11 | 0.14 |
| 200 | 0.25 | 0.4 | 0.02 | 0.04 | 0.04 | 0.05 | 109% | 0% | 30% | 0.08 | 0.11 | 0.11 | 0.13 |
| 201 | 1.1 | 1.2 | 0.04 | 0.06 | 0.06 | 0.08 | 70% | 0% | 23% | 0.06 | 0.10 | 0.10 | 0.13 |
| 202 | 1.2 | 1.3 | 0.07 | 0.10 | 0.10 | 0.11 | 50% | 0% | 17% | 0.06 | 0.11 | 0.11 | 0.14 |
| 203 | 0.74 | 0.82 | 0.06 | 0.09 | 0.09 | 0.11 | 58% | 0% | 19% | 0.06 | 0.12 | 0.12 | 0.15 |
| 204 | 0.87 | 0.92 | 0.01 | 0.04 | 0.04 | 0.06 | 340% | 0% | 39% | 0.06 | 0.12 | 0.12 | 0.15 |
| 205 | 3.1 | 3.0 | 0.09 | 0.12 | 0.12 | 0.14 | 31% | 0% | 13% | 0.06 | 0.11 | 0.11 | 0.14 |
| 206 | 3.1 | 3.1 | 0.09 | 0.12 | 0.12 | 0.13 | 30% | 0% | 13% | 0.06 | 0.11 | 0.11 | 0.13 |
| 207 | 2.2 | 2.2 | 0.03 | 0.06 | 0.06 | 0.08 | 83% | 0% | 24% | 0.06 | 0.11 | 0.11 | 0.13 |
| 208 | 1.0 | 1.1 | 0.11 | 0.13 | 0.13 | 0.15 | 22% | 0% | 11% | 0.06 | 0.10 | 0.10 | 0.13 |
| 209 | 0.29 | 0.45 | 0.03 | 0.06 | 0.06 | 0.07 | 71% | 0% | 24% | 0.08 | 0.10 | 0.10 | 0.13 |
| 210 | 0.25 | 0.36 | 0.02 | 0.04 | 0.04 | 0.06 | 80% | 0% | 25% | 0.08 | 0.11 | 0.11 | 0.13 |
| 211 | 0.56 | 0.64 | 0.05 | 0.07 | 0.07 | 0.09 | 43% | 0% | 17% | 0.08 | 0.11 | 0.11 | 0.13 |
| 212 | 0.58 | 0.68 | 0.14 | 0.16 | 0.16 | 0.17 | 15% | 0% | 7% | 0.08 | 0.11 | 0.11 | 0.13 |
| 213 | 0.47 | 0.57 | 0.24 | 0.26 | 0.26 | 0.27 | 8% | 0% | 4% | 0.08 | 0.11 | 0.11 | 0.13 |
| 214 | 0.55 | 0.63 | 0.10 | 0.12 | 0.12 | 0.13 | 18% | 0% | 8% | 0.08 | 0.10 | 0.10 | 0.12 |
| 215 | 1.0 | 1.1 | 0.11 | 0.13 | 0.13 | 0.14 | 16% | 0% | 7% | 0.08 | 0.10 | 0.10 | 0.12 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 216 | 0.72 | 0.66 | 0.06 | 0.08 | 0.08 | 0.09 | 31% | 0% | 13% | 0.08 | 0.10 | 0.10 | 0.12 |
| 217 | 1.4 | 1.4 | 0.16 | 0.18 | 0.18 | 0.18 | 11% | 0% | 5% | 0.08 | 0.10 | 0.10 | 0.12 |
| 218 | 1.0 | 1.2 | 0.02 | 0.06 | 0.06 | 0.08 | 216% | 0% | 42% | 0.06 | 0.12 | 0.12 | 0.17 |
| 219 | 1.1 | 1.2 | 0.02 | 0.06 | 0.06 | 0.08 | 155% | 0% | 31% | 0.06 | 0.12 | 0.12 | 0.15 |
| 220 | 0.84 | 0.88 | 0.01 | 0.05 | 0.05 | 0.07 | 338% | 0% | 39% | 0.06 | 0.12 | 0.12 | 0.16 |
| 221 | 0.28 | 0.32 | 0.00 | 0.04 | 0.04 | 0.07 | 1,421% | 0% | 59% | 0.06 | 0.13 | 0.13 | 0.18 |
| 222 | 1.0 | 1.0 | 0.01 | 0.06 | 0.06 | 0.08 | 774% | 0% | 37% | 0.07 | 0.15 | 0.15 | 0.18 |
| 223 | 1.3 | 1.4 | 0.01 | 0.05 | 0.05 | 0.06 | 227% | 0% | 36% | 0.06 | 0.11 | 0.11 | 0.14 |
| 224 | 0.24 | 0.28 | 0.01 | 0.04 | 0.04 | 0.06 | 267% | 0% | 38% | 0.06 | 0.11 | 0.11 | 0.14 |
| 225 | 0.23 | 0.28 | 0.01 | 0.04 | 0.04 | 0.06 | 284% | 0% | 40% | 0.06 | 0.11 | 0.11 | 0.15 |
| 226 | 1.4 | 1.4 | 0.01 | 0.04 | 0.04 | 0.06 | 309% | 0% | 38% | 0.06 | 0.11 | 0.11 | 0.14 |
| 227 | 2.2 | 2.0 | 0.03 | 0.09 | 0.09 | 0.12 | 250% | 0% | 26% | 0.07 | 0.18 | 0.18 | 0.22 |
| 228 | 1.9 | 1.8 | 0.04 | 0.10 | 0.10 | 0.13 | 179% | 0% | 23% | 0.07 | 0.17 | 0.18 | 0.22 |
| 229 | 1.9 | 1.7 | 0.02 | 0.08 | 0.08 | 0.10 | 310% | 0% | 27% | 0.06 | 0.16 | 0.17 | 0.20 |
| 230 | 1.4 | 1.4 | 0.01 | 0.07 | 0.07 | 0.10 | 447% | 0% | 29% | 0.06 | 0.17 | 0.17 | 0.21 |
| 231 | 0.84 | 0.86 | 0.01 | 0.08 | 0.08 | 0.10 | 743% | 0% | 31% | 0.07 | 0.19 | 0.19 | 0.23 |
| 232 | 1.3 | 1.3 | 0.00 | 0.07 | 0.07 | 0.09 | 1,568% | 0% | 33% | 0.07 | 0.18 | 0.18 | 0.22 |
| 233 | 1.3 | 1.3 | 0.01 | 0.09 | 0.09 | 0.12 | 705% | 0% | 38% | 0.07 | 0.21 | 0.20 | 0.26 |
| 234 | 2.5 | 2.4 | 0.01 | 0.06 | 0.06 | 0.08 | 1,036% | 0% | 31% | 0.06 | 0.15 | 0.15 | 0.19 |
| 235 | 1.7 | 1.6 | 0.10 | 0.15 | 0.15 | 0.17 | 55% | 0% | 12% | 0.06 | 0.15 | 0.15 | 0.18 |
| 236 | 1.2 | 1.2 | 0.01 | 0.06 | 0.06 | 0.07 | 391% | 0% | 27% | 0.06 | 0.14 | 0.14 | 0.17 |
| 237 | 2.3 | 2.3 | 0.01 | 0.07 | 0.07 | 0.09 | 428% | 0% | 31% | 0.09 | 0.18 | 0.18 | 0.22 |
| 238 | 2.0 | 1.7 | 0.01 | 0.05 | 0.05 | 0.07 | 716% | 0% | 31% | 0.09 | 0.17 | 0.17 | 0.20 |
| 239 | 1.2 | 1.2 | 0.00 | 0.05 | 0.05 | 0.07 | 1,923% | 0% | 38% | 0.10 | 0.18 | 0.19 | 0.22 |
| 240 | 2.2 | 2.2 | 0.00 | 0.08 | 0.08 | 0.11 | 1,965% | 0% | 38% | 0.10 | 0.22 | 0.22 | 0.27 |
| 241 | 2.3 | 2.3 | 0.01 | 0.10 | 0.10 | 0.13 | 774% | 0% | 36% | 0.10 | 0.24 | 0.24 | 0.30 |
| 242 | 0.98 | 0.95 | 0.01 | 0.04 | 0.04 | 0.06 | 454% | 0% | 46% | 0.10 | 0.15 | 0.15 | 0.19 |
| 243 | 1.1 | 1.1 | 0.01 | 0.04 | 0.04 | 0.06 | 379% | 0% | 42% | 0.10 | 0.16 | 0.16 | 0.19 |
| 244 | 1.9 | 1.9 | 0.01 | 0.05 | 0.05 | 0.07 | 954% | 0% | 36% | 0.10 | 0.18 | 0.18 | 0.22 |
| 245 | 0.71 | 0.74 | 0.00 | 0.0332 | 0.0333 | 0.0479 | 840% | 0% | 44% | 0.10 | 0.15 | 0.15 | 0.18 |
| 246 | 0.69 | 0.71 | 0.02 | 0.05 | 0.05 | 0.06 | 118% | 0% | 26% | 0.10 | 0.15 | 0.15 | 0.17 |
| 247 | 1.6 | 1.6 | 0.01 | 0.04 | 0.04 | 0.05 | 242% | 0% | 33% | 0.10 | 0.15 | 0.15 | 0.17 |
| 248 | 0.57 | 0.56 | 0.00 | 0.03 | 0.03 | 0.04 | 1,556% | 0% | 41% | 0.10 | 0.15 | 0.15 | 0.17 |
| 249 | 0.49 | 0.48 | 0.00 | 0.03 | 0.03 | 0.04 | 1,782% | 0% | 41% | 0.10 | 0.15 | 0.15 | 0.17 |
| 250 | 1.7 | 1.6 | 0.01 | 0.04 | 0.04 | 0.05 | 519% | 0% | 32% | 0.10 | 0.15 | 0.15 | 0.17 |
| 251 | 1.1 | 1.1 | 0.02 | 0.04 | 0.04 | 0.05 | 136% | 0% | 23% | 0.10 | 0.14 | 0.14 | 0.16 |
| 252 | 0.82 | 0.83 | 0.01 | 0.03 | 0.03 | 0.04 | 156% | 0% | 20% | 0.10 | 0.14 | 0.14 | 0.15 |
| 253 | 3.4 | 3.4 | 0.04 | 0.06 | 0.06 | 0.07 | 51% | 0% | 13% | 0.10 | 0.14 | 0.14 | 0.15 |
| 254 | 2.1 | 1.8 | 0.01 | 0.03 | 0.03 | 0.04 | 230% | 0% | 25% | 0.10 | 0.14 | 0.14 | 0.15 |
| 255 | 4.0 | 3.9 | 0.07 | 0.09 | 0.09 | 0.10 | 26% | 0% | 7% | 0.10 | 0.13 | 0.13 | 0.15 |
| 256 | 4.3 | 4.2 | 0.08 | 0.11 | 0.11 | 0.11 | 26% | 0% | 7% | 0.10 | 0.14 | 0.14 | 0.15 |
| 257 | 4.1 | 3.9 | 0.08 | 0.10 | 0.10 | 0.11 | 31% | 0% | 8% | 0.10 | 0.14 | 0.14 | 0.16 |
| 258 | 4.0 | 3.9 | 0.07 | 0.09 | 0.09 | 0.10 | 38% | 0% | 10% | 0.10 | 0.14 | 0.14 | 0.16 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 259 | 4.2 | 3.9 | 0.12 | 0.14 | 0.14 | 0.15 | 23% | 0% | 6% | 0.10 | 0.15 | 0.15 | 0.16 |
| 260 | 1.3 | 1.3 | 0.39 | 0.42 | 0.42 | 0.44 | 9% | 0% | 3% | 0.03 | 0.10 | 0.10 | 0.13 |
| 261 | 1.9 | 1.9 | 0.37 | 0.40 | 0.40 | 0.41 | 10% | 0% | 3% | 0.03 | 0.10 | 0.10 | 0.13 |
| 262 | 1.7 | 1.7 | 0.32 | 0.36 | 0.36 | 0.38 | 12% | 0% | 4% | 0.03 | 0.11 | 0.11 | 0.15 |
| 263 | 0.69 | 0.7 | 0.08 | 0.12 | 0.12 | 0.13 | 43% | 1% | 11% | 0.03 | 0.10 | 0.10 | 0.13 |
| 264 | - | 0.33 | 0.00 | 0.03 | 0.04 | 0.05 | 4,358% | 2% | 35% | 0.03 | 0.10 | 0.10 | 0.13 |
| 265 | - | 0.43 | 0.01 | 0.04 | 0.04 | 0.05 | 496% | 2% | 29% | 0.03 | 0.10 | 0.10 | 0.13 |
| 266 | 0.65 | 0.66 | 0.00 | 0.03 | 0.04 | 0.05 | 2,390% | 2% | 32% | 0.03 | 0.09 | 0.10 | 0.12 |
| 267 | 0.43 | 0.43 | 0.01 | 0.04 | 0.04 | 0.05 | 628% | 2% | 27% | 0.03 | 0.09 | 0.09 | 0.12 |
| 268 | - | 1.2 | 0.02 | 0.05 | 0.05 | 0.06 | 217% | 1% | 21% | 0.03 | 0.09 | 0.09 | 0.12 |
| 269 | 1.5 | 1.5 | 0.02 | 0.05 | 0.05 | 0.06 | 152% | 1% | 18% | 0.03 | 0.09 | 0.09 | 0.11 |
| 270 | - | 0.88 | 0.02 | 0.06 | 0.06 | 0.07 | 183% | 1% | 20% | 0.03 | 0.10 | 0.10 | 0.13 |
| 271 | - | 1.1 | 0.02 | 0.05 | 0.05 | 0.06 | 194% | 1% | 19% | 0.03 | 0.10 | 0.10 | 0.12 |
| 272 | 1.7 | 1.7 | 0.02 | 0.05 | 0.05 | 0.06 | 176% | 1% | 17% | 0.03 | 0.08 | 0.08 | 0.10 |
| 273 | - | 0.81 | 0.00 | 0.04 | 0.04 | 0.04 | 637% | 1% | 23% | 0.03 | 0.09 | 0.09 | 0.11 |
| 274 | 1.4 | 1.4 | 0.01 | 0.04 | 0.04 | 0.05 | 316% | 1% | 20% | 0.03 | 0.09 | 0.09 | 0.11 |
| 275 | 0.32 | 0.36 | 0.02 | 0.05 | 0.05 | 0.05 | 155% | 1% | 15% | 0.02 | 0.07 | 0.07 | 0.09 |
| 276 | - | 0.79 | 0.00 | 0.04 | 0.04 | 0.05 | 652% | 1% | 24% | 0.03 | 0.09 | 0.09 | 0.11 |
| 277 | 0.87 | 0.78 | 0.08 | 0.13 | 0.13 | 0.14 | 61% | 0% | 10% | 0.03 | 0.12 | 0.12 | 0.15 |
| 278 | 2.6 | 2.5 | 0.00 | 0.07 | 0.07 | 0.08 | 1,823% | 1% | 25% | 0.03 | 0.15 | 0.16 | 0.20 |
| 279 | 1.8 | 1.8 | 0.08 | 0.13 | 0.13 | 0.14 | 61% | 0% | 9% | 0.03 | 0.12 | 0.12 | 0.14 |
| 280 | 1.6 | 1.6 | 0.00 | 0.05 | 0.05 | 0.07 | 1,279% | 1% | 22% | 0.03 | 0.12 | 0.12 | 0.15 |
| 281 | 1.1 | 1.0 | 0.08 | 0.13 | 0.13 | 0.14 | 64% | 0% | 9% | 0.03 | 0.12 | 0.12 | 0.15 |
| 282 | 0.69 | 0.69 | 0.08 | 0.15 | 0.15 | 0.16 | 86% | 0% | 11% | 0.03 | 0.16 | 0.16 | 0.20 |
| 283 | 1.5 | 1.5 | 0.00 | 0.08 | 0.08 | 0.10 | 4,928% | 1% | 24% | 0.03 | 0.20 | 0.21 | 0.26 |
| 284 | 0.71 | 0.74 | 0.00 | 0.05 | 0.05 | 0.06 | 1,502% | 1% | 23% | 0.04 | 0.12 | 0.13 | 0.15 |
| 299 | 2.5 | 2.4 | 0.22 | 0.24 | 0.24 | 0.25 | 10% | 0% | 4% | 0.05 | 0.09 | 0.09 | 0.10 |
| 300 | 0.27 | 0.26 | 0.01 | 0.04 | 0.04 | 0.05 | 169% | 0% | 26% | 0.05 | 0.09 | 0.09 | 0.11 |
| 301 | 0.28 | 0.26 | 0.03 | 0.05 | 0.05 | 0.06 | 60% | 0% | 17% | 0.05 | 0.08 | 0.09 | 0.10 |
| 302 | 1.7 | 1.2 | 0.26 | 0.28 | 0.28 | 0.29 | 9% | 0% | 4% | 0.05 | 0.09 | 0.09 | 0.11 |
| 304 | 1.3 | 1.3 | 0.50 | 0.52 | 0.52 | 0.53 | 4% | 0% | 3% | 0.05 | 0.09 | 0.10 | 0.12 |
| 306 | 0.61 | 0.68 | 0.05 | 0.06 | 0.07 | 0.08 | 39% | 0% | 28% | 0.08 | 0.10 | 0.10 | 0.14 |
| 314 | 1.5 | 1.5 | 0.24 | 0.26 | 0.26 | 0.27 | 7% | 0% | 3% | 0.08 | 0.10 | 0.10 | 0.12 |
| 316 | 2.3 | 2.2 | 0.08 | 0.11 | 0.11 | 0.12 | 31% | 0% | 12% | 0.05 | 0.10 | 0.10 | 0.12 |
| 317 | - | 1.5 | 0.07 | 0.21 | 0.21 | 0.23 | 199% | 0% | 11% | 0.04 | 0.30 | 0.30 | 0.35 |
| 318 | - | 1.2 | 0.07 | 0.20 | 0.20 | 0.22 | 184% | 0% | 13% | 0.04 | 0.28 | 0.29 | 0.35 |
| 319 | 1.3 | 1.4 | 0.07 | 0.18 | 0.18 | 0.20 | 153% | 0% | 15% | 0.04 | 0.22 | 0.22 | 0.27 |
| 320 | 2.0 | 1.9 | 0.07 | 0.13 | 0.13 | 0.16 | 100% | 0% | 19% | 0.04 | 0.15 | 0.15 | 0.19 |
| 321 | 0.55 | 0.5 | 0.05 | 0.10 | 0.10 | 0.11 | 95% | 0% | 12% | 0.04 | 0.12 | 0.12 | 0.15 |
| 322 | 1.0 | 1.1 | 0.34 | 0.39 | 0.39 | 0.40 | 13% | 0% | 4% | 0.04 | 0.12 | 0.12 | 0.14 |
| 323 | 0.91 | 0.93 | 0.11 | 0.15 | 0.15 | 0.16 | 34% | 0% | 8% | 0.03 | 0.10 | 0.10 | 0.12 |
| 324 | 0.93 | 0.94 | 0.11 | 0.14 | 0.14 | 0.15 | 34% | 0% | 8% | 0.03 | 0.09 | 0.09 | 0.11 |
| 325 | 0.35 | 0.35 | 0.08 | 0.11 | 0.11 | 0.12 | 46% | 0% | 9% | 0.03 | 0.09 | 0.09 | 0.11 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 326 | 0.89 | 0.89 | 0.04 | 0.08 | 0.08 | 0.09 | 82% | 0% | 12% | 0.03 | 0.09 | 0.09 | 0.11 |
| 327 | 0.65 | 0.68 | 0.04 | 0.07 | 0.07 | 0.08 | 84% | 1% | 13% | 0.03 | 0.09 | 0.09 | 0.11 |
| 328 | 0.78 | 0.82 | 0.05 | 0.08 | 0.08 | 0.09 | 77% | 1% | 13% | 0.03 | 0.09 | 0.09 | 0.12 |
| 329 | 2.5 | 2.5 | 0.45 | 1.00 | 1.00 | 1.04 | 123% | 0% | 3% | 0.05 | 0.83 | 0.82 | 0.92 |
| 330 | 0.6 | 0.61 | 0.05 | 0.08 | 0.08 | 0.09 | 66% | 1% | 12% | 0.03 | 0.09 | 0.09 | 0.11 |
| 331 | 0.88 | 0.88 | 0.02 | 0.06 | 0.06 | 0.07 | 130% | 1% | 17% | 0.03 | 0.09 | 0.09 | 0.11 |
| 332 | 0.1 | 0.098 | 0.00 | 0.04 | 0.04 | 0.05 | 1,117% | 2% | 30% | 0.03 | 0.10 | 0.11 | 0.13 |
| 333 | 0.88 | 0.88 | 0.03 | 0.08 | 0.08 | 0.09 | 140% | 1% | 19% | 0.03 | 0.12 | 0.12 | 0.16 |
| 334 | 0.93 | 0.98 | 0.03 | 0.06 | 0.06 | 0.07 | 136% | 1% | 16% | 0.03 | 0.09 | 0.09 | 0.11 |
| 335 | 0.39 | 0.45 | 0.14 | 0.17 | 0.17 | 0.18 | 19% | 0% | 5% | 0.04 | 0.08 | 0.08 | 0.10 |
| 336 | 1.3 | 1.1 | 0.09 | 0.13 | 0.13 | 0.16 | 50% | 0% | 17% | 0.05 | 0.12 | 0.12 | 0.17 |
| 337 | 1.2 | 1.3 | 0.36 | 0.40 | 0.40 | 0.43 | 13% | 0% | 7% | 0.05 | 0.12 | 0.12 | 0.17 |
| 338 | 4.3 | 4.4 | 2.07 | 2.11 | 2.11 | 2.14 | 2% | 0% | 1% | 0.05 | 0.12 | 0.12 | 0.17 |
| 339 | 4.6 | 4.7 | 1.12 | 1.16 | 1.16 | 1.18 | 3% | 0% | 1% | 0.05 | 0.11 | 0.11 | 0.15 |
| 340 | 1.9 | 1.9 | 0.30 | 0.33 | 0.33 | 0.34 | 9% | 0% | 4% | 0.05 | 0.10 | 0.10 | 0.12 |
| 341 | 1.1 | 1.2 | 0.23 | 0.26 | 0.26 | 0.27 | 12% | 0% | 4% | 0.05 | 0.10 | 0.10 | 0.12 |
| 342 | 1.1 | 1.1 | 0.08 | 0.11 | 0.11 | 0.11 | 25% | 0% | 7% | 0.05 | 0.08 | 0.08 | 0.09 |
| 343 | 0.82 | 0.61 | 0.02 | 0.04 | 0.04 | 0.05 | 109% | 0% | 19% | 0.05 | 0.08 | 0.08 | 0.09 |
| 344 | 0.34 | 0.4 | 0.07 | 0.10 | 0.10 | 0.11 | 42% | 0% | 9% | 0.04 | 0.08 | 0.08 | 0.10 |
| 345 | 1.7 | 1.7 | 0.10 | 0.14 | 0.14 | 0.15 | 40% | 0% | 8% | 0.03 | 0.09 | 0.10 | 0.12 |
| 346 | 0.9 | 0.92 | 0.02 | 0.06 | 0.06 | 0.07 | 218% | 1% | 19% | 0.03 | 0.10 | 0.10 | 0.12 |
| 347 | 0.048 | 0.048 | 0.00 | 0.03 | 0.03 | 0.03 | 1,380% | 1% | 27% | 0.03 | 0.08 | 0.08 | 0.09 |
| 348 | 0.24 | 0.26 | 0.01 | 0.04 | 0.04 | 0.05 | 194% | 1% | 18% | 0.03 | 0.08 | 0.08 | 0.10 |
| 349 | 0.21 | 0.22 | 0.02 | 0.05 | 0.05 | 0.05 | 123% | 1% | 14% | 0.02 | 0.07 | 0.07 | 0.08 |
| 350 | 0.22 | 0.23 | 0.02 | 0.04 | 0.04 | 0.05 | 176% | 1% | 17% | 0.02 | 0.07 | 0.07 | 0.09 |
| 351 | 0.15 | 0.24 | 0.07 | 0.10 | 0.10 | 0.11 | 35% | 0% | 7% | 0.03 | 0.07 | 0.07 | 0.09 |
| 352 | 1.3 | 1.3 | 0.11 | 0.14 | 0.14 | 0.15 | 24% | 0% | 5% | 0.03 | 0.07 | 0.08 | 0.09 |
| 373 | - | 2.5 | 0.47 | 0.49 | 0.49 | 0.50 | 5% | 0% | 2% | 0.05 | 0.09 | 0.09 | 0.11 |
| 374 | - | 1.8 | 0.17 | 0.19 | 0.19 | 0.20 | 13% | 0% | 4% | 0.05 | 0.09 | 0.09 | 0.11 |
| 405 | 1.2 | 1.2 | 0.09 | 0.18 | 0.18 | 0.20 | 100% | 0% | 15% | 0.05 | 0.19 | 0.19 | 0.24 |
| 406 | 1.5 | 1.6 | 0.20 | 0.26 | 0.26 | 0.28 | 28% | 0% | 7% | 0.05 | 0.14 | 0.14 | 0.18 |
| 407 | 2.3 | 2.4 | 0.62 | 0.66 | 0.66 | 0.68 | 8% | 0% | 3% | 0.05 | 0.12 | 0.13 | 0.16 |
| 408 | 1.5 | 1.7 | 0.93 | 0.99 | 0.99 | 1.01 | 7% | 0% | 2% | 0.05 | 0.14 | 0.15 | 0.18 |
| 409 | 2.0 | 2.1 | 0.77 | 0.83 | 0.83 | 0.85 | 8% | 0% | 2% | 0.05 | 0.15 | 0.15 | 0.19 |
| 410 | 1.5 | 1.5 | 0.67 | 0.74 | 0.74 | 0.75 | 9% | 0% | 2% | 0.05 | 0.15 | 0.15 | 0.18 |
| 411 | 3.3 | 3.2 | 0.13 | 0.26 | 0.26 | 0.97 | 99% | 1% | 280% | 0.04 | 0.34 | 0.34 | 1.42 |
| 412 | 1.0 | 1.1 | 0.11 | 0.16 | 0.16 | 0.17 | 39% | 0% | 9% | 0.03 | 0.11 | 0.11 | 0.14 |
| 413 | 0.73 | 0.84 | 0.05 | 0.17 | 0.17 | 0.20 | 221% | 0% | 14% | 0.04 | 0.25 | 0.26 | 0.31 |
| 414 | 1.5 | 1.6 | 0.06 | 0.20 | 0.20 | 0.22 | 224% | 0% | 10% | 0.04 | 0.27 | 0.27 | 0.32 |
| 415 | 2.7 | 2.8 | 0.09 | 0.22 | 0.22 | 0.98 | 147% | 1% | 344% | 0.04 | 0.35 | 0.36 | 1.46 |
| 416 | 3.2 | 3.3 | 0.08 | 0.21 | 0.21 | 0.25 | 172% | 0% | 19% | 0.04 | 0.26 | 0.27 | 0.34 |
| 417 | 1.3 | 1.3 | 0.04 | 0.11 | 0.11 | 0.12 | 151% | 1% | 15% | 0.03 | 0.15 | 0.15 | 0.19 |
| 418 | 1.1 | 1.0 | 0.03 | 0.10 | 0.11 | 0.12 | 227% | 1% | 17% | 0.03 | 0.17 | 0.18 | 0.22 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 419 | 0.57 | 0.59 | 0.02 | 0.09 | 0.09 | 0.11 | 307% | 1% | 17% | 0.04 | 0.17 | 0.18 | 0.21 |
| 420 | 3.2 | 3.2 | 0.07 | 0.23 | 0.23 | 0.28 | 235% | 1% | 20% | 0.04 | 0.43 | 0.44 | 0.57 |
| 421 | 0.88 | 0.93 | 0.07 | 0.22 | 0.22 | 0.24 | 207% | 0% | 9% | 0.04 | 0.30 | 0.30 | 0.34 |
| 422 | 4.0 | 3.2 | 0.10 | 0.19 | 0.19 | 0.21 | 79% | 0% | 10% | 0.04 | 0.18 | 0.18 | 0.22 |
| 423 | 3.0 | 2.9 | 0.18 | 0.25 | 0.25 | 0.27 | 41% | 0% | 7% | 0.04 | 0.16 | 0.16 | 0.19 |
| 424 | 2.6 | 2.4 | 0.07 | 0.20 | 0.20 | 0.23 | 173% | 0% | 18% | 0.04 | 0.25 | 0.25 | 0.32 |
| 425 | 1.9 | 1.9 | 0.09 | 0.21 | 0.21 | 0.25 | 143% | 0% | 16% | 0.04 | 0.25 | 0.25 | 0.32 |
| 426 | 1.7 | 1.7 | 0.46 | 0.51 | 0.52 | 0.53 | 13% | 0% | 4% | 0.03 | 0.13 | 0.14 | 0.18 |
| 428 | 4.0 | 4.0 | 0.26 | 0.32 | 0.32 | 0.33 | 19% | 0% | 5% | 0.03 | 0.12 | 0.12 | 0.16 |
| 429 | 1.4 | 1.4 | 0.65 | 0.71 | 0.71 | 0.73 | 9% | 0% | 3% | 0.03 | 0.14 | 0.15 | 0.20 |
| 430 | 1.7 | 1.7 | 0.37 | 0.44 | 0.44 | 0.58 | 17% | 1% | 32% | 0.03 | 0.17 | 0.19 | 0.68 |
| 431 | 0.92 | 0.94 | 0.22 | 0.28 | 0.28 | 0.30 | 27% | 1% | 7% | 0.03 | 0.14 | 0.14 | 0.19 |
| 432 | 1.6 | 1.6 | 0.07 | 0.22 | 0.22 | 0.24 | 198% | 0% | 9% | 0.04 | 0.28 | 0.28 | 0.33 |
| 433 | 2.0 | 2.0 | 0.18 | 0.21 | 0.21 | 0.23 | 22% | 0% | 5% | 0.03 | 0.10 | 0.10 | 0.12 |
| 434 | 1.2 | 1.3 | 0.11 | 0.15 | 0.15 | 0.16 | 38% | 0% | 8% | 0.03 | 0.10 | 0.10 | 0.12 |
| 435 | 0.94 | 1.0 | 0.08 | 0.12 | 0.12 | 0.13 | 50% | 0% | 10% | 0.03 | 0.10 | 0.10 | 0.12 |
| 436 | 0.41 | 0.63 | 0.09 | 0.14 | 0.14 | 0.15 | 54% | 0% | 10% | 0.03 | 0.11 | 0.11 | 0.14 |
| 437 | 0.48 | 0.76 | 0.45 | 0.48 | 0.48 | 0.49 | 8% | 0% | 2% | 0.03 | 0.09 | 0.09 | 0.11 |
| 438 | 0.88 | 1.0 | 0.10 | 0.14 | 0.15 | 0.16 | 42% | 0% | 9% | 0.03 | 0.10 | 0.11 | 0.13 |
| 439 | 0.85 | 1.0 | 0.11 | 0.15 | 0.15 | 0.16 | 40% | 0% | 9% | 0.03 | 0.10 | 0.11 | 0.13 |
| 440 | 0.53 | 0.69 | 0.05 | 0.15 | 0.15 | 0.17 | 192% | 0% | 12% | 0.04 | 0.21 | 0.22 | 0.25 |
| 441 | 1.0 | 1.1 | 0.12 | 0.16 | 0.16 | 0.17 | 36% | 0% | 9% | 0.05 | 0.11 | 0.11 | 0.14 |
| 442 | 1.1 | 1.2 | 0.21 | 0.25 | 0.25 | 0.27 | 23% | 0% | 6% | 0.05 | 0.12 | 0.12 | 0.15 |
| 443 | 4.7 | 4.7 | 1.34 | 1.38 | 1.38 | 1.40 | 3% | 0% | 1% | 0.05 | 0.11 | 0.11 | 0.15 |
| 444 | 1.2 | 1.2 | 0.12 | 0.17 | 0.17 | 0.19 | 40% | 0% | 8% | 0.03 | 0.12 | 0.12 | 0.15 |
| 445 | 2.0 | 2.0 | 0.07 | 0.15 | 0.15 | 0.17 | 121% | 0% | 13% | 0.04 | 0.18 | 0.18 | 0.21 |
| 446 | 1.9 | 1.9 | 0.09 | 0.16 | 0.16 | 0.18 | 77% | 1% | 16% | 0.05 | 0.18 | 0.18 | 0.24 |
| 447 | 3.1 | 3.2 | 0.14 | 0.21 | 0.21 | 0.23 | 44% | 0% | 11% | 0.05 | 0.16 | 0.17 | 0.22 |
| 449 | 2.2 | 2.3 | 0.14 | 0.23 | 0.23 | 0.26 | 66% | 0% | 13% | 0.05 | 0.20 | 0.20 | 0.26 |
| 450 | 1.3 | 1.3 | 0.06 | 0.15 | 0.15 | 0.17 | 136% | 0% | 17% | 0.05 | 0.18 | 0.18 | 0.23 |
| 451 | 3.2 | 3.2 | 0.09 | 0.16 | 0.16 | 0.18 | 80% | 0% | 14% | 0.05 | 0.16 | 0.16 | 0.21 |
| 452 | 0.56 | 0.65 | 0.14 | 0.24 | 0.24 | 0.29 | 71% | 0% | 21% | 0.07 | 0.21 | 0.21 | 0.29 |
| 453 | 0.24 | 0.42 | 0.07 | 0.17 | 0.17 | 0.22 | 157% | 0% | 28% | 0.07 | 0.22 | 0.22 | 0.30 |
| 455 | 2.0 | 2.1 | 0.09 | 0.18 | 0.18 | 0.22 | 104% | 0% | 24% | 0.04 | 0.19 | 0.19 | 0.26 |
| 456 | 2.7 | 2.7 | 0.08 | 0.16 | 0.16 | 0.18 | 105% | 0% | 16% | 0.05 | 0.18 | 0.18 | 0.22 |
| 457 | 2.2 | 2.2 | 0.07 | 0.14 | 0.14 | 0.16 | 90% | 0% | 16% | 0.05 | 0.15 | 0.15 | 0.20 |
| 458 | 3.9 | 3.9 | 0.11 | 0.19 | 0.19 | 0.21 | 65% | 0% | 13% | 0.05 | 0.17 | 0.17 | 0.21 |
| 459 | 1.9 | 1.9 | 0.05 | 0.13 | 0.13 | 0.15 | 132% | 0% | 18% | 0.05 | 0.16 | 0.16 | 0.20 |
| 460 | 1.8 | 1.8 | 0.07 | 0.13 | 0.13 | 0.16 | 103% | 0% | 17% | 0.05 | 0.15 | 0.16 | 0.20 |
| 461 | 2.2 | 2.3 | 0.22 | 0.31 | 0.31 | 0.35 | 39% | 0% | 13% | 0.07 | 0.20 | 0.20 | 0.27 |
| 462 | 1.8 | 1.8 | 0.38 | 0.47 | 0.47 | 0.50 | 23% | 0% | 6% | 0.04 | 0.18 | 0.18 | 0.23 |
| 463 | 0.93 | 1.0 | 0.26 | 0.36 | 0.36 | 0.41 | 34% | 0% | 16% | 0.07 | 0.20 | 0.21 | 0.29 |
| 464 | -0.27 | -0.088 | 0.04 | 0.17 | 0.17 | 0.20 | 344% | 0% | 14% | 0.04 | 0.29 | 0.29 | 0.35 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 465 | 0.8 | 0.89 | 0.04 | 0.20 | 0.20 | 0.22 | 375% | 0% | 11% | 0.04 | 0.33 | 0.33 | 0.38 |
| 466 | 1.0 | 1.1 | 0.06 | 0.19 | 0.19 | 0.21 | 240% | 0% | 12% | 0.04 | 0.29 | 0.29 | 0.35 |
| 467 | 1.9 | 1.9 | 0.08 | 0.20 | 0.20 | 0.24 | 160% | 0% | 17% | 0.04 | 0.25 | 0.25 | 0.32 |
| 468 | 1.4 | 1.3 | 0.17 | 0.21 | 0.21 | 0.22 | 21% | 0% | 5% | 0.03 | 0.09 | 0.09 | 0.11 |
| 469 | 0.23 | 0.5 | 0.39 | 0.42 | 0.42 | 0.43 | 9% | 0% | 2% | 0.03 | 0.09 | 0.09 | 0.11 |
| 470 | 1.1 | 1.2 | 0.14 | 0.18 | 0.18 | 0.19 | 28% | 0% | 7% | 0.03 | 0.10 | 0.10 | 0.12 |
| 471 | 1.2 | 1.3 | 0.11 | 0.16 | 0.16 | 0.17 | 37% | 0% | 8% | 0.03 | 0.10 | 0.11 | 0.13 |
| 472 | 0.81 | 0.88 | 0.07 | 0.13 | 0.13 | 0.15 | 77% | 1% | 14% | 0.03 | 0.13 | 0.14 | 0.18 |
| 473 | 1.4 | 1.3 | 0.20 | 0.26 | 0.27 | 0.40 | 32% | 2% | 51% | 0.03 | 0.16 | 0.18 | 0.66 |
| 474 | 1.8 | 1.8 | 0.76 | 0.82 | 0.82 | 0.84 | 8% | 0% | 2% | 0.03 | 0.13 | 0.14 | 0.18 |
| 475 | 1.6 | 1.6 | 0.14 | 0.21 | 0.21 | 0.22 | 43% | 0% | 9% | 0.05 | 0.15 | 0.15 | 0.19 |
| 476 | 1.0 | 1.0 | 0.05 | 0.09 | 0.09 | 0.10 | 67% | 1% | 11% | 0.03 | 0.10 | 0.10 | 0.12 |
| 477 | 0.77 | 0.85 | 0.06 | 0.19 | 0.19 | 0.23 | 228% | 0% | 18% | 0.04 | 0.28 | 0.28 | 0.37 |
| 478 | 1.6 | 1.7 | 0.07 | 0.23 | 0.23 | 0.28 | 244% | 0% | 21% | 0.04 | 0.31 | 0.32 | 0.41 |
| 479 | 1.6 | 1.6 | 0.07 | 0.22 | 0.22 | 0.28 | 204% | 0% | 26% | 0.04 | 0.30 | 0.31 | 0.41 |
| 480 | 1.3 | 1.3 | 0.06 | 0.09 | 0.09 | 0.10 | 57% | 1% | 10% | 0.03 | 0.09 | 0.09 | 0.11 |
| 481 | 2.0 | 2.0 | 0.05 | 0.11 | 0.11 | 0.12 | 121% | 1% | 14% | 0.03 | 0.14 | 0.15 | 0.18 |
| 482 | 1.6 | 1.6 | 0.06 | 0.12 | 0.12 | 0.14 | 103% | 1% | 13% | 0.03 | 0.15 | 0.15 | 0.19 |
| 483 | 1.9 | 1.9 | 0.07 | 0.14 | 0.14 | 0.16 | 104% | 1% | 12% | 0.03 | 0.17 | 0.17 | 0.21 |
| 484 | 1.1 | 1.1 | 0.04 | 0.12 | 0.12 | 0.13 | 180% | 1% | 16% | 0.03 | 0.18 | 0.18 | 0.23 |
| 485 | 0.84 | 0.88 | 0.08 | 0.21 | 0.21 | 0.24 | 177% | 0% | 16% | 0.04 | 0.28 | 0.29 | 0.37 |
| 486 | 1.8 | 1.9 | 0.66 | 0.70 | 0.70 | 0.72 | 7% | 0% | 3% | 0.05 | 0.12 | 0.12 | 0.16 |
| 487 | 3.2 | 3.2 | 0.33 | 0.38 | 0.39 | 0.40 | 15% | 0% | 5% | 0.05 | 0.13 | 0.13 | 0.17 |
| 488 | 1.3 | 1.3 | 0.18 | 0.22 | 0.22 | 0.25 | 25% | 0% | 11% | 0.05 | 0.12 | 0.12 | 0.17 |
| 515 | 4.7 | 4.7 | 0.11 | 0.19 | 0.19 | 0.20 | 70% | 0% | 5% | 0.10 | 0.23 | 0.23 | 0.24 |
| 516 | 2.7 | 2.7 | 0.09 | 0.15 | 0.15 | 0.16 | 73% | 0% | 5% | 0.10 | 0.20 | 0.20 | 0.21 |
| 517 | 1.7 | 1.7 | 0.03 | 0.10 | 0.10 | 0.11 | 218% | 0% | 7% | 0.10 | 0.20 | 0.20 | 0.21 |
| 518 | 1.2 | 1.1 | 0.00 | 0.04 | 0.04 | 0.05 | 3,581% | 0% | 16% | 0.10 | 0.16 | 0.16 | 0.17 |
| 519 | 1.2 | 1.2 | 0.03 | 0.09 | 0.09 | 0.10 | 254% | 0% | 9% | 0.09 | 0.19 | 0.18 | 0.20 |
| 520 | 1.1 | 1.1 | 0.03 | 0.09 | 0.09 | 0.10 | 230% | 0% | 7% | 0.09 | 0.19 | 0.18 | 0.20 |
| 521 | 2.3 | 2.3 | 0.06 | 0.10 | 0.10 | 0.11 | 69% | 0% | 6% | 0.10 | 0.16 | 0.16 | 0.17 |
| 522 | 1.1 | 1.1 | 0.03 | 0.09 | 0.09 | 0.10 | 225% | 0% | 7% | 0.09 | 0.18 | 0.18 | 0.19 |
| 523 | 1.5 | 1.5 | 0.07 | 0.12 | 0.12 | 0.13 | 87% | 0% | 5% | 0.09 | 0.17 | 0.17 | 0.18 |
| 524 | 0.37 | 0.41 | 0.15 | 0.17 | 0.17 | 0.18 | 15% | 0% | 3% | 0.03 | 0.06 | 0.06 | 0.07 |
| 525 | 0.53 | 0.57 | 0.15 | 0.17 | 0.17 | 0.18 | 15% | 0% | 3% | 0.03 | 0.06 | 0.06 | 0.07 |
| 526 | 0.59 | 0.64 | 0.16 | 0.19 | 0.19 | 0.19 | 14% | 0% | 3% | 0.04 | 0.08 | 0.08 | 0.09 |
| 527 | 0.57 | 0.62 | 0.15 | 0.17 | 0.17 | 0.18 | 14% | 0% | 3% | 0.03 | 0.06 | 0.06 | 0.07 |
| 528 | 0.35 | 0.41 | 0.16 | 0.19 | 0.19 | 0.19 | 14% | 0% | 3% | 0.04 | 0.08 | 0.08 | 0.09 |
| 529 | - | 0.8 | 0.14 | 0.16 | 0.16 | 0.16 | 12% | 0% | 3% | 0.02 | 0.05 | 0.05 | 0.06 |
| 530 | 0.94 | 0.94 | 0.18 | 0.23 | 0.23 | 0.24 | 25% | 0% | 6% | 0.06 | 0.13 | 0.13 | 0.15 |
| 531 | - | 2.7 | 0.15 | 0.16 | 0.16 | 0.17 | 10% | 0% | 2% | 0.03 | 0.05 | 0.05 | 0.06 |
| 532 | 1.3 | 1.4 | 0.16 | 0.19 | 0.19 | 0.20 | 18% | 0% | 4% | 0.04 | 0.09 | 0.09 | 0.10 |
| 533 | 0.85 | 0.85 | 0.18 | 0.22 | 0.22 | 0.23 | 21% | 0% | 5% | 0.06 | 0.12 | 0.12 | 0.14 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Soil Net PAI [keq $H^+$/ha/y] | | | | Percent Increase in PAI Deposition | | | Gross Potential Acid Inputs [keq $H^+$/ha/y] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Calibrated Background | Base Case | Application Case | Planned Development Case | Base Versus Existing | Application Versus Base | PDC Versus Base | Background | Baseline | Application | PDC |
| 534 | 0.34 | 0.42 | 0.16 | 0.19 | 0.19 | 0.19 | 15% | 0% | 3% | 0.04 | 0.08 | 0.08 | 0.09 |
| 535 | 0.43 | 0.45 | 0.16 | 0.19 | 0.19 | 0.20 | 18% | 0% | 4% | 0.04 | 0.09 | 0.09 | 0.10 |
| 536 | 1.4 | 1.4 | 0.14 | 0.16 | 0.16 | 0.17 | 16% | 0% | 4% | 0.10 | 0.14 | 0.14 | 0.15 |
| 537 | - | 2.2 | 0.11 | 0.12 | 0.12 | 0.13 | 14% | 0% | 4% | 0.10 | 0.12 | 0.12 | 0.13 |
| 538 | 2.2 | 2.2 | 0.04 | 0.07 | 0.07 | 0.08 | 83% | 0% | 9% | 0.10 | 0.15 | 0.15 | 0.16 |
| 539 | 6.3 | 6.2 | 1.75 | 1.76 | 1.76 | 1.77 | 1% | 0% | 0% | 0.10 | 0.12 | 0.12 | 0.13 |
| 540 | 1.5 | 1.4 | 0.15 | 0.17 | 0.17 | 0.18 | 12% | 0% | 3% | 0.10 | 0.13 | 0.13 | 0.14 |
| 546 | 2.6 | 2.5 | 0.13 | 0.18 | 0.18 | 0.18 | 35% | 0% | 5% | 0.09 | 0.15 | 0.15 | 0.16 |
| 546 | 4.1 | 3.9 | 0.13 | 0.18 | 0.18 | 0.18 | 35% | 0% | 5% | 0.09 | 0.15 | 0.15 | 0.16 |
| 596 | 2.3 | 2.3 | 0.00 | 0.02 | 0.02 | 0.03 | 900% | 0% | 23% | 0.08 | 0.12 | 0.12 | 0.12 |
| 597 | 0.34 | 0.41 | 0.00 | 0.08 | 0.08 | 0.08 | 3,560% | 0% | 12% | 0.10 | 0.22 | 0.22 | 0.23 |
| 598 | 0.65 | 0.75 | 0.01 | 0.09 | 0.09 | 0.10 | 1,219% | 0% | 11% | 0.10 | 0.23 | 0.23 | 0.24 |
| 599 | 4.1 | 3.9 | 0.13 | 0.20 | 0.20 | 0.21 | 59% | 0% | 4% | 0.10 | 0.22 | 0.21 | 0.23 |
| 600 | 3.2 | 3.2 | 0.07 | 0.13 | 0.13 | 0.14 | 83% | 0% | 6% | 0.09 | 0.17 | 0.17 | 0.18 |
| 605 | 3.6 | 3.6 | 0.06 | 0.36 | 0.36 | 0.40 | 486% | 0% | 12% | 0.04 | 0.81 | 0.79 | 0.90 |
| 606 | 1.7 | 1.7 | 0.03 | 0.56 | 0.56 | 0.66 | 1,497% | 1% | 19% | 0.04 | 1.09 | 1.03 | 1.20 |
| 607 | 5.5 | 5.5 | 0.15 | 0.42 | 0.42 | 0.45 | 174% | 0% | 8% | 0.04 | 0.72 | 0.74 | 0.82 |
| 612 | 1.1 | 1.2 | 0.01 | 0.13 | 0.13 | 0.20 | 1,128% | 2% | 59% | 0.04 | 0.30 | 0.31 | 0.56 |
| 615 | 0.92 | 0.93 | 0.03 | 0.13 | 0.26 | 0.40 | 311% | 95% | 200% | 0.03 | 0.27 | 0.77 | 0.93 |
| 616 | 1.4 | 1.4 | 0.35 | 0.42 | 0.42 | 0.46 | 20% | 1% | 10% | 0.03 | 0.18 | 0.20 | 0.31 |
| 617 | 1.4 | 1.4 | 0.72 | 0.81 | 0.82 | 0.88 | 12% | 2% | 9% | 0.03 | 0.22 | 0.29 | 0.46 |
| 618 | 1.4 | 1.1 | 0.07 | 0.17 | 0.19 | 0.24 | 145% | 16% | 44% | 0.03 | 0.26 | 0.36 | 0.51 |
| 619 | 1.5 | 1.5 | 0.76 | 0.82 | 0.83 | 0.96 | 9% | 1% | 16% | 0.03 | 0.17 | 0.19 | 0.64 |
| 620 | 1.5 | 1.4 | 0.21 | 0.28 | 0.29 | 0.40 | 32% | 2% | 41% | 0.03 | 0.18 | 0.20 | 0.56 |
| 621 | 2.2 | 2.2 | 0.28 | 0.34 | 0.35 | 0.68 | 24% | 2% | 99% | 0.03 | 0.17 | 0.19 | 0.97 |
| 622 | 0.55 | 0.54 | 0.14 | 0.19 | 0.20 | 0.22 | 40% | 1% | 13% | 0.03 | 0.14 | 0.15 | 0.22 |
| 623 | 1.6 | 1.6 | 1.40 | 1.46 | 1.47 | 1.53 | 4% | 0% | 4% | 0.03 | 0.16 | 0.17 | 0.38 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 1 | 1.8 | 1.8 | 3.8 | 2.9 | 2.9 | 2.9 | 0.9 | 0.0 | 0.1 | 0.1 | 992 | 0 | 157 | 156 |
| 2 | 1.5 | 1.5 | 3.7 | 3.2 | 3.2 | 3.1 | 0.5 | 0.0 | 0.1 | 0.1 | 495 | 3 | 154 | 151 |
| 3 | 1.1 | 1.2 | 3.8 | 3.3 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 348 | 3 | 196 | 193 |
| 4 | 1.5 | 1.5 | 3.9 | 2.9 | 2.9 | 2.7 | 1.0 | 0.0 | 0.2 | 0.2 | 1,077 | 34 | 757 | 723 |
| 5 | 1.6 | 1.5 | 3.8 | 2.9 | 2.9 | 2.8 | 0.8 | 0.0 | 0.2 | 0.2 | 969 | 44 | 549 | 505 |
| 6 | 4.1 | 3.9 | 3.4 | 2.6 | 2.4 | 2.3 | 0.9 | 0.2 | 0.3 | 0.1 | 2,308 | 1,245 | 2,178 | 933 |
| 7 | 0.12 | 0.17 | 4.0 | 3.5 | 3.5 | 3.4 | 0.6 | 0.0 | 0.1 | 0.1 | 246 | 10 | 108 | 97 |
| 10 | 1.6 | 1.7 | 4.1 | 3.4 | 3.4 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 285 | 14 | 127 | 113 |
| 11 | 1.6 | 1.6 | 4.1 | 3.5 | 3.5 | 3.4 | 0.6 | 0.0 | 0.1 | 0.1 | 248 | 12 | 113 | 101 |
| 12 | 0.4 | 0.41 | 3.2 | 2.3 | 2.3 | 2.2 | 0.9 | 0.0 | 0.1 | 0.1 | 4,380 | 580 | 1,716 | 1,136 |
| 17 | 1.3 | 1.4 | 4.1 | 3.5 | 3.5 | 3.4 | 0.6 | 0.0 | 0.1 | 0.1 | 238 | 13 | 109 | 97 |
| 18 | 0.78 | 0.78 | 3.2 | 2.3 | 2.2 | 2.1 | 0.9 | 0.1 | 0.1 | 0.1 | 4,543 | 810 | 2,039 | 1,229 |
| 19 | 1.3 | 1.3 | 3.2 | 2.4 | 2.4 | 2.3 | 0.9 | 0.0 | 0.1 | 0.1 | 3,490 | 389 | 1,341 | 952 |
| 20 | 4.8 | 4.8 | 4.0 | 2.8 | 2.8 | 2.8 | 1.1 | 0.0 | 0.1 | 0.0 | 1,366 | 68 | 222 | 154 |
| 25 | 0.52 | 0.56 | 3.6 | 3.1 | 3.1 | 2.9 | 0.6 | 0.0 | 0.1 | 0.1 | 651 | 8 | 263 | 255 |
| 26 | 0.62 | 0.67 | 3.8 | 3.0 | 3.0 | 2.9 | 0.7 | 0.0 | 0.1 | 0.1 | 786 | -19 | 183 | 203 |
| 27 | 0.47 | 0.48 | 3.6 | 2.9 | 2.9 | 2.8 | 0.7 | 0.0 | 0.1 | 0.1 | 1,034 | -2 | 227 | 229 |
| 28 | 1.8 | 1.8 | 3.7 | 3.1 | 3.1 | 3.0 | 0.6 | 0.0 | 0.1 | 0.1 | 615 | -9 | 168 | 177 |
| 29 | 2.0 | 2.0 | 3.8 | 3.1 | 3.1 | 3.0 | 0.7 | 0.0 | 0.1 | 0.1 | 636 | -29 | 156 | 185 |
| 30 | 1.0 | 1.0 | 3.6 | 2.8 | 2.8 | 2.7 | 0.8 | 0.0 | 0.1 | 0.1 | 1,374 | -52 | 276 | 328 |
| 31 | 2.1 | 2.1 | 3.8 | 3.1 | 3.1 | 3.0 | 0.7 | 0.0 | 0.1 | 0.1 | 696 | -7 | 143 | 149 |
| 32 | 1.7 | 1.7 | 4.0 | 3.3 | 3.3 | 3.2 | 0.6 | 0.0 | 0.1 | 0.1 | 367 | 4 | 173 | 169 |
| 33 | 1.9 | 1.9 | 3.8 | 3.2 | 3.2 | 3.1 | 0.6 | 0.0 | 0.1 | 0.1 | 462 | -1 | 173 | 173 |
| 34 | 0.044 | 0.15 | 3.8 | 3.1 | 3.1 | 3.0 | 0.7 | 0.0 | 0.1 | 0.1 | 711 | -20 | 158 | 178 |
| 35 | 0.48 | 0.6 | 3.8 | 3.2 | 3.2 | 3.1 | 0.6 | 0.0 | 0.1 | 0.1 | 524 | 10 | 177 | 166 |
| 36 | 1.6 | 1.6 | 3.7 | 3.0 | 3.0 | 2.9 | 0.7 | 0.0 | 0.1 | 0.1 | 861 | 6 | 178 | 172 |
| 37 | 0.7 | 0.78 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 294 | -1 | 113 | 114 |
| 38 | 0.61 | 0.73 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 294 | 1 | 115 | 114 |
| 39 | 0.019 | 0.064 | 3.7 | 3.1 | 3.1 | 3.0 | 0.5 | 0.0 | 0.1 | 0.1 | 530 | 0 | 201 | 201 |
| 40 | 0.084 | 0.19 | 3.9 | 3.3 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 328 | 2 | 124 | 122 |
| 41 | 0.56 | 0.62 | 3.9 | 3.4 | 3.4 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 318 | -2 | 127 | 129 |
| 42 | 1.9 | 1.9 | 3.7 | 3.5 | 3.5 | 3.4 | 0.2 | 0.0 | 0.1 | 0.1 | 134 | -3 | 70 | 73 |
| 43 | 1.3 | 1.3 | 3.7 | 3.4 | 3.4 | 3.3 | 0.3 | 0.0 | 0.1 | 0.1 | 172 | 1 | 68 | 67 |
| 44 | 1.7 | 1.7 | 3.7 | 3.4 | 3.4 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 163 | -1 | 74 | 75 |
| 45 | 0.85 | 0.91 | 3.7 | 3.4 | 3.4 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 165 | -2 | 68 | 69 |
| 46 | 0.98 | 0.98 | 3.4 | 3.1 | 3.1 | 3.0 | 0.3 | 0.0 | 0.1 | 0.1 | 366 | -7 | 152 | 159 |
| 47 | 1.1 | 1.1 | 3.7 | 3.4 | 3.4 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 167 | 1 | 69 | 68 |
| 48 | 0.83 | 0.88 | 3.6 | 3.4 | 3.4 | 3.3 | 0.3 | 0.0 | 0.1 | 0.1 | 182 | 0 | 79 | 79 |
| 49 | 0.96 | 1.0 | 3.7 | 3.5 | 3.5 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 158 | 0 | 67 | 67 |
| 50 | 0.2 | 0.33 | 3.7 | 3.5 | 3.5 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 147 | -1 | 68 | 69 |
| 51 | 2.9 | 2.9 | 3.8 | 2.5 | 2.5 | 2.5 | 1.2 | 0.0 | 0.0 | 0.1 | 2,854 | -52 | 365 | 417 |
| 52 | 1.5 | 1.5 | 3.8 | 2.5 | 2.5 | 2.5 | 1.2 | 0.0 | 0.0 | 0.1 | 2,926 | -91 | 362 | 453 |
| 53 | 2.9 | 2.9 | 3.8 | 2.5 | 2.5 | 2.5 | 1.3 | 0.0 | 0.1 | 0.1 | 2,798 | -34 | 365 | 399 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 54 | 2.9 | 2.9 | 3.8 | 2.6 | 2.6 | 2.5 | 1.2 | 0.0 | 0.1 | 0.0 | 2,533 | 96 | 381 | 285 |
| 55 | 2.2 | 2.2 | 3.8 | 2.6 | 2.5 | 2.5 | 1.2 | 0.0 | 0.1 | 0.0 | 2,640 | 26 | 369 | 343 |
| 56 | 1.5 | 1.5 | 3.7 | 2.3 | 2.3 | 2.2 | 1.5 | 0.0 | 0.0 | 0.0 | 5,288 | -202 | 398 | 601 |
| 58 | 3.5 | 3.5 | 4.0 | 2.9 | 2.8 | 2.8 | 1.1 | 0.0 | 0.1 | 0.0 | 1,293 | 127 | 212 | 85 |
| 60 | 2.9 | 2.8 | 3.5 | 3.1 | 3.1 | 3.1 | 0.4 | 0.0 | 0.0 | 0.0 | 465 | -11 | 61 | 72 |
| 61 | 1.6 | 1.6 | 3.5 | 3.1 | 3.1 | 3.1 | 0.3 | 0.0 | 0.0 | 0.0 | 396 | -3 | 56 | 59 |
| 62 | 0.57 | 0.58 | 3.4 | 3.0 | 3.0 | 3.0 | 0.4 | 0.0 | 0.0 | 0.0 | 532 | -5 | 72 | 77 |
| 63 | 0.86 | 0.85 | 3.5 | 3.1 | 3.1 | 3.1 | 0.4 | 0.0 | 0.0 | 0.0 | 431 | -3 | 59 | 61 |
| 64 | 0.85 | 0.85 | 3.5 | 3.1 | 3.1 | 3.1 | 0.4 | 0.0 | 0.0 | 0.0 | 454 | -1 | 61 | 63 |
| 65 | 0.71 | 0.71 | 3.5 | 3.1 | 3.1 | 3.1 | 0.3 | 0.0 | 0.0 | 0.0 | 394 | -2 | 60 | 61 |
| 66 | 1.3 | 1.3 | 3.5 | 3.2 | 3.2 | 3.1 | 0.3 | 0.0 | 0.0 | 0.0 | 368 | -2 | 60 | 62 |
| 67 | 1.3 | 1.3 | 3.5 | 3.1 | 3.1 | 3.1 | 0.4 | 0.0 | 0.0 | 0.0 | 417 | -11 | 59 | 70 |
| 68 | 0.64 | 0.65 | 3.5 | 3.1 | 3.1 | 3.1 | 0.3 | 0.0 | 0.0 | 0.0 | 397 | -9 | 67 | 76 |
| 69 | 1.4 | 1.4 | 3.4 | 3.1 | 3.1 | 3.0 | 0.3 | 0.0 | 0.0 | 0.0 | 464 | -2 | 64 | 66 |
| 78 | 4.0 | 4.0 | 3.9 | 3.0 | 3.0 | 2.4 | 0.9 | 0.0 | 0.6 | 0.5 | 927 | 28 | 2,709 | 2,681 |
| 79 | 5.7 | 5.7 | 4.0 | 2.5 | 2.5 | 2.5 | 1.4 | 0.0 | 0.0 | 0.0 | 2,856 | -15 | 285 | 300 |
| 80 | 2.4 | 2.4 | 3.9 | 2.9 | 2.9 | 2.9 | 1.0 | 0.0 | 0.1 | 0.1 | 1,003 | 65 | 227 | 162 |
| 81 | 0.18 | 0.21 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 469 | 8 | 113 | 105 |
| 82 | 0.069 | 0.28 | 4.2 | 3.5 | 3.5 | 3.4 | 0.7 | 0.0 | 0.1 | 0.1 | 284 | 3 | 77 | 75 |
| 83 | 0.19 | 0.4 | 4.2 | 3.5 | 3.5 | 3.4 | 0.7 | 0.0 | 0.1 | 0.1 | 246 | 3 | 71 | 69 |
| 84 | 0.58 | 0.68 | 4.1 | 3.5 | 3.5 | 3.4 | 0.6 | 0.0 | 0.1 | 0.1 | 246 | 1 | 74 | 72 |
| 85 | 1.3 | 1.2 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 199 | 3 | 63 | 60 |
| 86 | 1.1 | 0.84 | 4.0 | 3.5 | 3.5 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 183 | 3 | 60 | 57 |
| 87 | 0.65 | 0.68 | 4.0 | 3.5 | 3.5 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 183 | 3 | 60 | 57 |
| 88 | 1.2 | 1.1 | 4.0 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 164 | 3 | 54 | 51 |
| 89 | 2.7 | 2.5 | 3.8 | 3.5 | 3.5 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 143 | 3 | 69 | 66 |
| 91 | 0.22 | 0.24 | 3.6 | 3.3 | 3.3 | 3.2 | 0.3 | 0.0 | 0.1 | 0.1 | 244 | 3 | 120 | 118 |
| 92 | 0.071 | 0.11 | 3.9 | 3.5 | 3.5 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 197 | 5 | 77 | 72 |
| 93 | 0.076 | 0.11 | 3.7 | 3.5 | 3.5 | 3.4 | 0.2 | 0.0 | 0.1 | 0.1 | 135 | 4 | 86 | 82 |
| 95 | 0.072 | 0.14 | 3.8 | 3.6 | 3.6 | 3.5 | 0.2 | 0.0 | 0.1 | 0.1 | 113 | 4 | 50 | 46 |
| 96 | -0.013 | 0.1 | 3.9 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 100 | 1 | 42 | 40 |
| 97 | -0.084 | 0.0074 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 110 | 3 | 44 | 41 |
| 98 | 0.093 | 0.094 | 3.1 | 2.6 | 2.6 | 2.5 | 0.5 | 0.0 | 0.1 | 0.1 | 1,501 | 46 | 553 | 506 |
| 99 | 1.0 | 1.0 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 238 | 9 | 98 | 90 |
| 100 | 0.37 | 0.43 | 3.9 | 3.5 | 3.5 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 146 | 0 | 56 | 56 |
| 101 | 0.29 | 0.36 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 122 | 3 | 53 | 50 |
| 102 | 1.8 | 1.8 | 3.8 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 278 | 8 | 118 | 110 |
| 103 | 2.2 | 2.2 | 4.0 | 3.3 | 3.3 | 3.2 | 0.7 | 0.0 | 0.1 | 0.1 | 414 | 11 | 153 | 142 |
| 104 | 2.1 | 2.0 | 4.1 | 3.5 | 3.5 | 3.4 | 0.6 | 0.0 | 0.1 | 0.1 | 247 | 5 | 79 | 74 |
| 105 | 0.18 | 0.23 | 4.2 | 3.7 | 3.7 | 3.6 | 0.5 | 0.0 | 0.1 | 0.1 | 132 | 4 | 46 | 42 |
| 106 | 0.42 | 0.51 | 4.1 | 3.7 | 3.7 | 3.6 | 0.4 | 0.0 | 0.1 | 0.1 | 111 | 3 | 42 | 39 |
| 107 | 0.41 | 0.46 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 111 | 2 | 48 | 46 |
| 108 | 0.72 | 0.73 | 4.2 | 3.8 | 3.8 | 3.7 | 0.4 | 0.0 | 0.1 | 0.1 | 95 | 2 | 37 | 35 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 109 | 1.1 | 1.1 | 3.6 | 3.0 | 3.0 | 2.9 | 0.6 | 0.0 | 0.1 | 0.1 | 683 | 9 | 253 | 244 |
| 110 | 1.7 | 1.6 | 3.6 | 3.1 | 3.1 | 3.0 | 0.5 | 0.0 | 0.1 | 0.1 | 470 | 4 | 170 | 167 |
| 115 | -0.068 | 0.15 | 4.1 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 157 | 1 | 64 | 63 |
| 116 | -0.1 | 0.046 | 3.9 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 225 | 2 | 96 | 94 |
| 117 | 0.0093 | 0.088 | 3.8 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 293 | 3 | 120 | 118 |
| 118 | -0.0049 | 0.082 | 3.9 | 3.5 | 3.5 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 214 | 1 | 87 | 86 |
| 119 | 0.4 | 0.56 | 3.8 | 3.6 | 3.6 | 3.5 | 0.2 | 0.0 | 0.1 | 0.1 | 79 | -1 | 74 | 75 |
| 120 | 0.19 | 0.29 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 67 | 0 | 71 | 70 |
| 121 | 0.023 | 0.25 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 64 | 0 | 43 | 43 |
| 122 | 0.084 | 0.14 | 3.8 | 3.5 | 3.5 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 156 | 3 | 92 | 89 |
| 129 | 0.46 | 0.59 | 4.0 | 3.3 | 3.3 | 3.2 | 0.7 | 0.0 | 0.1 | 0.1 | 399 | 4 | 146 | 142 |
| 130 | 1.4 | 1.4 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 222 | 1 | 91 | 89 |
| 131 | 2.0 | 2.1 | 4.1 | 3.8 | 3.8 | 3.7 | 0.3 | 0.0 | 0.1 | 0.1 | 72 | 0 | 42 | 42 |
| 132 | 2.7 | 2.7 | 3.8 | 3.5 | 3.5 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 161 | 1 | 58 | 57 |
| 134 | 0.85 | 0.9 | 4.0 | 3.4 | 3.4 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 273 | 4 | 100 | 96 |
| 135 | 1.6 | 1.4 | 4.0 | 3.6 | 3.5 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 190 | 2 | 63 | 61 |
| 136 | 1.3 | 1.3 | 3.9 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 156 | 1 | 70 | 69 |
| 137 | 0.77 | 0.89 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 68 | -1 | 63 | 64 |
| 138 | 0.81 | 0.83 | 3.6 | 3.4 | 3.4 | 3.4 | 0.2 | 0.0 | 0.1 | 0.1 | 121 | -3 | 71 | 74 |
| 139 | 1.9 | 1.6 | 3.9 | 3.4 | 3.4 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 224 | 2 | 86 | 85 |
| 140 | 0.65 | 0.76 | 4.1 | 3.4 | 3.4 | 3.3 | 0.7 | 0.0 | 0.1 | 0.1 | 330 | 3 | 107 | 104 |
| 141 | 1.3 | 1.2 | 3.9 | 3.2 | 3.2 | 3.1 | 0.7 | 0.0 | 0.1 | 0.1 | 497 | 4 | 228 | 223 |
| 142 | 1.3 | 1.0 | 3.9 | 3.3 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 332 | 4 | 125 | 121 |
| 143 | -0.054 | 0.042 | 3.8 | 3.3 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 304 | 4 | 129 | 125 |
| 144 | 0.033 | 0.10 | 3.8 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 260 | 2 | 143 | 141 |
| 145 | 0.016 | 0.16 | 3.9 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 222 | 2 | 100 | 98 |
| 146 | 0.13 | 0.2 | 3.7 | 3.4 | 3.4 | 3.3 | 0.3 | 0.0 | 0.1 | 0.1 | 180 | 1 | 101 | 99 |
| 147 | 0.26 | 0.3 | 3.6 | 3.2 | 3.2 | 3.1 | 0.5 | 0.0 | 0.1 | 0.1 | 459 | 0 | 163 | 163 |
| 148 | 1.3 | 1.2 | 4.0 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 159 | 5 | 82 | 76 |
| 149 | 0.81 | 0.85 | 4.1 | 3.2 | 3.2 | 3.2 | 0.9 | 0.0 | 0.1 | 0.1 | 539 | -4 | 87 | 91 |
| 150 | -0.019 | 0.25 | 4.1 | 3.4 | 3.4 | 3.3 | 0.7 | 0.0 | 0.1 | 0.1 | 306 | 4 | 85 | 82 |
| 151 | 0.23 | 0.36 | 4.4 | 3.8 | 3.8 | 3.7 | 0.6 | 0.0 | 0.1 | 0.1 | 117 | 5 | 53 | 47 |
| 152 | 0.15 | 0.31 | 4.1 | 3.4 | 3.4 | 3.3 | 0.7 | 0.0 | 0.1 | 0.1 | 332 | 8 | 78 | 70 |
| 153 | 1.0 | 1.1 | 3.9 | 3.3 | 3.3 | 3.1 | 0.6 | 0.0 | 0.1 | 0.1 | 393 | 13 | 196 | 184 |
| 154 | 0.63 | 0.69 | 3.9 | 3.3 | 3.3 | 3.2 | 0.6 | 0.0 | 0.1 | 0.1 | 395 | 5 | 143 | 137 |
| 155 | 0.3 | 0.42 | 4.0 | 3.2 | 3.2 | 3.1 | 0.8 | 0.0 | 0.1 | 0.1 | 490 | 1 | 155 | 154 |
| 156 | 0.92 | 1.0 | 4.0 | 3.4 | 3.3 | 3.3 | 0.7 | 0.0 | 0.1 | 0.1 | 353 | 4 | 118 | 115 |
| 161 | 0.1 | 0.13 | 3.3 | 3.1 | 3.1 | 3.0 | 0.2 | 0.0 | 0.1 | 0.1 | 242 | 2 | 280 | 278 |
| 167 | 1.8 | 1.7 | 3.8 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 255 | 2 | 94 | 91 |
| 168 | 2.9 | 2.7 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 199 | 1 | 74 | 74 |
| 169 | 1.5 | 1.5 | 3.6 | 3.2 | 3.2 | 3.1 | 0.4 | 0.0 | 0.1 | 0.1 | 392 | 5 | 154 | 149 |
| 170 | 1.1 | 0.94 | 3.6 | 3.1 | 3.1 | 3.0 | 0.4 | 0.0 | 0.1 | 0.1 | 470 | 4 | 194 | 190 |
| 171 | 0.63 | 0.63 | 3.2 | 2.8 | 2.8 | 2.7 | 0.4 | 0.0 | 0.1 | 0.1 | 1,085 | 4 | 400 | 396 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 172 | 2.0 | 1.9 | 3.7 | 3.3 | 3.3 | 3.2 | 0.4 | 0.0 | 0.1 | 0.1 | 318 | 1 | 119 | 118 |
| 173 | 1.5 | 1.4 | 3.7 | 3.3 | 3.3 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 275 | 2 | 99 | 96 |
| 174 | 0.87 | 0.92 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 228 | 2 | 88 | 86 |
| 175 | 3.8 | 3.8 | 3.9 | 3.3 | 3.3 | 3.2 | 0.6 | 0.0 | 0.1 | 0.1 | 338 | 4 | 100 | 95 |
| 176 | 2.4 | 2.4 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 287 | 2 | 96 | 94 |
| 177 | 0.19 | 0.24 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 265 | 3 | 107 | 105 |
| 178 | -0.095 | 0.03 | 4.0 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 179 | 2 | 78 | 77 |
| 179 | -0.06 | 0.053 | 3.9 | 3.5 | 3.5 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 203 | 2 | 99 | 97 |
| 180 | 0.2 | 0.33 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 201 | -1 | 84 | 86 |
| 181 | 2.2 | 2.2 | 3.8 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 266 | 2 | 97 | 95 |
| 182 | 1.8 | 1.8 | 3.8 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 252 | 2 | 91 | 89 |
| 183 | 1.7 | 1.6 | 3.6 | 3.2 | 3.2 | 3.1 | 0.4 | 0.0 | 0.1 | 0.1 | 377 | 2 | 138 | 136 |
| 184 | 2.0 | 1.9 | 3.8 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 252 | 2 | 93 | 91 |
| 185 | 1.4 | 1.4 | 3.8 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 237 | 2 | 87 | 85 |
| 186 | 2.7 | 2.7 | 3.9 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 237 | 2 | 122 | 120 |
| 187 | 1.9 | 1.9 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 53 | 2 | 51 | 49 |
| 188 | 1.2 | 1.2 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 62 | 0 | 68 | 68 |
| 189 | 1.6 | 1.4 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 64 | 0 | 67 | 67 |
| 190 | 0.19 | 0.33 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 70 | 0 | 67 | 66 |
| 191 | 0.17 | 0.24 | 3.7 | 3.5 | 3.5 | 3.4 | 0.2 | 0.0 | 0.1 | 0.1 | 108 | 1 | 114 | 113 |
| 193 | 1.1 | 0.91 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 63 | 0 | 81 | 80 |
| 194 | 0.53 | 0.56 | 3.8 | 3.5 | 3.5 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 152 | 2 | 81 | 79 |
| 195 | 0.61 | 0.7 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 123 | 1 | 64 | 63 |
| 196 | 0.56 | 0.63 | 3.9 | 3.5 | 3.5 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 142 | 1 | 75 | 73 |
| 197 | 0.62 | 0.72 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 114 | 1 | 64 | 63 |
| 198 | 0.75 | 0.87 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 103 | 1 | 53 | 52 |
| 199 | 0.49 | 0.59 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 105 | 1 | 61 | 60 |
| 200 | 0.25 | 0.4 | 3.8 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 65 | 0 | 45 | 44 |
| 201 | 1.1 | 1.2 | 4.0 | 3.8 | 3.8 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 74 | 1 | 48 | 47 |
| 202 | 1.2 | 1.3 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 123 | 1 | 70 | 69 |
| 203 | 0.74 | 0.82 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 100 | 0 | 54 | 54 |
| 204 | 0.87 | 0.92 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 95 | 0 | 54 | 54 |
| 205 | 3.1 | 3.0 | 4.0 | 3.8 | 3.8 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 78 | 1 | 49 | 48 |
| 206 | 3.1 | 3.1 | 4.0 | 3.8 | 3.8 | 3.7 | 0.2 | 0.0 | 0.1 | 0.1 | 75 | 1 | 47 | 47 |
| 207 | 2.2 | 2.2 | 4.0 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 84 | 1 | 51 | 51 |
| 208 | 1.0 | 1.1 | 4.0 | 3.8 | 3.8 | 3.7 | 0.2 | 0.0 | 0.1 | 0.1 | 63 | 1 | 43 | 42 |
| 209 | 0.29 | 0.45 | 3.9 | 3.7 | 3.7 | 3.7 | 0.1 | 0.0 | 0.1 | 0.1 | 46 | 0 | 45 | 44 |
| 210 | 0.25 | 0.36 | 3.8 | 3.6 | 3.6 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 68 | 2 | 45 | 44 |
| 211 | 0.56 | 0.64 | 3.8 | 3.6 | 3.6 | 3.5 | 0.2 | 0.0 | 0.1 | 0.1 | 75 | 0 | 50 | 50 |
| 212 | 0.58 | 0.68 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 60 | 0 | 40 | 39 |
| 213 | 0.47 | 0.57 | 3.8 | 3.6 | 3.6 | 3.6 | 0.1 | 0.0 | 0.1 | 0.1 | 66 | 1 | 42 | 42 |
| 214 | 0.55 | 0.63 | 3.8 | 3.7 | 3.7 | 3.6 | 0.1 | 0.0 | 0.1 | 0.1 | 54 | 2 | 35 | 33 |
| 215 | 1.0 | 1.1 | 3.8 | 3.7 | 3.7 | 3.6 | 0.1 | 0.0 | 0.1 | 0.1 | 56 | 2 | 35 | 33 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 216 | 0.72 | 0.66 | 3.5 | 3.4 | 3.4 | 3.3 | 0.1 | 0.0 | 0.1 | 0.1 | 121 | 2 | 77 | 75 |
| 217 | 1.4 | 1.4 | 3.8 | 3.7 | 3.7 | 3.6 | 0.1 | 0.0 | 0.1 | 0.1 | 55 | 1 | 34 | 33 |
| 218 | 1.0 | 1.2 | 4.1 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 92 | 1 | 68 | 67 |
| 219 | 1.1 | 1.2 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 93 | 1 | 54 | 53 |
| 220 | 0.84 | 0.88 | 4.0 | 3.7 | 3.7 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 111 | 1 | 64 | 63 |
| 221 | 0.28 | 0.32 | 3.7 | 3.4 | 3.4 | 3.2 | 0.3 | 0.0 | 0.1 | 0.1 | 226 | 2 | 174 | 173 |
| 222 | 1.0 | 1.0 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 121 | 1 | 59 | 58 |
| 223 | 1.3 | 1.4 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 85 | 1 | 49 | 48 |
| 224 | 0.24 | 0.28 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 117 | 2 | 68 | 66 |
| 225 | 0.23 | 0.28 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 117 | 1 | 68 | 67 |
| 226 | 1.4 | 1.4 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 116 | 1 | 66 | 65 |
| 227 | 2.2 | 2.0 | 3.8 | 3.4 | 3.3 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 281 | 12 | 109 | 97 |
| 228 | 1.9 | 1.8 | 3.8 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 248 | 3 | 97 | 94 |
| 229 | 1.9 | 1.7 | 3.9 | 3.4 | 3.4 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 222 | 2 | 87 | 84 |
| 230 | 1.4 | 1.4 | 3.9 | 3.5 | 3.5 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 215 | 1 | 82 | 81 |
| 231 | 0.84 | 0.86 | 3.9 | 3.4 | 3.4 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 236 | 2 | 83 | 81 |
| 232 | 1.3 | 1.3 | 3.9 | 3.5 | 3.5 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 209 | 2 | 72 | 70 |
| 233 | 1.3 | 1.3 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 284 | -18 | 107 | 125 |
| 234 | 2.5 | 2.4 | 4.0 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 158 | 1 | 59 | 58 |
| 235 | 1.7 | 1.6 | 3.9 | 3.5 | 3.5 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 194 | 1 | 72 | 70 |
| 236 | 1.2 | 1.2 | 3.9 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 148 | 2 | 55 | 53 |
| 237 | 2.3 | 2.3 | 3.7 | 3.4 | 3.4 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 184 | 3 | 70 | 67 |
| 238 | 2.0 | 1.7 | 3.7 | 3.5 | 3.4 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 161 | 2 | 58 | 56 |
| 239 | 1.2 | 1.2 | 3.4 | 3.1 | 3.1 | 3.0 | 0.3 | 0.0 | 0.1 | 0.1 | 371 | 3 | 145 | 143 |
| 240 | 2.2 | 2.2 | 3.6 | 3.2 | 3.2 | 3.2 | 0.4 | 0.0 | 0.1 | 0.1 | 317 | -6 | 128 | 133 |
| 241 | 2.3 | 2.3 | 3.7 | 3.3 | 3.3 | 3.2 | 0.4 | 0.0 | 0.1 | 0.1 | 299 | 0 | 121 | 121 |
| 242 | 0.98 | 0.95 | 3.7 | 3.5 | 3.5 | 3.4 | 0.2 | 0.0 | 0.1 | 0.1 | 108 | -1 | 64 | 65 |
| 243 | 1.1 | 1.1 | 3.7 | 3.5 | 3.5 | 3.4 | 0.2 | 0.0 | 0.1 | 0.1 | 114 | -1 | 62 | 63 |
| 244 | 1.9 | 1.9 | 3.8 | 3.5 | 3.5 | 3.4 | 0.3 | 0.0 | 0.1 | 0.1 | 140 | -1 | 63 | 64 |
| 245 | 0.71 | 0.74 | 3.7 | 3.5 | 3.5 | 3.4 | 0.2 | 0.0 | 0.1 | 0.1 | 105 | 0 | 56 | 56 |
| 246 | 0.69 | 0.71 | 3.7 | 3.5 | 3.5 | 3.4 | 0.2 | 0.0 | 0.1 | 0.1 | 98 | -1 | 50 | 51 |
| 247 | 1.6 | 1.6 | 3.7 | 3.6 | 3.6 | 3.5 | 0.2 | 0.0 | 0.1 | 0.1 | 86 | 1 | 44 | 43 |
| 248 | 0.57 | 0.56 | 3.2 | 3.0 | 3.0 | 2.9 | 0.2 | 0.0 | 0.1 | 0.1 | 341 | 6 | 157 | 151 |
| 249 | 0.49 | 0.48 | 3.2 | 3.1 | 3.1 | 3.0 | 0.2 | 0.0 | 0.1 | 0.1 | 261 | 3 | 127 | 124 |
| 250 | 1.7 | 1.6 | 3.7 | 3.5 | 3.5 | 3.5 | 0.2 | 0.0 | 0.1 | 0.1 | 102 | 2 | 42 | 40 |
| 251 | 1.1 | 1.1 | 3.6 | 3.5 | 3.5 | 3.4 | 0.1 | 0.0 | 0.1 | 0.1 | 98 | 1 | 45 | 44 |
| 252 | 0.82 | 0.83 | 3.6 | 3.4 | 3.4 | 3.4 | 0.1 | 0.0 | 0.0 | 0.0 | 93 | 1 | 36 | 34 |
| 253 | 3.4 | 3.4 | 3.7 | 3.6 | 3.5 | 3.5 | 0.1 | 0.0 | 0.0 | 0.0 | 71 | 1 | 31 | 31 |
| 254 | 2.1 | 1.8 | 3.5 | 3.4 | 3.4 | 3.4 | 0.1 | 0.0 | 0.0 | 0.0 | 93 | 1 | 40 | 39 |
| 255 | 4.0 | 3.9 | 3.7 | 3.6 | 3.6 | 3.6 | 0.1 | 0.0 | 0.0 | 0.0 | 58 | 1 | 25 | 24 |
| 256 | 4.3 | 4.2 | 3.7 | 3.6 | 3.6 | 3.5 | 0.1 | 0.0 | 0.0 | 0.0 | 71 | 1 | 27 | 27 |
| 257 | 4.1 | 3.9 | 3.7 | 3.6 | 3.6 | 3.5 | 0.1 | 0.0 | 0.0 | 0.0 | 78 | 0 | 29 | 29 |
| 258 | 4.0 | 3.9 | 3.7 | 3.5 | 3.5 | 3.5 | 0.2 | 0.0 | 0.0 | 0.0 | 92 | 1 | 34 | 33 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 259 | 4.2 | 3.9 | 3.7 | 3.6 | 3.6 | 3.5 | 0.2 | 0.0 | 0.0 | 0.0 | 87 | 1 | 31 | 30 |
| 260 | 1.3 | 1.3 | 3.7 | 3.2 | 3.2 | 3.1 | 0.5 | 0.0 | 0.1 | 0.1 | 435 | 24 | 229 | 204 |
| 261 | 1.9 | 1.9 | 3.8 | 3.4 | 3.4 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 282 | 16 | 149 | 133 |
| 262 | 1.7 | 1.7 | 3.9 | 3.4 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 303 | 19 | 174 | 154 |
| 263 | 0.69 | 0.7 | 3.5 | 3.1 | 3.1 | 2.9 | 0.5 | 0.0 | 0.1 | 0.1 | 565 | 32 | 301 | 269 |
| 264 | - | 0.33 | 3.4 | 2.9 | 2.9 | 2.8 | 0.5 | 0.0 | 0.1 | 0.1 | 829 | 41 | 394 | 353 |
| 265 | - | 0.43 | 3.6 | 3.1 | 3.1 | 2.9 | 0.5 | 0.0 | 0.1 | 0.1 | 594 | 28 | 276 | 248 |
| 266 | 0.65 | 0.66 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 212 | 9 | 94 | 85 |
| 267 | 0.43 | 0.43 | 3.7 | 3.2 | 3.2 | 3.1 | 0.5 | 0.0 | 0.1 | 0.1 | 421 | 16 | 175 | 159 |
| 268 | - | 1.2 | 3.9 | 3.5 | 3.4 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 236 | 9 | 94 | 86 |
| 269 | 1.5 | 1.5 | 4.1 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 177 | 6 | 70 | 63 |
| 270 | - | 0.88 | 3.9 | 3.4 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 309 | 12 | 130 | 118 |
| 271 | - | 1.1 | 3.8 | 3.3 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 324 | 10 | 123 | 113 |
| 272 | 1.7 | 1.7 | 4.1 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 153 | 4 | 55 | 52 |
| 273 | - | 0.81 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 243 | 7 | 88 | 81 |
| 274 | 1.4 | 1.4 | 3.9 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 218 | 6 | 79 | 73 |
| 275 | 0.32 | 0.36 | 4.2 | 3.8 | 3.7 | 3.7 | 0.5 | 0.0 | 0.1 | 0.1 | 119 | 3 | 40 | 37 |
| 276 | - | 0.79 | 3.8 | 3.3 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 321 | 10 | 118 | 109 |
| 277 | 0.87 | 0.78 | 4.1 | 3.5 | 3.4 | 3.4 | 0.6 | 0.0 | 0.1 | 0.1 | 263 | 7 | 93 | 87 |
| 278 | 2.6 | 2.5 | 4.1 | 3.4 | 3.3 | 3.2 | 0.7 | 0.0 | 0.1 | 0.1 | 356 | 9 | 123 | 115 |
| 279 | 1.8 | 1.8 | 4.0 | 3.4 | 3.4 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 295 | 6 | 95 | 89 |
| 280 | 1.6 | 1.6 | 4.1 | 3.5 | 3.5 | 3.4 | 0.6 | 0.0 | 0.1 | 0.1 | 243 | 5 | 77 | 72 |
| 281 | 1.1 | 1.0 | 3.8 | 3.2 | 3.2 | 3.1 | 0.6 | 0.0 | 0.1 | 0.1 | 466 | 10 | 149 | 140 |
| 282 | 0.69 | 0.69 | 3.6 | 2.9 | 2.9 | 2.8 | 0.7 | 0.0 | 0.1 | 0.1 | 998 | 24 | 319 | 295 |
| 283 | 1.5 | 1.5 | 4.1 | 3.2 | 3.2 | 3.1 | 0.8 | 0.0 | 0.1 | 0.1 | 505 | 10 | 154 | 144 |
| 284 | 0.71 | 0.74 | 4.0 | 3.6 | 3.5 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 182 | 3 | 56 | 53 |
| 299 | 2.5 | 2.4 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 73 | 1 | 36 | 35 |
| 300 | 0.27 | 0.26 | 2.6 | 2.3 | 2.3 | 2.3 | 0.2 | 0.0 | 0.1 | 0.1 | 1,889 | 36 | 948 | 911 |
| 301 | 0.28 | 0.26 | 2.8 | 2.6 | 2.6 | 2.5 | 0.2 | 0.0 | 0.1 | 0.1 | 984 | 30 | 534 | 504 |
| 302 | 1.7 | 1.2 | 3.8 | 3.6 | 3.6 | 3.5 | 0.2 | 0.0 | 0.1 | 0.1 | 102 | 2 | 55 | 53 |
| 304 | 1.3 | 1.3 | 3.6 | 3.3 | 3.3 | 3.3 | 0.2 | 0.0 | 0.1 | 0.1 | 192 | 2 | 112 | 110 |
| 306 | 0.61 | 0.68 | 3.8 | 3.6 | 3.6 | 3.5 | 0.1 | 0.0 | 0.1 | 0.1 | 64 | 1 | 71 | 70 |
| 314 | 1.5 | 1.5 | 3.7 | 3.6 | 3.6 | 3.5 | 0.1 | 0.0 | 0.1 | 0.1 | 64 | 2 | 39 | 38 |
| 316 | 2.3 | 2.2 | 4.0 | 3.8 | 3.7 | 3.7 | 0.2 | 0.0 | 0.1 | 0.1 | 77 | 2 | 45 | 44 |
| 317 | - | 1.5 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 427 | 0 | 94 | 94 |
| 318 | - | 1.2 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 404 | 11 | 104 | 93 |
| 319 | 1.3 | 1.4 | 4.1 | 3.4 | 3.4 | 3.3 | 0.7 | 0.0 | 0.1 | 0.1 | 292 | 3 | 89 | 86 |
| 320 | 2.0 | 1.9 | 4.1 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 189 | 2 | 74 | 72 |
| 321 | 0.55 | 0.5 | 4.0 | 3.5 | 3.5 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 185 | 3 | 57 | 54 |
| 322 | 1.0 | 1.1 | 4.0 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 162 | 3 | 58 | 54 |
| 323 | 0.91 | 0.93 | 4.1 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 171 | 5 | 61 | 57 |
| 324 | 0.93 | 0.94 | 4.1 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 149 | 3 | 61 | 58 |
| 325 | 0.35 | 0.35 | 3.7 | 3.3 | 3.3 | 3.2 | 0.4 | 0.0 | 0.1 | 0.1 | 317 | 9 | 127 | 118 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 326 | 0.89 | 0.89 | 4.1 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 146 | 3 | 55 | 52 |
| 327 | 0.65 | 0.68 | 4.0 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 159 | 5 | 66 | 60 |
| 328 | 0.78 | 0.82 | 4.1 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 147 | 5 | 61 | 56 |
| 329 | 2.5 | 2.5 | 3.7 | 2.4 | 2.4 | 2.4 | 1.2 | 0.0 | 0.0 | 0.1 | 3,425 | -69 | 393 | 462 |
| 330 | 0.6 | 0.61 | 3.8 | 3.3 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 341 | 12 | 132 | 121 |
| 331 | 0.88 | 0.88 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 281 | 10 | 114 | 104 |
| 332 | 0.1 | 0.098 | 3.0 | 2.4 | 2.4 | 2.3 | 0.5 | 0.0 | 0.1 | 0.1 | 2,512 | 101 | 1,085 | 983 |
| 333 | 0.88 | 0.88 | 4.0 | 3.4 | 3.4 | 3.2 | 0.6 | 0.0 | 0.1 | 0.1 | 321 | 14 | 142 | 129 |
| 334 | 0.93 | 0.98 | 4.1 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 151 | 5 | 61 | 56 |
| 335 | 0.39 | 0.45 | 3.8 | 3.5 | 3.5 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 147 | 0 | 57 | 57 |
| 336 | 1.3 | 1.1 | 3.9 | 3.5 | 3.5 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 178 | 2 | 110 | 108 |
| 337 | 1.2 | 1.3 | 3.9 | 3.6 | 3.6 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 157 | 1 | 106 | 104 |
| 338 | 4.3 | 4.4 | 4.0 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.2 | 0.2 | 126 | 0 | 99 | 99 |
| 339 | 4.6 | 4.7 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 108 | -2 | 60 | 62 |
| 340 | 1.9 | 1.9 | 4.0 | 3.7 | 3.7 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 89 | 2 | 46 | 45 |
| 341 | 1.1 | 1.2 | 4.1 | 3.8 | 3.8 | 3.7 | 0.3 | 0.0 | 0.1 | 0.1 | 71 | 1 | 36 | 35 |
| 342 | 1.1 | 1.1 | 3.8 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 67 | 2 | 43 | 40 |
| 343 | 0.82 | 0.61 | 3.7 | 3.6 | 3.6 | 3.5 | 0.1 | 0.0 | 0.1 | 0.1 | 77 | 3 | 56 | 53 |
| 344 | 0.34 | 0.4 | 4.0 | 3.6 | 3.6 | 3.6 | 0.3 | 0.0 | 0.1 | 0.1 | 118 | 1 | 48 | 47 |
| 345 | 1.7 | 1.7 | 4.0 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 168 | 5 | 67 | 62 |
| 346 | 0.9 | 0.92 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 235 | 4 | 92 | 88 |
| 347 | 0.048 | 0.048 | 2.9 | 2.5 | 2.5 | 2.5 | 0.4 | 0.0 | 0.1 | 0.1 | 1,718 | 57 | 662 | 604 |
| 348 | 0.24 | 0.26 | 3.8 | 3.4 | 3.4 | 3.3 | 0.4 | 0.0 | 0.1 | 0.1 | 240 | 7 | 90 | 83 |
| 349 | 0.21 | 0.22 | 4.1 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 155 | 4 | 55 | 51 |
| 350 | 0.22 | 0.23 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 213 | 7 | 76 | 69 |
| 351 | 0.15 | 0.24 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 150 | 4 | 56 | 52 |
| 352 | 1.3 | 1.3 | 3.9 | 3.5 | 3.5 | 3.4 | 0.4 | 0.0 | 0.1 | 0.1 | 172 | 5 | 66 | 61 |
| 373 | - | 2.5 | 4.0 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 74 | 2 | 38 | 37 |
| 374 | - | 1.8 | 3.9 | 3.7 | 3.7 | 3.6 | 0.2 | 0.0 | 0.1 | 0.1 | 77 | 1 | 37 | 36 |
| 405 | 1.2 | 1.2 | 4.0 | 3.4 | 3.4 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 306 | 4 | 109 | 105 |
| 406 | 1.5 | 1.6 | 4.1 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 159 | 5 | 72 | 67 |
| 407 | 2.3 | 2.4 | 4.1 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 142 | 4 | 69 | 65 |
| 408 | 1.5 | 1.7 | 4.1 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 156 | 4 | 64 | 59 |
| 409 | 2.0 | 2.1 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 192 | 6 | 77 | 71 |
| 410 | 1.5 | 1.5 | 4.0 | 3.6 | 3.5 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 188 | 5 | 76 | 71 |
| 411 | 3.3 | 3.2 | 3.9 | 3.0 | 3.0 | 2.4 | 0.9 | 0.0 | 0.6 | 0.6 | 851 | 27 | 3,151 | 3,123 |
| 412 | 1.0 | 1.1 | 4.3 | 3.8 | 3.8 | 3.7 | 0.5 | 0.0 | 0.1 | 0.1 | 105 | 4 | 45 | 41 |
| 413 | 0.73 | 0.84 | 4.1 | 3.4 | 3.4 | 3.3 | 0.8 | 0.0 | 0.1 | 0.1 | 352 | 5 | 93 | 88 |
| 414 | 1.5 | 1.6 | 4.1 | 3.3 | 3.3 | 3.3 | 0.8 | 0.0 | 0.1 | 0.1 | 385 | 0 | 76 | 76 |
| 415 | 2.7 | 2.8 | 3.9 | 3.0 | 3.0 | 2.4 | 0.9 | 0.0 | 0.6 | 0.6 | 892 | 27 | 3,220 | 3,193 |
| 416 | 3.2 | 3.3 | 4.0 | 3.2 | 3.2 | 3.1 | 0.8 | 0.0 | 0.1 | 0.1 | 476 | 6 | 175 | 170 |
| 417 | 1.3 | 1.3 | 4.0 | 3.3 | 3.3 | 3.2 | 0.7 | 0.0 | 0.1 | 0.1 | 378 | 8 | 122 | 114 |
| 418 | 1.1 | 1.0 | 4.0 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 442 | 11 | 142 | 131 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 419 | 0.57 | 0.59 | 3.8 | 3.2 | 3.2 | 3.1 | 0.6 | 0.0 | 0.1 | 0.1 | 450 | 10 | 134 | 124 |
| 420 | 3.2 | 3.2 | 3.9 | 2.9 | 2.9 | 2.8 | 1.0 | 0.0 | 0.1 | 0.1 | 1,078 | 27 | 399 | 373 |
| 421 | 0.88 | 0.93 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 451 | 1 | 80 | 79 |
| 422 | 4.0 | 3.2 | 4.1 | 3.5 | 3.5 | 3.4 | 0.6 | 0.0 | 0.1 | 0.1 | 248 | 3 | 70 | 67 |
| 423 | 3.0 | 2.9 | 4.0 | 3.4 | 3.4 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 272 | 4 | 82 | 79 |
| 424 | 2.6 | 2.4 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 428 | 6 | 154 | 149 |
| 425 | 1.9 | 1.9 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 381 | 4 | 134 | 130 |
| 426 | 1.7 | 1.7 | 4.3 | 3.7 | 3.7 | 3.6 | 0.6 | 0.0 | 0.1 | 0.1 | 154 | 8 | 73 | 65 |
| 428 | 4.0 | 4.0 | 4.3 | 3.8 | 3.8 | 3.7 | 0.6 | 0.0 | 0.1 | 0.1 | 118 | 5 | 53 | 47 |
| 429 | 1.4 | 1.4 | 4.2 | 3.6 | 3.6 | 3.5 | 0.6 | 0.0 | 0.1 | 0.1 | 185 | 10 | 93 | 83 |
| 430 | 1.7 | 1.7 | 3.7 | 3.0 | 2.9 | 2.4 | 0.7 | 0.0 | 0.6 | 0.6 | 874 | 132 | 3,339 | 3,208 |
| 431 | 0.92 | 0.94 | 4.1 | 3.5 | 3.5 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 249 | 13 | 122 | 109 |
| 432 | 1.6 | 1.6 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 432 | -1 | 79 | 80 |
| 433 | 2.0 | 2.0 | 4.4 | 3.9 | 3.9 | 3.8 | 0.5 | 0.0 | 0.1 | 0.1 | 85 | 3 | 36 | 33 |
| 434 | 1.2 | 1.3 | 4.3 | 3.9 | 3.9 | 3.8 | 0.5 | 0.0 | 0.1 | 0.1 | 86 | 2 | 34 | 32 |
| 435 | 0.94 | 1.0 | 4.4 | 3.9 | 3.9 | 3.8 | 0.5 | 0.0 | 0.1 | 0.1 | 77 | 2 | 31 | 29 |
| 436 | 0.41 | 0.63 | 4.4 | 3.9 | 3.8 | 3.7 | 0.5 | 0.0 | 0.1 | 0.1 | 98 | 3 | 39 | 36 |
| 437 | 0.48 | 0.76 | 4.3 | 3.9 | 3.9 | 3.8 | 0.4 | 0.0 | 0.1 | 0.1 | 80 | 3 | 32 | 30 |
| 438 | 0.88 | 1.0 | 4.3 | 3.8 | 3.8 | 3.7 | 0.5 | 0.0 | 0.1 | 0.1 | 98 | 4 | 42 | 38 |
| 439 | 0.85 | 1.0 | 4.4 | 3.9 | 3.8 | 3.7 | 0.5 | 0.0 | 0.1 | 0.1 | 96 | 4 | 41 | 38 |
| 440 | 0.53 | 0.69 | 4.1 | 3.4 | 3.4 | 3.3 | 0.7 | 0.0 | 0.1 | 0.1 | 306 | 7 | 74 | 67 |
| 441 | 1.0 | 1.1 | 4.2 | 3.8 | 3.8 | 3.7 | 0.4 | 0.0 | 0.1 | 0.1 | 90 | 1 | 40 | 38 |
| 442 | 1.1 | 1.2 | 4.2 | 3.8 | 3.8 | 3.7 | 0.4 | 0.0 | 0.1 | 0.1 | 97 | 2 | 40 | 38 |
| 443 | 4.7 | 4.7 | 4.1 | 3.7 | 3.7 | 3.6 | 0.4 | 0.0 | 0.1 | 0.1 | 117 | 4 | 72 | 68 |
| 444 | 1.2 | 1.2 | 4.4 | 3.8 | 3.8 | 3.7 | 0.6 | 0.0 | 0.1 | 0.1 | 116 | 2 | 41 | 39 |
| 445 | 2.0 | 2.0 | 4.1 | 3.5 | 3.5 | 3.4 | 0.6 | 0.0 | 0.1 | 0.1 | 234 | 3 | 67 | 64 |
| 446 | 1.9 | 1.9 | 3.9 | 3.3 | 3.3 | 3.2 | 0.6 | 0.0 | 0.1 | 0.1 | 369 | 13 | 175 | 162 |
| 447 | 3.1 | 3.2 | 4.0 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 262 | 9 | 123 | 115 |
| 449 | 2.2 | 2.3 | 4.0 | 3.4 | 3.4 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 306 | 4 | 118 | 114 |
| 450 | 1.3 | 1.3 | 4.0 | 3.4 | 3.4 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 326 | 3 | 119 | 115 |
| 451 | 3.2 | 3.2 | 4.0 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 261 | 4 | 102 | 98 |
| 452 | 0.56 | 0.65 | 3.9 | 3.4 | 3.4 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 298 | 2 | 163 | 161 |
| 453 | 0.24 | 0.42 | 3.9 | 3.4 | 3.4 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 309 | 2 | 150 | 148 |
| 455 | 2.0 | 2.1 | 4.0 | 3.4 | 3.4 | 3.2 | 0.6 | 0.0 | 0.1 | 0.1 | 322 | 5 | 162 | 158 |
| 456 | 2.7 | 2.7 | 4.0 | 3.4 | 3.4 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 285 | 3 | 107 | 104 |
| 457 | 2.2 | 2.2 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 288 | 3 | 116 | 114 |
| 458 | 3.9 | 3.9 | 4.0 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 273 | 4 | 105 | 102 |
| 459 | 1.9 | 1.9 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 302 | 4 | 119 | 115 |
| 460 | 1.8 | 1.8 | 4.0 | 3.5 | 3.5 | 3.4 | 0.5 | 0.0 | 0.1 | 0.1 | 237 | 3 | 94 | 91 |
| 461 | 2.2 | 2.3 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 275 | 2 | 135 | 133 |
| 462 | 1.8 | 1.8 | 4.0 | 3.4 | 3.4 | 3.3 | 0.6 | 0.0 | 0.1 | 0.1 | 322 | 4 | 130 | 125 |
| 463 | 0.93 | 1.0 | 3.8 | 3.3 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 308 | 3 | 186 | 182 |
| 464 | -0.27 | -0.088 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 422 | -1 | 99 | 100 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 465 | 0.8 | 0.89 | 4.1 | 3.3 | 3.3 | 3.2 | 0.9 | 0.0 | 0.1 | 0.1 | 484 | 0 | 91 | 90 |
| 466 | 1.0 | 1.1 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 413 | 1 | 96 | 95 |
| 467 | 1.9 | 1.9 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 378 | 4 | 133 | 129 |
| 468 | 1.4 | 1.3 | 4.2 | 3.8 | 3.8 | 3.7 | 0.4 | 0.0 | 0.1 | 0.1 | 100 | 3 | 40 | 37 |
| 469 | 0.23 | 0.5 | 4.3 | 3.9 | 3.9 | 3.8 | 0.4 | 0.0 | 0.1 | 0.1 | 83 | 3 | 34 | 31 |
| 470 | 1.1 | 1.2 | 4.3 | 3.9 | 3.9 | 3.8 | 0.5 | 0.0 | 0.1 | 0.1 | 87 | 3 | 36 | 33 |
| 471 | 1.2 | 1.3 | 4.4 | 3.9 | 3.8 | 3.7 | 0.5 | 0.0 | 0.1 | 0.1 | 95 | 4 | 41 | 37 |
| 472 | 0.81 | 0.88 | 4.3 | 3.7 | 3.7 | 3.6 | 0.6 | 0.0 | 0.1 | 0.1 | 137 | 6 | 64 | 58 |
| 473 | 1.4 | 1.3 | 3.7 | 3.0 | 2.9 | 2.4 | 0.7 | 0.0 | 0.6 | 0.6 | 839 | 119 | 3,185 | 3,066 |
| 474 | 1.8 | 1.8 | 4.2 | 3.6 | 3.6 | 3.5 | 0.6 | 0.0 | 0.1 | 0.1 | 194 | 10 | 89 | 79 |
| 475 | 1.6 | 1.6 | 4.1 | 3.6 | 3.6 | 3.5 | 0.5 | 0.0 | 0.1 | 0.1 | 165 | 5 | 65 | 60 |
| 476 | 1.0 | 1.0 | 3.8 | 3.3 | 3.3 | 3.2 | 0.5 | 0.0 | 0.1 | 0.1 | 355 | 11 | 134 | 123 |
| 477 | 0.77 | 0.85 | 4.0 | 3.2 | 3.2 | 3.1 | 0.8 | 0.0 | 0.1 | 0.1 | 513 | 6 | 184 | 178 |
| 478 | 1.6 | 1.7 | 4.1 | 3.2 | 3.2 | 3.1 | 0.9 | 0.0 | 0.1 | 0.1 | 535 | 8 | 192 | 184 |
| 479 | 1.6 | 1.6 | 4.1 | 3.2 | 3.2 | 3.1 | 0.8 | 0.0 | 0.1 | 0.1 | 534 | 7 | 219 | 212 |
| 480 | 1.3 | 1.3 | 3.9 | 3.4 | 3.4 | 3.3 | 0.5 | 0.0 | 0.1 | 0.1 | 247 | 8 | 93 | 86 |
| 481 | 2.0 | 2.0 | 4.1 | 3.4 | 3.4 | 3.3 | 0.7 | 0.0 | 0.1 | 0.1 | 335 | 8 | 112 | 104 |
| 482 | 1.6 | 1.6 | 4.1 | 3.4 | 3.4 | 3.3 | 0.7 | 0.0 | 0.1 | 0.1 | 321 | 7 | 104 | 97 |
| 483 | 1.9 | 1.9 | 4.1 | 3.4 | 3.4 | 3.3 | 0.7 | 0.0 | 0.1 | 0.1 | 360 | 8 | 115 | 108 |
| 484 | 1.1 | 1.1 | 4.1 | 3.3 | 3.3 | 3.2 | 0.8 | 0.0 | 0.1 | 0.1 | 422 | 9 | 132 | 124 |
| 485 | 0.84 | 0.88 | 4.0 | 3.1 | 3.1 | 3.0 | 0.8 | 0.0 | 0.1 | 0.1 | 621 | 8 | 222 | 214 |
| 486 | 1.8 | 1.9 | 4.1 | 3.7 | 3.7 | 3.6 | 0.4 | 0.0 | 0.1 | 0.1 | 118 | 4 | 64 | 60 |
| 487 | 3.2 | 3.2 | 4.1 | 3.6 | 3.6 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 153 | 5 | 75 | 70 |
| 488 | 1.3 | 1.3 | 4.1 | 3.7 | 3.7 | 3.5 | 0.4 | 0.0 | 0.1 | 0.1 | 126 | 3 | 81 | 78 |
| 515 | 4.7 | 4.7 | 3.3 | 2.9 | 2.9 | 2.9 | 0.4 | 0.0 | 0.0 | 0.0 | 678 | -2 | 90 | 92 |
| 516 | 2.7 | 2.7 | 3.4 | 3.1 | 3.1 | 3.0 | 0.3 | 0.0 | 0.0 | 0.0 | 416 | -2 | 57 | 59 |
| 517 | 1.7 | 1.7 | 3.3 | 3.0 | 3.0 | 3.0 | 0.3 | 0.0 | 0.0 | 0.0 | 481 | -19 | 61 | 80 |
| 518 | 1.2 | 1.1 | 2.5 | 2.3 | 2.3 | 2.3 | 0.2 | 0.0 | 0.0 | 0.0 | 1,848 | -33 | 350 | 383 |
| 519 | 1.2 | 1.2 | 3.3 | 3.0 | 3.0 | 3.0 | 0.3 | 0.0 | 0.0 | 0.0 | 473 | -14 | 71 | 85 |
| 520 | 1.1 | 1.1 | 3.3 | 3.0 | 3.0 | 3.0 | 0.3 | 0.0 | 0.0 | 0.0 | 502 | -18 | 60 | 79 |
| 521 | 2.3 | 2.3 | 3.4 | 3.2 | 3.2 | 3.2 | 0.2 | 0.0 | 0.0 | 0.0 | 241 | -1 | 44 | 45 |
| 522 | 1.1 | 1.1 | 3.2 | 2.9 | 2.9 | 2.9 | 0.3 | 0.0 | 0.0 | 0.0 | 571 | -4 | 69 | 72 |
| 523 | 1.5 | 1.5 | 3.0 | 2.7 | 2.7 | 2.7 | 0.3 | 0.0 | 0.0 | 0.0 | 861 | -14 | 111 | 125 |
| 524 | 0.37 | 0.41 | 4.3 | 4.0 | 4.0 | 3.9 | 0.3 | 0.0 | 0.1 | 0.1 | 53 | 1 | 17 | 16 |
| 525 | 0.53 | 0.57 | 4.4 | 4.0 | 4.0 | 4.0 | 0.3 | 0.0 | 0.1 | 0.1 | 49 | 3 | 16 | 13 |
| 526 | 0.59 | 0.64 | 4.2 | 4.0 | 4.0 | 3.9 | 0.2 | 0.0 | 0.1 | 0.1 | 46 | 1 | 17 | 17 |
| 527 | 0.57 | 0.62 | 4.4 | 4.1 | 4.1 | 4.0 | 0.3 | 0.0 | 0.1 | 0.1 | 43 | 1 | 13 | 13 |
| 528 | 0.35 | 0.41 | 4.2 | 4.0 | 4.0 | 3.9 | 0.2 | 0.0 | 0.1 | 0.1 | 44 | 1 | 15 | 14 |
| 529 | - | 0.8 | 3.9 | 3.6 | 3.6 | 3.5 | 0.3 | 0.0 | 0.1 | 0.1 | 145 | 3 | 49 | 45 |
| 530 | 0.94 | 0.94 | 3.5 | 3.1 | 3.1 | 3.1 | 0.3 | 0.0 | 0.1 | 0.1 | 376 | 3 | 131 | 129 |
| 531 | - | 2.7 | 4.4 | 4.2 | 4.2 | 4.1 | 0.2 | 0.0 | 0.1 | 0.1 | 26 | 1 | 10 | 9 |
| 532 | 1.3 | 1.4 | 4.2 | 3.9 | 3.9 | 3.8 | 0.3 | 0.0 | 0.1 | 0.1 | 64 | 0 | 20 | 19 |
| 533 | 0.85 | 0.85 | 3.5 | 3.2 | 3.2 | 3.2 | 0.3 | 0.0 | 0.1 | 0.1 | 277 | 5 | 107 | 102 |

**Table B-3 Acidification Results (continued)**

| Waterbody Identifier[a] | Critical Load With Organic Acids [keqH+/ha/y] | Critical Load Without Organic Acids [keqH+/ha/y] | Snowmelt pH | | | | Change in Snowmelt pH | | | | Absolute Change in Acidity [µeq $H^+$/L] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Background | Base | Application | PDC | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application | Base Versus Existing | Application Versus Base | PDC Versus Base | PDC Versus Application |
| 534 | 0.34 | 0.42 | 4.1 | 3.9 | 3.9 | 3.8 | 0.3 | 0.0 | 0.1 | 0.1 | 61 | 1 | 19 | 19 |
| 535 | 0.43 | 0.45 | 3.7 | 3.4 | 3.4 | 3.3 | 0.3 | 0.0 | 0.1 | 0.1 | 219 | 5 | 72 | 67 |
| 536 | 1.4 | 1.4 | 3.3 | 3.2 | 3.2 | 3.2 | 0.1 | 0.0 | 0.0 | 0.0 | 173 | 3 | 53 | 50 |
| 537 | - | 2.2 | 3.6 | 3.5 | 3.5 | 3.4 | 0.1 | 0.0 | 0.0 | 0.0 | 60 | 2 | 23 | 21 |
| 538 | 2.2 | 2.2 | 3.5 | 3.3 | 3.3 | 3.3 | 0.2 | 0.0 | 0.0 | 0.0 | 169 | 6 | 39 | 33 |
| 539 | 6.3 | 6.2 | 3.6 | 3.5 | 3.5 | 3.5 | 0.1 | 0.0 | 0.0 | 0.0 | 53 | 2 | 20 | 18 |
| 540 | 1.5 | 1.4 | 3.3 | 3.2 | 3.2 | 3.2 | 0.1 | 0.0 | 0.0 | 0.0 | 147 | -7 | 43 | 50 |
| 546 | 2.6 | 2.5 | 3.6 | 3.4 | 3.4 | 3.4 | 0.2 | 0.0 | 0.0 | 0.0 | 142 | 3 | 31 | 28 |
| 546 | 4.1 | 3.9 | 3.6 | 3.4 | 3.4 | 3.4 | 0.2 | 0.0 | 0.0 | 0.0 | 142 | 3 | 31 | 28 |
| 596 | 2.3 | 2.3 | 3.7 | 3.5 | 3.5 | 3.5 | 0.2 | 0.0 | 0.0 | 0.0 | 90 | 4 | 22 | 18 |
| 597 | 0.34 | 0.41 | 3.6 | 3.3 | 3.3 | 3.2 | 0.3 | 0.0 | 0.0 | 0.0 | 295 | -2 | 41 | 43 |
| 598 | 0.65 | 0.75 | 3.6 | 3.2 | 3.3 | 3.2 | 0.4 | 0.0 | 0.0 | 0.0 | 316 | -1 | 42 | 43 |
| 599 | 4.1 | 3.9 | 3.6 | 3.3 | 3.3 | 3.2 | 0.3 | 0.0 | 0.0 | 0.0 | 297 | -9 | 40 | 49 |
| 600 | 3.2 | 3.2 | 3.5 | 3.2 | 3.2 | 3.2 | 0.3 | 0.0 | 0.0 | 0.0 | 298 | -4 | 47 | 51 |
| 605 | 3.6 | 3.6 | 3.8 | 2.5 | 2.5 | 2.5 | 1.3 | 0.0 | 0.0 | 0.1 | 2,852 | -63 | 365 | 429 |
| 606 | 1.7 | 1.7 | 3.8 | 2.4 | 2.4 | 2.3 | 1.4 | 0.0 | 0.0 | 0.1 | 3,976 | -235 | 398 | 633 |
| 607 | 5.5 | 5.5 | 4.0 | 2.8 | 2.7 | 2.7 | 1.2 | 0.0 | 0.1 | 0.0 | 1,629 | 50 | 237 | 187 |
| 612 | 1.1 | 1.2 | 3.4 | 2.6 | 2.5 | 2.3 | 0.8 | 0.0 | 0.3 | 0.3 | 2,349 | 86 | 2,368 | 2,282 |
| 615 | 0.92 | 0.93 | 3.4 | 2.5 | 2.1 | 2.0 | 0.9 | 0.5 | 0.5 | 0.1 | 2,694 | 5,588 | 7,503 | 1,915 |
| 616 | 1.4 | 1.4 | 3.7 | 3.0 | 2.9 | 2.7 | 0.7 | 0.1 | 0.2 | 0.2 | 904 | 138 | 836 | 699 |
| 617 | 1.4 | 1.4 | 3.5 | 2.7 | 2.6 | 2.3 | 0.8 | 0.1 | 0.3 | 0.2 | 1,846 | 641 | 2,303 | 1,661 |
| 618 | 1.4 | 1.1 | 3.5 | 2.6 | 2.4 | 2.3 | 0.9 | 0.1 | 0.3 | 0.1 | 2,221 | 1,021 | 2,450 | 1,430 |
| 619 | 1.5 | 1.5 | 3.7 | 2.9 | 2.9 | 2.4 | 0.7 | 0.1 | 0.6 | 0.5 | 935 | 154 | 3,147 | 2,993 |
| 620 | 1.5 | 1.4 | 3.4 | 2.7 | 2.6 | 2.2 | 0.7 | 0.1 | 0.5 | 0.4 | 1,732 | 309 | 4,626 | 4,317 |
| 621 | 2.2 | 2.2 | 3.7 | 3.0 | 2.9 | 2.2 | 0.7 | 0.1 | 0.8 | 0.7 | 853 | 135 | 4,964 | 4,829 |
| 622 | 0.55 | 0.54 | 3.4 | 2.7 | 2.7 | 2.5 | 0.7 | 0.0 | 0.2 | 0.2 | 1,592 | 134 | 1,031 | 897 |
| 623 | 1.6 | 1.6 | 3.6 | 2.9 | 2.9 | 2.5 | 0.7 | 0.0 | 0.4 | 0.3 | 931 | 113 | 1,650 | 1,537 |

[a] Identifier used on map showing lake locations.

PAI = potential acid input; Base = 2013 Base Case; Application = 2013 PRM Application Case; PDC = 2013 Planned Development Case.

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