



April 2014

VOLUME 10.0 - ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Final Environmental Impact Statement (FEIS) – Meliadine Gold Project, Nunavut

Report



Report Number: Doc 228-1314280007 Ver. 0

Distribution:

1 Copy : Agnico Eagle Mine Limited

1 Copy : Golder Associates Ltd.



AGNICO EAGLE







[illegible][illegible][illegible]

**Golder
Associates**

[illegible]



EXECUTIVE SUMMARY

Purpose

Volume 10 of the Final Environmental Impact Statement (FEIS) for the Meliadine Gold Project (Project) considers the environmental and human health risk assessment, and addresses the Guidelines issued by the Nunavut Impact Review Board for the Project. The purpose of the environmental risk assessment is to evaluate the potential for adverse health effects to terrestrial and aquatic life associated with changes in environmental quality due to chemical releases from the Project. The purpose of the Human Health Risk Assessment (HHRA) is to assess the effects of the Project on human health associated with changes in environmental quality due to chemical releases from the Project.

To determine the changes in environmental quality due to chemical releases from the Project, the existing or baseline conditions of environmental quality must first be understood. The assessment is completed by first describing the baseline conditions of environmental quality and then evaluating the potential direct and indirect changes resulting from Project-related components and associated activities, and evaluating all Project phases, including construction, operation, maintenance, and temporary, final, and post-closure activities. Cumulative effects for existing and reasonably foreseeable projects in the Project area have been incorporated, where applicable.

Study Areas

Spatial and temporal boundaries have been defined to facilitate the risk assessment and interpretation of potential effects associated with the Project. The spatial boundaries (Local Study Area [LSA] and Regional Study Area [RSA]) were delineated based on the predicted spatial extent of the Project-related effects and the life history attributes of valued ecosystem components (VECs) potentially influenced by the Project. The temporal boundaries were defined by the amount of time between the start and end of a relevant Project activity, plus the duration required for the effect to be reversed, and were related to the various Project phases (construction, operation, maintenance, temporary closure, final closure, and post-closure).

The spatial and temporal boundaries for the environmental risk assessment were aligned with the boundaries identified for environmental components that predicted or provided input to the prediction of potential Project-related changes to soil quality, water quality, sediment quality, and the quality of food (vegetation, prey) for consumption by wildlife, or that provided information relevant to terrestrial and aquatic life. These Project components were as follows:

- atmospheric environment, including air quality;
- terrestrial environment, specifically including soil and terrain, vegetation, wildlife and wildlife habitat, and birds and bird habitat; and
- freshwater environment, specifically including surface water and sediment quality, plankton and benthos, and fish and fish habitat.

The spatial boundaries of the HHRA were aligned with the spatial boundaries identified by the impact assessment components that predicted potential Project-related changes to environmental quality, or that provided information relevant to receptors (i.e., humans). These impacts assessment components were as follows:



- atmospheric environment, including air quality and noise;
- freshwater environment, including surface water and sediment quality; and
- socio-economic environment, including traditional knowledge and traditional land use.

There may be potential impacts to human health in all phases of the Project extending into the post-closure phase. Therefore, the temporal boundaries for the HHRA were defined to ensure that the potential for health effects extending beyond the life of the mine are addressed.

Effects Analysis

The purpose of the risk assessment is to evaluate the potential for adverse health effects to terrestrial and aquatic life, as well as effects to human health associated with changes in environmental quality due to chemical releases from the Project. As such, the potential pathways for the risk assessment were aligned with the potential pathways identified by the environmental components that predicted potential Project-related changes to soil quality (i.e., air quality), water quality, and sediment quality.

Effects from the Project on Environmental and Human Health

Environmental Health

The effects analysis included the four steps of risk assessment, including problem formulation, exposure assessment, toxicity assessment, and risk characterization. It relied upon predicted concentrations of chemicals in various environmental media, including soil, surface water, and sediment to determine the potential for adverse health effects to terrestrial and aquatic life associated with chemical releases from the Project. No chemicals of potential concern (COPCs) were identified for soil, sediment and Meliadine Lake; therefore, the effects analysis did not proceed beyond the chemical screening stage of the problem formulation step. That is, predicted soil, sediment, and Meliadine Lake surface water concentrations did not exceed applicable guidelines for the protection of wildlife or aquatic life health or baseline concentrations. This indicates that adverse health effects to terrestrial life and aquatic life in soil, sediment and Meliadine Lake as a result of the Project are not expected.

Cadmium, lead, mercury, and silver were identified as COPCs for certain small lakes in the Project area, but concentrations were below those associated with no adverse health effects (i.e., toxicity benchmarks). That is, hazard quotients (HQs) were less than the target of one; which indicates that adverse health effects to aquatic life from these COPCs are not expected.

Copper was also identified as a COPC in Lake CH (Chickenhead Lake) during operations and closure, and the Tiriganiaq Pit Lake during post-closure, with concentrations greater than toxicity benchmarks. Therefore, copper was considered further in the residual impact classification for these waterbodies. When all assessment criteria are considered, impacts to the health of aquatic life resulting from copper in Lake CH and Tiriganiaq Pit Lake during all Phases of the Project are considered not significant.

The effects of the Project on the health of terrestrial and aquatic life were also considered in combination with previous, existing and reasonably foreseeable developments that may also influence the health of terrestrial and aquatic life within the Project area in a cumulative effects assessment. Cumulative effects to air (and hence soil quality), water and sediment quality are expected to be negligible. Therefore, the potential for cumulative effects on the health of terrestrial and aquatic life is also expected to be negligible.



Human Health

Air quality and noise from the Project were considered to have potential residual effects on human health. Short-term effects on worker health due to diesel particulate matter (DPM), NO₂, cadmium, acrolein, and aldehyde in ambient air at the permanent camp complex were identified based on the air quality predictions for the Project. The predicted concentrations of these chemicals in ambient air that may be associated with short-term health effects are largely confined to the permanent camp complex, although concentrations of DPM and aldehyde also extend off-site into the air quality LSA. Residual effects due to these chemicals were considered to be of low to moderate magnitude, and are generally associated with mucus membrane irritation, which is readily reversible. A review of the literature indicated that the concentrations associated with acute health effects tend to be orders of magnitude higher than those predicted as a result of the Project, and therefore it is unlikely that workers would experience health effects. Overall, the residual effects to workers at the permanent camp complex are not considered to be significant given that the effects are largely localized to the permanent camp complex, predicted concentrations are much lower than those reported to be associated with health effects, and those health effects are readily reversible.

As indicated above, DPM and aldehyde may extend off-site into the LSA at concentrations that may be associated with short-term health effects. Receptors in the LSA include Inuit and non-Inuit members of the public, such as recreational users at hunter/trapper cabins. At these locations, the conditions causing the residual effect are of low magnitude, are considered to occur infrequently, and the overall potential for the health effect to occur is considered to be unlikely. With respect to acute health effects, the overall impacts are not considered to be significant to members of the public in the LSA.

Long-term or chronic effects on worker health due to DPM and acrolein from Project emissions at the permanent camp complex were also identified as a potential residual effect. The residual effects for acrolein are considered to be of low magnitude and occur infrequently. Potential chronic health effects due to acrolein include irritation and inflammation of the respiratory tract, particularly the mucus membranes in the nose. Those with pre-existing respiratory conditions such as asthma may be particularly sensitive to acrolein. A review of the literature indicated that the concentrations associated with chronic health effects tend to be orders of magnitude higher than those predicted as a result of the Project. The overall residual effects are not considered to be significant given that the conditions causing the effect were considered to occur periodically and the overall potential for the health effect to occur is considered to be unlikely.

Long-term exposure to DPM has been associated with a variety of health effects, including respiratory tract effects similar to those of acrolein, as well as immunological reactions and lung cancer. Given that the incidence of lung cancer is the most sensitive endpoint as a result of chronic exposure to DPM, health effects were assessed further with respect to cancer incidence. The estimated incremental lifetime cancer risks (ILCR) due to DPM for workers at the permanent camp complex exceeds the acceptable ILCR and was classified as a low magnitude of effect. In addition, the predicted annual average concentrations of DPM exceeded the selected annual screening threshold for all modeling scenarios and years of the operations phase; however, the predicted annual concentrations are considered to be overestimation of the Project DPM emissions based on the conservative assumptions used in the HHRA. As a result, the predicted exposure and risk to DPM is considered to be overestimated and as such, the overall residual effect of DPM to workers was not considered to be significant.



The predicted change in noise levels at one location within the LSA exceeded acceptable targets; however the change in noise level was considered to be a low magnitude of effect. However, given that the target is intended to be protective of the most sensitive individuals and the predicted change in noise levels at this location only slightly exceeded the target, the potential residual effect is not considered to be significant.

Cumulative health effects due to air quality and noise from existing and future developments in the RSA are expected to have a negligible potential impact on human health.

Monitoring and Follow-up

There is no monitoring and follow-up recommended for directly evaluating environmental health. Any monitoring requirements for air quality and water and sediment quality at the Project will support the continuing assessment of environmental health for the Project. The toxicity benchmarks for copper will be verified and updated as necessary based on the water quality monitoring effort which will include (but not be limited to): temperature, pH, DOC, major cations (calcium, magnesium, sodium and potassium), major anions (sulphate and chloride) and alkalinity.

From the human health perspective, ongoing monitoring of surface water from lakes and watercourses around the mine site, All-weather Access Road, and Rankin Inlet will be included as part of the Aquatic Effects Monitoring Program. Additionally, drinking water for the camps (both source water and treated water) will also be regularly monitored, and air quality and noise monitoring programs will be implemented.



Abbreviation and Acronym List

%HA	percent highly annoyed
AAQC	ambient air quality criteria
ACR	acute-to-chronic ratio
AEM	Agnico Eagle Mines Limited
AEUB	Alberta Energy and Utilities Board
Ag ⁺	ionic silver
AgNO ₃	silver nitrate
AQG	air quality guideline
ATSDR	Agency for Toxic Substances and Disease Registry
AWAR	All-weather Access Road
BCMOE	British Columbia Ministry of Environment
BD	soil bulk density
BLM	biotic ligand model
C	carbon
CaCO ₃	calcium carbonate
CCC	criterion continuous concentration
CCME	Canadian Council of Ministers of the Environment
CCREM	Canadian Council of Resource and Environment Ministers
CMC	criterion maximum concentration
CO	carbon monoxide
COMEAP	Committee on the Medical Effects of Air Pollutants
COPC	chemical of potential concern
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSM	conceptual site model
CSQG	Canadian sediment quality guideline
CWQG	Canadian water quality guideline
DFO	Department of Fisheries and Oceans Canada
DOC	dissolved organic carbon
DPM	diesel particulate matter
Dw	dry weight
Dyd	dry deposition rate



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

%HA	percent highly annoyed
Dyw	wet deposition rate
EC ₁₆	effective concentration (required to achieve an effect on 16% of the organisms)
Eco-SSL	ecological soil screening level
ECOTOX	ecotoxicology database
EDI	estimated daily intake
EIS	environmental impact statement
ESL	ecological screening level
FEIS	Final Environmental Impact Statement
GMCV	genus mean chronic value
HCII	specific critical noise level
HHRA	human health risk assessment
HQ	hazard quotient
HSDB	Hazardous Substances Data Bank
IARC	International Agency for Research on Cancer Monographs
ILCR	incremental lifetime cancer risk
IQ	Inuit Qaujimajatuqangit (see note ¹)
ISC	incremental soil concentration
ISO	International Organization for Standardization
ISQG	interim sediment quality guideline
IUR	Inhalation Unit Risks
Ks	soil loss constant
LANL	Los Alamos National Laboratory
LC ₅₀	lethal concentration (required to achieve 50% mortality in the test population)
Ld	daytime average sound level
Leq ₂₄	24-hour equivalent noise level
Ln	nighttime average sound level
LOAEL	lowest observed adverse effect level
LOEC	lowest observed effect concentration
LSA	local study area
MATC	maximum acceptable toxicant concentration
MDDEP	Quebec Ministry of Environment
MRL	minimal risk level
NA	not applicable



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

%HA	percent highly annoyed
NAAQS	National Ambient Air Quality Standard
NDOE	Government of Nunavut Department of Environment
NIRB	Nunavut Impact Review Board
NO ₂	nitrogen dioxide
NOAEL	no-observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
NWT	Northwest Territories
OEHHA	California Office of Environmental Health Hazard Assessment
OMOE	Ontario Ministry of the Environment
PAG	potentially acid generating
PAH	polycyclic aromatic hydrocarbon
PEL	probable effect level
PM	particulate matter
ppm	parts per million
RA	risk assessment
REL	reference exposure level
RfC	reference concentration
RIVM	Rijksinstituut Voor Volksgezondheid en Milieu [Netherlands National Institute of Public Health and the Environment]
RSA	regional study area
RSL	regional screening level
SARA	Species at Risk Act
SMCV	species mean chronic value
SO ₂	sulphur dioxide
SO ₄	sulphate
SPM	suspended particulate matter
SQG _E	soil quality guideline for the protection of environmental health
TCEQ	Texas Commission on Environmental Quality
tD	deposition time
TDS	total dissolved solids
TKN	total Kjeldahl nitrogen
TRV	toxicity reference value



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

%HA	percent highly annoyed
TSF	tailings storage facility
TSS	total suspended solids
US FRA	United States Federal Railroad Administration
US FTA	United States Federal Transit Administration
USEPA	United States Environmental Protection Agency
VEC	valued ecosystem component
VOC	volatile organic compounds
VSEC	valued socio-economic component
WHO	World Health Organization
Zs	soil mixing depth

*Note: ¹ IQ symbol appearing in right hand margin denotes where IQ is referenced in the assessment.



Table of Contents

10.0 RISK ASSESSMENT	10-1
10.1 Environmental.....	10-1
10.1.1 Introduction	10-1
10.1.2 Concordance with NIRB Guidelines	10-2
10.1.3 Valued Ecosystem Components	10-2
10.1.4 Spatial and Temporal Boundaries.....	10-5
10.1.5 Baseline Environment	10-6
10.1.5.1 Disease Vectors.....	10-7
10.1.6 Pathway Analysis	10-9
10.1.7 Mitigation Measures	10-21
10.1.8 Effects Analysis.....	10-23
10.1.8.1 General Approach.....	10-23
10.1.8.2 Project Environment	10-23
10.1.8.3 Results.....	10-26
10.1.8.3.1 Problem Formulation	10-26
10.1.8.3.1.1 Chemicals of Potential Concern (COPCs)	10-26
10.1.8.3.1.1.1 Soil.....	10-26
10.1.8.3.1.1.2 Sediment.....	10-29
10.1.8.3.1.1.3 Surface Water	10-29
10.1.8.3.1.1.3.1 Meliadine Lake.....	10-29
10.1.8.3.1.1.3.2 Small Waterbodies.....	10-31
10.1.8.3.1.1.3.3 Pit Lakes	10-35
10.1.8.3.1.1.4 Summary of Chemicals of Potential Concern.....	10-36
10.1.8.3.1.2 Receptors.....	10-37
10.1.8.3.1.3 Exposure Pathways	10-37
10.1.8.3.1.4 Conceptual Site Model.....	10-37
10.1.8.3.2 Exposure Assessment.....	10-37
10.1.8.3.3 Toxicity Assessment.....	10-40



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

10.1.8.3.3.1	Cadmium	10-41
10.1.8.3.3.2	Copper	10-43
10.1.8.3.3.3	Lead	10-44
10.1.8.3.3.4	Mercury	10-45
10.1.8.3.3.5	Silver	10-46
10.1.8.3.4	Risk Characterization	10-48
10.1.9	Residual Impact Classification	10-49
10.1.9.1	Copper in Lake CH	10-50
10.1.9.2	Copper in Tiriganiaq Pit Lake	10-51
10.1.10	Cumulative Effects	10-52
10.1.11	Monitoring and Follow-Up	10-53
10.2	Human Health	10-53
10.2.1	Concordance with NIRB Guidelines	10-57
10.2.2	Valued Components	10-57
10.2.3	Spatial and Temporal Boundaries	10-59
10.2.3.1	Spatial Boundaries	10-59
10.2.3.1.1	Local Study Area	10-60
10.2.3.1.2	Regional Study Area	10-60
10.2.3.2	Temporal Boundaries	10-60
10.2.4	Baseline Environment	10-61
10.2.5	Pathway Analysis	10-62
10.2.5.1	Methods	10-62
10.2.5.2	Conceptual Site Model	10-75
10.2.6	Effects Analysis	10-77
10.2.6.1	General Approach	10-77
10.2.6.1.1	Identification of Chemicals of Potential Concern	10-79
10.2.6.2	Mitigation Measures	10-79
10.2.6.3	Effects Analysis Results	10-80
10.2.6.3.1	Air Quality	10-81
10.2.6.3.1.1	Acute Air Quality	10-83



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

10.2.6.3.1.2	Chronic Air Quality	10-99
10.2.6.3.1.3	Particulate Matter	10-110
10.2.6.3.2	Soil Quality	10-117
10.2.6.3.3	Country Foods Quality	10-119
10.2.6.3.4	Surface Water Quality	10-119
10.2.6.3.5	Sediment Quality	10-123
10.2.6.3.6	Fish Tissue Quality	10-123
10.2.6.3.7	Noise	10-123
10.2.6.3.7.1	Noise Assessment Methods	10-123
10.2.6.3.7.2	Noise Assessment Results	10-125
10.2.7	Residual Impact Classification	10-126
10.2.8	Cumulative Effects	10-144
10.2.9	Monitoring and Follow-Up	10-144
10.3	References	10-145
10.3.1	Literature Cited	10-145
10.3.2	Internet sites	10-150

TABLES

Table 10.1-1: Environmental Risk Assessment Valued Ecosystem Components	10-4
Table 10.1-2: Disease Vectors Potentially Present in Nunavut	10-8
Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life	10-11
Table 10.1-4: Chemicals of Potential Concern in Surface Waters during Construction	10-35
Table 10.1-5: Chemicals of Potential Concern in Surface Waters during Operations	10-35
Table 10.1-6: Chemicals of Potential Concern in Surface Waters during Closure	10-35
Table 10.1-7: Chemicals of Potential Concern Evaluated for Aquatic Life	10-37
Table 10.1-8: Exposure Concentrations for Surface Water during Construction	10-38
Table 10.1-9: Exposure Concentrations for Surface Water during Operations	10-39
Table 10.1-10: Exposure Concentrations for Surface Water during Closure	10-39
Table 10.1-11: Exposure Concentrations for Surface Water during Post-Closure	10-40
Table 10.1-12: Toxicity Benchmarks for Chemicals of Potential Concern in Surface Water	10-42
Table 10.1-13: Hazard Quotients for Surface Water During Construction	10-48
Table 10.1-14: Hazard Quotients for Surface Water During Operations	10-49



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.1-15: Hazard Quotients for Surface Water During Closure	10-49
Table 10.1-16: Hazard Quotients for Surface Water During Post-Closure	10-49
Table 10.1-17: Assessment Criteria and Levels for Residual Impact Classification	10-50
Table 10.1-18: Residual Impact Classification for Aquatic Health for Copper in Lake CH.....	10-51
Table 10.1-19: Residual Impact Classification for Aquatic Health for Copper in Tiriganiaq Pit Lake.....	10-52
Table 10.2-1: Human Health Risk Assessment Valued Components	10-58
Table 10.2-2: Summary of the Valued Components, Assessment, and Measurement Endpoints for Human Health and Safety	10-58
Table 10.2-3: Potential Pathways for Effects to Human Health and Safety.....	10-64
Table 10.2-4: Summary of Bounding Scenarios from each Subcomponent Evaluated in the Human Health Risk Assessment.....	10-78
Table 10.2-5: Hazard Quotients for Acute 1-hour Averaging Time.....	10-98
Table 10.2-6: Summary of Identified COPCs for the Chronic Air Quality Risk Assessment.....	10-100
Table 10.2-7: Classification Systems for Carcinogenic Substances.....	10-101
Table 10.2-8: Classification Systems for Carcinogenic Substances.....	10-102
Table 10.2-9: Reference Concentrations for Chemicals of Potential Concern Evaluated in the Chronic Air Quality Risk Assessment – Non-Carcinogens ($\mu\text{g}/\text{m}^3$)	10-104
Table 10.2-10: Inhalation Unit Risks for Chemicals of Potential Concern Evaluated in the Chronic Air Quality Risk Assessment – Carcinogens ($\mu\text{g}/\text{m}^3$) ⁻¹	10-105
Table 10.2-11: Target Organs and Toxicological Effects for the Chemicals of Potential Concern in the Chronic Air Quality Assessment.....	10-106
Table 10.2-12: Hazard Quotients for Non-Carcinogenic Chemicals of Potential Concern	10-108
Table 10.2-13: Incremental Lifetime Cancer Risks for Carcinogenic Chemicals of Potential Concern.....	10-109
Table 10.2-14: Screening Thresholds for Particulate Matter Based on a 24-hour Averaging Period	10-111
Table 10.2-15: Screening Thresholds for Particulate Matter Based on an Annual Averaging Period.....	10-112
Table 10.2-16: Comparison of 24-Hour 98 th Percentile PM _{2.5} Concentrations to the Canada-Wide Standard	10-113
Table 10.2-17: Comparison of 24-Hour 98th Percentile PM ₁₀ Concentrations to the WHO Standard adjusted for Site-Specific PM ₁₀ /PM _{2.5}	10-114
Table 10.2-18: Classification of Carcinogenicity for Diesel Particulate Matter.....	10-115
Table 10.2-19: Inhalation Unit Risks for Chemicals of Potential Concern Evaluated in the Particulate Matter Risk Assessment.....	10-115
Table 10.2-20: Incremental Lifetime Cancer Risks for Diesel Particulate Matter.....	10-116
Table 10.2-21: Summary of Bounding Scenarios from each Subcomponent Evaluated in the Human Health Risk Assessment.....	10-120
Table 10.2-22: Effects Criteria and Levels for Assigning Significance to Human Health Residual Impacts	10-127
Table 10.2-23: Magnitude Residual Impact Classification Criteria for Human Health	10-128
Table 10.2-24: Significance of Effect Decision Matrix for Human Health	10-128



Table 10.2-25: Significance of Residual Impacts Matrix for Human Health.....	10-130
Table 10.2-26: Significance of Residual Impacts for Diesel Particulate Matter for Mine Workers (Acute and Chronic) ...	10-131
Table 10.2-27: Significance of Residual Impacts for DPM for Recreational Users (Acute)	10-133
Table 10.2-28: Significance of Residual Impacts for Acrolein for Mine Workers (Acute and Chronic)	10-135
Table 10.2-29: Significance of Residual Impacts for Cadmium for Mine Workers (Acute)	10-137
Table 10.2-30: Significance of Residual Impacts for Nitrogen Dioxide for Mine Workers (Acute)	10-139
Table 10.2-31: Significance of Residual Impacts for Aldehyde for Mine Workers (Acute).....	10-140
Table 10.2-32: Significance of Residual Impacts for Aldehyde for Recreational Users (Acute)	10-142
Table 10.2-33: Significance of Residual Impacts for Noise for Recreational Users.....	10-143

FIGURES

Figure 10.1-1: Conceptual Site Model for the Meliadine Gold Project – Terrestrial Life	10-20
Figure 10.1-2: Conceptual Site Model for the Meliadine Gold Project – Aquatic Life	10-22
Figure 10.1-3: Ecological Receptor Locations.....	10-25
Figure 10.2-1: Venn Diagram showing the 3 Conditions that must Exist for there to be a Potential Health Risk (modified from CCME 1996).....	10-54
Figure 10.2-2: Risk Assessment Framework. Modified from Health Canada (1995).....	10-56
Figure 10.2-3: Conceptual Site Model for the Meliadine Gold Project – Human Health	10-76
Figure 10.2-4: Human Health Receptor Locations	10-82

APPENDICES

Appendix 10.1-A

Soil Screening

Appendix 10.1-B

Sediment Screening

Appendix 10.1-C

Surface Water Screening

Appendix 10.1-D

BLM

APPENDIX 10.2-A

Air Quality - Acute

APPENDIX 10.2-B

Air Quality - Chronic

APPENDIX 10.2-C

Air Quality – Particulate Matter

APPENDIX 10.2-D

Soil Quality



APPENDIX 10.2-E

Water Quality

APPENDIX 10.2-F

Sediment Quality

APPENDIX 10.2-G

Noise Predictions



10.0 RISK ASSESSMENT

10.1 Environmental

10.1.1 Introduction

The purpose of the environmental risk assessment is to evaluate the potential for adverse health effects to terrestrial (wildlife, i.e., mammals and birds) and aquatic life associated with changes in environmental quality due to chemical releases from the Meliadine Gold Project (Project). Risk assessment is the primary tool used to characterize the significance of potential adverse health effects, if any, to the environment from chemical releases.

To determine the changes in environmental quality due to chemical releases from the Project, the existing or baseline conditions of environmental quality must first be understood. This assessment is completed by first describing the baseline conditions of environmental quality. Then, the potential changes to environmental quality resulting from chemical releases from the Project are evaluated with respect to the potential for adverse health effects to terrestrial and aquatic life. The assessment includes potential changes to soil quality, water quality, sediment quality, and the quality of food (vegetation, prey) for consumption by wildlife. The effects analysis evaluates all Project phases, including construction, operations, closure, and post-closure. Cumulative effects on the health of terrestrial and aquatic life have also been evaluated.

The environmental risk assessment follows the risk assessment framework endorsed by federal and provincial regulatory agencies. It was completed based on guidance provided by the Canadian Council of Ministers of the Environment (CCME 1996, 1997), the United States Environmental Protection Agency (USEPA 1993, 1998), and other applicable risk assessment guidance documents (e.g., Sample et al. 1996). The risk assessment framework includes 4 components:

- **Problem Formulation:** The problem formulation identifies the chemicals released by the Project that may be harmful to terrestrial and aquatic life (i.e., chemicals of potential concern [COPCs]), the terrestrial and aquatic life expected to occur in the Project area (i.e., receptors), and the plausible exposure pathways between terrestrial and aquatic life and chemicals released by the Project. The potential for effects on the health of terrestrial and aquatic life from chemicals released by the Project is predicated on the coexistence of these 3 elements. Chemicals must be present at harmful levels, receptors must be present, and there must be a way for receptors to come into contact with the chemicals released by the Project. The problem formulation focuses the risk assessment on the chemicals, receptors, and exposure pathways of greatest concern (i.e., chemicals with the greatest toxic potential, receptors with the greatest likelihood of being exposed and the greatest susceptibilities, and exposure pathways that account for the majority of exposure to the chemicals released by the Project). If no potential health effects are predicted for these chemicals, receptors, and exposure pathways, it is unlikely that there would be potential health effects for other chemicals, receptors, and exposure pathways. The information from the problem formulation is summarized in a conceptual site model (CSM), which illustrates the sources of COPCs, the pathways of exposure, and the receptors that are evaluated in the risk assessment.
- **Exposure Assessment:** The exposure assessment determines the amount of COPC to which each of the receptors is exposed. For terrestrial life, such as mammals and birds, exposure is expressed as the estimated daily intake (EDI) of the COPC from all identified exposure pathways (e.g., from diet, drinking water, and direct ingestion of soil or sediment). The EDI is expressed as milligrams of a COPC per kilogram



body weight per day (mg/kg-d). This permits the evaluation of exposure relative to the toxicity reference values (TRVs) for mammals and birds that are also expressed in this way. For aquatic life, exposure is expressed as the concentrations of the COPCs in the media to which the receptor is exposed (e.g., in micrograms per litre [$\mu\text{g/L}$] in water). This permits the evaluation of exposure relative to the toxicity benchmarks that are also expressed in this way.

- **Toxicity Assessment:** The toxicity assessment determines the dose (for mammals and birds) or concentration in water/sediment (for aquatic life) that a receptor can be exposed to without experiencing adverse health effects. This value is called the TRV or toxicity benchmark. For mammals and birds, the TRV is expressed as mg/kg-d. For aquatic life, the toxicity benchmark is expressed as an acceptable concentration of the COPC in the media to which the receptor is exposed (e.g., $\mu\text{g/L}$ in water). These values are used as benchmarks for comparison with exposure (EDI for mammals and birds and concentration in water for aquatic life) during risk characterization.
- **Risk Characterization:** The risk characterization determines the potential for adverse health effects on receptors to occur. This is assessed by comparing the estimated exposures (from the exposure assessment) with those exposures that are associated with no adverse health effects (from the toxicity assessment). The characterization of risks includes consideration of the uncertainty and conservatism in the risk assessment.

10.1.2 Concordance with NIRB Guidelines

The purpose of this section is to address guidelines issued by the Nunavut Impact Review Board (NIRB) in their Guidelines for the Preparation of an Environmental Impact Statement for the Agnico Eagle Mines Limited (AEM) Meliadine Project (NIRB 2012), specifically relating to the environmental health impacts of the Project.

Volume 1, Appendix 1.0-A lists the specific requirements set out in the guidelines relating to the impact assessment for environmental health.

10.1.3 Valued Ecosystem Components

Valued ecosystem components (VECs) and valued socio-economic components (VSECs) represent physical, biological, cultural, social, and economic properties of the environment that are either legally, politically, publically, or professionally recognized as important to a particular region, community, or by society as a whole.

Several factors were considered when selecting the VECs for the environmental risk assessment including the following:

- VECs suggested by NIRB during Project scoping and AEM community and stakeholder consultation;
- VECs suggested by the Terrestrial Wildlife and Wildlife Habitat component (Final Environmental Impact Statement [FEIS] Volume 6, Section 6.6), the Birds and Bird Habitat component (FEIS Volume 6, Section 6.7), and the Fish and Fish Habitat component (FEIS Volume 7, Section 7.5);
- communities or species that reflect the interests of regulatory agencies, Inuit groups, and communities;



- territorial and federal (Committee on the Status of Endangered Wildlife in Canada [COSEWIC] 2012, internet site; SARA 2012, internet site) listed species;
- terrestrial life and aquatic life observed in the Project area;
- ecological relevance (communities or species that play important roles in community structure or function [e.g., top predators, major herbivores, key prey species]);
- availability of ecotoxicological and exposure related data;
- sensitivity to chemicals;
- potential for exposure to chemicals released by the Project (diet, habitat preferences, and behaviours that make a species likely to come in contact with the chemicals); and
- potential for chemicals to biomagnify.

The following VECs were suggested by NIRB (2012) as to applicability to the environmental risk assessment: caribou, muskoxen, wolverine, grizzly bears, polar bears, brown bears, wolves, less conspicuous terrestrial species that may be maximally exposed to contamination (such as small mammals), raptors, migratory birds, seabirds, fish, benthic invertebrates, and other aquatic organisms.

The muskoxen, wolverine, grizzly bear, and brown bear were not identified as VECs for the Terrestrial Wildlife and Wildlife Habitat component for several reasons, as outlined in FEIS Volume 6, Section 6.6. In brief, the core part of their home ranges do not overlap with the Project, there have been no, or very few, observations of animals in close proximity to the Meliadine Exploration camp, and they are not extensively harvested by the Rankin Inlet community. For these same reasons, which would limit their exposure and the potential for adverse health effects from chemicals released from the Project, these species were not identified as VECs for the environmental risk assessment. IQ

The northern gray wolf was not selected as a VEC for the environmental risk assessment because it is uncommon in the Project area and has a large home range, and thus has a low potential for exposure to chemicals released from the Project. The Arctic fox, which is common in the Project area, is trapped for its fur, and has a smaller home range than the northern gray wolf, was selected as a VEC for the environmental risk assessment and is considered to be representative of other carnivores documented in the Project area, including the northern gray wolf. IQ

The polar bear was not selected as a VEC for the environmental risk assessment because it is uncommon in the Project area and has a large home range, and, thus, has a low potential for exposure to chemicals released from the Project. Visits by polar bears to the Project area are expected to be of short duration because their primary food source (i.e., seals) is not available at the mine site; therefore, their potential for exposure would be limited.

Seabirds were considered a VEC for the Project; however, the impacts to seabirds are assessed in FEIS Volume 8, Section 8.3 as part of the marine assessment. Impacts to polar bears through marine pathways are also assessed in FEIS Volume 8, Section 8.3 as part of the marine assessment.



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

The VECs selected for the environmental risk assessment are summarized in Table 10.1-1. Where applicable, traditional knowledge was incorporated into the selection of VECs for the environmental risk assessment. Therefore, impact predictions and significance of impacts for these VECs incorporated traditional knowledge.

Table 10.1-1: Environmental Risk Assessment Valued Ecosystem Components

Valued Ecosystem Component	Rationale for Selection
Caribou	Suggested as a VEC by NIRB; selected as a VEC by the Terrestrial Wildlife and Wildlife Habitat component (FEIS Volume 6, Section 6.6); important subsistence, cultural, and economic species; primary prey species for large carnivores in northern environments; documented in the Project area so potential for exposure to chemicals released by the Project
Arctic fox	Play a key role in the food web (carnivore); trapped for their fur; common in the Project area so potential for exposure to chemicals released from the Project; used as a surrogate for other carnivores documented in the Project area, including the northern gray wolf; the gray wolf is a VEC suggested by NIRB and selected by the Terrestrial Wildlife and Wildlife Habitat component (FEIS Volume 6, Section 6.6); however, it is infrequently observed in the Project area and has a large home range, which would minimize exposure to chemicals released from the Project in comparison to the Arctic fox
Less conspicuous species <i>Brown lemming</i>	Key prey species for carnivores; documented in the Project area so potential for exposure to chemicals released from the Project; used as a surrogate for other small mammals documented in the Project area, including the Arctic hare and Arctic ground squirrel; high potential for exposure to chemicals released from the Project due to life history
Raptors <i>Short-eared owl</i>	Raptors suggested as a VEC by NIRB; raptors identified as a VEC by the Birds and Bird Habitat component (FEIS Volume 6, Section 6.7); territorial and federal status; play a key role in the food web (carnivore); short-eared owls documented in the Project area and nest observations indicate that they are likely breeding so potential for exposure to chemicals released from the Project; used as a surrogate for other raptors documented in the Project area, including the peregrine falcon (the diet of the peregrine falcon cannot be accurately modelled and, thus, this species was not selected as a VEC)
Migratory birds <i>American tree sparrow</i>	Migratory birds suggested as a VEC by NIRB; upland breeding birds (including migratory birds) selected as a VEC by the Birds and Bird Habitat component (FEIS Volume 6, Section 6.7); American tree sparrows incidentally observed in the Project area so potential for exposure to chemicals released from the Project; conservation status in Nunavut ("sensitive"); considered to be representative of other migratory/upland breeding birds documented in the Project area; information available to allow calculations of exposure and risk
Waterbirds <i>Red-breasted merganser</i>	Waterbirds identified as a VEC by the Birds and Bird Habitat component (FEIS Volume 6, Section 6.7); red-breasted merganser documented in the Project area so potential for exposure to chemicals released from the Project; considered to be representative of other fish-eating birds in the Project area (i.e., the Pacific loon, which is a regular breeding summer resident); information available to allow calculations of exposure and risk
Waterbirds <i>Lesser scaup</i>	Waterbirds identified as a VEC by the Birds and Bird Habitat component (FEIS Volume 6, Section 6.7); lesser scaup documented in the Project area so potential for exposure to chemicals released from the Project; considered to be representative of other aquatic invertebrate-eating waterbirds documented in the Project area, including those with conservation status; information available to allow calculations of exposure and risk
Waterbirds <i>Least sandpiper</i>	Waterbirds, including shorebirds, identified as a VEC by the Birds and Bird Habitat component (FEIS Volume 6, Section 6.7); least sandpiper documented in the Project area so potential for exposure to chemicals released from the Project; conservation status in Nunavut ("sensitive"); considered to be representative of other shore birds documented in the Project area; information available to allow calculations of exposure and risk



Table 10.1-1: Environmental Risk Assessment Valued Ecosystem Component (continued)

Valued Ecosystem Component	Rationale for Selection
Waterbirds <i>Canada goose</i>	Waterbirds identified as a VEC by the Birds and Bird Habitat component (FEIS Volume 6, Section 6.7); Canada goose is an important subsistence and cultural species; hunted around Meliadine Lake; common in the Project area so potential for exposure to chemicals released from the Project; considered to be representative of other terrestrial plant-eating birds; information available to allow calculations of exposure and risk
Waterbirds <i>Tundra swan</i>	Waterbirds identified as a VEC by the Birds and Bird Habitat component (FEIS Volume 6, Section 6.7); tundra swans are regular breeding summer residents of the Project area so potential for exposure to chemicals released from the Project; considered to be representative of other aquatic plant-eating birds; information available to allow calculations of exposure and risk
Fish <i>Arctic char, Arctic grayling, lake trout</i>	Fish suggested as a VEC by NIRB; fish selected as a VEC by the Fish and Fish Habitat component (FEIS Volume 7, Section 7.5); documented in the Project area; domestic fishing is an important part of the Inuit life and fish are important to communities for subsistence use (lake trout, Arctic grayling, Arctic char); popular sport fish in Nunavut (lake trout, Arctic grayling); focus of commercial and subsistence fishery in Hudson Bay (Arctic char).
Benthic Invertebrates	Benthic invertebrates suggested as a VEC by NIRB; play a vital role in nutrient cycling and the breakdown of detritus in the aquatic environment; important food source for fish; sensitive to contamination; various species identified in the Project area
Other Aquatic Organisms <i>Plankton</i>	Other aquatic invertebrates suggested as a VEC by NIRB; includes phytoplankton and zooplankton; important food source for fish; various species identified in the Project area

VEC = valued ecosystem component; NIRB = Nunavut Impact Review Board; FEIS = final environmental impact statement.

10.1.4 Spatial and Temporal Boundaries

To facilitate the assessment and interpretation of potential adverse health effects to terrestrial and aquatic life associated with the Project, it is necessary to define appropriate spatial and temporal boundaries. The overall assessment boundaries for the Project are defined in FEIS Volume 4, Section 4.0. The spatial and temporal boundaries for the environmental risk assessment were aligned with the boundaries identified by the Project components that will predict or will provide input to the prediction of potential Project-related changes to soil quality, water quality, sediment quality, and the quality of food (vegetation, prey) for consumption by wildlife, or that provided information relevant to terrestrial and aquatic life. These Project components are as follows:

- Atmospheric environment:
 - Air quality (FEIS Volume 5, Section 5.2);
- Terrestrial environment, specifically the following components:
 - Soil and terrain (FEIS Volume 6, Section 6.4);
 - Vegetation (FEIS Volume 6, Section 6.5);
 - Terrestrial wildlife and wildlife habitat (FEIS Volume 6, Section 6.6); and
 - Birds and bird habitat (FEIS Volume 6, Section 6.7); and
- Freshwater environment, specifically the following components:
 - Surface water and sediment quality (FEIS Volume 7, Section 7.4); and
 - Fish and fish habitat (FEIS Volume 7, Section 7.5), which includes lower trophic levels.



Detailed descriptions and figures of the spatial and temporal boundaries for the identified components are provided in FEIS Volume 5, Section 5.1 (atmospheric environment); FEIS Volume 6, Section 6.1 (terrestrial environment); and FEIS Volume 7, Section 7.1 (aquatic environment). In general, the spatial boundaries include the mine site (including the Discovery area), all weather access road (AWAR) corridor, and Rankin Inlet. The temporal boundaries include the construction phase (3 years), operations phase (13 years), closure phase (3 years), and post-closure phase of the Project.

10.1.5 Baseline Environment

To evaluate the potential for adverse health effects to terrestrial and aquatic life associated with changes in environmental quality due to chemical releases from the Project, the existing (or baseline) conditions of the environment must first be understood.

Several studies were carried out in support of the Project to characterize the baseline environmental condition with respect to chemical concentrations in soil, water, sediment, and tissue (plant and fish). These studies are summarized in the following sections:

- Soil and terrain (FEIS Volume 6, Section 6.4);
- Vegetation (FEIS Volume 6, Section 6.5);
- Surface water and sediment quality (FEIS Volume 7, Section 7.4); and
- Fish and fish habitat (FEIS Volume 7, Section 7.5).

The following baseline data are available for the Project:

- Metal concentrations in soil for the mine site and along the AWAR;
- Metal concentrations in water and sediment for various waterbodies, including the following:
 - Meliadine Lake;
 - Waterbodies on the peninsula of Meliadine Lake plus waterbodies near the Discovery area;
 - Larger, regional lakes including a reference lake, Peter Lake, and Little Meliadine Lake;
 - Streams on the peninsula of Meliadine Lake, streams near the Discovery area, and streams along the AWAR; and
 - Rivers including Meliadine River and Char River;
- Metal concentrations in plants for several plant types, including shrubs, forbs, grasses, and sedges, as well as non-vascular plants (plants were collected from the mine site and along the AWAR);
- Metal concentrations in fish for several species, including Arctic char, Arctic grayling, cisco, lake trout, and round whitefish (fish were collected from waterbodies around the mine site, including the Meliadine River, Little Meliadine Lake, Meliadine Lake, Parallel Lake [a reference lake], and Lake B5). Domestic fishing is an important part of the Inuit life, comprising as much as 20% of the diet of the residents of Rankin Inlet and Chesterfield Inlet. Most of the lakes in the general Project area are fished for lake trout and Arctic char.



Waterbodies for the environmental and human health risk assessments were selected based upon whether water quality could change as a result of the Project, whether a possible change to water quality could impact fish or people consuming fish, and whether concerns were raised from communities and/or traditional use information collected to date. The Meliadine River was a major camp for Inuit, and some community members are concerned about the potential effects of the Project on fish in the Meliadine River as well as the traditional integrity of the area. Meliadine Lake is also an important lake for fishing by Rankin Inlet residents, and Elders are concerned about the potential effect to fishing from mining activities. The Char River has been identified as a good fishing location for Arctic grayling and Arctic char (FEIS, Volume 9, Section 9.3). IQ

The chemical concentration data collected as part of these studies were used in the environmental risk assessment to describe the baseline condition for environmental quality. The measured baseline concentrations of chemicals in soil, water, sediment, plants, and fish are provided in FEIS Volumes 6 and 7, Sections 6.4, 7.4 (water and sediment), 6.5, and 7.5, respectively.

10.1.5.1 Disease Vectors

A zoonotic disease is one that can be transmitted from animals to people, sometimes via a vector. A disease vector is an organism that carries infectious diseases and is capable of transmitting it to another living organism. Arthropods (e.g., ticks, louse, fleas, mosquitoes, and sandflies) and wildlife (e.g., raccoons, mice and foxes) can be vectors capable of transmitting harmful diseases to humans.

In Canada, arthropod-borne diseases are uncommon due to the cooler climates that are unfavourable to insects (Artsob 2000). Lyme disease (transmitted from ticks) and West Nile virus (transmitted from mosquitos) are the two arthropod-borne diseases that are of concern in Canada (PHAC 2012). However, the range of these vectors is limited to the southern and more temperate regions. For example, Lyme disease is known to occur in specific areas within southern parts of British Columbia, Manitoba, Ontario, Quebec, New Brunswick, and Nova Scotia (PHAC 2012). Nunavut is not expected to be affected by Lyme disease in the near future (Ogden et al., 2008). 450 clinical cases of West Nile virus were reported in several provinces in 2012 (PHAC 2012), with more than 50 occurring in southern Ontario. West Nile virus is not a current problem in northern Canada since freezing temperatures tend to keep mosquito larvae from emerging and no cases have been reported in the Northwest Territories (NWT 2013). In addition, West Nile surveillance is carried out in First Nations communities south of 60°, indicating that West Nile has not yet reached regions north of 60°. It is possible that changing environmental conditions such as climate warming may result in earlier insect emergence, greater insect abundance and increased insect distribution, which could lead to increased incidences of arthropod-borne diseases in Nunavut. However, considering that life of mine (operations phase) is 13 years, it's unlikely that significant warming and potential increases in arthropod-borne diseases in the area will take place during the life of the Project.

Zoonotic diseases transmitted from wildlife are a more likely means of exposure for people residing in Nunavut. Nunavut-specific information on zoonotic disease are not available; however, the Northwest Territories provides its residents with information on the following diseases (NWT 2013):

- Avian flu;
- Rabies; and
- West Nile virus.



Rabies is the only disease with reported incidences. In the NWT, rabies is carried by foxes and sled dogs that may have been in contact with an infected fox (NWT 2013). Yukon provides information on avian flu and rabies in addition to Hantavirus (Government of Yukon 2013). Other important wildlife vectors that may affect those living in Nunavut include bears, beavers, birds, canines, cervids, and lynx. A study completed by the Government of Nunavut (2005) indicated that residents in the Baker Lake and Arviat communities experienced diseased caribou and fish. Table 10.1-2 lists possible wildlife vectors present in Nunavut and the diseases they can transmit to humans (BC MOE 2013). IQ

Table 10.1-2: Disease Vectors Potentially Present in Nunavut

Vector	Disease	Disease Type
Bat	Rabies	Virus
Bear	Trichinellosis	Parasite
Beaver	Leptospirosis Tularemia	Bacteria Bacteria
Birds	Tuberculosis	Bacteria
Bison	Tuberculosis Anthrax	Bacteria Bacteria
Black flies	Filarial worms (Dirofilaria)	Parasite
Canine (coyote, dog, fox, wolf)	Hydatid disease Rabies Sarcoptic mange	Parasite Virus Parasite
Cervids (caribou, deer, elk, moose)	Tuberculosis Anthrax Hydatid disease	Bacteria Bacteria Parasite
Deer	Leptospirosis	Bacteria
Deer mouse and other rodents	Hantavirus	Virus
Fish	Anisakiasis Diphyllobothriasis	Parasite Parasite
Flea	Plague	Bacteria
Hare Rabbit	Tularemia	Bacteria
Lynx	Plague	Bacteria
Marten	Plague	Bacteria
Mink	Plague	Bacteria
Muskrat	Tularemia	Bacteria
Raccoon	Leptospirosis Raccoon roundworm (Baylisascaris)	Bacteria Parasite
Rodent	Leptospirosis Plague Hantavirus	Bacteria Bacteria Virus
Squirrel	Plague	Bacteria



10.1.6 Pathway Analysis

Pathway analysis identifies and assesses the linkages between Project components or activities, and the correspondent potential residual effects to the health of terrestrial and aquatic life. The first part of the analysis is to produce a list of all potential effects pathways for the Meliadine Project (FEIS Volume 4). Each pathway is initially considered to have a linkage to potential effects on the health of terrestrial and aquatic life. This step is followed by the development of environmental design features and mitigation that can be incorporated into the development description to remove a pathway or limit (mitigate) the effects on the health of terrestrial and aquatic life. Environmental design features include Project design elements, environmental best practices, management policies and procedures, and social programs. Environmental design features are developed through an iterative process between the Project's engineering and environmental teams to avoid or mitigate effects.

Pathway analysis is a screening step that is used to determine the existence and magnitude of linkages from the initial list of potential effects pathways for the Project. This screening step is intended to focus the effects analysis on pathways that require a more comprehensive assessment of effects on the health of terrestrial and aquatic life. Pathways are determined to be primary, minor, or as having no linkage using scientific and traditional knowledge, logic, and experience with similar developments and environmental design features. Each potential pathway is assessed and described as follows:

- No linkage – pathway is removed by environmental design features and mitigation so that the Meliadine Project results in no detectable environmental change and residual effects on the health of terrestrial and aquatic life relative to baseline or guideline values;
- Minor – pathway could result in a minor environmental change, but would have a negligible residual effect on the health of terrestrial and aquatic life relative to baseline or guideline values; or
- Primary – pathway is likely to result in a measurable environmental change that could contribute to residual effects on the health of terrestrial and aquatic life relative to baseline or guideline values.

Primary pathways require further effects analysis in the final environmental impact statement (FEIS) to determine the environmental significance from the Project on the health of terrestrial and aquatic life. Pathways determined to have no linkage to the health of terrestrial and aquatic life, or those that are considered minor, are not predicted to result in environmentally significant effects on the health of terrestrial and aquatic life. No linkage and minor pathways are summarized in the FEIS but not carried through the effects assessment.

Potential pathways through which the Project could affect terrestrial and aquatic life are presented in Table 10.1-3. Environmental design features and mitigation incorporated into the design of the Project to remove a pathway or limit the effects to terrestrial and aquatic are listed. The pathway is then determined to be primary, minor, or as having no linkage.

The purpose of the environmental risk assessment is to evaluate the potential for adverse effects on the health of terrestrial and aquatic life associated with changes in environmental quality due to chemical releases from the Project. As such, the potential pathways for the environmental risk assessment were aligned with the potential pathways identified by the Project components that will predict potential Project-related changes to soil quality (via changes in air quality), water quality, and sediment quality. Detailed discussion on the potential pathways



(no linkage, minor, and primary) relevant to air quality and water and sediment quality are provided in FEIS Volumes 5 and 7, Sections 5.2 and 7.4, respectively. Table 10.1-3 provides a summary of the information provided in Sections 5.2 and 7.4 as it relates to changes in soil, surface water, and sediment quality (i.e., chemical concentrations), and the health of terrestrial and aquatic life.

Conceptual site models were developed for terrestrial and aquatic health based upon the primary pathways identified. The CSM for terrestrial life is shown in Figure 10.1-1.



Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine	Mine Site (construction)	Construction activities result in air emissions, which may cause short-term changes in air concentrations and, as a result, soil concentrations, which may affect the health of terrestrial life	Best management practices to control fugitive particulate emissions Exhaust emissions from non-road vehicles will be managed through purchasing equipment that meet Tier 3 emission standards Exhaust emissions from non-road vehicles will be managed through regular and routine maintenance of vehicles SO ₂ emissions from non-road vehicles and stationary equipment will be reduced through the use of diesel fuel with less than 15 parts per million (ppm) of sulphur	Minor (bounded by operation effects)
Mine	Mine Site (operations)	Project activities will result in air emissions, which may cause changes in air concentrations and, as a result, soil concentrations, which may affect the health of terrestrial life	Best management practices to control fugitive particulate emissions from haul roads and material handling Sources of particulate emissions at the processing facility are controlled through the use of baghouses Enclosures are used to reduce fugitive emissions at the processing facility Exhaust emissions from non-road vehicles will be managed through purchasing equipment that meet Tier 3 emission standards Exhaust emissions from non-road vehicles will be managed through regular and routine maintenance of vehicles SO ₂ emissions from non-road vehicles and stationary equipment will be reduced through the use of diesel fuel with less than 15 ppm of sulphur	Primary
AWAR	Phase II AWAR (construction)	Construction activities result in air emissions, which may cause short-term, localized changes in air concentrations, and as a result, soil concentrations, which may affect the health of terrestrial life	Best management practices to control fugitive particulate emissions from construction activities	Minor (bounded by operation effects)
AWAR	Phase II AWAR (operations)	Project vehicles along the AWAR will result in air emissions, which may cause changes in air concentrations and as a result, soil concentrations which may affect the health of terrestrial life	Best management practices to control fugitive particulate emissions from vehicles travelling along the AWAR	Primary



Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Rankin Inlet	Rankin Inlet	Activities associated with material receipt, storage, and transfer to the Project will result in air emissions, which may cause short-term, localized changes in air concentrations and as a result, soil concentrations, which may affect the health of terrestrial life	Best management practices to control fugitive particulate emissions Exhaust emissions from non-road vehicles will be managed through purchasing equipment that meet Tier 3 emission standards Exhaust emissions from non-road vehicles will be managed through regular and routine maintenance of vehicles SO ₂ emissions from non-road vehicles and stationary equipment will be reduced through the use of diesel fuel with less than 15 ppm of sulphur Best management practices to control fugitive emissions from fuel handling and storage	Minor
Mine	Tailings storage	Wildlife (particularly ungulates) may be attracted to and ingest exposed tailings (this potential pathway was identified as a particular concern by community members during Project consultations)	A Mine Waste Management Plan (SD 2-8) has been developed Any potentially acid generating (PAG) or high metal leaching waste rock will be segregated at source and placed into designated areas within the waste rock storage facilities If not suitable for construction, overburden will be stored in the waste rock storage facility Tailings deposition will be designed to limit dust generation	No Linkage
Mine	Mine infrastructure footprint (e.g., open pits, dikes, mine pits, waste rock, mine plant, site roads, camps) during construction, operations, closure, and post-closure	Project footprint, which will physically alter watershed areas and drainage patterns, rates, and quantities of diverted non-contact water to new watersheds, may change downstream flows, water levels, channel/bank stability in streams and may affect water and sediment quality, which may affect the health of terrestrial and aquatic life	Compact layout of the surface facilities within local watersheds will limit the area that is disturbed by construction and operation Access roads will be as narrow as possible, while maintaining safe construction and operation practices; minimum haul road widths will follow that defined under the Mine Health and Safety Act Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, sloping of banks), where needed To reduce the potential for erosion in channels due to higher than normal water flows and levels, natural drainage courses will be surveyed to evaluate capacity and then modified if required Where practical, natural drainage patterns will be used to reduce the use of ditches and diversion berms A Surface Water Management Plan (SD 2-6) has been developed and describes designs to reduce changes to local flows, drainage patterns, and drainage areas Monitoring during activities and use of adaptive management where necessary	Primary

IQ



Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
AWAR (main access road), haul roads, and Rankin Inlet Infrastructure	Road footprint during construction, operations, and closure	Project footprint, which will physically alter drainage patterns, may change downstream flows, water levels, and channel/bank stability in streams, and affect water and sediment quality, which may affect the health of terrestrial and aquatic life	Access roads will be as narrow as possible, while maintaining safe construction and operation practice; minimum haul road widths will follow that defined under the Mine Health and Safety Act Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks), where needed Where practical, natural drainage patterns will be used to reduce the use of ditches and diversion berms A Surface Water Management Plan (SD 2-6) has been developed and describes designs to reduce changes to local flows, drainage patterns, and drainage areas	Minor
Mine, AWAR, Rankin Inlet	Mine and supporting infrastructure during construction, operations, and closure	Sediment releases from infrastructure and road construction, including watercourse crossings, can affect quality of nearby surface waters and sediments, which may affect the health of terrestrial and aquatic life	Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks), where needed Instream construction work will be avoided, or limited to the minimum extent possible Instream works will be constructed in winter, when possible, to limit increased total suspended solids (TSS) and turbidity, and changes to water and sediment quality Where applicable, construction runoff will be captured and managed to minimize suspended solids Proposed roads will be as narrow as possible, while maintaining safe construction and operating practices	Minor
Mine, AWAR, Rankin Inlet	Mine and supporting infrastructure during construction and operations	Fugitive dust sources and deposition of dust (including from blasting during mining) can change water and sediment quality, which may affect the health of terrestrial and aquatic life	Best management practices to control fugitive particulate emissions from haul roads and material handling Use of water or dust suppressants to manage dust; use of chemical suppressants will be in accordance with the Environmental Guidance for Dust Suppression published by the Government of Nunavut Department of the Environment Enforcing speed limits to suppress dust production Design roads as narrow as possible while maintaining safe construction and operation practices Crossings will be perpendicular to watercourse The running surface of the road will be maintained, thereby reducing the generation of dust Sheds, enclosures, and covers will be used in major ore handling areas and most crushing areas For uncovered crushing areas, water or dust suppression will be used Dust control systems will be used to limit dust emissions; for example,	Primary



Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
			processing equipment with high efficiency bag houses will be used Most personnel arriving at or leaving the site will be transported by bus, thereby reducing the amount of traffic (and dust) Operating procedures will be developed that reduce dust generation; for example, tailings deposition will be designed to limit dust generation	
Mine	Mine and supporting infrastructure during construction and operations	Air emission of sulphur dioxide, nitrogen oxides, and particulates may change water and sediment quality, which may affect the health of terrestrial and aquatic life	Construction equipment and trucks will be equipped with industry-standard emission control systems Compliance with regulatory emission requirements will be met Processing equipment will use dust collectors to limit emissions of particulate matter Exhaust emissions from non-road vehicles will be managed through regular and routine maintenance of vehicles SO ₂ emissions from non-road vehicles and stationary equipment will be reduced through the use of diesel fuel with less than 15 ppm of sulphur Operating procedures will be developed that reduce dust generation Generator efficiencies and equipment will be tuned for optimum fuel-energy efficiency	Primary
AWAR and Rankin Inlet	During construction and operations, air emissions from vehicles	Air emission of sulphur dioxide, nitrogen oxides, and particulates may change water and sediment quality, which may affect the health of terrestrial and aquatic life	Construction equipment, buses, vans, pick-up trucks and transport trucks will be equipped with industry-standard emission control systems Compliance with regulatory emission requirements will be met	No Linkage
Mine	Mining activities and water management during construction, operations, and closure	Release of mine wastewater (including sewage) may cause changes to surface water quality and sediment quality (i.e., nutrient and metal concentrations), which may affect the health of terrestrial and aquatic life	Treated sewage will be piped to the tailings storage facility Mine wastewater will be treated and tested before release to Meliadine Lake; if water quality does not meet discharge limits, it will be circulated and re-treated Water quality will meet CCME aquatic life objectives or site-specific water quality objectives at the edge of the mixing zone in Meliadine Lake Underground water will be collected, contained, monitored, re-used in the underground, or collected, contained, monitored, or treated, if required, to meet discharge limits for release to Meliadine Lake A Surface Water Management Plan (SD 2-6) has been developed and describes containment of contact water through the use of diversions, attenuation ponds, and treatment facilities during construction, operations, and closure Other applicable design features and mitigation, as identified in the Project closure plan	Primary



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine and Rankin Inlet	Construction and operation of camps	The construction and operation of camps may cause erosion and release of substances to surface water and could affect water and sediment quality, which may affect the health of terrestrial and aquatic life	Best management practices for erosion and sedimentation control, and storage and use of chemicals will be implemented Ditches will be constructed to route any runoff water to the attenuation pond Sewage will be directed to the tailings storage facility and will not be released directly to surface water	No Linkage
Mine	Mine and supporting infrastructure during construction and operations	Process and potable water use resulting in reduced water levels can affect water quality in Meliadine Lake, which may affect the health of terrestrial and aquatic life	Manage pumping rates so total annual discharge from Meliadine Lake does not drop below the 10-year dry condition No water withdrawal for filling of pits during the 10-year dry condition Water withdrawal rate(s) will be controlled to reduce effects on Meliadine Lake Capture and reuse site water to reduce fresh water requirements	Minor
Mine and Rankin Inlet	Mine and supporting infrastructure during construction and operations	Spills and leaks during equipment operation can affect water and sediment quality of nearby surface waters, which may affect the health of terrestrial and aquatic life	Hazardous materials and fuel will be stored according to regulatory requirements to protect the environment and workers (i.e., SD 2-13 Hazardous Materials Management Plan) Storage tanks (e.g., fuel, engine oil, hydraulic oil, and waste oil and coolant) will be double walled, or located in lined and bermed containment areas Hazardous wastes will be stored on site in appropriate containers and location to prevent exposure until they are shipped off site to an approved facility Individuals working on site and handling hazardous materials will be trained in the Transportation of Dangerous Goods Soils from fuel spill areas will be deposited and spread in a lined biopile for remediation A Spill Contingency Plan (SD 2-16) has been developed Emergency spill kits will be available wherever toxic materials or fuel are stored and transferred	No Linkage
Mine	Site Water Management: seepage and runoff during operations and closure	Runoff and leaching from the waste rock storage facilities and mine footprint may change surface water and sediment quality (i.e., metal concentrations), which may affect the health of terrestrial and aquatic life	A Surface Water Management Plan (SD 2-6) has been developed and describes the containment and management of contact water on-site Runoff and seepage from the Project site will be diverted to sumps and attenuation ponds (and treated if required) prior to release into Meliadine Lake Water from the attenuation ponds will be used in the process plant Water quality in attenuation ponds will be monitored and managed such that the discharge entering Meliadine Lake meets discharge limits	Minor



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
			Potential acid generating rock and metal leaching waste rock will be segregated at source and placed into designated areas within waste rock storage facilities	
Mine	Site Water Management: seepage and runoff during operations and closure	Vertical and lateral seepage from the tailings storage facility may enter nearby waterbodies and change water and sediment quality (i.e., metal concentrations), which may affect the health of terrestrial and aquatic life	A Surface Water Management Plan (SD 2-6) has been developed and describes the containment and management of contact water on-site Seepage will be captured at sumps and diverted to the tailings storage facility All ponds collecting seepage will be designed to prevent release into the surrounding aquatic environment Tailings storage facility water will be monitored for water quality, and treated as required, prior to discharge	Minor
Mine	Site Water Management: seepage and runoff during operations and closure	Seepage of pore water through, or underneath, incompletely frozen dikes to adjacent watersheds may change water and sediment quality in local watersheds, which may affect the health of terrestrial and aquatic life	A Surface Water Management Plan (SD 2-6) has been developed and describes containment and management of contact water on-site The dikes will be designed and constructed to control seepage Performance of the dikes will be monitored, and appropriate remediation applied if required	Minor
Mine	Site Water Management: Dewatering of Project Footprint waterbodies to downstream receiving waterbodies (e.g., to lakes A7, A1, B6, B34, Meliadine Lake) during construction and operations	Dewatering of lakes may change flows, water levels, channel/bank stability, and water quality (e.g., suspended sediments, nutrients, metals) in receiving and downstream waterbodies, which may affect the health of terrestrial and aquatic life	During dewatering activities, TSS will be monitored, and if necessary, treated before release downstream Pumped water from the dewatered lakes will be directed through properly designed structures to the lake environment, and not to lake outlets, to prevent erosion in the receiving waterbodies and to attenuate flows Shoreline areas susceptible to extensive erosion will be assessed appropriate erosion protection measures to reduce erosion and associated re-suspension of fine sediment Where practical, natural drainage patterns will be used to reduce the use of ditches or diversion berms	Primary
Mine	Pit development and operations	Release of pit water inflows to local watersheds may affect water and sediment quality in local watersheds, which may affect the health of terrestrial and aquatic life	Groundwater inflow to the pits or other dewatered areas will not be directly released to local watersheds All pit water will be pumped to the TSF, re-used in process plant; excess TSF water will be treated, if necessary, prior to release to the receiving environment	No Linkage



Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine	Pit development and operations	Removal of bedrock and ore material may change or alter existing faults and change contaminant transport processes in subsurface and surface water quality, which may affect the health of terrestrial and aquatic life	Groundwater model results suggest a travel time of 500 to 1 000 years for water to move, via groundwater pathways, from the tailings storage facility to Meliadine Lake; a talik will have formed beneath the tailings storage facility before water can flow along this pathway	No Linkage
Mine, AWAR, and Rankin Inlet	Construction and operation of roads	Cross-drainage structures for the mine site roads, AWAR, and Rankin Inlet bypass road may alter stream hydraulics and geomorphology, and alter water and sediment quality, which may affect the health of terrestrial and aquatic life	Cross-drainage structures will be designed and constructed such that structures will not create a hydraulic barrier to fish passage and will convey peak flows corresponding to 1:25 year 24-hour rainfall event	Minor
Mine, AWAR, and Rankin Inlet	Construction and operation of roads	Freezing and plugging of culverts in the winter may result in over-topping and erosion of road surface releasing silt into watercourses during freshet and affect water and sediment quality, which may affect the health of terrestrial and aquatic life	Use of staggered culvert configuration to promote drainage during spring thaw and freshet Regular inspection of the road to identify any areas where ponding of water along the road represents a risk, and installing additional culverts to alleviate the risk	No Linkage
Mine, AWAR, and Rankin Inlet	Construction and operation of roads	Release of potential acid generating materials from road building materials at the watercourse crossings can alter water and sediment quality, which may affect the health of terrestrial and aquatic life	Use of non-acid generating material at all watercourse crossings; testing will continue on new sources identified for road building Rock quarry activity will be at least 30 m from the high water mark of any waterbody	Minor
Mine, AWAR, and Rankin Inlet	Construction and operation of roads	Surface water drainage through quarries and transport of blasting residuals and metals directly into watercourses can affect surface water and sediment quality, which may affect the health of terrestrial and aquatic life	Where possible, stockpiling of rock and fill from quarries and borrow sites will be placed such that surface water is not diverted through the piles with runoff to surface waterbodies; drainage from quarries will not flow directly into any waterbodies or watercourses When there is seepage from a quarry or borrow pit that could enter a waterbody, a water quality sample will be collected and analyzed Quarries and borrow pits will be excavated and sloped for positive drainage	Minor



Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
			Quarries and borrow pits will be inspected on a regular basis to monitor water ponding, particularly at spring melt; excavations will be at least 30 m away from any watercourses Best management practices for erosion and sediment control	
Mine	Ongoing exploration	Ongoing exploration, and uptake and release of water, can affect surface water and sediment quality, which may affect the health of terrestrial and aquatic life	Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, timing and location of releases), where needed Best management practices for storage and treatment, if necessary, of any release water Testing, as required by operational licence, before release of water Best management practices for withdrawal rates, withdrawal volumes, and timing of withdrawals Reuse of water, where applicable, to reduce water usage	Minor
Mine, AWAR, and Rankin Inlet	Decommissioning (e.g., roads, buildings, infrastructure, underground workings) during closure	Removal of project infrastructure (e.g., roads, dikes) may change flows and cause release of sediment and contaminants and can affect water and sediment quality, which may affect the health of terrestrial and aquatic life	A preliminary Mine Closure and Reclamation Plan (SD 2-17) has been developed and describes measures for permanent closure Best management practices for erosion and sedimentation control, such as installation of rip-rap, if applicable, to prevent erosion after removal of the culverts Instream work will be limited to the minimum extent possible Instream work will follow DFO operational guidance and timing windows All bridges and culverts will be removed and original drainage patterns restored; stream crossings will be rehabilitated Dikes in lakes will be removed to a minimum depth of 1 m below average lake water level or back to original bed; removal of dikes will be timed to minimize release of sediments In the underground workings, seal all drill holes and openings connected to the surface Remove unused explosives and other chemicals from the mine site Roads will be scarified, allowing native plants to re-establish, and slopes will be stabilized against erosion	Minor



Table 10.1-3: Potential Pathways for Effects on the Health of Terrestrial and Aquatic Life (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine	Decommissioning of tailings and waste rock storage facilities during closure	Activities required for covering and reclaiming the tailings and waste rock storage facilities may cause release of contaminants and can affect water and sediment quality, which may affect the health of terrestrial and aquatic life	A preliminary Mine Closure and Reclamation Plan (SD 2-17) has been developed and describes measures for permanent closure The waste rock storage facilities have been designed for long-term stability A cover of non-potentially acid generating and non-metal leaching rockfill cover will be placed on the surface of the tailings to a thickness that will allow the tailings to remain permanently frozen The pond in the tailings area will be drained and filled with waste rock to promote surface drainage to Tiriganiaq Pit The surface of the tailings and waste rock storage facilities will be graded to blend into the existing topography and to shed water from the surface	Minor
Mine	Remediation of attenuation pond AP-01 during closure	Reconnection of attenuation pond (or Lake H17) to Meliadine lake can affect water and sediment quality, which may affect the health of terrestrial and aquatic life	A preliminary Mine Closure and Reclamation Plan (SD 2-17) has been developed and describes measures for permanent closure Sediments will be analyzed, and if concentrations are higher than baseline or guidelines, sediments will be managed according to best practices	Minor
Mine	Pits (closure and post-closure)	Water quality in flooded pits may be higher than objectives and reconnection of drainages may affect downstream water and sediment quality, which may affect the health of terrestrial and aquatic life	A preliminary Mine Closure and Reclamation Plan (SD 2-17) has been developed and describes measures for permanent closure The pits are designed to have stable slopes during mining and post-closure The pits will be progressively reclaimed as excavation is completed The pits will be flooded, with water from Meliadine Lake, over a 10 year period following completion of pit operations Water quality in the pits will be monitoring continuously during the flooding process All diversion dikes will be kept intact as a barrier between open pits and surrounding lakes until the pit water meets acceptable concentrations for release to the environment; water will be treated if it is unacceptable for discharge	Primary

SO₂ = sulphur dioxide.

ppm = parts per million.

AWAR = all-weather access road.

PAG = potentially acid generating.

TSS = total suspended solids.

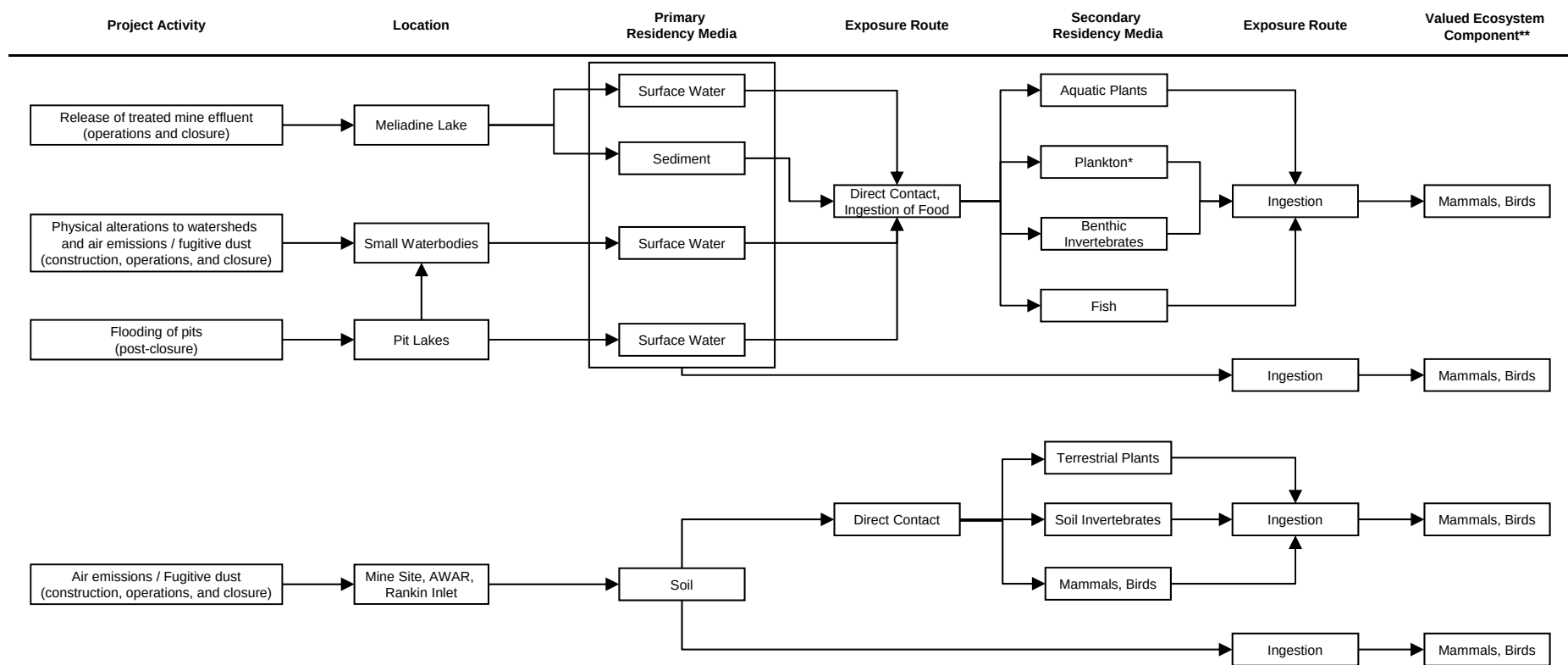
CCME = Canadian Council of Ministers of the Environment.

TSF = Tailings storage facility

DFO = Department of Fisheries and Oceans Canada.

Conceptual Site Model for the Meliadine Gold Project – Terrestrial Life

FIGURE 10.1-1



NOTES

* Phytoplankton and zooplankton

** The valued ecosystem components have been simplified to mammals and birds. The species of mammals and birds selected as valued ecosystem components are described in Section 10.1.3.

Date: January 2013

Project: 10-1373-0076



CAD: TMG

CKD: RJ



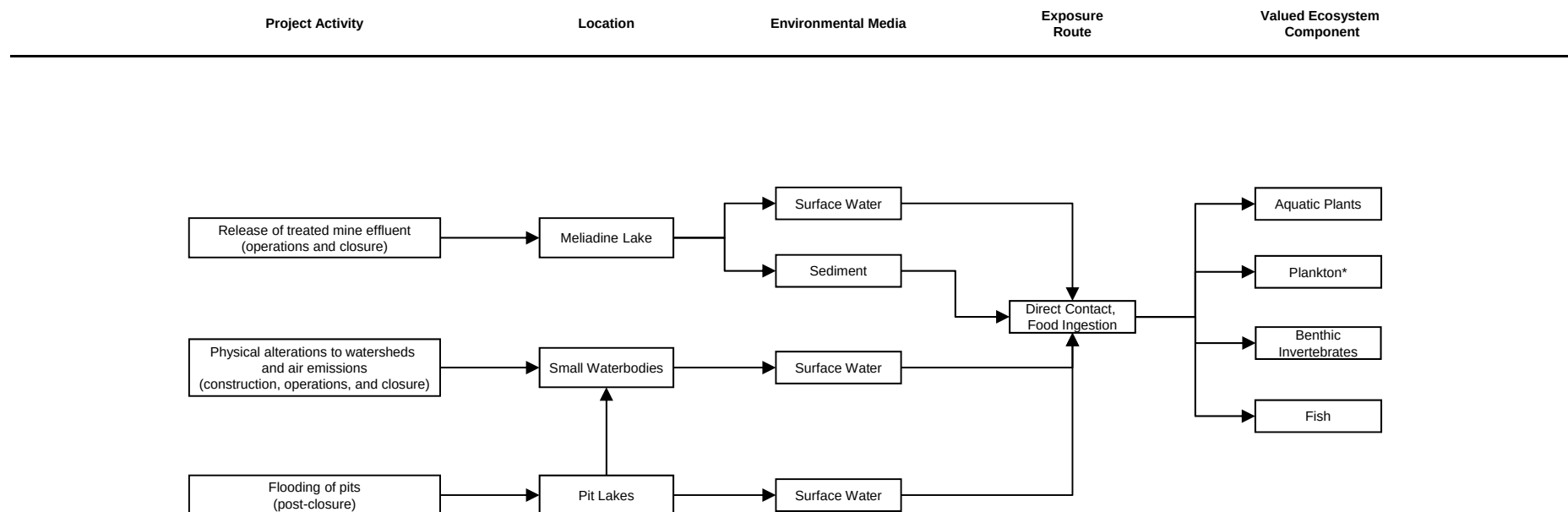
Air emissions and fugitive dust during operations may deposit to soil, leading to changes in soil quality (i.e., chemical concentrations). Mammals and birds may come in contact with chemicals in soil by direct contact pathways (ingestion) and via ingestion of contaminated food. Release of mine effluent during operations and closure may lead to changes in both surface water and sediment quality (i.e., chemical concentrations) in Meliadine Lake. Physical alterations to watersheds (i.e., small waterbodies around the mine site), air emissions, and deposition of fugitive dusts during construction, operations, and closure can lead to changes in surface water quality (i.e., chemical concentrations) in small waterbodies. Mammals and birds may come in contact with chemicals in surface water and sediment by direct contact pathways (ingestion) and via ingestion of contaminated food. At the end of mining, the pits will be actively flooded with water from Meliadine Lake to create pit lakes. At post-closure, water from the pit lakes will be released to the receiving environment and may impact surface water quality (i.e., chemical concentrations) in downstream waterbodies. Mammals and birds may come in contact with chemicals in surface water in the small waterbodies but also the pit lakes by direct contact pathways (ingestion) and via ingestion of contaminated food.

The CSM for aquatic life is shown in Figure 10.1-2.

Release of treated mine effluent during operations and closure may lead to changes in both surface water and sediment quality (i.e., chemical concentrations) in Meliadine Lake. Physical alterations to watersheds (i.e., small waterbodies around the mine site), air emissions, and deposition of fugitive dusts during construction, operations, and closure can lead to changes in surface water quality (i.e., chemical concentrations) in small waterbodies. Aquatic life may come in contact with chemicals in surface water and sediment by direct contact pathways and via ingestion of contaminated food. At the end of mining, the pit lakes will be actively flooded with water from Meliadine Lake. At post-closure, water from the pit lakes will be released to the receiving environment and may impact surface water quality (i.e., chemical concentrations) in small waterbodies. Aquatic life may come in contact with chemicals in surface water in the small waterbodies but also the pit lakes by direct contact pathways and via ingestion of contaminated food.

10.1.7 Mitigation Measures

Mitigation measures were incorporated into the predictive air quality modelling, sediment quality modelling, and surface water quality modelling carried out by other components. A description of these mitigation measures can be found in the relevant sections in the FEIS (FEIS Volumes 5 and 7, Sections 5.2 and 7.4, respectively). No additional mitigation measures were considered in the environmental risk assessment.



NOTES

•Phytoplankton and zooplankton

Date: January 2013

Project: 10-1373-0076



CAD: TMG

CKD: RJ



10.1.8 Effects Analysis

10.1.8.1 General Approach

This section provides the general approach used to evaluate the potential for adverse health effects to terrestrial and aquatic life associated with changes in environmental quality due to chemical releases from the Project.

As stated previously, risk assessment is the primary tool used to characterize potential adverse health effects, if any, to the environment from chemical releases. As described in Section 10.1.1, risk assessment includes 4 steps, namely problem formulation, exposure assessment, toxicity assessment, and risk characterization. Potential adverse health effects are characterized using a hazard quotient (HQ) approach. A target HQ of one was used in the assessment. An HQ of less than one indicates that adverse health effects to terrestrial and aquatic life are not expected. An HQ of greater than one indicates the potential for adverse health effects to terrestrial and aquatic life.

If any potential adverse health effects to the environment were determined based on the HQ approach, the health effects were further evaluated in terms of the assessment criteria suggested in the Guidelines for the Project (NIRB 2012) in the residual impact classification (Section 10.1.9), as follows:

- direction or nature of the effects;
- magnitude and complexity;
- geographic extent;
- frequency;
- duration;
- reversibility; and
- likelihood or probability of effects.

A determination of the significance for environmental health was then made (not significant or significant).

10.1.8.2 Project Environment

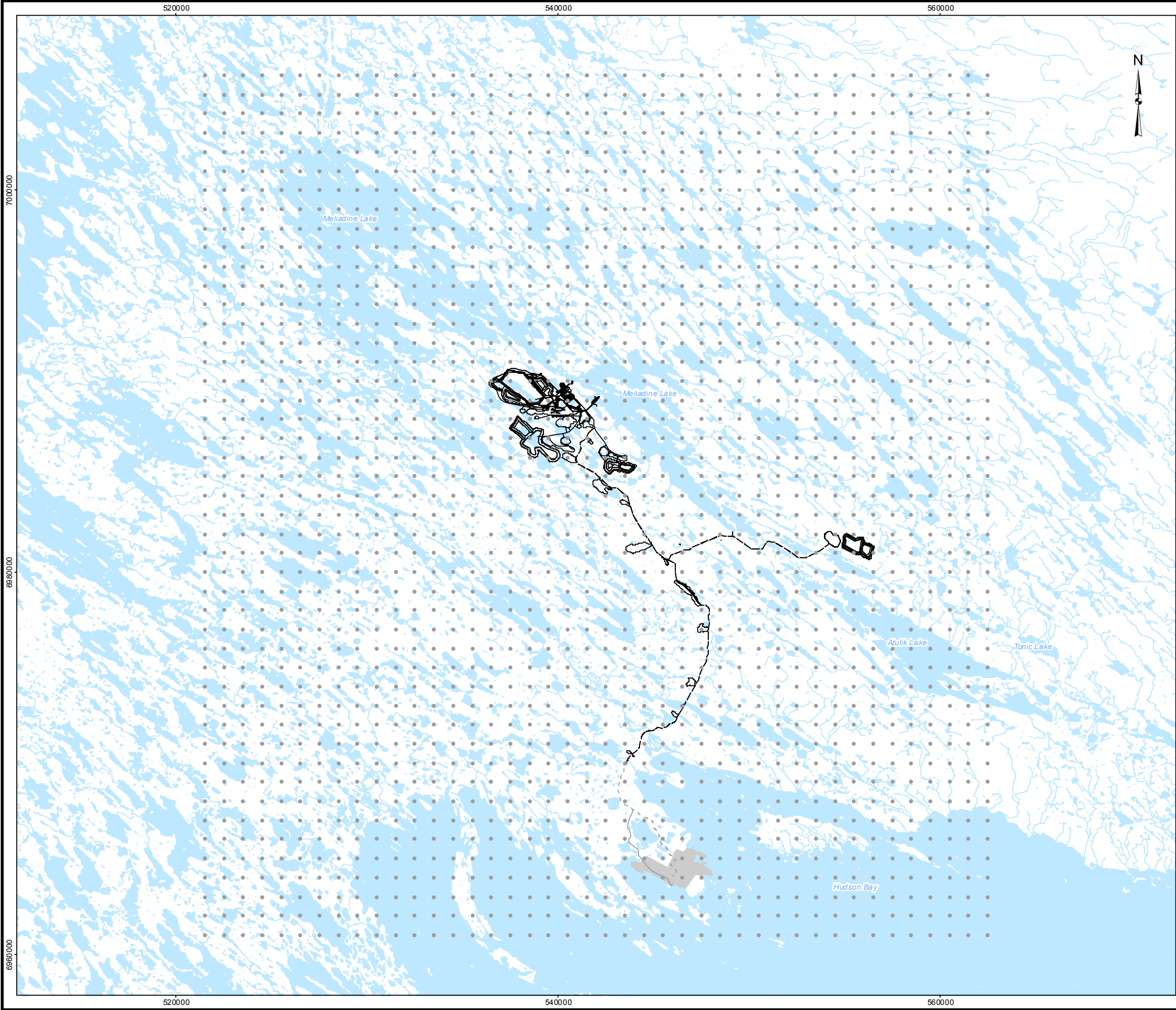
The environmental risk assessment used predicted concentrations of chemicals in environmental media, as determined by other Project components, to determine the potential for adverse health effects to terrestrial and aquatic life associated with chemical releases from the Project. The environmental risk assessment relied upon the following predicted environmental data:

- Predicted soil concentrations for the mine site, AWAR, and Rankin Inlet. Soil concentrations were predicted in the environmental risk assessment using the modelling methods developed by the USEPA (2005) and relied upon modelled atmospheric deposition rates. A detailed description of the atmospheric deposition modelling is provided in FEIS Volume 5, Section 5.2 (Air Quality). In brief, given that emissions from the Project are likely to be greatest during the operations phase, the modelled deposition rates represent a bounding case from any phase of the Project (i.e., construction, operations, closure, and post-closure). Deposition rates were modelled at a series of gridded receptors (i.e., for 1 km by 1 km grids on the entire modelling domain, which was 35 km by 35 km) (Figure 10.1-3).



- Predicted sediment concentrations for Meliadine Lake during operations. A detailed description of the sediment quality modelling and predictions is provided in FEIS Volume 7, Section 7.4 (Surface Water and Sediment Quality). In brief, sediment quality was predicted within the mixing zone of the diffuser in Meliadine Lake, assuming the sediment pores can be filled with effluent water. Predictions of sediment quality in other parts of Meliadine Lake or in the small waterbodies were not made because there is no source of contact water in these areas.
- Predicted surface water concentrations for Meliadine Lake. A detailed description of the water quality modelling and predictions is provided in FEIS Volume 7, Section 7.4 (Surface Water and Sediment Quality). In brief, treated mine wastewater and effluent will be released to Meliadine Lake, which may cause a change in surface water quality of Meliadine Lake. The mine site will act as a closed loop during operations and closure with all contact water intercepted and diverted to the contact water attenuation pond (AP-01). There will be one discharge point of contact water for the mine, which will be from AP-01 into the east basin of Meliadine Lake via a diffuser. Discharge to Meliadine Lake will occur from predevelopment to the end of mining (years -3 to 12) (i.e., through construction and operations). The diffuser may be used during the first year of closure but will be removed from Meliadine Lake as early as possible during closure. Given that the diffuser will be removed during closure, Meliadine Lake is assumed to return to existing conditions during post-closure. The water quality predictions for Meliadine Lake account for effluent discharge to the lake but not atmospheric loadings as these loadings are small. Predictions are for the edge of the mixing zone.
- Predicted surface water concentrations for small waterbodies. A detailed description of the water quality modelling and predictions is provided in FEIS Volume 7, Section 7.4 (Surface Water and Sediment Quality). Physical alterations of watersheds and deposition of windborne particulates from Project facilities and exposed lake beds, and air emissions (including blasting particulates and residuals) from Project facilities may result in a change in water quality in small waterbodies. From construction to closure, no contact water is discharged to any of the watersheds of the small waterbodies. Non-contact (natural) water is the sole source of water to these waterbodies. Changes in concentrations at any phase would be due to changes in the watershed area and atmospheric loadings. At post-closure, water from pit lakes is released to the receiving environment and may impact the downstream waterbodies. Depending on the small lake, water quality predictions are provided for construction, operations, closure, and post-closure. The small waterbodies and phases of the Project for which water quality predictions are provided are summarized in FEIS Volume 7, Section 7.4 (Surface Water and Sediment Quality).
- Predicted surface water concentrations for pit lakes. A detailed description of the water quality modelling and predictions is provided in FEIS Volume 7, Section 7.4 (Surface Water and Sediment Quality). At the end of mining, the pits will be actively flooded with water from Meliadine Lake to create pit lakes. At post-closure, water from pit lakes is released to the receiving environment and may impact downstream waterbodies. Water quality predictions were made for the pit lakes during flooding and during long-term summer conditions. Predictions of pit lake water quality have been made assuming fully mixed conditions.

N:\Bur_Graphics\Projects\2013\1428\13-1428-0007\GIS\Mapping\MXD\FEIS\Volume_10\Main_Volume\Figure_10.1-3_Ecological_Receptors.mxd

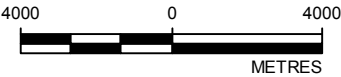


LEGEND

- Ecological Receptor Location
- Municipal Boundary
- Proposed Project Infrastructure
- - - All-weather Access Road (AWAR)
- Road - New
- - - Road - Existing
- Watercourse
- Waterbody

REFERENCE

Base data obtained from Agnico Eagle Mines Limited (AEM).
Datum: NAD 83 Projection: UTM Zone 15



PROJECT				AGNICO EAGLE MINES LIMITED MELIADINE GOLD PROJECT NUNAVUT		
TITLE						
ECOLOGICAL RECEPTOR LOCATIONS						
		PROJECT NO. 10-1373-0076		FILE No.		
		DESIGN	AA	21 Aug. 2012	SCALE AS SHOWN	REV. 0
		GIS	MH	30 Aug. 2012	FIGURE 10.1-3	
		CHECK	TMG	8 Jan. 2013		
REVIEW	GRA	8 Jan. 2013				



10.1.8.3 Results

10.1.8.3.1 Problem Formulation

10.1.8.3.1.1 Chemicals of Potential Concern (COPCs)

Chemicals may be released from the Meliadine Gold Project via airborne emissions, dust generation, and subsequent atmospheric deposition to soil and surface water, as well as via discharges to the aquatic environment. Airborne emissions include acid gases, volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals. Particulate deposition to soil includes PAHs and metals. Particulate deposition to surface water includes metals only because there is currently no standard method that can be used to accurately model particulate deposition of PAHs to surface water. Acid gases and VOCs remain airborne due to their high vapour pressures, preventing any local deposition onto soils and surface water. If they do deposit, they tend not to persist in soil and water, rapidly biodegrading and volatilizing to the atmosphere. Therefore, acid gases and VOCs were not assessed further in the environmental risk assessment but rather the assessment focussed on those chemicals that may potentially deposit, including metals and PAHs. Discharges to the aquatic environment include metals only.

The following sections provide the detailed screening approaches used for the identification of COPCs in soil, sediment, and surface water, respectively.

10.1.8.3.1.1.1 Soil

The predicted concentrations of chemicals in soil as a result of the Project were calculated as the sum of the incremental soil concentrations (ISCs) and the baseline concentrations. Incremental soil concentrations were calculated using the modelling methods developed by the USEPA (2005). Specifically, Equations 1 and 2 were used to calculate the ISCs of inorganic and organic chemicals, respectively.

$$ISC_{Inorganic\ Chemicals} = \frac{100 \times (D_{yd} + D_{yw}) \times tD}{Z_s \times BD} \quad (1)$$

Where:

ISC = Incremental Soil Concentration (mg/kg dw)

100 = Units Conversion Factor (mg-m²/kg-cm²)

D_{yd} = Dry Deposition Rate (g/m²/yr)

D_{yw} = Wet Deposition Rate (g/m²/yr)

tD = Deposition Time (yr)

Z_s = Soil Mixing Depth (cm)

BD = Soil Bulk Density (g/cm³)



$$ISC_{Organic\ Chemicals} = \frac{100 \times (D_{yd} + D_{yw}) \times [1 - \exp(-k_s \times tD)]}{Z_s \times BD \times k_s} \quad (2)$$

Where:

ISC = Incremental Soil Concentration (mg/kg dw)

100 = Units Conversion Factor (mg-m²/kg-cm²)

D_{yd} = Dry Deposition Rate (g/m²/yr)

D_{yw} = Wet Deposition Rate (g/m²/yr)

tD = Deposition Time (yr)

Z_s = Soil Mixing Depth (cm)

BD = Soil Bulk Density (g/cm³)

k_s = Soil Loss Constant (yr⁻¹)

Calculation of the ISCs relied upon modelled atmospheric deposition rates. A detailed description of the atmospheric deposition modelling is provided in Section 5.2 (Air Quality). In brief, dry and wet deposition rates were modelled for 6 different scenarios. The descriptions for each of the scenarios are provided below:

- Scenario 1: Include emissions from the Tiriganiaq pit, haul roads 1 and 3, material handling 18 and 20, underground emissions (vent raises 1 to 3), and the incinerator;
- Scenario 2: Include emissions from the F-Zone pit, haul roads 6 and 7, material handling 12 and 13, underground emissions (vent raises 1 to 3), and the incinerator;
- Scenario 3: Include emissions from the Pump pit, haul roads 8 and 9, material handling 16 and 17, underground emissions (vent raises 1 to 3), and the incinerator;
- Scenario 4: Include emissions from the Discovery pit, haul roads 10 and 11, material handling 14 and 15, underground emissions (vent raises 1 to 3), and the incinerator;
- Scenario 5: Include emissions from the Wesmeg pit, haul roads 12 and 13, material handling 21 and 22, underground emissions (vent raises 1 to 3), and the incinerator; and
- Scenario 6: Include emissions from underground emissions (vent raises 1 to 3) and the incinerator.

Given that the emissions from the Project are likely to be greatest during the operations phase, the modelled deposition rates represent a bounding case from any phase of the Project (i.e., construction, operations, closure, or post-closure).

Deposition onto soil was assumed to occur throughout the operation phase of the Project (i.e., a maximum of 13 years was assumed). Deposition during the closure and post-closure phases were assumed to be negligible (Section 5.2, Air Quality). All chemicals deposited onto soil were assumed to mix within the top 2 cm of soil. Soil was assumed to have a bulk density of 1.5 g/cm³. The soil loss constant (for calculation of the ISCs for PAHs)



represents the loss constant due to all processes, including soil erosion, surface runoff, leaching, volatilization, and biotic and abiotic degradation. The processes of soil erosion, surface runoff, and leaching can transfer chemicals both onto and off the Project area; thus, loss constants for these processes were set at zero. Only non-volatile chemicals were assumed to deposit to soil; as such, the loss constant due to volatilization was also set to zero. Loss constants for biotic and abiotic degradation have been measured in field studies, and the loss constants recommended by the USEPA (2005) were applied in this calculation. The soil loss constants for degradation for each of the modelled PAHs are shown in Appendix 10.1-A, Table 10.1-A-1. Because all other loss constants have been set to zero, the soil loss constant is equal to the degradation loss constant.

An ISC was calculated at the location of the maximum dry/wet deposition rate of all modelled locations for each of the 6 different scenarios (Appendix 10.1-A, Tables 10.1-A-2a to 10.1-A-2f). The calculated ISCs were added to the maximum measured baseline soil concentrations (all measured baseline soil concentrations can be found in FEIS Volume 6, Section 6.4, Soil and Terrain) to obtain the predicted soil concentrations for each chemical (Appendix 10.1-A, Tables 10.1-A-2a to 10.1-A-2f). There are no measured baseline soil concentrations for gold and yttrium; however, deposition rates were obtained for these metals because there will be emissions of these metals during operations. The predicted soil concentrations of these metals were calculated as the sums of the typical average soil concentrations (0.005 mg/kg for gold and 23 mg/kg for yttrium) and the ISCs. Likewise, there are no measured baseline soil concentrations for PAHs; however, deposition rates were obtained for these chemicals because there will be emissions of PAHs during operations. A typical laboratory detection limit for PAHs is 0.05 mg/kg. Therefore half of the laboratory detection limit (0.025 mg/kg) was used to represent baseline concentrations for PAHs, and was added to the ISCs to calculate the prediction soil concentrations of PAHs.

Chemicals of potential concern in soil were identified using a 2-tiered screening approach. In the first tier of screening, the predicted concentrations in soil were compared to soil quality guidelines. Concentrations were compared to the CCME Canadian Soil Quality Guidelines (SQG_Es) for the Protection of Environmental Health (CCME 2012a, internet site). If an SQG_E was not available for a chemical, the USEPA Ecological Soil Screening Levels (Eco-SSLs) for the protection of wildlife were used, if available (USEPA 2012a, internet site) (Appendix 10.1-A, Tables 10.1-A-3a to 10.1-A-3f). Comparison to guidelines was considered to represent a conservative evaluation of the potential for the predicted concentrations to elicit adverse effects. Therefore, chemicals with predicted concentrations that were below guidelines were considered to pose no risk to environmental health and were not identified as COPCs. If the predicted concentration was greater than the guideline, the chemical was carried forward to the next tier of the screening process. Likewise, chemicals that lacked guidelines were carried forward to the next tier of the screening process.

A second tier screening was conducted by comparing the predicted concentrations in soil to the maximum measured baseline concentrations plus 10%. The second tier screening included only those chemicals that were above guidelines, or for which guidelines were not available, as determined through the first tier of screening. Comparison to maximum measured baseline concentrations plus 10% was considered to represent a conservative evaluation of whether a measurable Project-related impact on soil quality will occur. Given spatial and temporal variability, field sampling variability, variability in laboratory methods, and the conservatism applied in the deposition modelling, any predicted increase of less than 10% above baseline concentrations was considered unlikely to reflect a considerable change in soil quality as a result of the Project. If the predicted concentration was greater than the maximum measured baseline concentration plus 10%, the chemical was identified as a COPC and carried forward in the environmental risk assessment.



Predicted concentrations of arsenic, copper, and selenium were greater than soil quality guidelines. Baseline concentrations of these metals were also greater than CCME guidelines. Predicted concentrations were less than maximum measured baseline concentrations plus 10% for all 6 scenarios (Appendix 10.1-A, Tables 10.1-A-3a to 10.1-A-3f). There are no guidelines for aluminum, bismuth, calcium, gold, iron, lithium, magnesium, molybdenum, potassium, sodium, strontium, tin, titanium, yttrium, and thiophene; however, predicted concentrations were less than maximum measured baseline concentrations plus 10%. As a result, no COPCs were identified in soil for further evaluation in the environmental risk assessment.

Given that no Project-related changes to chemical concentrations were predicted for soil, there were no predicted Project-related changes to food items that higher-order animals may rely upon as a food source (e.g. terrestrial vegetation serves as a food source for caribou or fox). As a result, there were no predicted Project-related impacts to traditional food quality as a result of bioaccumulation.

10.1.8.3.1.1.2 Sediment

The same 2-tiered screening approach described for soil was used to identify COPCs in sediment. There are no wildlife health-based guidelines for sediment quality. The applicable guidelines for sediment used for wildlife were the soil quality guidelines used to identify COPCs in soil (i.e., the CCME SQG_{ES} and the USEPA Eco-SSLs, where SQG_{ES} were not available).

The applicable guidelines for sediment used for aquatic life were the CCME Canadian Sediment Quality Guidelines (CSQGs) for the Protection of Aquatic Life (CCME 2012b, internet site). The CCME CSQGs include Interim Sediment Quality Guidelines (ISQGs) and Probable Effect Levels (PELs). The PELs represent the concentrations above which adverse effects on aquatic organisms are expected to occur frequently, whereas the ISQGs were developed to protect the most sensitive organisms. The ISQGs were used to identify COPCs in sediment.

Predicted concentrations of copper, cyanide, nickel, and selenium were greater than the CCME SQG_{ES} for wildlife; however, concentrations were less than maximum measured baseline concentrations plus 10% (Appendix 10.1-B, Table 10.1-B-1). There are no guidelines for several chemicals, but predicted concentrations were less than maximum measured baseline concentrations plus 10%. As a result, no COPCs were identified in sediment for wildlife for further evaluation in the environmental risk assessment.

Predicted concentrations of arsenic, cadmium, chromium, and copper were greater than the CCME ISQGs for aquatic life, but concentrations were less than maximum measured baseline concentrations plus 10% (Appendix 10.1-B, Table 10.1-B-2). There are no guidelines for several chemicals and predicted concentrations were less than maximum measured baseline concentrations plus 10%. As a result, no COPCs were identified in sediment for aquatic life for further evaluation in the environmental risk assessment.

10.1.8.3.1.1.3 Surface Water

10.1.8.3.1.1.3.1 Meliadine Lake

The same 2-tiered screening approach described for soil and sediment was used to identify COPCs in surface water in Meliadine Lake, with the exception that the maximum measured baseline concentrations in Meliadine Lake were used as baseline. For wildlife, predicted concentrations were compared to the CCME Canadian Water



Quality Guidelines (CWQGs) for the Protection of Livestock (CCME 2012c, internet site). If a guideline was not available for a chemical, concentrations were compared to the toxicological benchmarks for wildlife from Sample et al. (1996), if available. For aquatic life, concentrations were compared to the CCME CWQGs for the Protection of Aquatic Life (CCME 2012d, internet site).

For surface water, a third tier of screening was added to the screening process in which the maximum predicted concentrations were compared to guidelines available from other regulatory agencies (e.g., British Columbia Ministry of Environment [BCMOE] and USEPA). The third tier of screening also considered other factors, including the availability of toxicity data.

For wildlife, there are no guidelines for the protection of wildlife for total ammonia (as nitrogen), nitrate (as nitrogen), and silver, and predicted concentrations were greater than baseline concentrations (Appendix 10.1-C, Table 10.1-C-1). However, the predicted concentration of nitrate was less than the BCMOE water quality guideline for wildlife of 100 mg/L (BCMOE 2009, internet site), and the predicted concentration of silver was less than the Ecological Screening Level (ESL) for water for wildlife developed by the Los Alamos National Laboratory (LANL 2010) of 22 000 µg/L. The predicted concentration of total ammonia was within the range of calculated sample-specific CCME CWQGs for the protection of aquatic life. While these guidelines are intended to be protective of aquatic life, it is considered that they are also protective of wildlife. This is because the CCME guidelines are developed in consideration of the end water use, and protection of aquatic life is generally considered the most sensitive end use. The guidelines for protection of aquatic life are typically much lower than the guidelines for livestock watering. Predicted concentrations of all other chemicals were less than guidelines for baseline concentrations. As a result, no COPCs were identified in surface water in Meliadine Lake for further evaluation for wildlife in the environmental risk assessment. Given that no Project-related changes to chemical concentrations were predicted for water for wildlife, there were no predicted Project-related impacts to traditional food quality as a result of bioaccumulation.

For aquatic life, there are no CCME guidelines for the protection of aquatic life for sulphate, total cyanide, antimony, and barium, and predicted concentrations were greater than baseline concentrations (Appendix 10.1-C, Table 10.1-C-2). The predicted concentration of total ammonia was greater than the CCME guideline and the baseline concentration.

The BCMOE (2000, internet site) derived a water quality guideline for aquatic life of 100 mg/L for dissolved sulphate (as SO_4), which represents a maximum concentration that should not be exceeded at any one time. A guideline value of 50 mg/L is also provided as an “alert” level because aquatic mosses appear to be particularly sensitive to the toxic effects of dissolved sulphate. The predicted concentration of sulphate in Meliadine Lake is below the BCMOE guideline so sulphate was not identified as a COPC for aquatic life.

The toxicity of ammonia to aquatic life relates primarily to the concentration of the unionized form, which increases with increasing temperature and pH. The guideline presented for total ammonia (0.41 mg/L) represents the lowest of the calculated sample-specific total ammonia guidelines, and, thus, is considered conservative. The predicted total ammonia concentration is within the range of the calculated sample-specific guidelines. As such, total ammonia was not identified as a COPC for aquatic life.

The predicted total cyanide concentration was greater than the baseline concentration. Free cyanide is the most toxicologically relevant to aquatic life so cyanide was considered further with respect to the free cyanide



concentration and not the total cyanide concentration. The free cyanide concentration was below the CWQG and cyanide was not identified as a COPC for aquatic life.

The BCMOE (2006, internet site) provides a working water quality guideline for antimony of 20 µg/L. The maximum predicted concentration of antimony is well below the guideline. As such, antimony was not identified as a COPC for aquatic life.

The BCMOE (2006, internet site) provides a working water quality guideline for barium for freshwater aquatic life of 1000 µg/L. The maximum predicted concentration of barium in Meliadine Lake is well below the BCMOE guideline so barium was not identified as a COPC for aquatic life.

Predicted concentrations of all other chemicals were less than guidelines or baseline concentrations. As a result, no COPCs were identified in surface water in Meliadine Lake for further evaluation for aquatic life in the environmental risk assessment. Given that no Project-related changes to chemical concentrations were predicted for water for aquatic life, there were no predicted Project-related impacts to fish quality as a result of bioaccumulation.

10.1.8.3.1.1.3.2 *Small Waterbodies*

Chemicals of potential concern in surface water in the small waterbodies on the peninsula were identified using a 3-tiered screening approach, similar to that described for Meliadine Lake. The only difference is that due to a limited amount of baseline data or no baseline data for some small waterbodies, the maximum modelled baseline concentrations plus 10% were used as the baseline concentrations for the small waterbodies instead of the maximum measured baseline concentrations.

The detailed chemical screening tables for the small waterbodies for wildlife are provided in Appendix 10.1-C, Tables 10.1-C-3a to 10.1-C-3z. There are no guidelines for the protection of wildlife for total alkalinity, total suspended solids, chloride, magnesium, potassium, sodium, ammonia, nitrate, total Kjeldahl nitrogen (TKN), bismuth, iron, silver, titanium, and tungsten, and predicted concentrations were greater than baseline concentrations for these parameters.

Predicted concentrations of chloride, ammonia, nitrate, and iron are less than the CCME CWQGs for the protection of aquatic life. While these guidelines are intended to be protective of aquatic life, it is considered that they are also protective of wildlife for the reasons described above for Meliadine Lake. Predicted concentrations of silver and titanium are less than the ESLs for water for wildlife (LANL 2010). Magnesium, potassium, and sodium are essential nutrients and are not expected to result in adverse health effects unless large quantities are ingested. There is a general lack of wildlife toxicity data for bismuth and tungsten. Sano et al. (2005) derived a no observed effect level (NOEL) for bismuth of 1000 mg/kg based on a 28 day study in rats. The predicted concentration of bismuth in Lake A1 only slightly exceeded the baseline concentration (predicted concentration of 0.08 µg/L versus baseline concentration of 0.07 µg/L). At this predicted concentration of bismuth, wildlife would have to consume upwards of several thousand litres of water per day to approach this dose. The Agency for Toxic Substances and Disease Registry (ATSDR 2005) provides lethal doses for some laboratory species (mouse, rat, rabbit, guinea pig) for various tungsten compounds that range from 240 to 1600 mg/kg. The highest predicted concentration of all small waterbodies was 91 µg/L. At this predicted concentration of tungsten, wildlife would have to consume upwards of several thousand litres of water per day to approach this dose. Total



alkalinity, total suspended solids, and TKN are water quality parameters that do not have a direct impact on wildlife health.

Predicted concentrations of all other chemicals were less than guidelines or baseline concentrations. As a result, no COPCs were identified in the small waterbodies for further evaluation for wildlife in the environmental risk assessment. It is noted that total mercury concentrations are predicted to increase in Lake A1 during operations and closure relative to guidelines protective of aquatic life and baseline concentrations (see below). The predicted concentrations of total mercury in Lake A1 only slightly exceed baseline concentrations and the predicted concentrations are considered conservative. However, when mercury is present as methyl mercury, it is a bioaccumulative substance that biomagnifies in the aquatic food web. Methyl mercury in fish also affects human health for people that consume fish containing elevated concentrations of methyl mercury, both on a recreational and subsistence basis. Predictions for methyl mercury were not carried out due to the lack of a suitable database and the substantial uncertainties in modeling methyl mercury generation. Given the potential for methyl mercury concentrations in fish tissue to change as a result of the Project, the fish health monitoring component of aquatic effects monitoring and follow-up program (see SD 7-3) will include monitoring of mercury concentrations in fish tissue (given that over 90% of mercury in fish tissue is present as methyl mercury).

The detailed chemical screening tables for the small waterbodies for aquatic life are provided in Appendix 10.1-C, Tables 10.1-C-4a to 10.1-C-4z. For chemicals with guidelines, predicted concentrations were below guidelines for all lakes, except lakes A1, B6, and CH. In lakes A1, B6, and CH, predicted concentrations of cadmium, copper, lead (Lake A1 only), mercury (Lake A1 only), and silver (Lake A1 only) were greater than the CWQGs for the protection of aquatic life and baseline concentrations. As such, these chemicals were identified as COPCs and carried forward for evaluation for aquatic life in the environmental risk assessment.

Several chemicals do not have guidelines, and predicted concentrations were greater than baseline concentrations. As such, the predicted concentrations were compared to guidelines available from other regulatory agencies and considered other factors such as the availability of toxicity data.

Calcium, magnesium, potassium, and sodium are essential nutrients and are not expected to result in adverse health effects to aquatic life. Furthermore, major ions such as these can effectively reduce metal toxicity in aquatic biota through competitive interactions at uptake sites. Similarly, an increase in alkalinity can reduce metal toxicity in aquatic biota. As such, an increase in the concentration of these parameters above baseline would not necessarily constitute a potential adverse effect but would serve to ameliorate metal toxicity to aquatic biota. In addition, the BCMOE provides a working water quality guideline for potassium of 373 000 to 432 000 µg/L (as potassium chloride) (BCMOE 2006, internet site). This equates to a guideline of 194 000 to 225 000 µg/L as potassium. The guideline is based on a threshold for immobilization of *Daphnia magna*. The maximum predicted concentration of potassium of all small waterbodies (3.7 µg/L) is well below the BCMOE guideline of 194 000 to 225 000 µg/L.

Total Kjeldahl nitrogen is a measure of ammonia and organic forms of nitrogen. Potential adverse effects of ammonia on freshwater aquatic life have been addressed through the screening that was completed for ammonia. There is little toxicity information for organic forms of nitrogen; however, these are minor constituents and do not appear to affect water uses (BCMOE 2009, internet site). As such, TKN has not been considered further in the aquatic risk assessment (RA).

The CCME (2004) provides a guidance framework for total phosphorus and this framework was followed with respect to screening for total phosphorus; however, only total dissolved phosphorus concentrations were



predicted for the small waterbodies. Under baseline conditions, total dissolved phosphorus is on-average 56% of the total phosphorus concentration in the small waterbodies in the A and B watersheds (exceedances of baseline concentrations were noted in Lake A1 and Lake B6 only). Under baseline conditions, these lakes are classified as mesotrophic based on total phosphorus concentrations. Assuming that total dissolved phosphorus is on average 56% of the total phosphorus concentration, the predicted total dissolved phosphorus concentrations were divided by 0.56 to estimate the total phosphorus concentration. The estimated concentrations were screened against the trigger range for mesotrophic lakes of 10 to 20 µg/L, which is the desired concentration range for total phosphorus. The estimated total phosphorus concentrations were within the trigger range for mesotrophic lakes (i.e., waterbodies to remain in the same trophic category).

The BCMOE (2006, internet site) provides a working water quality guideline for antimony of 20 µg/L. The maximum predicted concentration of antimony of all small waterbodies (0.43 µg/L) is well below the guideline.

The BCMOE (2006, internet site) provides a working water quality guideline for barium of 1000 µg/L. The maximum predicted concentration of barium of all small waterbodies (75 µg/L) is well below the guideline.

The BCMOE (2006, internet site) provides a working water quality guideline for beryllium of 5.3 µg/L. The maximum predicted concentration of beryllium of all small waterbodies (0.44 µg/L) is well below the guideline.

The BCMOE (2006, internet site) provides working water quality guidelines for lithium of 14, 96, and 870 µg/L for secondary chronic, final chronic, and aquatic maximum value, respectively. The maximum predicted concentration of lithium of all small waterbodies (14 µg/L) meets the working water quality guidelines.

The BCMOE (2006, internet site) provides working water quality guidelines for vanadium of 6 µg/L and 20 µg/L. The maximum predicted concentration of vanadium of all small waterbodies (2.4 µg/L) is well below the lowest of the guidelines.

The BCMOE (2006, internet site) provides working water quality guidelines for titanium of 2000 and 4600 µg/L. The maximum predicted concentration of titanium of all small waterbodies (24 µg/L) is below the lowest of the guidelines.

The BCMOE (2004, internet site) provides a water quality guideline for cobalt of 4 µg/L. This guideline is based on the invertebrates *Daphnia magna* and *Ceriodaphnia dubia* that exhibited chronic effects when exposed to low concentrations of cobalt. A lowest observed effect concentration (LOEC), representing a geometric mean of several values, of 8 µg/L was determined to cause reproductive effects in these organisms. The guideline of 4 µg/L was obtained by applying a safety factor of 2 to the LOEC. A lower (than 10) safety factor was justified because cobalt is essential in the synthesis of vitamin B₁₂, which is necessary for animal nutrition. The maximum predicted concentration of cobalt of all small waterbodies (1.6 µg/L) is below the guideline.

The BCMOE (2001, internet site) provides a water quality guideline for manganese based on water hardness:

Manganese guideline = 700 µg/L at water hardness of 25 mg/L as CaCO₃
= 800 µg/L at water hardness of 50 mg/L as CaCO₃
= 1000 µg/L at water hardness of 100 mg/L as CaCO₃
= 1300 µg/L at water hardness of 150 mg/L as CaCO₃
= 1900 µg/L at water hardness of 300 mg/L as CaCO₃



In brief, the guideline was derived using data from toxicity tests commissioned in support of the guideline development as well as toxicity data from the literature. Toxicity tests commissioned in support of the guideline development included chronic toxicity tests on fish (rainbow trout), invertebrates (*Daphnia magna*, *Chironomus tentans*, *Hyalella azteca*), and algae (*Selenastrum capricornutum*). Tests were conducted over a range of water hardnesses (25, 100, and 250 mg/L as CaCO₃). A regression equation was developed based upon the most sensitive species and endpoint for various water hardness values considering both the commissioned toxicity tests and toxicity data from the literature. The equation was used to predict manganese concentrations at various water hardness levels. An uncertainty factor of 0.25 was applied to the predicted manganese concentration to account for uncertainty. The resulting manganese concentration was then proposed as the guideline for manganese at that water hardness. The regression equation is as follows:

$$\text{Manganese guideline (mg/L)} \leq 0.0044 \times \text{hardness} + 0.605$$

Using the regression equation and the lowest water hardness measured of all small waterbodies in the Project area (10 mg/L as CaCO₃), a guideline of 649 µg/L is applicable. The maximum predicted concentration of manganese of all small waterbodies (143 µg/L) is below the guideline.

The BCMOE derived a chronic water quality guideline for sulphate for the protection of freshwater aquatic life of 100 mg/L for dissolved sulphate (as SO₄), which represents a maximum concentration that should not be exceeded at any time (BCMOE 2000, internet site). A guideline value of 50 mg/L for dissolved sulphate (as SO₄) is also provided as an “alert” level because some aquatic mosses appear to be particularly sensitive to the toxic effects of dissolved sulphate. A concentration of 100 mg/L was toxic to the aquatic moss, *Fontinalis antipyretica*. Toxicity ranged from 100 to >250 mg/L for 4 other species of aquatic moss. The BCMOE recommends that when dissolved sulphate concentrations exceed 50 mg/L, the health of aquatic mosses should be monitored. The maximum predicted concentration of sulphate (17 mg/L) is well below the BCMOE guideline of 50 mg/L.

There is no CCME guideline for total dissolved solids (TDS) for the protection of aquatic life. The USEPA does not have a national criterion for TDS but several states have developed criteria. Of the 15 states, values range from 100 mg/L to 1500 mg/L. For example, Alaska, Mississippi, Illinois, and Ohio have criteria of 1000, 750, 1500, and 100 mg/L respectively. Lake A1 and Lake B6 have baseline concentrations of TDS that exceed the most stringent criterion of 100 mg/L so this criterion is considered conservative for the Project. Furthermore, predicted concentrations only slightly exceeded baseline concentrations, and were within the range of criteria reported in the US. As such, TDS was not identified as a COPC in the small waterbodies for aquatic life.

The Quebec Ministry of Environment (MDDEP) adopted a chronic benchmark for strontium of 21 000 µg/L (MDDEP 2012, internet site). This benchmark is the same as that adopted by the US states of Michigan and Ohio. The maximum predicted concentration of strontium of all small waterbodies (313 µg/L) is well below the benchmark of 21 000 µg/L.

Health-based guidelines are not available for bismuth, tin, and tungsten, and there is a general lack of toxicity data for these chemicals. These chemicals were not identified as COPCs.

To summarize, no COPCs were identified in the small waterbodies for evaluation for terrestrial life (wildlife) in the environmental risk assessment. The chemicals identified as COPCs and carried forward for evaluation for aquatic life in the environmental risk assessment are summarized in Tables 10.1-4 to 10.1-6.



Table 10.1-4: Chemicals of Potential Concern in Surface Waters during Construction

Chemical	Lake B6
Cadmium	✓
Copper	✓

✓ = chemical exceeds the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guideline (CWQG) for the Protection of Aquatic Life and is greater than maximum baseline concentrations and, therefore, was retained for assessment.

✗ = chemical does not exceed the CCME CWQG for the Protection of Aquatic Life and/or is less than maximum baseline concentrations and, therefore, was not retained for assessment.

Table 10.1-5: Chemicals of Potential Concern in Surface Waters during Operations

Chemical	Lake A1	Lake B6	Lake CH
Cadmium	✓	✓	✓
Copper	✓	✓	✓
Lead	✓	✗	✗
Mercury	✓	✗	✗
Silver	✓	✗	✗

✓ = chemical exceeds the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guideline (CWQG) for the Protection of Aquatic Life and is greater than maximum baseline concentrations and, therefore, was retained for assessment.

✗ = chemical does not exceed the CCME CWQG for the Protection of Aquatic Life and/or is less than maximum baseline concentrations and, therefore, was not retained for assessment.

Table 10.1-6: Chemicals of Potential Concern in Surface Waters during Closure

Chemical	Lake A1	Lake CH
Cadmium	✓	✓
Copper	✓	✓
Lead	✓	✗
Mercury	✓	✗
Silver	✓	✗

✓ = chemical exceeds the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guideline (CWQG) for the Protection of Aquatic Life and is greater than maximum baseline concentrations and, therefore, was retained for assessment.

✗ = chemical does not exceed the CCME CWQG for the Protection of Aquatic Life and/or is less than maximum baseline concentrations and, therefore, was not retained for assessment.

10.1.8.3.1.1.3.3 Pit Lakes

Baseline data are not available for the pit lakes so COPCs were identified using a 2-tiered screening approach, in which the predicted concentrations during long-term summer conditions were first compared to water quality guidelines. For wildlife, concentrations were compared to the CCME CWQGs for the Protection of Livestock (CCME 2012c, internet site). If a guideline was not available for a chemical, concentrations were compared to the toxicological benchmarks for wildlife from Sample et al. (1996), if available. For aquatic life, concentrations were compared to the CCME CWQGs for the Protection of Aquatic Life (CCME 2012d, internet site). If the predicted concentration was greater than the guideline, the chemical was carried forward to the next tier of the screening process. Likewise, chemicals that lacked guidelines were carried forward to the next tier of the screening process.



During the second tier of screening, the predicted concentrations were compared to guidelines available from other regulatory agencies (e.g., BCMOE, USEPA). The second tier of screening also included consideration of other factors, including the availability of toxicity data.

The detailed chemical screening tables for the pit lakes for wildlife are provided in Appendix 10.1-C, Tables 10.1-C-5a to 10.1-C-5e. Predicted concentrations of all chemicals in the pit lakes were less than guidelines for the protection of wildlife. There are no CCME guidelines for total alkalinity, chloride, ammonium, nitrate, TKN, dissolved phosphorus, phosphate, bismuth, iron, magnesium, potassium, sodium, titanium, and tungsten. As such, the predicted concentrations were compared to guidelines available from other regulatory agencies and considered other factors such as the availability of toxicity data. These guidelines/considerations are as described for the small waterbodies for wildlife. For ammonium, the predicted concentration of ammonium is below the most conservative CCME guideline for total ammonia for the predicted pH range for pit lake water quality. In the predicted pH range for pit lake water quality, most of the total ammonia present will be in the form of the ammonium ion (USEPA 1999). Based on this comparison, no COPCs were identified in the pit lakes for further evaluation for wildlife in the environmental risk assessment. Given that no Project-related changes to chemical concentrations were predicted for water for wildlife, there were no predicted Project-related impacts to traditional food quality as a result of bioaccumulation.

The detailed screening tables for the pit lakes for aquatic life are provided in Appendix 10.1-C, Tables 10.1-C-6a to 10.1-C-6e. Predicted concentrations of all chemicals in the pit lakes were less than guidelines for the protection of aquatic life with the exception of copper in Tiriganiaq Pit. The predicted concentration of copper of 2.8 µg/L slightly exceeds the CCME guideline of 2 µg/L assuming a hardness of 30 mg/L as CaCO₃. Total dissolved solids, total alkalinity, sulphate, ammonium, TKN, dissolved phosphorus, phosphate, antimony, barium, beryllium, bismuth, calcium, cobalt, lithium, magnesium, manganese, potassium, sodium, strontium, tin, titanium, tungsten, and vanadium do not have CCME guidelines. As such, the predicted concentrations were compared to guidelines available from other regulatory agencies and considered other factors such as the availability of toxicity data. These guidelines/considerations are as described for the small waterbodies for aquatic life. Based on this comparison, only copper was as identified as COPC in the pit lakes for further evaluation for aquatic life in the environmental risk assessment.

10.1.8.3.1.1.4 Summary of Chemicals of Potential Concern

As discussed previously, 3 conditions must be present for there to be a potential for adverse health effects to terrestrial and aquatic health: chemicals must be present at harmful levels, receptors must be present, and there must be a way for receptors to come into contact with the chemicals released by the Project.

For wildlife, there were no COPCs identified in soil, sediment, or surface water for further evaluation in the environmental risk assessment. As such, the environmental risk assessment did not proceed beyond the chemical screening stage of the problem formulation for wildlife. This indicates that adverse health effects to terrestrial life as a result of the Project are not expected.

For aquatic life, there were no COPCs identified in surface water and sediment of Meliadine Lake. As such, the environmental risk assessment did not proceed beyond the chemical screening stage for aquatic life in Meliadine Lake. This indicates that adverse health effects to aquatic life in Meliadine Lake as a result of the Project are not expected.



There were some COPCs identified in surface waters of lakes A1, B6, and CH, and in Tiriganiaq Pit Lake, as summarized in Table 10.1-7. Table 10.1-7 summarizes the COPCs during all Project phases and which were carried forward for aquatic life in the environmental risk assessment.

Table 10.1-7: Chemicals of Potential Concern Evaluated for Aquatic Life

Chemical	Lake A1	Lake B6	Lake CH	Tiriganiaq Pit Lake
Cadmium	✓	✓	✓	×
Copper	✓	✓	✓	✓
Lead	✓	×	×	×
Mercury	✓	×	×	×
Silver	✓	×	×	×

✓ = chemical exceeds the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guideline (CWQG) for the Protection of Aquatic Life and is greater than maximum baseline concentrations and, therefore, was retained for assessment.

× = chemical does not exceed the CCME CWQG for the Protection of Aquatic Life and/or is less than maximum baseline concentrations and, therefore, was not retained for assessment.

10.1.8.3.1.2 Receptors

The aquatic VECs selected in Section 10.1.3 were identified as receptors for the environmental risk assessment. These VECs include fish (Arctic char, Arctic grayling, and lake trout), benthic invertebrates, and other aquatic organisms (plankton, including phytoplankton and zooplankton).

10.1.8.3.1.3 Exposure Pathways

The primary pathways selected in Section 10.1.6 for aquatic life were assessed in the environmental risk assessment, and included exposure to surface water by direct contact in lakes A1, B6, and CH and in the Tiriganiaq Pit Lake. No COPCs were identified in surface water in the other small waterbodies or pit lakes, or in surface water and sediment in Meliadine Lake.

10.1.8.3.1.4 Conceptual Site Model

The CSM for aquatic life is depicted in Figure 10.1-2.

10.1.8.3.2 Exposure Assessment

The exposure assessment provides an estimate of the degree of exposure of receptors to COPCs via the identified exposure pathways. For aquatic life, exposure is expressed as the concentrations of the COPCs in surface water. This permits the evaluation of exposure relative to toxicity benchmarks that are expressed in this way.

Exposures of aquatic receptors to COPCs were assessed based on predicted COPC concentrations in surface water in the small waterbodies (lakes A1, B6, and CH) and the pit lakes (Tiriganiaq Pit Lake). For the small waterbodies, exposures were calculated considering both an upper-bound estimate (i.e., predicted maximum concentrations in surface water) and a central tendency estimate (i.e., predicted median concentrations in surface water) for each phase of the Project for which the chemical was identified as a COPC (Tables 10.1-8 to



10.1-10). The predicted concentrations during long-term summer conditions were used to assess exposure of aquatic life in Tiriganiaq Pit Lake (Table 10.1-11).

Table 10.1-8: Exposure Concentrations for Surface Water during Construction

COPC	Units	Lake B6		
		Maximum Baseline Concentration ^a	Predicted Median Concentration	Predicted Maximum Concentration
Cadmium	µg/L	0.72	0.56	0.85
Copper	µg/L	2.5	2.1	2.9

^a maximum modelled baseline concentration.

µg/L = micrograms per litre.

COPC = chemical of potential concern.



Table 10.1-9: Exposure Concentrations for Surface Water during Operations

COPC	Units	Lake A1			Lake B6			Lake CH		
		Maximum Baseline ^a	Predicted Median	Predicted Maximum	Maximum Baseline ^a	Predicted Median	Predicted Maximum	Maximum Baseline ^a	Predicted Median	Predicted Maximum
Cadmium	µg/L	0.17	0.09	0.23	0.72	0.56	0.85	0.17	0.10	0.19
Copper	µg/L	2.8	2.5	3.6	2.5	2.1	2.9	8.8	6.1	10
Lead	µg/L	1.3	1.1	1.7	NA	NA	NA	NA	NA	NA
Mercury	µg/L	0.04	0.03	0.05	NA	NA	NA	NA	NA	NA
Silver	µg/L	0.11	0.08	0.15	NA	NA	NA	NA	NA	NA

^a maximum modelled baseline concentration.

COPC = chemical of potential concern.

µg/L = micrograms per litre.

NA = not applicable: this parameter was not identified as a COPC in this lake.

Table 10.1-10: Exposure Concentrations for Surface Water during Closure

COPC	Units	Lake A1			Lake CH		
		Maximum Baseline ^a	Predicted Median	Predicted Maximum	Maximum Baseline ^a	Predicted Median	Predicted Maximum
Cadmium	µg/L	0.17	0.09	0.23	0.17	0.10	0.19
Copper	µg/L	2.8	2.5	3.6	8.8	6.1	9.9
Lead	µg/L	1.3	1.1	1.7	NA	NA	NA
Mercury	µg/L	0.04	0.03	0.05	NA	NA	NA
Silver	µg/L	0.11	0.08	0.15	NA	NA	NA

^a maximum modelled baseline concentration.

COPC = chemical of potential concern.

µg/L = micrograms per litre.

NA = not applicable: this parameter was not identified as a COPC in this lake.



Table 10.1-11: Exposure Concentrations for Surface Water during Post-Closure

COPC	Units	Tiriganiaq Pit Lake
		Average Long-term Summer Conditions
Copper	µg/L	2.8

COPC = chemical of potential concern.

µg/L = micrograms per litre.

10.1.8.3.3 Toxicity Assessment

The toxicity assessment provides the basis for evaluating what is an acceptable exposure and what level of exposure may adversely affect aquatic health. This involves the identification of the potentially toxic effects of the COPCs and determination of the concentrations that aquatic receptors can be exposed to without experiencing adverse effects. This value is called the toxicity benchmark. For aquatic life, this is expressed as an acceptable concentration of the COPC in the media to which the receptor is exposed (i.e., surface water). There is negligible risk of adverse health effects if a receptor is exposed to a concentration below the toxicity benchmark for a COPC.

Cadmium, copper, lead, mercury, and silver were identified as COPCs in lakes A1, B6, and CH during some phases of the Project. Copper was identified as a COPC in Tiriganiaq Pit Lake. The following approach was used to derive toxicity benchmarks for the COPCs identified in surface water in lakes A1, B6, CH, and in the Tiriganiaq Pit Lake:

- Available chronic toxicity data were compiled for each COPC. For those chemicals with CCME guidelines, the data from the fact sheets used to derive the guidelines were reviewed. Guidelines available from other jurisdictions, including the BCMOE and USEPA were also reviewed, if available. The USEPA's Ecotoxicology (ECOTOX) database (USEPA 2007, internet site) and various bibliographic databases of scientific publications were then searched for other available toxicity data. The database search focused on the time period subsequent to the guideline derivation. For chemicals without guidelines, available chronic toxicity data were compiled from the database searches only.
- The review focussed on species that are locally relevant.
- The endpoints considered included effects on survival, growth, and reproduction, as well as population level effects for phytoplankton. Endpoints with uncertain biological relevance (e.g., behavioural, physiological endpoints) were excluded.
- Toxicity data for phytoplankton (algae), zooplankton, benthic invertebrates, and fish were included.
- Toxicity modifying factors, such as hardness and dissolved organic carbon (DOC), were considered and incorporated in the derivation of the toxicity benchmarks where data were available.
- Predictive models, such as Biotic Ligand Models (BLMs), were used to derive toxicity benchmarks for those metals for which models have been developed.
- The toxicity benchmark was derived using the lowest reported chronic toxicity test result from the available data for the aquatic VECs selected for assessment. This approach ensures that the protection of the most sensitive species is considered in the environmental risk assessment. For example, if the lowest available value is for a species of zooplankton, then choosing this value as a benchmark will also protect the other less sensitive aquatic species in the Project area. If potential adverse health effects were identified using



this benchmark, the potential adverse effects were discussed with respect to the species for which the benchmark was based on and the test endpoint on which this benchmark was based. Where appropriate other toxicity values were presented and discussed for other species to identify which species were likely to be affected.

- The selection of toxicity benchmarks considered maximum acceptable toxicant concentrations (MATCs; geometric mean of no observed effect concentrations [NOECs], and LOECs), if available.

10.1.8.3.3.1 Cadmium

Cadmium was identified as a COPC based on predicted exceedances of the hardness-based CCME guideline and baseline concentrations in some small waterbodies (lakes A1, B6, and CH) during construction, operations, and closure. Maximum predicted concentrations in lakes A1, B6, and CH are 0.23, 0.85, and 0.19 µg/L, respectively. The maximum predicted concentrations only slightly exceeded baseline concentrations (0.19, 0.79, and 0.18 µg/L for lakes A1, B6, and CH, respectively).

In 1991, the CCME guideline for cadmium was set at 0.017 µg/L. The guideline was based on a 21-day EC₁₆ for effects on mobility in *Daphnia magna* of 0.17 µg/L with application of a safety factor of 10. *Daphnia magna* was the most sensitive freshwater organism to cadmium exposure identified by the CCME. The guideline was later updated by the CCME based on the relationship between water hardness and cadmium toxicity to freshwater aquatic organisms. In brief, based on hardness and acute toxicity data for cladocerans, a linear relationship was established between the 2 variables. Using the previously established guideline of 0.017 µg/L, the regression line was normalized to a hardness of 48.5 mg/L as CaCO₃, giving the equation (CCME 2012d):

$$\text{Cadmium guideline (}\mu\text{g/L)} = 10^{0.86 \cdot (\log(\text{hardness}) - 3.2)}$$

The current CCME guideline is based on a single study with cladocerans (Biesinger and Christensen 1972), and the cadmium concentrations in the study were not measured. As well, the current CCME guideline is based on a relationship between hardness and toxicity; however, the data upon which the relationship is based is from an unpublished study and, thus, cannot be reviewed. Furthermore, the relationship between hardness and toxicity is based on acute toxicity. Due to the uncertainties and assumptions used in the derivation of the CCME guideline, it is not considered appropriate for the Project.

In 2001, the USEPA revised their aquatic life ambient quality criteria for cadmium (USEPA 2001). In brief, the USEPA developed a regression equation of chronic cadmium toxicity versus hardness using chronic toxicity data for 21 species (including 7 invertebrates, 14 fish, and 16 genera), as follows:

$$\text{Cadmium criterion (}\mu\text{g/L)} = e^{0.7409(\ln(\text{hardness}) - 4.719)}$$

The USEPA used chronic toxicity data to derive the regression equation; an acute-to-chronic ration (ACR) was not applied to acute toxicity data to derive the equation.

During development of the criterion, the USEPA completed an extensive review of the available toxicological literature for cadmium. The most sensitive species to cadmium was the amphipod *Hyalella azteca*, followed by the cladoceran *Daphnia magna*, and then the salmonid rainbow trout.



Mebane (2010) compiled and reviewed additional data on the effects of cadmium on aquatic life since the release of the 2001 aquatic life criteria for cadmium, and estimated acute and chronic criteria using the USEPA's guidelines for deriving national water quality criteria for the protection of aquatic organisms. It is noted that the toxicity data summarized in Mebane (2010) is based on a hardness of 50 mg/L as CaCO₃. In the assessment of Mebane (2010), the most sensitive species to cadmium was the amphipod *Hyaella azteca* (species mean chronic value [SMCV] of 0.33 µg/L), followed by the cladoceran *Daphnia magna* (SMCV of 0.54 µg/L), then the salmonid bull trout (SMCV of 0.77 µg/L). The SMCVs represent MATCs.

Hyaella azteca and *Daphnia magna* have not been identified in the Project area. *Gammarus* was the only family of amphipods identified in the Project area. Mebane (2010) provides a species mean chronic value (SMCV) for *Gammarus fasciatus* (which has been identified in the Project area) of 1.01 µg/L. Species mean chronic values for other benthic invertebrates ranged upwards from 2.68 µg/L for the snail *Aplexa hypnorum*, to 3.32 µg/L for the midge *Chironomus tentans*, and 23.3 µg/L for the polychaete worm *Aelosoma headleyi*. *Daphnia longiremis* and *Daphnia pulex* have been identified in the Project area, and *Daphnia pulex* is much less sensitive to cadmium than *Daphnia magna* with a SMCV of 3.7 µg/L.

Salmonids are the most sensitive fish to cadmium. Mebane (2010) reports a SMCV of 0.77 µg/L for the bull trout (*Salvelinus confluentus*). Several species of salmonids, including species of the genus *Salvelinus* (e.g., Arctic char and lake trout) have been identified in the Project area. The genus mean chronic value (GMCV) for *Salvelinus* is 1.25 µg/L.

The SMCV for *Gammarus fasciatus* of 1.01 µg/L was used as the toxicity benchmark for cadmium. This value is the lowest of the SMCVs for benthic invertebrates and zooplankton identified in the Project area and the GMCV for fish. The value was adjusted from a hardness of 50 mg/L as CaCO₃ to the hardness measured in lakes A1, B6, and CH (19.2, 42, and 17 mg/L as CaCO₃, respectively) to give toxicity benchmarks of 0.55, 0.9, and 0.51 µg/L, respectively (Table 10.1-12).

Table 10.1-12: Toxicity Benchmarks for Chemicals of Potential Concern in Surface Water

COPC	Toxicity Benchmark (µg/L)				Description
	Lake A1	Lake B6	Lake CH	Tiriganiaq Pit Lake	
Cadmium	0.55	0.90	0.51	-	Species mean chronic value for <i>Gammarus fasciatus</i> (most sensitive aquatic species of those identified in the Project area) of 1.01 µg/L (Mebane 2010) adjusted from a hardness of 50 mg/L as CaCO ₃ to hardnesses of 19.2, 42, and 17 mg/L as CaCO ₃ , as measured in lakes A1, B6, and CH, respectively
Copper	4.5	5.2	5.0	2	BLM-based benchmarks for lakes A1, B6, and CH (USEPA 2007); CCME guideline for Tiriganiaq Pit Lake (CCME 2012d, internet site)
Lead	1.8	-	-	-	Geometric mean of MATCs for freshwater snails (Borgmann et al. 1978; Grosell et al. 2006) adjusted to the minimum measured hardness in Lake A1 of 19.2 mg/L as CaCO ₃
Mercury	0.77	-	-	-	Criterion continuous concentration (USEPA 2012b, internet site)
Silver	0.29	-	-	-	BLM-based benchmark (Hydroqual 2007)

COPC = chemical of potential concern; µg/L = micrograms per litre; USEPA = United States Environmental Protection Agency; CCME = Canadian Council of Ministers of the Environment; MATC = maximum acceptable toxicant concentration; BLM = biotic ligand model.



10.1.8.3.3.2 Copper

Copper was identified as a COPC based on predicted exceedances of the hardness-based CCME guideline and baseline concentrations in some small waterbodies (lakes A1, B6, and CH), and Tiriganiaq Lake Pit. Maximum predicted concentrations in lakes A1, B6, and CH are 3.6, 2.9, and 9.9 µg/L, respectively. The maximum predicted concentrations only slightly exceeded baseline concentrations (3.0, 2.7, and 9.7 µg/L for lakes A1, B6, and CH, respectively). The maximum predicted concentration in Tiriganiaq Lake Pit is 2.8 µg/L.

The CCME guideline for copper is based on water hardness, as provided below:

- Copper guideline = 2 µg/L at water hardness of 0 to 60 mg/L as CaCO₃ (soft)
- = 2 µg/L at water hardness of 60 to 120 mg/L as CaCO₃ (medium)
- = 4 µg/L at water hardness of 120 to 180 mg/L as CaCO₃ (hard)
- = 6 µg/L at water hardness greater than 180 mg/L as CaCO₃ (very hard)

The guideline for soft water (0 to 60 mg/L as CaCO₃) is based on the guideline recommended by Demayo and Taylor (1981; as cited by the Canadian Council of Resource and Environment Ministers [CCREM] 1987) of 2 µg/L. The guidelines for medium, hard, and very hard water were derived using the regression equation of chronic copper toxicity versus hardness developed by the USEPA (1985a), as follows:

$$\text{Copper concentration} = e^{(0.8545[\ln(\text{hardness})] - 1.465)} \mu\text{g/L}$$

The equation for chronic toxicity derived by the USEPA was derived from a final acute value and an ACR. The lowest hardness within each hardness category was used to calculate the copper guideline for that hardness category. In the development of the guideline for copper, the CCREM (1987) considered the effects of hardness on chronic copper toxicity to be inconclusive and the result from the equation was multiplied by an application factor of 0.2 to derive the guideline.

Since the development of the CCME guideline in 1987, there have been a number of advances in the understanding of copper toxicity and the factors that influence toxicity in surface waters. While hardness, and specifically calcium and magnesium ions, plays an important role in mitigating the toxicity of copper to aquatic organisms, other water quality parameters also influence toxicity (e.g., DOC). In recognition of this, the USEPA recently revised the aquatic life ambient freshwater criteria for copper (USEPA 2007). In the revision, a BLM-based approach was used in place of the formerly applied hardness-based approach to calculate the water quality criteria for copper. The BLM approach offers a vast improvement over the hardness-based approach because in addition to water hardness, it incorporates the protective effects of other water chemistry parameters on copper toxicity, including the competitive influences of various cations (e.g., calcium, potassium, magnesium, and sodium) as well as the influence of important complexing anions (e.g., DOC, sulphate, and chloride). The BLM generates acute and chronic criteria (criterion maximum concentration [CMC] and criterion continuous concentration [CCC], respectively); the chronic criterion is calculated from the acute criterion using an ACR.

The BLM was used to derive toxicity benchmarks for lakes A1, B6, and CH. In brief, measured baseline water quality data for lakes A1, A6, and A8 were used in the model for Lake A1 because baseline data for Lake A1 is limited to one sample (Appendix 10.1-D, Table 10.1-D-1). Similarly, measured baseline water quality data for



lakes B6, B5, and B2 were used for Lake B6 because baseline data for Lake B6 is limited (Appendix 10.1-D, Table 10.1-D-2). Baseline water quality data for lakes DI1, DI2, and DI5 were used for Lake CH because baseline data for Lake CH is limited (Appendix 10.1-D, Table 10.1-D-3). The pooled data are considered to reflect the range in concentrations that could be expected in lakes A1, B6, and CH under baseline conditions. Baseline data were used because water quality predictions are not available for all parameters required to run the BLM. This is considered to be a conservative approach because the concentrations of most water quality parameters are predicted to increase with the Project, resulting in lower copper toxicity. Some samples were not characterized with respect to DOC concentrations. The lowest concentration of DOC measured in lakes of the A watershed (4.1 mg carbon [C]/L), B watershed (4.3 mg C/L), and Chickenhead watershed (3.8 mg C/L) were used to approximate the DOC concentration in samples without measured DOC concentrations in lakes A1, B6, and CH, respectively.

The fifth percentiles of the BLM-derived chronic criteria were calculated for Lake A1 (Appendix 10.1-D, Table 10.1-D-4), Lake B6 (Appendix 10.1-D, Table 10.1-D-5), and Lake CH (Appendix 10.1-D, Table 10.1-D-6), and these values (4.5 µg/L, 5.2 µg/L, and 5.0 µg/L, respectively) were used as the toxicity benchmarks in the assessment (Table 10.1-12). It is noted that the benchmarks are based on dissolved copper but predicted concentrations in lakes A1, B6, and CH are for total copper. Applying benchmarks based on dissolved copper to predicted total copper concentrations is a conservative approach because toxicity is typically associated with the dissolved fraction, and the dissolved fraction typically makes up only a fraction of the total concentration. The BLM was not used to derive benchmarks for Tiriangiaq Pit Lake. This is because baseline water quality is not available for this lake and water quality predictions are not available for all parameters required to run the BLM. The CCME guideline of 2 µg/L was used for Tiriangiaq Pit Lake.

10.1.8.3.3.3 Lead

Lead was identified as a COPC in Lake A1 during operations and closure because predicted concentrations are greater than the CCME guideline and baseline concentrations (predicted concentrations of 1.7 µg/L versus CCME guideline of 1 µg/L and baseline concentration of 1.4 µg/L).

The CCME guideline was developed in 1987 by the CCREM and has not been updated since (CCREM 1987). The guideline is based on water hardness, as provided below:

- Lead guideline = 1 µg/L at water hardness of 0 to 60 mg/L as CaCO₃ (soft)
- = 2 µg/L at water hardness of 60 to 120 mg/L as CaCO₃ (medium)
- = 4 µg/L at water hardness of 120 to 180 mg/L as CaCO₃ (hard)
- = 7 µg/L at water hardness greater than 180 mg/L as CaCO₃ (very hard)



The guidelines were derived using the regression equation of chronic lead toxicity versus hardness developed by the USEPA (1985b), as follows:

$$\text{Lead concentration} = e^{(1.273[\ln(\text{hardness})] - 4.705)} \mu\text{g/L}$$

The equation for chronic toxicity derived by the USEPA was derived from a final acute value and an ACR. The CCME guideline for soft water was calculated using a hardness of 50 mg/L as CaCO_3 . The lowest hardness within each hardness category was used to calculate the lead guideline for medium, hard, and very hard waters. As noted by others (AMEC 2011), the USEPA equation overestimates toxicity to freshwater organisms. This is because the USEPA included toxicity data for the mysid (*Americamysis bahia*) in the calculation of the ACR. The mysid is a marine crustacean and should not be included in the calculation of the ACR for freshwater aquatic organisms. The USEPA is currently reassessing its lead criterion.

Long-term (chronic) toxicity data are available for several species of fish (including salmonids), aquatic invertebrates (including planktonic and benthic invertebrates), and aquatic plants. To facilitate comparison of the chronic toxicity values between studies and selection of a suitable toxicity benchmark for Lake A1 for the current assessment, the toxicity data were adjusted to a hardness of 19.2 mg/L as CaCO_3 (minimum hardness measured in Lake A1) using the slope of the regression equation of chronic lead toxicity versus hardness developed by the USEPA. Maximum acceptable toxicant concentrations were used in the adjustment, if available.

For fish, adjusted toxicity values ranged from 8.1 $\mu\text{g/L}$ for the rainbow trout to 32 $\mu\text{g/L}$ for the fathead minnow. For invertebrates, adjusted toxicity values ranged from 0.81 $\mu\text{g/L}$ for the amphipod, *Hyalella azteca* to 67 $\mu\text{g/L}$ for the daphnid, *Ceriodaphnia dubia*. Aquatic plants are much less sensitive to lead than other aquatic organisms.

As noted previously, *Hyalella azteca* has not been identified in the Project area, and in general amphipods are not common in the Project area. Only amphipods of the genus *Gammarus* have been identified in the Project area and *Gammarus* is much less sensitive to lead than *Hyalella*. Spehar et al. (1978) provide a lowest effect concentration for effects on survival of 32 $\mu\text{g/L}$ for *Gammarus pseudolimnaeus* exposed to lead nitrate for 28 days in water of hardness of 45 mg/L as CaCO_3 . This corresponds to a hardness adjusted value of 10 $\mu\text{g/L}$.

The next most sensitive species to lead exposure is the snail with MATCs of 1.6 and 2 $\mu\text{g/L}$ for effects on growth for *Lymnaea stagnalis* and *Lymnaea palustris*, respectively. These species in particular have not been identified in the Project area but other species in the Lymnaeidae family have been identified in the Project area. In general, gastropods such as snails are not common in the Project area.

A toxicity benchmark of 1.8 $\mu\text{g/L}$ was used as the toxicity benchmark for lead (Table 10.1-12). The benchmark is the geometric mean of the MATCs for *Lymnaea stagnalis* (1.6 $\mu\text{g/L}$) and *Lymnaea palustris* (2 $\mu\text{g/L}$).

10.1.8.3.3.4 Mercury

Mercury was identified as a COPC in Lake A1 during operations and closure because predicted concentrations are greater than the guideline and the baseline concentration (predicted concentrations of 0.05 $\mu\text{g/L}$ versus guideline of 0.026 $\mu\text{g/L}$ and baseline concentration of 0.04 $\mu\text{g/L}$).



The CCME guideline for mercury of 0.026 µg/L is based on the results of a chronic study using juvenile fathead minnows (*Pimephales promelas*), which demonstrated reduced growth in offspring (weight) and reproductive impairment (reduced spawning and egg production), which was the most sensitive endpoint [lowest observed adverse effect level (LOAEL)] identified by the CCME (Snarski and Olson 1982; as cited in CCME 2003). The guideline of 0.026 µg/L was derived by applying an arbitrary safety factor of 10 to this endpoint. The LOAEL of 0.26 µg/L may actually have been closer to 1 µg/L because an intermediate concentration (0.50 µg/L) gave a result that was not significantly less than the control. Fathead minnows nor other cyprinids have been collected from Lake A1 during baseline studies, and this species is the most sensitive aquatic organism to mercury exposure. Channel catfish is the second most sensitive species, and it is a warmwater species and has not been collected from Lake A1 during baseline studies. Salmonids have been collected from Lake A1 and chronic LC₅₀s for rainbow trout range upwards from 5 µg/L. It is noted that lower LC₅₀s (less than 0.1 µg/L) have been reported for rainbow trout (i.e., Birge 1978; Birge et al. 1979; Birge et al. 1980); however, the data from these studies have been identified to have data reliability issues by several authors (Davies et al. 2005; De Schampelaere et al. 2010). Invertebrates such as *Daphnia magna* are the second most sensitive aquatic organisms to mercury, and chronic toxicity values range upwards from about 1 µg/L. The USEPA derived a criterion for mercury of 0.77 µg/L (USEPA 2012b, internet site) using a method similar to that currently recommended by the CCME for deriving site-specific water quality objectives (CCME 2007). The Ontario Ministry of the Environment (OMOE) derived an aquatic protection value of 0.77 µg/L based on the criterion derived by the USEPA (OMOE 2011).

Due to the uncertainties and assumptions used in the derivation of the CCME guideline, a toxicity benchmark of 0.77 µg/L (i.e., the current USEPA criterion) is considered protective of aquatic life in the Project area and has been used in the current assessment for mercury (Table 10.1-12).

10.1.8.3.3.5 Silver

Silver was identified as a COPC in Lake A1 during operations and closure because predicted concentrations are greater than the guideline and baseline concentrations (predicted concentrations of 0.15 µg/L versus guideline of 0.1 µg/L and baseline concentration of 0.12 µg/L).

The current CCME guideline for silver of 0.1 µg/L was derived using the procedure of CCREM (1987) and has not changed since that date. The guideline is primarily based on the studies of Davies et al. (1978) and Nebeker et al. (1983). In an early life stage test using rainbow trout, Davies et al. (1978) reported a decrease in growth (length) at a silver concentration of 0.17 µg/L. In an early life stage test using steelhead trout, Nebeker et al. (1983) reported a decrease in growth (length) at a silver concentration of 0.1 µg/L. The chronic toxicity values reported in these studies are still the lowest reported chronic toxicity test results for silver in the literature.

Dethloff et al. (2007) reported an MATC for growth in early life stages of rainbow trout greater than 1.64 µg/L, which differed from the results of the studies of Davies et al. (1978) and Nebeker et al. (1983). Re-evaluation of the Nebeker et al. (1983) data suggests that the LOEC of 0.1 µg/L used in the CCME guideline development may have been closer to 0.36 µg/L because total concentrations with significant lethal results were included in the analysis and 2 intermediate concentrations (0.2 and 0.24 µg/L) gave results that were not significantly less than controls (Dethloff et al. 2007). The study of Davies et al. (1978) reported a LOEC of 0.17 µg/L at 2 months of exposure but the LOEC increased to 0.34 µg/L at 3 months of exposure, a concentration similar to that reported by Nebeker et al. (1983).



The CCME guideline does not incorporate modifiers of toxicity (e.g., hardness, DOC), which have been demonstrated to reduce silver toxicity to aquatic organisms. Silver may exist in the aquatic environment in a number of chemical forms, but only the free ionic form of silver (Ag^+) is toxic to freshwater organisms (Hogstrand and Wood 1998). In natural waters, the free ionic form is present only at very low concentrations because it readily complexes (binds) with ligands that are present in the freshwater environment, including chloride, DOC, and sulfides. Silver sulfide is the principal naturally occurring silver compound and is the likely fate of silver discharged into any environment containing a source of sulfide (Kramer et al. 2002). These bound forms of silver are much less toxic than silver nitrate (AgNO_3), the form that is frequently used in toxicity testing (and used in the studies that form the basis of the current CCME guideline) because it dissociates freely in solution to yield large amounts of Ag^+ , representing a worst case simulation of toxicity in the natural environment (Davies et al. 1978; LeBlanc et al. 1984). As well, various ions in the water column (e.g., calcium, magnesium, sodium, and potassium) reduce silver toxicity through competitive interactions with Ag^+ at uptake sites on the aquatic organism. Recognizing this, recent research has focused on characterizing the role of such ligands in mitigating chronic silver toxicity in the freshwater environment, and development of a BLM for prediction of chronic silver toxicity (analogous to the BLM currently used by the USEPA to derive ambient water quality criteria for copper [USEPA 2007]).

Currently, there is no chronic silver BLM available but there is an acute silver BLM (Hydroqual 2007). The acute silver BLM was used to derive a chronic toxicity benchmark for silver for aquatic life in Lake A1. In brief, baseline water quality data for lakes A1, A6, and A8 were used in the model (Appendix 10.1-D, Table 10.1-D-1). Baseline data was used because water quality predictions are not available for all parameters required to run the BLM. Baseline data for these waterbodies were used because baseline data for Lake A1 is limited to one sample. The data available for lakes A1, A6, and A8 were pooled and are considered to reflect the range in concentrations that could be expected in Lake A1 under baseline conditions. Several of the samples were not characterized with respect to DOC concentration. The lowest concentration of DOC measured in lakes of the A-watershed (4.1 mg C/L) was used to approximate the DOC concentration in all samples. Use of baseline data is considered a conservative approach in that concentrations of several water quality parameters that reduce silver toxicity, including calcium, magnesium, sodium, potassium, and chloride are predicted to increase, thus reducing silver toxicity. The acute silver BLM was used to generate acute LC_{50} s for *Daphnia magna*, fathead minnow, and rainbow trout (Appendix 10.1-D, Table 10.1-D-7). Chronic toxicity benchmarks were then calculated from the acute LC_{50} s using ACRs (Appendix 10.1-D, Table 10.1-D-7). This approach is similar to that which is used by the USEPA for copper. Naddy et al. (2011) recently generated ACRs for the 3 species noted above, and these ACRs were used in the assessment. For each species, the fifth percentile of the BLM-derived benchmarks were calculated. The lowest calculated fifth percentile of the 3 species of 0.29 $\mu\text{g/L}$ was used in the assessment (Table 10.1-12). It is noted that the benchmark is based on dissolved silver but predicted concentrations in Lake A1 are for total silver. Applying a benchmark based on dissolved silver to predicted total silver concentrations is a conservative approach. It is also noted that the benchmark of 0.29 $\mu\text{g/L}$ is similar to the toxicity values reported by Davies et al. (1978) and Nebeker et al. (1983) after re-evaluation of the data by Dethloff et al. (2007). The lowest calculated benchmark is lower than the draft revised CCME guideline for silver of 0.55 $\mu\text{g/L}$ (Desforges 2010), which was derived using a species sensitivity distribution approach.



10.1.8.3.4 Risk Characterization

Risk characterization determines the potential for adverse health effects to occur. This is assessed by comparing the estimated exposures (from the exposure assessment) with those exposures that are determined to be acceptable (from the toxicity assessment). The characterization of risks includes consideration of the uncertainty and conservatism in the risk assessment.

Potential adverse health effects to aquatic life were characterized using an HQ approach (CCME 1996, 1997). The HQ is the ratio of the concentration of the COPC in the environmental media (i.e., surface water) to the toxicity benchmark. A target HQ of one was used in the assessment, which is consistent with current risk assessment guidance. An HQ of less than one indicates that adverse health effects to aquatic life are not expected. An HQ of greater than one indicates the potential for adverse health effects to aquatic life. Chemicals of potential concern with HQs greater than one were considered further in the residual impact classification (Section 10.1.9).

For all COPCs, potential adverse effects to aquatic life were evaluated by comparing predicted maximum and median surface water concentrations to toxicity benchmarks. The HQs are provided in Tables 10.1-13 to 10.1-16. When HQs were calculated using predicted maximum concentrations and median concentrations, the following HQs were greater than the target HQ of one, suggesting potential adverse health effects to aquatic life:

- Operations: copper in Lake CH (Table 10.1-14);
- Closure: copper in Lake CH (Table 10.1-15); and
- Post-closure: copper in Tiriganiaq Pit Lake (Table 10.1-16).

All other HQs were less than one, indicating that adverse effects on the health of aquatic life from cadmium, lead, mercury, and silver in the small waterbodies during all phases of the Project are not expected (Tables 10.1-13 to 10.1-15). Copper in Lake CH during operations and closure and in Tiriganiaq Pit Lake during post-closure was considered further in the residual impact classification (Section 10.1.9).

Table 10.1-13: Hazard Quotients for Surface Water During Construction

COPC	Upper-Bound Estimate ^a	Central-Tendency Estimate ^b
	Lake B6	Lake B6
Cadmium	0.94	0.62
Copper	0.56	0.40

^a based on the maximum predicted surface water concentration.

^b based on the median predicted surface water concentration.

COPC = chemical of potential concern.



Table 10.1-14: Hazard Quotients for Surface Water During Operations

COPC	Upper-Bound Estimate ^a			Central-Tendency Estimate ^b		
	Lake A1	Lake B6	Lake CH	Lake A1	Lake B6	Lake CH
Cadmium	0.42	0.94	0.37	0.16	0.62	0.20
Copper	0.80	0.56	2.0	0.56	0.40	1.2
Lead	0.94	NA	NA	0.61	NA	NA
Mercury	0.06	NA	NA	0.04	NA	NA
Silver	0.52	NA	NA	0.28	NA	NA

^a based on the maximum predicted surface water concentration.

^b based on the median predicted surface water concentration.

COPC = chemical of potential concern.

NA = not applicable: this parameter was not identified as a COPC in this lake; shaded + bold text = hazard quotient >1.

Table 10.1-15: Hazard Quotients for Surface Water During Closure

COPC	Upper-Bound Estimate ^a		Central-Tendency Estimate ^b	
	Lake A1	Lake CH	Lake A1	Lake CH
Cadmium	0.42	0.37	0.17	0.20
Copper	0.80	2.0	0.56	1.2
Lead	0.94	NA	0.59	NA
Mercury	0.07	NA	0.04	NA
Silver	0.50	NA	0.29	NA

^a based on the maximum predicted surface water concentration.

^b based on the median predicted surface water concentration.

COPC = chemical of potential concern.

NA = not applicable: this parameter was not identified as a COPC in this lake; shaded + bold text = hazard quotient >1.

Table 10.1-16: Hazard Quotients for Surface Water During Post-Closure

COPC	Tiriganiaq Pit Lake
Copper	1.4

COPC = chemical of potential concern.

10.1.9 Residual Impact Classification

As discussed in Section 10.1.8.3.4, the HQs for copper were greater than the target HQ of one in Lake CH during operations and closure, and in Tiriganiaq Pit Lake during post-closure. As such, copper in Lake CH and Tiriganiaq Pit Lake was considered further in the residual impact classification.

The residual impact of copper on the health of aquatic life was classified using the 7 assessment criteria defined below and in Table 10.1-17:

- Direction: the direction of the effect as positive or negative;
- Magnitude: the size or degree of the effect for a given COPC;
- Geographic extent: the spatial area over which the effect may occur;



- Duration: the length of time over which the effect may occur;
- Frequency: the rate of recurrence of the effect (or conditions causing the effect);
- Reversibility: whether the effect may or may not be reversed; and
- Likelihood: the likelihood that the effect may occur.

To determine the significance of an effect, various levels are associated with each criterion, as shown in Table 10.1-17. Considering all criteria, the significance of the impact on the health of aquatic life is determined to be either significant or not significant.

Table 10.1-17: Assessment Criteria and Levels for Residual Impact Classification

Assessment Criteria	Level		
	Positive	Negative	
Direction (of health effect)	Effect is beneficial to the health of aquatic life or does not result in a change to the health of aquatic life	Effect is potentially harmful to the health of aquatic life	
Magnitude (of health effect)	Low	Moderate	High
	1 < HQ ≤ 10	10 < HQ ≤ 100	HQ > 100
Geographic Extent (of health effect)	On-Site	Local	Regional
	Effect is within the Project footprint	Effect extends into the local study area (LSA)	Effect extends into the regional study area (RSA)
Duration (of conditions causing health effect)	Short-term	Medium-term	Long-term
	Conditions causing effect are evident during the construction or closure phase (2-3 years)	Conditions causing effect are evident during the operations phase (13 years)	Conditions causing effect extend beyond any one phase (>13 years)
Frequency (of health effect)	Isolated	Periodic	Continuous
	Conditions causing effect occur infrequently (i.e., less than 5% of the year)	Conditions causing effect occur at regular although infrequent intervals (i.e., between 5 and 20% of the year)	Conditions causing effect occur at regular and frequent intervals (i.e., more than 20% of the year)
Degree of Reversibility (of health effect)	Readily Reversible	Reversible	Irreversible
	Effect is readily (i.e., immediately) reversible	Effect is reversible with time	Effect is not reversible (i.e., permanent)
Likelihood (of health effect)	Unlikely	Possible	Likely
	Effect is likely to occur	Effect is possible, although not certain	Effect is certain to occur

HQ = hazard quotient; LSA = local study area; RSA = regional study area.

10.1.9.1 Copper in Lake CH

The result of the residual impact assessment for copper in Lake CH is provided in Table 10.1-18. When all criteria are considered, impacts to the health of aquatic life resulting from copper are expected to be not significant.



Table 10.1-18: Residual Impact Classification for Aquatic Health for Copper in Lake CH

Assessment Criteria	Copper	
	Level	Rationale
Direction (of health effect)	Negative	The toxicity benchmarks are intended to identify the potential for adverse health effects to aquatic life; therefore, where an HQ is greater than one, it indicates that adverse health effects to aquatic life are possible
Magnitude (of health effect)	Low	$1 < HQ \leq 10$
Geographic Extent (of health effect)	Local	The effect extends into the LSA.
Duration (of conditions causing health effect)	Long-term	The conditions causing the effect are evident during operations and closure
Frequency (of condition causing health effect)	Continuous	The conditions causing the effect are evident more than 20% of the year
Degree of Reversibility (of health effect)	Reversible	The impact may result in effects on individual organisms but it is unlikely to result in population-level effects
Likelihood (of health effect)	Unlikely	The likelihood of an effect on aquatic health is considered unlikely for the following reasons: (1) The HQs for copper ($HQ = 2.0$ based on maximum predicted concentrations in Lake CH during operations and closure and $HQ = 1.2$ based on median predicted concentrations in Lake CH during operations and closure) only slightly exceeded the target HQ of one. (2) The toxicity benchmark for copper used in the assessment was derived using the BLM and was derived based on baseline conditions in Lake CH. The water quality parameters that can affect copper toxicity are predicted to increase, thereby reducing copper toxicity to aquatic life. As such, the BLM-based toxicity benchmark is likely conservative. (3) The assumptions used in the water quality model are highly conservative, and, as such, the predicted concentration has likely been overestimated (for a summary of the conservative assumptions used in the water quality modelling, refer to FEIS Volume 7, Section 7.4).

HQ = hazard quotient; LSA = local study area; BLM = biotic ligand model; FEIS = final environmental impact statement.

10.1.9.2 Copper in Tiriganiaq Pit Lake

The result of the residual impact assessment for copper in Tiriganiaq Pit Lake is provided in Table 10.1-19. When all criteria are considered, impacts to aquatic health resulting from copper are expected to be not significant.



Table 10.1-19: Residual Impact Classification for Aquatic Health for Copper in Tiriganiaq Pit Lake

Assessment Criteria	Copper	
	Level	Rationale
Direction (of health effect)	Negative	The toxicity benchmarks are intended to identify the potential for adverse health effects to aquatic life; therefore, where an HQ is greater than one, it indicates that adverse health effects to aquatic life are possible
Magnitude (of health effect)	Low	$1 < HQ \leq 10$
Geographic Extent (of health effect)	On-Site	The effect is within the Project footprint
Duration (of conditions causing health effect)	Long-term	The conditions causing the effect are evident during post-closure
Frequency (of condition causing health effect)	Continuous	The conditions causing the effect are evident 6 months of the year (i.e., May through October) during year 26 of the pit
Degree of Reversibility (of health effect)	Reversible	The impact may result in effects on individual organisms but it is unlikely to result in population-level effects
Likelihood (of health effect)	Unlikely	The likelihood of an effect on aquatic health is considered unlikely for the following reasons: (1) The HQ for copper ($HQ = 1.4$) only slightly exceeds the target HQ of one. (2) The toxicity benchmark for copper used in the assessment is the current CCME guideline. The CCME guideline does not consider the potential for water quality characteristics other than hardness (e.g., DOC) to reduce bioavailability and ameliorate copper toxicity. The CCME guideline is based on toxicity tests with naïve organisms, whereas organisms potentially inhabiting the pit lake potentially will have some degree of tolerance to copper. (3) The assumptions used in the water quality model are highly conservative and, as such, the predicted concentration has likely been overestimated (for a summary of the conservative assumptions used in the water quality modelling, refer to FEIS Volume 7, Section 7.4).

HQ = hazard quotient; CCME = Canadian Council of Ministers of the Environment; DOC = dissolved organic carbon; FEIS = final environmental impact statement.

10.1.10 Cumulative Effects

The effects of the Project on the health of terrestrial and aquatic life were considered in combination with previous, existing, and reasonably foreseeable developments (as summarized in FEIS Volume 4, Section 4.0) that may also influence the health of terrestrial and aquatic life within the Project area. Cumulative effects to air (and hence soil quality), and water and sediment quality are expected to be negligible (FEIS Volumes 5 and 7, Sections 5.2 and 7.4, respectively). Therefore, the potential for cumulative effects on the health of terrestrial and aquatic life are also expected to be negligible.



10.1.11 Monitoring and Follow-Up

There is no monitoring and follow-up recommended for directly evaluating the health of terrestrial and aquatic life. Any monitoring requirements for air quality (FEIS Volume 5, Section 5.2), and water and sediment quality (FEIS Volume 7, Section 7.4) will support the continuing assessment of the health of terrestrial and aquatic life for the Project. The toxicity benchmarks used in the assessment for some parameters (copper and silver) were derived using the BLM and baseline water quality in the Project area. The benchmarks should be verified and updated as necessary by continued monitoring of water quality over the life of the Project. The water quality parameters required to run the BLM, and that should be included in the water quality monitoring effort include the following: temperature, pH, DOC, major cations (calcium, magnesium, sodium and potassium), major anions (sulfate and chloride), and alkalinity. To address any potential impacts on fish-eating birds and mammals from the predicted increases in mercury concentrations in some lakes, the fish health monitoring component of aquatic effects monitoring and follow-up program (see SD 7-3) will include monitoring of mercury concentrations in fish tissue for comparison with guidelines protective of fish-eating birds and mammals.

10.2 Human Health

The purpose of the Human Health Risk Assessment (HHRA) is to assess the effects of the Project on human health. To determine the incremental changes in the environment due to emissions from the Project, the existing (or baseline) conditions of the environment must first be understood. This assessment is completed by first describing the baseline conditions and then evaluating the potential changes to environmental quality resulting from Project-related components and associated activities that may impact human health. This assessment includes the direct effects on air quality, water quality, sediment quality, fish quality, and noise, and indirect effects to soil quality and country food quality (e.g., berries, caribou).

This HHRA follows the basic principles of risk assessment frameworks endorsed by Health Canada (e.g., Health Canada 2012a), CCME, and USEPA. These principles are summarized in the remainder of this section.

Risk assessment is a scientific tool used to characterize the nature and magnitude of potential risks, if any, associated with the exposure of receptors (e.g., humans) to chemicals. For there to be a potential risk, the following 3 conditions must be met:

- a chemical must be present at levels that could be harmful;
- a receptor must be present; and
- there must be an exposure pathway by which the receptor can come into contact with the chemical.



These 3 conditions are illustrated in Figure 10.2-1, where risk is anticipated to occur when the 3 necessary conditions are met.

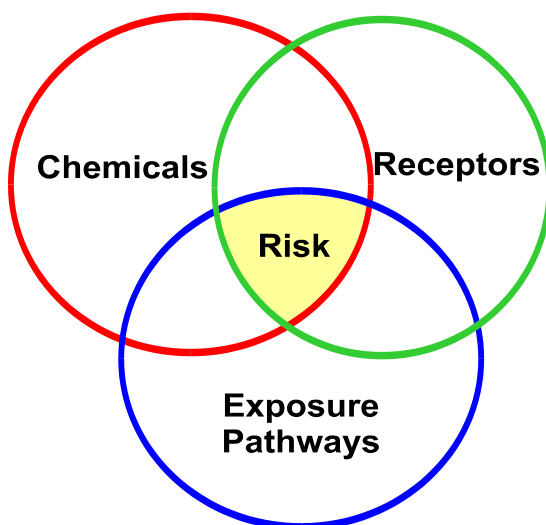


Figure 10.2-1: Venn Diagram showing the 3 Conditions that must Exist for there to be a Potential Health Risk (modified from CCME 1996).

To determine whether these conditions are present, the RA framework used in Canada typically involves 4 components, as described below and depicted in Figure 10.2-2:

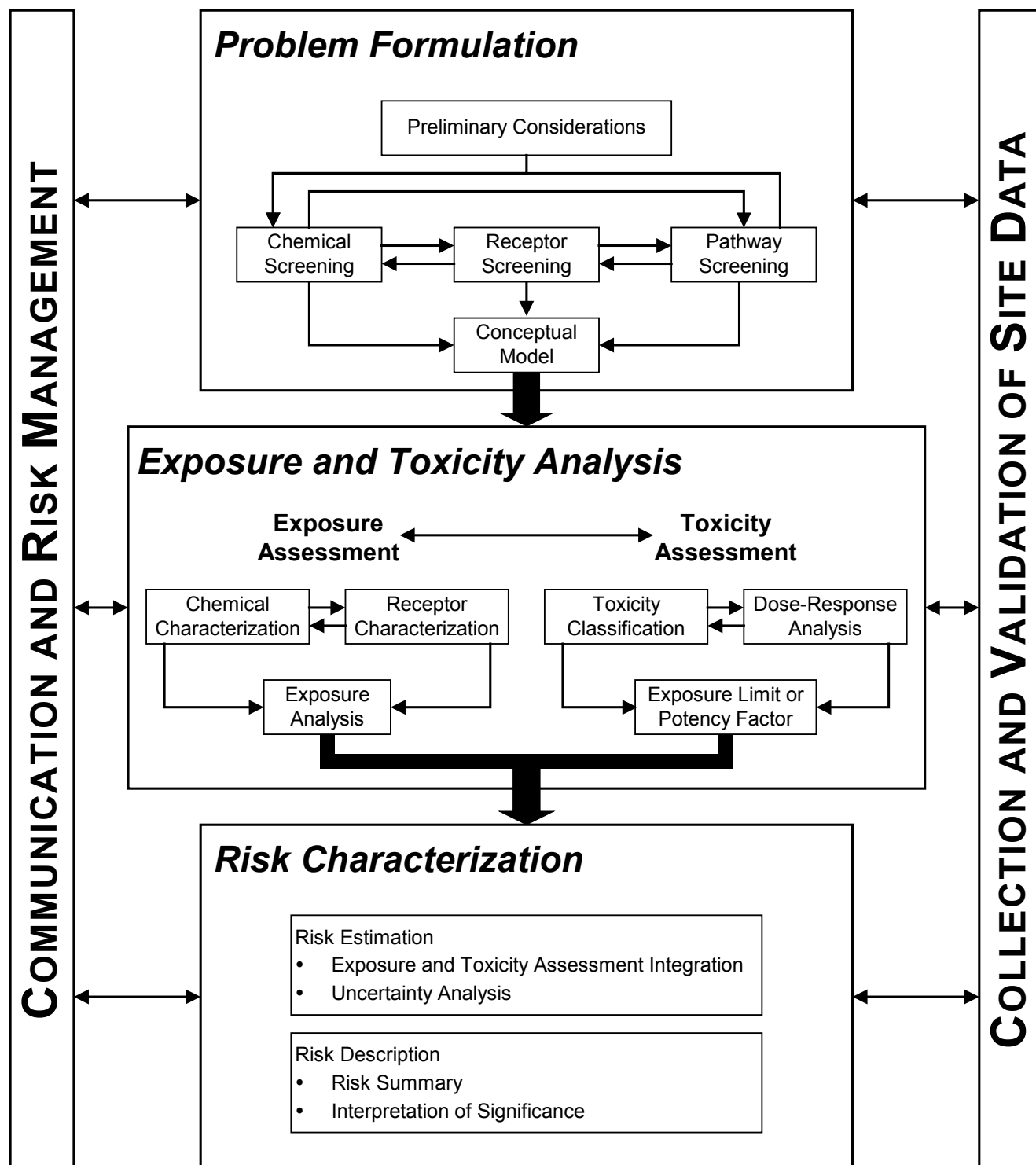
- i) **Problem Formulation:** The Problem Formulation involves developing a focused understanding of how environmental quality might affect the health of receptors (i.e., humans) near the proposed project. The problem formulation identifies the following:
 - a representative set of receptors (i.e., humans) that may be present in the vicinity of the Project;
 - chemicals that may be present at levels that may be harmful to receptors (COPCs); and
 - pathways by which receptors may be exposed to COPCs (e.g., inhalation of COPCs in ambient air).

The information from the Problem Formulation is summarized in a CSM, which illustrates the pathways of the COPCs from their sources, through the relevant environmental media and to the receptors of interest. The approach to developing a CSM for an HHRA is outlined following Figure 10.2-2.

- ii) **Exposure Assessment:** The Exposure Assessment involves estimating the daily dose of a COPC received by the receptors for each relevant exposure pathway identified in the Problem Formulation. This value is called the EDI and is typically expressed as mg/kg-day. The EDI is calculated from site-specific concentrations of COPCs in environmental media (e.g., water, sediment, fish, air, soil, or vegetation), the amount of time the receptor spends in the study area, and receptor-specific parameters such as body weight, ingestion rate, and dietary preferences.



- iii) Toxicity Assessment: The Toxicity Assessment provides the basis for assessing what is an acceptable dose and what dose may adversely affect the health of receptors. This involves identification of the potentially toxic effects of a COPC and determination of the dose to which a receptor can be exposed without experiencing adverse health effects. This value is called the TRV. For human health, the TRV is expressed as mg of a COPC per kg of body weight per day (mg/kg/day).
- iv) Risk characterization: The final component of an RA determines the potential for adverse health effects to occur. This is determined by comparing the dose received by the receptors (i.e., the EDI from the exposure assessment) with the dose that is determined to be acceptable (i.e., the TRV from the toxicity assessment). The characterization of risks includes consideration of the uncertainty and conservatism in the RA.



Source: Health Canada [unpublished] 1995.

Figure 10.2-2: Risk Assessment Framework. Modified from Health Canada (1995)



A CSM is developed in an HHRA to understand which substances (i.e., chemicals present at concentrations in excess of the applicable guidelines/standards and greater than site-specific background levels, referred to as COPCs) are present in the local study area (LSA) and regional study area (RSA), how human receptors may use the affected areas, and the pathways of contact that are possible between these substances and the receptors. These substances, receptors, and pathways (the environmental risk components) are examined in detail to identify the “reasonably anticipated” combinations corresponding to potentially complete (i.e., significant) exposure pathways. Incomplete pathways are eliminated from further consideration or are “screened out”. The combinations of the environmental components that remain subsequent to the screening process form the basis of the conceptual model, and are used to focus the HHRA.

The CSM addresses the following questions to characterize the effect of COPCs on human receptors:

- Which substances are a result of Project-related emissions and which are related to natural sources?
- Which substances are present at elevated levels relative to site-specific background levels?
- Which substances are present at elevated levels relative to applicable guidelines/standards?
- In which environmental media are they located (i.e., soil, groundwater, surface water, air, vegetation, etc.)?
- Is there a potential for the substances to migrate?
- In what concentrations are the substances present in the affected environmental media?
- How is and/or will the Meliadine Project site be used?
- Who are the human receptors (current and future users) that may come into contact with the substances?
- How can the human receptors come in contact with the substances?

Where exposure scenarios can be reasonably assumed to be complete, a more detailed examination or quantification of potential risks is required. The detailed assessment involves the remaining stages of the risk assessment including, exposure assessment, toxicity assessment, and risk characterization.

10.2.1 Concordance with NIRB Guidelines

The purpose of this section is to address the Guidelines issued by the NIRB for the Project (NIRB 2012), specifically relating to the human health risk impacts of the Project.

Volume 1, Appendix 1.0-A lists the specific requirements set out in the Guidelines relating to the impact assessment for human health risk.

10.2.2 Valued Components

Valued ecosystem components and VSECs represent physical, biological, cultural, social, and economic properties of the environment that are either legally, politically, publically, or professionally recognized as important to a particular region, community, or by society as a whole.

Health and safety, including worker and public safety, was selected as a VSEC for the Project. Valued ecosystem components and VSECs were selected based on their role in the ecosystem, and value placed on them by humans for traditional use and cultural connection, where appropriate. Two valued components were selected to assess Project-related effects on human health: workers and members of the public (Table 10.2-1). IQ



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.2-1: Human Health Risk Assessment Valued Components

Health and Safety	Valued Component		Rationale for Selection
	Workers	Inuit	Inuit may be employed at the mine and reside in the off-site worker (exploration) camp.
		Non-Inuit	Non-Inuit may be employed at the mine and reside in the off-site worker (exploration) camp.
	Public	Inuit	Inuit are known to reside in Rankin Inlet and have several hunter/trapper cabins and camps on Meliadine Lake near the mine site area and around the AWAR.
		Non-Inuit	Non-Inuit are known to reside in Rankin Inlet and may use the area around the mine site and AWAR for recreational purposes.

IQ

AWAR = all-weather access road.

Factors considered when selecting VSECs included the following:

- traditional knowledge and traditional land uses of Inuit receptors in the area around the Mine site, along the AWAR, and in Rankin Inlet;
- people that reflect the interests of regulatory agencies, Inuit groups, and communities;
- the environmental impact statement (EIS) Guidelines proposed by NIRB; and
- current experience with environmental assessments and effects monitoring programs in Nunavut and the Northwest Territories (NWT).

Health and safety of workers and members of the public are important to the people of Nunavut. Assessment endpoints represent the key properties of the valued component that should be protected for their use by future human generations, while measurement endpoints are quantifiable expressions of changes to assessment endpoints. Where applicable, traditional knowledge was incorporated into the selection of assessment and measurement endpoints for the human health risk assessment. Therefore, impact predictions and significance of impacts also incorporated traditional knowledge. Assessment and measurement endpoints for human health valued components are presented below (Table 10.2-2).

IQ

Table 10.2-2: Summary of the Valued Components, Assessment, and Measurement Endpoints for Human Health and Safety

Valued Component	Assessment Endpoints	Measurement Endpoints
Workers (Inuit or non-Inuit) Inuit members of the public Non-Inuit members of the public	Protection of air quality and noise with respect to human health Continued opportunity for use of surface water, fish, and country foods for traditional and non-traditional human use	Air quality Soil quality Country food quality (i.e., plants, birds, mammals) Water quality Sediment quality Fish quality Noise

The assessment and measurement endpoints (or indicators) considered in the human health risk assessment were selected to ensure that relevant environmental pathways of exposure, biomagnification, and sensitivity to contaminants were assessed. As described further in Sections 10.2.5 and 10.2.6, Project-related changes to the quality of air, soil, country foods (i.e, mammals, fish, birds, and traditional plants), water, sediment, and fish and



Project-related changes to noise levels were considered for workers and members of the public, both Inuit and non-Inuit. Relevant exposure pathways including ingestion, inhalation, and dermal contact were also considered. To determine whether the pathways of exposure could be associated with residual impacts, conservative assumptions for these pathways were considered throughout the risk assessment. With respect to biomagnification, the potential for chemicals to biomagnify in the food chain were considered when assessing potential Project-related impacts to country foods and fish that may be consumed by people. Finally, sensitivity to contaminants was considered in the human health risk assessment through the use of conservative toxicity reference values that incorporate uncertainty factors that account for human variability in sensitivity to contaminants.

10.2.3 Spatial and Temporal Boundaries

Project activities and the potential changes that they may produce on the environment are subject to spatial and temporal boundaries. These boundaries are common to all environmental components but with some modifications. The overall assessment boundaries of the Project are defined in FEIS Volume 4, Section 4.4. The spatial and temporal boundaries specific to the HHRA are described below.

10.2.3.1 Spatial Boundaries

The spatial boundaries for the HHRA were considered to be the same as those defined for the aspects of the environment that can directly affect human health, including air quality, water quality, sediment quality, fish quality, and noise; these boundaries are defined in the respective sections of the FEIS. In general, the spatial area under assessment includes the mine site area (defined as the Project disturbed footprint, the area surrounding the mine site including the Discovery deposit [specifically defined by air quality, water quality, sediment quality, fish quality, and noise], and the segment of the AWAR that is incorporated into this area), the AWAR, including the area immediately adjacent to the AWAR as defined by the various disciplines, and the town of Rankin Inlet. The specific definitions of the LSA and RSA used by the other disciplines are provided in those respective sections of the FEIS.

The spatial boundaries for the HHRA were aligned with those identified by the Project disciplines that will predict potential Project-related changes to environmental quality, or that provided information relevant to human activities. These Project disciplines are as follows:

- Atmospheric environment, specifically the following components:
 - Air quality (FEIS Volume 5, Section 5.2); and
 - Noise (FEIS Volume 5, Section 5.4);
- Freshwater Environment:
 - Surface water and sediment quality (FEIS Volume 7, Section 7.4); and
- Socio-economic Environment:
 - Traditional knowledge and traditional land use (FEIS Volume 9, Section 9.3)



The spatial boundaries of each discipline are described further below.

10.2.3.1.1 Local Study Area

The LSA applicable for surface water and sediment quality, air quality, and noise are defined in the relevant sections of the FEIS. The LSA for the HHRA is consistent with the above noted LSA definitions. The LSA for human health generally encompassed the disturbed mine footprint, the water bodies identified within the LSA for surface water and sediment quality, and the cabin locations identified within the LSA for air quality and noise. Additionally, the section of the AWAR that is incorporated into the LSA for surface water and sediment quality, air quality, and noise was included in the LSA for human health. However, the HHRA has been carried out considering the Project components rather than the LSA (i.e., the mine site, the AWAR, and Rankin Inlet).

10.2.3.1.2 Regional Study Area

The RSA applicable for surface water and sediment quality, air quality, and noise are defined in the relevant sections of the FEIS. The RSA for the HHRA is consistent with the above noted RSA definitions. As indicated above, the HHRA has been carried out considering the Project components rather than the RSA (i.e., the mine site, the AWAR, and Rankin Inlet).

10.2.3.2 Temporal Boundaries

The approach used to determine the temporal boundaries of effects from natural and human-related disturbances on VECs and VSECs is similar to the approach used to define spatial boundaries. In this assessment, temporal boundaries are linked to 2 concepts:

- the development phases of the Project (i.e., construction, operation, maintenance, temporary closure [care and maintenance], final closure [decommissioning and reclamation]), and post-closure; and
- the predicted duration of effects from the Project on a VEC or VSEC, which may extend beyond final closure (i.e., post-closure).

Thus, the temporal boundary for a VEC or VSEC is defined as the amount of time between the start and end of a relevant Project activity or stressors (which are related to development phases), plus the duration required for the effect to be reversed. The temporal boundaries must be determined separately for construction, operation, maintenance, temporary closure, final closure, and post-closure periods, including planned exploration to be undertaken as part of the Project (NIRB 2012).

For human health, there may be potential impacts to human health in all phases of the Project extending into the post-closure phase. For example, while dust may be generated during the construction and operation phases of the Project, the chemicals in dustfall that have deposited onto surface soil and altered soil quality may impact human health into the post-closure phase if those compounds are persistent in the environment (i.e., they do not appreciably degrade or volatilize). A conservative approach has been taken in the HHRA to ensure that the potential for health effects extending beyond the life of the mine are addressed considering traditional and contemporary land use and occupancy (past, present and future).



10.2.4 Baseline Environment

To determine the incremental changes in the environment due to emissions from the Project, the existing (or baseline) conditions of the environment must first be understood. Several studies were carried out in support of the Project to characterize baseline environmental conditions. The baseline environmental information collected as part of the FEIS and used in support of the HHRA is summarized below:

- Atmospheric environment, specifically the following components:
 - Air quality (FEIS Volume 5, Section 5.2); and
 - Noise (FEIS Volume 5, Section 5.5);
- Terrestrial Environment, specifically the following components:
 - Soil and terrain (FEIS Volume 6, Section 6.4); and
 - Vegetation (FEIS Volume 6, Section 6.5);
- Freshwater Environment, specifically the following components:
 - Surface water and sediment quality (FEIS Volume 7, Section 7.4); and
 - Fish and habitat (FEIS Volume 7, Section 7.5); and
- Socio-economic environment, specifically the following components:
 - Population demographics (FEIS Volume 9, Section 9.2); and
 - Traditional knowledge and traditional land use (FEIS Volume 9, Section 9.3).

The baseline data used in the HHRA to characterize baseline environmental quality and the existing way of life by people living in the area that may be affected by Project activities are described below with respect to each of the components of the Project (i.e., mine site area, AWAR, and the community of Rankin Inlet). **IQ**

The following baseline data are currently available for the mine site area, AWAR, and Rankin Inlet and were used to characterize existing conditions:

- Noise (noise levels measured at Rankin Inlet);
- Soil (chemical concentrations measured in soil samples collected from the mine site area and along the AWAR);
- Vegetation (chemical concentrations in vegetation samples collected from the mine site area and along the AWAR);
- Water quality (chemical concentrations in water samples collected from waterbodies in the mine site area and stream crossings along the AWAR);
- Sediment quality (chemical concentrations in sediment samples collected from water bodies in the mine site area);
- Mammals and birds (traditional knowledge studies and observations of species in the mine site area); **IQ**
- Fish (observations in water bodies in the mine site area); and
- Traditional land use (traditional knowledge studies and observations in the mine site area, AWAR, and Rankin Inlet). **IQ**



The information presented in other sections of the FEIS related to these aspects of the environment were reviewed to understand existing environmental conditions, human activities in the area including traditional use, and existing wildlife and aquatic communities. Note that existing conditions for air quality were not quantified for the mine site area, AWAR, or Rankin Inlet. As described in the Air Quality section of the FEIS (FEIS Volume 5, Section 5.2), concentrations of indicator compounds (total suspended particulate [TSP], particles nominally smaller than 10 micrometres (μm) in diameter [PM_{10}], particles nominally smaller than 2.5 μm in diameter [$\text{PM}_{2.5}$], nitrogen dioxide [NO_2], sulphur dioxide [SO_2], and carbon monoxide [CO]) were reported for several monitoring stations around the Project site, however, baseline concentrations of the metals and organic chemicals that could be emitted from the Project were not reported. Given that there are no existing projects that would be expected to contribute significantly to air quality at the receptor locations assessed in the human health risk assessment, it was considered to be reasonable to assume that existing concentrations are essentially zero. Additionally, baseline animal tissue quality (i.e., mammals and birds) has not been measured. As indicated in Section 10.2.6.3.3, country foods including mammals and birds were not retained in the effects analysis for quantitative assessment; given that no quantitative assessment was carried out, the absence of baseline tissue data is not considered to be a significant data gap and has not affected the final conclusions of the human health risk assessment. IQ

The concordance of the sampling programs with traditional knowledge is addressed in the relevant sections of the FEIS for each aspect of the environment.

10.2.5 Pathway Analysis

10.2.5.1 Methods

Pathway analysis identifies and assesses the linkages between Project components or activities and the potential residual effects to human health. The first part of the analysis is to produce a list of all potential effects pathways for the Project (FEIS Volume 4, Section 4.3). Each pathway is initially considered to have a linkage to potential effects on human health. This step is followed by the development of environmental design features and mitigation that can be incorporated into the development description to remove a pathway or limit (mitigate) the effects to human health. Environmental design features include Project design elements, environmental best practices, management policies and procedures, and social programs. Environmental design features are developed through an iterative process between the Project's engineering and environmental teams to avoid or mitigate effects.

Pathway analysis is a screening step that is used to determine the existence and magnitude of linkages from the initial list of potential effects pathways for the Project. This screening step is intended to focus the effects analysis on pathways that require a more comprehensive assessment of effects on human health. Pathways are determined to be primary, minor, or as having no linkage using scientific and traditional knowledge, logic, and experience with similar developments and environmental design features. Each potential pathway is assessed and described as follows: IQ

- No linkage – pathway is removed by environmental design features and mitigation so that the Meliadine Project results in no detectable environmental change and residual effects to human health relative to baseline or guideline values;



- Minor – pathway could result in a minor environmental change, but would have a negligible residual effect on human health relative to baseline or guideline values; or
- Primary – pathway is likely to result in a measurable environmental change that could contribute to residual effects on human health relative to baseline or guideline values.

Primary pathways require further effects analysis in the FEIS to determine the environmental significance from the Project on human health. Pathways determined to have no linkage to human health, or those that are considered minor, are not predicted to result in environmentally significant effects on human health. No linkage and minor pathways are summarized in the FEIS but not carried through the effects assessment.

Potential pathways through which the Project could affect human health are presented in Table 10.2-3. Environmental design features and mitigation incorporated into the design of the Project to remove a pathway or limit the effects to human health are listed. The pathway is then determined to be primary, minor, or as having no linkage. The classification of pathways as primary, minor, or as having no linkage was determined by the disciplines that have assessed the pathway and provided predictions regarding changes to environmental quality. For example, pathways related to air emissions were assessed in the Air Quality section of the FEIS (FEIS Volume 5, Section 5.2) and those that were classified as primary were assessed further.



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine	Mine Site (construction)	Construction activities result in air emissions, which may cause short-term changes in air concentrations, which may directly affect human health Fuel combustion will result in air emissions, which may contribute to territorial and national greenhouse gas emissions, which may directly affect human health Short-term changes in air concentrations may also result in alterations to soil concentrations, which may affect human food and water sources including country foods	Best management practices to control fugitive particulate emissions Exhaust emissions from non-road vehicles will be managed through purchasing equipment that meet Tier 3 emission standards Exhaust emissions from non-road vehicles will be managed through regular and routine maintenance of vehicles SO₂ emissions from non-road vehicles and stationary equipment will be reduced through the use of diesel fuel with less than 15 ppm of sulphur.	Minor (bounded by operation effects)
Mine	Mine Site (operations)	Project activities will result in air emissions, which may cause changes in air concentrations, which may directly affect human health Fuel combustion will result in air emissions, which may contribute to territorial and national greenhouse gas emissions, which may directly affect human health Changes in air concentrations may also result in alterations to soil concentrations, which may affect human food and water sources including country foods	Best management practices to control fugitive particulate emissions from haul roads and material handling Sources of particulate emissions at the processing facility are controlled through the use of baghouses Enclosures are used to reduce fugitive emissions at the processing facility Exhaust emissions from non-road vehicles will be managed through purchasing equipment that meet Tier 3 emission standards Exhaust emissions from non-road vehicles will be managed through regular and routine maintenance of vehicles SO₂ emissions from non-road vehicles and stationary equipment will be reduced through the use of diesel fuel with less than 15 ppm of sulphur	Primary
AWAR	Phase II AWAR (construction)	Construction activities result in air emissions, which may cause short-term, localized changes in air concentrations, and as a result, soil concentrations, which may directly affect human health and their food and water sources including country foods	Best management practices to control fugitive particulate emissions from construction activities	Minor (bounded by operation effects)



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
AWAR	Phase II AWAR (operations)	Project vehicles along the AWAR will result in air emissions, which may cause changes in air concentrations, which may directly affect human health Fuel combustion will result in air emissions, which may contribute to territorial and national greenhouse gas emissions, which may directly affect human health Changes in air concentrations may also result in alterations to soil concentrations, which may affect human food and water sources including country foods	Best management practices to control fugitive particulate emissions from vehicles travelling along the AWAR	Primary
Rankin Inlet	Rankin Inlet	Activities associated with material receipt, storage and transfer to the Project will result in air emissions, which may cause short-term, localized changes in air concentrations which may directly affect human health Fuel combustion will result in air emissions, which may contribute to territorial and national greenhouse gas emissions, which may directly affect human health Changes in air concentrations may also result in alterations to soil concentrations, which may affect human food and water sources including country foods	Best management practices to control fugitive particulate emissions Exhaust emissions from non-road vehicles will be managed through purchasing equipment that meet Tier 3 emission standards Exhaust emissions from non-road vehicles will be managed through regular and routine maintenance of vehicles SO₂ emissions from non-road vehicles and stationary equipment will be reduced through the use of diesel fuel with less than 15 ppm of sulphur. Best management practices to control fugitive emissions from fuel handling and storage	Minor
Rankin Inlet	Marine Shipping	Marine shipping will result in air emissions, which may contribute to territorial and national greenhouse gas emissions These effect pathways may cause changes to air quality and soil quality (as a result of particulate deposition),	Marine vessels will remain on-station only as long as required for off-loading delivered materials	Minor



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
		resulting in subsequent changes to human food and water sources including country foods		
Mine	General construction and operation of mine and supporting infrastructure	Sensory disturbance (i.e., noise) can directly affect human health	Project design will use conventional insulation, baffles and noise suppressors on equipment Stationary equipment will be housed inside buildings Regular maintenance of equipment to limit noise Use of personal protective equipment such as ear plugs	Primary
Mine	General construction and operation of mine and supporting infrastructure	Sensory disturbance (i.e., noise) can indirectly affect human health by affecting migration patterns of wildlife populations (e.g. caribou) and subsequently human food sources including country foods	Project design will use conventional insulation, baffles and noise suppressors on equipment Stationary equipment will be housed inside buildings Regular maintenance of equipment to limit noise All employees will be provided with wildlife environmental awareness training	Primary
Mine	General construction and operation of mine and supporting infrastructure	Spills on the mine site or along the AWAR can cause changes to chemical concentrations in surface water, soil and vegetation, which may affect human food and water sources including country foods	Equipment will be re-fueled, serviced, and washed away from stream crossings and on impermeable pads wherever possible. There will be a wash bay in the maintenance shop Emergency response and spill contingency plans will be developed and implemented	Minor
Mine	General construction and operation of mine and supporting infrastructure	Physical hazards on the mine site would not be expected to change concentrations of chemicals in environmental media and, therefore, not affect human health	Not required for the protection of human health	No linkage
Mine	Mine infrastructure footprint (e.g., open pits, dikes, mine pits, waste rock, mine plant, site roads, camps) during construction, operations, closure and post-closure	Project footprint, which will physically alter watershed areas and drainage patterns, rates and quantities of diverted non-contact water to new watersheds, may change downstream flows, water levels, channel/bank stability in streams and may affect water and sediment quality, which may affect human food and water sources including country foods	Compact layout of the surface facilities within local watersheds will limit the area that is disturbed by construction and operation Access roads will be as narrow as possible, while maintaining safe construction and operation practices; minimum haul road widths will follow that defined under the Mine Health and Safety Act Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, sloping of banks), where needed To reduce the potential for erosion in channels due to higher than normal water flows and levels, natural drainage courses will be	Primary



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
			surveyed to evaluate capacity and then modified if required Where practical, natural drainage patterns will be used to reduce the use of ditches and diversion berms A Surface Water Management Plan (SD 2-6) has been developed and describes designs to reduce changes to local flows, drainage patterns, and drainage areas Monitoring during activities and use of adaptive management where necessary	
AWAR (main access road), haul roads, and Rankin Inlet Infrastructure	Road footprint during construction, operations, and closure	Project footprint, which will physically alter drainage patterns, may change downstream flows, water levels, and channel/bank stability in streams, and affect water and sediment quality, which may affect human food and water sources including country foods	Access roads will be as narrow as possible, while maintaining safe construction and operation practices; minimum haul road widths will follow that defined under the Mine Health and Safety Act Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks), where needed Where practical, natural drainage patterns will be used to reduce the use of ditches and diversion berms A Surface Water Management Plan (SD 2-6) has been developed and describes designs to reduce changes to local flows, drainage patterns, and drainage areas	Minor
Mine, AWAR, Rankin Inlet	Mine and supporting infrastructure during construction, operations, and closure	Sediment releases from infrastructure and road construction, including watercourse crossings, can affect quality of nearby surface waters and sediments, which may affect human food and water sources including country foods	Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks), where needed Where applicable, construction runoff will be captured and managed to minimize suspended solids Proposed roads will be as narrow as possible, while maintaining safe construction practices	Minor



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine, AWAR, Rankin Inlet	Mine and supporting infrastructure during construction and operations	Fugitive dust sources and deposition of dust (including from blasting during mining) can change water and sediment quality, which may affect human food and water sources including country foods	Best management practices to control fugitive particulate emissions from haul roads and material handling Use of water or dust suppressants to manage dust; use of chemical suppressants will be in accordance with the Environmental Guidance for Dust Suppression published by the Government of Nunavut Department of the Environment Enforcing speed limits to suppress dust production Design roads as narrow as possible while maintaining safe construction and operation practices Crossings will be perpendicular to watercourse The running surface of the road will be maintained thereby reducing the generation of dust Sheds, enclosures, and covers will be used in major ore handling areas and most crushing areas For uncovered crushing areas, water or dust suppression will be used Dust control systems will be used to limit dust emissions, for example, processing equipment with high efficiency bag houses will be used Most personnel arriving at or leaving the site will be transported by bus, thereby reducing the amount of traffic (and dust) Operating procedures will be developed that reduce dust generation; for example, tailings deposition will be designed to limit dust generation	Primary
Mine	Mine and supporting infrastructure during construction and operations	Air emission of sulphur dioxide, nitrogen oxides and particulates may change water and sediment quality, which may affect human food and water sources including country foods	Construction equipment and trucks will be equipped with industry-standard emission control systems Compliance with regulatory emission requirements will be met. Processing equipment will use dust collectors to limit emissions of particulate matter Exhaust emissions from non-road vehicles will be managed through regular and routine maintenance of vehicles SO₂ emissions from non-road vehicles and stationary equipment will be reduced through the use of diesel fuel with less than 15 ppm of sulphur Operating procedures will be developed that reduce dust generation Generator efficiencies and equipment will be tuned for optimum fuel-energy efficiency	Primary



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
AWAR and Rankin Inlet	During construction and operations, air emissions from vehicles	Air emission of sulphur dioxide, nitrogen oxides and particulates may change water and sediment quality, which may affect human food and water sources including country foods	Construction equipment and transport trucks will be equipped with industry-standard emission control systems Compliance with regulatory emission requirements will be met	No Linkage
Mine	Mining activities and water management during construction, operations, and closure	Release of mine wastewater (including sewage) may cause changes to surface water quality and sediment quality (i.e., nutrient and metal concentrations), which may affect human food and water sources including country foods	Treated sewage will be piped to the tailings storage facility Mine wastewater will be treated and tested before released to Meliadine Lake; if water quality does not meet discharge limits, it will be circulated and re-treated Water quality will meet CCME aquatic life objectives or site-specific water quality objectives at the edge of the mixing zone in Meliadine Lake Underground water will be collected, contained, monitored, re-used in the underground, or collected, contained, monitored, or treated, if required, to meet discharge limits for release to Meliadine Lake A site Water Management Plan has been developed and describes containment of contact water through the use of diversions, attenuation ponds, and treatment facilities during construction, operations, and closure Other applicable design features and mitigation, as identified in the Project Mine Closure and Reclamation Plan (SD 2-17)	Primary
Mine and Rankin Inlet	Construction and operation of camps	The construction and operation of camps may cause erosion and release of substances to surface water and could affect water and sediment quality, which may affect human food and water sources including country foods	Best management practices for erosion and sedimentation control; and storage and use of chemicals will be implemented Ditches will be constructed to route any runoff water to the attenuation pond Sewage will be directed to the tailings storage facility and will not be released to surface water	No Linkage
Mine	Mine and supporting infrastructure during construction and operations	Process and potable water use resulting in reduced water levels can affect water quality in Meliadine Lake, which may affect human food and water sources including country foods	Manage pumping rates so total annual discharge from Meliadine Lake does not drop below the 10-year dry condition No water withdrawal during the 10-year dry condition Water withdrawal rate(s) will be controlled to avoid effects on the source water lake(s) Capture and reuse site water to reduce fresh water requirements	Minor



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine and Rankin Inlet	Mine and supporting infrastructure during construction and operations	Spills and leaks during equipment operation can affect water and sediment quality of nearby surface waters, which may affect human food and water sources including country foods	Hazardous materials and fuel will be stored according to regulatory requirements to protect the environment and workers (i.e., Materials and Waste Management Plan) Storage tanks (e.g., fuel, engine oil, hydraulic oil, and waste oil and coolant) will be double walled, or located in lined and bermed containment areas Hazardous wastes will be stored on site in appropriate containers to prevent exposure until they are shipped off site to an approved facility Individuals working on site and handling hazardous materials will be trained in the Transportation of Dangerous Goods Soils from petroleum spill areas will be deposited and spread in a lined biopile for remediation A Spill Response Plan has been developed Emergency spill kits will be available wherever toxic materials or fuel are stored and transferred	No Linkage
Mine	Site Water Management: seepage and runoff during operations and closure	Runoff and leaching from the waste rock storage facilities and mine footprint may change surface water and sediment quality (i.e., metal concentrations), which may affect human food and water sources including country foods	A site Water Management Plan has been developed and describes the containment and management of contact water on-site Runoff and seepage from the Project site will be diverted to sumps and attenuation ponds (and treated if required) prior to release into Meliadine Lake Water quality in attenuation ponds will be monitored and managed such that the discharge entering Meliadine Lake meets discharge limits Potential acid generating (PAG) rock and metal leaching waste rock will be segregated at source and placed into designated areas within waste rock locations	Minor
Mine	Site Water Management: seepage and runoff during operations and closure	Vertical and lateral seepage from the tailings storage facility may enter nearby waterbodies and change water and sediment quality (i.e., metal concentrations), which may affect human food and water sources including country foods	A site Water Management Plan has been developed and describes the containment and management of contact water on-site Seepage will be captured at sumps and diverted to the tailings storage facility All ponds collecting seepage will be designed to prevent release into the surrounding aquatic environment Tailings facility discharge water will be monitored for water quality, and treated as required, prior to discharge	Minor



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine	Site Water Management: seepage and runoff during operations and closure.	Seepage of pore water through, or underneath, incompletely frozen dikes to adjacent watersheds may change water and sediment quality in local watersheds, which may affect human food and water sources including country foods	A site Water Management Plan has been developed and describes containment and management of contact water on-site The dikes will be designed and constructed to control seepage Performance of the dikes will be monitored and appropriate remediation applied if required	Minor
Mine	Site Water Management: Dewatering of Project Footprint Lakes to Downstream Receiving Lakes (e.g., to Lake A7, A1, B6, B34, Meliadine Lake) during construction and operations.	Dewatering of lakes may change flows, water levels, channel/bank stability, and water quality (e.g., suspended sediments, nutrients, metals) in receiving and downstream waterbodies, which may affect human food and water sources including country foods	During dewatering activities, TSS will be monitored, and if necessary, treated before release downstream Pumped water from the dewatered lakes will be directed through properly designed structures to the lake environment, and not to lake outlets, to prevent erosion in the receiving waterbodies and to attenuate flows Shoreline areas susceptible to extensive erosion will be armoured to reduce erosion and associated re-suspension of fine sediment Where practical, natural drainage patterns will be used to reduce the use of ditches or diversion berms	Primary
Mine	Pit development and operations	Release of pit water inflows to local watersheds may affect water and sediment quality in local watersheds, which may affect human food and water sources including country foods	Groundwater inflow to the pits or other dewatered areas will not be directly released to local watersheds All pit water will be pumped to the TSF, re-used in process. Excess TSF water will be treated, if necessary, prior to release	No Linkage
Mine	Pit development and operations	Removal of bedrock and ore material may change or alter existing faults and change contaminant transport processes in subsurface and surface water quality, which may affect human food and water sources including country foods	Groundwater model results suggest a travel time of 500 to 1000 years for water to move, via groundwater pathways, from the tailings storage facility to Meliadine Lake. A talik will have formed beneath the tailings storage facility before water can flow along this pathway	No Linkage
Mine	Pit Development	Removal of saline groundwater inflows during pit development to local watersheds may affect water and sediment quality in local watersheds, which may affect human food and water sources including country foods	Water inflow to the dewatered areas will not be directly released to local watersheds; water will be treated and then diverted to a water management pond prior to release into Meliadine Lake	Minor



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine, AWAR, and Rankin Inlet	Construction and operation of roads	Cross-drainage structures for the mine site roads, AWAR, and Rankin Inlet bypass road may alter stream hydraulics and geomorphology, and alter water and sediment quality, which may affect human food and water sources including country foods	Cross-drainage structures will be designed and constructed such that structures will not create a hydraulic barrier to fish passage and will convey peak flows corresponding to 1:25 year 24-hour rainfall event	Minor
Mine, AWAR, and Rankin Inlet	Construction and operation of roads	Freezing and plugging of culverts in the winter may result in over-topping and erosion of road surface releasing silt into watercourses during freshet and affect water and sediment quality, which may affect human food and water sources including country foods	Use of staggered culvert configuration to promote drainage during spring thaw and freshet Regular inspection of the road to identify any areas where ponding of water along the road represents a risk, and installing additional culverts or French drains to alleviate the risk	No Linkage
Mine, AWAR, and Rankin Inlet	Construction and operation of roads	Release of potential acid generating materials from road building materials at the watercourse crossings can alter water and sediment quality, which may affect human food and water sources including country foods	Use of non-acid generating material at all watercourse crossings. Testing will continue on new sources identified for road building Rock quarry activity will be at least 30 m from the high water mark of any waterbody	Minor
Mine, AWAR, and Rankin Inlet	Construction and operation of roads	Surface water drainage through quarries and transport of blasting residuals and metals directly into watercourses can affect surface water and sediment quality, which may affect human food and water sources including country foods	Where possible, stockpiling of rock and fill from quarries and borrow sites will be placed such that surface water is not diverted through the piles with runoff to surface waterbodies; drainage from quarries will not flow directly into any waterbodies or watercourses When there is seepage from a quarry that could enter a waterbody, a water quality sample will be collected and analyzed Quarries will be excavated and sloped for positive drainage Quarries will be inspected on a regular basis to monitor water ponding, particularly at spring melt Excavations will be at least 30 m away from any watercourses Best management practices for erosion and sediment control	Minor
Mine	Ongoing exploration	Ongoing exploration, and uptake and release of water, can affect surface water and sediment quality, which may affect human food and water sources including country foods	Best management practices for erosion and sedimentation control (e.g., silt curtains, runoff management, armouring of banks, timing and location of releases), where needed Best management practices for storage and treatment, if necessary, of any release water	Minor



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
			Testing, as required by operational licence, before release of water Best management practices for withdrawal rates, withdrawal volumes, and timing of withdrawals Reuse of water, where applicable, to reduce water usage	
Mine, AWAR, and Rankin Inlet	Decommissioning (e.g., roads, buildings, infrastructure, underground workings) during closure	Removal of project infrastructure (e.g., roads, dikes, etc.) may change flows and cause of release sediment and contaminants and can affect water and sediment quality, which may affect human food and water sources including country foods	A preliminary Closure and Reclamation Plan has been developed and describes measures for permanent closure Best management practices for erosion and sedimentation control such as installation of rip-rap, if applicable, to prevent erosion after removal of the culverts Instream work will be limited to the minimum extent possible. Instream work will follow DFO operational guidance and timing windows All bridges and culverts will be removed and original drainage patterns restored. Stream crossings will be rehabilitated Dikes will be removed to a minimum depth of 1 m below average lake water level or back to original; removal of dikes will be timed to minimize release of sediments In the underground workings, seal all drill holes and openings connected to the surface Remove unused explosives and other chemicals from the mine site Roads will be scarified, allowing native plants to re-establish, and slopes will be stabilized against erosion	Minor
Mine	Decommissioning of tailings and waste rock storage facilities during closure	Activities required for covering and reclaiming the tailings and waste rock storage facilities may cause release of contaminants and can affect water and sediment quality, which may affect human food and water sources including country foods	A preliminary Closure and Reclamation Plan has been developed and describes measures for permanent closure The waste rock storage facilities have been designed for long-term stability A cover of non-potentially acid generating and non-metal leaching rockfill cover will be placed on the surface of the tailings to a thickness that will allow the tailings to remain frozen The pond in the tailings area will be drained and filled with waste rock to promote surface drainage to Tiriganiaq Pit The surface of the tailings and waste rock storage facilities will be graded to blend into the existing topography and to shed water from the surface	Minor



Table 10.2-3: Potential Pathways for Effects to Human Health and Safety (continued)

Location	Project Activity	Effects Pathways	Environmental Design Features and Mitigation	Pathway Analysis
Mine	Remediation of attenuation pond AP-01 during closure	Reconnection of attenuation pond (or Lake H17) to Meliadine lake can affect water and sediment quality, which may affect human food and water sources including country foods	A preliminary Closure and Reclamation Plan has been developed and describes measures for permanent closure Sediments will be analyzed, and if concentrations are higher than baseline or guidelines, sediments will be managed according to best practices	Minor
Mine	Pits (closure and post-closure)	Water quality in flooded pits may be higher than objectives and reconnection of drainages may affect downstream water and sediment quality, which may affect human food and water sources including country foods	A preliminary Closure and Reclamation Plan has been developed and describes measures for permanent closure The pits are designed to have stable slopes during mining and post-closure The pits will be progressively reclaimed as excavation is completed The pits will be flooded, with water from Meliadine Lake, over a 10 year period following completion of pit operations Water quality in the pits will be monitoring continuously during the flooding process All diversion dikes will be kept intact as a barrier between open pits and surrounding lakes until the pit water meets acceptable concentrations for release to the environment; water will be treated if it is unacceptable for discharge	Primary

SO₂ = sulphur dioxide.

ppm = parts per million.

AWAR = all-weather access road.

CCME = Canadian Council of Ministers of the Environment.

PAG = potentially acid generating.

TSS = total suspended solids.

TSF = Tailings storage facility

DFO = Department of Fisheries and Oceans Canada.



The pathways analysis table identifies the Project components and activities that may contribute to changes in human health for workers or members of the public. For the primary pathways, the specific routes of exposure between a source and a receptor as assessed in the HHRA are identified in a CSM, which is described below.

10.2.5.2 Conceptual Site Model

A CSM was developed for human health based upon the primary pathways identified above (Figure 10.2-3). The exposure pathways between Project activities, intermediate residency media (i.e., the aspects of the environment that that may experience a change in quality due to Project activities/emissions), and receptors are shown to be either complete or incomplete. Where pathways are incomplete, quantitative assessment was not carried out given that environmental quality was not anticipated to change as a result of the Project. Complete pathways indicate that a change to environmental quality was predicted, and a quantitative assessment of the potential effects to human health was carried out.

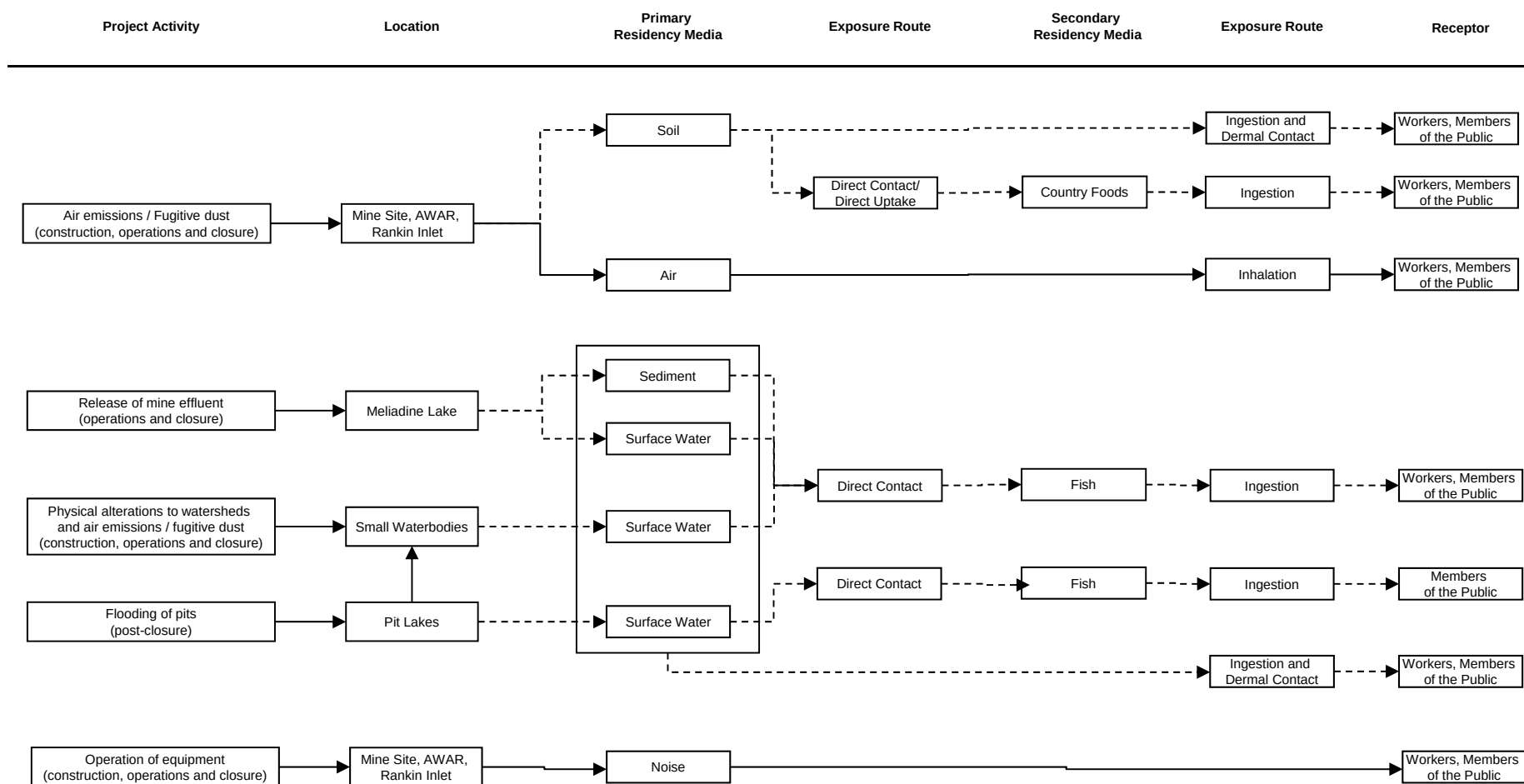
Air emissions and fugitive dust may affect air quality in the mine site area, AWAR, and Rankin Inlet during the construction, operations, and closure phases of the Project. Both workers and members of the public were considered to be potentially affected by changes in air quality. Health effects due to inhalation of ambient air were assessed at several receptor locations representing commonly used traditional areas (as determined through the collection of traditional knowledge; i.e., hunter/trapper cabins and the territorial park) and the Meliadine off-site Worker (Exploration) Camp. The Accommodation Complex (or on-site Worker Camp) is within the Project disturbed footprint and would be managed under an occupational health and safety program. As such, the Accommodation Complex was not assessed further in the HHRA. As described further in Section 10.2.6.3.1 below, there were several COPCs identified in air at some of the identified receptor locations; therefore these pathways were considered to be complete and were retained for further assessment in the HHRA.

Air emissions and fugitive dust may become deposited onto soil in the mine site area, AWAR, and Rankin Inlet during the construction, operations, and closure phases of the Project. Therefore, changes to soil quality may affect the health of workers and members of the public who are potentially exposed to chemicals in soil either directly (i.e., incidental ingestion and dermal contact with soil) or indirectly (i.e., uptake of soil chemicals into country foods). As described further in Sections 10.2.6.3.2 and 10.2.6.3.3 below, no COPCs were identified in soil at the human receptor locations; therefore, these pathways were considered to be incomplete and were not retained for further assessment in the HHRA.

Release of mine effluent during the operations and closure phases may directly affect both surface water and sediment quality in Meliadine Lake. Members of the public may potentially come into direct contact with surface water and sediment as this lake is used traditionally as a source of drinking water (i.e., ingestion exposure route) or for bathing (dermal contact exposure route). Workers will use water from Meliadine Lake as a source of drinking water during the construction, operations, and active closure phases of the Project. Changes to surface water quality may affect fish tissue quality, which may in turn affect human health because, based on traditional knowledge, workers or members of the public are likely to consume fish from Meliadine Lake. As described further in Sections 10.2.6.3.4, 10.2.6.3.5, and 10.2.6.3.6 below, no COPCs were identified in surface water, sediment, or fish tissue in Meliadine Lake; therefore, these pathways were considered to be incomplete and were not retained for further assessment in the HHRA.

Conceptual Site Model for the Meliadine Gold Project – Human Health

FIGURE 10.2-3



NOTES

Solid lines indicate pathways that were considered to be complete and quantitatively evaluated in the human health risk assessment (Section 10.2 of the DEIS).

Dashed lines indicate pathways that were considered to be incomplete (i.e., no COPCs were identified in site media).

Date: January 2013

Project: 10-1373-0076



CAD: AA

CKD: DRW



Physical alterations to watersheds (i.e., small waterbodies and watercourses around the mine site), air emissions, and deposition of fugitive dusts during the construction, operations, and closure phases can all affect surface water quality in small waterbodies located within the mine site area. Members of the public may use the small waterbodies and watercourses as temporary sources of drinking water while using the hunter/trapper cabins close to these waterbodies (FEIS Volume 9, Section 9.3). Therefore, ingestion and dermal contact with surface water in the small waterbodies was identified as a potential pathway. As described above, changes to surface water quality may also affect fish tissue quality and, as such, ingestion of fish obtained from the small waterbodies by members of the public was also considered. As described further in Section 10.2.6.3.4 below, no COPCs were identified in surface water in the small waterbodies; therefore, these pathways were considered to be incomplete and were not retained for further assessment in the HHRA. IQ

Flooding of the open pits in the post-closure phase can affect surface water quality in the pit lakes. Note that overflow of the pit lakes may affect surface water quality in the small waterbodies and watercourses that receive drainage. With respect to the pit lakes, members of the public may use the pit lakes as temporary sources of drinking water while fishing at the lakes or when using the hunter/trapper cabins close to these lakes. Therefore, ingestion and dermal contact with surface water in the pit lakes was identified as a potential pathway. As described above, changes to surface water quality may also affect fish tissue quality and, as such, ingestion of fish obtained from the pit lakes by members of the public was also considered. Given that workers will no longer be present during the post-closure phase, workers were not considered to be potentially exposed to fish from the pit lakes. As described further in Section 10.2.6.3.4 below, no COPCs were identified in surface water in the pit lakes; therefore, these pathways were considered to be incomplete and were not retained for further assessment in the HHRA. Possible generation of methyl mercury is also discussed further below; although not directly predicted as a result of the Project, accumulation of methyl mercury in fish tissue is possible and as such monitoring of mercury in fish tissue is included in the aquatic effect monitoring program (SD 7-3).

Operation of equipment during the construction, operations, and closure phases of the Project may affect noise levels in the mine site area, AWAR, and Rankin Inlet. Both workers and members of the public may become affected by changes in noise levels at the receptor locations identified for air quality. Changes to noise levels are described further in Section 10.2.6.3.7 and were retained for further assessment in the HHRA.

10.2.6 Effects Analysis

10.2.6.1 General Approach

The effects analysis for human health was carried out considering the potential changes in chemical concentrations in air, soil, water, sediment, fish, country foods (plants and animals consumed by humans), and noise for a *bounding case*. The bounding case is defined as the phase of the Project that either was considered to result in the highest potential change in environmental quality by the subcomponent (e.g., air quality, noise) or that resulted in the highest predictions out of all of the phases that were modeled (e.g., water quality). The following Project phases were considered when identifying the bounding scenario:

- Construction;
- Operation;
- Closure; and
- Post-closure.



A summary of the Project phases that were considered by the subcomponents and the selected bounding case is provided in Table 10.2-4 below. The rationale for the modeling carried out for each subcomponent is provided in the relevant sections of the FEIS.

Table 10.2-4: Summary of Bounding Scenarios from each Subcomponent Evaluated in the Human Health Risk Assessment

Subcomponent	Project Phases		
	Construction	Operations	Closure and Post-Closure
Air quality	—	•	—
Soil quality ^a	—	•	—
Country foods quality ^a	—	•	—
Water quality ^b	○	○	○
Sediment quality	○	○	○
Fish quality ^c	○	○	○
Noise	—	•	—

— = phase not considered.

○ = phase considered.

• = phase assessed as the bounding scenario.

^a potential changes in chemical concentrations in soil and country foods (i.e., plants and animals consumed by humans) are based on predicted concentrations of non-volatile chemicals (i.e., metals and PAHs) in dustfall.

^b potential changes in chemical concentrations in water quality varied from waterbody to waterbody; therefore, the maximum predicted concentration from all modelled Project phases was considered in the effects analysis.

^c potential changes in chemical concentrations in fish are based on changes to water quality.

For air quality (and by extension soil quality and country food quality through particulate deposition) and noise, the operations phase represents the bounding case. The predicted changes in environmental media for the operation phase of the Project are considered to represent the maximum emissions during the life of the Project. The predicted concentrations in environmental media for the bounding scenario were applied in the HHRA to ensure that potential risks to human receptors were not underestimated. The Air Quality section of the FEIS (FEIS Volume 5, Section 5.2) describes the rationale for carrying out the modeling for the operation phase for air quality.

- The changes in water quality (and fish quality) for each phase of the Project were predicted as described and presented in the Surface Water and Sediment Quality section of the FEIS (FEIS Volume 7, Section 7.4). The modelling approach is considered to be appropriate given that Meliadine Lake and the small waterbodies and watercourses within the Project disturbed footprint may be accessed by members of the public at any time during all of the phases of the Project. The maximum predicted water concentrations over the entire course of the Project were used in the HHRA.
- As described in the Surface Water and Sediment Quality section of the FEIS (FEIS Volume 7, Section 7.4), changes to sediment quality were considered to arise as a result of discharges of mine water. Therefore, changes to sediment quality were predicted for Meliadine Lake only (note that the small waterbodies and watercourses within the Project disturbed footprint were not considered to receive mine effluent) and only for the construction and operation phases of the Meliadine Gold Project. The maximum predicted changes to sediment concentrations in Meliadine Lake were provided in the Surface Water and Sediment Quality section of the FEIS (FEIS Volume 7, Section 7.4) for both Project phases.



The results of the traditional knowledge assessment was considered when selecting the types of country foods human receptors would be most likely to consume from the Project area and when interpreting the residual impacts of the effects analysis, as applicable. While there may be some variability in the intensity and frequency of exposure by Inuit and non-Inuit, the approach taken in the human health risk assessment has assessed the likely worst-case exposures as quantified through the use of governmental guidance documents and site-specific traditional knowledge. There were no cases of either discrepancies or gaps between popular science and traditional knowledge. IQ

Indirect and cumulative effects have not been quantitatively predicted by any of the subcomponents for which data were relied upon in the HHRA. However, qualitative assessment of indirect and cumulative effects has been incorporated throughout the effects analysis, where possible and applicable.

10.2.6.1.1 Identification of Chemicals of Potential Concern

In general, to determine whether a chemical has the potential to affect human health (i.e., the chemical is identified as a COPC in the HHRA), the predicted concentrations for its bounding case were compared to relevant health-based screening guidelines and to baseline concentrations plus 10% (the Baseline Case). If a chemical only exceeds baseline concentrations and not its respective health-based guideline, it is not considered to be present at levels that could affect human health. If a chemical exceeds its health-based guideline but is present in the environment at levels within 10% of baseline concentrations, then it is not considered to be significantly different from baseline and no health effect is predicted to occur as a result of the Project. When the chemical is predicted to be present at levels greater than baseline and greater than a health-based guideline, the incremental change in environmental concentrations as a result of the Project may potentially affect human health. Therefore, the chemical is retained for further assessment in the HHRA.

The addition of 10% to baseline concentrations is standard practice in environmental assessments to represent variability in environmental background conditions. Comparison to a threshold of 10% above baseline concentrations accounts for variability in spatial and temporal concentrations, field sampling, laboratory methods, and the conservatism incorporated in the predictive models. Therefore, a predicted increase in concentration of less than 10% above baseline concentrations is considered to represent a negligible change in environmental quality as this change is within typical background levels.

It should be noted that baseline conditions were not quantified for all environmental media, all chemicals, and all locations. Where alternative COPC screening approaches were taken, these are described further on a case-by-case basis.

10.2.6.2 Mitigation Measures

Mitigation measures were incorporated into the predictive modeling of air quality, noise, surface water, and sediment carried out by the other disciplines. The mitigation measures are described in detail in the relevant sections of the FEIS.

No additional mitigation measures were considered in the HHRA.



10.2.6.3 Effects Analysis Results

As indicated in Section 10.2.6.1 above, the following environmental media were assessed with respect to potential changes to environmental quality that may have an effect on human health:

- air quality, which was predicted for receptor locations in the mine site area and AWAR;
- soil quality, which was predicted based upon atmospheric deposition rates;
- water quality, which was predicted for Meliadine Lake and the waterbodies in the mine site area;
- sediment quality, which was predicted for Meliadine Lake;
- vegetation quality, which was predicted based upon atmospheric deposition rates;
- fish quality, which was predicted based upon changes to water quality;
- animal tissue quality, which was predicted based upon atmospheric deposition rates to soil and vegetation; and
- noise, which was predicted for receptor locations in the mine site area, AWAR, and Rankin Inlet.

As indicated in the General Approach (Section 10.2.6.1), bounding cases were used to assess potential exposure. As a result, the Effects Analysis has been carried out for each environmental medium for its bounding case. The results of the effects assessment are detailed in the sections to follow.

The only environmental medium that included predictions specifically for the construction phase of the Project was water quality for Meliadine Lake and for the small waterbodies and watercourses within the Project disturbed footprint. As described in the Surface Water and Sediment Quality section in the FEIS (FEIS Volume 7, Section 7.4), changes to water quality was predicted in Meliadine Lake during construction (years -3 to 0) and operation (years 1 to 12) phases. Following treatment, effluent from the mine site will be passed through a diffuser and released into the receiving environment. Maximum concentrations of water quality parameters at the edge of the mixing zone from all years of construction and operation were predicted. As shown in the Surface Water and Sediment Quality section in the FEIS (FEIS Volume 7, Section 7.4), most of the concentrations of water quality parameters generally were higher in the operations phase; as a result, the predicted water quality concentrations during the operations phase of the Project were assessed in the HHRA (see the Effects Analysis Section 10.2.6.3.4 below). Additionally, changes to water quality were predicted for the small waterbodies and watercourses within the Project disturbed footprint during construction (years -3 to 0), operations (years 1 to 12), active closure, and post-closure phases. Given that most of the predicted concentrations of water quality parameters were generally higher in the operations phase, the predicted water quality concentrations during the operations phase for the small waterbodies and watercourses were assessed in the HHRA (see the Effects Analysis, Section 10.2.6.3.4 below). By extension, the effects analysis for fish quality was also carried out considering the operations phase.

Emissions during the construction phase of the Project were considered to be lower in comparison to emissions during the other phases of the Project for air quality, sediment quality, soil quality, country foods quality (i.e., plants and animals consumed by humans), and noise.

As shown in Table 10.2-4 above, the bounding scenario for most environmental media was the operations phase of the Project (i.e., air quality, sediment quality, soil quality, country foods quality, and noise). As a result, each of these environmental media and the potential health effects that could be associated with changes to



environmental quality considering the operations phase are described below. Additionally, given that the greatest predicted changes to water quality (and by extension fish quality) were predicted for the operations phase of the Project, the effects analysis for water quality (and fish quality) was carried out within this section.

10.2.6.3.1 Air Quality

Air quality predictions were carried out considering 6 modeling scenarios for the operation phase of the Project. Each of these scenarios is described in detail in the Air Quality section of the FEIS (FEIS Volume 5, Section 5.2). The scenarios are described briefly below:

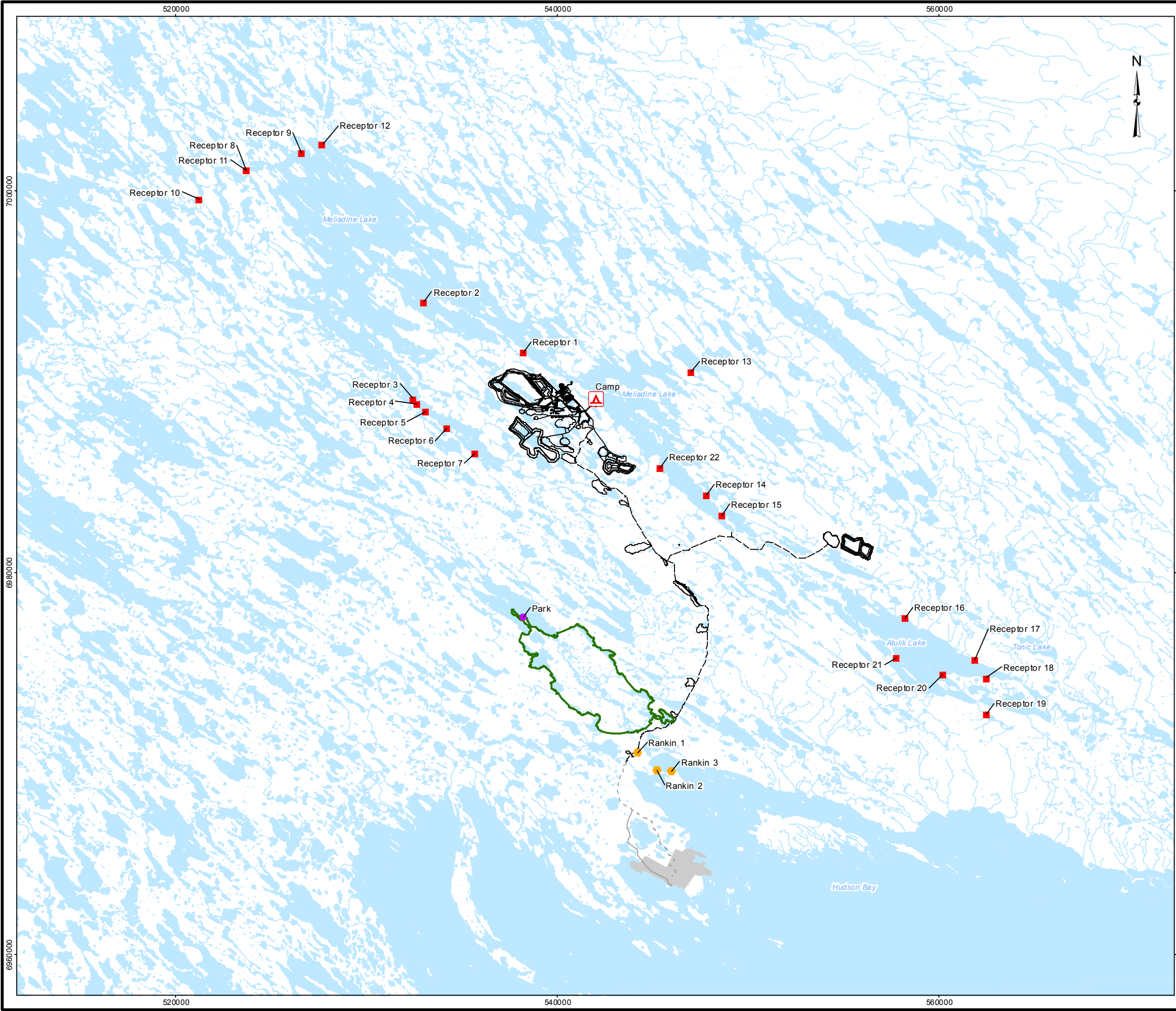
- Scenario 1: Include emissions from the Tiriganiaq pit, haul roads 1 and 3, material handling 18 and 20, underground emissions (vent raises 1 to 3), and the incinerator;
- Scenario 2: Include emissions from the F-Zone pit, haul roads 6 and 7, material handling 12 and 13, underground emissions (vent raises 1 to 3), and the incinerator;
- Scenario 3: Include emissions from the Pump pit, haul roads 8 and 9, material handling 16 and 17, underground emissions (vent raises 1 to 3), and the incinerator;
- Scenario 4: Include emissions from the Discovery pit, haul roads 10 and 11, material handling 14 and 15, underground emissions (vent raises 1 to 3), and the incinerator;
- Scenario 5: Include emissions from the Wesmeg pit, haul roads 12 and 13, material handling 21 and 22, underground emissions (vent raises 1 to 3), and the incinerator; and
- Scenario 6: Include emissions from underground emissions (vent raises 1 to 3), and the incinerator.

For each of these scenarios, the change in concentrations of air quality parameters were predicted at several receptor locations. The receptor locations were selected based upon the Traditional Activity and Knowledge section of the FEIS (FEIS Volume 9, Section 9.3) and input from AEM based upon their public consultation with members of the local communities. The following receptor locations in the LSA and RSA are summarized below (see Figure 10.2-4):

- 1 location at the off-site worker (exploration) camp ("Camp");
- 22 hunter/trapper cabins around the mine site ("Receptor 1 to 22");
- 3 hunter/trapper cabins close to Rankin Inlet ("Rankin 1 to 3"); and
- 2 locations at the territorial park ("Park").

IQ

N:\Bur_Graphics\Projects\2013\1428\13-1428-0007\GIS\Mapping\MXD\FEIS\Volume_10\Main_Volume\Figure_10.2.4_Human_Health_Receptor_Locations.mxd

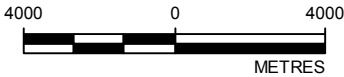


LEGEND

- Meliadine Worker Camp
- Hunter/Trapper Cabin
- Iqaluqarjuup Nunanga Territorial Park
- Rankin Inlet Cabin
- Territorial Park
- Municipal Boundary
- Proposed Project Infrastructure
- All-weather Access Road (AWAR)
- Road - New
- Road - Existing
- Watercourse
- Waterbody

REFERENCE

Base data obtained from Agnico Eagle Mines Limited (AEM).
Datum: NAD 83 Projection: UTM Zone 15



PROJECT		AGNICO EAGLE MINES LIMITED MELIADINE GOLD PROJECT NUNAVUT			
TITLE		HUMAN HEALTH RECEPTOR LOCATIONS			
	PROJECT NO. 10-1373-0076			FILE No.	
	DESIGN	AA	08 Nov. 2012	SCALE AS SHOWN	REV. 0
	GIS	DSC	15 Nov. 2012	FIGURE 10.2-4	
	CHECK	DW	18 Jan. 2013		
REVIEW		DW	18 Jan. 2013		



To evaluate the potential Project-related effects on air quality, the HHRA evaluated the potential inhalation exposure to chemicals by workers and the public that are emitted to ambient air at the above noted receptor locations. Inhalation exposures following short-term (or acute) and long-term (or chronic) durations were evaluated. Also, the potential exposures to particulate matter (i.e., particulate matter less than 10 µm in diameter [PM₁₀], particulate matter less than 2.5 µm in diameter [PM_{2.5}], and diesel particulate matter (DPM) by workers and the public were evaluated. The highest predicted concentrations for each averaging period (i.e., 1-hour, 24-hour, and annual) were used in the assessment for each of the 6 scenarios. The methods used to carry out the predictive air quality modelling are described in detail in the Air Quality section of the FEIS (FEIS Volume 5, Section 5.2).

To evaluate acute inhalation exposures, predicted Project emissions based on a 1-hour averaging period were used as representative concentrations to which human receptors would potentially be exposed on a short-term basis. Health effects associated with acute exposures to chemicals in ambient air typically include irritation and effects on respiratory function (i.e., non-cancer endpoints).

To evaluate chronic inhalation exposures, predicted Project emissions based on a 24-hour and annual averaging periods were used as representative concentrations to which human receptors would be exposed on a daily and long-term basis. Health effects associated with long-term exposures to chemicals in ambient air include non-cancer and cancer endpoints, which are evaluated in this assessment on the basis of 24-hour and annual averaging periods, respectively.

The sections below describe the methods and results of the air quality risk assessments for the Project.

10.2.6.3.1.1 Acute Air Quality **Selection of 1-hour Air Thresholds**

Predicted changes in ambient air concentrations as a result of the Project were identified based upon the Project components and activities as described in the Air Quality section of the FEIS (FEIS Volume 5, Section 5.2). The following groups of chemicals were assessed:

- Indicator compounds (e.g., SO₂, NO₂);
- Metals (e.g., arsenic, lead);
- PAHs; and
- VOCs.

Peak 1-hour concentrations for indicator compounds, metals, PAHs, and VOCs were compared to the most conservative of the available 1-hour (i.e., acute) health-based thresholds from the following agencies:

- Government of Nunavut Department of Environment (NDOE 2011);
- CCME (1999);
- Ontario Ministry of the Environment (OMOE 2012);
- World Health Organization (WHO 2000; WHO 2005);
- California Office of Environmental Health Hazard Assessment (OEHHA 2012, internet site);



- ATSDR (2011, internet site); and
- Texas Commission on Environmental Quality (TCEQ, 2012, internet site).

The most protective health-based threshold was selected out of NDOE, CCME, OMOE, WHO, OEHHA, and ATSDR. If no health-based standards were available, then a standard based upon another endpoint, such as odour, was used. Additionally, the TCEQ was used only when thresholds from other jurisdictions were not available, given that detailed supporting documentation is not available from TCEQ.

Each of these agencies derived health-based air thresholds based upon a prescribed level of protection. Most often, these air thresholds are presented as air concentrations at and below which health effects are not expected to occur and may incorporate additional safety factors. Therefore, a predicted air concentration above their respective health-based threshold indicates a health effect is possible, but not certain. Further assessment is required to determine the likelihood of that health effect occurring.

The available jurisdictional health-based 1-hour thresholds were considered for use in the Acute Air Quality Risk Assessment (Table 10.2-A-1 in Appendix 10.2-A). A threshold was selected if it was the most protective (i.e., the lowest) out of all of the available thresholds and its supporting information was available for review. The lowest available threshold was not selected for sulphur dioxide as discussed below:

- The lowest available threshold for SO₂ was the ATSDR acute duration minimal risk level (MRL) of 0.01 ppm (or 26 µg/m³). This value is based upon a study in which asthmatic subjects were exposed to sulphur dioxide (Sheppard et al. 1981; as cited in ATSDR 1998). Subjects were exposed to 0.10, 0.25, or 0.50 ppm sulphur dioxide for 10 minutes, either alone or while exercising. The 2 most sensitive subjects demonstrated a small decrease in specific airway reactivity at the lowest tested concentration. As a result, 0.10 ppm was identified as a minimal LOAEL and was used for MRL derivation. Uncertainty factors of 3 for the use of a minimal LOAEL and 3 for human variability were incorporated to derive a final acute duration MRL of 0.01 ppm (or 26 µg/m³). However, given that the study was already investigating sensitive subjects, applying an uncertainty factor to account for human variability is likely overly protective.
- The NDOE (2011) provides a 1-hour threshold of 450 µg/m³ that was adopted from the Canadian National Ambient Air Quality Objective (CCME 1989). The Government of Nunavut 1-hour air quality guideline of 450 µg/m³ was selected rather than the lower ATSDR value of 26 µg/m³ (Table 10.2-A-1 in Appendix 10.2-A). Both values were derived based upon respiratory effects observed in respiratory asthmatics following a 10-minute exposure to sulphur dioxide. However, the Nunavut value is preferred given that it is also a health-based value as well as the National Ambient Air Quality Objective.

Chemical Groupings

Many of the chemicals had sufficient toxicity information and screening standards available, which allowed them to be assessed as individual chemicals (specifically, metals and metallic combustion by-products, such as lead). However, other chemicals were assessed as groups because insufficient toxicity information was available for the individual chemicals. In these cases, the individual chemicals were grouped based upon their physical/chemical properties and mixture-specific toxicity data. These chemical groups were represented by a



surrogate chemical for which toxicity information was available. This approach was applied to individual chemicals within PAHs and VOCs. The groupings are shown below:

Polycyclic Aromatic Hydrocarbons

- Acenaphthenes were evaluated as a group, which includes acenaphthene and methyl acenaphthene. Acenaphthene was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging periods were not available for this group.
- Anthracenes were evaluated as a group, which includes the following:
 - 2-methylanthracene;
 - anthracene;
 - C2-substituted phenanthrene/ anthracene;
 - C3-substituted phenanthrene/anthracene;
 - C4-substituted phenanthrene/anthracene; and
 - methyl phenanthrene/anthracene.

Anthracene was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging periods were not available for this group.

- Benzo(a)pyrenes were evaluated as a group, which includes the following:
 - 1-nitropyrene;
 - 1,6-dinitropyrene;
 - 1,8-dinitropyrene;
 - 3-methylcholanthrene;
 - 7H-dibenzo(c,g)carbazole;
 - benzo(a)pyrene, benzo(b)fluorine;
 - benzo(e)pyrene;
 - cyclopenta(c,d)pyrene;
 - nitro-pyrene; and
 - nitrobenzanthrone.

3-Methylcholanthrene was selected as the surrogate for this group in the acute chemical screening. Benzo(a)pyrene was selected as the surrogate in the chronic chemical screening. Given that benzo(a)pyrene is classified as a carcinogen, jurisdictional chronic thresholds based on an annual averaging period were applied.

- Benzo(a)anthracenes were evaluated as a group, which includes 7,12-dimethylbenz(a)anthracene and benz(a)anthracene. Benzo(a)anthracene was selected as a surrogate for this group in the acute chemical screening. 7,12-Dimethylbenz(a)anthracene was selected as the surrogate for this group in the chronic chemical screening. Given that 7,12-dimethylbenz(a)anthracene is classified as a carcinogen, jurisdictional chronic thresholds based on an annual averaging period were applied.
- Benzo(b)fluoranthenes were evaluated as a group, which includes benzo(b)fluoranthene, benzo(j)fluoranthene, C2-substituted benzo(b&k)fluoranthene/benzo(a)pyrene, and methyl benzo(b&k)fluoranthene/benzo(a)pyrene. Benzo(b)fluoranthene was selected as a surrogate for this group in the acute and chronic chemical screening. Given that benzo(b)fluoranthene is classified as a carcinogen, jurisdictional chronic thresholds based on an annual averaging period were applied.



- Benzo(g,h,i)perylene were evaluated as a group, which includes benzo(g,h,i)perylene, coronene, and perylene. Benzo(g,h,i)perylene was selected as a surrogate for this group in the acute and chronic chemical screening. Given that benzo(g,h,i)perylene is considered a weak carcinogen, jurisdictional chronic thresholds based on an annual averaging period were applied.
- Chrysene were evaluated as a group, which includes C2-substituted benzo(a)anthracene/chrysene, chrysene, and methyl benzo(a)anthracene/chrysene. Chrysene was selected as a surrogate for this group in the acute and chronic chemical screening. Given that chrysene is classified as a carcinogen, jurisdictional chronic thresholds based on an annual averaging period were applied.
- Dibenzo(a,h)anthracenes were evaluated as a group, which includes dibenz(a,h)acridine, dibenz(a,j)acridine, dibenzo(a,h)anthracene, and picene. Dibenzo(a,h)anthracene was selected as a surrogate for this group in the acute and chronic chemical screening. Given that dibenzo(a,h)anthracene is classified as a carcinogen, jurisdictional chronic thresholds based on an annual averaging period were applied.
- Fluoranthenes were evaluated as a group, which includes acephenanthrylene, benzo(g,h,i)fluoranthene, benzo(a)fluorene, and fluoranthene. Fluoranthene was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging periods were not available for this group.
- Fluorenes were evaluated as a group, which includes 2-methylfluorene, C2-substituted fluorene, carbazole, fluorene, and methyl fluorene. Fluorene was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging periods were not available for this group.
- Indeno(1,2,3-c,d)pyrenes were evaluated as a group, which includes dibenzo(a,i)pyrene, indeno(1,2,3-cd)fluoranthene, indeno(1,2,3-cd)pyrene, and indeno(1,2,3-W)pyrene. Indeno(1,2,3-cd)pyrene was selected as the surrogate for this group in the acute chemical screening. Dibenzo(a,i)pyrene was selected as the surrogate for this group in the chronic chemical screening. Given that dibenzo(a,i)pyrene is considered as a carcinogen, jurisdictional chronic thresholds based on an annual averaging period were applied.
- Naphthalenes were evaluated as a group, which includes the following:
 - 1-methylnaphthalene;
 - 2-methylnaphthalene;
 - C2-substituted naphthalene;
 - C3-substituted naphthalene;
 - C4-substituted naphthalene;
 - indole;
 - methyl naphthalene; and
 - naphthalene.

Naphthalene was selected as the surrogate for this group in the acute and chronic chemical screening. Both carcinogenic and non-carcinogenic health effects associated with naphthalene were evaluated by comparison against chronic thresholds based on 24-hour and annual averaging periods.



- Phenanthrenes were evaluated as a group, which includes the following:

- 1-methylphenanthrene;
- 2-methylphenanthrene;
- 3-methylphenanthrene;
- 4-+9-methylphenanthrene;
- phenanthrene; and
- retene.

Phenanthrene was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging periods were not available for this group.

- Pyrenes were evaluated as a group, which includes 2-methylpyrene, methyl fluoranthene/pyrene, and pyrene. Pyrene was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging periods were not available for this group.

- Thiophenes were evaluated as a group, which includes the following:

- 2,5-dimethylthiophene;
- 3-methyldibenzothiophene;
- 4-methyldibenzothiophene;
- C2-substituted dibenzothiophene;
- C3-substituted dibenzothiophene;
- C4-substituted dibenzothiophene;
- dibenzothiophene; and
- methyl dibenzothiophene.

Dibenzothiophene was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging periods were not available for this group.

Volatile Organic Compounds

- 1,3-Butadienes were evaluated as a group, which includes the following:

- 1,2-butadiene;
- 1,2-pentadiene;
- 1,3-butadiene;
- 1,4-pentadiene;
- 2-methyl-1,3-butadiene;
- 2-methyl-4,5-nonadiene;
- 2,3-pentadiene;
- 2,5-dimethyl-1,3-hexadiene;
- 2,5,5-trimethyl-1,6-heptadiene;
- 2,5,5-trimethyl-1,6-heptadiene (B);
- 3-ethyl-2-methyl-1,3hexadiene;
- 3-methyl-1,2-butadiene;
- 4,8-dimethyl-1,7-nonadiene;
- 4-methyl-2,7-octadiene;
- 5-methyl-1,4-hexadiene;
- cis-1,3-pentadiene;
- cyclopentadiene; and
- trans-1,3-pentadiene.



1,3-Butadiene was selected as the surrogate for this group. Given that 1,3-Butadiene is considered as a carcinogen, jurisdictional chronic thresholds based on an annual averaging period were applied.

- Acrolein was evaluated as a group, which includes acrolein and methacrolein. Given that toxicity information was not available for methacrolein, the sum of both chemicals was assessed using acrolein as its surrogate in the HHRA.
- Aldehydes were evaluated as a group, which includes the following:
 - 2,5-dimethylbenzaldehyde;
 - 3-methylbutanal;
 - benzaldehyde;
 - butanal;
 - crotonaldehyde;
 - decanal;
 - dodecanal;
 - heptanal;
 - isobutyraldehyde;
 - nonanal;
 - octanal;
 - propanal;
 - tridecanal; and
 - undecanal.

Propanal was used as the surrogate for this group in the acute screening and crotonaldehyde was used as the surrogate in the chronic chemical screening.

- C2-C6 aliphatics were evaluated as a group, which includes the following:
 - 1-methyl-1-(2-methylene)cyclopentane;
 - 1-methyl-1-cyclopentene;
 - 1-methyl-4-(1-methylene)cyclohexane;
 - 1-methyl-4-(methylene)cyclohexene;
 - 1-butene;
 - 1-pentene;
 - 1-pentyne;
 - 1-propyne;
 - 1,2-butane;
 - 2-butanol;
 - 2-butyne;
 - 2-methylbicyclo[4.4.0]heptane;
 - 2-ethyl-2-hexene;
 - 2-methyl-1-butene;
 - 2-methyl-1-pentene + 1-hexene;
 - 2-methyl-2-butene;
 - 2-methyl-4-pentene;
 - 2-methyl pentane, 2,3-dimethylbutane;
 - 2,2-dimethylpropane;
 - 3-methyl-1-butene;
 - 3-methyl-2-butene;
 - 4-methyl-1-cyclopentene;
 - 4-methyl-1-(1-methylene)cyclohexene;
 - acetylene + ethane;
 - butane;
 - butane;



- C6-olefin;
- cis-2-butene;
- cis-2-pentene;
- cyclopentane;
- cyclopentene;
- ethane;
- ethane;
- ethyne;
- i-butane;
- isobutene;
- isopentane;
- pentane;
- pentene;
- propane;
- propene;
- trans-2-butene;
- trans-2-pentene;
- isobutene;
- isobutanol;
- methyl-tert-butyl ether;
- n-butane;
- n-butanol;
- n-pentane;
- n-propanol; and
- naphthene.

Methyl-tert-butyl ether was selected as the surrogate for this group to evaluate potential carcinogenic health effects; as such, the chronic threshold based on annual averaging period was applied. n-Butanol was selected as the surrogate for this group to evaluate potential non-carcinogenic health effects; as such, the acute and chronic thresholds based on 1-hour and 24-hour averaging periods, respectively, were applied.

■ C6-C8 aliphatics were evaluated as a group, which includes the following:

- 1-ethyl-1-methylcyclopropane;
- 1-heptene;
- 1-hexene;
- 1-methyl-1-ethylcyclopentane;
- 1-methyl-2-ethylcyclopentane;
- 1-methyl-2-methylene cyclopentane;
- 1-methyl-trans-3-ethylcyclopentane;
- 1-octene;
- 1,1-dimethylcyclohexane;
- 1,1-dimethylcyclopentane;
- 1,1,3-trimethylcyclopentane;
- 1,2-dimethylcyclohexane;
- 1,2-dimethylcyclopentane;
- 1,2,3-trimethylcyclopentane;
- 1,2,4-trimethylcyclopentane;
- 1,3-dimethylcyclopentane;
- 1,4-dimethylcyclohexane;
- 1,5-dimethylcyclopentane;
- 2-ethyl-3-methylcyclopentane;
- 2-hexene;
- 2-methyl-1-pentene;
- 2-methyl-2-pentene;



- 2-methyl-3-ethylpentane;
- 2-methyl-3-pentene;
- 2-methylheptane;
- 2-methylhexane;
- 2-methylpentane;
- 2-octene;
- 2,2-dimethylbutane;
- 2,2-dimethylhexane;
- 2,2-dimethylpentane;
- 2,3-dimethylbutane;
- 2,3-dimethylhexane;
- 2,3-dimethylpentane;
- 2,3,4-trimethylpentane;
- 2,4-dimethyl-1-pentene;
- 2,4-dimethylhexane;
- 2,4-dimethylpentane;
- 2,2,3-trimethylbutane;
- 2,2,3-trimethylpentane;
- 2,2,4-trimethylpentane;
- 2,3,3-trimethylpentane;
- 2,5-dimethylhexane;
- 3-ethylhexane;
- 3-ethylpentane;
- 3-methyl-1,3-pentadiene;
- 3-methyl-1-hexene;
- 3-methyl-2-hexene;
- 3-methyl-2-hexene (B);
- 3-methyl-2-pentene;
- 3-methylcyclopentene;
- 3-methylheptane;
- 3-methylhexane;
- 3-methylpentane;
- 3,3-dimethyl-1-butene;
- 3,3-dimethylpentane;
- 3,4-dimethyl-1-pentene;
- 3,4-dimethylhexane;
- 4-methyl-3-heptene;
- 4-methylcyclohexene;
- 4-methylheptane;
- 4,4-dimethylcyclopentene;
- C7-olefin;
- C8-olefin;
- C8-paraffin;
- cis-1,2-dimethylcyclohexane;
- cis-1,3-dimethylcyclopentane;
- cis-2-heptene;
- cis-2-hexene;
- cis-2-octene;
- cis-3-heptene;
- cis,cis-1,2,3-trimethylcyclopentane;
- cis,trans-1,2,4-trimethylcyclopentane;
- cyclohexane;
- cyclohexene;
- cyclooctane;
- ethylcyclohexane;
- ethylcyclopentane;



- heptanes;
- hexanal;
- isopropylcyclopentane;
- methylcyclohexane;
- methylcyclopentane;
- methylethylcyclopentene;
- n-heptane;
- n-octane;
- octane;
- octahydropentalene;
- octyne;
- propane + propylene;
- propylcyclopentane;
- t-1,3-dimethylcyclohexane;
- t-1,3-dimethylcyclopentane;
- trans-1,2-dimethylcyclohexane;
- trans-1,2-dimethylcyclopentane;
- trans-1,3-dimethylcyclopentane;
- trans-1,4-dimethylcyclohexane;
- trans-2-heptene;
- trans-2-hexene;
- trans-2-octene;
- trans,cis-1,2,3-trimethylcyclopentane;
- trans,cis-1,2,4-trimethylcyclopentane; and
- trans-3-heptene.

To evaluate the non-carcinogenic health effects, octane and cyclohexane are applied as surrogates for this group by applying their acute and chronic thresholds based on 1-hour and 24-hour averaging periods, respectively. To evaluate potential carcinogenic health effects, 2-methyl-1-pentene was selected as the surrogate for this group by applying their chronic threshold based on the annual averaging period.

■ C8-C10 aliphatics were evaluated as a group, which includes the following:

- 1-decene;
- 1-ethyl-2,3-dimethylcyclohexane;
- 1-ethyl-2,4-dimethylcyclohexane;
- 1-ethyl-2-propyl cyclohexane;
- 1-methyl-1-ethylcyclohexane;
- 1-methyl-1-propylcyclopentane;
- 1-methyl-2-ethylcyclohexane;
- 1-methyl-2-propylcyclopentane;
- 1-methyl-4-(1-methylethyl) cyclohexane;
- 1-methyl-4-isopropylcyclohexane;
- 1-nonene;
- 1,3-dimethyl2-(1-methylene)cyclopentene;
- 1,1,3-trimethylcyclohexane;
- 1,1,4-trimethylcyclohexane;
- 1,1,2,3-tetramethylcyclopentane;
- 1,1,3,4-tetramethylcyclopentane;
- 1,1,3,5-tetramethylcyclohexane;
- 2+4-methyloctane;
- 2-methyloctyne;
- 2-methylnonane;
- 2-methyloctane;
- 2-methylpropylcyclopentane;



- 2,2-dimethyl-3-octyne;
- 2,2-dimethylheptane;
- 2,2-dimethyloctane;
- 2,2,3,4-tetramethylpentane;
- 2,2,4-trimethylhexane;
- 2,2,5-trimethylhexane;
- 2,3-dimethyloctane;
- 2,3,3-trimethylheptane;
- 2,3,4-trimethylhexane;
- 2,3,5-trimethylhexane;
- 2,4-dimethylheptane;
- 2,4-dimethyloctane;
- 2,4,4-trimethylhexane;
- 2,5-dimethyloctane;
- 2,5,5-trimethyl-1-hexene;
- 2,6-dimethyl-2-octene;
- 2,5-dimethylheptane;
- 2,6-dimethyl-4-octene;
- 2,6-dimethylheptane;
- 2,6-dimethyloctane;
- 3-ethyl-2-methyl-2-heptene;
- 3-ethyl-3-octene;
- 3-ethyloctane;
- 3-methyloctane;
- 3-methyl-5-ethylheptane;
- 3-methylethylhexane;
- 3-methylnonane;
- 3,3-diethylpentane;
- 3,3-dimethylheptane;
- 3,3-dimethyloctane;
- 3,3,4-trimethylhexane + benzene;
- 3,3,4-trimethylheptane;
- 3,3,4-trimethylhexane;
- 3,3,5-trimethylheptane;
- 3,4-dimethylheptane;
- 3,4,4-trimethylcyclohexene;
- 3,5-dimethylheptane;
- 3,6-dimethyloctane;
- 3,7-dimethyl-1-octene;
- 3,7,7-trimethyl bicyclo[4.1.0]heptane;
- 4-ethylheptane;
- 4-ethyloctane;
- 4-methyloctane;
- 5-methylnonane;
- bicyclo[3.3.1]nonane;
- bicyclo[3.3.1]nonane;
- butylcyclopentane;
- butylidenecyclohexane;
- C9-olefin;
- C9-paraffin;
- C10-olefin;
- C10-paraffin;
- c-1-butyl-2-methylcyclopropane;
- c-1,3-dimethylcyclopentane;
- cis-1-ethyl-methylcyclohexane;
- cis-1-ethyl-2-methylcyclohexane;



- cis-1-ethyl-4-methylcyclohexane;
- cis-1,2,4-trimethylcyclohexane;
- cis-1,3,5-trimethylcyclohexane;
- cis-2-nonene;
- decane;
- cis-3-nonene;
- ethylenecycloheptane;
- isobutylcyclohexane;
- isobutylcyclopentane;
- isocamphane;
- isopropylcyclohexane;
- n-decane;
- n-nonane;
- nonane;
- propylcyclohexane;
- q,q,2-trimethylcyclohexane;
- sec-butylcyclohexane;
- sec-butylcyclopentane;
- tert-butylcyclopentane;
- trans-1-ethyl-4-methylcyclohexane;
- trans-1-methyl-2-methyl-4-propylcyclopentane;
- trans-1-methyl-2-propylcyclohexane;
- trans-1,2,4-trimethylcyclohexane;
- trans-2-nonene; and
- trans-3-nonene.

Chemicals in this group are considered to be non-carcinogenic. n-Decane was selected as a surrogate for this group in the acute chemical screening and 1-decene was selected as the surrogate for the chronic chemical screening. To evaluate potential long-term health effects, jurisdictional chronic thresholds based on 24-hour and annual averaging periods were applied.

■ C8-C10 aromatics were evaluated as a group, which includes the following:

- 1-ethyl-2-methylbenzene;
- 1-ethyl-3-methylbenzene;
- 1-ethyl-4-methylbenzene;
- 1-methyl-2-isopropylbenzene;
- 1-methyl-2-propylbenzene;
- 1-methyl-3-isopropylbenzene;
- 1-methyl-3-propylbenzene;
- 1-methyl-4-isopropylbenzene,
- 1-methyl-4-propylbenzene;
- 1,1,2,3-tetramethylcyclohexane;
- 1,2-diethyl-1-methyl-cyclohexane;
- 1,2,3,4-tetrahydronaphthalene;
- 1,2,3,4-tetramethylbenzene;
- 1,2,3,5-tetramethylbenzene;
- 1,2,4,5-tetramethylbenzene;
- 1,3-diethylbenzene;
- 1,3-dimethyl-2-ethylbenzene;
- 1,3-dimethyl-4-ethylbenzene;
- 1,3-dimethyl-5-ethylbenzene;
- 1,4-diethylbenzene;
- 1,4-dimethyl-2-ethylbenzene;
- 2-ethyl-toluene;



- 2,3-dihydroindene;
- 2,3-dimethylheptane;
- 3-ethyl-toluene;
- 4-ethyl-toluene;
- butylbenzene;
- C10-aromatic;
- indanone;
- isobutylbenzene;
- isopropylbenzene;
- methylpropylbenzene;
- n-butylbenzene;
- p-cymene;
- propylbenzene; and
- sec-butylbenzene.

Chemicals in this group are considered to be non-carcinogenic. Propylbenzene was selected as the surrogate in the acute chemical screening. To evaluate non-carcinogenic health effects, isopropylbenzene was selected as the surrogate by applying its chronic threshold based on 24-hour averaging period. To evaluate carcinogenic health effects, propylbenzene was selected as the surrogate by applying its chronic threshold based on annual averaging period.

■ C10-C12 aliphatics were evaluated as a group, which includes the following:

- 2,2-dimethyl-3-decene;
- 2,2,7-trimethyl-3-octyne;
- 2,4-diethyl-1-methylcyclohexane;
- 3-dodecene;
- 3-ethylnonane;
- 4-methyldecane;
- 5-methyldecane;
- 7-methyl-5-undecene;
- C11-paraffin;
- C12-paraffin;
- dodecane;
- hexylcyclohexane;
- n-dodecane;
- n-undecane;
- pentylcyclohexane;
- trans-1-methyl-2(4-methylpentyl)-cyclopentane; and
- undecane.

Chemicals in this group are considered to be non-carcinogenic. Dodecane was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging period were not available for this group.

■ C12-C16 aliphatics were evaluated as a group, which includes the following:

- 1-pentyl-2-propylcyclopentane;
- 2,6,10-trimethyltridecane;
- 3,3,8-trimethyldecane;
- amorphane B;
- decylcyclohexane;
- farnesane;
- heptylcyclohexane;
- Hexadecane;



- nonylcyclohexane;
- norfarnesane;
- n-pentadecane;
- n-tridecane;
- octylcyclohexane;
- tetradecane;
- tridecane; and
- valencane.

Chemicals in this group are considered to be non-carcinogenic. Tridecane was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging period were not available for this group.

- C12-C16 aromatics were evaluated as a group, which includes the following:

- 1,2,4-trimethylbenzene+n-decane;
- 1,2,3-trimethylbenzene+P-C;
- decylbenzene;
- fluorenone;
- n-octylbenzene; and
- xanthone.

Chemicals in this group are considered to be non-carcinogenic. n-Octylbenzene was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging period were not available for this group.

- C16-C21 aliphatics were evaluated as a group, which includes the following:

- 3-eicosyne;
- 5-eicosyne;
- 5-eicosyne (B);
- 8b,13a-dimethyl-14b-[3'-methylbutyl]-podocarpane;
- 8b,13a-dimethyl-14b-n-butylpodocarpane;
- dodecylcyclohexane;
- n-eicosane;
- n-heneicosane;
- n-heptadecane;
- n-nonadecane;
- n-octadecane;
- norpristane;
- pentadecylcyclohexane;
- phytane;
- pristine;
- tetradecylcyclohexane;
- tridecylcyclohexane; and
- undecylcyclohexane.

Chemicals in this group are considered to be non-carcinogenic. n-Heptadecane was selected as the surrogate for this group in the acute and chronic chemical screening. Jurisdictional chronic thresholds based on 24-hour averaging period were not available for this group.

- Ketones were evaluated as a group, which includes 3-buten-2-one, acetophenone, camphor, and methyl ethyl ketone. To evaluate non-carcinogenic health effects, acetophenone and methyl ethyl ketone were selected as the surrogates for this group for the acute and chronic chemical screening, respectively. Their respective thresholds based on 1-hour and 24-hour averaging periods were applied to evaluate acute and



chronic exposures. To evaluate carcinogenic health effects, 3-buten-2-one was selected as the surrogate for this group by applying its chronic thresholds based on annual averaging period.

- Trimethylbenzenes were evaluated as a group, which includes 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. 1,2,3-Trimethylbenzene was used as a surrogate for this group.
- Xylenes were evaluated as a group, which includes the m-, p-, and o-xylene isomers, and xylene mixture. The xylene mixture was selected as the surrogate for this group.

The following chemicals were evaluated individually:

Indicator compounds

- Carbon monoxide, nitrogen dioxide, nitrogen oxides, sulphur dioxide, PM_{2.5}, PM₁₀, and suspended particulate matter (SPM). Diesel particulate matter (DPM) was also assessed as an individual compound.

Metals

- Aluminum, antimony, arsenic, barium, beryllium, bismuth, cadmium, calcium, chromium, chromium VI, cobalt, copper, gold, iron, lead, lithium, magnesium, manganese, molybdenum, nickel, potassium, selenium, silver, sodium, strontium, thallium, tin, titanium, uranium, vanadium, yttrium, and zinc.

Polycyclic Aromatic Hydrocarbons

- Acenaphthylene and benzo(k)fluoranthene.

Volatile Organic Compounds

- Acetaldehyde, acetone, benzene, ethylbenzene, ethylene, formaldehyde, and toluene.

Chemical concentrations (1-hour peak concentrations) were predicted for the Project for individual compounds or chemicals groups, as appropriate, among indicator compounds, metals, PAHs, and VOCs for all of the receptor locations and mining scenarios during the bounding operations phase.

Comparison of Predicted Peak Concentrations to 1-hour Air Thresholds

The predicted peak 1-hour concentrations of chemicals in air were compared to the most protective acute thresholds to determine whether further assessment was required (Tables 10.2-A-2a to 10.2-A-2f in Appendix 10.2-A). The maximum peak 1-hour concentrations out of all 27 receptor locations and mining scenarios were selected for identification of COPCs. If the predicted peak concentrations were greater than the selected 1-hour air thresholds, then the chemical was retained as a COPC and considered further in the Acute Air Quality Risk Assessment. Chemicals that were retained as a COPC were assessed with respect to potential human health effects at all receptor locations under the 6 mining scenarios.



A baseline case was not considered in the comparison of predicted peak concentrations to acute thresholds because the Meliadine Mine Site is located in a pristine area of Nunavut, Canada. No other sources of anthropogenic emissions of these chemicals are present and, therefore, background air emissions were not collected as part of this environmental assessment.

Based upon the screening process outlined above, DPM, nitrogen dioxide, cadmium, acrolein, aldehyde, and formaldehyde were retained as COPCs for the 1-hour averaging time. These COPCs were assessed further in the Risk Characterization section below. Note that acrolein and aldehyde were evaluated as groups of chemicals.

Exposure Assessment

The predicted 1-hour peak concentrations for identified COPCs were applied as the exposure point concentrations to which receptors, at each receptor location identified above, are exposed.

Toxicity Assessment

As discussed above, acute air thresholds provided by several agencies were reviewed and the most appropriate thresholds were selected for use in this assessment. These thresholds were used for comparison with the predicted peak 1-hour concentrations of each COPC. This comparison is shown in the Risk Characterization section below.

The same air thresholds were used to assess potential harmful effects due to chemicals for both Inuit and non-Inuit receptors; the derivation of air thresholds incorporates uncertainty factors that account for human variability in terms of sensitivity to chemicals.

Risk Characterization

For each of the COPCs identified above, a HQ was calculated for each receptor location as follows:

$$HQ = \frac{\text{Peak COPC concentration in air } (\mu\text{g}/\text{m}^3)}{\text{Acute threshold } (\mu\text{g}/\text{m}^3)}$$

An example calculation for 1-hour DPM concentrations at Receptor 1 (i.e., a cabin located close to the disturbed mine footprint) under Scenario 1 is shown below:

$$HQ = \frac{\text{predicted peak 1-hour DPM concentration in air } (\mu\text{g}/\text{m}^3)}{\text{Acute threshold } (\mu\text{g}/\text{m}^3)} = \frac{14.39 \mu\text{g}/\text{m}^3}{5 \mu\text{g}/\text{m}^3} = 3$$

An HQ value greater than 1 indicates that predicted exposure is greater than the threshold. For parameters and locations where HQ values were greater than 1, further analysis was carried out to describe the potential residual impacts.

A summary of the acute 1-hour HQs is provided in Table 10.2-5. For a detailed comparison of air concentrations against 1-hour guidelines see Tables 10.2-A-3a to 10.2-A-3f in Appendix 10.2-A. The HQs for all COPCs are less than 1 at the Park and Rankin cabin receptor locations under all mining scenarios. With the exception of DPM under all mining scenarios and aldehyde under Scenario 2 at the Cabin receptor locations, all COPCs are less than the target HQ of 1. With the exception of formaldehyde, all COPCs under all mining scenarios exceed an HQ of 1 at the off-site Worker (Exploration) Camp location.



Table 10.2-5: Hazard Quotients for Acute 1-hour Averaging Time

COPC	Cabins ^a	Park	Rankin ^b	Worker (Exploration) Camp
Scenario 1				
DPM	0.2 to 3	0.8	0.3	27
Nitrogen Dioxide	0.2 to 0.6	0.4	0.3 to 0.4	2
Cadmium	0.02 to 0.3	0.08	0.03	3
Acrolein	0.06 to 0.8	0.2	0.1	7
Aldehyde	0.1 to 1	0.4	0.2	14
Formaldehyde	0.008 to 0.1	0.03	0.02	1
Scenario 2				
DPM	0.2 to 4	0.6	0.3	27
Nitrogen Dioxide	0.2 to 0.7	0.4	0.3	2
Cadmium	0.02 to 0.4	0.06	0.03	3
Acrolein	0.06 to 1	0.2	0.1	7
Aldehyde	0.1 to 2	0.3	0.2	14
Formaldehyde	0.009 to 0.2	0.03	0.02	1
Scenario 3				
DPM	0.2 to 3	0.9	0.3	27
Nitrogen Dioxide	0.2 to 0.6	0.4	0.3	2
Cadmium	0.02 to 0.3	0.09	0.03	3
Acrolein	0.06 to 0.7	0.2	0.1	7
Aldehyde	0.1 to 1	0.4	0.2	14
Formaldehyde	0.009 to 0.1	0.04	0.02	1
Scenario 4				
DPM	0.2 to 3	0.6	0.2	27
Nitrogen Dioxide	0.1 to 0.6	0.4	0.3	2
Cadmium	0.02 to 0.3	0.06	0.02	3
Acrolein	0.07 to 0.8	0.2	0.1	7
Aldehyde	0.1 to 1	0.3	0.2	14
Formaldehyde	0.01 to 0.1	0.03	0.02	1
Scenario 5				
DPM	0.2 to 3	0.8	0.3	27
Nitrogen Dioxide	0.1 to 0.6	0.4	0.3	2
Cadmium	0.02 to 0.3	0.08	0.03	3
Acrolein	0.05 to 0.8	0.2	0.2	7
Aldehyde	0.1 to 1	0.4	0.4	14
Formaldehyde	0.008 to 0.1	0.03	0.03	1



Table 10.2-5: Hazard Quotients for Acute 1-hour Averaging Time (continued)

COPC	Cabins ^a	Park	Rankin ^b	Worker (Exploration) Camp
Scenario 6				
DPM	0.2 to 3	0.6	0.2	27
Nitrogen Dioxide	0.1 to 0.6	0.4	0.3	2
Cadmium	0.02 to 0.3	0.06	0.02	3
Acrolein	0.04 to 0.7	0.2	0.1	7
Aldehyde	0.08 to 1	0.3	0.2	14
Formaldehyde	0.006 to 0.1	0.03	0.02	1

^a cabins includes Receptor Locations 1 to 22.

^b Rankin includes Receptor Locations Rankin 1 to 3.

bold and shaded cells indicate a hazard quotient greater than target of 1.

COPC = chemical of potential concern; DPM = diesel particulate matter.

As a result, the following receptors, locations, and COPCs were considered further in the residual impacts analysis in Section 10.2.7:

- recreational users at several cabins (receptor locations 1 to 22) - DPM (all mining scenarios);
- recreational users at several cabins (receptor locations 1 to 22) - aldehyde (Scenario 2 only); and
- worker receptor at exploration camp location - DPM, NO₂, cadmium, acrolein, and aldehyde (all mining scenarios).

10.2.6.3.1.2 Chronic Air Quality

Selection of Chronic Air Thresholds

The jurisdictional chronic thresholds based on 24-hour and annual averaging periods for indicator compounds, metals, PAHs, and VOCs were applied for chemical screening (see Tables 10.2-B-1 and 10.2-B-2, respectively, in Appendix 10.2-B). The most protective of the available thresholds from the following agencies were applied:

- NDOE (2011);
- CCME (1999);
- OMOE (2012);
- WHO (2000, 2005);
- OEHHA (2012, internet site);
- ATSDR (2011, internet site); and
- TCEQ (2012, internet site).

Project-related emissions were evaluated on the basis of their ability to cause health effects following long-term exposures. Health effects considered following long-term exposures included carcinogenic and non-carcinogenic health outcomes. The non-carcinogenic and carcinogenic health endpoints were evaluated by comparing predicted concentrations against jurisdictional chronic thresholds based on 24-hour and annual



averaging periods, respectively. For substances considered to elicit non-carcinogenic health effects, chronic thresholds are derived based on a target hazard quotient of 0.2; whereas, substances considered to be cancer causing have regulatory thresholds that are derived based on an incremental lifetime cancer risk of 1-in-100 000, as prescribed by Health Canada.

The selection of a target hazard quotient of 0.2 for the chronic air assessment was considered to be appropriate for those chemicals that may persist in the environment and may be present in environmental media other than air (e.g., soil, water, sediment, and country foods). For chemicals that would be expected to only be present in air (e.g., indicator compounds and VOCs), the use of a threshold based upon a target hazard quotient of 1 is considered to be appropriate. Therefore, although acrolein and aldehyde initially screened into the assessment based upon screening thresholds derived using a target hazard quotient of 0.2, these chemicals are not considered to be COPCs using the unadjusted thresholds.

The maximum predicted concentrations for all substances, for all receptor locations (i.e., hunter/trapper cabins, Rankin Inlet receptor locations, territorial park location, and worker (exploration) camp) and all mining scenarios (Scenarios 1 to 6) (see Tables 10.2-B-3a to 10.2-B-3f and 10.2-B-4a to 10.2-B-4f in Appendix 10.2-B) were compared to the chronic health-based thresholds. For chemicals where individual thresholds are not available, the groupings as identified in the Acute Air Quality Risk Assessment (Section 10.2.6.3.1.1) were used.

It should be noted that exceedances of iron were identified; however, its selected chronic threshold was based upon the toxicity of particulate matter and not the toxicity of the chemical itself. Therefore, iron was not retained further in the Chronic Air Quality Assessment but was assessed as part of the Particulate Matter Risk Assessment.

Comparison of Predicted Peak Concentrations to Chronic Thresholds

If the predicted concentrations for a chemical were greater than its respective chronic health-based thresholds, the chemical was identified as a COPC and retained for further evaluation.

The COPCs assessed in the Chronic Air Quality Risk Assessment are summarized in Table 10.2.6 and were evaluated further in the Risk Characterization section below.

Table 10.2-6: Summary of Identified COPCs for the Chronic Air Quality Risk Assessment

COPC	Cancer Endpoint ^a	Non-Cancer Endpoint ^b
NO ₂	NA	✓
Acrolein ^c	NA	✓ ^c
Cadmium	✓	NA
Formaldehyde	✓	✓
Iron ^d	NA	✓
DPM ^d	✓	NA
PM _{2.5} ^d	NA	✓
PM ₁₀ ^d	NA	✓

NA = not applicable.

^a based on annual averaging period.

^b based on 24-hour averaging period.

^c surrogate to represent group of chemicals with similar structure.

^d diesel particulate matter, evaluated in the Particulate Matter risk assessment.



Diesel particulate matter (DPM), PM₁₀, and PM_{2.5}, are assessed in the Particulate Matter Risk Assessment (Section 10.2.6.3.1.3) which follows the Chronic Air Quality Risk Assessment section.

Toxicity Assessment

Toxicity assessment involves the classification of the harmful effects of substances and the estimation of the amounts of substances that can be received by an organism without adverse health effects. For each COPC identified above, an appropriate toxicity benchmark or TRV was determined based on reported mode of action (i.e., threshold vs. non-threshold mode of action). For threshold substances (i.e., generally not a carcinogen), adverse effects are expected to only occur above a certain dose rate. However, for non-threshold substances (i.e., most carcinogens), theoretically all doses can exert a toxic effect.

Contaminant Classification

Regulatory agencies, such as the OMOE, classify contaminants based on their mode(s) of action. For substances exhibiting a threshold for toxicity (i.e., non-carcinogens), an acceptable level of exposure at or below which no adverse effects are anticipated is established. Typically, this threshold level is represented by a reference concentration (RfC) for the inhalation pathway. For non-threshold-acting chemicals (i.e., carcinogens), any level of exposure may theoretically pose a potential risk, and a unit risk is used to predict risks from estimated exposures.

Classification systems have been developed based on the carcinogenic properties of chemicals, including those from Health Canada, USEPA, and the International Agency for Cancer Research (IARC) (Table 10.2-7). Based on these agencies, the carcinogenicity classification of the identified COPCs was determined. The carcinogenic classifications of the COPCs identified in the chronic chemical screening indicated that cadmium and formaldehyde are carcinogenic via the inhalation exposure routes (Table 10.2-8).

Table 10.2-7: Classification Systems for Carcinogenic Substances

Health Canada ^a	IARC ^b	USEPA ^c	Description
Group I	Group 1	Group A	Human carcinogen
Group II	Group 2A	Group B	Probable human carcinogen
		B1	Limited human evidence available
		B2	Inadequate human evidence, sufficient animal evidence
Group III	Group 2B	Group C	Possible human carcinogen
Group IV			Unlikely to be carcinogenic to humans
Group VI	Group 3	Group D	Unclassifiable as to human carcinogenicity
Group V	Group 4	Group E	Probably not carcinogenic to humans

^a Health Canada Environmental Protection Act (Health Canada 1994).

^b International Agency for Research on Cancer Monographs (IARC 2012).

^c United States Environmental Protection Agency (USEPA) Risk Assessment Guidance for Superfund (RAGS) (USEPA 1989).



Table 10.2-8: Classification Systems for Carcinogenic Substances

COPC	Health Canada Classification	IARC Classification	USEPA Classification	Assessed as a Carcinogen in the Chronic Air Assessment?
Nitrogen Dioxide	ND	ND	ND	No
Acrolein	Group VI	Group 3	Group D	No
Cadmium	Group II	Group 1	Group B1	Yes
Formaldehyde	Group I	Group 1	Group B1	No ^a

COPC = chemical of potential concern; ND = not documented; IARC = International Agency for Research on Cancer Monographs; USEPA = United States Environmental Protection Agency.

^a formaldehyde was not identified as a COPC in the chronic air assessment based on carcinogenic effects given that the predicted annual average concentrations met annual air thresholds. Therefore, this COPC was evaluated with respect to non-carcinogenic effects based upon 24-hour predictions.

Dose-Response Assessment

For the chronic inhalation assessment, TRVs for non-carcinogenic substances are called Reference Concentrations (RfC), which are estimates of continuous inhalation exposure to a chemical by the human population (including sensitive subgroups) that is likely to be without an appreciable risk of harmful effects over a lifetime.

Available RfCs for identified COPCs were compiled from the following agencies:

- ATSDR (2011, internet site);
- Health Canada (Health Canada 2010a);
- USEPA's IRIS (USEPA 2012c);
- OEHHA (2012);
- WHO (2000, 2005); and
- Netherlands (RIVM 2001).

The most conservative (i.e., lowest RfC) of the RfCs were selected for use in the chronic inhalation assessment, except for acrolein. For acrolein, USEPA IRIS published an RfC in 2003 based on Feron et al. (1978; as cited in OEHHA 2008) that identified a LOAEL of 0.4 ppm based on evidence of nasal histopathology in rats. The LOAEL was adjusted from the dosing regimen to a continuous exposure and adjusted to a human equivalent concentration. A total uncertainty factor of 1000 was applied to account for extrapolation from animal to humans, intrahuman variability, sub-chronic to chronic duration and use of a minimal LOAEL. In 2008, OEHHA published a chronic reference level for acrolein based on Dorman et al. (2008; as cited in OEHHA 2008) that identified a no-observed adverse effect level (NOAEL) of 0.2 ppm based on lesions in the respiratory epithelium in rats. The LOAEL was adjusted for exposure time and human concentration equivalent and a cumulative uncertainty factor of 200 was applied to account for interspecies and intraspecies variation. The study by Dorman et al. (2008; as cited in OEHHA 2008) was selected by OEHHA in preference to the Feron et al. (1978; as cited in OEHHA 2008) study because it identified a NOAEL for the critical effect. On this basis, the OEHHA value was selected as the RfC for acrolein for the chronic inhalation assessment.



The most protective of the available RfCs (Table 10.2-9) were selected for use in the Chronic Air Quality Risk Assessment.

For the chronic inhalation assessment, TRVs for carcinogenic substances are called Inhalation Unit Risks (IURs), which are estimates of continuous inhalation exposure to a chemical by the human population (including sensitive subgroups) that is likely to be without an appreciable risk of harmful effects over a lifetime.

Available IURs for identified COPCs were compiled from the agencies indicated above for RfCs.

The same TRVs were used to assess potential harmful effects due to chemicals for both Inuit and non-Inuit receptors; the derivation of TRVs incorporates uncertainty factors that account for human variability in terms of sensitivity to chemicals.

The most protective of the available IURs (Table 10.2-10) were selected for use in the Chronic Air Quality Risk Assessment.



MELIADINE FEIS - VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.2-9: Reference Concentrations for Chemicals of Potential Concern Evaluated in the Chronic Air Quality Risk Assessment – Non-Carcinogens ($\mu\text{g}/\text{m}^3$)

COPC	Health Canada ^a	USEPA ^b	RIVM ^c	WHO ^d	OEHHA ^e	ATSDR ^f	Toxicological Endpoints and Derivations
Indicator Compounds							
Nitrogen Dioxide	NA	100	NA	40	NA	NA	The USEPA did not derive an RfC because a National Ambient Air Quality Standard (NAAQS) is available. The USEPA IRIS nitrogen dioxide value was based on the NAAQS threshold of 53 ppb. The WHO guideline was derived based on outdoor epidemiological studies that found exposures to nitrogen dioxide in ambient air associated with increased respiratory symptoms and lung function decreases in children.
Volatile Organic Compounds							
Acrolein	NA	0.02	NA	NA	0.35	NA	The IRIS RfC was based on a subchronic LOAEL of $0.09 \text{ mg}/\text{m}^3$ for nasal lesions in rats. The LOAEL was adjusted for exposure duration (6 h/day, 5 days/week) and human equivalent concentration (0.14, regional gas dosimetry ratio). Rats were exposed to concentrations of 0, 0.4, 1.4, or 4.9 ppm acrolein for 13 weeks. An uncertainty factor of 1000 was applied. The OEHHA threshold was based on a NOAEL of 0.2 ppm for lesions in the respiratory epithelium in rats. The NOAEL was adjusted for duration (6 h/day, 5 days/week) and a human equivalent concentration (0.85, dosimetric adjustment factor). Rats were exposed for 65 days to concentrations of 0.02 to 1.8 ppm acrolein. An uncertainty factor of 200 was applied.
Formaldehyde	NA	NA	NA	NA	NA	NA	No non-cancer TRVs have been identified for formaldehyde. Therefore, this chemical will be retained for assessment of chronic effects using the predicted annual average concentrations.

^a Health Canada (2010a).

^b United States Environmental Protection Agency Integrated Risk Information System.

^c Rijksinstituut Voor Volksgezondheid en Milieu (RIVM 2001).

^d World Health Organization (2000, 2005).

^e California Environmental Protection Agency Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology (OEHHA 2012, internet site).

^f Agency for Toxic Substances and Disease Registry (ATSDR 2011, internet site).

bold and shaded RfCs were used in the risk assessment. Unless otherwise noted, the most conservative of the available RfCs was selected (i.e., the lowest).

$\mu\text{g}/\text{m}^3$ = microgram per cubic metre; COPC = chemical of potential concern; NA = not available; RfC = reference concentration; NAAQS = National Ambient Air Quality Standard; ppb = parts per billion; LOAEL = lowest observable adverse effect level; NOAEL = no observable adverse effect level; TRV = toxicity reference value.



Table 10.2-10: Inhalation Unit Risks for Chemicals of Potential Concern Evaluated in the Chronic Air Quality Risk Assessment – Carcinogens ($\mu\text{g}/\text{m}^3$)⁻¹

COPC	Health Canada ^a	USEPA ^b	RIVM ^c	WHO ^d	OEHHA ^e	ATSDR ^f	Toxicological Endpoints and Derivations
Metals							
Cadmium	0.0098	0.0018	NA	NA	0.0042	NA	The Health Canada inhalation unit risk was derived from a multi-stage model based on lung cancer in rats. Rats were exposed to 12.5, 25, and 50 $\mu\text{g}/\text{m}^3$ of cadmium chloride aerosols for 23 h/day, 7 days/week for 18 months. Rats were necropsied 13 months after exposure. The USEPA IRIS inhalation unit risk was based on lung, trachea, and bronchus cancer deaths among occupationally-exposed humans. The OEHHA unit risk was based on human occupational exposures and lung cancer.
Volatile Organic Compounds							
Formaldehyde	NA	0.000013	NA	NA	0.000006	NA	The IRIS inhalation unit risk was based on squamous cell carcinoma in male rats. The OEHHA unit risk was based on rat nasal squamous carcinoma incidence.

^a Health Canada (2010a).

^b United States Environmental Protection Agency Integrated Risk Information System (USEPA 2012c, internet site).

^c Rijksinstituut Voor Volksgezondheid en Milieu (RIVM 2001).

^d World Health Organization (2000, 2005).

^e California Environmental Protection Agency Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology (OEHHA 2012, internet site).

^f Agency for Toxic Substances and Disease Registry (ATSDR 2011, internet site).

bold and shaded unit risks were used in the risk assessment. Unless otherwise noted, the most conservative of the available unit risks was selected (i.e., the highest).

$\mu\text{g}/\text{m}^3$ = microgram per cubic metre; COPC = chemical of potential concern; NA = not available.



Chemical Mixtures

It is appropriate in a risk assessment to evaluate substances with similar modes of action and target organs by adding the estimated risks to determine the likelihood that an effect will occur on the same target organ/tissue (Health Canada 2010a). Target organ and effects for the COPCs are shown in Table 10.2-11. Given that both NO₂ and acrolein have the same target organ (i.e., the respiratory tract), the predicted HQs for these COPCs were summed in the risk characterization.

Table 10.2-11: Target Organs and Toxicological Effects for the Chemicals of Potential Concern in the Chronic Air Quality Assessment

COPC	Target Organ/Toxicological Effect(s)
NO₂	
Non-cancer effects	Respiratory effects and decreased lung function in children
Acrolein	
Non-cancer effects	Lesions of the respiratory epithelium
Cadmium	
Non-cancer effects	Kidney effects
Cancer effects	Lung cancer
Formaldehyde	
Cancer effects	Nasal cancer

As a result, the estimated risk levels (HQs) were summed for the following chemicals given that they have the same target organ or toxicological effect:

- HQs for NO₂ and acrolein.

Exposure Assessment

For the Chronic Air Quality Assessment, the peak 24-hour and annual average concentrations were predicted for each COPC and receptor location under 6 different scenarios. These predicted concentrations are the exposure concentrations to which human receptors are exposed to. The exposure doses for each receptor and scenario are estimated using the equation below.

$$Exp_{inh} = \frac{C_{air} \times RAF_{inh} \times IR \times ET \times EF \times ED}{BW \times AT \times CF_1 \times CF_2}$$

Where:

- Exp_{inh} = exposure dose due to inhalation of COPC in air (mg/kg-day)
- C_{air} = annual average concentration of COPC in air (mg/m³)
- RAF_{inh} = inhalation relative absorption factor (unitless)
- IR = inhalation rate (m³/h)
- ET = exposure time (h/d)
- EF = exposure frequency (d/yr)
- ED = exposure duration (yr; 18 years [3 years of construction, 13 years of operations, and 2 years of post-closure])



- BW = body weight (kg)
AT = averaging time (yr; 60 years for mine workers [adult lifestage only] and 80 years for recreational users)
CF₁ = unit correction factor (24 h/d)
CF₂ = unit correction factor (365 d/yr)

The recreational user was assumed to spend 30 days per year at a cabin location, and the mine worker was assumed to spend 183 days per year at the off-site worker (exploration) camp. For the carcinogenic assessment, the mine worker was assumed to be exposed for 18 years to the predicted peak annual average while the worker is an adult, and the recreational user was assumed to be exposed for the first 18 years of life (i.e., from infancy to 18 years of age). There are no differences in receptor characteristics (e.g. body weight, inhalation rate) for mine workers and recreational users (Health Canada 2012a); all people are considered to have similar rates of exposure to contaminants in air. The differences in the calculated exposure doses are due to differences in life stage (i.e., the age of the receptor) and the frequency and duration of exposure.

For the non-carcinogenic assessment, the exposure doses based on a 24-hour averaging period (Tables 10.2-B-5a to 10.2-B-5f in Appendix 10.2-B) were estimated for each identified COPC and for each receptor location. For the carcinogenic assessment, the estimated exposure doses based on an annual averaging period (Tables 10.2-B-6a to 10.2-B-6f) in Appendix 10.2-B) were estimated for each identified COPC and for each receptor location.

Risk Characterization

Long-term health effects were evaluated by calculating HQs for non-carcinogens. A HQ is the ratio between the exposure likely to be incurred by the person and the amount of exposure that is considered to be safe. No health risk is predicted if the HQ is less than one.

When the HQ is greater than one, the scenario poses a potential concern and requires further scrutiny. However, HQ values greater than one do not necessarily indicate that adverse health effects will occur; a large margin of safety has been included in their estimation.

For the non-carcinogenic assessment, the estimated HQs based on a 24-hour averaging period (Tables 10.2-B-7a to 10.2-B-7f in Appendix 10.2-B) were calculated for each identified COPC and for each receptor location. In the risk characterization step, HQs were calculated for non-carcinogenic COPCs as the ratio of the exposure dose and the TRV (with appropriate unit conversion), according to the following equation:

$$HQ = \frac{Exp_{inh}}{TRV}$$

A summary of the HQs is provided below.

With the exception of acrolein, all HQs are less than the target of 1 at all receptor locations under all mining scenarios (Table 10.2-12). Acrolein exceeds the target HQ of 1 for the mine worker at the worker (exploration) camp receptor location under all mining scenarios.



Table 10.2-12: Hazard Quotients for Non-Carcinogenic Chemicals of Potential Concern

COPC	Recreational User			Mine Worker
	Cabins ^a	Park	Rankin ^b	Worker (Exploration) Camp
Scenario 1				
Nitrogen Dioxide	NC	NC	NC	0.8
Acrolein	0.02 to 0.2	0.04	0.02	6
Respiratory effects mixtures (NO ₂ + Acrolein)	0.02 to 0.2	0.04	0.02	6.8
Scenario 2				
Nitrogen Dioxide	NC	NC	NC	0.8
Acrolein	0.02 to 0.2	0.03	0.02 to 0.03	6
Respiratory effects mixtures (NO ₂ + Acrolein)	0.02 to 0.2	0.03	0.02 to 0.03	6.8
Scenario 3				
Nitrogen Dioxide	NC	NC	NC	0.8
Acrolein	0.02 to 0.2	0.05	0.02	6
Respiratory effects mixtures (NO ₂ + Acrolein)	0.02 to 0.2	0.05	0.02	6.8
Scenario 4				
Nitrogen Dioxide	NC	NC	NC	0.8
Acrolein	0.02 to 0.1	0.03	NC	6
Respiratory effects mixtures (NO ₂ + Acrolein)	0.02 to 0.1	0.03	NC	6.8
Scenario 5				
Nitrogen Dioxide	NC	NC	NC	0.8
Acrolein	0.02 to 0.2	0.04	0.02	6
Respiratory effects mixtures (NO ₂ + Acrolein)	0.02 to 0.2	0.04	0.02	6.8
Scenario 6				
Nitrogen Dioxide	NC	NC	NC	0.8
Acrolein	0.03 to 0.1	0.03	NC	6
Respiratory effects mixtures (NO ₂ + Acrolein)	0.03 to 0.1	0.03	NC	6.8

COPC = chemical of potential concern; NC = not calculated; NO₂ = nitrogen dioxide.

^a cabins includes receptor locations 1 to 22.

^b Rankin includes receptor locations Rankin 1 to 3.

bold and shaded cells indicate a hazard quotient greater than target of 1.

The estimated HQs for respiratory toxicants are 6.8 for all mining scenarios. Acrolein was the main contributor to the total respiratory effects HQs, with a small proportion due to NO₂. Given that the individual compound HQ for NO₂ was less than the target HQ of 1, NO₂ was not retained for further assessment. However, given that the individual compound HQ for acrolein was 6, acrolein has been retained for further assessment of its residual impacts.



For the carcinogenic assessment, the estimated incremental lifetime cancer risks (ILCR) based on an annual averaging period (Tables 10.2-B-8a to 10.2-B-8f in Appendix 10.2-B) were calculated for each identified COPC and for each receptor location. The ILCRs were calculated for carcinogenic COPCs as the product of the exposure dose and the TRV according to the following equation:

$$ILCR = Exp_{inh} \times TRV$$

For carcinogens, an ILCR greater than 1 in 100 000 (or 0.00001) indicates that predicted exposure is associated with cancer risk that is above the target risk considered to be acceptable by Health Canada. For parameters and locations where risk values were greater than their targets, further analysis was carried out to describe the potential residual impacts.

The ILCRs for all carcinogenic COPCs are less than the target of 1 in 100 000 (Table 10.2-13).

Table 10.2-13: Incremental Lifetime Cancer Risks for Carcinogenic Chemicals of Potential Concern

COPC	Recreational User			Mine Worker
	Cabins ^a	Park	Rankin ^b	Worker (Exploration) Camp
Scenario 1				
Cadmium	NC	NC	NC	0.000002
Formaldehyde	0.0000000005 to 0.0000000008	0.0000000003	0.0000000002	0.0000007
Scenario 2				
Formaldehyde	0.0000000005 to 0.0000000009	0.0000000003	0.0000000002	0.0000005
Scenario 3				
Formaldehyde	0.0000000005 to 0.0000000007	0.0000000003	0.0000000002	0.0000006
Scenario 4				
Formaldehyde	0.0000000004 to 0.0000000006	0.0000000002	0.0000000002	0.0000005
Scenario 5				
Formaldehyde	0.0000000004 to 0.0000000006	0.0000000002	0.0000000002	0.0000006
Scenario 6				
Formaldehyde	0.0000000003 to 0.0000000005	0.0000000002	0.0000000001	0.0000005

COPC = chemical of potential concern; NC = not calculated.

^a cabins includes receptor locations 1 to 22.

^b Rankin includes receptor locations Rankin 1 to 3.

bold and shaded cells indicate an ILCR greater than target of 1×10^{-5} .

To summarize, acrolein exposure by the worker at the worker (exploration) camp was considered further in the residual impacts analysis in Section 10.2.7. Estimated risks due to NO₂, cadmium, and formaldehyde were acceptable with respect to chronic health effects.



10.2.6.3.1.3 *Particulate Matter*

This section of the HHRA describes the assessment of particulate matter with respect to potential health effects. Particulate matter includes DPM, Particulate Matter of diameter $<10\ \mu\text{m}$ (PM_{10}), and Particulate Matter of diameter $<2.5\ \mu\text{m}$ ($\text{PM}_{2.5}$).

Approach to Particulate Matter Risk Assessment

Epidemiological studies have been conducted over the past 20 years to identify the relationship between health effects and particulate matter. Many of these studies have shown that there is a relationship between increases in ambient particulate matter concentrations with mortality and hospitalizations for respiratory and cardiac health effects (Health Canada and Environment Canada 1999). This relationship has been stronger for $\text{PM}_{2.5}$ than PM_{10} (Health Canada and Environment Canada 1999). However, there has also been substantial controversy regarding what specifically the relationship is. Many epidemiological studies have been confounded by the presence of other air pollutants (e.g., sulphur dioxide), temperature, and smoking habits. In addition, there is uncertainty regarding whether epidemiological studies have properly accounted for exposure by individuals if ambient concentrations are based on a fixed monitoring station and whether the particulate matter only advances health effects of people who already have advanced and serious illnesses (Health Canada and Environment Canada 1999). Therefore, there is no prescribed method for assessing health risks of particulate matter, nor does the assessment of particulate matter lend itself to risk assessment methods in the same manner as other parameters. The method used in this assessment was to compare the predicted particulate matter concentrations to regulatory guidelines.

The effect of DPM on human health has also been the focus of toxicological studies. DPM is the particulate component of diesel exhaust. Long-term inhalation exposure to DPM is associated with non-carcinogenic and carcinogenic health effects (USEPA 2002; OEHHA 1998). Non-carcinogenic health effects include increased incidence of cough, phlegm, chronic bronchitis, and reductions in pulmonary function (OEHHA 1998). Diesel particulate matter (DPM) exposure has also been shown to induce immunological reactions, inflammatory responses, and to have a synergistic effect with pollen in humans (OEHHA 1998). Evidence of carcinogenic effects from exposure to DPM dates back to 1955 (USEPA 2002). However, it was not until recently that the International Agency for Research on Cancer (IARC) classified DPM as a Group 1 carcinogen (IARC 2012), based on sufficient evidence of carcinogenicity in humans. The IARC evaluation is supported primarily by 2 studies, Attfield et al. (2012) and Silverman et al. (2012), which both conclude that exposure to DPM is associated with increased risk of lung cancer in humans. OEHHA has derived an inhalation unit risk for DPM based upon increased risk of lung cancer in occupationally-exposed individuals (OEHHA 2009). The method used to evaluate DPM in this assessment is first to screen against chronic screening thresholds for non-carcinogenic and carcinogenic effects and then retain for evaluation following the methods of the chronic inhalation assessment if concentrations are above screening thresholds.

Comparison of Predicted Concentrations with Regulatory Guidelines

Predicted concentrations of particulate matter for the Project were compared with available screening thresholds. Screening thresholds for particulate matter were reviewed and compiled from the following agencies:

- OMOE (2012);
- CCME (1999, 2000);
- OEHHA (2008); and
- WHO (2005).



Screening thresholds for particulate matter are only available for a 24-hour or annual averaging period. The inhalation unit risk provided by OEHA for DPM was converted into a screening threshold based on a target cancer risk of 1 in 100 000 or 1×10^{-5} .

The screening thresholds that were available for particulate matter are provided in Table 10.2-14 and Table 10.2-15 for the 24-hour and annual averaging periods, respectively. Only agencies with available screening thresholds for each averaging time are shown in the tables.

Table 10.2-14: Screening Thresholds for Particulate Matter Based on a 24-hour Averaging Period

COPC	OMOE ^a ($\mu\text{g}/\text{m}^3$)	CCME ^b ($\mu\text{g}/\text{m}^3$)	WHO ^c ($\mu\text{g}/\text{m}^3$)	Toxicological Endpoints and Derivations
DPM	NA	NA	NA	NA
PM _{2.5}	30	30	25	OMOE – Based on the Canada-Wide Standard. CCME – The Canada-Wide Standard represents a balance between achieving the best health and environmental protection possible and the feasibility and costs of reducing pollutant emissions. WHO – Based on relationship between 24-hour and annual PM levels and health effects from annual concentrations.
PM ₁₀	50	25	40 (50)	OMOE – An interim AAQC provided as a guide for decision making. CCME – A reference level above which there are demonstrated effects on human health and/or the environment. WHO – Based on the PM _{2.5} standard and an assumed PM ₁₀ /PM _{2.5} ratio of 2. It is recommended that a different value for this ratio, which better reflects local conditions, be employed when setting local standards. For the 24-hour averaging period, the average PM ₁₀ /PM _{2.5} ratio among the 27 receptor locations at the site is 1.6. The PM _{2.5} standard has been adjusted by the site-specific ratio, and the original WHO standard is shown in brackets.

AAQC = ambient air quality criteria; COPC = chemical of potential concern; DPM = diesel particulate matter; NA = not available
PM = particulate matter.

^a Ontario Ministry of the Environment (OMOE 2012).

^b Canadian Council of Ministers of the Environment (CCME 2000).

^c World Health Organization (WHO 2005).

The screening threshold selected for PM_{2.5} for the 24-hour averaging period is the Canada-Wide Standard, because it has regulatory relevance for the Project and the WHO guideline is based on a ratio and not effects for the 24-hour averaging period. Achievement of the Canada-Wide Standard is based on 98th percentile concentrations. The maximum 98th percentile concentration of PM_{2.5} among all the human health receptors locations for the 24-hour averaging period was $26.5 \mu\text{g}/\text{m}^3$. This concentration is less than the Canada-Wide Standard of $30 \mu\text{g}/\text{m}^3$ for PM_{2.5}; therefore, PM_{2.5} was not retained for further evaluation for the 24-hour averaging period. The screening threshold selected for PM_{2.5} for the annual averaging period was from the WHO (2005). The concentration among all the human health receptors locations for the annual averaging period was $4.6 \mu\text{g}/\text{m}^3$. This concentration is less than the WHO guideline of $10 \mu\text{g}/\text{m}^3$ for PM_{2.5}, therefore PM_{2.5} was not retained for further evaluation for the annual averaging period.



Table 10.2-15: Screening Thresholds for Particulate Matter Based on an Annual Averaging Period

COPC	Endpoint	OEHHA ^a (µg/m ³)	WHO ^b (µg/m ³)	Derivations
DPM	Non-carcinogenic	5	-	OEHHA – Based on respiratory effects
	Carcinogenic	0.03	-	OEHHA – Based on lung cancer risk in occupationally exposed individuals. Derived from an inhalation unit risk using a target cancer risk of 1×10^{-5} .
PM _{2.5}	Non-carcinogenic	-	10	WHO – The lowest level at which total, cardiopulmonary and lung cancer mortality have been shown to increase with more than 95% confidence in response to long-term exposure to PM _{2.5}
PM ₁₀	Non-carcinogenic	-	16 (20)	WHO – Based on the PM _{2.5} standard and an assumed PM ₁₀ /PM _{2.5} ratio of 2. It is recommended that a different value for this ratio, which better reflects local conditions, be employed when setting local standards. For the annual averaging period the average PM ₁₀ /PM _{2.5} ratio among the 27 receptor locations at the site is 1.6. The PM _{2.5} standard has been adjusted by the site-specific ratio, and the original WHO standard is shown in brackets.

COPC = chemical of potential concern; µg/m³ = microgram per cubic metre; DPM = diesel particulate matter; PM = particulate matter.

^a California Office of Environmental Health Hazard Assessment (OEHHA 2008).

^b World Health Organization WHO (2005).

The screening threshold selected for PM₁₀ for the 24-hour averaging period is the WHO standard adjusted with the site-specific PM₁₀/PM_{2.5} ratio. This screening threshold was selected because it incorporates site-specific data and serves as a better comparison for the predicted PM₁₀ concentrations at the site. The maximum predicted 24-hour concentration of PM₁₀ among all human health receptor locations was 96.9 µg/m³. This concentration is above the WHO standard once it is adjusted for the site-specific PM₁₀/PM_{2.5} ratio. However, the maximum predicted annual PM₁₀ concentration among all human health receptor locations was 6.6 µg/m³, which is less than the WHO standard once it is adjusted for the site-specific PM₁₀/PM_{2.5} ratio. It is considered that the predicted concentration based on the annual average is representative of the concentrations to which mine workers and members of the public would be exposed for a long-term duration. The 24-hour concentration was evaluated a means to not overlook predicted peak concentrations that may occur on a daily basis. Further analysis is provided below.

Predicted 98th percentile PM_{2.5} concentrations based on a 24-hour averaging period are less than its Canada-Wide Standard (i.e., 30 µg/m³) for all receptor locations and mining scenarios (Table 10.2-16). The predicted 98th percentile concentrations based on a 24-hour averaging period for PM₁₀ were compared to the WHO standard adjusted for the site-specific PM₁₀/PM_{2.5} ratio (Table 10.2-17). Given that the 98th percentile concentrations of PM_{2.5} and PM₁₀ did not exceed their respective standards, PM_{2.5} and PM₁₀ were not retained for further assessment in the HHRA.

The maximum annual DPM concentration from all receptor locations was 1.76 µg/m³. This concentration is below the screening threshold for non-carcinogenic effects of 5 µg/m³ from OEHHA; therefore, DPM was not retained for further evaluation of non-carcinogenic effects. The predicted concentration is above the carcinogenic threshold of 0.03 µg/m³, so further evaluation of DPM for potential carcinogenic effects is required. The method for evaluating carcinogenic risks follows the same general approach as presented for the chronic inhalation assessment.



Table 10.2-16: Comparison of 24-Hour 98th Percentile PM_{2.5} Concentrations to the Canada-Wide Standard

Receptor Location	24-Hour 98 th Percentile PM _{2.5} Concentration (µg/m ³)					
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Cabins						
1	1.8	1.4	1.7	1.3	1.7	1.1
2	1.0	1.0	1.0	0.9	1.0	0.6
3	1.0	0.9	1.0	0.8	1.0	0.8
4	1.1	0.9	1.0	0.8	1.0	0.8
5	1.2	1.1	1.1	0.9	1.1	0.9
6	1.6	1.5	1.7	1.1	1.5	1.0
7	2.4	1.9	2.4	1.4	2.3	1.4
8	0.4	0.4	0.4	0.3	0.4	0.3
9	0.4	0.4	0.4	0.3	0.4	0.3
10	0.4	0.4	0.4	0.3	0.4	0.3
11	0.4	0.4	0.4	0.3	0.4	0.3
12	0.4	0.4	0.4	0.3	0.4	0.3
13	1.6	1.5	1.5	0.9	1.7	0.8
14	1.3	1.6	1.4	1.2	1.3	1.0
15	1.2	1.4	1.2	1.1	1.2	1.0
16	0.4	0.5	0.4	0.8	0.4	0.3
17	0.3	0.3	0.3	0.5	0.3	0.2
18	0.3	0.3	0.3	0.4	0.3	0.2
19	0.3	0.3	0.3	0.4	0.3	0.2
20	0.4	0.4	0.4	0.5	0.4	0.3
21	0.4	0.5	0.4	0.7	0.4	0.3
22	2.1	3.4	2.1	1.8	2.1	1.8
Park	0.9	0.9	1.0	0.6	0.9	0.5
Rankin						
1	0.6	0.6	0.6	0.5	0.6	0.4
2	0.6	0.6	0.6	0.5	0.6	0.4
3	0.6	0.7	0.7	0.5	0.6	0.4
Worker (Exploration) Camp	26.5	25.7	26.2	25.6	26.3	25.4
Canada-Wide Standard ^a	30					

^a CCME 2000.

bold text indicates locations at which PM_{2.5} concentrations are predicted to be greater than the Canada-Wide Standard.

µg/m³ = microgram per cubic metre.



Table 10.2-17: Comparison of 24-Hour 98th Percentile PM₁₀ Concentrations to the WHO Standard adjusted for Site-Specific PM₁₀/PM_{2.5}

Receptor Location	24-Hour 98 th Percentile PM ₁₀ Concentration (µg/m ³)					
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6
Cabins						
1	3.7	3.6	4.9	1.8	3.8	1.1
2	1.6	1.8	2.3	1.3	1.7	0.6
3	2.4	1.9	2.5	1.2	2.4	0.8
4	2.2	1.9	2.6	1.2	2.5	0.8
5	2.3	2.0	2.6	1.3	2.7	0.9
6	3.3	2.4	4.2	1.7	3.6	1.0
7	6.8	3.7	8.0	2.1	6.1	1.4
8	0.9	1.0	0.9	0.7	0.9	0.3
9	0.9	1.0	0.9	0.7	0.9	0.3
10	0.9	1.0	0.9	0.7	0.9	0.3
11	0.9	1.0	0.9	0.7	0.9	0.3
12	0.9	1.0	0.9	0.7	0.9	0.3
13	4.3	4.8	4.8	2.1	4.6	0.8
14	2.3	5.0	2.9	2.9	2.4	1.0
15	2.1	3.9	2.6	3.1	2.1	1.0
16	0.7	1.1	0.9	3.0	0.7	0.3
17	0.5	0.7	0.6	1.7	0.5	0.2
18	0.5	0.7	0.5	1.4	0.5	0.2
19	0.5	0.7	0.5	1.2	0.5	0.2
20	0.6	0.9	0.7	1.8	0.6	0.3
21	0.7	1.2	0.9	2.7	0.8	0.3
22	3.6	11.8	4.7	2.9	4.1	1.8
Park	1.7	2.0	2.6	1.2	1.9	0.6
Rankin						
1	1.1	1.3	1.4	0.9	1.1	0.4
2	1.0	1.3	1.4	0.9	1.1	0.4
3	1.1	1.5	1.4	0.9	1.2	0.4
Worker (Exploration) Camp	32.8	30.9	30.4	28.1	32.2	27.3
Adjusted WHO Standard ^a	40					

^a World Health Organization Standard (WHO 2005) adjusted using site-specific PM₁₀/PM_{2.5} ratio of 1.6

bold and shaded text indicates locations at which PM₁₀ concentrations are predicted to be greater than the adjusted WHO Standard.

µg/m³ = microgram per cubic metre.

Selected Toxicity Reference Value for Diesel Particulate Matter

The carcinogenic classification of DPM was determined based on guidance from Health Canada, USEPA, and IARC, as described in the Chronic Air Quality Risk Assessment (Section 10.2.6.3.1.2). Based on these agencies, both IARC and USEPA classify DPM as a carcinogen via the inhalation route of exposure (Table 10.2-18).



Table 10.2-18: Classification of Carcinogenicity for Diesel Particulate Matter

COPC	Health Canada Classification	IARC Classification	USEPA Classification	Assessed as a Carcinogen in the Particulate Matter Assessment?
DPM	ND	Group A	Group B1	Yes

COPC = chemical of potential concern; IARC = International Agency for Research on Cancer Monographs; USEPA = United States Environmental Protection Agency; DPM = diesel particulate matter; ND = not determined.

For the chronic inhalation assessment, TRVs for carcinogenic substances are called Inhalation Unit Risks (IURs), which are estimates of continuous inhalation exposure to a chemical by the human population (including sensitive subgroups) that is likely to be without an appreciable risk of harmful effects over a lifetime.

Available IURs for identified COPCs were compiled from the agencies identified for the Chronic Air Quality section (Section 10.2.6.3.1.2).

The same TRVs were used to assess potential harmful effects due to chemicals for both Inuit and non-Inuit receptors; the derivation of TRVs incorporates uncertainty factors that account for human variability in terms of sensitivity to chemicals.

The most protective of the available IURs (Table 10.2-19) were selected for use in the Particulate Matter Risk Assessment.

Table 10.2-19: Inhalation Unit Risks for Chemicals of Potential Concern Evaluated in the Particulate Matter Risk Assessment

COPC	Health Canada ^a	USEPA ^b	RIVM ^c	WHO ^d	OEHHA ^e	ATSDR ^f	Toxicological Endpoints and Derivations
DPM	NA	NA	NA	NA	0.0003	NA	The unit risk was based on lung cancer risk in occupationally exposed individuals.

^a Health Canada (2010a).

^b United States Environmental Protection Agency Integrated Risk Information System (USEPA 2012c, internet site).

^c Rijksinstituut Voor Volksgezondheid en Milieu (RIVM 2001).

^d World Health Organization (2000, 2005).

^e California Environmental Protection Agency Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology (OEHHA 2012, internet site).

^f Agency for Toxic Substances and Disease Registry (ATSDR 2011, internet site).

bold and shaded inhalation unit risks (IURs) were used in the risk assessment. Unless otherwise noted, the most conservative of the available IURs was selected (i.e., the highest).

COPC = chemical of potential concern; DPM = diesel particulate matter; NA = not available; µg/m³ = microgram per cubic metre.

Exposure Assessment

The chronic exposure dose was calculated for the predicted annual average concentrations of DPM at several hunter/trapper cabins, the territorial park, the 3 Rankin Inlet receptor locations, and the worker (exploration) camp for each of the 6 modelling scenarios using the following equation (introduced in Section 10.2.6.3.1.2):

$$Exp_{inh} = \frac{C_{air} \times RAF_{inh} \times IR \times ET \times EF \times ED}{BW \times AT \times CF_1 \times CF_2}$$



Where:

Exp_{inh} = exposure dose due to inhalation of chemicals in air (mg/kg-day)

C_{air} = annual average concentration of COPC in air (mg/m³)

RAF_{inh} = inhalation relative absorption factor (unitless)

IR = inhalation rate (m³/h)

ET = exposure time (h/d)

EF = exposure frequency (d/yr)

ED = exposure duration (yr)

BW = body weight (kg)

AT = averaging time (yr)

CF_1 = unit correction factor (24 h/d)

CF_2 = unit correction factor (365 d/yr)

The recreational user was assumed to spend 30 days per year at a cabin location, and the mine worker was assumed to spend 183 days per year at the off-site worker (exploration) camp. The mine worker was assumed to be exposed for 18 years to the predicted peak annual average while the worker is an adult, and the recreational user was assumed to be exposed for the first 18 years of life. There are no differences in receptor characteristics (e.g. body weight, inhalation rate) for mine workers and recreational users (Health Canada 2012a); all people are considered to have similar rates of exposure to contaminants in air. The differences in the calculated exposure doses are due to differences in life stage (i.e., the age of the receptor) and the frequency and duration of exposure. The predicted exposure doses were estimated for DPM at each receptor location (Tables 10.2-C-1a to 10.2-C-1f in Appendix 10.2-C).

Risk Characterization

Chronic or long-term health effects were evaluated by calculating ILCRs as described in the Chronic Air Quality Risk Assessment (Section 10.2.6.3.1.2). The ILCRs were calculated for the recreational user at several hunter/trapper cabins, the territorial park, and the 3 Rankin Inlet receptor locations, and for the mine worker at the off-site Worker (Exploration) Camp (Table 10.2-20). The detailed ILCR results for each receptor location are provided in Tables 10.2-C-2a to 10.2-C-2f in Appendix 10.2-C.

Table 10.2-20: Incremental Lifetime Cancer Risks for Diesel Particulate Matter

COPC	Recreational User			Mine Worker
	Cabins ^a	Park	Rankin ^b	Worker (Exploration) Camp
Scenario 1				
DPM	0.0000002 to 0.0000009	0.0000003	0.0000003	0.00004
Scenario 2				
DPM	0.0000002 to 0.0000001	0.0000003	0.0000003	0.00007
Scenario 3				
DPM	0.0000002 to 0.0000009	0.0000004	0.0000003	0.00007
Scenario 4				
DPM	0.0000002 to 0.0000008	0.0000003	0.0000003	0.00006



Table 10.2-20: Incremental Lifetime Cancer Risks for Diesel Particulate Matter (continued)

COPC	Recreational User			Mine Worker
	Cabins ^a	Park	Rankin ^b	Worker (Exploration) Camp
Scenario 5				
DPM	0.0000002 to 0.0000008	0.0000003	0.0000002 to 0.0000003	0.00007
Scenario 6				
DPM	0.0000002 to 0.0000006	0.0000002	0.0000002	0.00006

^a cabins includes receptor locations 1 to 22.

^b rankin includes receptor locations Rankin 1 to 3.

bold and shaded cells indicate an ILCR greater than target of 1×10^{-5} .

COPC = chemical of potential concern; DPM = diesel particulate matter.

All ILCRs for DPM met the target ILCR of 1 in 100 000 for recreational users at all locations, and all ILCRs exceeded the target ILCR for the worker at the Worker (Exploration) Camp for all mining scenarios. Therefore, potential health risks associated with long-term exposure of workers to DPM was carried forward for further assessment in the residual impact analysis.

10.2.6.3.2 Soil Quality

Changes to soil quality as a result of the Project was predicted using wet and dry particulate deposition rates for the non-volatile parameters (i.e., metals and PAHs) predicted to be present in emissions. In brief, particulate deposition onto soil was modeled and the resulting change in soil quality as a result of particulate deposition was predicted. The resulting soil quality predictions were then compared to baseline soil quality and health-based soil quality screening guidelines.

There are no regulatory guidelines or risk-based concentrations that can be directly compared to deposition rates. Thus, an alternative chemical screening process was used. The predicted deposition rates were used to calculate the resulting concentrations of chemicals in soil, which in turn were compared to CCME and USEPA soil guidelines protective of human health.

Soil concentrations were calculated using protocols provided in the Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (USEPA 2005). Concentrations in soil were calculated based on wet and dry deposition rates, for 6 different scenarios and all of the receptor locations identified in the Air Quality Risk Assessment section above (Section 10.2.6.3.1). The wet and dry deposition rates for each receptor location and scenario are provided in Tables 10.2-D-1a to 10.2-D-1f and 10.2-D-2a to 10.2-D-2f, respectively in Appendix 10.2-D. The 6 modelling scenarios were described in Section 10.2.6.3.1.

A detailed description of the assumptions considered in the deposition modelling is provided in the Air Quality section of the FEIS (FEIS Volume 5, Section 5.2). Given that the emissions from the Project are likely to be greatest during the operations phase, the predicted deposition rates represent a worst case scenario from any phase of the Project (i.e., construction, operations or closure/post-closure). An incremental soil concentration was calculated at each of the receptor locations for the 6 different scenarios. Loss due to weathering and degradation was only assumed for organic chemicals (i.e., PAHs) because metals are not degraded by processes such as microbial degradation and photolysis (USEPA 2005). All chemicals deposited onto soil were



assumed to mix within the top 0.02 m, as recommended for untilled soils (USEPA 2005). Given that the particulate deposition rates used to predict incremental soil concentrations were considered to represent a bounding scenario from any phase of the Project, and given that project emissions could be expected during the construction and operation phases, a cumulative deposition time of 13 years was used (i.e., 3 years of construction and 10 years of operation). Based upon the Air Quality section of the FEIS (FEIS Volume 5, Section 5.2), emissions during closure/post-closure phases are considered to be negligible.

The equations below were used to calculate the incremental soil concentration of inorganic and organic chemicals, respectively.

$$ISC_{Inorganic\ Chemicals} = \frac{100 \times (Dy_d + Dy_w) \times t_D}{Z_s \times BD}$$

Where:

- ISC = Incremental Soil Concentration (mg/kg; chemical-specific)
- Dy_d = Dry Deposition Rate ($g/m^2/year$; chemical-specific)
- Dy_w = Wet Deposition Rate ($g/m^2/year$; chemical-specific)
- t_D = Deposition Time (13 years; project-specific)
- Z_s = Soil Mixing Depth (0.02 m; USEPA 2005)
- BD = Bulk Density ($1.5\ g/m^3$; USEPA 2005)

$$ISC_{Organic\ Chemicals} = \frac{100 \times (Dy_d + Dy_w) \times [1 - \exp(-K_s \times t_D)]}{Z_s \times BD \times K_s}$$

Where:

- ISC = Incremental Soil Concentration (mg/kg; chemical-specific)
- Dy_d = Dry Deposition Rate ($g/m^2/year$; chemical-specific)
- Dy_w = Wet Deposition Rate ($g/m^2/year$; chemical-specific)
- t_D = Deposition Time (13 years; project-specific)
- Z_s = Soil Mixing Depth (0.02 m; USEPA 2005)
- BD = Bulk Density ($1.5\ g/m^3$; USEPA 2005)
- K_s = Soil Loss Constant (unitless; chemical-specific from USEPA 2005)

The incremental soil concentrations for inorganic and organic chemicals were added to the maximum baseline concentrations. The predicted soil concentrations as a result of air deposition during the combined construction and operation phases of the Project are provided in Tables 10.2-D-3a to 10.2-D-3f in Appendix 10.2-D.

Tables 10.2-D-3a to 10.2-D-3f in Appendix 10.2-D present the soil chemical screening based on the maximum predicted soil concentrations as a result of particulate deposition during the combined construction and operation phases of the Project. The chemicals in soil would be retained as a COPC if the predicted soil concentration exceeded baseline conditions plus 10% and exceeded a soil screening guideline.



As shown in Tables 10.2-D-3a to 10.2-D-3f in Appendix 10.2-D, background concentrations of several chemicals (i.e., gold, yttrium, and PAHs) are not available. As such, where health-based screening guideline values were available, if the incremental soil concentration was less than the typical method detection limit (i.e., 0.05 mg/kg for PAHs), then these compounds were not retained as COPCs. Where guideline values were not available (i.e., gold, yttrium, phenanthrene, thiophene, acenaphthylene, and benzo(ghi)perylene), further assessment was carried out.

- Gold compounds have been associated with adverse effects following ingestion, although large quantities are required. Adverse effects have been associated with total doses of 280 mg and higher (Bingham et al. 2001; as cited in HSDB 2004, internet site). Given the predicted incremental concentrations of gold were in the range of 0.00000001 to 0.000001 mg/kg, gold was not retained as a COPC.
- No short-term or long-term toxicity data in either humans or laboratory animals were found on the potential oral toxicity of yttrium. Given that the predicted incremental concentrations of yttrium were in the range of 0.000001 to 0.0001 mg/kg, yttrium was not retained as a COPC.
- Acenaphthylene and benzo(ghi)perylene have been classified as carcinogens by OMOE (2011). Toxicity data are not available for phenanthrene or thiophene. However, if it was considered that these compounds behave in the same way as the most toxic of the PAHs (i.e., benzo(a)pyrene), even the sum of the predicted concentrations for all compounds would be much lower than the EPA regional screening level (RSL) for benzo(a)pyrene. Therefore, these PAHs were not retained as COPCs in the HHRA.

Given that the predicted soil concentrations were less than baseline concentrations plus 10%, no COPCs were retained in soil for the HHRA and no residual health impacts due to changes to soil quality were identified.

10.2.6.3.3 Country Foods Quality

Given that no COPCs were identified in soil (Section 10.2.6.3.2) because Project-related changes to soil quality were considered to be negligible, concentrations of chemicals, including potentially bioaccumulative chemicals, were not anticipated to change in country foods (i.e., plants and animals consumed by humans). As a result, country foods were not assessed further with respect to potential health effects and no residual health impacts due to changes to country food quality were identified. Details related to the types of country foods, including the parts of country foods that are consumed and their consumption frequency, are identified in FEIS Volume 9, Section 9.3.

10.2.6.3.4 Surface Water Quality

Changes to surface water quality were predicted for selected phases of the Project at water bodies around the mine site (Table 10.2-21). The modeling methods and surface water quality predictions are provided in the Surface Water and Sediment Quality section of the FEIS (FEIS Volume 7, Section 7.4).



Table 10.2-21: Summary of Bounding Scenarios from each Subcomponent Evaluated in the Human Health Risk Assessment

Water Body	Project Phases		
	Construction	Operations	Closure and Post-Closure
Meliadine Lake ^a	○	●	—
Small waterbodies and watercourses ^b	○	○	○
Pit lakes ^c	—	—	●

— = phase not considered.

○ = phase considered.

● = phase assessed as the bounding scenario.

^a potential changes to water quality in Meliadine Lake were considered to be due to direct discharge of treated effluent to the lake during the operations phase of the Project.

^b potential changes to water quality in small waterbodies and watercourses were modelled for each waterbody for each relevant Project phase. Note that some lakes were only modelled for the post-closure phase given that they were used as contact water ponds during operations (e.g., H17).

^c pit lakes are the flooded open pits of the ore deposits and were modelled for post-closure only.

As described in the Surface Water and Sediment Quality section in the FEIS (FEIS Volume 7, Section 7.4), changes to water quality were predicted in Meliadine Lake during the construction (years -3 to 0) and operations (years 1 to 12) phases of the Project. Effluent from the mine site will be treated before passing through a diffuser and being released into the receiving environment. Maximum concentrations of water quality parameters at the edge of the mixing zone from all years of construction and operation were predicted. As shown in the Surface Water and Sediment Quality section in the FEIS (FEIS Volume 7, Section 7.4), which provides the predictions for each Project phase, most of the concentrations of water quality parameters were generally higher in the operations phase; however, the maximum concentrations predicted from all modelled phases were used in the screening of COPCs.

Similarly, changes to water quality were predicted for the small waterbodies and watercourses within the Project disturbed footprint during construction (years -3 to 0), operations (years 1 to 12), closure, and post-closure phases. Again, most of the predicted concentrations of water quality parameters were generally higher in the operations phase, but the maximum concentrations predicted from all modelled phases were used in the screening of COPCs.

For the pit lakes, water quality was predicted for the post-closure phase only given that the open pits will take approximately 10 years to fill. The peak concentrations of chemicals in surface water predicted in the pit lakes were used in the screening of COPCs.

It should be noted that Nipissar Lake, which serves as the drinking water source for residents of Rankin Inlet, meets drinking water quality guidelines. Given that the Project is not anticipated to affect water quality in Nipissar Lake, drinking water quality for residents of Rankin Inlet is not anticipated to be affected by the Project. Therefore, Nipissar Lake was not retained for assessment in the effects analysis.

To determine whether potential human exposure to surface water in these water bodies could affect human health, surface water quality predictions were compared to modelled baseline concentrations of water quality parameters and to health-based guidelines. Guidelines for Canadian Drinking Water Quality are available from Health Canada (2012b) and were used to screen the water quality predictions. Where guidelines for water quality parameters were unavailable from Health Canada, the USEPA RSLs for tap water were adopted for



screening purposes (USEPA 2012d, internet site). The comparison of water quality predictions to baseline concentrations and to the applicable health-based guidelines is provided in Table 10.2-E-1 (Meliadine Lake), Tables 10.2-E-2a to 10.2-E-2z (small waterbodies and watercourses), and Tables 10.2-E-3a to 10.2-E-3e (pit lakes) in Appendix 10.2-E. Note that measured baseline values were used in the screening of COPCs for Meliadine Lake and modelled baseline values were used in the screening for the small waterbodies and watercourses to maintain a consistent approach with the Surface Water and Sediment Quality section in the FEIS (FEIS Volume 7, Section 7.4). Baseline data are not applicable for the pit lakes given that these waterbodies will be created by the filling of the open pits during the closure and post-closure phase of the Project. There were no exceedances of water quality parameters that have health-based guidelines in any of the water bodies.

As shown in the tables, several water quality parameters did not have health-based screening guidelines but were predicted at concentrations greater than their baseline concentrations + 10%. The potential health effects that may be associated with these water quality parameters are described further below.

- **Water Quality Parameters:** There are several substances without health-based guidelines that are not chemicals, but water quality parameters that do not have a direct impact on human health and, therefore, were not retained as COPCs. These include total alkalinity, total suspended solids, total Kjeldahl nitrogen, and dissolved phosphorus.
 - Note that there is an OMOE Provincial Water Quality Objective (1999) for total alkalinity, which indicates that total alkalinity should not be reduced by more than 25% of natural concentrations. Given that total alkalinity did not decrease by more than 25% in any of the water bodies, total alkalinity was not retained as a COPC.
- **Essential Nutrients:** There are several substances without health-based guidelines that are essential nutrients and are not expected to result in adverse health effects unless large quantities are ingested. These nutrients include calcium, magnesium, and potassium. Therefore, these substances were not retained as COPCs.
- **Metals:** There are several substances without health-based guidelines that are metals without sufficient toxicity information with which to assess their potential health effects. These include bismuth, titanium, and tungsten.
 - Bismuth is most commonly used as an ingredient in over-the-counter preparations for gastrointestinal distress (e.g., Pepto-Bismol®). A probable lethal dose of between 0.5 and 5 grams per kilogram body weight was identified (Gosselin et al. 1976; as summarized in HSDB 2002a, internet site). Bismuth was identified in Lake A1 at a concentration of 0.08 µg/L, which only slightly exceeded the baseline concentration of 0.07 µg/L. At these concentrations, a person would have to consume upwards of several thousand litres of water per day to approach this potentially harmful dose. Therefore, bismuth was not considered further as a COPC.
 - No short-term or long-term toxicity data in either humans or laboratory animals were found on the potential oral toxicity of titanium. Evidence of adverse effects due to titanium compounds are largely due to inhalation of titanium oxide dusts (as summarized in HSDB 2002b, internet site). Therefore, titanium was not considered further as a COPC.



- No short-term or long-term toxicity data in either humans or laboratory animals were found on the potential oral toxicity of tungsten. As with bismuth, a probable lethal dose of between 0.5 and 5 grams per kilogram body weight was identified (Gosselin et al. 1976; as summarized in HSDB 2002c, internet site). Tungsten was identified in several small waterbodies at concentrations up to 91 µg/L; a person would have to consume upwards of several thousand litres of water per day to approach this potentially harmful dose. Therefore, tungsten was not considered further as a COPC.
- Ammonia: Health Canada (2012b) indicates that ammonia is not considered to be either an aesthetic or health concern at the concentrations typically found in water supplies. Levels in water supplies tend to be in the range of <0.001 to 0.65 mg/L (Health Canada 1987). In Lake A1, ammonia (as N) was predicted to be 0.17 mg/L, which is within the range of acceptable values. Ammonia concentrations in the pit lakes were predicted to range between 0.67 to 1.3 mg/L. No short-term or long-term toxicity data in humans are available, although some short-term toxicity data are available for laboratory animals. No effect or less serious low effect dose levels range from about 20 to 3000 mg/kg-day for rats (ATSDR 2004). These dose levels would be associated with a drinking water concentration that is orders of magnitude greater than the predicted pit lake ammonia concentrations. Even incorporating appropriate uncertainty factors, a person would have to consume more than one thousand litres of water per day to be potentially toxic. Therefore, ammonia was not considered further as a COPC.
- Sodium: The concentrations of sodium in the pit lakes range from 931 to 1759 µg/L compared to the selected screening guideline of 200 µg/L, which is an operational/aesthetic guideline. Ingestion of sodium as sodium chloride may produce nausea, vomiting, abdominal discomfort and, if swallowed in very large amounts, cause increased urination and central nervous system depression. The oral LC₅₀ value for sodium chloride in laboratory animals have been reported as 3000 mg/kg and 4000 mg/kg of body weight in rats and mice, respectively (WHO 1978). The estimated fatal dose of sodium chloride is estimated as approximately 0.75 to 3.0 g/kg body weight (Dart et al. 2004; as cited in HSDB 2007, Internal Sit). Excessive intake of drinking water containing NaCl at concentrations above 2.5 g/L has been reported to produce hypertension (NIOSH 1996). Given that the concentrations predicted for the pit lakes are much lower than these potentially harmful concentrations, sodium was not considered further as a COPC.

Given that no COPCs were identified, surface water was not assessed further with respect to potential health effects and no residual health impacts due to changes in surface water quality were identified. Given that changes to surface water quality influence fish tissue concentrations, there were no residual health impacts due to changes in fish tissue quality. This is with the possible exception of substances that bioaccumulate and biomagnify in the aquatic food web. Concentrations of mercury are predicted to increase in Lake A1 during construction and closure relative to guidelines protective of aquatic life and baseline concentrations. Mercury is a bioaccumulative substance that biomagnifies in the aquatic food web. As such, concentrations of mercury may increase in fish tissue potentially resulting in adverse health effects to people that consume fish. The predicted concentrations of mercury in Lake A1 only slightly exceed baseline concentrations and the predicted concentrations are considered conservative. Additional discussion is provided in Section 10.2.6.3.6.



10.2.6.3.5 Sediment Quality

Changes to sediment quality as a result of the Project were predicted for Meliadine Lake; the modeling methods and sediment quality predictions are provided in the Surface Water and Sediment Quality section of the FEIS (FEIS Volume 7, Section 7.4). To determine whether potential human exposure to sediment in these water bodies could affect human health, sediment quality predictions were compared to modeled baseline concentrations of sediment quality parameters plus 10%, and to health-based guidelines.

As described in Section 10.2.4 for sediment quality in the baseline environment, there are no human health-based guidelines for sediment quality. Therefore, baseline sediment quality was compared to the Canadian Soil Quality Guidelines for the protection of human health (CCME 2012a, internet site). For chemicals that did not have a CCME guideline, the USEPA Regional Screening Levels for residential soil (reference) were adopted. The comparison of sediment quality predictions to baseline + 10% and to the applicable health-based guidelines is provided in Table 10.2-F-1 in Appendix 10.2-F.

Given that all chemicals were within 10% of the modeled baseline concentrations, no chemicals were identified as COPCs in sediment for Meliadine Lake.

10.2.6.3.6 Fish Tissue Quality

Given that no COPCs were identified in surface water (Section 10.2.6.3.4), concentrations of chemicals were not anticipated to change in fish tissue. As a result, fish tissue quality was not assessed further with respect to potential health effects and no residual health impacts due to changes to fish tissue quality were identified. As described previously for surface water quality, health impacts due to changes in fish tissue quality related to mercury are not expected; however, as fish comprise a portion of the diet of residents in the area, fish tissue concentrations of mercury will be monitored as part of the aquatic effects monitoring plan for the Project (SD 7-3) and compared to fish tissue guidelines protective of human health. IQ

10.2.6.3.7 Noise

The objective of the Noise Assessment is to evaluate noise levels potentially generated by the Project that may affect human health under long-term exposure duration (e.g., many years to lifetime). Specifically, the noise assessment will use the percent highly annoyed (%HA) and the specific critical noise level (HCII) developed by Health Canada (2005) to assess potential effects to human health.

10.2.6.3.7.1 Noise Assessment Methods

Noise exposure levels have been selected as an indicator to assess potential health effects of noise generated by the Project. Currently, no environmental noise regulations, guidelines, or criteria have been established in Nunavut. At the federal level, Health Canada does not have noise guidelines or enforceable noise thresholds or standards (Health Canada 2010b). Considering the absence of ground-borne noise regulations, guidelines or criteria at the Territorial and Federal level, provincial and international guidelines were used to provide comparative regulatory context.

The predicted noise levels at the selected health receptor locations can be compared to the existing (or baseline) noise levels and provincial and international guidelines adopted by Health Canada.



As described in the Noise section of the FEIS (FEIS Volume 5, Section 5.5), baseline noise levels were measured at several locations in Rankin Inlet. These locations correspond to locations at which predicted noise levels are available. However, to maintain a consistent approach with the Noise section of the FEIS (FEIS Volume 5, Section 5.5), baseline noise levels were considered to be 35 dBA at all receptor locations for both L_n and Leq_{24} in accordance with average rural ambient sound levels set by the Alberta Energy and Utilities Board (AEUB 2007).

Health Canada has published a draft national guideline for evaluating health impacts of noise (Health Canada 2005). This guideline considers the following:

- characteristics of the noise level;
- construction noise impacts based on increased levels of annoyance in the population;
- operational noise impacts based on increased levels of annoyance in the population;
- impact on special land uses such as schools, hospitals, and seniors' residences; and
- sleep disturbance impacts.

The Health Canada approach deals with increases in predicted noise levels over the existing conditions for the daytime (L_d) and nighttime (L_n) equivalent noise levels, as well as a whole day equivalent noise level descriptor (Leq_{24}). In addition, impulsive and tonal characteristics of source noise are accounted for because they can increase potential effects. The following 2 measures are included in the draft guidance by Health Canada (2005) and were calculated for the identified health receptor locations as a result of the Project:

- The percentage of the exposed population that could be "highly annoyed" by increased noise levels caused by projects (%HA), which is described by the following formula:

$$HA = \frac{100}{1 + \exp[10.4 - 1.32 \times \log(10^{0.1 \times Leq_{24}} + 3.375 \times 10^{0.1 \times L_n})]}$$

Where,

Leq_{24} = the 24-hour equivalent noise level calculated according to ISO1996-1:05 (ISO 2003); and

L_n = the nighttime average sound level according to ISO1996-1:05 (ISO 2003).

- The specific impact, or impulse noise, indicator (HCII), which is defined as follows:

$$HCII = 10 \times \log(10^{0.1 \times Leq_{24}}) + 3.375 \times 10^{0.1 \times L_n}$$

Where,

Leq_{24} = the 24-hour equivalent noise level calculated according to ISO1996-1:05 (ISO 2003); and

L_n = the nighttime average sound level according to ISO1996-1:05 (ISO 2003).

The percentage of the population that become highly annoyed (%HA) is a measure of health impact that Health Canada advises be used to evaluate long-term operational noise (Health Canada 2010b). There is a well-established dose-response relationship between day-night sound level and community noise annoyance, as measured by %HA (Michaud et al. 2008). The %HA approach as a measure of potential noise impact has been



accepted by 2 US federal agencies, which are the Federal Transit Administration (US FTA 1995) and the US Federal Railroad Administration (US FRA 1998). It is also used in US standards (ANSI 1996, as cited by Michaud et al. 2008) and International Organization for Standardization (ISO) standards (ISO 2003) as a measure of noise impact. The WHO identifies noise annoyance as one of the health effects for which guideline levels have been set (WHO 1999).

Health Canada adopts the approach for guidance on construction noise from the AEUB (2007). Under this guidance, the noise emitted from the Project is considered long-term as the duration is more than 1 year. Health Canada considers a change in %HA of 6.5% or an HCII value in excess of 75 dBA to have the potential for adverse effects on human health (Health Canada 2010b). The %HA and HCII predictions were compared to the Health Canada criteria of 6.5% and 75 dBA, respectively.

Noise predictions were carried out for 22 hunter/trapper cabin locations (POR001 to POR021 and POR033 [referred to as Receptors 1 to 22 on Figure 10.1-2]), 11 distinct locations within the Meliadine worker (exploration) camp (POR022 to POR032 [referred to as Camp on Figure 10.1-2]), 7 distinct locations within Rankin Inlet (POR034 to POR037, and nPOR121.0 to nPOR123.0 [referred to as Rankin 1, Rankin 2 and Rankin 3 on Figure 10.1-2]) and 2 distinct locations within Iqalugaarjuup Nunanga Territorial Park (POR038 and POR039 [referred to as Park on Figure 10.1-2]). These noise receptor locations correspond to the human health receptors assessed the air quality assessment within the HHRA (Section 10.2.6.3.1.1). The hunter/trapper cabins located around the Project site and territorial park receptor locations are used by members of the local communities such as Rankin Inlet practicing traditional hunting and trapping. Worker (exploration) camp receptors include workers who reside there for 12 hours per day, while not working, for the 2-week-per-month period they are in the exploration camp. Rankin Inlet receptors include residents who reside in the community.

IQ

10.2.6.3.7.2 Noise Assessment Results

The predicted noise levels for each receptor location are provided in Table 10.2-G-1 in Appendix 10.2-G. The cumulative noise levels were calculated based on the baseline noise levels plus project-related noise. Additionally, a 10 dBA penalty was applied to the predicted noise levels as is required for receptors in rural environments (AEUB 2007).

The 22 hunter/trapper cabin locations (Receptors 1 through 22 on Figure 10.2-4) and the 2 territorial park locations (referred to as Park on Figure 10.2-4) had change in %HA predictions below 6.5%, indicating that there is negligible potential for adverse health effects due to noise for people using these areas recreationally. The %HA was not considered to be an applicable measurement for the worker (exploration) camp receptors because they will not be present at the worker camp during baseline (i.e., prior to commencement of the Project) and as a result, would not notice the change in noise level at this location due to the Project. Therefore, noise predictions for the worker (exploration) camp will be assessed against the Health Canada HCII guideline.

One Rankin Inlet receptor, nPOR123.0, had a predicted change in %HA of 6.8%, which was above the benchmark of 6.5%. This location corresponds to a cabin (Tommy's cabin) that is situated approximately 150 m from the AWAR. This cabin is currently used for traditional hunting and trapping. This receptor location with a %HA above 6.5% will be evaluated further in the residual impacts assessment.

The HCII values at all health receptor locations were less than 75 dBA. Health Canada suggests the threshold of 75 dBA as the sound level when the impact may be considered severe and mitigation should be proposed. This value is also used by the US FRA (1998) and the US FTA (1995). While 75 dBA is identified as a level of severe



impact, a review of the literature has demonstrated that health effects can begin to occur at noise levels below 75 dBA:

- Sleep disturbance may occur following long-term exposure to road traffic, aircraft, or railway noise levels of 40 dBA (L_{dn}) (WHO 2011; Health Council 1994, as cited by Passchier-Vermeer and Passchier 2000). In Europe, 40 dBA is considered a LOAEL of night noise above which health effects, such as sleep disturbance, may occur (WHO 2009).
- Hypertension may occur following long-term exposure to road traffic levels of 40 to 70 dBA (L_{24h}) and aircraft noise levels of 47 to 67 dBA (L_{dn}), (WHO 2011; Health Council 1994, as cited by Passchier-Vermeer and Passchier 2000).
- Myocardial infarction may occur following long-term exposure to road traffic noise levels greater than 60 dBA (L_{16h}) (WHO 2011).
- Hearing impairment or ischemic heart disease may occur following long-term exposure to environmental noise levels of 70 dBA (L_{24h}) (Health Council 1994, as cited by Passchier-Vermeer and Passchier 2000).
- The USEPA (1974) identifies 70 dBA (L_{eq24}) as the yearly average noise level identified as a requisite to protect the public health and welfare against hearing loss, with an adequate margin of safety.

The HCII values at the hunter/trapper cabin receptors (51 to 55 dBA), territorial park locations (51 to 53 dBA), and most Rankin Inlet locations (51 to 54 dBA) are at a noise level for which sleep disturbance may occur. Two of the Rankin Inlet locations (i.e., POR034 [port] and nPOR123.0 [Rankin 3 cabin]) have HCII predictions of 57.3 dBA and 59.8 dBA, which fall within the range for which health effects such as sleep disturbance and hypertension may occur. Similarly, the worker (exploration) camp receptors have HCII values (55 to 62 dBA) that fall within the range for which health effects such as sleep disturbance and hypertension may occur.

Although the predicted HCII values meet the target of 75 dBA, health effects could occur at levels similar to those predicted for the selected health receptor locations. As a result, this measure was retained for further consideration with respect to potential health effects in the residual impact analysis in Section 10.2.7 below.

10.2.7 Residual Impact Classification

The residual impacts of the Project on human health were evaluated using the 7 assessment criteria defined below:

- Direction: the direction of the effect as positive or negative;
- Magnitude: the size or degree of the effect for a given parameter;
- Geographic Extent: the spatial area over which the effect may occur;
- Duration: the length of time over which the effect may occur;
- Frequency: the rate of recurrence of the effect (or conditions causing the effect);
- Reversibility: whether the effect may or may not be reversed; and
- Likelihood: the likelihood that the effect may occur.



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

The assessment criteria used for evaluating residual impacts to human health risks are provided below (Table 10.2-22).

Table 10.2-22: Effects Criteria and Levels for Assigning Significance to Human Health Residual Impacts

Effects Criteria	Effects Level Definition		
Direction (of health effect)	Positive Effect is beneficial to human health or does not result in a change to human health.	Negative Effect is potentially harmful to human health.	
Magnitude (of health effect)	Assignment of magnitude of effects is provided in Table 10.2-23.		
Geographic Extent (of condition causing health effect)	On-Site Effect is within the Project Footprint (e.g., on-site worker camp).	Local Effect extends into the LSA.	Regional Effect extends into the RSA.
Duration (of conditions causing health effect)	Short-term Conditions causing effect are of short duration (2-3 years).	Medium-term Conditions causing effect are evident during the operations phase (10 years).	Long-term Conditions causing effect extend beyond any 1 phase (>10 years).
Frequency (of condition causing health effect)	Isolated Conditions causing the effect occur infrequently (i.e., less than 5% of the year).	Periodic Conditions causing the effect occur at regular, although infrequent, intervals (i.e., between 5 and 20% of the year).	Continuous Conditions causing the effect occur at regular and frequent intervals (i.e., more than 20% of the year).
Degree of Reversibility (of health effect)	Readily Reversible Effect is immediately reversible following cessation of exposure.	Reversible Effect is reversible with time (i.e., there is a recovery period following cessation of exposure).	Irreversible Effect is not reversible (i.e., permanent).
Likelihood (of health effect occurring)	Unlikely Effect is unlikely to occur.	Possible Effect is possible, although not certain.	Likely Effect is certain to occur.

LSA = local study area; RSA = regional study area.

It should be noted that the direction of effect is considered to be negative for all COPCs, receptors, and locations, given that the TRVs used in the risk assessment are intended to identify the potential for adverse health effects at doses higher than the TRV. Therefore, where an estimated HQ is greater than its target HQ, this implies that an adverse health effect is possible. Elaboration on the conservatism and uncertainties associated with the air quality predictive modelling, the distribution of COPC concentrations predicted in the air modelling (i.e., peak or maximum, 98th percentile, 95th percentile, 75th percentile), the frequency of exceedances of the applicable air threshold, the receptor characteristics and exposure scenarios, and the TRVs is provided below to support the residual impact classification of the “magnitude” assessment criterion.

With respect to the duration assessment criterion, it should be noted that the predictive air quality modelling was carried out considering that the operations phase of the Project would result in the highest potential emissions out of all phases of the Project (further details are provided in FEIS Volume 5, Section 5.2; that is, emissions from the other project phases (construction, closure, post-closure) would be expected to be lower than that estimated for operations. However, given that emissions would also be expected during construction and to a lesser extent during closure, it is not possible to determine whether emissions during these phases could result in HQs greater than target levels, particularly for chemicals related to diesel truck exhaust (e.g., DPM). Given these uncertainties, the duration of the potential health effects associated with changes to air quality is



considered to be medium-term. Note that all phases of the Project were included in the predictive modelling for surface water quality and a case-by-case classification of duration of effect was carried out.

The residual impact classification criteria for magnitude specific to human health risks are described below (Table 10.2-23).

Table 10.2-23: Magnitude Residual Impact Classification Criteria for Human Health

Parameter	Magnitude			
	Negligible	Low	Moderate	High
Non-Carcinogenic Compounds	No change from baseline conditions, below applicable guidelines, or $HQ \leq 1^a$	$1^a < HQ \leq 10$	$10 < HQ \leq 100$	$HQ > 100$
Carcinogenic Compounds	No change from baseline conditions, below applicable guidelines, or $ILCR \leq 0.00001$	$0.00001 < ILCR \leq 0.0001$	$0.0001 < ILCR \leq 0.001$	$ILCR > 0.001$
Noise Levels	No change from baseline, i.e., $\%HA \leq 6.5\%$ and/or $HCII \leq 75$ dBA	$6.5\% < \%HA \leq 7.5\%$	$7.5\% < \%HA \leq 8.5\%$	$\%HA > 8.5\%$ and/or $HCII > 75$ dBA

^a For non-carcinogenic compounds that can exert effects on receptors via multiple pathways (e.g., non-volatile chemicals), an HQ of ≤ 0.2 represents a negligible magnitude level. A low magnitude for these parameters would be defined as $0.2 < HQ \leq 10$.

HQ = Hazard Quotient; represents the target ratio of the predicted chemical exposure relative to its health-based benchmarks.

ILCR = Incremental Lifetime Cancer Risks represents additional or extra risk of developing cancer due to exposure to a chemical (from the Project) incurred over the lifetime of an individual.

$\%HA$ = Percent Highly Annoyed; $HCII$ = Specific Critical Noise Level.

The significance of effect (i.e., either significant or not significant) for each permutation of the assessment criteria is shown below (Table 10.2-24).

Table 10.2-24: Significance of Effect Decision Matrix for Human Health

Effects Criteria	Effect Level		
Magnitude: Low			
Geographic Extent	On-Site	Local	Regional
Duration	Short-term	Medium-term	Long-term
Frequency	Isolated	Periodic	Continuous
Reversibility	Readily Reversible	Reversible	Irreversible
Likelihood	Unlikely	Possible	Likely
Magnitude: Moderate			
Geographic Extent	On-Site	Local	Regional
Duration	Short-term	Medium-term	Long-term
Frequency	Isolated	Periodic	Continuous
Reversibility	Readily Reversible	Reversible	Irreversible
Likelihood	Unlikely	Possible	Likely
Magnitude: High			
Geographic Extent	On-Site	Local	Regional
Duration	Short-term	Medium-term	Long-term
Frequency	Isolated	Periodic	Continuous
Reversibility	Readily Reversible	Reversible	Irreversible
Likelihood	Unlikely	Possible	Likely

note that all directions of effect were classified as negative.

shaded cells indicate combinations of classifications that are associated with a significant residual impact.



The following residual impacts were identified in the HHRA:

- Acute Air Quality Assessment: Potential acute health risks for workers due to DPM, NO₂, cadmium, acrolein, and aldehyde, and for recreational users due to DPM and aldehyde;
- Chronic Air Quality Assessment: Potential chronic health risks for workers due to acrolein;
- Particulate Matter Assessment: Potential chronic health effects for workers and recreational users due to DPM; and
- Noise Assessment: Noise impacts for recreational users at one Rankin Inlet hunter/trapper cabin.

The overall significance of residual impacts is shown in Table 10.2-25 below.

The assessment of residual impacts is detailed below (Tables 10.2-26 to 10.2-33). Residual impacts were not identified for soil quality, water quality, sediment quality, and country foods quality (including fish quality).



Table 10.2-25: Significance of Residual Impacts Matrix for Human Health

Residual Impact	COPC	Direction	Magnitude	Frequency	Duration	Reversibility	Geographic Extent	Likelihood	Residual Impact Significance
Acute health effects for workers	DPM	Negative	Moderate	Periodic	Long-term	Reversible	Local	Unlikely	Not Significant
	NO ₂	Negative	Low	Isolated	Long-term	Reversible	On-Site	Unlikely	Not Significant
	Cadmium	Negative	Low	Isolated	Long-term	Reversible	On-Site	Unlikely	Not Significant
	Acrolein	Negative	Low	Isolated	Long-term	Reversible	On-Site	Unlikely	Not Significant
	Aldehyde	Negative	Moderate	Isolated	Long-term	Reversible	Local	Unlikely	Not Significant
Acute health effects for recreational users	DPM	Negative	Low	Isolated	Long-term	Reversible	Local	Unlikely	Not Significant
	Aldehyde	Negative	Low	Isolated	Long-term	Reversible	Local	Unlikely	Not Significant
Chronic health effects for workers	Acrolein	Negative	Low	Periodic	Long-Term	Reversible	On-Site	Unlikely	Not Significant
	DPM	Negative	Low	Periodic	Long-Term	Irreversible	On-Site	Unlikely	Not Significant
Health effects due to noise for recreational users	Noise	Negative	Low	Continuous	Long-Term	Reversible	Local	Possible	Not Significant

COPC = chemical of potential concern.



Table 10.2-26: Significance of Residual Impacts for Diesel Particulate Matter for Mine Workers (Acute and Chronic)

Effects Criteria	Criteria Classification	Rationale
Direction	<u>Acute</u> Negative	There is limited information related to health effects for diesel particulate matter due to acute (or short-term) exposures; most health effects are associated with chronic (or long-term) exposures. As summarized by USEPA (2002), acute exposures to DPM have been associated with eye, nose, and throat irritation, lung irritation, and respiratory effects such as cough, and neurophysiological symptoms such as lightheadedness and nausea. Short-term exposures may also exacerbate immunologic responses such as those associated with allergens and asthma.
	<u>Chronic</u> Negative	Long-term inhalation exposure to DPM is associated with non-cancer and cancer health effects (USEPA 2002; OEHHA 1998). Non-cancer health effects include increased incidence of cough, phlegm, chronic bronchitis, and reductions in pulmonary function (OEHHA 1998). DPM has also been associated with increased incidence of lung cancer (USEPA 2002) and has been classified as a Group 1 carcinogen by IARC based on sufficient evidence of carcinogenicity in humans (IARC 2012).
Magnitude	<u>Acute</u> Moderate	The estimated HQ for DPM considering the peak concentrations for the acute averaging time for workers at the Worker (Exploration) Camp location was 27 for all 6 air quality modelling scenarios. Statistics on the hourly air predictions were carried out, which included the 98 th , 95 th , and 75 th percentiles of the concentration data. The peak and 98 th percentile concentrations resulted in estimated HQs greater than the target HQ of 1 for all scenarios; only Scenario 1 had an estimated HQ greater than 1 using the 95 th percentile concentration. All other statistics were associated with HQs less than 1.
	<u>Chronic</u> Low	Incremental lifetime cancer risks of 4 to 7 in 100 000 were predicted, which are greater than the target ILCR of 1 in 100 000. Given that the predicted annual average DPM concentrations do not vary significantly from year to year in the predictive air modelling, the predicted ILCRs were consistent across the modelling years.
Geographic Extent	<u>Acute</u> Local	The air modelling provided predicted air concentrations of the COPCs at specific receptor locations within the air quality LSA. For DPM, there were exceedances of the acute threshold both at the off-site worker (exploration) camp and at several hunter/trapper cabins around the mine site; as such, the geographic extent for DPM is classified as local (i.e., effect extends into the LSA).
	<u>Chronic</u> On-Site	The air modelling provided predicted air concentrations of the COPCs at specific receptor locations within the air quality LSA. Although there were exceedances of the applicable air threshold for DPM, these were only associated with the worker (exploration) camp location. As a result, the potential health effect was considered to be limited to the mine site.
Duration	<u>Acute</u> Long-Term	Given that emissions of DPM are likely to occur during the construction, operations, and active closure phases of the Project, it is possible that DPM emissions could exceed health-based guidelines and pose a potential health risk during all 3 phases.
	<u>Chronic</u> Long-Term	
Frequency	<u>Acute</u> Periodic	At the Worker (Exploration) Camp location, the frequency of exceedance was considered to provide additional context to the percentile statistics provided above for each COPC. There were 2791 exceedances of the 1-hour threshold over the 5-year dataset (equivalent to approximately 6.4% of each year). That is, the 1-hour threshold for DPM is exceeded for approximately 23 days each year. Note that the dataset only considered the operations phase of the Project; as a result, it is not possible to determine whether there could be exceedances during the construction, closure, or post-closure phases. However, potential exceedances during this time are expected to be at a lower frequency than those predicted for the operations phase. As a result, the assessment of frequency for the operations phase is a bounding case and was used to characterize frequency for all phases.



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.2-26: Significance of Residual Impacts for Diesel Particulate Matter for Mine Workers (Acute and Chronic) (continued)

Effects Criteria	Criteria Classification	Rationale
	<u>Chronic</u> Periodic	Given that only the operations phase was considered in the predictive air modelling, it is not possible to determine whether there could be exceedances of the annual threshold (and ILCRs greater than 1 in 100 000) during the construction, closure, or post-closure phases. However, potential exceedances during this time are expected to be at a lower frequency than those predicted for the operations phase. As a result, the assessment of frequency for the operations phase is a bounding case and was used to characterize frequency for all phases.
Reversibility	<u>Acute</u> Reversible	Based upon the information provided for acute health effects above, the most likely health effects associated with the COPCs considering the peak exposure concentrations include mucous membrane irritation and some mild neurological and gastrointestinal symptoms such as nausea. These symptoms are reversible; i.e., health effects are expected to improve once exposure to the COPC is reduced or ceased.
	<u>Chronic</u> Irreversible	Based upon the information provided for chronic health effects above, there is an increased risk of lung cancer due to long-term exposure to DPM. Therefore, this health effect is irreversible and will not improve upon cessation of exposure of DPM.
Likelihood	<u>Acute</u> Unlikely	Given that the assessment relies on predictive air modelling and toxicity data, both of which are associated with uncertainty and conservatism, it is unlikely a health effect due to DPM will occur (see below).
	<u>Chronic</u> Unlikely	Given that the assessment above relies on predictive air modelling and toxicity data, both of which are associated with uncertainty and conservatism, it is unlikely a health effect due to DPM will occur (see below).
Certainty	Conservatism and Uncertainty in the Predictive Air Quality Modelling	<u>Acute</u> The concentrations of COPCs in air considered in the risk assessment were the predicted peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. It was conservatively assumed that the Project operated continuously at its maximum design capacity over the duration of the 5 years of modelling. <u>Chronic</u> The concentrations of DPM considered in the risk assessment were the predicted maximum annual average concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. It was conservatively assumed that the Project operated continuously at its maximum design capacity over the duration of the 5 years of modelling.
	Conservatism and Uncertainty in the Receptor Characteristics and Exposure Scenarios	The selected receptors were considered to be healthy adults (i.e., aged 20 years and older) with no special sensitivities to the COPCs assessed in the risk assessment. Workers were considered to be exposed to the peak 1-hour or annual average concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. No additional conservatism or uncertainty is associated with these assumptions.



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.2-26: Significance of Residual Impacts for Diesel Particulate Matter for Mine Workers (Acute and Chronic) (continued)

Effects Criteria	Criteria Classification	Rationale
Certainty	Conservatism and Uncertainty in the Selected Toxicity Reference Values	Acute The selected acute threshold for DPM of $5 \mu\text{g}/\text{m}^3$ is a health-based threshold set by TCEQ adjusted from a target HQ of 0.3 to a target HQ of 1.0. Given that the supporting documentation for this value was not available, it is not possible to ascertain the degree of conservatism and uncertainty in the use of this threshold. Chronic The inhalation unit risk of 0.0003 per $\mu\text{g}/\text{m}^3$ was based on lung cancer risk in occupationally-exposed individuals (Garshick et al. 1987; 1988; as cited in OEHHA 1998). The IUR was based upon 2 studies carried out in 2 separate cohorts of railway workers that died in either 1981 or 1982 due to lung cancer (Garshick et al. 1987) or that died prior to 1980 (Garshick et al. 1988). A statistically significant increase in lung cancer risk was observed in these 2 populations. The results were adjusted for length of employment, age, and exposure to asbestos and cigarette smoke. There is little uncertainty and conservatism incorporated into the development of the inhalation unit risk.
Residual Impact Significance	Acute Not Significant	Overall, the residual effects to workers at the off-site worker (exploration) camp are not considered to be significant given that the effects are largely localized to the worker camp, predicted concentrations are much lower than those reported to be associated with health effects, and those health effects are readily reversible.
	Chronic Not Significant	In order to maintain a conservative approach, the maximum annual average DPM concentrations that were predicted for the maximum single year of the operations phase was assumed to occur throughout the 18 years of construction, operations, and active closure. This is considered to be an overestimation of DPM emissions given that truck traffic would be expected to be lower during the other years of operations, and substantially lower during construction and active closure. As a result, the predicted exposure and risk to DPM is considered to be overestimated, and, as such, the overall residual effect of DPM to workers was not considered to be significant.

USEPA = United States Environmental Protection Agency; DPM = diesel particulate matter; OEHHA = California Office of Environmental Health Hazard Assessment; IARC = International Agency for Research on Cancer Monographs; HQ = hazard quotient; ILCR = incremental lifetime cancer risk; COPC = chemical of potential concern; LSA = local study area.

Table 10.2-27: Significance of Residual Impacts for DPM for Recreational Users (Acute)

Effects Criteria	Criteria Classification	Rationale
Direction	Negative	There is limited information related to health effects for diesel particulate matter due to acute (or short-term) exposures; most health effects are associated with chronic (or long-term) exposures. As summarized by USEPA (2002), acute exposures to DPM have been associated with eye, nose, and throat irritation, lung irritation and respiratory effects such as cough, and neurophysiological symptoms such as lightheadedness and nausea. Short-term exposures may also exacerbate immunologic responses such as those associated with allergens and asthma.
Magnitude	Low	The estimated HQs for DPM considering the peak concentrations for the acute averaging time for recreational users at the hunter/trapper locations around the mine site ranged from 2 to 4 for all 6 air quality modelling scenarios. Statistics on the hourly air predictions were carried out, which included the 98th, 95th, and 75th percentiles of the concentration data. Only the peak concentrations resulted in estimated HQs that were greater than the target HQ of 1; all other statistics (i.e., 98th percentile, 95th percentile, and 75th percentile) resulted in acceptable HQs.



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.2-27: Significance of Residual Impacts for DPM for Recreational Users (Acute) (continued)

Effects Criteria	Criteria Classification	Rationale
Geographic Extent	Local	The air modelling provided predicted air concentrations of the COPCs at specific receptor locations within the air quality LSA. For DPM, there were exceedances of the acute threshold at several hunter/trapper cabins around the mine site; as such, the geographic extent for DPM is classified as local (i.e., effect extends into the LSA).
Duration	Long-Term	Given that emissions of DPM could occur outside the operations phase of the Project, it is possible that DPM emissions could exceed health-based guidelines and pose a potential health risk during the construction, active closure or post-closure phases.
Frequency	Isolated	The number of exceedances were not reported for the hunter/trapper locations. However, based upon the statistics, only the peak predicted concentrations exceeded its acute threshold, while the 98 th percentile and lower percentile statistics did not exceed the threshold. Therefore, the frequency of exceedances is considered to be isolated.
Reversibility	Reversible	Based upon the information provided for acute health effects above, the most likely health effects associated with the COPCs considering the peak exposure concentrations include mucous membrane irritation and some mild neurological and gastrointestinal symptoms such as nausea. These symptoms are reversible; i.e., health effects are expected to improve once exposure to the COPC is reduced or ceased.
Likelihood	Unlikely	Given that the assessment relies on predictive air modelling and toxicity data, both of which are associated with uncertainty and conservatism, it is unlikely a health effect due to DPM will occur (see below).
Certainty	Conservatism and Uncertainty in the Predictive Air Quality Modelling	The concentrations of COPCs in air considered in the risk assessment were the predicted peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. It was conservatively assumed that the Project operated continuously at its maximum design capacity over the duration of the 5 years of modelling.
	Conservatism and Uncertainty in the Receptor Characteristics and Exposure Scenarios	The selected receptors were considered to be members of the public that may include the very young and elderly, who may have special sensitivities to mucus membrane irritants. The selected acute threshold is based on health, although whether sensitive subpopulations were accounted for in the derivation of the threshold could not be determined because no supporting documentation is available.
	Conservatism and Uncertainty in the Selected Acute Thresholds	The selected acute threshold for DPM of 5 µg/m ³ is a health-based threshold set by TCEQ adjusted from a target HQ of 0.3 to a target HQ of 1.0. Given that the supporting documentation for this value was not available, it is not possible to ascertain the degree of conservatism and uncertainty in the use of this threshold.
Residual Impact Significance	Not Significant	With respect to acute health effects, the overall impacts are not considered to be significant to members of the public in the LSA because the conditions causing the residual effect are of low magnitude, are considered to occur infrequently, and the overall potential for the health effect to occur is considered to be unlikely.

USEPA = United States Environmental Protection Agency; DPM = diesel particulate matter; HQ = hazard quotient; COPC = chemical of potential concern; LSA = local study area; TCEQ = Texas Commission on Environmental Quality.



Table 10.2-28: Significance of Residual Impacts for Acrolein for Mine Workers (Acute and Chronic)

Effects Criteria	Criteria Classification	Rationale
Direction	Acute Negative	Acrolein is a mucous membrane irritant (e.g., eyes, nose, throat), and may irritate skin at high concentrations (ATSDR 2007). The nose has been associated with immediate irritation at concentrations of 690 µg/m ³ . Higher concentrations, ranging from 4 590 to 11 460 µg/m ³ , have been associated with severe respiratory tract irritation. The lower threshold for sensory irritation ranges from 100 to 200 µg/m ³ (Committee on the Medical Effects of Air Pollutants [COMEAP] 2010), well site. These concentrations are much higher than those predicted for the Meliadine Gold Project of 18 µg/m ³ .
	Chronic Negative	Chronic inhalation exposure to acrolein is mainly associated with respiratory effects in the all parts of the respiratory tract, including nose, throat, and eye irritation, pulmonary edema, and lung hemorrhage. The nasal epithelium is the most sensitive target with immediate effects at exposures to 0.3 ppm (ATSDR 2007). Other chronic health effects from inhalation of acrolein are related to the cardiovascular, hepatic, and reproductive systems (ATSDR 2007).
Magnitude	Acute Low	The estimated HQs for acrolein considering the peak concentrations for the 24-hour averaging period for workers at the worker (exploration) camp were 6 for all 6 air quality modelling scenarios. Statistics on the hourly air predictions were carried out, which included the 98 th , 95 th , and 75 th percentiles of the concentration data. Only the peak concentrations resulted in estimated HQs greater than the target HQ of 1 for all scenarios; estimated HQs were acceptable using the 98 th percentile, 95 th percentile, and 75 th percentile statistics.
	Chronic Low	The estimated HQ for acrolein considering the peak concentrations for the acute averaging time for workers at the Worker (Exploration) Camp location was 7 for all 6 air quality modelling scenarios. Statistics on the hourly air predictions were carried out, which included the 98 th , 95 th , and 75 th percentiles of the concentration data. The predicted peak, 98 th percentile, and 95 th percentile concentrations resulted in HQs that were greater than the target HQ of 1, while the 75 th percentile concentrations resulted in acceptable HQs.
Geographic Extent	Acute On-Site	The air modelling provided predicted air concentrations of the COPCs at specific receptor locations within the air quality LSA. Although there were exceedances of the applicable air threshold for acrolein, these exceedances were only associated with the worker (exploration) camp location. As a result, the potential health effect was considered to be limited to the mine site.
Geographic Extent	Chronic On-Site	The air modelling provided predicted air concentrations of the COPCs at specific receptor locations within the air quality LSA. Although there were exceedances of the applicable air threshold for acrolein, these exceedances were only associated with the worker (exploration) camp location. As a result, the potential health effect was considered to be limited to the mine site.
Duration	Acute Long-Term	Given that emissions of acrolein could occur outside the operations phase of the Project, it is possible that acrolein emissions could exceed health-based guidelines and pose a potential health risk during the construction, active closure, or post-closure phases.
	Chronic Long-Term	
Frequency	Acute Isolated	There were 1258 exceedances of the 1-hour threshold over the 5-year dataset (equivalent to approximately 2.9% of each year). That is, the 1-hour threshold for acrolein is exceeded for 10.5 days each year. Note that the dataset only considered the operations phase of the Project; as a result, it is not possible to determine whether there could be exceedances during the construction, closure, or post-closure phases. However, potential exceedances during this time are expected to be at a lower frequency than those predicted for the operations phase. As a result, the assessment of frequency for the operations phase is a bounding case and was used to characterize frequency for all phases.



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.2-28: Significance of Residual Impacts for Acrolein for Mine Workers (Acute and Chronic)
(continued)

Effects Criteria	Criteria Classification	Rationale
	Chronic Periodic	Given that only the operations phase was considered in the predictive air modelling, it is not possible to determine whether there could be exceedances of the annual threshold during the construction, closure or post-closure phases.
Reversibility	Acute Reversible	Based upon the information provided for acute health effects above, the most likely health effects associated with acrolein considering the peak exposure concentrations include mucous membrane irritation and some mild neurological and gastrointestinal symptoms such as nausea. These symptoms are reversible; i.e., health effects are expected to improve once exposure to acrolein is reduced or ceased.
	Chronic Reversible	Based upon the information provided for chronic health effects above, the most likely health effect associated with acrolein is mucous membrane irritation. These symptoms are reversible; i.e., health effects are expected to improve once exposure to acrolein is reduced or ceased.
Likelihood	Acute Unlikely	Given that the assessment relies on predictive air modelling and toxicity data, both of which are associated with uncertainty and conservatism, it is unlikely a health effect due to acrolein will occur (see below).
	Chronic Unlikely	Given that the assessment above relies on predictive air modelling and toxicity data, both of which are associated with uncertainty and conservatism, it is unlikely a health effect due to acrolein will occur (see below).
Certainty	Conservatism and Uncertainty in the Predictive Air Quality Modelling	Acute The concentrations of acrolein in air considered in the risk assessment were the predicted peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. It was conservatively assumed that the Project operated continuously at its maximum design capacity over the duration of the 5 years of modelling. Chronic The concentrations of acrolein considered in the risk assessment were the predicted peak 24-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. It was conservatively assumed that the Project operated continuously at its maximum design capacity over the duration of the 5 years of modelling.
Certainty	Conservatism and Uncertainty in the Receptor Characteristics and Exposure Scenarios	The selected receptors were considered to be healthy adults (i.e., aged 20 years and older) with no special sensitivities to the COPCs assessed in the risk assessment. Workers were considered to be exposed to the peak 1-hour or 24-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. No additional conservatism or uncertainty is associated with these assumptions.



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.2-28: Significance of Residual Impacts for Acrolein for Mine Workers (Acute and Chronic) (continued)

Effects Criteria	Criteria Classification	Rationale
	Conservatism and Uncertainty in the Selected Acute Thresholds	Acute The selected acute threshold for acrolein of $2.5 \mu\text{g}/\text{m}^3$ is a health-based Reference Exposure Level (REL) set by OEHHA (2012, internet site). The threshold is based on the geometric mean of 2 reference exposure levels ($2.3 \mu\text{g}/\text{m}^3$ and $2.7 \mu\text{g}/\text{m}^3$) from 2 studies for subjective ocular irritation in human volunteers (OEHHA 2008). There is considered to be a low degree of both conservatism and uncertainty in the selected threshold for acrolein. Chronic USEPA IRIS published an RfC in 2003 based on Feron et al. (1978; as cited in OEHHA 2008) that identified a LOAEL of 0.4 ppm based on evidence of nasal histopathology in rats. The LOAEL was adjusted from the dosing regimen to a continuous exposure and adjusted to a human equivalent concentration. A total uncertainty factor of 1 000 was applied to account for extrapolation from animal to humans, human variability, sub-chronic to chronic duration and use of a minimal LOAEL. In 2008, Cal. EPA published a chronic reference level for acrolein based on Dorman et al. (2008; as cited in OEHHA 2008) that identified a NOAEL of 0.2 ppm based on lesions in the respiratory epithelium in rats. The LOAEL was adjusted for exposure time and human concentration equivalent and a cumulative uncertainty factor of 200 was applied to account for interspecies and intraspecies variation. The study by Dorman et al. (2008; as cited in OEHHA 2008) was selected by Cal. EPA in preference to the Feron et al. (1978; as cited in OEHHA 2008) study because it identified a NOAEL for the critical effect. On this basis, the Cal. EPA value was selected as the RfC for acrolein for the chronic inhalation assessment.
Residual Impact Significance	Acute Not Significant	Overall, the residual effects to workers at the off-site worker (exploration) camp are not considered to be significant given that the effects are largely localized to the worker camp, predicted concentrations are much lower than those reported to be associated with health effects, and those health effects are readily reversible.
	Chronic Not Significant	The overall residual effects are not considered to be significant given that the conditions causing the effect were considered to occur infrequently and the overall potential for the health effect to occur is considered to be unlikely.

ATSDR = Agency for Toxic Substances and Disease Registry; COMEAP = Committee on the Medical Effects of Air Pollutants; HQ = hazard quotient; LSA = local study area; COPC = chemical of potential concern; REL = Reference Exposure Level; OEHHA = California Office of Environmental Health Hazard Assessment; RfC = reference concentration; LOAEL = lowest observed adverse effect level; NOAEL = no-observed adverse effect level.

Table 10.2-29: Significance of Residual Impacts for Cadmium for Mine Workers (Acute)

Effects Criteria	Criteria Classification	Rationale
Direction	Negative	Acute inhalation exposures to cadmium have been associated with irritation of the lungs. Very high exposures have been associated with pulmonary edema. As with acute exposure to high concentrations of NO_2 , symptoms are typically mild following the initial short-term exposure to cadmium but, after 4 to 10 hours, progresses to pulmonary edema or acute chemical pneumonitis (ATSDR 2008).
Magnitude	Low	The estimated HQ for cadmium considering the peak concentrations for the acute averaging time for workers at the Worker (Exploration) Camp location was 3 for all air quality 6 modelling scenarios. Statistics on the hourly air predictions were carried out, which included the 98th, 95th, and 75th percentiles of the concentration data. The peak and 98th percentile concentrations resulted in estimated HQs greater than the target HQ of 1 for all scenarios; only Scenario 1 had an estimated HQ greater than 1 using the 95th percentile concentration.



MELIADINE FEIS – VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESMENT

Table 10.2-29: Significance of Residual Impacts for Cadmium for Mine Workers (Acute) (continued)

Effects Criteria	Criteria Classification	Rationale
Geographic Extent	On-Site	The air modelling provided predicted air concentrations of the COPCs at specific receptor locations within the air quality LSA. Although there were exceedances of the applicable air threshold for cadmium, these exceedances were only associated with the worker (exploration) camp location. As a result, the potential health effect was considered to be limited to the mine site.
Duration	Long-Term	Given that emissions of cadmium could occur outside the operations phase of the Project, it is possible that cadmium emissions could exceed health-based guidelines and pose a potential health risk during the construction, active closure or post-closure phases.
Frequency	Isolated	There were 146 exceedances of the 1-hour threshold over the 5-year dataset (equivalent to approximately 0.3% of each year), that is, the 1-hour threshold for cadmium is exceeded for just over 1 day each year. Note that the dataset only considered the operations phase of the Project; as a result, it is not possible to determine whether there could be exceedances during the construction, closure, or post-closure phases. However, potential exceedances during this time are expected to be at a lower frequency than those predicted for the operations phase. As a result, the assessment of frequency for the operations phase is a bounding case and was used to characterize frequency for all phases.
Reversibility	Reversible	Based upon the information provided for acute health effects above, the most likely health effects associated with cadmium considering the peak exposure concentrations include irritation of the lungs. These symptoms are reversible; i.e., health effects are expected to improve once exposure to cadmium is reduced or ceased.
Likelihood	Unlikely	Given that the assessment relies on predictive air modelling and toxicity data, both of which are associated with uncertainty and conservatism, it is unlikely a health effect due to cadmium will occur (see below).
Certainty	Conservatism and Uncertainty in the Predictive Air Quality Modelling	The concentrations of COPCs in air considered in the risk assessment were the predicted peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. It was conservatively assumed that the Project operated continuously at its maximum design capacity over the duration of the 5 years of modelling.
	Conservatism and Uncertainty in the Receptor Characteristics and Exposure Scenarios	The selected receptors were considered to be healthy adults (i.e., aged 20 years and older) with no special sensitivities to the COPCs assessed in the risk assessment. Workers were considered to be exposed to the peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. No additional conservatism or uncertainty is associated with these assumptions.
Certainty	Conservatism and Uncertainty in the Selected Acute Thresholds	The selected acute threshold for cadmium of $0.03 \mu\text{g}/\text{m}^3$ is a health-based threshold set by ATSDR (2008). The threshold is based upon a LOAEL of $0.088 \text{ mg Cd}/\text{m}^3$ in rats for respiratory effects. Rats were exposed to cadmium oxide for 6.2 hours per day, 5 days per week for 2 weeks (NTP 1995; as cited in ATSDR 2008). The LOAEL from the key study was adjusted to a dose that is relevant for humans of $0.08 \text{ mg Cd}/\text{m}^3$. An uncertainty factor of 300 was applied to the adjusted LOAEL (10 for LOAEL to NOAEL extrapolation, 3 for interspecies extrapolation, and 10 for human variability). Given that the threshold is based upon a rodent study, there is some uncertainty associated with applying this value to humans.
Residual Impact Significance	Not Significant	Overall, the residual effects to workers at the off-site worker (exploration) camp are not considered to be significant given that the effects are largely localized to the worker camp, predicted concentrations are much lower than those reported to be associated with health effects, and those health effects are readily reversible.

ATSDR = Agency for Toxic Substances and Disease Registry; HQ = hazard quotient; COPC = chemical of potential concern; LSA = local study area; LOAEL = lowest observed adverse effect level; NOAEL = no-observed adverse effect level.



Table 10.2-30: Significance of Residual Impacts for Nitrogen Dioxide for Mine Workers (Acute)

Effects Criteria	Criteria Classification	Rationale
Direction	Negative	Acute exposures to NO ₂ are associated with eye, nose, skin, and respiratory tract irritation as summarized on the Hazardous Substance Data Bank (National Fire Protection Association 2010; as cited on HSDB 2011, internet site). For example, concentrations ranging from 18 820 to 37 630 µg/m ³ have been associated with mild nose and throat irritation, and concentrations ranging from 47 040 to 94 080 µg/m ³ have been associated with bronchitis-like symptoms. Immediate health effects due to short-term exposures to relatively highly-concentrated fumes may be mild, as those described above, but in the 5 to 72 hours following initial exposure, a progressive inflammation of the lungs resulting in pulmonary edema can develop. However, concentrations much higher than those predicted for the Project (i.e., peak concentration of approximately 450 µg/m ³) are required to result in adverse health effects following a short-term exposure.
Magnitude	Low	The estimated HQ for NO ₂ considering the peak concentrations for the acute averaging time for workers at the Worker (Exploration) Camp location was 2 for all 6 air quality modelling scenarios. As a result, its magnitude of effect is classified as low. Statistics on the hourly air predictions were carried out, which included the 98 th , 95 th , and 75 th percentiles of the concentration data. Only the peak concentrations resulted in estimated HQs greater than the target HQ of 1 for all scenarios; estimated HQs were acceptable using the 98 th percentile, 95 th percentile, and 75 th percentile statistics.
Geographic Extent	On-Site	The air modelling provided predicted air concentrations of the COPCs at specific receptor locations within the air quality LSA. Although there were exceedances of the applicable air threshold for NO ₂ , these exceedances were only associated with the worker camp location. As a result, the potential health effect was considered to be limited to the mine site.
Duration	Long-Term	Given that emissions of NO ₂ could occur outside the operations phase of the Project, it is possible that NO ₂ emissions could exceed health-based guidelines and pose a potential health risk during the construction, active closure, or post-closure phases.
Frequency	Isolated	There were 234 exceedances of the 1-hour threshold over the 5-year dataset (equivalent to approximately 0.5% of each year). That is, the 1-hour threshold for NO ₂ is exceeded for fewer than 2 days each year. Note that the dataset only considered the operations phase of the Project; as a result, it is not possible to determine whether there could be exceedances during the construction, closure or post-closure phases. However, potential exceedances during this time are expected to be at a lower frequency than those predicted for the operations phase. As a result, the assessment of frequency for the operations phase is a bounding case and was used to characterize frequency for all phases.
Reversibility	Reversible	Based upon the information provided for acute health effects above, the most likely health effects associated with NO ₂ considering the peak exposure concentrations includes mucus membrane irritation. These symptoms are reversible; i.e., health effects are expected to improve once exposure to NO ₂ is reduced or ceased.
Likelihood	Unlikely	Given that the assessment relies on predictive air modelling and toxicity data, both of which are associated with uncertainty and conservatism, it is unlikely a health effect due to NO ₂ will occur (see below).
Certainty	Conservatism and Uncertainty in the Predictive Air Quality Modelling	The concentrations of COPCs in air considered in the risk assessment were the predicted peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. It was conservatively assumed that the Project operated continuously at its maximum design capacity over the duration of the 5 years of modelling.



MELIADINE FEIS- VOLUME 10 ENVIRONMENTAL AND HUMAN HEALTH RISK ASSESSMENT

Table 10.2-30: Significance of Residual Impacts for Nitrogen Dioxide for Mine Workers (Acute)
(continued)

Effects Criteria	Criteria Classification	Rationale
	Conservatism and Uncertainty in the Receptor Characteristics and Exposure Scenarios	The selected receptors were considered to be healthy adults (i.e., aged 20 years and older) with no special sensitivities to the COPCs assessed in the risk assessment. Workers were considered to be exposed to the peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. No additional conservatism or uncertainty is associated with these assumptions.
	Conservatism and Uncertainty in the Selected Acute Thresholds	The selected acute threshold for NO ₂ of 200 µg/m ³ is a health-based threshold set by WHO (2005). The threshold is based upon an increase in bronchial responsiveness in asthmatics. There is considered to be a low degree of both conservatism and uncertainty in the selected threshold for NO ₂ .
Residual Impact Significance	Not Significant	Overall, the residual effects to workers at the off-site worker camp are not considered to be significant given that the effects are largely localized to the worker camp, predicted concentrations are much lower than those reported to be associated with health effects, and those health effects are readily reversible.

HSDB = Hazardous Substances Data Bank; HQ = hazard quotient; COPC = chemical of potential concern; LSA = local study area; WHO = World Health Organization.

Table 10.2-31: Significance of Residual Impacts for Aldehyde for Mine Workers (Acute)

Effects Criteria	Criteria Classification	Rationale
Direction	Negative	The sensitivity of human volunteers to aliphatic aldehydes ranging from butanal to octanal indicated that mucous membrane irritation thresholds tended to decrease with increasing chain length (COMEAP 2010, internet site). Generally, aldehydes increase in potency from the less potent saturated aliphatic aldehydes to cyclic aldehydes to unsaturated aliphatic aldehydes, which are more potent, as measured by decreased breathing frequency in mice (COMEAP 2010, internet site).
Magnitude	Moderate	The estimated HQ for aldehyde considering the peak concentrations for the acute averaging time for workers at the Worker (Exploration) Camp location was 14 for all 6 air quality modelling scenarios. Statistics on the hourly air predictions were carried out, which included the 98 th , 95 th , and 75 th percentiles of the concentration data. The peak and 98 th percentile concentrations resulted in estimated HQs greater than the target HQ of 1 for all scenarios; only Scenario 1 had an estimated HQ greater than 1 using the 95 th percentile concentration.
Geographic Extent	Local	The air modelling provided predicted air concentrations of the COPCs at specific receptor locations within the air quality LSA. For aldehyde, there were exceedances of the acute threshold both at the off-site worker (exploration) camp and at several hunter/trapper cabins around the mine site; as such, the geographic extent for aldehyde is classified as local (i.e., effect extends into the LSA).
Duration	Long-Term	Given that emissions of aldehyde could occur outside the operations phase of the Project, it is possible that aldehyde emissions could exceed health-based guidelines and pose a potential health risk during the construction, active closure or post-closure phases.



Table 10.2-31: Significance of Residual Impacts for Aldehyde for Mine Workers (Acute) (continued)

Effects Criteria	Criteria Classification	Rationale
Frequency	Isolated	There were 1960 exceedances of the 1-hour threshold over the 5-year dataset (equivalent to approximately 4.5% of each year). That is, the 1-hour threshold for aldehyde is exceeded for approximately 16 days each year. Note that the dataset only considered the operations phase of the Project; as a result, it is not possible to determine whether there could be exceedances during the construction, closure or post-closure phases. However, potential exceedances during this time are expected to be at a lower frequency than those predicted for the operations phase. As a result, the assessment of frequency for the operations phase is a bounding case and was used to characterize frequency for all phases.
Reversibility	Reversible	Based upon the information provided for acute health effects above, the most likely health effects associated with aldehyde considering the peak exposure concentrations includes mucus membrane irritation. These symptoms are reversible; i.e., health effects are expected to improve once exposure to aldehyde is reduced or ceased.
Likelihood	Unlikely	Given that the assessment relies on predictive air modelling and toxicity data, both of which are associated with uncertainty and conservatism, it is unlikely a health effect due to aldehyde will occur (see below).
Certainty	Conservatism and Uncertainty in the Predictive Air Quality Modelling	The concentrations of COPCs in air considered in the risk assessment were the predicted peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. It was conservatively assumed that the Project operated continuously at its maximum design capacity over the duration of the 5 years of modelling.
	Conservatism and Uncertainty in the Receptor Characteristics and Exposure Scenarios	The selected receptors were considered to be healthy adults (i.e., aged 20 years and older) with no special sensitivities to the COPCs assessed in the risk assessment. Workers were considered to be exposed to the peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. No additional conservatism or uncertainty is associated with these assumptions.
Certainty	Conservatism and Uncertainty in the Selected Acute Thresholds	The selected acute threshold for aldehyde of $10 \mu\text{g}/\text{m}^3$ is an odour-based Ambient Air Quality Criteria for propanal set by OMOE (2012). Health-based thresholds are available for other aldehyde compounds, although the thresholds set for these compounds are higher than that of propanal. Additionally, the available health-based thresholds were set by TCEQ, for which supporting information is not available. Therefore, the selection of this threshold is conservative and may overestimate toxicity due to acute exposure to aldehyde compounds.
Residual Impact Significance	Not Significant	Overall, the residual effects to workers at the off-site worker (exploration) camp are not considered to be significant given that predicted concentrations are much lower than those reported to be associated with health effects, and those health effects are readily reversible.

COMEAP = Committee on the Medical Effects of Air Pollutants; HQ = hazard quotient; COPC = chemical of potential concern; LSA = local study area; OMOE = Ontario Ministry of the Environment; TCEQ = Texas Commission on Environmental Quality.



Table 10.2-32: Significance of Residual Impacts for Aldehyde for Recreational Users (Acute)

Effects Criteria	Criteria Classification	Rationale
Direction	Negative	The sensitivity of human volunteers to aliphatic aldehydes ranging from butanal to octanal indicated that mucous membrane irritation thresholds tended to decrease with increasing chain length (COMEAP 2010, internet site). Generally, aldehydes increase in potency from the less potent saturated aliphatic aldehydes to cyclic aldehydes to unsaturated aliphatic aldehydes, which are more potent, as measured by decreased breathing frequency in mice (COMEAP 2010, internet site).
Magnitude	Low	The estimated HQs for aldehyde considering the peak concentrations for the acute averaging time for recreational users at the hunter/trapper locations around the mine site were 2 for Receptors 1 and 22 for Scenario 2; estimated HQs were acceptable for all other modelling scenarios and receptor locations. Statistics on the hourly air predictions were carried out, which included the 98 th , 95 th , and 75 th percentiles of the concentration data. Only the peak concentrations resulted in estimated HQs greater than the target HQ of 1 for all scenarios; estimated HQs were acceptable using the 98 th percentile, 95 th percentile, and 75 th percentile statistics.
Geographic Extent	Local	The air modelling provided predicted air concentrations of the COPCs at specific receptor locations within the air quality LSA. For aldehyde, there were exceedances of the acute threshold both at the off-site worker (exploration) camp and at several hunter/trapper cabins around the mine site; as such, the geographic extent for aldehyde is classified as local (i.e., effect extends into the LSA).
Duration	Long-Term	Given that emissions of aldehyde could occur outside the operations phase of the Project, it is possible that aldehyde emissions could exceed health-based guidelines and pose a potential health risk during the construction, active closure, or post-closure phases.
Frequency	Isolated	The number of exceedances was not reported for the hunter/trapper locations. However, based upon the statistics, only the peak predicted concentrations exceeded its acute threshold, while the 98 th percentile and lower percentile statistics did not exceed the threshold. Therefore, the frequency of exceedances is considered to be isolated.
Reversibility	Reversible	Based upon the information provided for acute health effects above, the most likely health effects associated with aldehyde considering the peak exposure concentrations includes mucus membrane irritation. These symptoms are reversible; i.e., health effects are expected to improve once exposure to aldehyde is reduced or ceased.
Likelihood	Unlikely	Given that the assessment relies on predictive air modelling and toxicity data, both of which are associated with uncertainty and conservatism, it is unlikely a health effect due to aldehyde will occur (see below).
Certainty	Conservatism and Uncertainty in the Predictive Air Quality Modelling	The concentrations of COPCs in air considered in the risk assessment were the predicted peak 1-hour concentrations from the 5-year modelling dataset for each of the 6 scenarios considered for the operations phase of the Project. It was conservatively assumed that the Project operated continuously at its maximum design capacity over the duration of the 5 years of modelling.
	Conservatism and Uncertainty in the Receptor Characteristics and Exposure Scenarios	The selected receptors were considered to be members of the public that may include the very young and elderly, who may have special sensitivities to mucus membrane irritants. These special sensitivities were accounted for in the conservative selection of the toxicity benchmark. As described below, the benchmark is based upon odour, which is a more sensitive endpoint than a health-based endpoint as indicated by TCEQ. No additional conservatism or uncertainty is associated with these assumptions.



Table 10.2-32: Significance of Residual Impacts for Aldehyde for Recreational Users (Acute) (continued)

Effects Criteria	Criteria Classification	Rationale
	Conservatism and Uncertainty in the Selected Acute Thresholds	The selected acute threshold for aldehyde of $10 \mu\text{g}/\text{m}^3$ is an odour-based Ambient Air Quality Criteria for propanal set by OMOE (2012). Health-based thresholds are available for other aldehyde compounds, although the thresholds set for these compounds are higher than that of propanal. Additionally, the available health-based thresholds were set by TCEQ, for which supporting information is not available. Therefore, the selection of this threshold is conservative and may overestimate toxicity due to acute exposure to aldehyde compounds.
Residual Impact Significance	Not Significant	With respect to acute health effects, the overall impacts are not considered to be significant to members of the public in the LSA because the conditions causing the residual effect are of low magnitude, are considered to occur infrequently, and the overall potential for the health effect to occur is considered to be unlikely.

COMEAP = Committee on the Medical Effects of Air Pollutants; HQ = hazard quotient; COPC = chemical of potential concern; LSA = local study area; TCEQ = Texas Commission on Environmental Quality; OMOE = Ontario Ministry of the Environment.

Table 10.2-33: Significance of Residual Impacts for Noise for Recreational Users

Effects Criteria	Criteria Classification	Rationale
Direction	Negative	There is a potential for annoyance due to elevated noise levels predicted as a result of the Project. The main contributor to the change in noise levels at Tommy's cabin is truck traffic on the AWAR approximately 150 m away.
Magnitude	Low	The magnitude of the health effect is classified as low given that the predicted change in %HA is 6.8% is only slightly different than the acceptable level of 6.5%.
Geographic Extent	Local	There is only one location at which noise levels were retained in the residual impact analysis. Tommy's cabin is located approximately 150 m from the AWAR close to Rankin Inlet, and the anticipated change in noise levels is due to traffic on the AWAR. This location is within the noise LSA and as such, the geographic extent of the impact is classified as local.
Duration	Long-Term	The duration of the conditions causing the effect is classified as long-term, given that traffic on the AWAR would be expected for the construction, operations, and closure phases of the Project.
Frequency	Continuous	The frequency of the condition causing the effect is classified as continuous given that the average level of traffic was modelled as 2 trucks per hour for 24 hours per day during the operations phase. Therefore, while the noise is intermittent, it occurs several times each day.
Reversibility	Readily Reversible	The effect (i.e., annoyance) is readily reversible, given that once the level of traffic is reduced, the level of annoyance will also be reduced.
Likelihood	Possible	The likelihood of the effect occurring is possible, given that annoyance is a highly subjective effect and certain individuals may be more sensitive than others. Given that 6.5% is considered to be the minimum change in noise levels required to change community reaction, the level of 6.5% is intended to protect more sensitive individuals.
Certainty	Given that there is uncertainty in the predictive noise modelling, ongoing monitoring of noise levels at the affected locations within the LSA is recommended.	
Residual Impact Significance	Not Significant	This change in noise level was considered to be a low magnitude of effect. Additionally the potential for the effect occurring is possible, and may occur continuously given that the change in noise levels is due to truck traffic, which amounts to 2 trucks per hour for 24 hours per day during the operations phase. However, given that the percent highly annoyed measure is intended to be protective of the most sensitive individuals and the predicted percent highly annoyed measure only slightly exceeded the target, the potential residual effect is not considered to be significant.

AWAR = All-weather Access Road; %HA = percent highly annoyed; LSA = local study area.



10.2.8 Cumulative Effects

Cumulative effects represent the sum of all natural and human-induced influences on the physical, biological, cultural, and economic components of the environment through time and across space. Some changes may be human-related, such as increasing industrial development, and some changes may be associated with natural phenomenon, such as extreme rainfall events, and periodic harsh and mild winters. It is the goal of the cumulative effects assessment to estimate the contribution of these types of effects, in addition to Project effects, to the relative change in the VECs or VSECs.

With respect to natural phenomena, these do not have a direct influence on human health and as such were not considered further. However, human-induced influences, including past, present, and foreseeable future industrial developments, could potentially have a cumulative effect on human health should they result in significant changes to environmental quality (e.g. air quality, water quality). The past, present, and foreseeable future industrial developments are described in the Assessment Methodology section of the FEIS (FEIS Volume 4, Section 4.5.2). The potential cumulative effects of these developments and their influence on environmental quality are discussed in the relevant sections of the FEIS, as listed below:

- Air quality (FEIS Volume 5, Section 5.2);
- Noise (FEIS Volume 5, Section 5.5);
- Soil and terrain (FEIS Volume 6, Section 6.4);
- Vegetation (FEIS Volume 6, Section 6.5);
- Surface water and sediment quality (FEIS Volume 7, Section 7.4);
- Fish and habitat (FEIS Volume 7, Section 7.5);
- Population demographics (FEIS Volume 9, Section 9.2); and
- Traditional Activity and Knowledge (FEIS Volume 9, Section 9.3).

As indicated in these sections, quantitative predictions of changes to environmental quality due to other developments were not carried out for air quality, noise, and surface water and sediment quality. Qualitative assessments were, therefore, carried out for all relevant sub-disciplines.

As indicated in these other sections, cumulative effects to air quality, noise, and surface water and sediment quality are expected to be negligible. Therefore, the subsequent effects to human health are also expected to be negligible.

10.2.9 Monitoring and Follow-Up

As described in the Surface Water and Sediment Quality section of the FEIS (FEIS Volume 7, Section 7.4), ongoing monitoring of surface water from waterbodies and watercourses around the mine site, AWAR, and Rankin Inlet will be included as part of the Project. Additionally, drinking water for the camps (both source water and treated water) will also be regularly monitored. As fish comprise a portion of the diet for residents in the area, and to address any potential impacts on human health from the predicted increases in mercury concentrations in some lakes, fish tissue concentrations of mercury will be monitored under the aquatic effects monitoring plan for the Project (SD 7-3) and compared to fish tissue guidelines protective of human health.



10.3 References

10.3.1 Literature Cited

- AEUB (Alberta Energy and Utilities Board). 2007. Energy Resources Conservation Board – Directive 038: Noise Control. Revised edition.
- AMEC. 2011. Freshwater Aquatic Resources Environmental Impact Statement. Appendix 6.7-B. Development of Alternative Site-Specific Water Quality Guidelines. Application for Approval. Kitsault Mine Project. Environmental Assessment. Part B. Prepared for Avanti Mining Inc. Vancouver, BC.
- Artsob H. 2000. Arthropod-borne disease in Canada: A clinician's perspective from the 'Cold Zone'. *Paediatrics and Child Health*, 5(4): 206-212.
- ATSDR (Agency for Toxic Substances and Disease Registry). 1998. Toxicological Profile for Sulfur Dioxide. Atlanta, GA: US Department of Health and Human Services, Public Health Service.
- ATSDR. 2004. Toxicological profile for ammonia. US Department of Health and Human Services. Public Health Service. September 2004.
- ATSDR. 2005. Toxicological profile for tungsten. US Department of Health and Human Services. Public Health Service. August 2005.
- ATSDR. 2007. Toxicological Profile for Acrolein. Atlanta, GA: US Department of Health and Human Services, Public Health Service.
- ATSDR. 2008. Toxicological Profile for Cadmium. Atlanta, GA: US Department of Health and Human Services, Public Health Service.
- Attfield MD, Schleiff PL, Lubin JH, Blair A, Stewart PA, Vermeulen R, Coble JB, Silverman DT. 2012. The diesel exhaust in miners study: A cohort mortality study with emphasis on lung cancer. *Journal of the National Cancer Institute* 104: 869-883.
- Biesinger, K. E., and G.M. Christensen. 1972. Effects of various metals on survival, growth, reproduction, and metabolism of *Daphnia magna*. *Journal of the Fisheries Research Board of Canada* 29: 1691-1700.
- Birge, W.J. 1978. Aquatic toxicology of trace elements of coal and fly ash. In: J.H. Thorp, J.W. Gibbons (eds). *Energy and Environmental Stress in Aquatic Systems: Selected Papers From a Symposium Held at Augusta, Georgia, November 2-4, 1977*. Department of Energy Symposium Series 48:219-240.
- Birge, W.J., J.A. Black, A.G. Westerman. 1979. Evaluation of aquatic pollutants using fish and amphibian eggs as bioassay organisms. In: S.W. Nielsen, G. Migaki, D.G. Scarpelli (eds). *Animals as Monitors of Environmental Pollutants*. National Academy of Science. Washington, DC. p. 108-118.
- Birge, W.J., J.A. Black, A.G. Westerman and J.E. Hudson. 1980. Aquatic toxicity tests on inorganic elements occurring in oil shale. In: Gale, C. (ed.). *Oil Shale Symposium: Sampling, Analysis and Quality Assurance*. United States Environmental Protection Agency. Cincinnati, OH. p. 519-534.



Borgmann, U., O. Kramar and C. Loveridge. 1978. Rates of mortality, growth, and biomass production of *Lymnaea palustris* during chronic exposure to lead. *Journal of the Fisheries Research Board of Canada* 35: 1109-1115.

CCME (Canadian Council of Ministers of the Environment). 1989. Factsheet on SO₂ NAAQO.

CCME. 1996. A framework for ecological risk assessment: general guidance. National contaminated sites remediation program. Canadian Council of Ministers of the Environment. Winnipeg, MB.

CCME. 1997. A framework for ecological risk assessment: Technical appendices. National contaminated sites remediation program. Canadian Council of Ministers of the Environment. Winnipeg, MB.

CCME. 1999. Canadian National Ambient Air Quality Objectives: Process and status. In: Canadian Environmental Quality Guidelines, 1999. Winnipeg, MB.

CCME. 2000. Canada-wide standards for particulate matter (PM) and ozone. CCME Council of Ministers. June 2000. Quebec City, QC.

CCME. 2003. Canadian water quality guidelines for the protection of aquatic life: Inorganic mercury and methylmercury. In: Canadian environmental quality guidelines, 1999. Canadian Council of Ministers of the Environment. Winnipeg, MB.

CCME. 2004. Canadian water quality guidelines for the protection of aquatic life: Phosphorus: Canadian guidance framework for the management of freshwater systems. In: Canadian environmental quality guidelines, 2004. Canadian Council of Ministers of the Environment. Winnipeg, MB.

CCME. 2007. A protocol for the derivation of water quality guidelines for the protection of aquatic life 2007. Canadian environmental quality guidelines. Canadian Council of Ministers of the Environment. Winnipeg, MB.

CCREM (Canadian Council of Resource and Environment Ministers). 1987. Canadian water quality guidelines. Prepared by the Task Force on Water Quality Guidelines.

Davies, P.H., J.P. Goettl, and J.R. Sinley. 1978. Toxicity of silver to rainbow trout (*Salmo gairdneri*). *Water Research* 12: 113-117.

Davies, T.D., J. Pickard, K.J. Hall. 2005. Acute molybdenum toxicity to rainbow trout and other fish. *Journal of Environmental Engineering and Science* 4:481-485.

De Schamphelaere, K.A.C., W. Stubblefield, P. Rodriguez, K. Vleminckx, C.R. Janssen. 2010. The chronic toxicity of molybdate to freshwater organisms. I. Generating reliable effects data. *Science of the total environment* 408: 5362-5371.

Desforges, M, Vigneault, B, Gopalapillai, Y, McGeer, J and Huntsman-Mapila, P. 2010. Development of a Revised Canadian Water Quality Guideline for Silver. Proceedings of the 37th Annual Aquatic Toxicity Workshop: October 3 to 6, 2010, Toronto, Ontario.

Dethloff, G.M., R.B. Naddy, J.W. Gorsuch. 2007. Effects of sodium chloride on chronic silver toxicity to early life stages of rainbow trout (*Oncorhynchus mykiss*). *Environmental Toxicology and Chemistry* 26: 1717-1725.

Government of Nunavut. 2005. Inuit Qaujimajatuqangit of Climate Change in Nunavut



Grosell, M., R.M. Gerdes, K.V. Brix. 2006. Chronic toxicity of lead to three freshwater invertebrates – *Brachionus calyciflorus*, *Chironomus tentans*, and *Lymnaea stagnalis*. *Environmental Toxicology and Chemistry* 25: 97-105.

Health Canada. 1987. Ammonia (Technical Document – Chemical/Physical Parameters). Health Canada. August 1978, updated November 1987. Also available online at <http://hc-sc.gc.ca/ewh-semt/pubs/water-eau/ammonia-ammoni/index-eng.php>

Health Canada. 1994. Canadian Environmental Protection Act. Human Health Risk Assessment for Priority Substances. Appendix B – Criteria for Classification of Carcinogenicity. ISBN: 0-662-22126-5.

Health Canada. 1995. Investigating Human Exposure to Contaminants in the Environment: A Handbook for Exposure Calculations. Ministry of National Health and Welfare.

Health Canada. 2005. Noise Impact Assessment Orientation Document for Projects Triggering CEAA. Draft Version. Prepared by Consumer and Clinical Radiation Protection Team, Product Safety Program and Healthy Environments and Consumer Safety Branch, Health Canada. May 2005.

Health Canada. 2010a. Federal Contaminated Site Risk Assessment in Canada Part II: Health Canada Toxicological Reference Values and Chemical-Specific Factors. Health Canada. Ottawa, ON. ISBN: 978-1-100-17925-4.

Health Canada. 2010b. Useful Information for Environmental Assessments. Health Canada. Ottawa, ON.

Health Canada. 2012a. Federal Contaminated Site Risk Assessment in Canada Part 1: Guidance on Human Health Preliminary Quantitative Risk Assessment Version 2.0. Health Canada. Ottawa, ON. ISBN: 978-1-100-17671-0. 2010, Revised 2012.

Health Canada. 2012b. Guidelines for Canadian Drinking Water Quality. Summary Table. Prepared by the Federal-Provincial-Territorial Committee on Drinking Water. August 2012.

Health Canada and Environment Canada. 1999. Addendum to Science Assessment Document Particulate Matter <10 µm and <2.5 µm. A Report by the Federal-Provincial Working Group on Air Quality Objectives and Guidelines. Ottawa, ON.

Hogstrand, C., and C.M. Wood. 1998. Toward a better understanding of the bioavailability, physiology and toxicity of silver in fish: Implications for water quality criteria. *Environmental Toxicology and Chemistry* 17: 547-561.

HydroQual (HydroQual, Inc.). 2007. Biotic Ligand Model. Windows Interface, Version 2.2.3. User's Guide and Reference Manual. June 2007. Mahwah, NJ.

IARC (International Agency on Cancer Research). 2012. Agents classified by the IARC Monographs, Volumes 1 to 105.

ISO (International Organization for Standardization). 2003. ISO 1996-1:2003. Description, measurement and assessment of environmental noise – Part 1: Basic quantities and assessment procedures.

Kramer, J.R., G. Benoit, K.C. Bowles, D.M. DiToro, R.T. Herrin, G.W. Luther III, H. Manolopoulos, K.A. Robillard, M.M. Shafer, and J.R. Shaw. 2002. Environmental chemistry of silver. Pages 1-20. In: Andren, A.W. and T.W.



Bober (eds.). Silver in the environment: Transport, fate and effects. Research Findings of the Argentum International Conference Series 1993-2000.

LANL (Los Alamos National Laboratory). 2010. ECORISK Database (Release 2.5), ER package #186. Environmental Programs Directorate, Waste and Environmental Services Division, Los Alamos, NM. ER ID 110846. LA-UR-10-6898.

LeBlanc, G.C., J.D. Mastone, A.P. Paradice, B.F. Wilson, H.B. Lockhart Jr., and K.A. Robillard. 1984. The influence of speciation on the toxicity of silver to fathead minnow (*Pimephales promelas*). *Environmental toxicology and chemistry* 3: 37-46.

Mebane, C.A. 2010. Cadmium risks to freshwater life: Derivation and validation of low-effect criteria values using laboratory and field studies (version 1.2). US Geological Survey Scientific Investigations Report 2006-5245, 130 p.

Michaud, D.S., S.H.P. Bly and S.E. Keith. 2008. Using a Change in Percent Highly Annoyed with Noise as a Potential Health Effect Measure for Projects Under the Canadian Environmental Assessment Act. *Canadian Acoustics* 36: 13-28.

Naddy, R.B., G.R. McNerney, J.W. Gorsuch, R.A. Bell, J.R. Kramer, K.B. Wu, P.R. Paquin. 2011. The effect of food on the acute toxicity of silver nitrate to four freshwater test species and acute-to-chronic ratios. *Ecotoxicology* 20: 2019-2029.

NDOE (Government of Nunavut Department of Environment). 2011. Environmental Guideline for Ambient Air Quality. Government of Nunavut Department of Environment. Revised October, 2011.

Nebeker, A.V., C.K. McAuliffe, R. Mshar, and D.G. Stevens. 1983. Toxicity of silver to steelhead and rainbow trout, fathead minnows and *Daphnia magna*. *Environmental Toxicology and Chemistry* 2:95-104.

NIOSH (National Institute for Occupational Safety and Health). 1996. Registry of Toxic Effects of Chemical Substances (RTECS) Toxicology Database. Cincinnati, OH, USA.

NIRB (Nunavut Impact Review Board) 2012. Guidelines for the Preparation of an Environmental Impact Statement for Agnico-Eagle Mines Ltd.'s Meliadine Project (NIRB File No. 11MN034). Cambridge Bay, NU: NIRB. February 20, 2012.

OEHHA (California Office of Environmental Health Hazard Assessment). 1998. Findings of the Scientific Review Panel on The Report on Diesel Exhaust. California Air Resources Board, Office of Environmental Health Hazard Assessment.

OEHHA. 2008. Air Toxics Hot Spots Program Technical Support Document for the Derivation of Non-cancer Reference Exposure Levels, Appendix D: Individual Acute, 8-Hour, and Chronic Reference Exposure Level Summaries. Oakland, CA: Air Toxicology and Epidemiology Branch, Office of Environmental Health Hazard Assessment.

OEHHA. 2009. Appendix B. Chemical-specific summaries of the information used to derive unit risk and cancer potency factors. In: Air Toxics Hot Spot Risk Assessment Guidelines Part II: Technical Support Document for Cancer Potency Factors. May 2009.



Ogden NH, St-Onge L, Barker IL, Brazeau S, Brigas-Poulin M, Charron DF, Francis CM et al. 2008. Risk maps for range expansion of the Lyme disease vector, *Ixodes scapularis*, in Canada now and with climate change. *International Journal of Health Geographics*, 7:24.

OMOE (Ontario Ministry of the Environment). 1999. Ontario Provincial Water Quality Objectives.

OMOE. 2011. Rationale for the Development of Soil and Groundwater Standards for Use at Contaminated Sites in Ontario. Dated April 15, 2011. Standards Development Branch.

OMOE. 2012. Ontario's Ambient Air Quality Criteria. Standards Development Branch.

Passchier-Vermeer, W. and W.F. Passchier. 2000. Noise Exposure and Public Health. *Environmental Health Perspectives* 108, supplement 1: 123-131.

RIVM (Rijksinstituut Voor Volksgezondheid en Milieu; Netherlands National Institute of Public Health and the Environment). 2001. Re-evaluation of Human Toxicological Maximum Permissible Risk Levels. RIVM Report No. 711701 025.

Sample, B.E., D.M. Opresko, and G.W. Suter II. 1996. Toxicological benchmarks for wildlife: 1996 Revision. The Risk Assessment Program Health Sciences Research Division (ed.). Prepared for the US Department of Energy. Office of Environmental Management. ES/ER/TM. Oak Ridge, TN.

Sano, Y., H. Satoh, M. Chiba, M. Okamoto, K. Serizawa, H. Nakashima, and K. Omae. 2005. Oral toxicity of bismuth in rat: Single and 28-day repeated administration studies. *Journal of occupational health* 47: 293-298.

Silverman DT, Samanic CM, Lubin JH, Blair AE, Stewart PA, Vermeulen R, Coble JB, Rothman N, Schleiff PL, Travis WD, Ziegler RG, Wacholder S, Attfield MD. 2012. The diesel exhaust in miners study: A nested case-control study of lung cancer and diesel exhaust. *Journal of the National Cancer Institute* 104: 1-14.

Spehar, R. L., R.L. Anderson and J.T. Fiandt. 1978. Toxicity and bioaccumulation of cadmium and lead in aquatic invertebrates. *Environmental Pollution* 15: 195-208.

USEPA (United States Environmental Protection Agency). 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. Office of Noise Abatement and Control. Washington, DC.

USEPA. 1985a. Ambient Water Quality Criteria for Copper – 1984. US Environmental Protection Agency. Office of Research and Development. Environmental Research Laboratories. Duluth, MN. Narragansett, RI.

USEPA. 1985b. Ambient Water Quality Criteria for Lead – 1984. United States Environmental Protection Agency. Office of Water Regulations and Standards. Criteria and Standards Division. Washington, DC. EPA 440/5-84-027.

USEPA. 1989. Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual. Office of Remedial Response.

USEPA. 1993. Wildlife exposure factors handbook. EPA/600/R-93/187. United States Environmental Protection Agency. Washington, DC.



USEPA. 1998. Guidelines for ecological risk assessment. Risk assessment forum. EPA/630/R-55/002F. Washington, DC.

USEPA. 1999. 1999 Update of ambient water quality criteria for ammonia. United States Environmental Protection Agency. Office of Water. EPA-822-R-99-014.

USEPA. 2001. 2001 Update of Ambient Water Quality Criteria for Cadmium. United States Environmental Protection Agency. Office of Water. EPA-822-R-01-001.

USEPA. 2002. Health Assessment Document for Diesel Engine Exhaust. Washington, DC: National Center for Environmental Assessment, Office of Research and Development.

USEPA. 2005. Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities. US EPA Office of Solid Waste. EPA520-R-05-006. Washington, D.C.

USEPA. 2007. Aquatic life ambient freshwater quality criteria – Copper. Office of Water. Office of Science and Technology. EPA-822-R-07-001. Washington, DC.

US FRA (United States Federal Railroad Administration). 1998. High-Speed Ground Transportation Noise and Vibration Impact Assessment. Office of Railroad Development. Washington, DC.

US FTA (United States Federal Transit Administration). 1995. Guidance Manual for Transit Noise and Vibration Impact Assessment. DOT-T-95-16.

WHO (World Health Organization). 1978. Sodium, chlorides, and conductivity in drinking water: a report on a WHO working group. WHO Regional Office for Europe (EURO Reports and Studies 2), Copenhagen, Denmark.

WHO. 1999. Guidelines for Community Noise. World Health Organization. Geneva.

WHO. 2000. Air Quality Guidelines for Europe, 2nd Ed. World Health Organization Regional Publications, European Series, No. 91. Copenhagen.

WHO. 2005. Air Quality Guidelines Global Update. Report on Working Group Meeting. Bonn, Germany.

WHO. 2009. Night Noise Guidelines for Europe. World Health Organization, Geneva.

WHO. 2011. Burden of disease from environmental noise – Quantification of healthy life years lost in Europe. World Health Organization, Geneva.

10.3.2 Internet sites

ATSDR (Agency for Toxic Substances and Disease Registry). 2011. Minimal Risk Levels. Internet Site, last updated 3 May 2011, accessed 25 July 2012.

BCMOE (British Columbia Ministry of Environment). 2000. Ambient water quality guidelines for sulphate. Ministry of Environment, Lands and Parks. November 2000. Available at: <http://www.env.gov.bc.ca/wat/wq/BCguidelines/sulphate/sulphate.html>. Accessed: 2 November 2012.



BCMOE. 2001. Ambient Water Quality Guidelines for Manganese. Ministry of the Environment. January 2001. Available at: <http://www.env.gov.bc.ca/wat/wq/BCguidelines/manganese/manganese.html>. Accessed: 15 November 2012.

BCMOE. 2004. Ambient Water Quality Guidelines for Cobalt. Ministry of the Environment. Updated September 2004. Available at: http://www.env.gov.bc.ca/wat/wq/BCguidelines/cobalt/cobalt_over.html. Accessed: 15 November 2012.

BCMOE. 2006. A compendium of working water quality guidelines for British Columbia. Ministry of Environment. August 2006. Available at: <http://www.env.gov.bc.ca/wat/wq/BCguidelines/working.html>. Accessed: 2 November 2012.

BCMOE. 2009. Water Quality Guidelines for Nitrogen (Nitrate, Nitrite, and Ammonia). Overview Report Update. Ministry of Environment, Province of British Columbia. September 2009. Available at : <http://a100.gov.bc.ca/pub/eirs/finishDownloadDocument.do;jsessionid=e2b136aab483cb72bd7c7741cbfa1452970d70e92b6aca5862da9c1813945dea.e3uMah8KbhmLe38Lah8LbxeMbN90n6jAmljGr5XDqQLvpAe?subdocumetntId=9021>. Accessed: 15 November 2012.

BCMOE. 2013. Diseases you can get from wildlife in BC. Accessed 14 March 2013 from <http://www.env.gov.bc.ca/wld/wldhealth/diseases/index.htm?>.

CCME. 2012a. Canadian soil quality guidelines for the protection of environmental and human health. Available: <http://st-ts.ccme.ca/>. Accessed 2 November 2012.

CCME. 2012b. Canadian sediment quality guidelines for the protection of aquatic life. Available: <http://st-ts.ccme.ca/>. Accessed 2 November 2012.

CCME. 2012c. Canadian water quality guidelines for the protection of agricultural water uses. Available: <http://st-ts.ccme.ca/>. Accessed 2 November 2012.

CCME. 2012d. Canadian water quality guidelines for the protection of aquatic life. Available: <http://st-ts.ccme.ca/>. Accessed 2 November 2012.

COMEAP (Committee on the Medical Effects of Air Pollutants). 2010. Report on the Health Effects of Aldehydes in Ambient Air. Prepared for COMEAP (UK Department of Health, Committee on the Medical Effects of Air Pollutants). COMEAP/2000/19. Available online at http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/ab/COMEAP/DH_108597

COSEWIC (Committee on the Status of Endangered Wildlife in Canada). 2012. Database of wildlife species assessed by COSEWIC. Available at: http://www.cosewic.gc.ca/eng/sct1/searchform_e.cfm. Accessed: 2 November 2012.

Government of Yukon. 2013. Yukon communicable disease control. Last updated 25 May 2012, accessed 13 March 2013 from http://www.hss.gov.yk.ca/ycdc.php?WT.mc_id=ygps029.

HSDB (Hazardous Substances Data Bank). 2002a. HSDB Substance File for Bismuth Compounds. Accessed 11 July 2012, last updated/revised 8 November 2002. <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>



HSDB. 2002b. HSDB Substance File for Titanium Compounds. Accessed 7 November 2012, last updated/revised 29 August 2002. <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>

HSDB. 2002c. HSDB Substance File for Tungsten Compounds. Accessed 7 November 2012, last updated/revised 23 June 2002. <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>

HSDB. 2004. HSDB Substance File for Gold Compounds. Accessed 7 November 2012, last updated/revised 1 September 2004. <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>

HSDB. 2007. HSDB Substance File for Sodium Chloride (CASRN 7647-14-5). Accessed 7 November 2012, last updated/revised 4 June 2007. <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>

HSDB. 2011. HSDB Substance File for Nitrogen Dioxide (CASRN 10102-44-0). Accessed 26 October 2012, last updated/revised 3 May 2011. <http://toxnet.nlm.nih.gov/cgi-bin/sis/search>

MDDEP (Ministère du Développement durable, de l'Environnement et des Parcs). 2012. Strontium: Critères de qualité de l'eau de surface. Available at: http://www.mddep.gouv.qc.ca/eau/criteres_eau/details.asp?code=S0806. Accessed: 13 November 2012.

OEHHA (California Office of Environmental Health Hazard Assessment). 2012. Acute, 8-Hour and Chronic Reference Exposure Levels, Air Toxicology and Epidemiology. Internet Site, last updated February 2012, accessed 31 July 2012. <http://www.oehha.ca.gov/air/allrels.html>

PHAC (Public Health Agency of Canada). 2012. Infectious diseases. Last updated 17 April 2012, Accessed 13 March 2013 from www.phac-aspc.gc.ca.

SARA (Species at Risk Act). 2012. Species at risk public registry. Available at: http://www.sararegistry.gc.ca/default_e.cfm. Accessed: 2 November 2012.

TCEQ (Texas Commission on Environmental Quality). 2012. Effects Screening Levels. Toxicology Division for Air Permitting. Internet Site, last updated March 2012, accessed 1 August 2012.

USEPA (United States Environmental Protection Agency). 2007. ECOTOXicology Database System. Version 4.0. United States Environmental Protection Agency. Available at: <http://cfpub.epa.gov/ecotox/>. Accessed: 12 November 2012

USEPA. 2012a. Ecological soil screening levels. Interim Eco-SSL documents. Washington, DC: Office of Research and Development. Available at: www.epa.gov/ecotox/ecossl/. Accessed: 2 November 2012.

USEPA. 2012b. National Recommended Water Quality Criteria for Aquatic Life – Mercury. Available at: <http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>. Accessed 21 November 2012.

USEPA. 2012c. Integrated Risk Information System (IRIS). Cincinnati, OH. Internet site (online database), last updated 1 November 2012, accessed 1 November 2012. <http://www.epa.gov/iris/>

USEPA. 2012d. Risk-Based Concentration Table. Internet site, last updated 23 October 2012, accessed 23 October 2012. http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm



APPENDIX 10.1-A

Soil Screening

Table 10.1-A-1: Soil Loss Constants (Ks) for Polycyclic Aromatic Hydrocarbons

Parameter	Soil Loss Constant (Ks)^a (1/y)
Benzo(a)pyrene	0.48
Naphthalene	5.27
Phenanthrene	1.26
Anthracene	0.55
Fluorene	4.22
Pyrene	0.13
Thiophenes	NA
Benz(a)anthracene	0.37
Acenaphthene	2.48
Acenaphthylene	NA
Fluoranthene	0.57
Benzo(b)fluoranthene	0.41
Benzo(g,h,i)perylene	NA
Benzo(k)fluoranthene	0.12
Chrysene	0.25
Dibenzo(a,h)anthracene	0.27
Indeno(1,2,3-cd)pyrene	0.35

^a Soil loss constants taken from Howard et al. 1991 as cited in USEPA 2005.

NA = Not available. Ks conservatively set at 0 as loss constants are not available.

Prepared by: SG

Checked by: TMG

Table 10.1-A-2a: Estimation of Soil Concentrations - Scenario 1

Chemical	Baseline Soil Concentration ^a (mg/kg)	Wet Deposition Rate ^b (g/m ² /y)	Dry Deposition Rate ^b (g/m ² /y)	Incremental Soil Concentration ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)
Total Metals					
Aluminum (Al)	9670	2.09E-02	4.22E-02	2.73E+01	9697
Antimony (Sb)	0.113	1.18E-06	2.38E-06	1.54E-03	0.115
Arsenic (As)	59.9	3.34E-05	6.76E-05	4.38E-02	60
Barium (Ba)	119	1.18E-04	2.38E-04	1.54E-01	119
Beryllium (Be)	3.71	2.19E-07	4.43E-07	2.87E-04	3.71
Bismuth (Bi)	0.15	6.02E-08	1.22E-07	7.89E-05	0.15
Cadmium (Cd)	0.8	9.73E-05	2.16E-05	5.15E-02	0.85
Calcium (Ca)	26 700	1.19E-02	2.41E-02	1.56E+01	26 716
Chromium (Cr)	51.3	5.56E-05	1.05E-04	6.96E-02	51.4
Cobalt (Co)	45	8.07E-06	1.63E-05	1.06E-02	45
Copper (Cu)	72	2.13E-05	4.32E-05	2.80E-02	72
Gold (Au)**	0.005	2.33E-08	4.72E-08	3.05E-05	0.005
Iron (Fe)	21 300	2.29E-02	4.63E-02	3.00E+01	21 330
Lead (Pb)	10	1.90E-05	1.08E-05	1.30E-02	10
Lithium (Li)	13.1	9.74E-06	1.97E-05	1.28E-02	13.1
Magnesium (Mg)	7080	6.31E-03	1.28E-02	8.27E+00	7088
Manganese (Mn)	425	2.37E-04	4.80E-04	3.11E-01	425
Molybdenum (Mo)	7	3.61E-07	7.31E-07	4.73E-04	7.0
Nickel (Ni)	48	2.09E-05	4.23E-05	2.74E-02	48
Potassium (K)	2670	3.99E-03	8.08E-03	5.23E+00	2675
Selenium (Se)	1.2	3.60E-07	7.29E-07	4.72E-04	1.2
Silver (Ag)	0.5	8.87E-08	1.79E-07	1.16E-04	0.50
Sodium (Na)	320	4.77E-03	9.65E-03	6.25E+00	326
Strontium (Sr)	195	6.38E-05	1.29E-04	8.35E-02	195
Thallium (Tl)	0.5	9.21E-08	1.86E-07	1.21E-04	0.50
Tin (Sn)	2.5	3.25E-07	6.57E-07	4.25E-04	2.5
Titanium (Ti)	945	1.05E-03	2.12E-03	1.37E+00	946
Uranium (U)	1.97	2.93E-07	5.92E-07	3.84E-04	1.97
Vanadium (V)	39	3.86E-05	7.81E-05	5.06E-02	39
Yttrium (Y)**	23	2.85E-06	5.76E-06	3.73E-03	23
Zinc (Zn)	70	1.37E-04	8.60E-05	9.67E-02	70
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene*	0.025	1.78E-07	3.93E-08	2.17E-05	0.025
Naphthalene*	0.025	7.06E-05	1.56E-05	8.61E-03	0.034
Phenanthrene*	0.025	5.83E-06	1.29E-06	7.11E-04	0.026
Anthracene*	0.025	6.50E-07	1.43E-07	7.93E-05	0.025
Fluorene*	0.025	2.84E-06	6.27E-07	3.47E-04	0.025
Pyrene*	0.025	2.13E-06	4.70E-07	1.37E-04	0.025
Thiophene*	0.025	3.69E-08	8.15E-09	1.95E-05	0.025
Benzo(a)anthracene*	0.025	8.46E-08	1.87E-08	1.03E-05	0.025
Acenaphthene*	0.025	5.48E-07	1.21E-07	6.69E-05	0.025
Acenaphthylene*	0.025	1.99E-06	4.39E-07	1.05E-03	0.026
Fluoranthene*	0.025	2.12E-06	4.67E-07	2.58E-04	0.025
Benzo(b)fluoranthene*	0.025	3.93E-07	8.67E-08	4.78E-05	0.025
Benzo(g,h,i)perylene*	0.025	7.47E-09	1.65E-09	3.95E-06	0.025
Benzo(k)fluoranthene*	0.025	4.47E-08	9.87E-09	2.27E-06	0.025
Chrysene*	0.025	9.51E-08	2.10E-08	1.10E-05	0.025
Dibenzo(a,h)anthracene*	0.025	1.24E-07	2.73E-08	1.45E-05	0.025
Indeno(1,2,3-c,d)pyrene*	0.025	7.87E-08	1.74E-08	9.51E-06	0.025

^a maximum measured baseline soil concentration.^b the maximum wet/dry deposition rate of all modelled locations.^c the maximum incremental soil concentration of all modelled locations.^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

*there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical method detection limit (typical method detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

mg/kg = milligram per kilogram; g/m²/y = gram per square metre per year.

Prepared by: SG

Checked by: TMG

Table 10.1-A-2b: Estimation of Soil Concentrations - Scenario 2

Chemical	Baseline Soil Concentration ^a (mg/kg)	Wet Deposition Rate ^b (g/m ² /y)	Dry Deposition Rate ^b (g/m ² /y)	Incremental Soil Concentration ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)
Total Metals					
Aluminum (Al)	9670	2.51E-02	7.76E-02	4.45E+01	9714
Antimony (Sb)	0.113	1.42E-06	4.39E-06	2.52E-03	0.12
Arsenic (As)	59.9	4.03E-05	1.24E-04	7.14E-02	60
Barium (Ba)	119	1.42E-04	4.38E-04	2.51E-01	119
Beryllium (Be)	3.71	2.64E-07	8.16E-07	4.68E-04	3.71
Bismuth (Bi)	0.15	7.25E-08	2.24E-07	1.29E-04	0.15
Cadmium (Cd)	0.8	9.73E-05	2.16E-05	5.15E-02	0.85
Calcium (Ca)	26 700	1.43E-02	4.43E-02	2.54E+01	26 725
Chromium (Cr)	51.3	6.18E-05	1.87E-04	1.08E-01	51.4
Cobalt (Co)	45	9.71E-06	3.00E-05	1.72E-02	45
Copper (Cu)	72	2.57E-05	7.94E-05	4.55E-02	72
Gold (Au)**	0.005	2.81E-08	8.68E-08	4.98E-05	0.005
Iron (Fe)	21 300	2.76E-02	8.52E-02	4.88E+01	21 349
Lead (Pb)	10	1.90E-05	1.42E-05	1.44E-02	10
Lithium (Li)	13.1	1.17E-05	3.62E-05	2.08E-02	13.1
Magnesium (Mg)	7080	7.60E-03	2.35E-02	1.35E+01	7093
Manganese (Mn)	425	2.86E-04	8.83E-04	5.06E-01	426
Molybdenum (Mo)	7	4.35E-07	1.34E-06	7.71E-04	7.0
Nickel (Ni)	48	2.52E-05	7.79E-05	4.47E-02	48
Potassium (K)	2670	4.81E-03	1.49E-02	8.52E+00	2679
Selenium (Se)	1.2	4.34E-07	1.34E-06	7.69E-04	1.2
Silver (Ag)	0.5	1.07E-07	3.30E-07	1.89E-04	0.50
Sodium (Na)	320	5.74E-03	1.78E-02	1.02E+01	330
Strontium (Sr)	195	7.68E-05	2.37E-04	1.36E-01	195
Thallium (Tl)	0.5	1.11E-07	3.43E-07	1.97E-04	0.50
Tin (Sn)	2.5	3.91E-07	1.21E-06	6.93E-04	2.5
Titanium (Ti)	945	1.26E-03	3.91E-03	2.24E+00	947
Uranium (U)	1.97	3.53E-07	1.09E-06	6.25E-04	1.97
Vanadium (V)	39	4.65E-05	1.44E-04	8.24E-02	39
Yttrium (Y)**	23	3.43E-06	1.06E-05	6.08E-03	23
Zinc (Zn)	70	1.37E-04	1.18E-04	1.10E-01	70
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene*	0.025	1.78E-07	3.92E-08	2.17E-05	0.025
Naphthalene*	0.025	7.06E-05	1.55E-05	8.61E-03	0.034
Phenanthrene*	0.025	5.83E-06	1.28E-06	7.11E-04	0.026
Anthracene*	0.025	6.50E-07	1.43E-07	7.93E-05	0.025
Fluorene*	0.025	2.84E-06	6.26E-07	3.47E-04	0.025
Pyrene*	0.025	2.13E-06	4.69E-07	1.37E-04	0.025
Thiophene*	0.025	3.69E-08	8.13E-09	1.95E-05	0.025
Benzo(a)anthracene*	0.025	8.46E-08	1.86E-08	1.02E-05	0.025
Acenaphthene*	0.025	5.48E-07	1.21E-07	6.69E-05	0.025
Acenaphthylene*	0.025	1.99E-06	4.38E-07	1.05E-03	0.026
Fluoranthene*	0.025	2.12E-06	4.66E-07	2.58E-04	0.025
Benzo(b)fluoranthene*	0.025	3.93E-07	8.65E-08	4.78E-05	0.025
Benzo(g,h,i)perylene*	0.025	7.47E-09	1.64E-09	3.95E-06	0.025
Benzo(k)fluoranthene*	0.025	4.47E-08	9.84E-09	2.27E-06	0.025
Chrysene*	0.025	9.51E-08	2.09E-08	1.10E-05	0.025
Dibenzo(a,h)anthracene*	0.025	1.24E-07	2.72E-08	1.45E-05	0.025
Indeno(1,2,3-c,d)pyrene*	0.025	7.87E-08	1.73E-08	9.50E-06	0.025

^a maximum measured baseline soil concentration.^b the maximum wet/dry deposition rate of all modelled locations.^c the maximum incremental soil concentration of all modelled locations.^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

*there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical method detection limit (typical method detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

mg/kg = milligram per kilogram; g/m²/y = gram per square metre per year.

Prepared by: SG

Checked by: TMG

Table 10.1-A-2c: Estimation of Soil Concentrations - Scenario 3

Chemical	Baseline Soil Concentration ^a (mg/kg)	Wet Deposition Rate ^b (g/m ² /y)	Dry Deposition Rate ^b (g/m ² /y)	Incremental Soil Concentration ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)
Total Metals					
Aluminum (Al)	9670	3.44E-02	4.13E-02	3.28E+01	9703
Antimony (Sb)	0.113	1.95E-06	2.33E-06	1.85E-03	0.115
Arsenic (As)	59.9	5.52E-05	6.62E-05	5.26E-02	60
Barium (Ba)	119	1.94E-04	2.33E-04	1.85E-01	119
Beryllium (Be)	3.71	3.62E-07	4.34E-07	3.45E-04	3.71
Bismuth (Bi)	0.15	9.94E-08	1.19E-07	9.47E-05	0.15
Cadmium (Cd)	0.8	9.72E-05	2.16E-05	5.15E-02	0.85
Calcium (Ca)	26 700	1.96E-02	2.36E-02	1.87E+01	26 719
Chromium (Cr)	51.3	8.48E-05	1.03E-04	8.13E-02	51.4
Cobalt (Co)	45	1.33E-05	1.60E-05	1.27E-02	45
Copper (Cu)	72	3.52E-05	4.22E-05	3.36E-02	72
Gold (Au)**	0.005	3.85E-08	4.61E-08	3.67E-05	0.005
Iron (Fe)	21 300	3.78E-02	4.53E-02	3.60E+01	21 336
Lead (Pb)	10	1.89E-05	1.07E-05	1.28E-02	10
Lithium (Li)	13.1	1.61E-05	1.93E-05	1.53E-02	13.1
Magnesium (Mg)	7080	1.04E-02	1.25E-02	9.93E+00	7090
Manganese (Mn)	425	3.92E-04	4.70E-04	3.73E-01	425
Molybdenum (Mo)	7	5.96E-07	7.15E-07	5.68E-04	7.0
Nickel (Ni)	48	3.45E-05	4.14E-05	3.29E-02	48
Potassium (K)	2670	6.59E-03	7.91E-03	6.28E+00	2676
Selenium (Se)	1.2	5.95E-07	7.13E-07	5.67E-04	1.2
Silver (Ag)	0.5	1.46E-07	1.76E-07	1.39E-04	0.50
Sodium (Na)	320	7.87E-03	9.44E-03	7.50E+00	328
Strontium (Sr)	195	1.05E-04	1.26E-04	1.00E-01	195
Thallium (Tl)	0.5	1.52E-07	1.82E-07	1.45E-04	0.50
Tin (Sn)	2.5	5.36E-07	6.42E-07	5.10E-04	2.5
Titanium (Ti)	945	1.73E-03	2.08E-03	1.65E+00	947
Uranium (U)	1.97	4.83E-07	5.80E-07	4.61E-04	1.97
Vanadium (V)	39	6.37E-05	7.64E-05	6.07E-02	39
Yttrium (Y)**	23	4.70E-06	5.64E-06	4.48E-03	23
Zinc (Zn)	70	1.36E-04	8.46E-05	9.58E-02	70
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene*	0.025	1.78E-07	3.92E-08	2.17E-05	0.025
Naphthalene*	0.025	7.05E-05	1.55E-05	8.60E-03	0.034
Phenanthrene*	0.025	5.82E-06	1.28E-06	7.11E-04	0.026
Anthracene*	0.025	6.50E-07	1.43E-07	7.92E-05	0.025
Fluorene*	0.025	2.84E-06	6.26E-07	3.47E-04	0.025
Pyrene*	0.025	2.13E-06	4.69E-07	1.37E-04	0.025
Thiophene*	0.025	3.69E-08	8.13E-09	1.95E-05	0.025
Benzo(a)anthracene*	0.025	8.45E-08	1.86E-08	1.02E-05	0.025
Acenaphthene*	0.025	5.48E-07	1.21E-07	6.68E-05	0.025
Acenaphthylene*	0.025	1.99E-06	4.38E-07	1.05E-03	0.026
Fluoranthene*	0.025	2.12E-06	4.66E-07	2.58E-04	0.025
Benzo(b)fluoranthene*	0.025	3.93E-07	8.65E-08	4.77E-05	0.025
Benzo(g,h,i)perylene*	0.025	7.46E-09	1.64E-09	3.95E-06	0.025
Benzo(k)fluoranthene*	0.025	4.47E-08	9.84E-09	2.27E-06	0.025
Chrysene*	0.025	9.50E-08	2.09E-08	1.10E-05	0.025
Dibenzo(a,h)anthracene*	0.025	1.24E-07	2.72E-08	1.45E-05	0.025
Indeno(1,2,3-c,d)pyrene*	0.025	7.86E-08	1.73E-08	9.50E-06	0.025

^a maximum measured baseline soil concentration.^b the maximum wet/dry deposition rate of all modelled locations.^c the maximum incremental soil concentration of all modelled locations.^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

*there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical method detection limit (typical method detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

mg/kg = milligram per kilogram; g/m²/y = gram per square metre per year.

Prepared by: SG

Checked by: TMG

Table 10.1-A-2d: Estimation of Soil Concentrations - Scenario 4

Chemical	Baseline Soil Concentration ^a (mg/kg)	Wet Deposition Rate ^b (g/m ² /y)	Dry Deposition Rate ^b (g/m ² /y)	Incremental Soil Concentration ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)
Total Metals					
Aluminum (Al)	9670	1.51E-02	3.96E-02	2.37E+01	9694
Antimony (Sb)	0.113	8.49E-07	2.24E-06	1.34E-03	0.114
Arsenic (As)	59.9	2.41E-05	6.34E-05	3.79E-02	60
Barium (Ba)	119	8.48E-05	2.23E-04	1.34E-01	119
Beryllium (Be)	3.71	1.58E-07	4.16E-07	2.49E-04	3.71
Bismuth (Bi)	0.15	4.34E-08	1.14E-07	6.83E-05	0.15
Cadmium (Cd)	0.8	9.69E-05	2.15E-05	5.13E-02	0.85
Calcium (Ca)	26 700	8.57E-03	2.26E-02	1.35E+01	26 713
Chromium (Cr)	51.3	5.22E-05	9.86E-05	6.53E-02	51.4
Cobalt (Co)	45	5.81E-06	1.53E-05	9.15E-03	45
Copper (Cu)	72	1.54E-05	4.05E-05	2.42E-02	72
Gold (Au)**	0.005	1.68E-08	4.42E-08	2.64E-05	0.005
Iron (Fe)	21 300	1.65E-02	4.34E-02	2.60E+01	21 326
Lead (Pb)	10	1.87E-05	1.04E-05	1.26E-02	10
Lithium (Li)	13.1	7.01E-06	1.85E-05	1.10E-02	13.1
Magnesium (Mg)	7080	4.55E-03	1.20E-02	7.16E+00	7087
Manganese (Mn)	425	1.71E-04	4.50E-04	2.69E-01	425
Molybdenum (Mo)	7	2.60E-07	6.85E-07	4.10E-04	7.0
Nickel (Ni)	48	1.51E-05	3.97E-05	2.37E-02	48
Potassium (K)	2670	2.88E-03	7.58E-03	4.53E+00	2675
Selenium (Se)	1.2	2.59E-07	6.84E-07	4.09E-04	1.2
Silver (Ag)	0.5	6.38E-08	1.68E-07	1.01E-04	0.50
Sodium (Na)	320	3.43E-03	9.05E-03	5.41E+00	325
Strontium (Sr)	195	4.59E-05	1.21E-04	7.23E-02	195
Thallium (Tl)	0.5	6.63E-08	1.75E-07	1.04E-04	0.50
Tin (Sn)	2.5	2.34E-07	6.16E-07	3.68E-04	2.5
Titanium (Ti)	945	7.56E-04	1.99E-03	1.19E+00	946
Uranium (U)	1.97	2.11E-07	5.56E-07	3.32E-04	1.97
Vanadium (V)	39	2.78E-05	7.32E-05	4.38E-02	39
Yttrium (Y)**	23	2.05E-06	5.40E-06	3.23E-03	23
Zinc (Zn)	70	1.35E-04	8.21E-05	9.39E-02	70
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene*	0.025	1.78E-07	3.92E-08	2.17E-05	0.025
Naphthalene*	0.025	7.03E-05	1.55E-05	8.58E-03	0.034
Phenanthrene*	0.025	5.81E-06	1.28E-06	7.09E-04	0.026
Anthracene*	0.025	6.48E-07	1.43E-07	7.90E-05	0.025
Fluorene*	0.025	2.83E-06	6.24E-07	3.46E-04	0.025
Pyrene*	0.025	2.12E-06	4.68E-07	1.36E-04	0.025
Thiophene*	0.025	3.68E-08	8.11E-09	1.95E-05	0.025
Benzo(a)anthracene*	0.025	8.43E-08	1.86E-08	1.02E-05	0.025
Acenaphthene*	0.025	5.46E-07	1.20E-07	6.66E-05	0.025
Acenaphthylene*	0.025	1.98E-06	4.37E-07	1.05E-03	0.026
Fluoranthene*	0.025	2.11E-06	4.65E-07	2.57E-04	0.025
Benzo(b)fluoranthene*	0.025	3.92E-07	8.63E-08	4.76E-05	0.025
Benzo(g,h,i)perylene*	0.025	7.44E-09	1.64E-09	3.94E-06	0.025
Benzo(k)fluoranthene*	0.025	4.45E-08	9.82E-09	2.26E-06	0.025
Chrysene*	0.025	9.47E-08	2.09E-08	1.10E-05	0.025
Dibenzo(a,h)anthracene*	0.025	1.23E-07	2.72E-08	1.45E-05	0.025
Indeno(1,2,3-c,d)pyrene*	0.025	7.84E-08	1.73E-08	9.47E-06	0.025

^a maximum measured baseline soil concentration.^b the maximum wet/dry deposition rate of all modelled locations.^c the maximum incremental soil concentration of all modelled locations.^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

*there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical method detection limit (typical method detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

mg/kg = milligram per kilogram; g/m²/y = gram per square metre per year.Prepared by: SG
Checked by: TMG

Table 10.1-A-2e: Estimation of Soil Concentrations - Scenario 5

Chemical	Baseline Soil Concentration ^a (mg/kg)	Wet Deposition Rate ^b (g/m ² /y)	Dry Deposition Rate ^b (g/m ² /y)	Incremental Soil Concentration ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)
Total Metals					
Aluminum (Al)	9670	2.64E-02	1.08E-01	5.84E+01	9728
Antimony (Sb)	0.113	1.49E-06	6.13E-06	3.30E-03	0.12
Arsenic (As)	59.9	4.23E-05	1.74E-04	9.37E-02	60
Barium (Ba)	119	1.49E-04	6.13E-04	3.30E-01	119
Beryllium (Be)	3.71	2.77E-07	1.14E-06	6.14E-04	3.71
Bismuth (Bi)	0.15	7.62E-08	3.13E-07	1.69E-04	0.15
Cadmium (Cd)	0.8	9.75E-05	2.16E-05	5.16E-02	0.85
Calcium (Ca)	26 700	1.51E-02	6.19E-02	3.34E+01	26 733
Chromium (Cr)	51.3	6.54E-05	2.62E-04	1.42E-01	51.4
Cobalt (Co)	45	1.02E-05	4.20E-05	2.26E-02	45
Copper (Cu)	72	2.70E-05	1.11E-04	5.98E-02	72
Gold (Au)**	0.005	2.95E-08	1.21E-07	6.54E-05	0.005
Iron (Fe)	21 300	2.90E-02	1.19E-01	6.42E+01	21 364
Lead (Pb)	10	1.91E-05	2.01E-05	1.70E-02	10
Lithium (Li)	13.1	1.23E-05	5.06E-05	2.73E-02	13.1
Magnesium (Mg)	7080	7.99E-03	3.28E-02	1.77E+01	7098
Manganese (Mn)	425	3.00E-04	1.23E-03	6.65E-01	426
Molybdenum (Mo)	7	4.57E-07	1.88E-06	1.01E-03	7.0
Nickel (Ni)	48	2.65E-05	1.09E-04	5.87E-02	48
Potassium (K)	2670	5.06E-03	2.08E-02	1.12E+01	2681
Selenium (Se)	1.2	4.56E-07	1.88E-06	1.01E-03	1.2
Silver (Ag)	0.5	1.12E-07	4.61E-07	2.49E-04	0.50
Sodium (Na)	320	6.04E-03	2.48E-02	1.34E+01	333
Strontium (Sr)	195	8.07E-05	3.32E-04	1.79E-01	195
Thallium (Tl)	0.5	1.17E-07	4.79E-07	2.58E-04	0.50
Tin (Sn)	2.5	4.11E-07	1.69E-06	9.10E-04	2.5
Titanium (Ti)	945	1.33E-03	5.46E-03	2.94E+00	948
Uranium (U)	1.97	3.71E-07	1.52E-06	8.21E-04	1.97
Vanadium (V)	39	4.89E-05	2.01E-04	1.08E-01	39
Yttrium (Y)**	23	3.61E-06	1.48E-05	7.99E-03	23
Zinc (Zn)	70	1.38E-04	1.67E-04	1.32E-01	70
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene*	0.025	1.79E-07	3.94E-08	2.18E-05	0.025
Naphthalene*	0.025	7.07E-05	1.56E-05	8.63E-03	0.034
Phenanthrene*	0.025	5.84E-06	1.29E-06	7.13E-04	0.026
Anthracene*	0.025	6.52E-07	1.44E-07	7.95E-05	0.025
Fluorene*	0.025	2.85E-06	6.28E-07	3.48E-04	0.025
Pyrene*	0.025	2.14E-06	4.70E-07	1.37E-04	0.025
Thiophene*	0.025	3.70E-08	8.16E-09	1.96E-05	0.025
Benzo(a)anthracene*	0.025	8.48E-08	1.87E-08	1.03E-05	0.025
Acenaphthene*	0.025	5.49E-07	1.21E-07	6.70E-05	0.025
Acenaphthylene*	0.025	2.00E-06	4.39E-07	1.06E-03	0.026
Fluoranthene*	0.025	2.12E-06	4.68E-07	2.59E-04	0.025
Benzo(b)fluoranthene*	0.025	3.94E-07	8.68E-08	4.79E-05	0.025
Benzo(g,h,i)perylene*	0.025	7.49E-09	1.65E-09	3.96E-06	0.025
Benzo(k)fluoranthene*	0.025	4.48E-08	9.87E-09	2.28E-06	0.025
Chrysene*	0.025	9.54E-08	2.10E-08	1.10E-05	0.025
Dibenzo(a,h)anthracene*	0.025	1.24E-07	2.73E-08	1.46E-05	0.025
Indeno(1,2,3-c,d)pyrene*	0.025	7.89E-08	1.74E-08	9.53E-06	0.025

^a maximum measured baseline soil concentration.^b the maximum wet/dry deposition rate of all modelled locations.^c the maximum incremental soil concentration of all modelled locations.^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

*there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical method detection limit (typical method detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

mg/kg = milligram per kilogram; g/m²/y = gram per square metre per year.

Prepared by: SG

Checked by: TMG

Table 10.1-A-2f: Estimation of Soil Concentrations - Scenario 6

Chemical	Baseline Soil Concentration ^a (mg/kg)	Wet Deposition Rate ^b (g/m ² /y)	Dry Deposition Rate ^b (g/m ² /y)	Incremental Soil Concentration ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)
Total Metals					
Aluminum (Al)	9670	1.34E-02	3.81E-02	2.23E+01	9692
Antimony (Sb)	0.113	7.53E-07	2.15E-06	1.26E-03	0.114
Arsenic (As)	59.9	2.14E-05	6.11E-05	3.57E-02	60
Barium (Ba)	119	7.52E-05	2.15E-04	1.26E-01	119
Beryllium (Be)	3.71	1.40E-07	4.00E-07	2.34E-04	3.71
Bismuth (Bi)	0.15	3.85E-08	1.10E-07	6.43E-05	0.15
Cadmium (Cd)	0.8	9.69E-05	2.15E-05	5.13E-02	0.85
Calcium (Ca)	26 700	7.60E-03	2.17E-02	1.27E+01	26 713
Chromium (Cr)	51.3	4.81E-05	9.50E-05	6.20E-02	51.4
Cobalt (Co)	45	5.15E-06	1.47E-05	8.62E-03	45
Copper (Cu)	72	1.36E-05	3.90E-05	2.28E-02	72
Gold (Au)**	0.005	1.49E-08	4.26E-08	2.49E-05	0.005
Iron (Fe)	21 300	1.46E-02	4.18E-02	2.44E+01	21 324
Lead (Pb)	10	1.84E-05	1.01E-05	1.24E-02	10
Lithium (Li)	13.1	6.22E-06	1.78E-05	1.04E-02	13.1
Magnesium (Mg)	7080	4.03E-03	1.15E-02	6.74E+00	7087
Manganese (Mn)	425	1.52E-04	4.33E-04	2.53E-01	425
Molybdenum (Mo)	7	2.31E-07	6.60E-07	3.86E-04	7.0
Nickel (Ni)	48	1.34E-05	3.82E-05	2.24E-02	48
Potassium (K)	2670	2.55E-03	7.29E-03	4.27E+00	2674
Selenium (Se)	1.2	2.30E-07	6.58E-07	3.85E-04	1.2
Silver (Ag)	0.5	5.66E-08	1.62E-07	9.47E-05	0.50
Sodium (Na)	320	3.05E-03	8.71E-03	5.10E+00	325
Strontium (Sr)	195	4.07E-05	1.16E-04	6.81E-02	195
Thallium (Tl)	0.5	5.88E-08	1.68E-07	9.83E-05	0.50
Tin (Sn)	2.5	2.07E-07	5.93E-07	3.47E-04	2.5
Titanium (Ti)	945	6.70E-04	1.92E-03	1.12E+00	946
Uranium (U)	1.97	1.87E-07	5.35E-07	3.13E-04	1.97
Vanadium (V)	39	2.47E-05	7.05E-05	4.12E-02	39
Yttrium (Y)**	23	1.82E-06	5.20E-06	3.04E-03	23
Zinc (Zn)	70	1.32E-04	7.99E-05	9.19E-02	70
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene*	0.025	1.78E-07	3.91E-08	2.16E-05	0.025
Naphthalene*	0.025	7.03E-05	1.55E-05	8.57E-03	0.034
Phenanthrene*	0.025	5.80E-06	1.28E-06	7.08E-04	0.026
Anthracene*	0.025	6.47E-07	1.43E-07	7.90E-05	0.025
Fluorene*	0.025	2.83E-06	6.24E-07	3.46E-04	0.025
Pyrene*	0.025	2.12E-06	4.67E-07	1.36E-04	0.025
Thiophene*	0.025	3.68E-08	8.11E-09	1.95E-05	0.025
Benzo(a)anthracene*	0.025	8.42E-08	1.86E-08	1.02E-05	0.025
Acenaphthene*	0.025	5.46E-07	1.20E-07	6.66E-05	0.025
Acenaphthylene*	0.025	1.98E-06	4.37E-07	1.05E-03	0.026
Fluoranthene*	0.025	2.11E-06	4.65E-07	2.57E-04	0.025
Benzo(b)fluoranthene*	0.025	3.91E-07	8.63E-08	4.76E-05	0.025
Benzo(g,h,i)perylene*	0.025	7.44E-09	1.64E-09	3.93E-06	0.025
Benzo(k)fluoranthene*	0.025	4.45E-08	9.82E-09	2.26E-06	0.025
Chrysene*	0.025	9.47E-08	2.09E-08	1.10E-05	0.025
Dibenzo(a,h)anthracene*	0.025	1.23E-07	2.72E-08	1.45E-05	0.025
Indeno(1,2,3-c,d)pyrene*	0.025	7.83E-08	1.73E-08	9.46E-06	0.025

^a maximum measured baseline soil concentration^b the maximum wet/dry deposition rate of all modelled locations.^c the maximum incremental soil concentration of all modelled locations.^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

*there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical method detection limit (typical method detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

mg/kg = milligram per kilogram; g/m²/y = gram per square metre per year.

Prepared by: SG

Checked by: TMG

Table 10.1-A-3a: Soil Screening - Scenario 1

Chemical	CCME SQG _E ^a (mg/kg)	USEPA Eco-SSL ^b (mg/kg)	Baseline Soil Concentration + 10% ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)	COPC? ^e	Rationale
Total Metals						
Aluminum (Al)	NV	NV	10 637	9697	No	NG, < B + 10%
Antimony (Sb)	NV	0.27	0.12	0.11	No	< G/SL
Arsenic (As)	17	--	66	60	No	< B + 10%
Barium (Ba)	NV	2000	131	119	No	< G/SL
Beryllium (Be)	NV	21	4.1	3.7	No	< G/SL
Bismuth (Bi)	NV	NV	0.17	0.15	No	NG, < B + 10%
Cadmium (Cd)	10	--	0.88	0.85	No	< G/SL
Calcium (Ca)	NV	NV	29 370	26 715	No	NG, < B + 10%
Chromium (Cr)	64	--	56	51	No	< G/SL
Cobalt (Co)	NV	120	50	45	No	< G/SL
Copper (Cu)	63	--	79	72	No	< B + 10%
Gold (Au)**	NV	NV	0.006	0.005	No	NG, < B + 10%
Iron (Fe)	NV	NV	23 430	21 329	No	NG, < B + 10%
Lead (Pb)	300	--	11	10	No	< G/SL
Lithium (Li)	NV	NV	14	13	No	NG, < B + 10%
Magnesium (Mg)	NV	NV	7788	7088	No	NG, < B + 10%
Manganese (Mn)	NV	4000	468	425	No	< G/SL
Molybdenum (Mo)	NV	NV	7.7	7.0	No	NG, < B + 10%
Nickel (Ni)	50	--	53	48	No	< G/SL
Potassium (K)	NV	NV	2937	2675	No	NG, < B + 10%
Selenium (Se)	1	--	1.3	1.2	No	< B + 10%
Silver (Ag)	NV	4.2	0.55	0.50	No	< G/SL
Sodium (Na)	NV	NV	352	326	No	NG, < B + 10%
Strontium (Sr)	NV	NV	215	195	No	< B + 10%
Thallium (Tl)	1.4	--	0.55	0.50	No	< G/SL
Tin (Sn)	NV	NV	2.8	2.5	No	NG, < B + 10%
Titanium (Ti)	NV	NV	1040	946	No	NG, < B + 10%
Uranium (U)	500	--	2.2	2.0	No	< G/SL
Vanadium (V)	130	--	43	39	No	< G/SL
Yttrium (Y)**	NV	NV	25	23	No	NG, < B + 10%
Zinc (Zn)	200	--	77	70	No	< G/SL
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene*	20	--	0.028	0.025	No	< G/SL
Naphthalene*	8.8 ^f	--	0.028	0.034	No	< G/SL
Phenanthrene*	43 ^f	--	0.028	0.026	No	< G/SL
Anthracene*	2.5	--	0.028	0.025	No	< G/SL
Fluorene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HWM PAHs
Pyrene*	10	--	0.028	0.025	No	< G/SL
Thiophene*	NV	NV	0.028	0.025	No	< B + 10%
Benzo(a)anthracene*	1	--	0.028	0.025	No	< G/SL
Acenaphthene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HWM PAHs
Acenaphthylene*	NV	see Eco-SSL for HWM PAHs	0.028	0.026	No	see rationale for HWM PAHs
Fluoranthene*	50	--	0.028	0.025	No	< G/SL
Benzo(b)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Benzo(g,h,i)perylene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Benzo(k)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Chrysene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Dibenzo(a,h)anthracene*	1	--	0.028	0.025	No	< G/SL
Indeno(1,2,3-c,d)pyrene*	1	--	0.028	0.025	No	< G/SL
LMW PAHs	NV	100 ^g	0.25	0.23	No	< G/SL
HWM PAHs	NV	1.1 ^g	0.19	0.19	No	< G/SL

^a Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental Health (SQG_E) (CCME 2012a, internet site) for residential/parkland land use.

^b United States Environmental Protection Agency (USEPA) Ecological Soil Screening Levels (Eco-SSLs) (Avian and Mammalian) (USEPA 2012a, internet site). The lower of the avian and mammalian Eco-SSL was chosen as the screening level.

^c maximum measured baseline soil concentration + 10%.

^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

^e yes = the predicted soil concentration is greater than the guideline/screening level and the maximum measured baseline soil concentration +10%, and, therefore, the chemical was identified as a COPC; No = the predicted soil concentration is less than the guideline/screening level and/or maximum measured baseline soil concentration +10%, and, therefore, the chemical was not identified as a COPC.

^f SQG for soil and food ingestion.

^g low molecular weight PAHs includes those with less than 4 rings (i.e., acenaphthene, acenaphthylene, fluoranthene, anthracene, fluorene, naphthalene and phenanthrene). High molecular weight PAHs includes those with 4 or more rings (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene and pyrene).

NV = no value; CCME = Canadian Council of Ministers of the Environment; SQG_E = Canadian Soil Quality Guidelines for the Protection of Environmental Health; COPC = chemical of potential concern; mg/kg = milligram per kilogram; -- = value not required; < = less than; B = maximum measured baseline soil concentration + 10%; G/SL = CCME SQG_E/USEPA Eco-SSL; NG = no guideline.

^h there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical method detection limit (typical method detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

ⁱ there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

Prepared by: SG
Checked by: TGM

Table 10.1-A-3b: Soil Screening - Scenario 2

Chemical	CCME SQG ^a (mg/kg)	USEPA Eco-SSL ^b (mg/kg)	Baseline Soil Concentration + 10% ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)	COPC? ^e	Rationale
Total Metals						
Aluminum (Al)	NV	NV	10 637	9714	No	NG, < B + 10%
Antimony (Sb)	NV	0.27	0.12	0.12	No	< G/SL
Arsenic (As)	17	--	66	60	No	< B + 10%
Barium (Ba)	NV	2000	131	119	No	< G/SL
Beryllium (Be)	NV	21	4.1	3.7	No	< G/SL
Bismuth (Bi)	NV	NV	0.17	0.15	No	NG, < B + 10%
Cadmium (Cd)	10	--	0.88	0.85	No	< G/SL
Calcium (Ca)	NV	NV	29 370	26 725	No	NG, < B + 10%
Chromium (Cr)	64	--	56	51	No	< G/SL
Cobalt (Co)	NV	120	50	45	No	< G/SL
Copper (Cu)	63	--	79	72	No	< B + 10%
Gold (Au)**	NV	NV	0.006	0.005	No	NG, < B + 10%
Iron (Fe)	NV	NV	23 430	21 348	No	NG, < B + 10%
Lead (Pb)	300	--	11	10	No	< G/SL
Lithium (Li)	NV	NV	14	13	No	NG, < B + 10%
Magnesium (Mg)	NV	NV	7788	7093	No	NG, < B + 10%
Manganese (Mn)	NV	4000	468	426	No	< G/SL
Molybdenum (Mo)	NV	NV	7.7	7.0	No	NG, < B + 10%
Nickel (Ni)	50	--	53	48	No	< G/SL
Potassium (K)	NV	NV	2937	2679	No	NG, < B + 10%
Selenium (Se)	1	--	1.3	1.2	No	< B + 10%
Silver (Ag)	NV	4.2	0.55	0.50	No	< G/SL
Sodium (Na)	NV	NV	352	330	No	NG, < B + 10%
Strontium (Sr)	NV	NV	215	195	No	NG, < B + 10%
Thallium (Tl)	1.4	--	0.55	0.50	No	< G/SL
Tin (Sn)	NV	NV	2.8	2.5	No	NG, < B + 10%
Titanium (Ti)	NV	NV	1040	947	No	NG, < B + 10%
Uranium (U)	500	--	2.2	2.0	No	< G/SL
Vanadium (V)	130	--	43	39	No	< G/SL
Yttrium (Y)**	NV	NV	25	23	No	NG, < B + 10%
Zinc (Zn)	200	--	77	70	No	< G/SL
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene*	20	--	0.028	0.025	No	< G/SL
Naphthalene*	8.8 ^f	--	0.028	0.034	No	< G/SL
Phenanthrene*	43 ^f	--	0.028	0.026	No	< G/SL
Anthracene*	2.5	--	0.028	0.025	No	< G/SL
Fluorene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Pyrene*	10	--	0.028	0.025	No	< G/SL
Thiophene*	NV	NV	0.028	0.025	No	< B + 10%
Benzo(a)anthracene*	1	--	0.028	0.025	No	< G/SL
Acenaphthene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Acenaphthylene*	NV	see Eco-SSL for HWM PAHs	0.028	0.026	No	see rationale for HMW PAHs
Fluoranthene*	50	--	0.028	0.025	No	< G/SL
Benzo(b)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Benzo(g,h,i)perylene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Benzo(k)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Chrysene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Dibenzo(a,h)anthracene*	1	--	0.028	0.025	No	< G/SL
Indeno(1,2,3-c,d)pyrene*	1	--	0.028	0.025	No	< G/SL
LMW PAHs	NV	100 ^g	0.25	0.23	No	< G/SL
HMW PAHs	NV	1.1 ^g	0.19	0.19	No	< G/SL

^a Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental Health (SQG_E) (CCME 2012a, internet site) for residential/parkland land use.

^b United States Environmental Protection Agency (USEPA) Ecological Soil Screening Levels (Eco-SSLs) (Avian and Mammalian) (USEPA 2012a, internet site). The lower of the avian and mammalian Eco-SSL was chosen as the screening level.

^c maximum measured baseline soil concentration + 10%.

^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

^e yes = the predicted soil concentration is greater than the guideline/screening level and the maximum measured baseline soil concentration +10%, and, therefore, the chemical was identified as a COPC; No = the predicted soil concentration is less than the guideline/screening level and/or maximum measured baseline soil concentration +10%, and, therefore, the chemical was not identified as a COPC.

^f SQG for soil and food ingestion.

concern: mg/kg = milligram per kilogram; -- = value not required; < = less than; B = maximum measured baseline soil concentration + 10%; G/SL = CCME SQG_E/USEPA Eco-SSL; NG = no guideline.

^g low molecular weight PAHs includes those with less than 4 rings (i.e., acenaphthene, acenaphthylene, fluoranthene, anthracene, fluorene, naphthalene and phenanthrene). High molecular weight PAHs includes those with 4 or more rings (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene and pyrene).

there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical medium detection limit (typical medium detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

Prepared by: SG

Checked by: TMG

Table 10.1-A-3c: Soil Screening - Scenario 3

Chemical	CCME SQG ^a (mg/kg)	USEPA Eco-SSL ^b (mg/kg)	Baseline Soil Concentration + 10% ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)	COPC? ^e	Rationale
Total Metals						
Aluminum (Al)	NV	NV	10 637	9703	No	NG, < B + 10%
Antimony (Sb)	NV	0.27	0.12	0.11	No	< G/SL
Arsenic (As)	17	--	66	60	No	< B + 10%
Barium (Ba)	NV	2000	131	119	No	< G/SL
Beryllium (Be)	NV	21	4.1	3.7	No	< G/SL
Bismuth (Bi)	NV	NV	0.17	0.15	No	NG, < B + 10%
Cadmium (Cd)	10	--	0.88	0.85	No	< G/SL
Calcium (Ca)	NV	NV	29 370	26 718	No	NG, < B + 10%
Chromium (Cr)	64	--	56	51	No	< G/SL
Cobalt (Co)	NV	120	50	45	No	< G/SL
Copper (Cu)	63	--	79	72	No	< B + 10%
Gold (Au)**	NV	NV	0.006	0.005	No	NG, < B + 10%
Iron (Fe)	NV	NV	23 430	21 335	No	NG, < B + 10%
Lead (Pb)	300	--	11	10	No	< G/SL
Lithium (Li)	NV	NV	14	13	No	NG, < B + 10%
Magnesium (Mg)	NV	NV	7788	7090	No	NG, < B + 10%
Manganese (Mn)	NV	4000	468	425	No	< G/SL
Molybdenum (Mo)	NV	NV	7.7	7.0	No	NG, < B + 10%
Nickel (Ni)	50	--	53	48	No	< G/SL
Potassium (K)	NV	NV	2937	2676	No	NG, < B + 10%
Selenium (Se)	1	--	1.3	1.2	No	< B + 10%
Silver (Ag)	NV	4.2	0.55	0.50	No	< G/SL
Sodium (Na)	NV	NV	352	328	No	NG, < B + 10%
Strontium (Sr)	NV	NV	215	195	No	NG, < B + 10%
Thallium (Tl)	1.4	--	0.55	0.50	No	< G/SL
Tin (Sn)	NV	NV	2.8	2.5	No	NG, < B + 10%
Titanium (Ti)	NV	NV	1040	947	No	NG, < B + 10%
Uranium (U)	500	--	2.2	2.0	No	< G/SL
Vanadium (V)	130	--	43	39	No	< G/SL
Yttrium (Y)**	NV	NV	25	23	No	NG, < B + 10%
Zinc (Zn)	200	--	77	70	No	< G/SL
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene*	20	--	0.028	0.025	No	< G/SL
Naphthalene*	8.8 ^f	--	0.028	0.034	No	< G/SL
Phenanthrene*	43 ^f	--	0.028	0.026	No	< G/SL
Anthracene*	2.5	--	0.028	0.025	No	< G/SL
Fluorene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Pyrene*	10	--	0.028	0.025	No	< G/SL
Thiophene*	NV	NV	0.028	0.025	No	< B + 10%
Benzo(a)anthracene*	1	--	0.028	0.025	No	< G/SL
Acenaphthene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Acenaphthylene*	NV	see Eco-SSL for HWM PAHs	0.028	0.026	No	see rationale for HMW PAHs
Fluoranthene*	50	--	0.028	0.025	No	< G/SL
Benzo(b)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Benzo(g,h,i)perylene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Benzo(k)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Chrysene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Dibenzo(a,h)anthracene*	1	--	0.028	0.025	No	< G/SL
Indeno(1,2,3-c,d)pyrene*	1	--	0.028	0.025	No	< G/SL
LMW PAHs	NV	100 ^g	0.25	0.23	No	< G/SL
HMW PAHs	NV	1.1 ^g	0.19	0.19	No	< G/SL

^a Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental Health (SQG_E) (CCME 2012a, internet site) for residential/parkland land use.

^b United States Environmental Protection Agency (USEPA) Ecological Soil Screening Levels (Eco-SSLs) (Avian and Mammalian) (USEPA 2012a, internet site). The lower of the avian and mammalian Eco-SSL was chosen as the screening level.

^c maximum measured baseline soil concentration + 10%.

^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

^e yes = the predicted soil concentration is greater than the guideline/screening level and the maximum measured baseline soil concentration +10%, and, therefore, the chemical was identified as a COPC; No = the predicted soil concentration is less than the guideline/screening level and/or maximum measured baseline soil concentration +10%, and, therefore, the chemical was not identified as a COPC.

^f SQG for soil and food ingestion.

concern; mg/kg = milligram per kilogram; -- = value not required; < = less than; B = maximum measured baseline soil concentration + 10%; G/SL = CCME SQG_E/USEPA Eco-SSL; NG = no guideline.

^g low molecular weight PAHs includes those with less than 4 rings (i.e., acenaphthene, acenaphthylene, fluoranthene, anthracene, fluorene, naphthalene and phenanthrene). High molecular weight PAHs includes those with 4 or more rings (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene).

there is no measured baseline soil concentration for this parameter. the predicted soil concentration is shown as the sum of 1/2 the typical medium detection limit (typical medium detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

Prepared by: SG
Checked by: TMG

Table 10.1-A-3d: Soil Screening - Scenario 4

Chemical	CCME SQG ^a (mg/kg)	USEPA Eco-SSL ^b (mg/kg)	Baseline Soil Concentration + 10% ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)	COPC? ^e	Rationale
Total Metals						
Aluminum (Al)	NV	NV	10 637	9694	No	NG, < B + 10%
Antimony (Sb)	NV	0.27	0.12	0.11	No	< G/SL
Arsenic (As)	17	--	66	60	No	< B + 10%
Barium (Ba)	NV	2000	131	119	No	< G/SL
Beryllium (Be)	NV	21	4.1	3.7	No	< G/SL
Bismuth (Bi)	NV	NV	0.17	0.15	No	NG, < B + 10%
Cadmium (Cd)	10	--	0.88	0.85	No	< G/SL
Calcium (Ca)	NV	NV	29 370	26 713	No	NG, < B + 10%
Chromium (Cr)	64	--	56	51	No	< G/SL
Cobalt (Co)	NV	120	50	45	No	< G/SL
Copper (Cu)	63	--	79	72	No	< B + 10%
Gold (Au)**	NV	NV	0.006	0.005	No	NG, < B + 10%
Iron (Fe)	NV	NV	23 430	21 325	No	NG, < B + 10%
Lead (Pb)	300	--	11	10	No	< G/SL
Lithium (Li)	NV	NV	14	13	No	NG, < B + 10%
Magnesium (Mg)	NV	NV	7788	7087	No	NG, < B + 10%
Manganese (Mn)	NV	4000	468	425	No	< G/SL
Molybdenum (Mo)	NV	NV	7.7	7.0	No	NG, < B + 10%
Nickel (Ni)	50	--	53	48	No	< G/SL
Potassium (K)	NV	NV	2937	2675	No	NG, < B + 10%
Selenium (Se)	1	--	1.3	1.2	No	< B + 10%
Silver (Ag)	NV	4.2	0.55	0.50	No	< G/SL
Sodium (Na)	NV	NV	352	325	No	NG, < B + 10%
Strontium (Sr)	NV	NV	215	195	No	NG, < B + 10%
Thallium (Tl)	1.4	--	0.55	0.50	No	< G/SL
Tin (Sn)	NV	NV	2.8	2.5	No	NG, < B + 10%
Titanium (Ti)	NV	NV	1040	946	No	NG, < B + 10%
Uranium (U)	500	--	2.2	2.0	No	< G/SL
Vanadium (V)	130	--	43	39	No	< G/SL
Yttrium (Y)**	NV	NV	25	23	No	NG, < B + 10%
Zinc (Zn)	200	--	77	70	No	< G/SL
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene*	20	--	0.028	0.025	No	< G/SL
Naphthalene*	8.8 ^f	--	0.028	0.034	No	< G/SL
Phenanthrene*	43 ^f	--	0.028	0.026	No	< G/SL
Anthracene*	2.5	--	0.028	0.025	No	< G/SL
Fluorene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Pyrene*	10	--	0.028	0.025	No	< G/SL
Thiophene*	NV	NV	0.028	0.025	No	< B + 10%
Benzo(a)anthracene*	1	--	0.028	0.025	No	< G/SL
Acenaphthene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Acenaphthylene*	NV	see Eco-SSL for HWM PAHs	0.028	0.026	No	see rationale for HMW PAHs
Fluoranthene*	50	--	0.028	0.025	No	< G/SL
Benzo(b)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Benzo(g,h,i)perylene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Benzo(k)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Chrysene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Dibenzo(a,h)anthracene*	1	--	0.028	0.025	No	< G/SL
Indeno(1,2,3-c,d)pyrene*	1	--	0.028	0.025	No	< G/SL
LMW PAHs	NV	100 ^g	0.25	0.23	No	< G/SL
HMW PAHs	NV	1.1 ^g	0.19	0.19	No	< G/SL

^a Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental Health (SQG_E) (CCME 2012a, internet site) for residential/parkland land use.

^b United States Environmental Protection Agency (USEPA) Ecological Soil Screening Levels (Eco-SSLs) (Avian and Mammalian) (USEPA 2012a, internet site). The lower of the avian and mammalian Eco-SSL was chosen as the screening level.

^c maximum measured baseline soil concentration + 10%.

^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

^e yes = the predicted soil concentration is greater than the guideline/screening level and the maximum measured baseline soil concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted soil concentration is less than the guideline/screening level and/or maximum measured baseline soil concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f SQG for soil and food ingestion.

^g low molecular weight PAHs includes those with less than 4 rings (i.e., acenaphthene, acenaphthylene, fluoranthene, anthracene, fluorene, naphthalene and phenanthrene). High molecular weight PAHs includes those with 4 or more rings (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene and pyrene).

NV = no value; CCME = Canadian Council of Ministers of the Environment; SQG_E = Canadian Soil Quality Guidelines for the Protection of Environmental Health; COPC = chemical of potential concern; mg/kg = milligram per kilogram; -- = value not required; < = less than; B = maximum measured baseline soil concentration + 10%; G/SL = CCME SQG_E/USEPA Eco-SSL; NG = no there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical medium detection limit (typical medium detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

Prepared by: SG

Checked by: TMG

Table 10.1-A-3e: Soil Screening - Scenario 5

Chemical	CCME SQG _E ^a (mg/kg)	USEPA Eco-SSL ^b (mg/kg)	Baseline Soil Concentration + 10% ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)	COPC? ^e	Rationale
Total Metals						
Aluminum (Al)	NV	NV	10 637	9728	No	NG, < B + 10%
Antimony (Sb)	NV	0.27	0.12	0.12	No	< G/SL
Arsenic (As)	17	--	66	60	No	< B + 10%
Barium (Ba)	NV	2000	131	119	No	< G/SL
Beryllium (Be)	NV	21	4.1	3.7	No	< G/SL
Bismuth (Bi)	NV	NV	0.17	0.15	No	NG, < B + 10%
Cadmium (Cd)	10	--	0.88	0.85	No	< G/SL
Calcium (Ca)	NV	NV	29 370	26 733	No	NG, < B + 10%
Chromium (Cr)	64	--	56	51	No	< G/SL
Cobalt (Co)	NV	120	50	45	No	< G/SL
Copper (Cu)	63	--	79	72	No	< B + 10%
Gold (Au)**	NV	NV	0.006	0.005	No	NG, < B + 10%
Iron (Fe)	NV	NV	23 430	21 364	No	NG, < B + 10%
Lead (Pb)	300	--	11	10	No	< G/SL
Lithium (Li)	NV	NV	14	13	No	NG, < B + 10%
Magnesium (Mg)	NV	NV	7788	7098	No	NG, < B + 10%
Manganese (Mn)	NV	4000	468	426	No	< G/SL
Molybdenum (Mo)	NV	NV	7.7	7.0	No	NG, < B + 10%
Nickel (Ni)	50	--	53	48	No	< G/SL
Potassium (K)	NV	NV	2937	2681	No	NG, < B + 10%
Selenium (Se)	1	--	1.3	1.2	No	< B + 10%
Silver (Ag)	NV	4.2	0.55	0.50	No	< G/SL
Sodium (Na)	NV	NV	352	333	No	NG, < B + 10%
Strontium (Sr)	NV	NV	215	195	No	NG, < B + 10%
Thallium (Tl)	1.4	--	0.55	0.50	No	< G/SL
Tin (Sn)	NV	NV	2.8	2.5	No	NG, < B + 10%
Titanium (Ti)	NV	NV	1040	948	No	NG, < B + 10%
Uranium (U)	500	--	2.2	2.0	No	< G/SL
Vanadium (V)	130	--	43	39	No	< G/SL
Yttrium (Y)**	NV	NV	25	23	No	NG, < B + 10%
Zinc (Zn)	200	--	77	70	No	< G/SL
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene*	20	--	0.028	0.025	No	< G/SL
Naphthalene*	8.8 ^f	--	0.028	0.034	No	< G/SL
Phenanthrene*	43 ^f	--	0.028	0.026	No	< G/SL
Anthracene*	2.5	--	0.028	0.025	No	< G/SL
Fluorene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Pyrene*	10	--	0.028	0.025	No	< G/SL
Thiophene*	NV	NV	0.028	0.025	No	< B + 10%
Benzo(a)anthracene*	1	--	0.028	0.025	No	< G/SL
Acenaphthene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Acenaphthylene*	NV	see Eco-SSL for HWM PAHs	0.028	0.026	No	see rationale for HMW PAHs
Fluoranthene*	50	--	0.028	0.025	No	< G/SL
Benzo(b)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Benzo(g,h,i)perylene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Benzo(k)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Chrysene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Dibenzo(a,h)anthracene*	1	--	0.028	0.025	No	< G/SL
Indeno(1,2,3-c,d)pyrene*	1	--	0.028	0.025	No	< G/SL
LMW PAHs	NV	100 ^g	0.25	0.23	No	< G/SL
HMW PAHs	NV	1.1 ^g	0.19	0.19	No	< G/SL

^a Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental Health (SQG_E) (CCME 2012a, internet site) for residential/parkland land use.

^b United States Environmental Protection Agency (USEPA) Ecological Soil Screening Levels (Eco-SSLs) (Avian and Mammalian) (USEPA 2012a, internet site). The lower of the avian and mammalian Eco-SSL was chosen as the screening level.

^c maximum measured baseline soil concentration + 10%.

^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

^e yes = the predicted soil concentration is greater than the guideline/screening level and the maximum measured baseline soil concentration +10%, and, therefore, the chemical was identified as a COPC; No = the predicted soil concentration is less than the guideline/screening level and/or maximum measured baseline soil concentration +10%, and, therefore, the chemical was not identified as a COPC.

^f SQG for soil and food ingestion.

^g low molecular weight PAHs includes those with less than 4 rings (i.e., acenaphthene, acenaphthylene, fluoranthene, anthracene, fluorene, naphthalene and phenanthrene). High molecular weight PAHs includes those with 4 or more rings (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene and pyrene).

NV = no value; CCME = Canadian Council of Ministers of the Environment; SQG_E = Canadian Soil Quality Guidelines for the Protection of Environmental Health; COPC = chemical of potential concern; mg/kg = milligram per kilogram; -- = value not required; < = less than; B = maximum measured baseline soil concentration + 10%; G/SL = CCME SQG_E/USEPA Eco-SSL; NG = no guideline. There is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical method detection limit (typical method detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

Prepared by: SG
Checked by: TMG

Table 10.1-A-3f: Soil Screening - Scenario 6

Chemical	CCME SQG _E ^a (mg/kg)	USEPA Eco-SSL ^b (mg/kg)	Baseline Soil Concentration + 10% ^c (mg/kg)	Predicted Soil Concentration ^d (mg/kg)	COPC? ^e	Rationale
Total Metals						
Aluminum (Al)	NV	NV	10 637	9692	No	NG, < B + 10%
Antimony (Sb)	NV	0.27	0.12	0.11	No	< G/SL
Arsenic (As)	17	--	66	60	No	< B + 10%
Barium (Ba)	NV	2000	131	119	No	< G/SL
Beryllium (Be)	NV	21	4.1	3.7	No	< G/SL
Bismuth (Bi)	NV	NV	0.17	0.15	No	NG, < B + 10%
Cadmium (Cd)	10	--	0.88	0.85	No	< G/SL
Calcium (Ca)	NV	NV	29 370	26 712	No	NG, < B + 10%
Chromium (Cr)	64	--	56	51	No	< G/SL
Cobalt (Co)	NV	120	50	45	No	< G/SL
Copper (Cu)	63	--	79	72	No	< B + 10%
Gold (Au)**	NV	NV	0.006	0.005	No	NG, < B + 10%
Iron (Fe)	NV	NV	23 430	21 324	No	NG, < B + 10%
Lead (Pb)	300	--	11	10	No	< G/SL
Lithium (Li)	NV	NV	14	13	No	NG, < B + 10%
Magnesium (Mg)	NV	NV	7788	7087	No	NG, < B + 10%
Manganese (Mn)	NV	4000	468	425	No	< G/SL
Molybdenum (Mo)	NV	NV	7.7	7.0	No	NG, < B + 10%
Nickel (Ni)	50	--	53	48	No	< G/SL
Potassium (K)	NV	NV	2937	2674	No	NG, < B + 10%
Selenium (Se)	1	--	1.3	1.2	No	< B + 10%
Silver (Ag)	NV	4.2	0.55	0.50	No	< G/SL
Sodium (Na)	NV	NV	352	325	No	NG, < B + 10%
Strontium (Sr)	NV	NV	215	195	No	NG, < B + 10%
Thallium (Tl)	1.4	--	0.55	0.50	No	< G/SL
Tin (Sn)	NV	NV	2.8	2.5	No	NG, < B + 10%
Titanium (Ti)	NV	NV	1040	946	No	NG, < B + 10%
Uranium (U)	500	--	2.2	2.0	No	< G/SL
Vanadium (V)	130	--	43	39	No	< G/SL
Yttrium (Y)**	NV	NV	25	23	No	NG, < B + 10%
Zinc (Zn)	200	--	77	70	No	< G/SL
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene*	20	--	0.028	0.025	No	< G/SL
Naphthalene*	8.8 ^f	--	0.028	0.034	No	< G/SL
Phenanthrene*	43 ^f	--	0.028	0.026	No	< G/SL
Anthracene*	2.5	--	0.028	0.025	No	< G/SL
Fluorene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Pyrene*	10	--	0.028	0.025	No	< G/SL
Thiophene*	NV	NV	0.028	0.025	No	NG, < B + 10%
Benzo(a)anthracene*	1	--	0.028	0.025	No	< G/SL
Acenaphthene*	NV	see Eco-SSL for HWM PAHs	0.028	0.025	No	see rationale for HMW PAHs
Acenaphthylene*	NV	see Eco-SSL for HWM PAHs	0.028	0.026	No	see rationale for HMW PAHs
Fluoranthene*	50	--	0.028	0.025	No	< G/SL
Benzo(b)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Benzo(g,h,i)perylene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Benzo(k)fluoranthene*	1	--	0.028	0.025	No	< G/SL
Chrysene*	NV	see Eco-SSL for LMW PAHs	0.028	0.025	No	see rationale for LMW PAHs
Dibenzo(a,h)anthracene*	1	--	0.028	0.025	No	< G/SL
Indeno(1,2,3-c,d)pyrene*	1	--	0.028	0.025	No	< G/SL
LMW PAHs	NV	100 ^g	0.25	0.23	No	< G/SL
HMW PAHs	NV	1.1 ^g	0.19	0.19	No	< G/SL

^a Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental Health (SQG_E) (CCME 2012a, internet site) for residential/parkland land use.

^b United States Environmental Protection Agency (USEPA) Ecological Soil Screening Levels (Eco-SSLs) (Avian and Mammalian) (USEPA 2012a, internet site). The lower of the avian and mammalian Eco-SSL was chosen as the screening level.

^c maximum measured baseline soil concentration + 10%.

^d the predicted soil concentration is calculated as the sum of the maximum measured baseline soil concentration and the incremental soil concentration from particulate deposition.

^e yes = the predicted soil concentration is greater than the guideline/screening level and the maximum measured baseline soil concentration +10%, and, therefore, the chemical was identified as a COPC; No = the predicted soil concentration is less than the guideline/screening level and/or maximum measured baseline soil concentration +10%, and, therefore, the chemical was not identified as a COPC.

^f SQG for soil and food ingestion.

^g low molecular weight PAHs includes those with less than 4 rings (i.e., acenaphthene, acenaphthylene, fluoranthene, anthracene, fluorene, naphthalene and phenanthrene). High molecular weight PAHs includes those with 4 or more rings (i.e., benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene).

NV = no value; CCME = Canadian Council of Ministers of the Environment; SQG_E = Canadian Soil Quality Guidelines for the Protection of Environmental Health; COPC = chemical of potential concern; mg/kg = milligram per kilogram; -- = value not required; < = less than; B = maximum measured baseline soil concentration + 10%; G/SL = CCME SQG_E/USEPA Eco-SSL; NG = no guideline. There is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of 1/2 the typical method detection limit (typical method detection limit = 0.05 mg/kg) and the incremental soil concentration from particulate deposition.

**there is no measured baseline soil concentration for this parameter. The predicted soil concentration is shown as the sum of the typical average soil concentration and the incremental soil concentration from particulate deposition.

Prepared by: SG
Checked by: TMG



APPENDIX 10.1-B

Sediment Screening

Table 10.1-B-1: Sediment Screening for Wildlife for Meliadine Lake

Chemical	CCME SQG _E ^a (mg/kg)	Baseline Concentration ^b (mg/kg)	Predicted Concentration ^c (mg/kg)	COPC ^d	Rationale
Total Metals					
Aluminum (Al)	NV	13 090	11 900	No	< B+10%
Antimony (Sb)	NV	<25	<25	No	<B+10%
Arsenic (As)	17	75	67.8	No	<B+10%
Barium (Ba)	NV	155	141	No	<B+10%
Beryllium (Be)	NV	<1	<1	No	<B+10%
Bismuth (Bi)	NV	<10	<10	No	<B+10%
Boron	NV	12	11	No	<B+10%
Cadmium (Cd)	10	<2	<2	No	<G
Calcium (Ca)	NV	7106	6460	No	<B+10%
Chromium (Cr)	64	59	53.4	No	<G
Cobalt (Co)	NV	23	21	No	<B+10%
Copper (Cu)	63	101	92	No	<B+10%
Cyanide	0.9	7.7	7	No	<B+10%
Iron (Fe)	NV	44 880	40 800	No	<B+10%
Lead (Pb)	300	15	14	No	<G
Lithium (Li)	NV	6.9	6.3	No	<B+10%
Magnesium (Mg)	NV	8723	7930	No	<B+10%
Manganese (Mn)	NV	677	615	No	<B+10%
Mercury (Hg)	12	0.15	0.14	No	<B+10%
Molybdenum (Mo)	NV	7.7	7	No	<B+10%
Nickel (Ni) ^(d)	50	80	73	No	<B+10%
Phosphorus	NV	1309	1190	No	<B+10%
Potassium (K)	NV	2948	2680	No	<B+10%
Selenium (Se)	1	1.4	1.3	No	<B+10%
Silver (Ag)	NV	<2	<2	No	<B+10%
Sodium (Na)	NV	530	482	No	<B+10%
Strontium (Sr)	NV	46	42	No	<B+10%
Thallium (Tl)	1.4	<1	<1	No	<G
Tin (Sn)	NV	<30	<30	No	<B+10%
Titanium (Ti)	NV	1353	1230	No	<B+10%
Uranium (U)	500	<40	<40	No	<G
Vanadium (V)	130	67	61	No	<G
Zinc (Zn)	200	110	100	No	<G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Soil Quality Guidelines for the Protection of Environmental Health (SQG_E) for residential/parkland land use (CCME 2012a, internet site).

^b maximum measured baseline sediment concentration +10%.

^c predicted maximum sediment concentration.

^d yes = the predicted sediment concentration is greater than the CCME SQG_E and the maximum measured baseline sediment concentration +10%, and, therefore, was identified as a COPC; No = the predicted sediment concentration is less than the CCME SQG_E and/or the maximum measured baseline sediment concentration +10%, and, therefore, was not identified as a COPC.

NV = no value; CCME = Canadian Council of Ministers of the Environment; SQG_E = Canadian Soil Quality Guidelines for the Protection of Environmental Health; COPC = chemical of potential concern; mg/kg = milligram per kilogram; < = less than; B = maximum measured baseline sediment concentration +10%; G = CCME SQG_E.

Prepared by: SW

Checked by: TMG

Table 10.1-B-2: Sediment Screening for Aquatic Life for Meliadine Lake

Chemical	CCME ISQG ^a (mg/kg)	Baseline Concentration ^b (mg/kg)	Predicted Concentration ^c (mg/kg)	COPC ^d	Rationale ^e
Total Metals					
Aluminum (Al)	NV	13 090	11 900	No	< B+10%
Antimony (Sb)	NV	<25	<25	No	<B+10%
Arsenic (As)	5.9	75	68	No	<B+10%
Barium (Ba)	NV	155	141	No	<B+10%
Beryllium (Be)	NV	<1	<1	No	<B+10%
Bismuth (Bi)	NV	<10	<10	No	<B+10%
Boron	NV	12	11	No	<B+10%
Cadmium (Cd)	0.6	<2	<2	No	<B+10%
Calcium (Ca)	NV	7106	6460	No	<B+10%
Chromium (Cr)	37.3	59	53	No	<B+10%
Cobalt (Co)	NV	23	21	No	<B+10%
Copper (Cu)	35.7	101	92	No	<B+10%
Cyanide	NV	7.7	7.0	No	<B+10%
Iron (Fe)	NV	44 880	40 800	No	<B+10%
Lead (Pb)	35	15	14	No	<G
Lithium (Li)	NV	6.9	6.3	No	<B+10%
Magnesium (Mg)	NV	8723	7930	No	<B+10%
Manganese (Mn)	NV	677	615	No	<B+10%
Mercury (Hg)	0.17	0.15	0.14	No	<B+10%
Molybdenum (Mo)	NV	7.7	7.0	No	<B+10%
Nickel (Ni)	NV	80	73	No	<B+10%
Phosphorus	NV	1309	1190	No	<B+10%
Potassium (K)	NV	2948	2680	No	<B+10%
Selenium (Se)	NV	1.4	1.3	No	<B+10%
Silver (Ag)	NV	<2	<2	No	<B+10%
Sodium (Na)	NV	530	482	No	<B+10%
Strontium (Sr)	NV	46	42	No	<B+10%
Thallium (Tl)	NV	<1	<1	No	<B+10%
Tin (Sn)	NV	<30	<30	No	<B+10%
Titanium (Ti)	NV	1353	1230	No	<B+10%
Uranium (U)	NV	<40	<40	No	<B+10%
Vanadium (V)	NV	67	61	No	<B+10%
Zinc (Zn)	123	110	100	No	<G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Sediment Quality Guidelines for the Protection of Aquatic Life, Interim Sediment Quality Guideline (ISQGs) (CCME 2012b, internet site).

^b maximum measured baseline sediment concentration +10%.

^c predicted maximum sediment concentration.

^d yes = the predicted sediment concentration is greater than the CCME ISQG and the maximum measured baseline sediment concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted sediment concentration is less than the CCME ISQG and/or the maximum measured baseline sediment concentration + 10%, and, therefore, was not identified as a COPC.

NV = no value; CCME = Canadian Council of Ministers of the Environment; ISQG = Canadian Sediment Quality Guidelines for the Protection of Aquatic Life, Interim Sediment Quality Guideline; COPC = chemical of potential concern; mg/kg = milligram per kilogram; < = less than; B = maximum measured baseline sediment concentration +10%; G = CCME ISQG.

Prepared by: SW

Checked by: TMG



APPENDIX 10.1-C

Surface Water Screening

Table 10.1-C-1: Surface Water Screening for Wildlife for Meliadine Lake

Chemical	Unit	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	91	68	No	< G and < B
Total Suspended Solids	mg/L	NV	NV	8.0	3.1	No	NG, < B
Chloride	mg/L	NV	NV	25	14	No	NG, < B
Fluoride	mg/L	2 ^f	--	0.03	0.008	No	< G and < B
Sodium	mg/L	NV	NV	7.5	5.3	No	NG, < B
Sulphate	mg/L	1000	--	8.9	38	No	< G
Total Ammonia as Nitrogen	mg/L	NV	NV	0.05	0.54	No	Less than CCME guideline for aquatic life of 7 mg/L
Nitrate as Nitrogen	mg/L	NV	NV	0.01	0.25	No	Less than BCMOE guideline of 100 mg/L
Nitrite as Nitrogen	mg/L	10	NV	0.03	0.05	No	< G
Phosphorus (total)	mg/L	NV	NV	0.03	0.005	No	NG, < B
Total cyanide	µg/L	NV	276 600	3.0	9.0	No	< G
Free cyanide	µg/L	NV	NV	ND	0.35	No	ND
Aluminum	µg/L	5000	--	11	9.1	No	< G and < B
Antimony	µg/L	NV	161	0.30	0.51	No	< G
Arsenic	µg/L	25	--	0.88	3.8	No	< G
Barium	µg/L	NV	23 100	18	77	No	< G
Boron	µg/L	5000	--	9.0	23	No	< G
Cadmium	µg/L	80	--	4.8	0.05	No	< G and < B
Chromium	µg/L	50 ^g	--	2.2	0.53	No	< G and < B
Copper	µg/L	500 ^h	--	3.1	2.0	No	< G and < B
Iron	µg/L	NV	NV	85	42	No	NG, < B
Lead	µg/L	100	--	0.71	0.15	No	< G and < B
Manganese	µg/L	NV	377 000	7.7	5.5	No	< G and < B
Mercury	µg/L	3	--	0.03	0.02	No	< G and < B
Molybdenum	µg/L	500	--	0.22	5.2	No	< G
Nickel	µg/L	1000	--	5.4	2.7	No	< G and < B
Selenium	µg/L	50	--	0.10	0.16	No	< G
Silver	µg/L	NV	NV	0.05	0.10	No	Less than ESL for wildlife of 22 000 µg/L
Thallium	µg/L	NV	1	0.10	0.10	No	< G and < B
Tin	µg/L	NV	29 200	1.7	1.5	No	< G and < B
Uranium	µg/L	200	--	0.03	1.1	No	< G and < B
Zinc	µg/L	50 000	--	37	6.7	No	< G and < B

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum measured baseline surface water concentration.

^d predicted maximum surface water concentration.

^e yes = the predicted surface water concentration is greater than the guideline and the maximum measured baseline surface water concentration, and, therefore, the chemical was identified as a COPC;

No = the predicted surface water concentration is less than the guideline and/or maximum measured baseline surface water concentration, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr (III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; < = less than; B = maximum measured baseline surface water concentration; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-2. Surface Water Screening for Aquatic Life for Meliadine Lake

Chemical	Unit	CCME Guideline ^a	Baseline Concentration ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	91	68	No	NG, < B
Total Suspended Solids	mg/L	NV	8.0	3.1	No	NG, < B
Chloride	mg/L	120	25	14	No	< G and < B
Fluoride	mg/L	0.12	0.03	0.008	No	< G and < B
Sodium	mg/L	NV	7.5	5.3	No	NG, < B
Sulphate	mg/L	NV	8.9	38	No	Less than BCMOE guideline of 50 mg/L
Total Ammonia as Nitrogen	mg/L	0.41 ^e	0.05	0.54	No	Within range of calculated sample-specific ammonia guidelines
Nitrate as Nitrogen	mg/L	3	0.01	0.25	No	< G
Nitrite as Nitrogen	mg/L	0.06	0.03	0.05	No	< G
Phosphorus (total)	mg/L	NV ^f	0.03	0.005	No	NG, < B
Total cyanide	µg/L	NV	3.0	9.0	No	Free cyanide concentration < G
Free cyanide	µg/L	5	ND	0.35	No	< G
Aluminum	µg/L	100 ^g	11	9.1	No	< G and < B
Antimony	µg/L	NV	0.30	0.51	No	Less than BCMOE guideline of 20 µg/L
Arsenic	µg/L	5	0.88	3.8	No	< G
Barium	µg/L	NV	18	77	No	Less than BCMOE guideline of 1000 µg/L
Boron	µg/L	1500	9.0	23	No	< G
Cadmium	µg/L	0.006 ^h	4.8	0.05	No	< B
Chromium	µg/L	8.9 ⁱ	2.2	0.53	No	< G and < B
Copper	µg/L	2 ^j	3.1	2.0	No	< G and < B
Iron	µg/L	300	85	42	No	< G and < B
Lead	µg/L	1 ^k	0.71	0.15	No	< G and < B
Manganese	µg/L	NV	7.7	5.5	No	NG, < B
Mercury	µg/L	0.026	0.03	0.02	No	< G and < B
Molybdenum	µg/L	73	0.22	5.2	No	< G
Nickel	µg/L	25 ^l	5.4	2.7	No	< G and < B
Selenium	µg/L	1	0.10	0.16	No	< G
Silver	µg/L	0.1	0.05	0.10	No	< G
Thallium	µg/L	0.8	0.10	0.10	No	< G and < B
Tin	µg/L	NV	1.7	1.5	No	NG, < B
Uranium	µg/L	15	0.03	1.1	No	< G
Zinc	µg/L	30	37	6.7	No	< G and < B

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum measured baseline surface water concentration.

^c predicted maximum surface water concentration.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum measured baseline surface water concentration, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum measured baseline surface water concentration, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH ≥6.5, guideline is 100 µg/L. The minimum pH in Meliadine Lake was 6.7; therefore, a guideline of 100 µg/L was used.

^h cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{[0.86[\ln(\text{hardness})]-3.2]}$. The lowest hardness value in Meliadine Lake was 13 mg CaCO₃/L; therefore, a guideline of 0.006 µg/L was used.

ⁱ guideline for trivalent chromium, Cr(III).

^j copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{[\ln(\text{hardness})]-1.455} \times 0.2$. The minimum hardness in Meliadine Lake was 13 mg CaCO₃/L; therefore, a guideline of 2 µg/L was used.

^k lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})]-4.705}$. The minimum hardness in Meliadine Lake was 13 mg CaCO₃/L; therefore, a guideline of 1 µg/L was used.

^l nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})]+1.06}$. The minimum hardness in Meliadine Lake was 13 mg CaCO₃/L; therefore, a guideline of 25 µg/L was used.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum measured baseline surface water concentration; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-3a: Surface Water Screening for Wildlife at Lake A8

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	271	246	No	< G
Total Alkalinity	mg/L	NV	NV	75	68	No	< B
Total Suspended Solids	mg/L	NV	NV	3.9	3.6	No	< B
Calcium	mg/L	1000	--	92	84	No	< G
Chloride	mg/L	NV	NV	209	190	No	< B
Fluoride	mg/L	2 ^f	--	0.06	0.05	No	< G
Magnesium	mg/L	NV	NV	11	9.8	No	< B
Potassium	mg/L	NV	NV	3.7	3.4	No	< B
Sodium	mg/L	NV	NV	16	14	No	< B
Sulphate	mg/L	1000	--	23	21	No	< G
Ammonia (as N)	mg/L	NV	NV	0.23	0.21	No	< B
Nitrate (as N)	mg/L	NV	NV	0.39	0.36	No	< B
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.79	0.72	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.009	0.008	No	< B
Orthophosphate	mg/L	NV	NV	0.004	0.003	No	< B
Cyanide	µg/L	NV	276 600	2.3	2.1	No	< G
Total Aluminum	µg/L	5000	--	8.6	7.8	No	< G
Total Antimony	µg/L	NV	161	0.28	0.25	No	< G
Total Arsenic	µg/L	25	--	2.5	2.3	No	< G
Total Barium	µg/L	NV	23 100	37	33	No	< G
Total Beryllium	µg/L	100	--	0.66	0.60	No	< G
Total Bismuth	µg/L	NV	NV	0.11	0.10	No	< B
Total Boron	µg/L	5000	--	41	37	No	< G
Total Cadmium	µg/L	80	--	0.17	0.15	No	< G
Total Chromium	µg/L	50 ^g	--	3.8	3.4	No	< G
Total Cobalt	µg/L	1000	--	0.38	0.34	No	< G
Total Copper	µg/L	500 ^h	--	4.1	3.7	No	< G
Total Iron	µg/L	NV	NV	150	136	No	< B
Total Lead	µg/L	100	--	3.8	3.4	No	< G
Total Lithium	µg/L	NV	40 300	11	10	No	< G
Total Manganese	µg/L	NV	377 000	70	64	No	< G
Total Mercury	µg/L	3	--	0.08	0.07	No	< G
Total Molybdenum	µg/L	500	--	0.81	0.73	No	< G
Total Nickel	µg/L	1000	--	3.8	3.4	No	< G
Total Selenium	µg/L	50	--	0.35	0.32	No	< G
Total Silver	µg/L	NV	NV	0.11	0.10	No	< B
Total Strontium	µg/L	NV	1 127 000	203	184	No	< G
Total Thallium	µg/L	NV	1	0.07	0.06	No	< B
Total Tin	µg/L	NV	29 200	0.40	0.36	No	< G
Total Titanium	µg/L	NV	NV	2.0	1.9	No	< B
Total Tungsten	µg/L	NV	NV	41	38	No	< B
Total Uranium	µg/L	200	--	0.08	0.08	No	< G
Total Vanadium	µg/L	100	--	0.53	0.48	No	< G
Total Zinc	µg/L	50 000	--	8.4	7.6	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3b: Surface Water Screening for Wildlife at Lake A6

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	195	177	No	< G
Total Alkalinity	mg/L	NV	NV	69	63	No	< B
Total Suspended Solids	mg/L	NV	NV	3.5	3.2	No	< B
Calcium	mg/L	1000	--	71	65	No	< G
Chloride	mg/L	NV	NV	114	112	No	< B
Fluoride	mg/L	2 ^f	--	0.06	0.06	No	< G
Magnesium	mg/L	NV	NV	7.2	6.5	No	< B
Potassium	mg/L	NV	NV	2.9	2.6	No	< B
Sodium	mg/L	NV	NV	12	11	No	< B
Sulphate	mg/L	1000	--	17	15	No	< G
Ammonia (as N)	mg/L	NV	NV	0.14	0.13	No	< B
Nitrate (as N)	mg/L	NV	NV	0.24	0.21	No	< B
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.74	0.67	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.009	0.009	No	< B
Orthophosphate	mg/L	NV	NV	0.003	0.002	No	< B
Cyanide	µg/L	NV	276 600	2.2	2.0	No	< G
Total Aluminum	µg/L	5000	--	7.2	6.6	No	< G
Total Antimony	µg/L	NV	161	0.28	0.26	No	< G
Total Arsenic	µg/L	25	--	2.8	2.5	No	< G
Total Barium	µg/L	NV	23 100	31	28	No	< G
Total Beryllium	µg/L	100	--	0.48	0.44	No	< G
Total Bismuth	µg/L	NV	NV	0.08	0.07	No	< B
Total Boron	µg/L	5000	--	44	40	No	< G
Total Cadmium	µg/L	80	--	0.14	0.13	No	< G
Total Chromium	µg/L	50 ^g	--	3.1	2.9	No	< G
Total Cobalt	µg/L	1000	--	0.26	0.23	No	< G
Total Copper	µg/L	500 ^h	--	3.4	3.1	No	< G
Total Iron	µg/L	NV	NV	141	128	No	< B
Total Lead	µg/L	100	--	2.0	1.8	No	< G
Total Lithium	µg/L	NV	40 300	7.7	7.0	No	< G
Total Manganese	µg/L	NV	377 000	43	39	No	< G
Total Mercury	µg/L	3	--	0.05	0.05	No	< G
Total Molybdenum	µg/L	500	--	0.61	0.56	No	< G
Total Nickel	µg/L	1000	--	3.0	2.7	No	< G
Total Selenium	µg/L	50	--	0.35	0.32	No	< G
Total Silver	µg/L	NV	NV	0.11	0.10	No	< B
Total Strontium	µg/L	NV	1 127 000	163	149	No	< G
Total Thallium	µg/L	NV	1	0.06	0.05	No	< G
Total Tin	µg/L	NV	29 200	0.40	0.36	No	< G
Total Titanium	µg/L	NV	NV	1.3	1.2	No	< B
Total Tungsten	µg/L	NV	NV	34	31	No	< B
Total Uranium	µg/L	200	--	0.09	0.08	No	< G
Total Vanadium	µg/L	100	--	0.50	0.46	No	< G
Total Zinc	µg/L	50 000	--	6.6	6.0	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site)

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3c: Surface Water Screening for Wildlife at Lake A1

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	177	209	No	< G
Total Alkalinity	mg/L	NV	NV	67	79	No	No direct impact on wildlife health
Total Suspended Solids	mg/L	NV	NV	3.5	4.1	No	No direct impact on wildlife health
Calcium	mg/L	1000	--	63	75	No	< G
Chloride	mg/L	NV	NV	98	116	No	Less than the CCME guideline for aquatic life of 120 mg/L
Fluoride	mg/L	2 ^f	--	0.07	0.08	No	< G
Magnesium	mg/L	NV	NV	7.2	8.5	No	Essential nutrient/ameliorates metal toxicity
Potassium	mg/L	NV	NV	3.2	3.7	No	Essential nutrient/ameliorates metal toxicity
Sodium	mg/L	NV	NV	11	13	No	Essential nutrient/ameliorates metal toxicity
Sulphate	mg/L	1000	--	14	17	No	< G
Ammonia (as N)	mg/L	NV	NV	0.14	0.17	No	Less than CCME guideline for aquatic life of 7 mg/L
Nitrate (as N)	mg/L	NV	NV	0.18	1.8	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.80	0.95	No	No direct impact on wildlife health
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.003	0.003	No	< B
Cyanide	µg/L	NV	276 600	3.1	3.6	No	< G
Total Aluminum	µg/L	5000	--	7.5	43	No	< G
Total Antimony	µg/L	NV	161	0.32	0.37	No	< G
Total Arsenic	µg/L	25	--	2.7	3.2	No	< G
Total Barium	µg/L	NV	23 100	37	44	No	< G
Total Beryllium	µg/L	100	--	0.37	0.44	No	< G
Total Bismuth	µg/L	NV	NV	0.07	0.08	No	Lack of toxicity data/non-toxic
Total Boron	µg/L	5000	--	43	51	No	< G
Total Cadmium	µg/L	80	--	0.19	0.23	No	< G
Total Chromium	µg/L	50 ^g	--	3.4	8.6	No	< G
Total Cobalt	µg/L	1000	--	0.21	0.81	No	< G
Total Copper	µg/L	500 ^h	--	3.0	3.6	No	< G
Total Iron	µg/L	NV	NV	149	274	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	1.4	1.7	No	< G
Total Lithium	µg/L	NV	40 300	7.8	9.2	No	< G
Total Manganese	µg/L	NV	377 000	41	49	No	< G
Total Mercury	µg/L	3	--	0.04	0.05	No	< G
Total Molybdenum	µg/L	500	--	0.50	0.59	No	< G
Total Nickel	µg/L	1000	--	2.8	3.3	No	< G
Total Selenium	µg/L	50	--	0.35	0.41	No	< G
Total Silver	µg/L	NV	NV	0.12	0.15	No	Less than LANL ESL for wildlife of 22 000 µg/L
Total Strontium	µg/L	NV	1 127 000	184	218	No	< G
Total Thallium	µg/L	NV	1	0.06	0.07	No	< G
Total Tin	µg/L	NV	29 200	0.40	0.47	No	< G
Total Titanium	µg/L	NV	NV	1.0	24	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	25	29	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	200	--	0.09	0.10	No	< G
Total Vanadium	µg/L	100	--	0.59	2.40	No	< G
Total Zinc	µg/L	50 000	--	8.7	10	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level

Prepared by: SM

Checked by: SG

Table 10.1-C-3d: Surface Water Screening for Wildlife at Lake B6

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	207	222	No	< G
Total Alkalinity	mg/L	NV	NV	108	116	No	No direct impact on wildlife health
Total Suspended Solids	mg/L	NV	NV	4.5	4.8	No	No direct impact on wildlife health
Calcium	mg/L	1000	--	38	41	No	< G
Chloride	mg/L	NV	NV	33	35	No	Less than the CCME guideline for aquatic life of 120 mg/L
Fluoride	mg/L	2 ^f	--	0.05	0.06	No	< G
Magnesium	mg/L	NV	NV	5.3	5.7	No	Essential nutrient/ameliorates metal toxicity
Potassium	mg/L	NV	NV	2.4	2.6	No	Essential nutrient/ameliorates metal toxicity
Sodium	mg/L	NV	NV	8	8.2	No	Essential nutrient/ameliorates metal toxicity
Sulphate	mg/L	1000	--	10	11	No	< G
Ammonia (as N)	mg/L	NV	NV	0.09	0.09	No	< B
Nitrate (as N)	mg/L	NV	NV	0.03	1.6	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.9	1.0	No	No direct impact on wildlife health
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	2.9	3.1	No	< G
Total Aluminum	µg/L	5000	--	5.7	92	No	< G
Total Antimony	µg/L	NV	161	0.32	0.34	No	< G
Total Arsenic	µg/L	25	--	2.3	2.5	No	< G
Total Barium	µg/L	NV	23 100	70	75	No	< G
Total Beryllium	µg/L	100	--	0.28	0.30	No	< G
Total Bismuth	µg/L	NV	NV	0.11	0.11	No	Lack of toxicity data/non-toxic
Total Boron	µg/L	5000	--	27	29	No	< G
Total Cadmium	µg/L	80	--	0.79	0.85	No	< G
Total Chromium	µg/L	50 ^g	--	2.6	2.8	No	< G
Total Cobalt	µg/L	1000	--	0.24	0.25	No	< G
Total Copper	µg/L	500 ^h	--	2.7	2.9	No	< G
Total Iron	µg/L	NV	NV	175	229	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.32	0.34	No	< G
Total Lithium	µg/L	NV	40 300	13	14	No	< G
Total Manganese	µg/L	NV	377 000	133	143	No	< G
Total Mercury	µg/L	3	--	0.03	0.03	No	< G
Total Molybdenum	µg/L	500	--	0.43	0.46	No	< G
Total Nickel	µg/L	1000	--	2.9	3.1	No	< G
Total Selenium	µg/L	50	--	0.26	0.28	No	< G
Total Silver	µg/L	NV	NV	0.06	0.07	No	Less than LANL ESL for wildlife of 22 000 µg/L
Total Strontium	µg/L	NV	1 127 000	292	313	No	< G
Total Thallium	µg/L	NV	1	0.07	0.07	No	< G
Total Tin	µg/L	NV	29 200	0.40	0.43	No	< G
Total Titanium	µg/L	NV	NV	1.3	8.8	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	85	91	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	200	--	0.12	0.13	No	< G
Total Vanadium	µg/L	100	--	0.62	0.67	No	< G
Total Zinc	µg/L	50 000	--	10	10	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site)

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level

Prepared by: SM

Checked by: SG

Table 10.1-C-3e: Surface Water Screening for Wildlife at Lake B5

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	172	136	No	< G
Total Alkalinity	mg/L	NV	NV	89	69	No	< B
Total Suspended Solids	mg/L	NV	NV	3.9	3.2	No	< B
Calcium	mg/L	1000	--	31	31	No	< G
Chloride	mg/L	NV	NV	25	23	No	< B
Fluoride	mg/L	2 ^f	--	0.05	0.04	No	< G
Magnesium	mg/L	NV	NV	4.4	3.8	No	< B
Potassium	mg/L	NV	NV	2.1	1.8	No	< B
Sodium	mg/L	NV	NV	6.5	5.4	No	< B
Sulphate	mg/L	1000	--	8.1	6.8	No	< G
Ammonia (as N)	mg/L	NV	NV	0.07	0.07	No	< B
Nitrate (as N)	mg/L	NV	NV	0.02	1.6	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.80	0.66	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	2.1	1.8	No	< G
Total Aluminum	µg/L	5000	--	5.7	92	No	< G
Total Antimony	µg/L	NV	161	0.23	0.19	No	< G
Total Arsenic	µg/L	25	--	1.9	1.8	No	< G
Total Barium	µg/L	NV	23 100	70	64	No	< G
Total Beryllium	µg/L	100	--	0.24	0.20	No	< G
Total Bismuth	µg/L	NV	NV	0.08	0.07	No	< B
Total Boron	µg/L	5000	--	19	16	No	< G
Total Cadmium	µg/L	80	--	0.46	0.42	No	< G
Total Chromium	µg/L	50 ^g	--	2.0	1.8	No	< G
Total Cobalt	µg/L	1000	--	0.20	0.18	No	< G
Total Copper	µg/L	500 ^h	--	2.2	2.1	No	< G
Total Iron	µg/L	NV	NV	175	229	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.23	0.22	No	< G
Total Lithium	µg/L	NV	40 300	12	11	No	< G
Total Manganese	µg/L	NV	377 000	97	89	No	< G
Total Mercury	µg/L	3	--	0.03	0.03	No	< G
Total Molybdenum	µg/L	500	--	0.36	0.36	No	< G
Total Nickel	µg/L	1000	--	2.3	2.3	No	< G
Total Selenium	µg/L	50	--	0.21	0.19	No	< G
Total Silver	µg/L	NV	NV	0.06	0.05	No	< B
Total Strontium	µg/L	NV	1 127 000	254	216	No	< G
Total Thallium	µg/L	NV	1	0.06	0.05	No	< G
Total Tin	µg/L	NV	29 200	0.33	0.30	No	< G
Total Titanium	µg/L	NV	NV	0.96	5.0	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	50	49	No	< B
Total Uranium	µg/L	200	--	0.10	0.07	No	< G
Total Vanadium	µg/L	100	--	0.54	0.43	No	< G
Total Zinc	µg/L	50 000	--	7.3	6.8	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3f: Surface Water Screening for Wildlife at Lake B46

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	201	186	No	< G
Total Alkalinity	mg/L	NV	NV	84	79	No	< B
Total Suspended Solids	mg/L	NV	NV	3.9	3.7	No	< B
Calcium	mg/L	1000	--	35	34	No	< G
Chloride	mg/L	NV	NV	21	20	No	< B
Fluoride	mg/L	2 ^f	--	0.05	0.05	No	< G
Magnesium	mg/L	NV	NV	4.5	4.3	No	< B
Potassium	mg/L	NV	NV	2.3	2.3	No	< B
Sodium	mg/L	NV	NV	7.1	6.7	No	< B
Sulphate	mg/L	1000	--	8.0	7.4	No	< G
Ammonia (as N)	mg/L	NV	NV	0.07	0.07	No	< B
Nitrate (as N)	mg/L	NV	NV	0.03	1.6	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.87	0.83	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	2.4	2.2	No	< G
Total Aluminum	µg/L	5000	--	5.5	92	No	< G
Total Antimony	µg/L	NV	161	0.21	0.21	No	< G
Total Arsenic	µg/L	25	--	1.9	1.9	No	< G
Total Barium	µg/L	NV	23 100	70	64	No	< G
Total Beryllium	µg/L	100	--	0.24	0.23	No	< G
Total Bismuth	µg/L	NV	NV	0.08	0.08	No	< B
Total Boron	µg/L	5000	--	19	18	No	< G
Total Cadmium	µg/L	80	--	0.10	0.09	No	< G
Total Chromium	µg/L	50 ^g	--	2.7	2.6	No	< G
Total Cobalt	µg/L	1000	--	0.19	0.22	No	< G
Total Copper	µg/L	500 ^h	--	2.3	2.2	No	< G
Total Iron	µg/L	NV	NV	189	260	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.18	0.17	No	< G
Total Lithium	µg/L	NV	40 300	17	15	No	< G
Total Manganese	µg/L	NV	377 000	112	102	No	< G
Total Mercury	µg/L	3	--	0.03	0.03	No	< G
Total Molybdenum	µg/L	500	--	0.42	0.38	No	< G
Total Nickel	µg/L	1000	--	2.4	2.3	No	< G
Total Selenium	µg/L	50	--	0.25	0.23	No	< G
Total Silver	µg/L	NV	NV	0.06	0.06	No	< B
Total Strontium	µg/L	NV	1 127 000	274	273	No	< G
Total Thallium	µg/L	NV	1	0.07	0.06	No	< G
Total Tin	µg/L	NV	29 200	0.37	0.34	No	< G
Total Titanium	µg/L	NV	NV	1.1	8.5	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	38	36	No	< B
Total Uranium	µg/L	200	--	0.10	0.09	No	< G
Total Vanadium	µg/L	100	--	0.55	0.75	No	< G
Total Zinc	µg/L	50 000	--	7.0	6.7	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3g: Surface Water Screening for Wildlife at Lake B45

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	201	186	No	< G
Total Alkalinity	mg/L	NV	NV	84	79	No	< B
Total Suspended Solids	mg/L	NV	NV	3.9	3.7	No	< B
Calcium	mg/L	1000	--	35	34	No	< G
Chloride	mg/L	NV	NV	21	20	No	< B
Fluoride	mg/L	2 ^f	--	0.05	0.05	No	< G
Magnesium	mg/L	NV	NV	4.5	4.3	No	< B
Potassium	mg/L	NV	NV	2.3	2.3	No	< B
Sodium	mg/L	NV	NV	7.1	6.7	No	< B
Sulphate	mg/L	1000	--	8.0	7.4	No	< G
Ammonia (as N)	mg/L	NV	NV	0.07	0.07	No	< B
Nitrate (as N)	mg/L	NV	NV	0.03	1.6	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.87	0.83	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.008	0.008	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	2.4	2.2	No	< G
Total Aluminum	µg/L	5000	--	5.5	92.0	No	< G
Total Antimony	µg/L	NV	161	0.21	0.21	No	< G
Total Arsenic	µg/L	25	--	1.9	1.9	No	< G
Total Barium	µg/L	NV	23 100	70	64	No	< G
Total Beryllium	µg/L	100	--	0.24	0.23	No	< G
Total Bismuth	µg/L	NV	NV	0.08	0.08	No	< B
Total Boron	µg/L	5000	--	19	18	No	< G
Total Cadmium	µg/L	80	--	0.10	0.09	No	< G
Total Chromium	µg/L	50 ^g	--	2.7	2.6	No	< G
Total Cobalt	µg/L	1000	--	0.19	0.22	No	< G
Total Copper	µg/L	500 ^h	--	2.3	2.2	No	< G
Total Iron	µg/L	NV	NV	189	260	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.18	0.17	No	< G
Total Lithium	µg/L	NV	40 300	17	15	No	< G
Total Manganese	µg/L	NV	377 000	112	102	No	< G
Total Mercury	µg/L	3	--	0.03	0.03	No	< G
Total Molybdenum	µg/L	500	--	0.42	0.38	No	< G
Total Nickel	µg/L	1000	--	2.4	2.3	No	< G
Total Selenium	µg/L	50	--	0.25	0.23	No	< G
Total Silver	µg/L	NV	NV	0.06	0.06	No	< B
Total Strontium	µg/L	NV	1 127 000	274	273	No	< G
Total Thallium	µg/L	NV	1	0.07	0.06	No	< G
Total Tin	µg/L	NV	29 200	0.37	0.34	No	< G
Total Titanium	µg/L	NV	NV	1.1	8.5	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	38	36	No	< B
Total Uranium	µg/L	200	--	0.10	0.09	No	< G
Total Vanadium	µg/L	100	--	0.55	0.75	No	< G
Total Zinc	µg/L	50 000	--	7.0	6.7	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10% ,and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3h: Surface Water Screening for Wildlife at Lake P2

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	220	200	No	< G
Total Alkalinity	mg/L	NV	NV	84	77	No	< B
Total Suspended Solids	mg/L	NV	NV	4.0	3.6	No	< B
Calcium	mg/L	1000	--	39	35	No	< G
Chloride	mg/L	NV	NV	21	19	No	< B
Fluoride	mg/L	2 ^f	--	0.06	0.05	No	< G
Magnesium	mg/L	NV	NV	5.2	4.7	No	< B
Potassium	mg/L	NV	NV	2.5	2.2	No	< B
Sodium	mg/L	NV	NV	7.9	7.2	No	< B
Sulphate	mg/L	1000	--	8.4	7.6	No	< G
Ammonia (as N)	mg/L	NV	NV	0.08	0.07	No	< B
Nitrate (as N)	mg/L	NV	NV	0.03	1.6	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.92	0.84	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.009	0.008	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	3.0	2.8	No	< G
Total Aluminum	µg/L	5000	--	5.4	94	No	< G
Total Antimony	µg/L	NV	161	0.22	0.20	No	< G
Total Arsenic	µg/L	25	--	2.0	1.8	No	< G
Total Barium	µg/L	NV	23 100	70	64	No	< G
Total Beryllium	µg/L	100	--	0.25	0.23	No	< G
Total Bismuth	µg/L	NV	NV	0.11	0.10	No	< B
Total Boron	µg/L	5000	--	27	24	No	< G
Total Cadmium	µg/L	80	--	0.10	0.09	No	< G
Total Chromium	µg/L	50 ^g	--	2.5	2.3	No	< G
Total Cobalt	µg/L	1000	--	0.20	0.21	No	< G
Total Copper	µg/L	500 ^h	--	2.3	2.1	No	< G
Total Iron	µg/L	NV	NV	201	276	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.16	0.15	No	< G
Total Lithium	µg/L	NV	40 300	16	14	No	< G
Total Manganese	µg/L	NV	377 000	94	85	No	< G
Total Mercury	µg/L	3	--	0.03	0.03	No	< G
Total Molybdenum	µg/L	500	--	0.43	0.39	No	< G
Total Nickel	µg/L	1000	--	2.4	2.2	No	< G
Total Selenium	µg/L	50	--	0.28	0.25	No	< G
Total Silver	µg/L	NV	NV	0.06	0.06	No	< B
Total Strontium	µg/L	NV	1 127 000	298	271	No	< G
Total Thallium	µg/L	NV	1	0.07	0.07	No	< G
Total Tin	µg/L	NV	29 200	0.42	0.38	No	< G
Total Titanium	µg/L	NV	NV	1.5	7.2	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	85	77	No	< B
Total Uranium	µg/L	200	--	0.10	0.09	No	< G
Total Vanadium	µg/L	100	--	0.55	0.68	No	< G
Total Zinc	µg/L	50 000	--	6.7	6.1	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3i: Surface Water Screening for Wildlife at Lake B2

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	220	203	No	< G
Total Alkalinity	mg/L	NV	NV	79	74	No	< B
Total Suspended Solids	mg/L	NV	NV	3.9	3.5	No	< B
Calcium	mg/L	1000	--	39	35	No	< G
Chloride	mg/L	NV	NV	21	20	No	< B
Fluoride	mg/L	2 ^f	--	0.06	0.05	No	< G
Magnesium	mg/L	NV	NV	5.1	4.7	No	< B
Potassium	mg/L	NV	NV	2.4	2.4	No	< B
Sodium	mg/L	NV	NV	8.1	7.4	No	< B
Sulphate	mg/L	1000	--	8.4	7.6	No	< G
Ammonia (as N)	mg/L	NV	NV	0.08	0.07	No	< B
Nitrate (as N)	mg/L	NV	NV	0.03	1.6	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.91	0.84	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.009	0.008	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.0009	No	< B
Cyanide	µg/L	NV	276 600	3.1	2.8	No	< G
Total Aluminum	µg/L	5000	--	5.9	94	No	< G
Total Antimony	µg/L	NV	161	0.22	0.21	No	< G
Total Arsenic	µg/L	25	--	2.0	2.0	No	< G
Total Barium	µg/L	NV	23 100	70	64	No	< G
Total Beryllium	µg/L	100	--	0.25	0.23	No	< G
Total Bismuth	µg/L	NV	NV	0.11	0.10	No	< B
Total Boron	µg/L	5000	--	25	23	No	< G
Total Cadmium	µg/L	80	--	0.10	0.09	No	< G
Total Chromium	µg/L	50 ^g	--	2.8	3.0	No	< G
Total Cobalt	µg/L	1000	--	0.20	0.22	No	< G
Total Copper	µg/L	500 ^h	--	2.3	2.3	No	< G
Total Iron	µg/L	NV	NV	220	271	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.17	0.15	No	< G
Total Lithium	µg/L	NV	40 300	19	18	No	< G
Total Manganese	µg/L	NV	377 000	108	98	No	< G
Total Mercury	µg/L	3	--	0.03	0.03	No	< G
Total Molybdenum	µg/L	500	--	0.47	0.43	No	< G
Total Nickel	µg/L	1000	--	2.4	2.4	No	< G
Total Selenium	µg/L	50	--	0.29	0.27	No	< G
Total Silver	µg/L	NV	NV	0.06	0.06	No	< B
Total Strontium	µg/L	NV	1 127 000	284	265	No	< G
Total Thallium	µg/L	NV	1	0.07	0.06	No	< G
Total Tin	µg/L	NV	29 200	0.42	0.38	No	< G
Total Titanium	µg/L	NV	NV	1.4	9.0	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	84	76	No	< B
Total Uranium	µg/L	200	--	0.10	0.09	No	< G
Total Vanadium	µg/L	100	--	0.55	0.74	No	< G
Total Zinc	µg/L	50 000	--	6.8	6.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled base surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3j: Surface Water Screening for Wildlife at Lake D7

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	308	279	No	< G
Total Alkalinity	mg/L	NV	NV	179	164	No	< B
Total Suspended Solids	mg/L	NV	NV	13	12	No	< B
Calcium	mg/L	1000	--	79	72	No	< G
Chloride	mg/L	NV	NV	34	31	No	< B
Fluoride	mg/L	2 ^f	--	0.06	0.05	No	< G
Magnesium	mg/L	NV	NV	12	11	No	< B
Potassium	mg/L	NV	NV	4.8	4.3	No	< B
Sodium	mg/L	NV	NV	20	18	No	< B
Sulphate	mg/L	1000	--	11	10	No	< G
Ammonia (as N)	mg/L	NV	NV	0.30	0.28	No	< B
Nitrate (as N)	mg/L	NV	NV	0.04	2.0	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	1.9	1.8	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	1.5	1.3	No	< G
Total Aluminum	µg/L	5000	--	8.5	61	No	< G
Total Antimony	µg/L	NV	161	0.27	0.25	No	< G
Total Arsenic	µg/L	25	--	2.0	1.9	No	< G
Total Barium	µg/L	NV	23 100	75	69	No	< G
Total Beryllium	µg/L	100	--	0.71	0.65	No	< G
Total Bismuth	µg/L	NV	NV	0.06	0.05	No	< B
Total Boron	µg/L	5000	--	18	16	No	< G
Total Cadmium	µg/L	80	--	0.12	0.11	No	< G
Total Chromium	µg/L	50 ^g	--	5.5	5.2	No	< G
Total Cobalt	µg/L	1000	--	1.2	1.1	No	< G
Total Copper	µg/L	500 ^h	--	4.7	4.2	No	< G
Total Iron	µg/L	NV	NV	254	266	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.28	0.26	No	< G
Total Lithium	µg/L	NV	40 300	7.2	6.5	No	< G
Total Manganese	µg/L	NV	377 000	197	179	No	< G
Total Mercury	µg/L	3	--	0.02	0.02	No	< G
Total Molybdenum	µg/L	500	--	1.5	1.4	No	< G
Total Nickel	µg/L	1000	--	6.2	6.0	No	< G
Total Selenium	µg/L	50	--	1.4	1.3	No	< G
Total Silver	µg/L	NV	NV	0.04	0.03	No	< B
Total Strontium	µg/L	NV	1 127 000	417	380	No	< G
Total Thallium	µg/L	NV	1	0.06	0.06	No	< G
Total Tin	µg/L	NV	29 200	0.32	0.29	No	< G
Total Titanium	µg/L	NV	NV	1.8	3.9	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	25	23	No	< B
Total Uranium	µg/L	200	--	0.31	0.28	No	< G
Total Vanadium	µg/L	100	--	2.8	2.6	No	< G
Total Zinc	µg/L	50 000	--	13	12	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3k: Surface Water Screening for Wildlife at Lake D4

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	264	239	No	< G
Total Alkalinity	mg/L	NV	NV	145	132	No	< B
Total Suspended Solids	mg/L	NV	NV	10	9.1	No	< B
Calcium	mg/L	1000	--	67	61	No	< G
Chloride	mg/L	NV	NV	30	27	No	< B
Fluoride	mg/L	2 ^f	--	0.06	0.05	No	< G
Magnesium	mg/L	NV	NV	9.7	8.8	No	< B
Potassium	mg/L	NV	NV	3.8	3.5	No	< B
Sodium	mg/L	NV	NV	16	15	No	< B
Sulphate	mg/L	1000	--	10	9.4	No	< G
Ammonia (as N)	mg/L	NV	NV	0.24	0.22	No	< B
Nitrate (as N)	mg/L	NV	NV	0.04	2.0	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	1.6	1.4	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	2.4	2.1	No	< G
Total Aluminum	µg/L	5000	--	7.1	64	No	< G
Total Antimony	µg/L	NV	161	0.24	0.22	No	< G
Total Arsenic	µg/L	25	--	2.0	1.9	No	< G
Total Barium	µg/L	NV	23 100	63	58	No	< G
Total Beryllium	µg/L	100	--	0.55	0.52	No	< G
Total Bismuth	µg/L	NV	NV	0.04	0.04	No	< B
Total Boron	µg/L	5000	--	22	20	No	< G
Total Cadmium	µg/L	80	--	0.15	0.14	No	< G
Total Chromium	µg/L	50 ^g	--	4.9	4.5	No	< G
Total Cobalt	µg/L	1000	--	0.91	0.83	No	< G
Total Copper	µg/L	500 ^h	--	3.8	3.5	No	< G
Total Iron	µg/L	NV	NV	257	268	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.26	0.24	No	< G
Total Lithium	µg/L	NV	40 300	7.4	7.2	No	< G
Total Manganese	µg/L	NV	377 000	151	139	No	< G
Total Mercury	µg/L	3	--	0.02	0.02	No	< G
Total Molybdenum	µg/L	500	--	1.1	1.0	No	< G
Total Nickel	µg/L	1000	--	6	5.4	No	< G
Total Selenium	µg/L	50	--	1.1	1.0	No	< G
Total Silver	µg/L	NV	NV	0.04	0.03	No	< B
Total Strontium	µg/L	NV	1 127 000	377	343	No	< G
Total Thallium	µg/L	NV	1	0.05	0.04	No	< G
Total Tin	µg/L	NV	29 200	0.25	0.22	No	< G
Total Titanium	µg/L	NV	NV	1.6	4.0	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	29	26	No	< B
Total Uranium	µg/L	200	--	0.26	0.24	No	< G
Total Vanadium	µg/L	100	--	2.0	1.9	No	< G
Total Zinc	µg/L	50 000	--	10	9.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3I: Surface Water Screening for Wildlife at Lake D3

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	265	240	No	< G
Total Alkalinity	mg/L	NV	NV	142	130	No	< B
Total Suspended Solids	mg/L	NV	NV	9.2	8.4	No	< B
Calcium	mg/L	1000	--	67	61	No	< G
Chloride	mg/L	NV	NV	30	28	No	< B
Fluoride	mg/L	2 ^f	--	0.06	0.05	No	< G
Magnesium	mg/L	NV	NV	9.7	8.8	No	< B
Potassium	mg/L	NV	NV	3.8	3.5	No	< B
Sodium	mg/L	NV	NV	16	14	No	< B
Sulphate	mg/L	1000	--	10	9.5	No	< G
Ammonia (as N)	mg/L	NV	NV	0.23	0.21	No	< B
Nitrate (as N)	mg/L	NV	NV	0.04	2.0	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	1.6	1.4	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	2.4	2.2	No	< G
Total Aluminum	µg/L	5000	--	7.0	64	No	< G
Total Antimony	µg/L	NV	161	0.24	0.23	No	< G
Total Arsenic	µg/L	25	--	2.0	1.9	No	< G
Total Barium	µg/L	NV	23 100	61	56	No	< G
Total Beryllium	µg/L	100	--	0.52	0.48	No	< G
Total Bismuth	µg/L	NV	NV	0.04	0.03	No	< B
Total Boron	µg/L	5000	--	24	22	No	< G
Total Cadmium	µg/L	80	--	0.13	0.12	No	< G
Total Chromium	µg/L	50 ^g	--	4.9	4.5	No	< G
Total Cobalt	µg/L	1000	--	0.86	0.79	No	< G
Total Copper	µg/L	500 ^h	--	3.7	3.4	No	< G
Total Iron	µg/L	NV	NV	268	279	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.26	0.24	No	< G
Total Lithium	µg/L	NV	40 300	7.2	7.1	No	< G
Total Manganese	µg/L	NV	377 000	143	132	No	< G
Total Mercury	µg/L	3	--	0.02	0.02	No	< G
Total Molybdenum	µg/L	500	--	1.1	0.98	No	< G
Total Nickel	µg/L	1000	--	6.0	5.4	No	< G
Total Selenium	µg/L	50	--	1.0	0.94	No	< G
Total Silver	µg/L	NV	NV	0.04	0.03	No	< B
Total Strontium	µg/L	NV	1 127 000	372	338	No	< G
Total Thallium	µg/L	NV	1	0.05	0.04	No	< G
Total Tin	µg/L	NV	29 200	0.24	0.21	No	< G
Total Titanium	µg/L	NV	NV	1.5	4.1	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	28	25	No	< B
Total Uranium	µg/L	200	--	0.26	0.24	No	< G
Total Vanadium	µg/L	100	--	1.9	1.8	No	< G
Total Zinc	µg/L	50 000	--	9.5	8.8	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3m: Surface Water Screening for Wildlife at Lake D1

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	263	243	No	< G
Total Alkalinity	mg/L	NV	NV	159	142	No	< B
Total Suspended Solids	mg/L	NV	NV	9.5	8.8	No	< B
Calcium	mg/L	1000	--	74	66	No	< G
Chloride	mg/L	NV	NV	31	29	No	< B
Fluoride	mg/L	2 ^f	--	0.06	0.05	No	< G
Magnesium	mg/L	NV	NV	10	9.3	No	< B
Potassium	mg/L	NV	NV	4.2	3.8	No	< B
Sodium	mg/L	NV	NV	16	14	No	< B
Sulphate	mg/L	1000	--	12	10	No	< G
Ammonia (as N)	mg/L	NV	NV	0.24	0.22	No	< B
Nitrate (as N)	mg/L	NV	NV	0.04	1.8	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	1.8	1.6	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	2.4	2.2	No	< G
Total Aluminum	µg/L	5000	--	7.6	58	No	< G
Total Antimony	µg/L	NV	161	0.25	0.24	No	< G
Total Arsenic	µg/L	25	--	2.1	2.0	No	< G
Total Barium	µg/L	NV	23 100	62	57	No	< G
Total Beryllium	µg/L	100	--	0.64	0.58	No	< G
Total Bismuth	µg/L	NV	NV	0.04	0.04	No	< B
Total Boron	µg/L	5000	--	24	21	No	< G
Total Cadmium	µg/L	80	--	0.13	0.12	No	< G
Total Chromium	µg/L	50 ^g	--	4.9	4.5	No	< G
Total Cobalt	µg/L	1000	--	0.92	0.87	No	< G
Total Copper	µg/L	500 ^h	--	3.9	3.5	No	< G
Total Iron	µg/L	NV	NV	287	289	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	0.26	0.24	No	< G
Total Lithium	µg/L	NV	40 300	7.9	7.3	No	< G
Total Manganese	µg/L	NV	377 000	177	141	No	< G
Total Mercury	µg/L	3	--	0.02	0.02	No	< G
Total Molybdenum	µg/L	500	--	1.3	1.2	No	< G
Total Nickel	µg/L	1000	--	6.4	6.0	No	< G
Total Selenium	µg/L	50	--	1.2	1.1	No	< G
Total Silver	µg/L	NV	NV	0.04	0.04	No	< B
Total Strontium	µg/L	NV	1 127 000	380	350	No	< G
Total Thallium	µg/L	NV	1	0.06	0.05	No	< G
Total Tin	µg/L	NV	29 200	0.28	0.27	No	< G
Total Titanium	µg/L	NV	NV	1.5	3.8	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	35	33	No	< B
Total Uranium	µg/L	200	--	0.26	0.24	No	< G
Total Vanadium	µg/L	100	--	2.5	2.2	No	< G
Total Zinc	µg/L	50 000	--	10	9.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3n: Surface Water Screening for Wildlife at Lake H17

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	233	211	No	< G
Total Alkalinity	mg/L	NV	NV	73	67	No	< B
Total Suspended Solids	mg/L	NV	NV	14	13	No	< B
Calcium	mg/L	1000	--	269	245	No	< G
Chloride	mg/L	NV	NV	174	164	No	< B
Fluoride	mg/L	2 ^f	--	0.08	0.07	No	< G
Magnesium	mg/L	NV	NV	7.2	6.5	No	< B
Potassium	mg/L	NV	NV	12	11	No	< B
Sodium	mg/L	NV	NV	25	22	No	< B
Sulphate	mg/L	1000	--	20	19	No	< G
Ammonia (as N)	mg/L	NV	NV	2.0	1.9	No	< B
Nitrate (as N)	mg/L	NV	NV	0.15	0.13	No	< B
Total Kjeldahl Nitrogen	mg/L	NV	NV	1.2	1.1	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.02	0.02	No	< B
Orthophosphate	mg/L	NV	NV	0.01	0.009	No	< B
Cyanide	µg/L	NV	276 600	3.7	3.4	No	< G
Total Aluminum	µg/L	5000	--	20	18	No	< G
Total Antimony	µg/L	NV	161	0.41	0.37	No	< G
Total Arsenic	µg/L	25	--	3.5	3.2	No	< G
Total Barium	µg/L	NV	23 100	57	52	No	< G
Total Beryllium	µg/L	100	--	82	74	No	< G
Total Bismuth	µg/L	NV	NV	0.28	0.25	No	< B
Total Boron	µg/L	5000	--	143	129	No	< G
Total Cadmium	µg/L	80	--	0.34	0.31	No	< G
Total Chromium	µg/L	50 ^g	--	6.1	5.4	No	< G
Total Cobalt	µg/L	1000	--	0.19	0.17	No	< G
Total Copper	µg/L	500 ^h	--	3.8	3.5	No	< G
Total Iron	µg/L	NV	NV	215	196	No	< B
Total Lead	µg/L	100	--	0.50	0.47	No	< G
Total Lithium	µg/L	NV	40 300	15	14	No	< G
Total Manganese	µg/L	NV	377 000	154	140	No	< G
Total Mercury	µg/L	3	--	0.12	0.11	No	< G
Total Molybdenum	µg/L	500	--	0.38	0.34	No	< G
Total Nickel	µg/L	1000	--	3.1	2.8	No	< G
Total Selenium	µg/L	50	--	0.54	0.48	No	< G
Total Silver	µg/L	NV	NV	1.1	1.0	No	> B
Total Strontium	µg/L	NV	1 127 000	269	253	No	< G
Total Thallium	µg/L	NV	1	0.11	0.10	No	< G
Total Tin	µg/L	NV	29 200	0.43	0.39	No	< G
Total Titanium	µg/L	NV	NV	0.41	0.38	No	< B
Total Tungsten	µg/L	NV	NV	0.96	0.87	No	< B
Total Uranium	µg/L	200	--	0.10	0.09	No	< G
Total Vanadium	µg/L	100	--	0.60	0.54	No	< G
Total Zinc	µg/L	50 000	--	9.4	8.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c; internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment, COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-30: Surface Water Screening for Wildlife at Lake H1

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	328	298	No	< G
Total Alkalinity	mg/L	NV	NV	95	86	No	< B
Total Suspended Solids	mg/L	NV	NV	6.5	5.9	No	< B
Calcium	mg/L	1000	--	131	120	No	< G
Chloride	mg/L	NV	NV	201	182	No	< B
Fluoride	mg/L	2 ^f	--	0.07	0.07	No	< G
Magnesium	mg/L	NV	NV	15	14	No	< B
Potassium	mg/L	NV	NV	6.2	5.7	No	< B
Sodium	mg/L	NV	NV	24	22	No	< B
Sulphate	mg/L	1000	--	26	24	No	< G
Ammonia (as N)	mg/L	NV	NV	0.53	0.48	No	< B
Nitrate (as N)	mg/L	NV	NV	0.38	0.34	No	< B
Total Kjeldahl Nitrogen	mg/L	NV	NV	1.2	1.1	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.006	0.005	No	< B
Cyanide	µg/L	NV	276 600	2.2	2.0	No	< G
Total Aluminum	µg/L	5000	--	13	12	No	< G
Total Antimony	µg/L	NV	161	0.37	0.34	No	< G
Total Arsenic	µg/L	25	--	3.3	3.0	No	< G
Total Barium	µg/L	NV	23 100	55	50	No	< G
Total Beryllium	µg/L	100	--	19	17	No	< G
Total Bismuth	µg/L	NV	NV	0.14	0.13	No	< B
Total Boron	µg/L	5000	--	57	52	No	< G
Total Cadmium	µg/L	80	--	0.28	0.26	No	< G
Total Chromium	µg/L	50 ^g	--	6.6	6.0	No	< G
Total Cobalt	µg/L	1000	--	0.41	0.37	No	< G
Total Copper	µg/L	500 ^h	--	5	4.5	No	< G
Total Iron	µg/L	NV	NV	193	175	No	< B
Total Lead	µg/L	100	--	2.5	2.3	No	< G
Total Lithium	µg/L	NV	40 300	17	15	No	< G
Total Manganese	µg/L	NV	377 000	101	92	No	< G
Total Mercury	µg/L	3	--	0.10	0.09	No	< G
Total Molybdenum	µg/L	500	--	0.75	0.68	No	< G
Total Nickel	µg/L	1000	--	5.0	4.5	No	< G
Total Selenium	µg/L	50	--	0.94	0.85	No	< G
Total Silver	µg/L	NV	NV	0.28	0.25	No	< B
Total Strontium	µg/L	NV	1 127 000	326	296	No	< G
Total Thallium	µg/L	NV	1	0.09	0.08	No	< G
Total Tin	µg/L	NV	29 200	0.43	0.39	No	< G
Total Titanium	µg/L	NV	NV	1.4	1.3	No	< B
Total Tungsten	µg/L	NV	NV	23	21	No	< B
Total Uranium	µg/L	200	--	0.11	0.10	No	< G
Total Vanadium	µg/L	100	--	0.75	0.68	No	< G
Total Zinc	µg/L	50 000	--	15	13	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3p: Surface Water Screening for Wildlife at Lake 11

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	337	307	No	< G
Total Alkalinity	mg/L	NV	NV	93	86	No	< B
Total Suspended Solids	mg/L	NV	NV	4.8	4.4	No	< B
Calcium	mg/L	1000	--	114	108	No	< G
Chloride	mg/L	NV	NV	326	308	No	< B
Fluoride	mg/L	2 ^f	--	0.07	0.06	No	< G
Magnesium	mg/L	NV	NV	15	13	No	< B
Potassium	mg/L	NV	NV	5.4	4.9	No	< B
Sodium	mg/L	NV	NV	22	20	No	< B
Sulphate	mg/L	1000	--	26	24	No	< G
Ammonia (as N)	mg/L	NV	NV	0.31	0.29	No	< B
Nitrate (as N)	mg/L	NV	NV	0.48	2.8	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.98	0.91	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.004	0.004	No	< B
Cyanide	µg/L	NV	276 600	1.9	1.7	No	< G
Total Aluminum	µg/L	5000	--	13	43	No	< G
Total Antimony	µg/L	NV	161	0.32	0.31	No	< G
Total Arsenic	µg/L	25	--	2.9	2.7	No	< G
Total Barium	µg/L	NV	23 100	44	41	No	< G
Total Beryllium	µg/L	100	--	0.8	0.71	No	< G
Total Bismuth	µg/L	NV	NV	0.13	0.12	No	< B
Total Boron	µg/L	5000	--	49	45	No	< G
Total Cadmium	µg/L	80	--	0.22	0.20	No	< G
Total Chromium	µg/L	50 ^g	--	5.1	5.1	No	< G
Total Cobalt	µg/L	1000	--	0.49	0.51	No	< G
Total Copper	µg/L	500 ^h	--	5.1	5.0	No	< G
Total Iron	µg/L	NV	NV	185	274	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	5.2	5.0	No	< G
Total Lithium	µg/L	NV	40 300	16	15	No	< G
Total Manganese	µg/L	NV	377 000	92	86	No	< G
Total Mercury	µg/L	3	--	0.10	0.09	No	< G
Total Molybdenum	µg/L	500	--	0.92	0.86	No	< G
Total Nickel	µg/L	1000	--	5.2	4.9	No	< G
Total Selenium	µg/L	50	--	1.1	1.0	No	< G
Total Silver	µg/L	NV	NV	0.15	0.14	No	< B
Total Strontium	µg/L	NV	1 127 000	317	304	No	< G
Total Thallium	µg/L	NV	1	0.09	0.08	No	< G
Total Tin	µg/L	NV	29 200	0.23	0.21	No	< G
Total Titanium	µg/L	NV	NV	2.4	13	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	49	45	No	< B
Total Uranium	µg/L	200	--	0.10	0.10	No	< G
Total Vanadium	µg/L	100	--	0.65	0.62	No	< G
Total Zinc	µg/L	50 000	--	11	11	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3q: Surface Water Screening for Wildlife at Lake J8

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	148	134	No	< G
Total Alkalinity	mg/L	NV	NV	53	48	No	< B
Total Suspended Solids	mg/L	NV	NV	3.0	2.7	No	< B
Calcium	mg/L	1000	--	48	43	No	< G
Chloride	mg/L	NV	NV	234	213	No	< B
Fluoride	mg/L	2 ^f	--	0.05	0.05	No	< G
Magnesium	mg/L	NV	NV	7.1	6.5	No	< B
Potassium	mg/L	NV	NV	2.3	2.1	No	< B
Sodium	mg/L	NV	NV	8.1	7.3	No	< B
Sulphate	mg/L	1000	--	17	15	No	< G
Ammonia (as N)	mg/L	NV	NV	0.10	0.09	No	< B
Nitrate (as N)	mg/L	NV	NV	0.10	0.09	No	< B
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.59	0.53	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.004	0.003	No	< B
Cyanide	µg/L	NV	276 600	4.2	3.8	No	< G
Total Aluminum	µg/L	5000	--	4.8	4.3	No	< G
Total Antimony	µg/L	NV	161	0.25	0.23	No	< G
Total Arsenic	µg/L	25	--	3.3	3.0	No	< G
Total Barium	µg/L	NV	23 100	31	28	No	< G
Total Beryllium	µg/L	100	--	0.17	0.16	No	< G
Total Bismuth	µg/L	NV	NV	0.03	0.03	No	< B
Total Boron	µg/L	5000	--	85	78	No	< G
Total Cadmium	µg/L	80	--	0.11	0.10	No	< G
Total Chromium	µg/L	50 ^g	--	3.1	2.9	No	< G
Total Cobalt	µg/L	1000	--	0.10	0.09	No	< G
Total Copper	µg/L	500 ^h	--	2.1	1.9	No	< G
Total Iron	µg/L	NV	NV	122	111	No	< B
Total Lead	µg/L	100	--	0.26	0.24	No	< G
Total Lithium	µg/L	NV	40 300	37	34	No	< G
Total Manganese	µg/L	NV	377 000	29	26	No	< G
Total Mercury	µg/L	3	--	0.04	0.04	No	< G
Total Molybdenum	µg/L	500	--	0.25	0.23	No	< G
Total Nickel	µg/L	1000	--	1.5	1.3	No	< G
Total Selenium	µg/L	50	--	0.35	0.32	No	< G
Total Silver	µg/L	NV	NV	0.08	0.07	No	< B
Total Strontium	µg/L	NV	1 127 000	206	187	No	< G
Total Thallium	µg/L	NV	1	0.05	0.04	No	< G
Total Tin	µg/L	NV	29 200	0.23	0.21	No	< G
Total Titanium	µg/L	NV	NV	0.38	0.34	No	< B
Total Tungsten	µg/L	NV	NV	17	15	No	< B
Total Uranium	µg/L	200	--	0.06	0.06	No	< G
Total Vanadium	µg/L	100	--	0.41	0.38	No	< G
Total Zinc	µg/L	50 000	--	7.4	6.8	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3r: Surface Water Screening for Wildlife at Lake J7

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	341	309	No	< G
Total Alkalinity	mg/L	NV	NV	96	87	No	< B
Total Suspended Solids	mg/L	NV	NV	4.8	4.4	No	< B
Calcium	mg/L	1000	--	114	105	No	< G
Chloride	mg/L	NV	NV	358	325	No	< B
Fluoride	mg/L	2 ^f	--	0.07	0.06	No	< G
Magnesium	mg/L	NV	NV	15	13	No	< B
Potassium	mg/L	NV	NV	5.5	5.0	No	< B
Sodium	mg/L	NV	NV	23	21	No	< B
Sulphate	mg/L	1000	--	27	24	No	< G
Ammonia (as N)	mg/L	NV	NV	0.33	0.29	No	< B
Nitrate (as N)	mg/L	NV	NV	0.51	0.45	No	< B
Total Kjeldahl Nitrogen	mg/L	NV	NV	1.0	0.92	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.004	0.004	No	< B
Cyanide	µg/L	NV	276 600	1.9	1.7	No	< G
Total Aluminum	µg/L	5000	--	14	13	No	< G
Total Antimony	µg/L	NV	161	0.33	0.31	No	< G
Total Arsenic	µg/L	25	--	2.9	2.6	No	< G
Total Barium	µg/L	NV	23 100	45	41	No	< G
Total Beryllium	µg/L	100	--	0.78	0.71	No	< G
Total Bismuth	µg/L	NV	NV	0.14	0.12	No	< B
Total Boron	µg/L	5000	--	49	44	No	< G
Total Cadmium	µg/L	80	--	0.23	0.21	No	< G
Total Chromium	µg/L	50 ^g	--	5.5	5.0	No	< G
Total Cobalt	µg/L	1000	--	0.50	0.45	No	< G
Total Copper	µg/L	500 ^h	--	5.1	4.6	No	< G
Total Iron	µg/L	NV	NV	192	175	No	< B
Total Lead	µg/L	100	--	5.4	4.9	No	< G
Total Lithium	µg/L	NV	40 300	18	16	No	< G
Total Manganese	µg/L	NV	377 000	95	87	No	< G
Total Mercury	µg/L	3	--	0.10	0.09	No	< G
Total Molybdenum	µg/L	500	--	0.92	0.84	No	< G
Total Nickel	µg/L	1000	--	5.3	4.9	No	< G
Total Selenium	µg/L	50	--	1.1	1.1	No	< G
Total Silver	µg/L	NV	NV	0.16	0.14	No	< B
Total Strontium	µg/L	NV	1 127 000	328	300	No	< G
Total Thallium	µg/L	NV	1	0.09	0.08	No	< G
Total Tin	µg/L	NV	29 200	0.23	0.21	No	< G
Total Titanium	µg/L	NV	NV	2.5	2.2	No	< B
Total Tungsten	µg/L	NV	NV	50	45	No	< B
Total Uranium	µg/L	200	--	0.10	0.09	No	< G
Total Vanadium	µg/L	100	--	0.65	0.65	No	< G
Total Zinc	µg/L	50 000	--	11	11	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3s: Surface Water Screening for Wildlife at Lake Jé

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	278	253	No	< G
Total Alkalinity	mg/L	NV	NV	77	70	No	< B
Total Suspended Solids	mg/L	NV	NV	4.3	3.9	No	< B
Calcium	mg/L	1000	--	96	87	No	< G
Chloride	mg/L	NV	NV	299	271	No	< B
Fluoride	mg/L	2 ^f	--	0.06	0.06	No	< G
Magnesium	mg/L	NV	NV	13	11	No	< B
Potassium	mg/L	NV	NV	4.2	3.8	No	< B
Sodium	mg/L	NV	NV	18	16	No	< B
Sulphate	mg/L	1000	--	25	22	No	< G
Ammonia (as N)	mg/L	NV	NV	0.26	0.24	No	< B
Nitrate (as N)	mg/L	NV	NV	0.44	0.40	No	< B
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.87	0.79	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.004	0.004	No	< B
Cyanide	µg/L	NV	276 600	1.5	1.4	No	< G
Total Aluminum	µg/L	5000	--	11	10	No	< G
Total Antimony	µg/L	NV	161	0.34	0.31	No	< G
Total Arsenic	µg/L	25	--	2.6	2.3	No	< G
Total Barium	µg/L	NV	23 100	44	40	No	< G
Total Beryllium	µg/L	100	--	0.65	0.59	No	< G
Total Bismuth	µg/L	NV	NV	0.10	0.09	No	< B
Total Boron	µg/L	5000	--	43	39	No	< G
Total Cadmium	µg/L	80	--	0.20	0.18	No	< G
Total Chromium	µg/L	50 ^g	--	5.5	5.0	No	< G
Total Cobalt	µg/L	1000	--	0.35	0.32	No	< G
Total Copper	µg/L	500 ^h	--	4.1	3.7	No	< G
Total Iron	µg/L	NV	NV	177	161	No	< B
Total Lead	µg/L	100	--	3.1	2.8	No	< G
Total Lithium	µg/L	NV	40 300	14	13	No	< G
Total Manganese	µg/L	NV	377 000	88	80	No	< G
Total Mercury	µg/L	3	--	0.09	0.08	No	< G
Total Molybdenum	µg/L	500	--	0.76	0.69	No	< G
Total Nickel	µg/L	1000	--	3.7	3.3	No	< G
Total Selenium	µg/L	50	--	0.97	0.88	No	< G
Total Silver	µg/L	NV	NV	0.12	0.11	No	< B
Total Strontium	µg/L	NV	1 127 000	245	223	No	< G
Total Thallium	µg/L	NV	1	0.07	0.07	No	< G
Total Tin	µg/L	NV	29 200	0.23	0.21	No	< G
Total Titanium	µg/L	NV	NV	2.0	1.8	No	< B
Total Tungsten	µg/L	NV	NV	27	24	No	< B
Total Uranium	µg/L	200	--	0.09	0.08	No	< G
Total Vanadium	µg/L	100	--	0.63	0.57	No	< G
Total Zinc	µg/L	50 000	--	10	9.0	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3t: Surface Water Screening for Wildlife at Lake J3

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	354	322	No	< G
Total Alkalinity	mg/L	NV	NV	96	87	No	< B
Total Suspended Solids	mg/L	NV	NV	6.0	5.5	No	< B
Calcium	mg/L	1000	--	110	100	No	< G
Chloride	mg/L	NV	NV	351	319	No	< B
Fluoride	mg/L	2 ^f	--	0.07	0.07	No	< G
Magnesium	mg/L	NV	NV	17	16	No	< B
Potassium	mg/L	NV	NV	6.1	5.5	No	< B
Sodium	mg/L	NV	NV	26	24	No	< B
Sulphate	mg/L	1000	--	44	40	No	< G
Ammonia (as N)	mg/L	NV	NV	0.38	0.34	No	< B
Nitrate (as N)	mg/L	NV	NV	0.55	0.50	No	< B
Total Kjeldahl Nitrogen	mg/L	NV	NV	1.2	1.1	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.006	0.005	No	< B
Cyanide	µg/L	NV	276 600	2.0	1.8	No	< G
Total Aluminum	µg/L	5000	--	14	12	No	< G
Total Antimony	µg/L	NV	161	0.38	0.35	No	< G
Total Arsenic	µg/L	25	--	3.8	3.5	No	< G
Total Barium	µg/L	NV	23 100	63	57	No	< G
Total Beryllium	µg/L	100	--	0.76	0.69	No	< G
Total Bismuth	µg/L	NV	NV	0.12	0.11	No	< B
Total Boron	µg/L	5000	--	54	49	No	< G
Total Cadmium	µg/L	80	--	0.28	0.26	No	< G
Total Chromium	µg/L	50 ^g	--	5.8	5.3	No	< G
Total Cobalt	µg/L	1000	--	0.48	0.43	No	< G
Total Copper	µg/L	500 ^h	--	5.0	4.6	No	< G
Total Iron	µg/L	NV	NV	196	178	No	< B
Total Lead	µg/L	100	--	3.8	3.4	No	< G
Total Lithium	µg/L	NV	40 300	22	20	No	< G
Total Manganese	µg/L	NV	377 000	138	126	No	< G
Total Mercury	µg/L	3	--	0.11	0.10	No	< G
Total Molybdenum	µg/L	500	--	0.87	0.79	No	< G
Total Nickel	µg/L	1000	--	5.5	5.0	No	< G
Total Selenium	µg/L	50	--	1.1	1.0	No	< G
Total Silver	µg/L	NV	NV	0.18	0.16	No	< B
Total Strontium	µg/L	NV	1 127 000	364	331	No	< G
Total Thallium	µg/L	NV	1	0.09	0.08	No	< G
Total Tin	µg/L	NV	29 200	0.23	0.21	No	< G
Total Titanium	µg/L	NV	NV	2.3	2.1	No	< B
Total Tungsten	µg/L	NV	NV	27	25	No	< B
Total Uranium	µg/L	200	--	0.12	0.11	No	< G
Total Vanadium	µg/L	100	--	0.73	0.67	No	< G
Total Zinc	µg/L	50 000	--	15	13	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3u: Surface Water Screening for Wildlife at Lake J2

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	354	322	No	< G
Total Alkalinity	mg/L	NV	NV	96	87	No	< B
Total Suspended Solids	mg/L	NV	NV	6.0	5.5	No	< B
Calcium	mg/L	1000	--	110	100	No	< G
Chloride	mg/L	NV	NV	351	319	No	< B
Fluoride	mg/L	2 ^f	--	0.07	0.07	No	< G
Magnesium	mg/L	NV	NV	17	16	No	< B
Potassium	mg/L	NV	NV	6.1	5.5	No	< B
Sodium	mg/L	NV	NV	26	24	No	< B
Sulphate	mg/L	1000	--	44	40	No	< G
Ammonia (as N)	mg/L	NV	NV	0.38	0.34	No	< B
Nitrate (as N)	mg/L	NV	NV	0.55	0.50	No	< B
Total Kjeldahl Nitrogen	mg/L	NV	NV	1.2	1.1	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.01	0.01	No	< B
Cyanide	µg/L	NV	276 600	2.0	1.8	No	< G
Total Aluminum	µg/L	5000	--	14	12	No	< G
Total Antimony	µg/L	NV	161	0.38	0.35	No	< G
Total Arsenic	µg/L	25	--	3.8	3.5	No	< G
Total Barium	µg/L	NV	23 100	63	57	No	< G
Total Beryllium	µg/L	100	--	0.8	0.69	No	< G
Total Bismuth	µg/L	NV	NV	0.12	0.11	No	< B
Total Boron	µg/L	5000	--	54	49	No	< G
Total Cadmium	µg/L	80	--	0.28	0.26	No	< G
Total Chromium	µg/L	50 ^g	--	6	5.3	No	< G
Total Cobalt	µg/L	1000	--	0.48	0.43	No	< G
Total Copper	µg/L	500 ^h	--	5	4.6	No	< G
Total Iron	µg/L	NV	NV	196	178	No	< B
Total Lead	µg/L	100	--	3.8	3.4	No	< G
Total Lithium	µg/L	NV	40 300	22	20	No	< G
Total Manganese	µg/L	NV	377 000	138	126	No	< G
Total Mercury	µg/L	3	--	0.11	0.10	No	< G
Total Molybdenum	µg/L	500	--	0.87	0.79	No	< G
Total Nickel	µg/L	1000	--	5.5	5.0	No	< G
Total Selenium	µg/L	50	--	1.1	1.0	No	< G
Total Silver	µg/L	NV	NV	0.18	0.16	No	< B
Total Strontium	µg/L	NV	1 127 000	364	331	No	< G
Total Thallium	µg/L	NV	1	0.09	0.08	No	< G
Total Tin	µg/L	NV	29 200	0.23	0.21	No	< G
Total Titanium	µg/L	NV	NV	2.3	2.1	No	< B
Total Tungsten	µg/L	NV	NV	27	25	No	< B
Total Uranium	µg/L	200	--	0.12	0.11	No	< G
Total Vanadium	µg/L	100	--	0.73	0.7	No	< G
Total Zinc	µg/L	50 000	--	15	13	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3v: Surface Water Screening for Wildlife at Lake J1

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	332	307	No	< G
Total Alkalinity	mg/L	NV	NV	92	84	No	< B
Total Suspended Solids	mg/L	NV	NV	4.6	4.2	No	< B
Calcium	mg/L	1000	--	109	102	No	< G
Chloride	mg/L	NV	NV	343	317	No	< B
Fluoride	mg/L	2 ^f	--	0.07	0.06	No	< G
Magnesium	mg/L	NV	NV	15	14	No	< B
Potassium	mg/L	NV	NV	5.5	5.0	No	< B
Sodium	mg/L	NV	NV	22	20	No	< B
Sulphate	mg/L	1000	--	26	24	No	< G
Ammonia (as N)	mg/L	NV	NV	0.32	0.29	No	< B
Nitrate (as N)	mg/L	NV	NV	0.49	2.8	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.99	0.91	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.004	0.004	No	< B
Cyanide	µg/L	NV	276 600	2.0	1.8	No	< G
Total Aluminum	µg/L	5000	--	14	43	No	< G
Total Antimony	µg/L	NV	161	0.32	0.30	No	< G
Total Arsenic	µg/L	25	--	2.9	2.6	No	< G
Total Barium	µg/L	NV	23 100	45	41	No	< G
Total Beryllium	µg/L	100	--	0.75	0.69	No	< G
Total Bismuth	µg/L	NV	NV	0.13	0.12	No	< B
Total Boron	µg/L	5000	--	50	46	No	< G
Total Cadmium	µg/L	80	--	0.23	0.21	No	< G
Total Chromium	µg/L	50 ^g	--	5.3	5.2	No	< G
Total Cobalt	µg/L	1000	--	0.49	0.45	No	< G
Total Copper	µg/L	500 ^h	--	4.9	4.5	No	< G
Total Iron	µg/L	NV	NV	190	172	No	< B
Total Lead	µg/L	100	--	5.5	5.0	No	< G
Total Lithium	µg/L	NV	40 300	16	14	No	< G
Total Manganese	µg/L	NV	377 000	93	88	No	< G
Total Mercury	µg/L	3	--	0.11	0.10	No	< G
Total Molybdenum	µg/L	500	--	0.89	0.83	No	< G
Total Nickel	µg/L	1000	--	5.2	4.8	No	< G
Total Selenium	µg/L	50	--	1.1	0.99	No	< G
Total Silver	µg/L	NV	NV	0.15	0.14	No	< B
Total Strontium	µg/L	NV	1 127 000	325	303	No	< G
Total Thallium	µg/L	NV	1	0.09	0.08	No	< G
Total Tin	µg/L	NV	29 200	0.23	0.21	No	< G
Total Titanium	µg/L	NV	NV	2.5	2.3	No	< B
Total Tungsten	µg/L	NV	NV	56	51	No	< B
Total Uranium	µg/L	200	--	0.10	0.09	No	< G
Total Vanadium	µg/L	100	--	0.62	0.62	No	< G
Total Zinc	µg/L	50 000	--	11	11	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark.

Prepared by: SM

Checked by: SG

Table 10.1-C-3w: Surface Water Screening for Wildlife at Chicken Head Lake

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	103	103	No	< G
Total Alkalinity	mg/L	NV	NV	44	47	No	No direct impact on wildlife health
Total Suspended Solids	mg/L	NV	NV	3.5	3.6	No	No direct impact on wildlife health
Calcium	mg/L	1000	--	15	16	No	< G
Chloride	mg/L	NV	NV	15	16	No	Less than the CCME guideline for aquatic life of 120 mg/L
Fluoride	mg/L	2 ^f	--	0.10	0.10	No	< G
Magnesium	mg/L	NV	NV	2.3	2.4	No	Essential nutrient/ameliorates metal toxicity
Potassium	mg/L	NV	NV	2.9	3.1	No	Essential nutrient/ameliorates metal toxicity
Sodium	mg/L	NV	NV	12	12	No	< B
Sulphate	mg/L	1000	--	7.6	7.9	No	< G
Ammonia (as N)	mg/L	NV	NV	0.06	0.06	No	< B
Nitrate (as N)	mg/L	NV	NV	0.05	0.59	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.46	0.45	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.002	0.002	No	< B
Cyanide	µg/L	NV	276 600	2.7	2.7	No	< G
Total Aluminum	µg/L	5000	--	9.1	16	No	< G
Total Antimony	µg/L	NV	161	0.39	0.40	No	< G
Total Arsenic	µg/L	25	--	1.1	1.2	No	< G
Total Barium	µg/L	NV	23 100	21	22	No	< G
Total Beryllium	µg/L	100	--	0.42	0.44	No	< G
Total Bismuth	µg/L	NV	NV	0.08	0.08	No	< B
Total Boron	µg/L	5000	--	124	131	No	< G
Total Cadmium	µg/L	80	--	0.18	0.19	No	< G
Total Chromium	µg/L	50 ^g	--	0.05	0.07	No	< G
Total Cobalt	µg/L	1000	--	0.33	0.34	No	< G
Total Copper	µg/L	500 ^h	--	9.7	9.9	No	< G
Total Iron	µg/L	NV	NV	139	156	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	17	15	No	< G
Total Lithium	µg/L	NV	40 300	35	32	No	< G
Total Manganese	µg/L	NV	377 000	8.6	8.9	No	< G
Total Mercury	µg/L	3	--	0.09	0.09	No	< G
Total Molybdenum	µg/L	500	--	0.78	0.74	No	< G
Total Nickel	µg/L	1000	--	2.9	2.9	No	< G
Total Selenium	µg/L	50	--	0.38	0.38	No	< G
Total Silver	µg/L	NV	NV	0.10	0.10	No	< B
Total Strontium	µg/L	NV	1 127 000	108	116	No	< G
Total Thallium	µg/L	NV	1	0.10	0.11	No	< G
Total Tin	µg/L	NV	29 200	0.56	0.57	No	< G
Total Titanium	µg/L	NV	NV	1.0	1.3	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	1.3	1.4	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	200	--	0.18	0.18	No	< G
Total Vanadium	µg/L	100	--	1.1	1.2	No	< G
Total Zinc	µg/L	50 000	--	6.6	6.8	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3x: Surface Water Screening for Wildlife at DS1

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	100	97	No	< G
Total Alkalinity	mg/L	NV	NV	43	44	No	No direct impact on wildlife health
Total Suspended Solids	mg/L	NV	NV	3.6	3.6	No	< B
Calcium	mg/L	1000	--	16	16	No	< G
Chloride	mg/L	NV	NV	15	15	No	< B
Fluoride	mg/L	2 ^f	--	0.10	0.10	No	< G
Magnesium	mg/L	NV	NV	2.3	2.3	No	< B
Potassium	mg/L	NV	NV	2.9	3.0	No	Essential nutrient/ameliorates metal toxicity
Sodium	mg/L	NV	NV	12	12	No	< B
Sulphate	mg/L	1000	--	7.6	7.6	No	< G
Ammonia (as N)	mg/L	NV	NV	0.06	0.06	No	< B
Nitrate (as N)	mg/L	NV	NV	0.06	0.61	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.39	0.38	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	NV	0.002	0.002	No	< B
Cyanide	µg/L	NV	276 600	2.9	2.8	No	< G
Total Aluminum	µg/L	5000	--	9.3	16	No	< G
Total Antimony	µg/L	NV	161	0.42	0.43	No	< G
Total Arsenic	µg/L	25	--	1.1	1.1	No	< G
Total Barium	µg/L	NV	23 100	20	20	No	< G
Total Beryllium	µg/L	100	--	0.51	0.50	No	< G
Total Bismuth	µg/L	NV	NV	0.15	0.15	No	< B
Total Boron	µg/L	5000	--	129	132	No	< G
Total Cadmium	µg/L	80	--	0.19	0.17	No	< G
Total Chromium	µg/L	50 ^g	--	0.09	0.11	No	< G
Total Cobalt	µg/L	1000	--	0.63	0.68	No	< G
Total Copper	µg/L	500 ^h	--	9.9	9.3	No	< G
Total Iron	µg/L	NV	NV	141	152	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	17	15	No	< G
Total Lithium	µg/L	NV	40 300	25	24	No	< G
Total Manganese	µg/L	NV	377 000	8.1	8.1	No	< G
Total Mercury	µg/L	3	--	0.09	0.08	No	< G
Total Molybdenum	µg/L	500	--	1.7	1.7	No	< G
Total Nickel	µg/L	1000	--	4.3	4.2	No	< G
Total Selenium	µg/L	50	--	0.31	0.30	No	< G
Total Silver	µg/L	NV	NV	0.11	0.10	No	< B
Total Strontium	µg/L	NV	1 127 000	107	111	No	< G
Total Thallium	µg/L	NV	1	0.10	0.10	No	< G
Total Tin	µg/L	NV	29 200	0.46	0.46	No	< G
Total Titanium	µg/L	NV	NV	1.1	1.4	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	1.4	1.5	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	200	--	0.17	0.18	No	< G
Total Vanadium	µg/L	100	--	1.1	1.1	No	< G
Total Zinc	µg/L	50 000	--	6.4	6.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-3y: Surface Water Screening for Wildlife at DS1A

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	60	55	No	< G
Total Alkalinity	mg/L	NV	NV	25	23	No	< B
Total Suspended Solids	mg/L	NV	NV	2.7	2.4	No	< B
Calcium	mg/L	1000	--	9.1	8.3	No	< G
Chloride	mg/L	NV	NV	10	9.2	No	< B
Fluoride	mg/L	2 ^f	--	0.07	0.06	No	< G
Magnesium	mg/L	NV	NV	1.4	1.3	No	< B
Potassium	mg/L	NV	NV	1.8	1.7	No	< B
Sodium	mg/L	NV	NV	7.6	6.9	No	< B
Sulphate	mg/L	1000	--	5.0	4.5	No	< G
Ammonia (as N)	mg/L	NV	NV	0.05	0.04	No	< B
Nitrate (as N)	mg/L	NV	NV	0.09	0.78	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.18	0.17	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.003	0.003	No	< B
Orthophosphate	mg/L	NV	NV	0.001	0.001	No	< B
Cyanide	µg/L	NV	276 600	4.1	3.7	No	< G
Total Aluminum	µg/L	5000	--	7.1	15	No	< G
Total Antimony	µg/L	NV	161	0.38	0.35	No	< G
Total Arsenic	µg/L	25	--	0.48	0.47	No	< G
Total Barium	µg/L	NV	23 100	11	10	No	< G
Total Beryllium	µg/L	100	--	0.89	0.82	No	< G
Total Bismuth	µg/L	NV	NV	9.2	8.3	No	< B
Total Boron	µg/L	5000	--	99	91	No	< G
Total Cadmium	µg/L	80	--	0.19	0.17	No	< G
Total Chromium	µg/L	50 ^g	--	1.3	1.4	No	< G
Total Cobalt	µg/L	1000	--	1.5	1.6	No	< G
Total Copper	µg/L	500 ^h	--	6.6	6.0	No	< G
Total Iron	µg/L	NV	NV	83	84	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	17	15	No	< G
Total Lithium	µg/L	NV	40 300	15	13	No	< G
Total Manganese	µg/L	NV	377 000	4.3	4.0	No	< G
Total Mercury	µg/L	3	--	0.05	0.04	No	< G
Total Molybdenum	µg/L	500	--	26	24	No	< G
Total Nickel	µg/L	1000	--	18	16	No	< G
Total Selenium	µg/L	50	--	0.14	0.13	No	< G
Total Silver	µg/L	NV	NV	0.09	0.08	No	< B
Total Strontium	µg/L	NV	1 127 000	64	58	No	< G
Total Thallium	µg/L	NV	1	0.05	0.04	No	< G
Total Tin	µg/L	NV	29 200	0.23	0.21	No	< G
Total Titanium	µg/L	NV	NV	1.0	1.3	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	89	81	No	< B
Total Uranium	µg/L	200	--	0.10	0.09	No	< G
Total Vanadium	µg/L	100	--	0.86	0.80	No	< G
Total Zinc	µg/L	50 000	--	4.2	3.8	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level

Prepared by: SM

Checked by: SG

Table 10.1-C-3z: Surface Water Screening for Wildlife at DS2

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Baseline Concentration + 10% ^c	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	3000	--	82	76	No	< G
Total Alkalinity	mg/L	NV	NV	36	34	No	< B
Total Suspended Solids	mg/L	NV	NV	3.0	2.8	No	< B
Calcium	mg/L	1000	--	13	12	No	< G
Chloride	mg/L	NV	NV	14	14	No	< B
Fluoride	mg/L	2 ^f	--	0.10	0.10	No	< G
Magnesium	mg/L	NV	NV	1.9	1.8	No	< B
Potassium	mg/L	NV	NV	2.7	2.6	No	< B
Sodium	mg/L	NV	NV	11	10	No	< B
Sulphate	mg/L	1000	--	7.1	6.8	No	< G
Ammonia (as N)	mg/L	NV	NV	0.05	0.05	No	< B
Nitrate (as N)	mg/L	NV	NV	0.07	0.66	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.30	0.29	No	< B
Dissolved Phosphorus	mg/L	NV	NV	0.006	0.006	No	< B
Orthophosphate	mg/L	NV	NV	0.002	0.002	No	< B
Cyanide	µg/L	NV	276 600	3.1	3.1	No	< G
Total Aluminum	µg/L	5000	--	9.3	16	No	< G
Total Antimony	µg/L	NV	161	0.44	0.44	No	< G
Total Arsenic	µg/L	25	--	0.9	0.90	No	< G
Total Barium	µg/L	NV	23 100	17	16	No	< G
Total Beryllium	µg/L	100	--	0.62	0.58	No	< G
Total Bismuth	µg/L	NV	NV	0.92	0.86	No	< B
Total Boron	µg/L	5000	--	140	138	No	< G
Total Cadmium	µg/L	80	--	0.21	0.19	No	< G
Total Chromium	µg/L	50 ^g	--	1.3	1.4	No	< G
Total Cobalt	µg/L	1000	--	1.5	1.6	No	< G
Total Copper	µg/L	500 ^h	--	9.9	9.3	No	< G
Total Iron	µg/L	NV	NV	129	130	No	Less than the CCME guideline for aquatic life of 300 µg/L
Total Lead	µg/L	100	--	17	15	No	< G
Total Lithium	µg/L	NV	40 300	25	23	No	< G
Total Manganese	µg/L	NV	377 000	6.0	5.7	No	< G
Total Mercury	µg/L	3	--	0.08	0.08	No	< G
Total Molybdenum	µg/L	500	--	5.0	4.7	No	< G
Total Nickel	µg/L	1000	--	5.1	4.8	No	< G
Total Selenium	µg/L	50	--	0.22	0.20	No	< G
Total Silver	µg/L	NV	NV	0.09	0.09	No	< B
Total Strontium	µg/L	NV	1 127 000	93	91	No	< G
Total Thallium	µg/L	NV	1	0.08	0.07	No	< G
Total Tin	µg/L	NV	29 200	0.34	0.31	No	< G
Total Titanium	µg/L	NV	NV	1.1	1.3	No	Less than LANL ESL for wildlife of 70 000 µg/L
Total Tungsten	µg/L	NV	NV	12	11	No	< B
Total Uranium	µg/L	200	--	0.15	0.14	No	< G
Total Vanadium	µg/L	100	--	1.0	0.99	No	< G
Total Zinc	µg/L	50 000	--	5.6	5.4	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site).

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c maximum modelled baseline surface water concentration + 10%.

^d predicted maximum surface water concentration of all modelled Project phases.

^e yes = the predicted surface water concentration is greater than the guideline/benchmark and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline/benchmark and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^f guideline assuming feed of animals does not contain fluoride.

^g guideline for trivalent chromium, Cr(III).

^h most stringent of the guidelines provided (for sheep).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; B = maximum modelled baseline surface water concentration + 10%; G/B = guideline/benchmark; LANL = Los Alamos National Laboratory; ESL = Ecological Screening Level.

Prepared by: SM

Checked by: SG

Table 10.1-C-4a: Surface Water Screening for Aquatic Life for Lake A8

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	271	246	No	< B
Total Alkalinity	mg/L	NV	75	68	No	< B
Total Suspended Solids	mg/L	NV	3.9	3.6	No	< B
Calcium	mg/L	NV	92	84	No	< B
Chloride	mg/L	120	209	190	No	< B
Fluoride	mg/L	0.12	0.06	0.05	No	< G
Magnesium	mg/L	NV	11	9.8	No	< B
Potassium	mg/L	NV	3.7	3.4	No	< B
Sodium	mg/L	NV	16	14	No	< B
Sulphate	mg/L	NV	23	21	No	< B
Ammonia (as N)	mg/L	7 ^e	0.23	0.21	No	< G
Nitrate (as N)	mg/L	3.0	0.39	0.36	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.79	0.72	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.009	0.008	No	< B
Orthophosphate	mg/L	NV	0.004	0.003	No	< B
Cyanide	µg/L	5 ^g	2.3	2.1	No	< G
Total Aluminum	µg/L	100 ^h	8.6	7.8	No	< G
Total Antimony	µg/L	NV	0.28	0.25	No	< B
Total Arsenic	µg/L	5	2.5	2.3	No	< G
Total Barium	µg/L	NV	37	33	No	< B
Total Beryllium	µg/L	NV	0.66	0.60	No	< B
Total Bismuth	µg/L	NV	0.11	0.10	No	< B
Total Boron	µg/L	1500	41	37	No	< G
Total Cadmium	µg/L	0.009 ^j	0.17	0.15	No	< B
Total Chromium	µg/L	8.9 ^j	3.8	3.4	No	< G
Total Cobalt	µg/L	NV	0.38	0.34	No	< B
Total Copper	µg/L	2 ^k	4.1	3.7	No	< B
Total Iron	µg/L	300	150	136	No	< G
Total Lead	µg/L	1 ^l	3.8	3.4	No	< B
Total Lithium	µg/L	NV	11	10	No	< B
Total Manganese	µg/L	NV	70	64	No	< B
Total Mercury	µg/L	0.026	0.08	0.07	No	< B
Total Molybdenum	µg/L	73	0.81	0.73	No	< G
Total Nickel	µg/L	29 ^m	3.8	3.4	No	< G
Total Selenium	µg/L	1	0.35	0.32	No	< G
Total Silver	µg/L	0.1	0.11	0.10	No	< G
Total Strontium	µg/L	NV	203	184	No	< B
Total Thallium	µg/L	0.8	0.07	0.06	No	< G
Total Tin	µg/L	NV	0.40	0.36	No	< B
Total Titanium	µg/L	NV	2.0	1.9	No	< B
Total Tungsten	µg/L	NV	41	38	No	< B
Total Uranium	µg/L	15	0.08	0.08	No	< G
Total Vanadium	µg/L	NV	0.53	0.48	No	< B
Total Zinc	µg/L	30	8.4	7.6	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{[0.86(\ln(\text{hardness})) - 3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{[\ln(\text{hardness}) - 1.455] \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{[1.273(\ln(\text{hardness})) - 4.705]}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{[0.76(\ln(\text{hardness})) + 1.06]}$.

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4b: Surface Water Screening for Aquatic Life for Lake A6

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	195	177	No	< B
Total Alkalinity	mg/L	NV	69	63	No	< B
Total Suspended Solids	mg/L	NV	3.5	3.2	No	< B
Calcium	mg/L	NV	71	65	No	< B
Chloride	mg/L	120	114	112	No	< G
Fluoride	mg/L	0.12	0.06	0.06	No	< G
Magnesium	mg/L	NV	7.2	6.5	No	< B
Potassium	mg/L	NV	2.9	2.6	No	< B
Sodium	mg/L	NV	12	11	No	< B
Sulphate	mg/L	NV	17	15	No	< B
Ammonia (as N)	mg/L	7 ^e	0.14	0.13	No	< G
Nitrate (as N)	mg/L	3.0	0.24	0.21	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.74	0.67	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.009	0.009	No	< B
Orthophosphate	mg/L	NV	0.003	0.002	No	< B
Cyanide	µg/L	5 ^g	2.2	2.0	No	< G
Total Aluminum	µg/L	100 ^h	7.2	6.6	No	< G
Total Antimony	µg/L	NV	0.28	0.26	No	< B
Total Arsenic	µg/L	5	2.8	2.5	No	< G
Total Barium	µg/L	NV	31	28	No	< B
Total Beryllium	µg/L	NV	0.48	0.44	No	< B
Total Bismuth	µg/L	NV	0.08	0.07	No	< B
Total Boron	µg/L	1500	44	40	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.14	0.13	No	< B
Total Chromium	µg/L	8.9 ^j	3.1	2.9	No	< G
Total Cobalt	µg/L	NV	0.26	0.23	No	< B
Total Copper	µg/L	2 ^k	3.4	3.1	No	< B
Total Iron	µg/L	300	141	128	No	< G
Total Lead	µg/L	1 ^l	2.0	1.8	No	< B
Total Lithium	µg/L	NV	7.7	7.0	No	< B
Total Manganese	µg/L	NV	43	39	No	< B
Total Mercury	µg/L	0.026	0.05	0.05	No	< B
Total Molybdenum	µg/L	73	0.61	0.56	No	< G
Total Nickel	µg/L	29 ^m	3.0	2.7	No	< G
Total Selenium	µg/L	1	0.35	0.32	No	< G
Total Silver	µg/L	0.1	0.11	0.10	No	< G
Total Strontium	µg/L	NV	163	149	No	< B
Total Thallium	µg/L	0.8	0.06	0.05	No	< G
Total Tin	µg/L	NV	0.40	0.36	No	< B
Total Titanium	µg/L	NV	1.3	1.2	No	< B
Total Tungsten	µg/L	NV	34	31	No	< B
Total Uranium	µg/L	15	0.09	0.08	No	< G
Total Vanadium	µg/L	NV	0.50	0.46	No	< B
Total Zinc	µg/L	30	6.6	6.0	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH ≥ 6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{(0.86[\ln(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{[\ln(\text{hardness})] - 1.455} \times 0.2$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] + 1.06}$.

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4c: Surface Water Screening for Aquatic Life for Lake A1

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	All Modelled Project Phases			Construction			Operations			Closure			Post-Closure		
				Predicted Concentration ^c	COPC ^d	Rationale	Predicted Concentration ^c	COPC ^d	Rationale	Predicted Concentration ^c	COPC ^d	Rationale	Predicted Concentration ^c	COPC ^d	Rationale	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	177	209	No	Within range of US state criteria	175	No	< B	209	No	Within range of US state criteria	209	No	Within range of US state criteria	126	No	< B
Total Alkalinity	mg/L	NV	67	79	No	Ameliorates metal toxicity	66	No	< B	79	No	Ameliorates metal toxicity	79	No	Ameliorates metal toxicity	52	No	< B
Total Suspended Solids	mg/L	See note (i)	3.5	4.3	No	< G	3.4	No	< B	4.3	No	< G	4.1	No	< G	2.3	No	< B
Calcium	mg/L	NV	63	75	No	Essential nutrient/ameliorates metal toxicity	63	No	< B	75	No	Essential nutrient/ameliorates metal toxicity	75	No	Essential nutrient/ameliorates metal toxicity	44	No	< B
Chloride	mg/L	120	88	116	No	< G	88	No	< G	116	No	< G	116	No	< G	80	No	< G
Fluoride	mg/L	0.12	0.07	0.08	No	< G	0.07	No	< G	0.08	No	< G	0.08	No	< G	0.03	No	< G
Magnesium	mg/L	NV	7.2	8.5	No	Essential nutrient/ameliorates metal toxicity	7.1	No	< B	8.5	No	Essential nutrient/ameliorates metal toxicity	8.5	No	Essential nutrient/ameliorates metal toxicity	5.7	No	< B
Potassium	mg/L	NV	3.2	3.7	No	Essential nutrient/ameliorates metal toxicity	3.1	No	< B	3.7	No	Essential nutrient/ameliorates metal toxicity	3.7	No	Essential nutrient/ameliorates metal toxicity	2.1	No	< B
Sodium	mg/L	NV	11	13	No	Essential nutrient/ameliorates metal toxicity	11	No	< B	13	No	Essential nutrient/ameliorates metal toxicity	13	No	Essential nutrient/ameliorates metal toxicity	9.1	No	< B
Sulphate	mg/L	NV	14	17	No	Less than BCMOE guideline of 50 µg/L	14	No	< B	17	No	Less than BCMOE guideline of 50 µg/L	17	No	Less than BCMOE guideline of 50 µg/L	11	No	< B
Ammonia (as N)	mg/L	7 ^e	0.14	0.17	No	< G	0.14	No	< G	0.17	No	< G	0.17	No	< G	0.13	No	< G
Nitrate (as N)	mg/L	3.0	0.18	1.8	No	< G	0.18	No	< G	1.8	No	< G	0.22	No	< G	0.17	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.80	0.95	No	See note (ii)	0.79	No	< B	0.95	No	See note (ii)	0.95	No	See note (ii)	0.56	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.009	0.01	No	Estimated total phosphorus is within trigger range for mesotrophic lakes	0.009	No	< B	0.01	No	Estimated total phosphorus is within trigger range for mesotrophic lakes	0.01	No	Estimated total phosphorus is within trigger range for mesotrophic lakes	0.008	No	< B
Orthophosphate	mg/L	NV	0.003	0.003	No	< B	0.003	No	< B	0.003	No	< B	0.003	No	< B	0.002	No	< B
Cyanide	µg/L	5 ^g	3.1	3.6	No	< G	3.0	No	< G	3.6	No	< G	3.6	No	< G	1.6	No	< G
Total Aluminum	µg/L	100 ^h	7.5	45	No	< G	7.5	No	< G	45	No	< G	8.9	No	< G	6.8	No	< G
Total Antimony	µg/L	NV	0.32	0.37	No	Less than BCMOE guideline of 20 µg/L	0.31	No	< B	0.37	No	Less than BCMOE guideline of 20 µg/L	0.37	No	Less than BCMOE guideline of 20 µg/L	0.23	No	< B
Total Arsenic	µg/L	5	2.7	3.2	No	< G	2.7	No	< G	3.2	No	< G	3.2	No	< G	2.2	No	< G
Total Barium	µg/L	NV	37	44	No	Less than BCMOE guideline of 1,000 µg/L	37	No	< B	44	No	Less than BCMOE guideline of 1,000 µg/L	44	No	Less than BCMOE guideline of 1,000 µg/L	34	No	< B
Total Beryllium	µg/L	NV	0.37	0.44	No	Less than BCMOE guideline of 5.3 µg/L	0.37	No	< B	0.44	No	Less than BCMOE guideline of 5.3 µg/L	0.44	No	Less than BCMOE guideline of 5.3 µg/L	0.16	No	< B
Total Bismuth	µg/L	NV	0.07	0.08	No	Lack of toxicity data/non-toxic	0.07	No	< B	0.08	No	Lack of toxicity data/non-toxic	0.08	No	Lack of toxicity data/non-toxic	0.02	No	< B
Total Boron	µg/L	1500	43	51	No	< G	43	No	< G	51	No	< G	51	No	< G	27	No	< G
Total Cadmium	µg/L	0.009	0.19	0.29	Yes	> B	0.19	No	< B	0.23	Yes	> B	0.23	Yes	> B	0.17	No	< B
Total Chromium	µg/L	8.9	3.4	8.6	No	< G	3.4	No	< G	8.6	No	< G	4.1	No	< G	3.1	No	< G
Total Cobalt	µg/L	NV	0.21	0.81	No	Less than BCMOE guideline of 4 µg/L	0.21	No	< B	0.81	No	Less than BCMOE guideline of 4 µg/L	0.24	No	Less than BCMOE guideline of 4 µg/L	0.08	No	< B
Total Copper	µg/L	2 ⁱ	3.0	3.6	Yes	> G, > B	3.0	No	< B	3.6	Yes	> G, > B	3.6	Yes	> G, > B	2.5	No	< B
Total Iron	µg/L	300	149	274	No	< G	148	No	< G	274	No	< G	176	No	< G	114	No	< G
Total Lead	µg/L	1	1.4	1.7	Yes	> G, > B	1.4	No	< B	1.7	Yes	> G, > B	1.7	Yes	> G, > B	0.62	No	< G
Total Lithium	µg/L	NV	7.8	9.2	No	Less than BCMOE guideline of 14 µg/L	7.7	No	< B	9.2	No	Less than BCMOE guideline of 14 µg/L	9.2	No	Less than BCMOE guideline of 14 µg/L	7.1	No	< B
Total Manganese	µg/L	NV	41	49	No	Less than the BCMOE guideline of 649 µg/L	41	No	< B	49	No	Less than the BCMOE guideline of 649 µg/L	49	No	Less than the BCMOE guideline of 649 µg/L	35	No	< B
Total Mercury	µg/L	0.026	0.04	0.05	Yes	> G, > B	0.04	No	< B	0.05	Yes	> G, > B	0.05	Yes	> G, > B	0.03	No	< B
Total Molybdenum	µg/L	73	0.50	0.59	No	< G	0.49	No	< G	0.59	No	< G	0.59	No	< G	0.46	No	< G
Total Nickel	µg/L	29 ^j	2.8	3.3	No	< G	2.8	No	< G	3.3	No	< G	3.3	No	< G	1.5	No	< G
Total Selenium	µg/L	1	0.35	0.41	No	< G	0.34	No	< G	0.41	No	< G	0.41	No	< G	0.30	No	< G
Total Silver	µg/L	0.1	0.12	0.15	Yes	> G, > B	0.12	No	< B	0.15	Yes	> G, > B	0.15	Yes	> G, > B	0.06	No	< G
Total Strontium	µg/L	NV	184	218	No	Less than MODEP criterion of 21,000 µg/L	183	No	< B	218	No	Less than MODEP criterion of 21,000 µg/L	218	No	Less than MODEP criterion of 21,000 µg/L	128	No	< B
Total Thallium	µg/L	0.8	0.06	0.07	No	< G	0.06	No	< G	0.07	No	< G	0.07	No	< G	0.04	No	< G
Total Tin	µg/L	NV	0.40	0.47	No	Lack of toxicity data/non-toxic	0.40	No	< B	0.47	No	Lack of toxicity data/non-toxic	0.47	No	Lack of toxicity data/non-toxic	0.36	No	< B
Total Titanium	µg/L	NV	1.0	24	No	Less than BCMOE guideline of 2,000 µg/L	1.0	No	< B	24	No	Less than BCMOE guideline of 2,000 µg/L	1.2	No	Less than BCMOE guideline of 2,000 µg/L	0.26	No	< B
Total Tungsten	µg/L	26	26	29	No	Lack of toxicity data/non-toxic	24	No	< B	29	No	Lack of toxicity data/non-toxic	29	No	Lack of toxicity data/non-toxic	0.42	No	< B
Total Uranium	µg/L	35	0.09	0.10	No	< G	0.08	No	< G	0.10	No	< G	0.10	No	< G	0.08	No	< G
Total Vanadium	µg/L	NV	0.59	2.4	No	Less than the BCMOE guideline of 8 µg/L	0.58	No	< B	2.4	No	Less than the BCMOE guideline of 8 µg/L	0.69	No	Less than the BCMOE guideline of 8 µg/L	0.53	No	< B
Total Zinc	µg/L	30	8.7	10	No	< G	8.6	No	< G	10	No	< G	10	No	< G	6.0	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).^b maximum modelled baseline surface water concentration + 10%.^c predicted maximum surface water concentration.^d Yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC.

No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L, oligotrophic 4-10 µg/L, mesotrophic 10-20 µg/L, meso-eutrophic 20-35 µg/L, eutrophic 35-100 µg/L, hyper-eutrophic >100 µg/L.^g the guideline is for free cyanide.^h aluminum guideline is pH dependent. At pH < 6.5, guideline is 5 µg/L. At pH > 6.5, guideline is 100 µg/L.ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQ(Cd, \mu g/L) = 10^{(1.09(2.79 - hardness) - 1.2)}$.^j guideline for trivalent chromium, Cr(III).^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQ(Cu, \mu g/L) = e^{(1.77(2.79 - hardness) - 1.0)}$.^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQ(lead, \mu g/L) = e^{(1.77(2.79 - hardness) - 1.0)}$.^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQ(Ni, \mu g/L) = e^{(1.77(2.79 - hardness) - 1.0)}$.ⁿ total Kjeldahl nitrogen (TKN) is a measure of ammonia and inorganic forms of nitrogen. There is no CCME guideline for TKN for the protection of freshwater aquatic life. Still, potential adverse effects of ammonia on freshwater aquatic life has been addressed through the screening that was completed for ammonia.

There is little toxicity information for organic forms of nitrogen, however, these are minor constituents and do not appear to affect water uses (BCMOE 2009). As such, TKN has not been considered further in the environmental risk assessment.

^o the CCME guideline for total suspended solids is as follows: Change from background of 5 mg/L at any one time for a duration of 30 d in all waters during clear flows or in clear waters.^p NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMO

Table 10.1-C-4d: Surface Water Screening for Aquatic Life for Lake B6

Chemical	Units	CCME Guideline ^a	Baseline		All Modelled Project Phases		Construction		Operations			
			Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale	Predicted Concentration ^c	COPC ^d	Rationale	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	207	222	No	Within range of US state criteria	222	No	Within range of US state criteria	222	No	Within range of US state criteria
Total Alkalinity	mg/L	NV	108	116	No	Ambellorates metal toxicity	116	No	Ambellorates metal toxicity	116	No	Ambellorates metal toxicity
Total Suspended Solids	mg/L	See note (i)	4.5	4.8	No	< G	4.8	No	< G	4.8	No	< G
Calcium	mg/L	NV	38	41	No	Essential nutrient/ambellorates metal toxicity	41	No	Essential nutrient/ambellorates metal toxicity	41	No	Essential nutrient/ambellorates metal toxicity
Chloride	mg/L	120	35	35	No	< G	35	No	< G	35	No	< G
Fluoride	mg/L	0.12	0.05	0.06	No	< G	0.06	No	< G	0.06	No	< G
Magnesium	mg/L	NV	5.3	5.7	No	Essential nutrient/ambellorates metal toxicity	5.7	No	Essential nutrient/ambellorates metal toxicity	5.7	No	Essential nutrient/ambellorates metal toxicity
Potassium	mg/L	NV	2.4	2.6	No	Essential nutrient/ambellorates metal toxicity	2.6	No	Essential nutrient/ambellorates metal toxicity	2.6	No	Essential nutrient/ambellorates metal toxicity
Sodium	mg/L	NV	7.7	8.2	No	Essential nutrient/ambellorates metal toxicity	8.2	No	Essential nutrient/ambellorates metal toxicity	8.2	No	Essential nutrient/ambellorates metal toxicity
Sulphate	mg/L	NV	10	11	No	Less than BCMOE guideline of 50 mg/L	11	No	Less than BCMOE guideline of 50 mg/L	11	No	Less than BCMOE guideline of 50 mg/L
Ammonia (as N)	mg/L	7	0.09	0.09	No	< G	0.09	No	< G	0.09	No	< G
Nitrate (as N)	mg/L	3.0	0.03	0.03	No	< G	0.03	No	< G	0.03	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.94	1.0	No	See note (n)	1.0	No	See note (n)	1.0	No	See note (n)
Dissolved Phosphorus	mg/L	NV ^f	0.009	0.01	No	Estimated total phosphorus is within trigger range for mesotrophic lakes	0.01	No	Estimated total phosphorus is within trigger range for mesotrophic lakes	0.01	No	Estimated total phosphorus is within trigger range for mesotrophic lakes
Orthophosphate	mg/L	NV	0.001	0.001	No	< B	0.001	No	< B	0.001	No	< B
Cyanide	µg/L	5 ^g	2.9	3.1	No	< G	3.1	No	< G	3.1	No	< G
Total Aluminum	µg/L	100 ^h	5.7	92	No	< G	92	No	< G	92	No	< G
Total Antimony	µg/L	NV	0.32	0.34	No	Less than BCMOE guideline of 20 µg/L	0.34	No	Less than BCMOE guideline of 20 µg/L	0.34	No	Less than BCMOE guideline of 20 µg/L
Total Arsenic	µg/L	5	2.3	2.5	No	< G	2.5	No	< G	2.5	No	< G
Total Barium	µg/L	NV	70	75	No	Less than BCMOE guideline of 1000 µg/L	75	No	Less than BCMOE guideline of 1000 µg/L	75	No	Less than BCMOE guideline of 1000 µg/L
Total Beryllium	µg/L	NV	0.28	0.30	No	Less than BCMOE guideline of 5.3 µg/L	0.30	No	Less than BCMOE guideline of 5.3 µg/L	0.30	No	Less than BCMOE guideline of 5.3 µg/L
Total Bismuth	µg/L	NV	0.11	0.11	No	< B	0.11	No	< B	0.11	No	< B
Total Boron	µg/L	1500	27	29	No	< G	29	No	< G	29	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.75	0.85	Yes	> G, > B	0.85	Yes	> G, > B	0.85	Yes	> G, > B
Total Chromium	µg/L	8.9	2.6	2.8	No	< G	2.8	No	< G	2.8	No	< G
Total Cobalt	µg/L	NV	0.24	0.25	No	Less than BCMOE guideline of 4 µg/L	0.25	No	Less than BCMOE guideline of 4 µg/L	0.25	No	Less than BCMOE guideline of 4 µg/L
Total Copper	µg/L	2	2.7	2.9	Yes	> G, > B	2.9	Yes	> G, > B	2.9	Yes	> G, > B
Total Iron	µg/L	300	175	229	No	< G	188	No	< G	229	No	< G
Total Lead	µg/L	1 ^j	0.32	0.34	No	< G	0.34	No	< G	0.34	No	< G
Total Lithium	µg/L	NV	13	14	No	Less than BCMOE guideline of 14 µg/L	14	No	Less than BCMOE guideline of 14 µg/L	14	No	Less than BCMOE guideline of 14 µg/L
Total Manganese	µg/L	NV	133	143	No	Less than the BCMOE guideline of 649 µg/L	143	No	Less than the BCMOE guideline of 649 µg/L	143	No	Less than the BCMOE guideline of 649 µg/L
Total Mercury	µg/L	0.026	0.03	0.03	No	< B	0.03	No	< B	0.03	No	< B
Total Molybdenum	µg/L	73	0.43	0.46	No	< G	0.46	No	< G	0.46	No	< G
Total Nickel	µg/L	29 ^k	2.9	3.1	No	< G	3.1	No	< G	3.1	No	< G
Total Selenium	µg/L	1	0.26	0.28	No	< G	0.28	No	< G	0.28	No	< G
Total Silver	µg/L	0.1	0.06	0.07	No	< G	0.07	No	< G	0.07	No	< G
Total Strontium	µg/L	NV	292	313	No	Less than MDDEP criterion of 21 000 µg/L	313	No	Less than MDDEP criterion of 21 000 µg/L	313	No	Less than MDDEP criterion of 21 000 µg/L
Total Thallium	µg/L	0.8	0.07	0.07	No	< G	0.07	No	< G	0.07	No	< G
Total Tin	µg/L	NV	0.40	0.43	No	Lack of toxicity data/non-toxic	0.43	No	Lack of toxicity data/non-toxic	0.43	No	Lack of toxicity data/non-toxic
Total Titanium	µg/L	NV	1.3	8.8	No	Less than BCMOE guideline of 2000 µg/L	1.4	No	Less than BCMOE guideline of 2000 µg/L	1.4	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	85	91	No	Lack of toxicity data/non-toxic	91	No	Lack of toxicity data/non-toxic	91	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	15	0.12	0.13	No	< G	0.13	No	< G	0.13	No	< G
Total Vanadium	µg/L	NV	0.62	0.67	No	Less than the BCMOE guideline of 6 µg/L	0.67	No	Less than the BCMOE guideline of 6 µg/L	0.67	No	Less than the BCMOE guideline of 6 µg/L
Total Zinc	µg/L	30	10	10	No	< B	10	No	< B	10	No	< B

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration.

^d Yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC;

No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L;

eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH>=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: CWQG(cadmium, µg/L) = 10^{0.08(pH/hardness)-3.2}

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: CWQG(copper, µg/L) = e^{0.04(hardness)-1.65} × 0.2.

^l lead guideline is hardness dependent and is calculated according to the following equation: CWQG(lead, µg/L) = e^{1.77(hardness)-4.705}

^m nickel guideline is hardness dependent and is calculated according to the following equation: CWQG(nickel, µg/L) = e^{0.78(hardness)-1.04}

ⁿ total Kjeldahl nitrogen (TKN) is a measure of ammonia and inorganic forms of nitrogen. There is no CCME guideline for TKN for the protection of freshwater aquatic life. Still, potential adverse effects of ammonia on freshwater aquatic life has been addressed through the screening that was completed for ammonia.

There is little toxicity information for organic forms of nitrogen; however, these are minor constituents and do not appear to affect water uses (BCMOE 2009). As such, TKN has not been considered further in the aquatic RA.

^o the CCME guideline for Total Suspended Solids is as follows: Change from background of 5 mg/L at any one time for a duration of 30 d in all waters during clear flows or in clear waters.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4e: Surface Water Screening for Aquatic Life for Lake B5

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	172	136	No	< B
Total Alkalinity	mg/L	NV	89	69	No	< B
Total Suspended Solids	mg/L	NV	3.9	3.2	No	< B
Calcium	mg/L	NV	31	31	No	< B
Chloride	mg/L	120	25	23	No	< G
Fluoride	mg/L	0.12	0.05	0.04	No	< G
Magnesium	mg/L	NV	4.4	3.8	No	< B
Potassium	mg/L	NV	2.1	1.8	No	< B
Sodium	mg/L	NV	6.5	5.4	No	< B
Sulphate	mg/L	NV	8.1	6.8	No	< B
Ammonia (as N)	mg/L	7 ^e	0.07	0.07	No	< G
Nitrate (as N)	mg/L	3.0	0.02	1.6	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.80	0.66	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.008	0.007	No	< B
Orthophosphate	mg/L	NV	0.001	0.001	No	< B
Cyanide	µg/L	5 ^g	2.1	1.8	No	< G
Total Aluminum	µg/L	100 ^h	5.7	92	No	< G
Total Antimony	µg/L	NV	0.23	0.19	No	< B
Total Arsenic	µg/L	5	1.9	1.8	No	< G
Total Barium	µg/L	NV	70	64	No	< B
Total Beryllium	µg/L	NV	0.24	0.20	No	< B
Total Bismuth	µg/L	NV	0.08	0.07	No	< B
Total Boron	µg/L	1500	19	16	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.46	0.42	No	< B
Total Chromium	µg/L	8.9 ^j	2.0	1.8	No	< G
Total Cobalt	µg/L	NV	0.20	0.18	No	< B
Total Copper	µg/L	2 ^k	2.2	2.1	No	< B
Total Iron	µg/L	300	175	229	No	< G
Total Lead	µg/L	1 ^l	0.23	0.22	No	< G
Total Lithium	µg/L	NV	12	11	No	< B
Total Manganese	µg/L	NV	97	89	No	< B
Total Mercury	µg/L	0.026	0.03	0.03	No	< B
Total Molybdenum	µg/L	73	0.36	0.36	No	< G
Total Nickel	µg/L	29 ^m	2.3	2.3	No	< G
Total Selenium	µg/L	1	0.21	0.19	No	< G
Total Silver	µg/L	0.1	0.06	0.05	No	< G
Total Strontium	µg/L	NV	254	216	No	< B
Total Thallium	µg/L	0.8	0.06	0.05	No	< G
Total Tin	µg/L	NV	0.33	0.30	No	< B
Total Titanium	µg/L	NV	1.0	5.0	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	50	49	No	< B
Total Uranium	µg/L	15	0.10	0.07	No	< G
Total Vanadium	µg/L	NV	0.54	0.43	No	< B
Total Zinc	µg/L	30	7.3	6.8	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012 (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline/objective is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH ≥ 6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{[0.86[\log(\text{hardness})]-3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{[\ln(\text{hardness})]-1.455} \times 0.2$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})]-4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})]+1.06}$.

NV = no value; CCME = Canadian Council of Ministers of the Environment; ND = no data; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4f: Surface Water Screening for Aquatic Life for Lake B46

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	201	186	No	< B
Total Alkalinity	mg/L	NV	84	79	No	< B
Total Suspended Solids	mg/L	NV	3.9	3.7	No	< B
Calcium	mg/L	NV	35	34	No	< B
Chloride	mg/L	120	21	20	No	< G
Fluoride	mg/L	0.12	0.05	0.05	No	< G
Magnesium	mg/L	NV	4.5	4.3	No	< B
Potassium	mg/L	NV	2.3	2.3	No	< B
Sodium	mg/L	NV	7.1	6.7	No	< B
Sulphate	mg/L	NV	8.0	7.4	No	< B
Ammonia (as N)	mg/L	7 ^e	0.07	0.07	No	< G
Nitrate (as N)	mg/L	3.0	0.03	1.6	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.87	0.83	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.008	0.008	No	< B
Orthophosphate	mg/L	NV	0.001	0.001	No	< B
Cyanide	µg/L	5 ^g	2.4	2.2	No	< G
Total Aluminum	µg/L	100 ^h	5.5	92	No	< G
Total Antimony	µg/L	NV	0.21	0.21	No	< B
Total Arsenic	µg/L	5	1.9	1.9	No	< G
Total Barium	µg/L	NV	70	64	No	< B
Total Beryllium	µg/L	NV	0.24	0.23	No	< B
Total Bismuth	µg/L	NV	0.08	0.08	No	< B
Total Boron	µg/L	1500	19	18	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.10	0.09	No	< B
Total Chromium	µg/L	8.9 ^j	2.7	2.6	No	< G
Total Cobalt	µg/L	NV	0.19	0.22	No	Less than BCMOE guideline of 4 µg/L
Total Copper	µg/L	2 ^k	2.3	2.2	No	< B
Total Iron	µg/L	300	189	260	No	< G
Total Lead	µg/L	1 ^l	0.18	0.17	No	< G
Total Lithium	µg/L	NV	17	15	No	< B
Total Manganese	µg/L	NV	112	102	No	< B
Total Mercury	µg/L	0.026	0.03	0.03	No	< B
Total Molybdenum	µg/L	73	0.42	0.38	No	< G
Total Nickel	µg/L	29 ^m	2.4	2.3	No	< G
Total Selenium	µg/L	1	0.25	0.23	No	< G
Total Silver	µg/L	0.1	0.06	0.06	No	< G
Total Strontium	µg/L	NV	274	273	No	< B
Total Thallium	µg/L	0.8	0.07	0.06	No	< G
Total Tin	µg/L	NV	0.37	0.34	No	< B
Total Titanium	µg/L	NV	1.1	8.5	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	38	36	No	< B
Total Uranium	µg/L	15	0.10	0.09	No	< G
Total Vanadium	µg/L	NV	0.55	0.75	No	Less than the BCMOE guideline of 6 µg/L
Total Zinc	µg/L	30	7.0	6.7	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{(0.86[\ln(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{[\ln(\text{hardness})] - 1.455} \times 0.2$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] - 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4g: Surface Water Screening for Aquatic Life for Lake B45

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	201	186	No	< B
Total Alkalinity	mg/L	NV	84	79	No	< B
Total Suspended Solids	mg/L	NV	3.9	3.7	No	< B
Calcium	mg/L	NV	35	34	No	< B
Chloride	mg/L	120	21	20	No	< G
Fluoride	mg/L	0.12	0.05	0.05	No	< G
Magnesium	mg/L	NV	4.5	4.3	No	< B
Potassium	mg/L	NV	2.3	2.3	No	< B
Sodium	mg/L	NV	7.1	6.7	No	< B
Sulphate	mg/L	NV	8.0	7.4	No	< B
Ammonia (as N)	mg/L	7 ^e	0.07	0.07	No	< G
Nitrate (as N)	mg/L	3.0	0.03	1.6	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.87	0.83	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.008	0.008	No	< B
Orthophosphate	mg/L	NV	0.001	0.001	No	< B
Cyanide	µg/L	5 ^g	2.4	2.2	No	< G
Total Aluminum	µg/L	100 ^h	5.5	92	No	< G
Total Antimony	µg/L	NV	0.21	0.21	No	< B
Total Arsenic	µg/L	5	1.9	1.9	No	< G
Total Barium	µg/L	NV	70	64	No	< B
Total Beryllium	µg/L	NV	0.24	0.23	No	< B
Total Bismuth	µg/L	NV	0.08	0.08	No	< B
Total Boron	µg/L	1500	19	18	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.10	0.09	No	< B
Total Chromium	µg/L	8.9 ^j	2.7	2.6	No	< G
Total Cobalt	µg/L	NV	0.19	0.22	No	Less than BCMOE guideline of 4 µg/L
Total Copper	µg/L	2 ^k	2.3	2.2	No	< B
Total Iron	µg/L	300	189	260	No	< G
Total Lead	µg/L	1 ^l	0.18	0.17	No	< G
Total Lithium	µg/L	NV	17	15	No	< B
Total Manganese	µg/L	NV	112	102	No	< B
Total Mercury	µg/L	0.026	0.03	0.03	No	< B
Total Molybdenum	µg/L	73	0.42	0.38	No	< G
Total Nickel	µg/L	29 ^m	2.4	2.3	No	< G
Total Selenium	µg/L	1	0.25	0.23	No	< G
Total Silver	µg/L	0.1	0.06	0.06	No	< G
Total Strontium	µg/L	NV	274	273	No	< B
Total Thallium	µg/L	0.8	0.07	0.06	No	< G
Total Tin	µg/L	NV	0.37	0.34	No	< B
Total Titanium	µg/L	NV	1.1	8.5	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	38	36	No	< B
Total Uranium	µg/L	15	0.10	0.09	No	< G
Total Vanadium	µg/L	NV	0.55	0.75	No	Less than the BCMOE guideline of 6 µg/L
Total Zinc	µg/L	30	7.0	6.7	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{[0.86[\ln(\text{hardness})]-3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{[\ln(\text{hardness})]-1.455} \times 0.2$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})]-4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})]+1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4h: Surface Water Screening for Aquatic Life for Lake P2

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	220	200	No	< B
Total Alkalinity	mg/L	NV	84	77	No	< B
Total Suspended Solids	mg/L	NV	4.0	3.6	No	< B
Calcium	mg/L	NV	39	35	No	< B
Chloride	mg/L	120	21	19	No	< G
Fluoride	mg/L	0.12	0.06	0.05	No	< G
Magnesium	mg/L	NV	5.2	4.7	No	< B
Potassium	mg/L	NV	2.5	2.2	No	< B
Sodium	mg/L	NV	7.9	7.2	No	< B
Sulphate	mg/L	NV	8.4	7.6	No	< B
Ammonia (as N)	mg/L	7 ^e	0.08	0.07	No	< G
Nitrate (as N)	mg/L	3.0	0.03	1.6	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.92	0.84	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.009	0.008	No	< B
Orthophosphate	mg/L	NV	0.001	0.001	No	< B
Cyanide	µg/L	5 ^g	3.0	2.8	No	< G
Total Aluminum	µg/L	100 ^h	5.4	94	No	< G
Total Antimony	µg/L	NV	0.22	0.20	No	< B
Total Arsenic	µg/L	5	2.0	1.8	No	< G
Total Barium	µg/L	NV	70	64	No	< B
Total Beryllium	µg/L	NV	0.25	0.23	No	< B
Total Bismuth	µg/L	NV	0.11	0.10	No	< B
Total Boron	µg/L	1500	27	24	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.10	0.09	No	< B
Total Chromium	µg/L	8.9 ^j	2.5	2.3	No	< G
Total Cobalt	µg/L	NV	0.20	0.21	No	Less than BCMOE guideline of 4 µg/L
Total Copper	µg/L	2 ^k	2.3	2.1	No	< G
Total Iron	µg/L	300	201	276	No	< G
Total Lead	µg/L	1 ^l	0.16	0.15	No	< G
Total Lithium	µg/L	NV	16	14	No	< B
Total Manganese	µg/L	NV	94	85	No	< B
Total Mercury	µg/L	0.026	0.03	0.03	No	< B
Total Molybdenum	µg/L	73	0.43	0.39	No	< G
Total Nickel	µg/L	29 ^m	2.4	2.2	No	< G
Total Selenium	µg/L	1	0.28	0.25	No	< G
Total Silver	µg/L	0.1	0.06	0.06	No	< G
Total Strontium	µg/L	NV	298	271	No	< B
Total Thallium	µg/L	0.8	0.07	0.07	No	< G
Total Tin	µg/L	NV	0.42	0.38	No	< B
Total Titanium	µg/L	NV	1.5	7.2	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	85	77	No	< B
Total Uranium	µg/L	15	0.10	0.09	No	< G
Total Vanadium	µg/L	NV	0.55	0.68	No	Less than the BCMOE guideline of 6 µg/L
Total Zinc	µg/L	30	6.7	6.1	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{(0.86[\ln(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{[\ln(\text{hardness})] - 1.455} \times 0.2$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] + 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4i: Surface Water Screening for Aquatic Life for Lake B2

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	220	203	No	< B
Total Alkalinity	mg/L	NV	79	74	No	< B
Total Suspended Solids	mg/L	NV	3.9	3.5	No	< B
Calcium	mg/L	NV	39	35	No	< B
Chloride	mg/L	120	21	20	No	< G
Fluoride	mg/L	0.12	0.06	0.05	No	< G
Magnesium	mg/L	NV	5.1	4.7	No	< B
Potassium	mg/L	NV	2.4	2.4	No	< B
Sodium	mg/L	NV	8.1	7.4	No	< B
Sulphate	mg/L	NV	8.4	7.6	No	< B
Ammonia (as N)	mg/L	7 ^e	0.08	0.07	No	< G
Nitrate (as N)	mg/L	3.0	0.03	1.6	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.91	0.84	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.009	0.008	No	< B
Orthophosphate	mg/L	NV	0.001	0.0009	No	< B
Cyanide	µg/L	5 ^g	3.1	2.8	No	< G
Total Aluminum	µg/L	100 ^h	5.9	94	No	< G
Total Antimony	µg/L	NV	0.22	0.21	No	< B
Total Arsenic	µg/L	5	2.0	2.0	No	< G
Total Barium	µg/L	NV	70	64	No	< B
Total Beryllium	µg/L	NV	0.25	0.23	No	< B
Total Bismuth	µg/L	NV	0.11	0.10	No	< B
Total Boron	µg/L	1500	25	23	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.10	0.09	No	< B
Total Chromium	µg/L	8.9 ^j	2.8	3.0	No	< G
Total Cobalt	µg/L	NV	0.20	0.22	No	Less than BCMOE guideline of 4 µg/L
Total Copper	µg/L	2 ^k	2.3	2.3	No	< B
Total Iron	µg/L	300	220	271	No	< G
Total Lead	µg/L	1 ^l	0.17	0.15	No	< G
Total Lithium	µg/L	NV	19	18	No	< B
Total Manganese	µg/L	NV	108	98	No	< B
Total Mercury	µg/L	0.026	0.03	0.03	No	< B
Total Molybdenum	µg/L	73	0.47	0.43	No	< G
Total Nickel	µg/L	29 ^m	2.4	2.4	No	< G
Total Selenium	µg/L	1	0.29	0.27	No	< G
Total Silver	µg/L	0.1	0.06	0.06	No	< G
Total Strontium	µg/L	NV	284	265	No	< B
Total Thallium	µg/L	0.8	0.07	0.06	No	< G
Total Tin	µg/L	NV	0.42	0.38	No	< B
Total Titanium	µg/L	NV	1.4	9.0	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	84	76	No	< B
Total Uranium	µg/L	15	0.10	0.09	No	< G
Total Vanadium	µg/L	NV	0.55	0.74	No	Less than the BCMOE guideline of 6 µg/L
Total Zinc	µg/L	30	6.8	6.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{[0.86(\ln(\text{hardness})) - 3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{[0.1455(\ln(\text{hardness})) - 4.705]}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{[1.273(\ln(\text{hardness})) - 4.705]}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{[0.76(\ln(\text{hardness})) + 1.06]}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4j: Surface Water Screening for Aquatic Life for Lake D7

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	308	279	No	< B
Total Alkalinity	mg/L	NV	179	164	No	< B
Total Suspended Solids	mg/L	NV	13	12	No	< B
Calcium	mg/L	NV	79	72	No	< B
Chloride	mg/L	120	34	31	No	< G
Fluoride	mg/L	0.12	0.06	0.05	No	< G
Magnesium	mg/L	NV	12	11	No	< B
Potassium	mg/L	NV	4.8	4.3	No	< B
Sodium	mg/L	NV	20	18	No	< B
Sulphate	mg/L	NV	11	10	No	< B
Ammonia (as N)	mg/L	7 ^e	0.30	0.28	No	< G
Nitrate (as N)	mg/L	3.0	0.04	2.0	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	1.9	1.8	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.001	0.001	No	< B
Cyanide	µg/L	5 ^g	1.5	1.3	No	< G
Total Aluminum	µg/L	100 ^h	8.5	61	No	< G
Total Antimony	µg/L	NV	0.27	0.25	No	< B
Total Arsenic	µg/L	5	2.0	1.9	No	< G
Total Barium	µg/L	NV	75	69	No	< B
Total Beryllium	µg/L	NV	0.71	0.65	No	< B
Total Bismuth	µg/L	NV	0.06	0.05	No	< B
Total Boron	µg/L	1500	18	16	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.12	0.11	No	< B
Total Chromium	µg/L	8.9 ^j	5.5	5.2	No	< G
Total Cobalt	µg/L	NV	1.2	1.1	No	< B
Total Copper	µg/L	2 ^k	4.7	4.2	No	< B
Total Iron	µg/L	300	254	266	No	< G
Total Lead	µg/L	1 ^l	0.28	0.26	No	< G
Total Lithium	µg/L	NV	7.2	6.5	No	< B
Total Manganese	µg/L	NV	197	179	No	< B
Total Mercury	µg/L	0.026	0.02	0.02	No	< G
Total Molybdenum	µg/L	73	1.5	1.4	No	< G
Total Nickel	µg/L	29 ^m	6.2	6.0	No	< G
Total Selenium	µg/L	1	1.4	1.3	No	< B
Total Silver	µg/L	0.1	0.04	0.03	No	< G
Total Strontium	µg/L	NV	417	380	No	< B
Total Thallium	µg/L	0.8	0.06	0.06	No	< G
Total Tin	µg/L	NV	0.32	0.29	No	< B
Total Titanium	µg/L	NV	1.8	3.9	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	25	23	No	< B
Total Uranium	µg/L	15	0.31	0.28	No	< G
Total Vanadium	µg/L	NV	2.8	2.6	No	< B
Total Zinc	µg/L	30	13	12	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{-0.86[\log(\text{hardness})-3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{0.1n(\text{hardness})-1.455 \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})]-4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})]+1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4k: Surface Water Screening for Aquatic Life for Lake D4

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	264	239	No	< B
Total Alkalinity	mg/L	NV	145	132	No	< B
Total Suspended Solids	mg/L	NV	10	9.1	No	< B
Calcium	mg/L	NV	67	61	No	< B
Chloride	mg/L	120	30	27	No	< G
Fluoride	mg/L	0.12	0.06	0.05	No	< G
Magnesium	mg/L	NV	9.7	8.8	No	< B
Potassium	mg/L	NV	3.8	3.5	No	< B
Sodium	mg/L	NV	16	15	No	< B
Sulphate	mg/L	NV	10	9.4	No	< B
Ammonia (as N)	mg/L	7 ^e	0.24	0.22	No	< G
Nitrate (as N)	mg/L	3.0	0.04	2.0	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	1.6	1.4	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.001	0.001	No	< B
Cyanide	µg/L	5 ^g	2.4	2.1	No	< G
Total Aluminum	µg/L	100 ^h	7.1	64	No	< G
Total Antimony	µg/L	NV	0.24	0.22	No	< B
Total Arsenic	µg/L	5	2.0	1.9	No	< G
Total Barium	µg/L	NV	63	58	No	< B
Total Beryllium	µg/L	NV	0.55	0.52	No	< B
Total Bismuth	µg/L	NV	0.04	0.04	No	< B
Total Boron	µg/L	1500	22	20	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.15	0.14	No	< B
Total Chromium	µg/L	8.9 ^j	4.9	4.5	No	< G
Total Cobalt	µg/L	NV	0.91	0.83	No	< B
Total Copper	µg/L	2 ^k	3.8	3.5	No	< B
Total Iron	µg/L	300	257	268	No	< G
Total Lead	µg/L	1 ^l	0.26	0.24	No	< G
Total Lithium	µg/L	NV	7.4	7.2	No	< B
Total Manganese	µg/L	NV	151	139	No	< B
Total Mercury	µg/L	0.026	0.02	0.02	No	< G
Total Molybdenum	µg/L	73	1.1	1.0	No	< G
Total Nickel	µg/L	29 ^m	6.0	5.4	No	< G
Total Selenium	µg/L	1	1.1	1.0	No	< G
Total Silver	µg/L	0.1	0.04	0.03	No	< G
Total Strontium	µg/L	NV	377	343	No	< B
Total Thallium	µg/L	0.8	0.05	0.04	No	< G
Total Tin	µg/L	NV	0.25	0.22	No	< B
Total Titanium	µg/L	NV	1.6	4.0	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	29	26	No	< B
Total Uranium	µg/L	15	0.26	0.24	No	< G
Total Vanadium	µg/L	NV	2.0	1.9	No	< B
Total Zinc	µg/L	30	10	9.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH ≥ 6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{[0.86(\log(\text{hardness})) - 3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{[ln(\text{hardness}) - 1.455] \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{1.273[ln(\text{hardness}) - 4.705]}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{0.76[ln(\text{hardness}) + 1.06]}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4i: Surface Water Screening for Aquatic Life for Lake D3

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	265	240	No	< B
Total Alkalinity	mg/L	NV	142	130	No	< B
Total Suspended Solids	mg/L	NV	9.2	8.4	No	< B
Calcium	mg/L	NV	67	61	No	< B
Chloride	mg/L	120	30	28	No	< G
Fluoride	mg/L	0.12	0.06	0.05	No	< G
Magnesium	mg/L	NV	9.7	8.8	No	< B
Potassium	mg/L	NV	3.8	3.5	No	< B
Sodium	mg/L	NV	16	14	No	< B
Sulphate	mg/L	NV	10	9.5	No	< B
Ammonia (as N)	mg/L	7 ^e	0.23	0.21	No	< G
Nitrate (as N)	mg/L	3.0	0.04	2.03	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	1.6	1.4	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.001	0.001	No	< B
Cyanide	µg/L	5 ^g	2.4	2.2	No	< G
Total Aluminum	µg/L	100 ^h	7.0	64	No	< G
Total Antimony	µg/L	NV	0.24	0.23	No	< B
Total Arsenic	µg/L	5	2.0	1.9	No	< G
Total Barium	µg/L	NV	61	56	No	< B
Total Beryllium	µg/L	NV	0.52	0.48	No	< B
Total Bismuth	µg/L	NV	0.04	0.03	No	< B
Total Boron	µg/L	1500	24	22	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.13	0.12	No	< B
Total Chromium	µg/L	8.9 ^j	4.9	4.5	No	< G
Total Cobalt	µg/L	NV	0.86	0.79	No	< B
Total Copper	µg/L	2 ^k	3.7	3.4	No	< B
Total Iron	µg/L	300	268	279	No	< G
Total Lead	µg/L	1 ^l	0.26	0.24	No	< G
Total Lithium	µg/L	NV	7.2	7.1	No	< B
Total Manganese	µg/L	NV	143	132	No	< B
Total Mercury	µg/L	0.026	0.02	0.02	No	< G
Total Molybdenum	µg/L	73	1.1	0.98	No	< G
Total Nickel	µg/L	29 ^m	6.0	5.4	No	< G
Total Selenium	µg/L	1	1.0	0.94	No	< G
Total Silver	µg/L	0.1	0.04	0.03	No	< G
Total Strontium	µg/L	NV	372	338	No	< B
Total Thallium	µg/L	0.8	0.05	0.04	No	< G
Total Tin	µg/L	NV	0.24	0.21	No	< B
Total Titanium	µg/L	NV	1.5	4.1	No	Less than BC MOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	28	25	No	< B
Total Uranium	µg/L	15	0.26	0.24	No	< G
Total Vanadium	µg/L	NV	1.9	1.8	No	< B
Total Zinc	µg/L	30	9.5	8.8	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{[0.86(\ln(\text{hardness})) - 3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{[\ln(\text{hardness}) - 1.455] \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] + 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4m: Surface Water Screening for Aquatic Life for Lake D1

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	263	243	No	< B
Total Alkalinity	mg/L	NV	159	142	No	< B
Total Suspended Solids	mg/L	NV	9.5	8.8	No	< B
Calcium	mg/L	NV	74	66	No	< B
Chloride	mg/L	120	31	29	No	< G
Fluoride	mg/L	0.12	0.06	0.05	No	< G
Magnesium	mg/L	NV	10	9.3	No	< B
Potassium	mg/L	NV	4.2	3.8	No	< B
Sodium	mg/L	NV	16	14	No	< B
Sulphate	mg/L	NV	12	10	No	< B
Ammonia (as N)	mg/L	7 ^e	0.24	0.22	No	< G
Nitrate (as N)	mg/L	3.0	0.04	1.8	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	1.8	1.6	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.001	0.001	No	< B
Cyanide	µg/L	5 ^g	2.4	2.2	No	< G
Total Aluminum	µg/L	100 ^h	7.6	58	No	< G
Total Antimony	µg/L	NV	0.25	0.24	No	< B
Total Arsenic	µg/L	5	2.1	2.0	No	< G
Total Barium	µg/L	NV	62	57	No	< B
Total Beryllium	µg/L	NV	0.64	0.58	No	< B
Total Bismuth	µg/L	NV	0.04	0.04	No	< B
Total Boron	µg/L	1500	24	21	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.13	0.12	No	< B
Total Chromium	µg/L	8.9 ^j	4.9	4.5	No	< G
Total Cobalt	µg/L	NV	0.92	0.87	No	< B
Total Copper	µg/L	2 ^k	3.9	3.5	No	< B
Total Iron	µg/L	300	287	289	No	< G
Total Lead	µg/L	1 ^l	0.26	0.24	No	< G
Total Lithium	µg/L	NV	7.9	7.3	No	< B
Total Manganese	µg/L	NV	177	141	No	< B
Total Mercury	µg/L	0.026	0.02	0.02	No	< G
Total Molybdenum	µg/L	73	1.3	1.2	No	< G
Total Nickel	µg/L	29 ^m	6.4	6.0	No	< G
Total Selenium	µg/L	1	1.2	1.1	No	< G
Total Silver	µg/L	0.1	0.04	0.04	No	< G
Total Strontium	µg/L	NV	380	350	No	< B
Total Thallium	µg/L	0.8	0.06	0.05	No	< G
Total Tin	µg/L	NV	0.28	0.27	No	< B
Total Titanium	µg/L	NV	1.5	3.8	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	35	33	No	< B
Total Uranium	µg/L	15	0.26	0.24	No	< G
Total Vanadium	µg/L	NV	2.5	2.2	No	< B
Total Zinc	µg/L	30	10	9.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH ≥ 6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{[0.86[\log(\text{hardness})]-3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{[\ln(\text{hardness})]-1.455} \times 0.2$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})]-4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})]+1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4n: Surface Water Screening for Aquatic Life for Lake H17

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	233	211	No	< B
Total Alkalinity	mg/L	NV	73	67	No	< B
Total Suspended Solids	mg/L	NV	14	13	No	< B
Calcium	mg/L	NV	269	245	No	< B
Chloride	mg/L	120	174	164	No	< B
Fluoride	mg/L	0.12	0.08	0.07	No	< G
Magnesium	mg/L	NV	7.2	6.5	No	< B
Potassium	mg/L	NV	12	11	No	< B
Sodium	mg/L	NV	25	22	No	< B
Sulphate	mg/L	NV	20	19	No	< B
Ammonia (as N)	mg/L	7 ^e	2.0	1.9	No	< G
Nitrate (as N)	mg/L	3.0	0.15	0.13	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	1.2	1.1	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.02	0.02	No	< B
Orthophosphate	mg/L	NV	0.01	0.009	No	< B
Cyanide	µg/L	5 ^g	3.7	3.4	No	< G
Total Aluminum	µg/L	100 ^h	20	18	No	< G
Total Antimony	µg/L	NV	0.41	0.37	No	< B
Total Arsenic	µg/L	5	3.5	3.2	No	< G
Total Barium	µg/L	NV	57	52	No	< B
Total Beryllium	µg/L	NV	82	74	No	< B
Total Bismuth	µg/L	NV	0.28	0.25	No	< B
Total Boron	µg/L	1500	143	129	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.34	0.31	No	< B
Total Chromium	µg/L	8.9 ^j	6.1	5.4	No	< G
Total Cobalt	µg/L	NV	0.19	0.17	No	< B
Total Copper	µg/L	2 ^k	3.8	3.5	No	< B
Total Iron	µg/L	300	215	196	No	< G
Total Lead	µg/L	1 ^l	0.50	0.47	No	< G
Total Lithium	µg/L	NV	15	14	No	< B
Total Manganese	µg/L	NV	154	140	No	< B
Total Mercury	µg/L	0.026	0.12	0.11	No	< B
Total Molybdenum	µg/L	73	0.38	0.34	No	< G
Total Nickel	µg/L	29 ^m	3.1	2.8	No	< G
Total Selenium	µg/L	1	0.54	0.48	No	< G
Total Silver	µg/L	0.1	1.1	1.0	No	< B
Total Strontium	µg/L	NV	269	253	No	< B
Total Thallium	µg/L	0.8	0.11	0.10	No	< G
Total Tin	µg/L	NV	0.43	0.39	No	< B
Total Titanium	µg/L	NV	0.41	0.38	No	< B
Total Tungsten	µg/L	NV	0.96	0.87	No	< B
Total Uranium	µg/L	15	0.10	0.09	No	< G
Total Vanadium	µg/L	NV	0.60	0.54	No	< B
Total Zinc	µg/L	30	9.4	8.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{(0.86[\log(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{[\ln(\text{hardness}) - 1.455] \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] + 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4o: Surface Water Screening for Aquatic Life for Lake H1

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	328	298	No	< B
Total Alkalinity	mg/L	NV	95	86	No	< B
Total Suspended Solids	mg/L	NV	6.5	5.9	No	< B
Calcium	mg/L	NV	131	120	No	< B
Chloride	mg/L	120	201	182	No	< B
Fluoride	mg/L	0.12	0.07	0.07	No	< G
Magnesium	mg/L	NV	15	14	No	< B
Potassium	mg/L	NV	6.2	5.7	No	< B
Sodium	mg/L	NV	24	22	No	< B
Sulphate	mg/L	NV	26	24	No	< B
Ammonia (as N)	mg/L	7 ^e	0.53	0.48	No	< G
Nitrate (as N)	mg/L	3.0	0.38	0.34	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	1.2	1.1	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.006	0.005	No	< B
Cyanide	µg/L	5 ^g	2.2	2.0	No	< G
Total Aluminum	µg/L	100 ^h	13	12	No	< G
Total Antimony	µg/L	NV	0.4	0.34	No	< B
Total Arsenic	µg/L	5	3.3	3.0	No	< G
Total Barium	µg/L	NV	55	50	No	< B
Total Beryllium	µg/L	NV	19	17	No	< B
Total Bismuth	µg/L	NV	0.14	0.13	No	< B
Total Boron	µg/L	1500	57	52	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.28	0.26	No	< B
Total Chromium	µg/L	8.9 ^j	6.6	6.0	No	< G
Total Cobalt	µg/L	NV	0.41	0.37	No	< B
Total Copper	µg/L	2 ^k	4.9	4	No	< B
Total Iron	µg/L	300	193	175	No	< G
Total Lead	µg/L	1 ^l	2.5	2.3	No	< B
Total Lithium	µg/L	NV	17	15	No	< B
Total Manganese	µg/L	NV	101	92	No	< B
Total Mercury	µg/L	0.026	0.10	0.09	No	< B
Total Molybdenum	µg/L	73	0.75	0.68	No	< G
Total Nickel	µg/L	29 ^m	5.0	4.5	No	< G
Total Selenium	µg/L	1	0.94	0.85	No	< G
Total Silver	µg/L	0.1	0.28	0.25	No	< B
Total Strontium	µg/L	NV	326	296	No	< B
Total Thallium	µg/L	0.8	0.09	0.08	No	< G
Total Tin	µg/L	NV	0.43	0.39	No	< B
Total Titanium	µg/L	NV	1.4	1.3	No	< B
Total Tungsten	µg/L	NV	23	21	No	< B
Total Uranium	µg/L	15	0.11	0.10	No	< G
Total Vanadium	µg/L	NV	0.75	0.68	No	< B
Total Zinc	µg/L	30	15	13	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH ≥6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{(0.86[\log(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{\ln(\text{hardness}) - 1.455 \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] + 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4p: Surface Water Screening for Aquatic Life for Lake 11

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	337	307	No	< B
Total Alkalinity	mg/L	NV	93	86	No	< B
Total Suspended Solids	mg/L	NV	4.8	4.4	No	< B
Calcium	mg/L	NV	114	108	No	< B
Chloride	mg/L	120	326	308	No	< B
Fluoride	mg/L	0.12	0.07	0.06	No	< G
Magnesium	mg/L	NV	15	13	No	< B
Potassium	mg/L	NV	5.4	4.9	No	< B
Sodium	mg/L	NV	22	20	No	< B
Sulphate	mg/L	NV	26	24	No	< B
Ammonia (as N)	mg/L	7 ^e	0.31	0.29	No	< G
Nitrate (as N)	mg/L	3.0	0.48	2.8	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.98	0.91	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.004	0.004	No	< B
Cyanide	µg/L	5 ^g	1.9	1.7	No	< G
Total Aluminum	µg/L	100 ^h	13	43	No	< G
Total Antimony	µg/L	NV	0.32	0.31	No	< B
Total Arsenic	µg/L	5	2.9	2.7	No	< G
Total Barium	µg/L	NV	44	41	No	< B
Total Beryllium	µg/L	NV	0.78	0.71	No	< B
Total Bismuth	µg/L	NV	0.13	0.12	No	< B
Total Boron	µg/L	1500	49	45	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.22	0.20	No	< B
Total Chromium	µg/L	8.9 ^j	5.1	5.1	No	< G
Total Cobalt	µg/L	NV	0.49	0.51	No	Less than BCMOE guideline of 4 µg/L
Total Copper	µg/L	2 ^k	5.1	5.0	No	< B
Total Iron	µg/L	300	185	274	No	< G
Total Lead	µg/L	1 ^l	5.2	5.0	No	< B
Total Lithium	µg/L	NV	16	15	No	< B
Total Manganese	µg/L	NV	92	86	No	< B
Total Mercury	µg/L	0.026	0.10	0.09	No	< B
Total Molybdenum	µg/L	73	0.92	0.86	No	< G
Total Nickel	µg/L	29 ^m	5.2	4.9	No	< G
Total Selenium	µg/L	1	1.1	1.0	No	< G
Total Silver	µg/L	0.1	0.15	0.14	No	< B
Total Strontium	µg/L	NV	317	304	No	< B
Total Thallium	µg/L	0.8	0.09	0.08	No	< G
Total Tin	µg/L	NV	0.23	0.21	No	< B
Total Titanium	µg/L	NV	2.4	13	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	49	45	No	< B
Total Uranium	µg/L	15	0.10	0.10	No	< G
Total Vanadium	µg/L	NV	0.65	0.62	No	< B
Total Zinc	µg/L	30	11	11	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{(0.86[\log(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{[n(\text{hardness})] - 1.455} \times 0.2$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[n(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[n(\text{hardness})] + 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4q: Surface Water Screening for Aquatic Life for Lake J8

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	148	134	No	< B
Total Alkalinity	mg/L	NV	53	48	No	< B
Total Suspended Solids	mg/L	NV	3.0	2.7	No	< B
Calcium	mg/L	NV	48	43	No	< B
Chloride	mg/L	120	234	213	No	< B
Fluoride	mg/L	0.12	0.05	0.05	No	< G
Magnesium	mg/L	NV	7.1	6.5	No	< B
Potassium	mg/L	NV	2.3	2.1	No	< B
Sodium	mg/L	NV	8.1	7.3	No	< B
Sulphate	mg/L	NV	17	15	No	< B
Ammonia (as N)	mg/L	7 ^e	0.10	0.09	No	< G
Nitrate (as N)	mg/L	3.0	0.10	0.09	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.59	0.53	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.004	0.003	No	< B
Cyanide	µg/L	5 ^g	4.2	3.8	No	< G
Total Aluminum	µg/L	100 ^h	4.8	4.3	No	< G
Total Antimony	µg/L	NV	0.25	0.23	No	< B
Total Arsenic	µg/L	5	3.3	3.0	No	< G
Total Barium	µg/L	NV	31	28	No	< B
Total Beryllium	µg/L	NV	0.17	0.16	No	< B
Total Bismuth	µg/L	NV	0.03	0.03	No	< B
Total Boron	µg/L	1500	85	78	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.11	0.10	No	< B
Total Chromium	µg/L	8.9 ^j	3.1	2.9	No	< G
Total Cobalt	µg/L	NV	0.10	0.09	No	< B
Total Copper	µg/L	2 ^k	2.1	1.9	No	< G
Total Iron	µg/L	300	122	111	No	< G
Total Lead	µg/L	1 ^l	0.26	0.24	No	< G
Total Lithium	µg/L	NV	37	34	No	< B
Total Manganese	µg/L	NV	29	26	No	< B
Total Mercury	µg/L	0.026	0.04	0.04	No	< B
Total Molybdenum	µg/L	73	0.25	0.23	No	< G
Total Nickel	µg/L	29 ^m	1.5	1.3	No	< G
Total Selenium	µg/L	1	0.35	0.32	No	< G
Total Silver	µg/L	0.1	0.08	0.07	No	< G
Total Strontium	µg/L	NV	206	187	No	< B
Total Thallium	µg/L	0.8	0.05	0.04	No	< G
Total Tin	µg/L	NV	0.23	0.21	No	< B
Total Titanium	µg/L	NV	0.38	0.34	No	< B
Total Tungsten	µg/L	NV	17	15	No	< B
Total Uranium	µg/L	15	0.06	0.06	No	< G
Total Vanadium	µg/L	NV	0.41	0.38	No	< B
Total Zinc	µg/L	30	7.4	6.8	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{[0.86(\log(\text{hardness})) - 3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{[\ln(\text{hardness}) - 1.455] \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{[1.273(\ln(\text{hardness})) - 4.705]}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{[0.76(\ln(\text{hardness})) + 1.06]}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4r: Surface Water Screening for Aquatic Life for Lake J7

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	341	309	No	< B
Total Alkalinity	mg/L	NV	96	87	No	< B
Total Suspended Solids	mg/L	NV	4.8	4.4	No	< B
Calcium	mg/L	NV	114	105	No	< B
Chloride	mg/L	120	358	325	No	< B
Fluoride	mg/L	0.12	0.07	0.06	No	< G
Magnesium	mg/L	NV	15	13	No	< B
Potassium	mg/L	NV	5.5	5.0	No	< B
Sodium	mg/L	NV	23	21	No	< B
Sulphate	mg/L	NV	27	24	No	< B
Ammonia (as N)	mg/L	7 ^e	0.33	0.29	No	< G
Nitrate (as N)	mg/L	3.0	0.51	0.45	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	1.0	0.92	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.004	0.004	No	< B
Cyanide	µg/L	5 ^g	1.9	1.7	No	< G
Total Aluminum	µg/L	100 ^h	14	13	No	< G
Total Antimony	µg/L	NV	0.33	0.31	No	< B
Total Arsenic	µg/L	5	2.9	2.6	No	< G
Total Barium	µg/L	NV	45	41	No	< B
Total Beryllium	µg/L	NV	0.78	0.71	No	< B
Total Bismuth	µg/L	NV	0.14	0.12	No	< B
Total Boron	µg/L	1500	49	44	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.23	0.21	No	< B
Total Chromium	µg/L	8.9 ^j	5.5	5.0	No	< G
Total Cobalt	µg/L	NV	0.50	0.45	No	< B
Total Copper	µg/L	2 ^k	5.1	4.6	No	< B
Total Iron	µg/L	300	192	175	No	< G
Total Lead	µg/L	1 ^l	5.4	4.9	No	< B
Total Lithium	µg/L	NV	18	16	No	< B
Total Manganese	µg/L	NV	95	87	No	< B
Total Mercury	µg/L	0.026	0.10	0.09	No	< B
Total Molybdenum	µg/L	73	0.92	0.84	No	< G
Total Nickel	µg/L	29 ^m	5.3	4.9	No	< G
Total Selenium	µg/L	1	1.1	1.1	No	< B
Total Silver	µg/L	0.1	0.16	0.14	No	< B
Total Strontium	µg/L	NV	328	300	No	< B
Total Thallium	µg/L	0.8	0.09	0.08	No	< G
Total Tin	µg/L	NV	0.23	0.21	No	< B
Total Titanium	µg/L	NV	2.5	2.2	No	< B
Total Tungsten	µg/L	NV	50	45	No	< B
Total Uranium	µg/L	15	0.10	0.09	No	< G
Total Vanadium	µg/L	NV	0.65	0.65	No	< B
Total Zinc	µg/L	30	11	11	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{(0.86[\ln(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{(\ln(\text{hardness}) - 1.455) \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{(1.273[\ln(\text{hardness})] - 4.705)}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{(0.76[\ln(\text{hardness})] + 1.06)}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4s: Surface Water Screening for Aquatic Life for Lake J6

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	278	253	No	< B
Total Alkalinity	mg/L	NV	77	70	No	< B
Total Suspended Solids	mg/L	NV	4.3	3.9	No	< B
Calcium	mg/L	NV	96	87	No	< B
Chloride	mg/L	120	299	271	No	< B
Fluoride	mg/L	0.12	0.06	0.06	No	< G
Magnesium	mg/L	NV	13	11	No	< B
Potassium	mg/L	NV	4.2	3.8	No	< B
Sodium	mg/L	NV	18	16	No	< B
Sulphate	mg/L	NV	25	22	No	< B
Ammonia (as N)	mg/L	7 ^e	0.26	0.24	No	< G
Nitrate (as N)	mg/L	3.0	0.44	0.40	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.87	0.79	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.004	0.004	No	< B
Cyanide	µg/L	5 ^g	1.5	1.4	No	< G
Total Aluminum	µg/L	100 ^h	11	10	No	< G
Total Antimony	µg/L	NV	0.34	0.31	No	< B
Total Arsenic	µg/L	5	2.6	2.3	No	< G
Total Barium	µg/L	NV	44	40	No	< B
Total Beryllium	µg/L	NV	0.65	0.59	No	< B
Total Bismuth	µg/L	NV	0.10	0.09	No	< B
Total Boron	µg/L	1500	43	39	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.20	0.18	No	< B
Total Chromium	µg/L	8.9 ^j	5.5	5.0	No	< G
Total Cobalt	µg/L	NV	0.35	0.32	No	< B
Total Copper	µg/L	2 ^k	4.1	3.7	No	< B
Total Iron	µg/L	300	177	161	No	< G
Total Lead	µg/L	1 ^l	3.1	2.8	No	< B
Total Lithium	µg/L	NV	14	13	No	< B
Total Manganese	µg/L	NV	88	80	No	< B
Total Mercury	µg/L	0.026	0.09	0.08	No	< B
Total Molybdenum	µg/L	73	0.76	0.69	No	< G
Total Nickel	µg/L	29 ^m	3.7	3.3	No	< G
Total Selenium	µg/L	1	1.0	0.9	No	< G
Total Silver	µg/L	0.1	0.12	0.11	No	< B
Total Strontium	µg/L	NV	245	223	No	< B
Total Thallium	µg/L	0.8	0.07	0.07	No	< G
Total Tin	µg/L	NV	0.23	0.21	No	< B
Total Titanium	µg/L	NV	2.0	1.8	No	< B
Total Tungsten	µg/L	NV	27	24	No	< B
Total Uranium	µg/L	15	0.09	0.08	No	< G
Total Vanadium	µg/L	NV	0.63	0.57	No	< B
Total Zinc	µg/L	30	9.9	9.0	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{(0.86[\ln(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{(\ln(\text{hardness}) - 1.455) \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] + 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4t: Surface Water Screening for Aquatic Life for Lake J3

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	354	322	No	< B
Total Alkalinity	mg/L	NV	96	87	No	< B
Total Suspended Solids	mg/L	NV	6.0	5.5	No	< B
Calcium	mg/L	NV	110	100	No	< B
Chloride	mg/L	120	351	319	No	< B
Fluoride	mg/L	0.12	0.07	0.07	No	< G
Magnesium	mg/L	NV	17	16	No	< B
Potassium	mg/L	NV	6.1	5.5	No	< B
Sodium	mg/L	NV	26	24	No	< B
Sulphate	mg/L	NV	44	40	No	< B
Ammonia (as N)	mg/L	7 ^e	0.38	0.34	No	< G
Nitrate (as N)	mg/L	3.0	0.55	0.50	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	1.2	1.1	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.006	0.005	No	< B
Cyanide	µg/L	5 ^g	2.0	1.8	No	< G
Total Aluminum	µg/L	100 ^h	14	12	No	< G
Total Antimony	µg/L	NV	0.38	0.35	No	< B
Total Arsenic	µg/L	5	3.8	3.5	No	< G
Total Barium	µg/L	NV	63	57	No	< B
Total Beryllium	µg/L	NV	0.76	0.69	No	< B
Total Bismuth	µg/L	NV	0.12	0.11	No	< B
Total Boron	µg/L	1500	54	49	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.28	0.26	No	< B
Total Chromium	µg/L	8.9 ^j	5.8	5.3	No	< G
Total Cobalt	µg/L	NV	0.48	0.43	No	< B
Total Copper	µg/L	2 ^k	5.0	4.6	No	< B
Total Iron	µg/L	300	196	178	No	< G
Total Lead	µg/L	1 ^l	3.8	3.4	No	< B
Total Lithium	µg/L	NV	22	20	No	< B
Total Manganese	µg/L	NV	138	126	No	< B
Total Mercury	µg/L	0.026	0.11	0.10	No	< B
Total Molybdenum	µg/L	73	0.87	0.79	No	< G
Total Nickel	µg/L	29 ^m	5.5	5.0	No	< G
Total Selenium	µg/L	1	1.1	1.0	No	< G
Total Silver	µg/L	0.1	0.18	0.16	No	< B
Total Strontium	µg/L	NV	364	331	No	< B
Total Thallium	µg/L	0.8	0.09	0.08	No	< G
Total Tin	µg/L	NV	0.23	0.21	No	< B
Total Titanium	µg/L	NV	2.3	2.1	No	< B
Total Tungsten	µg/L	NV	27	25	No	< B
Total Uranium	µg/L	15	0.12	0.11	No	< G
Total Vanadium	µg/L	NV	0.73	0.67	No	< B
Total Zinc	µg/L	30	15	13	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH ≥ 6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{[0.86(\log(\text{hardness})) - 3.2]}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{[\ln(\text{hardness}) - 1.455] \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] + 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4u: Surface Water Screening for Aquatic Life for Lake J2

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	354	322	No	< B
Total Alkalinity	mg/L	NV	96	87	No	< B
Total Suspended Solids	mg/L	NV	6.0	5.5	No	< B
Calcium	mg/L	NV	110	100	No	< B
Chloride	mg/L	120	351	319	No	< B
Fluoride	mg/L	0.12	0.07	0.07	No	< G
Magnesium	mg/L	NV	17	16	No	< B
Potassium	mg/L	NV	6.1	5.5	No	< B
Sodium	mg/L	NV	26	24	No	< B
Sulphate	mg/L	NV	44	40	No	< B
Ammonia (as N)	mg/L	7 ^e	0.38	0.34	No	< G
Nitrate (as N)	mg/L	3.0	0.55	0.50	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	1.2	1.1	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.01	0.005	No	< B
Cyanide	µg/L	5 ^g	2.0	1.8	No	< G
Total Aluminum	µg/L	100 ^h	14	12	No	< G
Total Antimony	µg/L	NV	0.38	0.35	No	< B
Total Arsenic	µg/L	5	3.8	3.5	No	< G
Total Barium	µg/L	NV	63	57	No	< B
Total Beryllium	µg/L	NV	0.76	0.69	No	< B
Total Bismuth	µg/L	NV	0.12	0.11	No	< B
Total Boron	µg/L	1500	54	49	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.28	0.26	No	< B
Total Chromium	µg/L	8.9 ^j	5.8	5.3	No	< G
Total Cobalt	µg/L	NV	0.48	0.43	No	< B
Total Copper	µg/L	2 ^k	5.0	4.6	No	< B
Total Iron	µg/L	300	196	178	No	< G
Total Lead	µg/L	1 ^l	3.8	3.4	No	< B
Total Lithium	µg/L	NV	22	20	No	< B
Total Manganese	µg/L	NV	138	126	No	< B
Total Mercury	µg/L	0.026	0.11	0.10	No	< B
Total Molybdenum	µg/L	73	0.87	0.79	No	< G
Total Nickel	µg/L	29 ^m	5.5	5.0	No	< G
Total Selenium	µg/L	1	1.1	1.0	No	< G
Total Silver	µg/L	0.1	0.18	0.16	No	< B
Total Strontium	µg/L	NV	364	331	No	< B
Total Thallium	µg/L	0.8	0.09	0.08	No	< G
Total Tin	µg/L	NV	0.23	0.21	No	< B
Total Titanium	µg/L	NV	2.3	2.1	No	< B
Total Tungsten	µg/L	NV	27	25	No	< B
Total Uranium	µg/L	15	0.12	0.11	No	< G
Total Vanadium	µg/L	NV	0.73	0.67	No	< B
Total Zinc	µg/L	30	15	13	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{(0.86[\ln(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{(0.86[\ln(\text{hardness})] - 1.455) \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{(1.273[\ln(\text{hardness})] - 4.705)}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{(0.76[\ln(\text{hardness})] + 1.06)}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4v: Surface Water Screening for Aquatic Life for Lake J1

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	332	307	No	< B
Total Alkalinity	mg/L	NV	92	84	No	< B
Total Suspended Solids	mg/L	NV	4.6	4.2	No	< B
Calcium	mg/L	NV	109	102	No	< B
Chloride	mg/L	120	343	317	No	< B
Fluoride	mg/L	0.12	0.07	0.06	No	< G
Magnesium	mg/L	NV	15	14	No	< B
Potassium	mg/L	NV	5.5	5.0	No	< B
Sodium	mg/L	NV	22	20	No	< B
Sulphate	mg/L	NV	26	24	No	< B
Ammonia (as N)	mg/L	7 ^e	0.32	0.29	No	< G
Nitrate (as N)	mg/L	3.0	0.49	2.8	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.99	0.91	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.01	0.01	No	< B
Orthophosphate	mg/L	NV	0.004	0.004	No	< B
Cyanide	µg/L	5 ^g	2.0	1.8	No	< G
Total Aluminum	µg/L	100 ^h	14	43	No	< G
Total Antimony	µg/L	NV	0.32	0.30	No	< B
Total Arsenic	µg/L	5	2.9	2.6	No	< G
Total Barium	µg/L	NV	45	41	No	< B
Total Beryllium	µg/L	NV	0.75	0.69	No	< B
Total Bismuth	µg/L	NV	0.13	0.12	No	< B
Total Boron	µg/L	1500	50	46	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.23	0.21	No	< B
Total Chromium	µg/L	8.9 ^j	5.3	5.2	No	< G
Total Cobalt	µg/L	NV	0.49	0.45	No	< B
Total Copper	µg/L	2 ^k	4.9	4.5	No	< B
Total Iron	µg/L	300	190	172	No	< G
Total Lead	µg/L	1 ^l	5.5	5.0	No	< B
Total Lithium	µg/L	NV	16	14	No	< B
Total Manganese	µg/L	NV	93	88	No	< B
Total Mercury	µg/L	0.026	0.11	0.10	No	< B
Total Molybdenum	µg/L	73	0.89	0.83	No	< G
Total Nickel	µg/L	29 ^m	5.2	4.8	No	< G
Total Selenium	µg/L	1	1.1	0.99	No	< G
Total Silver	µg/L	0.1	0.15	0.14	No	< B
Total Strontium	µg/L	NV	325	303	No	< B
Total Thallium	µg/L	0.8	0.09	0.08	No	< G
Total Tin	µg/L	NV	0.23	0.21	No	< B
Total Titanium	µg/L	NV	2.5	2.3	No	< B
Total Tungsten	µg/L	NV	56	51	No	< B
Total Uranium	µg/L	15	0.10	0.09	No	< G
Total Vanadium	µg/L	NV	0.62	0.62	No	< B
Total Zinc	µg/L	30	11	11	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH >=6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{(0.86[\log(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{\ln(\text{hardness}) - 1.455 \times 0.2}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] + 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4x: Surface Water Screening for Aquatic Life at DS1

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	100	97	No	< B
Total Alkalinity	mg/L	NV	43	44	No	Ameliorates metal toxicity
Total Suspended Solids	mg/L	NV	3.6	3.6	No	< B
Calcium	mg/L	NV	16	16	No	< B
Chloride	mg/L	120	15	15	No	< G
Fluoride	mg/L	0.12	0.10	0.10	No	< G
Magnesium	mg/L	NV	2.3	2.3	No	< B
Potassium	mg/L	NV	2.9	3.0	No	Essential nutrient/ameliorates metal toxicity
Sodium	mg/L	NV	12	12	No	< B
Sulphate	mg/L	NV	7.6	7.6	No	< B
Ammonia (as N)	mg/L	7 ^e	0.06	0.06	No	< G
Nitrate (as N)	mg/L	3.0	0.06	0.61	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.39	0.38	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.007	0.007	No	< B
Orthophosphate	mg/L	NV	0.002	0.002	No	< B
Cyanide	µg/L	5 ^g	2.9	2.8	No	< G
Total Aluminum	µg/L	100 ^h	9.3	16	No	< G
Total Antimony	µg/L	NV	0.42	0.43	No	Less than BCMOE guideline of 20 µg/L
Total Arsenic	µg/L	5	1.1	1.1	No	< G
Total Barium	µg/L	NV	20	20	No	< B
Total Beryllium	µg/L	NV	0.51	0.50	No	< B
Total Bismuth	µg/L	NV	0.15	0.15	No	< B
Total Boron	µg/L	1500	129	132	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.19	0.17	No	< B
Total Chromium	µg/L	8.9 ^j	0.09	0.11	No	< G
Total Cobalt	µg/L	NV	0.63	0.68	No	Less than BCMOE guideline of 4 µg/L
Total Copper	µg/L	2 ^k	9.9	9.3	No	< B
Total Iron	µg/L	300	141	152	No	< G
Total Lead	µg/L	1 ^l	17	15	No	< B
Total Lithium	µg/L	NV	25	24	No	< B
Total Manganese	µg/L	NV	8.1	8.1	No	< B
Total Mercury	µg/L	0.026	0.09	0.08	No	< B
Total Molybdenum	µg/L	73	1.7	1.7	No	< G
Total Nickel	µg/L	29 ^m	4.3	4.2	No	< G
Total Selenium	µg/L	1	0.31	0.30	No	< G
Total Silver	µg/L	0.1	0.11	0.10	No	< G
Total Strontium	µg/L	NV	107	111	No	Less than MDDEP criterion of 21 000 µg/L
Total Thallium	µg/L	0.8	0.10	0.10	No	< G
Total Tin	µg/L	NV	0.46	0.46	No	< B
Total Titanium	µg/L	NV	1.1	1.4	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	1.4	1.5	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	15	0.17	0.18	No	< G
Total Vanadium	µg/L	NV	1.1	1.1	No	< B
Total Zinc	µg/L	30	6.4	6.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH < 6.5, guideline is 5 µg/L. At pH > 6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{(0.86[\ln(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{[\ln(\text{hardness})] - 1.455} \times 0.2$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})] - 4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})] + 1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4y: Surface Water Screening for Aquatic Life at DS1A

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	60	55	No	< B
Total Alkalinity	mg/L	NV	25	23	No	< B
Total Suspended Solids	mg/L	NV	2.7	2.4	No	< B
Calcium	mg/L	NV	9.1	8.3	No	< B
Chloride	mg/L	120	10	9.2	No	< G
Fluoride	mg/L	0.12	0.07	0.06	No	< G
Magnesium	mg/L	NV	1.4	1.3	No	< B
Potassium	mg/L	NV	1.8	1.7	No	< B
Sodium	mg/L	NV	7.6	6.9	No	< B
Sulphate	mg/L	NV	5.0	4.5	No	< B
Ammonia (as N)	mg/L	7 ^e	0.05	0.04	No	< G
Nitrate (as N)	mg/L	3.0	0.09	0.78	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.18	0.17	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.003	0.003	No	< B
Orthophosphate	mg/L	NV	0.001	0.001	No	< B
Cyanide	µg/L	5 ^g	4.1	3.7	No	< G
Total Aluminum	µg/L	100 ^h	7.1	15	No	< G
Total Antimony	µg/L	NV	0.38	0.35	No	< B
Total Arsenic	µg/L	5	0.48	0.47	No	< G
Total Barium	µg/L	NV	11	10	No	< B
Total Beryllium	µg/L	NV	0.89	0.82	No	< B
Total Bismuth	µg/L	NV	9.2	8.3	No	< B
Total Boron	µg/L	1500	99	91	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.19	0.17	No	< B
Total Chromium	µg/L	8.9 ^j	1.3	1.4	No	< G
Total Cobalt	µg/L	NV	1.5	1.6	No	Less than BCMOE guideline of 4 µg/L
Total Copper	µg/L	2 ^k	6.6	6.0	No	< B
Total Iron	µg/L	300	83	84	No	< G
Total Lead	µg/L	1 ^l	17	15	No	< B
Total Lithium	µg/L	NV	15	13	No	< B
Total Manganese	µg/L	NV	4.3	4.0	No	< B
Total Mercury	µg/L	0.026	0.05	0.04	No	< B
Total Molybdenum	µg/L	73	26	24	No	< G
Total Nickel	µg/L	29 ^m	18	16	No	< G
Total Selenium	µg/L	1	0.14	0.13	No	< G
Total Silver	µg/L	0.1	0.09	0.08	No	< G
Total Strontium	µg/L	NV	64	58	No	< B
Total Thallium	µg/L	0.8	0.05	0.04	No	< G
Total Tin	µg/L	NV	0.23	0.21	No	< B
Total Titanium	µg/L	NV	1.0	1.3	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	89	81	No	< B
Total Uranium	µg/L	15	0.10	0.09	No	< G
Total Vanadium	µg/L	NV	0.86	0.80	No	< B
Total Zinc	µg/L	30	4.2	3.8	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH <6.5, guideline is 5 µg/L. At pH ≥ 6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium, } \mu\text{g/L}) = 10^{[0.86[\ln(\text{hardness})]-3.2]}$.

^j guideline for trivalent chromium, Cr (III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper, } \mu\text{g/L}) = e^{[\ln(\text{hardness})]-1.455} \times 0.2$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead, } \mu\text{g/L}) = e^{1.273[\ln(\text{hardness})]-4.705}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel, } \mu\text{g/L}) = e^{0.76[\ln(\text{hardness})]+1.06}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-4z: Surface Water Screening for Aquatic Life at DS2

Chemical	Units	CCME Guideline ^a	Baseline Concentration + 10% ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	NV	82	76	No	< B
Total Alkalinity	mg/L	NV	36	34	No	< B
Total Suspended Solids	mg/L	NV	3.0	2.8	No	< B
Calcium	mg/L	NV	13	12	No	< B
Chloride	mg/L	120	14	14	No	< G
Fluoride	mg/L	0.12	0.10	0.10	No	< G
Magnesium	mg/L	NV	1.9	1.8	No	< B
Potassium	mg/L	NV	2.7	2.6	No	< B
Sodium	mg/L	NV	11	10	No	< B
Sulphate	mg/L	NV	7.1	6.8	No	< B
Ammonia (as N)	mg/L	7 ^e	0.05	0.05	No	< G
Nitrate (as N)	mg/L	3.0	0.07	0.66	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.30	0.29	No	< B
Dissolved Phosphorus	mg/L	NV ^f	0.006	0.006	No	< B
Orthophosphate	mg/L	NV	0.002	0.002	No	< B
Cyanide	µg/L	5 ^g	3.1	3.1	No	< G
Total Aluminum	µg/L	100 ^h	9.3	16	No	< G
Total Antimony	µg/L	NV	0.44	0.44	No	< B
Total Arsenic	µg/L	5	0.93	0.90	No	< G
Total Barium	µg/L	NV	17	16	No	< B
Total Beryllium	µg/L	NV	0.62	0.58	No	< B
Total Bismuth	µg/L	NV	0.92	0.86	No	< B
Total Boron	µg/L	1500	140	138	No	< G
Total Cadmium	µg/L	0.009 ⁱ	0.21	0.19	No	< B
Total Chromium	µg/L	8.9 ^j	1.3	1.4	No	< G
Total Cobalt	µg/L	NV	1.5	1.6	No	Less than BCMOE guideline of 4 µg/L
Total Copper	µg/L	2 ^k	9.9	9.3	No	< B
Total Iron	µg/L	300	129	130	No	< G
Total Lead	µg/L	1 ^l	17	15	No	< B
Total Lithium	µg/L	NV	25	23	No	< B
Total Manganese	µg/L	NV	6.0	5.7	No	< B
Total Mercury	µg/L	0.026	0.08	0.08	No	< B
Total Molybdenum	µg/L	73	5.0	4.7	No	< G
Total Nickel	µg/L	29 ^m	5.1	4.8	No	< G
Total Selenium	µg/L	1	0.22	0.20	No	< G
Total Silver	µg/L	0.1	0.09	0.09	No	< G
Total Strontium	µg/L	NV	93	91	No	< B
Total Thallium	µg/L	0.8	0.08	0.07	No	< G
Total Tin	µg/L	NV	0.34	0.31	No	< B
Total Titanium	µg/L	NV	1.1	1.3	No	Less than BCMOE guideline of 2000 µg/L
Total Tungsten	µg/L	NV	12	11	No	< B
Total Uranium	µg/L	15	0.15	0.14	No	< G
Total Vanadium	µg/L	NV	1.0	0.99	No	< B
Total Zinc	µg/L	30	5.6	5.4	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b maximum modelled baseline surface water concentration + 10%.

^c predicted maximum surface water concentration of all modelled Project phases.

^d yes = the predicted surface water concentration is greater than the guideline and the maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum modelled baseline surface water concentration + 10%, and, therefore, the chemical was not identified as a COPC.

^e toxicity of ammonia relates primarily to concentration of the unionized form, which increases with increasing temperature and pH. Sample-specific total ammonia guidelines were calculated as per CCME 2012d (internet site). The lowest of the calculated guidelines is presented.

^f the Canadian Guidance Framework for Phosphorus is for developing phosphorus guidelines (CCME 2004). The following trigger values can be applied to interpret data but not for screening: ultra-oligotrophic < 4 µg/L; oligotrophic 4-10 µg/L; mesotrophic 10-20 µg/L; meso-eutrophic 20-35 µg/L; eutrophic 35-100 µg/L; hyper-eutrophic >100 µg/L.

^g the guideline is for free cyanide.

^h aluminum guideline is pH dependent. At pH < 6.5, guideline is 5 µg/L. At pH > 6.5, guideline is 100 µg/L.

ⁱ cadmium guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{cadmium}, \mu\text{g/L}) = 10^{(0.86[\ln(\text{hardness})] - 3.2)}$.

^j guideline for trivalent chromium, Cr(III).

^k copper guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{copper}, \mu\text{g/L}) = e^{[0.1455 \ln(\text{hardness}) - 4.705]}$.

^l lead guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{lead}, \mu\text{g/L}) = e^{[1.273 \ln(\text{hardness}) - 4.705]}$.

^m nickel guideline is hardness dependent and is calculated according to the following equation: $CWQG(\text{nickel}, \mu\text{g/L}) = e^{[0.76 \ln(\text{hardness}) + 1.06]}$.

NV = no value; ND = no data; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; B = maximum modelled baseline surface water concentration + 10%; G = guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-5a: Surface Water Screening for Wildlife at Tiriganiaq Open Pit Lake

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Predicted Concentration ^c	COPC ^d	Rationale
Total Dissolved Solids	mg/L	3000	--	32	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	NV	16	No	No direct impact on wildlife health
Chloride	mg/L	NV	NV	5.7	No	Less than CCME guideline for aquatic life of 120 mg/L
Fluoride	mg/L	2 ^e	--	0.0006	No	< G
Sulphate	mg/L	1000	--	3.0	No	< G
Ammonium (as N)	mg N/L	NV	NV	1.0	No	Less than CCME guideline for aquatic life for total ammonia-N of 19 mg/L
Nitrate	mg/L	NV	NV	0.77	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.18	No	No direct impact on wildlife health
Dissolved Phosphorus	mg/L	NV	NV	0.003	No	No direct impact on wildlife health
Phosphate	mg/L	NV	NV	0.001	No	No direct impact on wildlife health
Aluminum	µg/L	5000	--	5.5	No	< G
Antimony	µg/L	NV	161	0.11	No	< G
Arsenic	µg/L	25	--	2.9	No	< G
Barium	µg/L	NV	23 100	5.4	No	< G
Beryllium	µg/L	100	--	0.0000003	No	< G
Bismuth	µg/L	NV	NV	0.00005	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	--	3.0	No	< G
Cadmium	µg/L	80	--	0.0002	No	< G
Calcium	µg/L	100 000	--	2416	No	< G
Chromium	µg/L	50 ^f	--	0.54	No	< G
Cobalt	µg/L	1000	--	0.03	No	< G
Copper	µg/L	500 ^g	--	2.8	No	< G
Iron	µg/L	NV	NV	6.4	No	Less than the CCME guideline for aquatic life of 300 µg/L
Lead	µg/L	100	--	0.14	No	< G
Lithium	µg/L	NV	40 300	0.03	No	< G
Magnesium	µg/L	NV	NV	504	No	Essential nutrient/non-toxic
Manganese	µg/L	NV	377 000	1.8	No	< G
Mercury	µg/L	3	--	0.000001	No	< G
Molybdenum	µg/L	500	--	0.28	No	< G
Nickel	µg/L	1000	--	0.45	No	< G
Potassium	µg/L	NV	NV	443	No	Essential nutrient/non-toxic
Selenium	µg/L	50	--	0.03	No	< G
Sodium	µg/L	NV	NV	1477	No	Essential nutrient/non-toxic
Strontium	µg/L	NV	1 127 000	24	No	< G
Thallium	µg/L	NV	1	0.0000003	No	< G
Tin	µg/L	NV	29 200	0.02	No	< G
Titanium	µg/L	NV	NV	0.008	No	Less than LANL ESL for wildlife of 70 000 µg/L
Tungsten	µg/L	NV	NV	0.003	No	Lack of toxicity data/non-toxic
Uranium	µg/L	200	--	0.08	No	< G
Vanadium	µg/L	100	--	0.25	No	< G
Zinc	µg/L	50 000	--	1.3	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site)^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.^c predicted long-term summer conditions^d yes = the predicted surface water concentration is greater than the guideline, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline, and, therefore, the chemical was not identified as a COPC.^e guideline assuming feed of animals does not contain fluoride^f guideline for trivalent chromium, Cr(III)^g most stringent of the guidelines provided (for sheep)

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-5b: Surface Water Screening for Wildlife at Wesmeg Open Pit Lake

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	3000	--	20	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	NV	9.3	No	No direct impact on wildlife health
Chloride	mg/L	NV	NV	3.6	No	Less than CCME guideline for aquatic life of 120 mg/L
Fluoride	mg/L	2 ^d	--	0.00001	No	< G
Sulphate	mg/L	1000	--	2.1	No	< G
Ammonium (as N)	mg N/L	NV	NV	0.67	No	Less than CCME guideline for aquatic life for total ammonia-N of 19 mg/L
Nitrate	mg/L	NV	NV	0.74	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.12	No	No direct impact on wildlife health
Dissolved Phosphorus	mg/L	NV	NV	0.002	No	No direct impact on wildlife health
Phosphate	mg/L	NV	NV	0.001	No	No direct impact on wildlife health
Aluminum	µg/L	5000	--	2.2	No	< G
Antimony	µg/L	NV	161	0.02	No	< G
Arsenic	µg/L	25	--	0.48	No	< G
Barium	µg/L	NV	23 100	3.3	No	< G
Beryllium	µg/L	100	--	0.0000012	No	< G
Bismuth	µg/L	NV	NV	0.0000006	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	--	1.7	No	< G
Cadmium	µg/L	80	--	0.00001	No	< G
Calcium	µg/L	100 000	--	1105	No	< G
Chromium	µg/L	50 ^e	--	0.35	No	< G
Cobalt	µg/L	1000	--	0.003	No	< G
Copper	µg/L	500 ^f	--	0.63	No	< G
Iron	µg/L	NV	NV	3.8	No	Less than the CCME guideline for aquatic life of 300 µg/L
Lead	µg/L	100	--	0.09	No	< G
Lithium	µg/L	NV	40 300	0.0005	No	< G
Magnesium	µg/L	NV	NV	251	No	Essential nutrient/non-toxic
Manganese	µg/L	NV	377 000	1.0	No	< G
Mercury	µg/L	3	--	0.000006	No	< G
Molybdenum	µg/L	500	--	0.15	No	< G
Nickel	µg/L	1000	--	0.28	No	< G
Potassium	µg/L	NV	NV	204	No	Essential nutrient/non-toxic
Selenium	µg/L	50	--	0.003	No	< G
Sodium	µg/L	NV	NV	931	No	Essential nutrient/non-toxic
Strontium	µg/L	NV	1 127 000	13	No	< G
Thallium	µg/L	NV	1	0.0000002	No	< G
Tin	µg/L	NV	29 200	0.006	No	< G
Titanium	µg/L	NV	NV	0.0006	No	Less than LANL ESL for wildlife of 70 000 µg/L
Tungsten	µg/L	NV	NV	0.0009	No	Lack of toxicity data/non-toxic
Uranium	µg/L	200	--	0.04	No	< G
Vanadium	µg/L	100	--	0.16	No	< G
Zinc	µg/L	50 000	--	0.80	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site)

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c predicted long-term summer conditions

^d yes = the predicted surface water concentration is greater than the guideline, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline, and, therefore, the chemical was not identified as a COPC.

^e guideline assuming feed of animals does not contain fluoride

^f guideline for trivalent chromium, Cr(III)

^g most stringent of the guidelines provided (for sheep)

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-5c: Surface Water Screening for Wildlife at FZone Open Pit Lake

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	3000	--	36	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	NV	16	No	No direct impact on wildlife health
Chloride	mg/L	NV	NV	6.7	No	Less than CCME guideline for aquatic life of 120 mg/L
Fluoride	mg/L	2 ^d	--	0.0000005	No	< G
Sulphate	mg/L	1000	--	2.7	No	< G
Ammonium (as N)	mg N/L	NV	NV	1.3	No	Less than CCME guideline for aquatic life for total ammonia-N of 19 mg/L
Nitrate	mg/L	NV	NV	1.4	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.21	No	No direct impact on wildlife health
Dissolved Phosphorus	mg/L	NV	NV	0.004	No	No direct impact on wildlife health
Phosphate	mg/L	NV	NV	0.001	No	No direct impact on wildlife health
Aluminum	µg/L	5000	--	2.2	No	< G
Antimony	µg/L	NV	161	0.003	No	< G
Arsenic	µg/L	25	--	0.28	No	< G
Barium	µg/L	NV	23 100	6.0	No	< G
Beryllium	µg/L	100	--	0.00000003	No	< G
Bismuth	µg/L	NV	NV	0.00000002	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	--	3.0	No	< G
Cadmium	µg/L	80	--	0.000002	No	< G
Calcium	µg/L	100 000	--	1990	No	< G
Chromium	µg/L	50 ^e	--	0.65	No	< G
Cobalt	µg/L	1000	--	0.0003	No	< G
Copper	µg/L	500 ^f	--	1.2	No	< G
Iron	µg/L	NV	NV	6.9	No	Less than the CCME guideline for aquatic life of 300 µg/L
Lead	µg/L	100	--	0.17	No	< G
Lithium	µg/L	NV	40 300	0.002	No	< G
Magnesium	µg/L	NV	NV	436	No	Essential nutrient/non-toxic
Manganese	µg/L	NV	377 000	1.4	No	< G
Mercury	µg/L	3	--	0.0000002	No	< G
Molybdenum	µg/L	500	--	0.27	No	< G
Nickel	µg/L	1000	--	0.51	No	< G
Potassium	µg/L	NV	NV	365	No	Essential nutrient/non-toxic
Selenium	µg/L	50	--	0.001	No	< G
Sodium	µg/L	NV	NV	1722	No	Essential nutrient/non-toxic
Strontium	µg/L	NV	1 127 000	24	No	< G
Thallium	µg/L	NV	1	0.0000000004	No	< G
Tin	µg/L	NV	29 200	0.0004	No	< G
Titanium	µg/L	NV	NV	0.0001	No	Less than LANL ESL for wildlife of 70 000 µg/L
Tungsten	µg/L	NV	NV	0.0001	No	Lack of toxicity data/non-toxic
Uranium	µg/L	200	--	0.06	No	< G
Vanadium	µg/L	100	--	0.29	No	< G
Zinc	µg/L	50 000	--	1.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site)

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c predicted long-term summer conditions

^d yes = the predicted surface water concentration is greater than the guideline, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline, and, therefore, the chemical was not identified as a COPC.

^e guideline assuming feed of animals does not contain fluoride

^f guideline for trivalent chromium, Cr(III)

^g most stringent of the guidelines provided (for sheep)

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-5d: Surface Water Screening for Wildlife at Pump Open Pit Lake

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	3000	--	37	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	NV	19	No	No direct impact on wildlife health
Chloride	mg/L	NV	NV	6.4	No	Less than CCME guideline for aquatic life of 120 mg/L
Fluoride	mg/L	2 ^d	--	0.00001	No	< G
Sulphate	mg/L	1000	--	3.9	No	< G
Ammonium (as N)	mg N/L	NV	NV	0.68	No	Less than CCME guideline for aquatic life for total ammonia-N of 19 mg/L
Nitrate	mg/L	NV	NV	0.75	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.25	No	No direct impact on wildlife health
Dissolved Phosphorus	mg/L	NV	NV	0.004	No	No direct impact on wildlife health
Phosphate	mg/L	NV	NV	0.001	No	No direct impact on wildlife health
Aluminum	µg/L	5000	--	2.7	No	< G
Antimony	µg/L	NV	161	0.01	No	< G
Arsenic	µg/L	25	--	0.44	No	< G
Barium	µg/L	NV	23 100	5.7	No	< G
Beryllium	µg/L	100	--	0.000002	No	< G
Bismuth	µg/L	NV	NV	0.000001	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	--	6.3	No	< G
Cadmium	µg/L	80	--	0.000004	No	< G
Calcium	µg/L	100 000	--	2390	No	< G
Chromium	µg/L	50 ^e	--	0.53	No	< G
Cobalt	µg/L	1000	--	0.001	No	< G
Copper	µg/L	500 ^f	--	1.0	No	< G
Iron	µg/L	NV	NV	8.6	No	Less than the CCME guideline for aquatic life of 300 µg/L
Lead	µg/L	100	--	0.15	No	< G
Lithium	µg/L	NV	40 300	0.0004	No	< G
Magnesium	µg/L	NV	NV	444	No	Essential nutrient/non-toxic
Manganese	µg/L	NV	377 000	1.8	No	< G
Mercury	µg/L	3	--	0.00001	No	< G
Molybdenum	µg/L	500	--	0.26	No	< G
Nickel	µg/L	1000	--	0.45	No	< G
Potassium	µg/L	NV	NV	347	No	Essential nutrient/non-toxic
Selenium	µg/L	50	--	0.10	No	< G
Sodium	µg/L	NV	NV	1486	No	Essential nutrient/non-toxic
Strontium	µg/L	NV	1 127 000	20	No	< G
Thallium	µg/L	NV	1	0.0000005	No	< G
Tin	µg/L	NV	29 200	0.004	No	< G
Titanium	µg/L	NV	NV	0.0003	No	Less than LANL ESL for wildlife of 70 000 µg/L
Tungsten	µg/L	NV	NV	0.0003	No	Lack of toxicity data/non-toxic
Uranium	µg/L	200	--	0.05	No	< G
Vanadium	µg/L	100	--	0.28	No	< G
Zinc	µg/L	50 000	--	1.4	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c; internet site)

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c predicted long-term summer conditions

^d yes = the predicted surface water concentration is greater than the guideline, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline, and, therefore, the chemical was not identified as a COPC.

^e guideline assuming feed of animals does not contain fluoride

^f guideline for trivalent chromium, Cr(III)

^g most stringent of the guidelines provided (for sheep)

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-5e: Surface Water Screening for Wildlife at Discovery Open Pit Lake

Chemical	Units	CCME Guideline ^a	Sample et al. (1996) Toxicological Benchmark ^b	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	3000	--	38	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	NV	17	No	No direct impact on wildlife health
Chloride	mg/L	NV	NV	6.9	No	Less than CCME guideline for aquatic life of 120 mg/L
Fluoride	mg/L	2 ^d	--	0.0004	No	< G
Sulphate	mg/L	1000	--	2.8	No	< G
Ammonium (as N)	mg N/L	NV	NV	0.68	Yes	Less than CCME guideline for aquatic life for total ammonia-N of 19 mg/L
Nitrate	mg/L	NV	NV	0.75	No	Less than CCME guideline for aquatic life of 2.9 mg/L
Total Kjeldahl Nitrogen	mg/L	NV	NV	0.22	No	No direct impact on wildlife health
Dissolved Phosphorus	mg/L	NV	NV	0.004	No	No direct impact on wildlife health
Phosphate	mg/L	NV	NV	0.001	No	No direct impact on wildlife health
Aluminum	µg/L	5000	--	2.4	No	< G
Antimony	µg/L	NV	161	0.002	No	< G
Arsenic	µg/L	25	--	0.54	No	< G
Barium	µg/L	NV	23 100	6.2	No	< G
Beryllium	µg/L	100	--	0.0000004	No	< G
Bismuth	µg/L	NV	NV	0.0000002	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	--	3.2	No	< G
Cadmium	µg/L	80	--	0.0004	No	< G
Calcium	µg/L	100 000	--	2086	No	< G
Chromium	µg/L	50 ^e	--	0.66	No	< G
Cobalt	µg/L	1000	--	0.002	No	< G
Copper	µg/L	500 ^f	--	1.2	No	< G
Iron	µg/L	NV	NV	7.2	No	Less than the CCME guideline for aquatic life of 300 µg/L
Lead	µg/L	100	--	0.17	No	< G
Lithium	µg/L	NV	40 300	0.01	No	< G
Magnesium	µg/L	NV	NV	446	No	Essential nutrient/non-toxic
Manganese	µg/L	NV	377 000	1.3	No	< G
Mercury	µg/L	3	--	0.000002	No	< G
Molybdenum	µg/L	500	--	0.29	No	< G
Nickel	µg/L	1000	--	0.52	No	< G
Potassium	µg/L	NV	NV	385	No	Essential nutrient/non-toxic
Selenium	µg/L	50	--	0.01	No	< G
Sodium	µg/L	NV	NV	1759	No	Essential nutrient/non-toxic
Strontium	µg/L	NV	1 127 000	25	No	< G
Thallium	µg/L	NV	1	0.0000004	No	< G
Tin	µg/L	NV	29 200	0.001	No	< G
Titanium	µg/L	NV	NV	0.001	No	Less than LANL ESL for wildlife of 70 000 µg/L
Tungsten	µg/L	NV	NV	0.0007	No	Lack of toxicity data/non-toxic
Uranium	µg/L	200	--	0.07	No	< G
Vanadium	µg/L	100	--	0.30	No	< G
Zinc	µg/L	50 000	--	1.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses - Livestock Water (CCME 2012c, internet site)

^b Sample et al. (1996) Toxicological Benchmarks for Wildlife. The value provided is the lowest of the NOAEL-based benchmarks for water and piscivore provided in Table 12.

^c predicted long-term summer conditions

^d yes = the predicted surface water concentration is greater than the guideline, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline, and, therefore, the chemical was not identified as a COPC.

^e guideline assuming feed of animals does not contain fluoride

^f guideline for trivalent chromium, Cr(III)

^g most stringent of the guidelines provided (for sheep)

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; -- = value not required; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-6a: Surface Water Screening for Aquatic Life at Tiriganiaq Open Pit Lake

Chemical	Units	CCME Guideline ^a	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	NV	32	No	Within range of US state criteria
Total Alkalinity	mg/L as CaCO ₃	NV	16	No	Ameliorates metal toxicity
Chloride	mg/L	120	5.7	No	< G
Fluoride	mg/L	0.12	0.0006	No	< G
Sulphate	mg/L	NV	3.0	No	Less than BCMOE guideline of 50 mg/L
Ammonium (as N)	mg N/L	NV	1.0	No	Less than the CCME guideline for total ammonia
Nitrate	mg/L	13	0.77	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.18	No	See note (g)
Dissolved Phosphorus	mg/L	NV	0.003	No	See note (h)
Phosphate	mg/L	NV	0.001	No	See note (i)
Aluminum	µg/L	100 ^d	5.5	No	< G
Antimony	µg/L	NV	0.11	No	Less than BCMOE guideline of 20 µg/L
Arsenic	µg/L	5	2.9	No	< G
Barium	µg/L	NV	5.4	No	Less than BCMOE guideline of 1000 µg/L
Beryllium	µg/L	NV	0.000003	No	Less than BCMOE guideline of 5.3 µg/L
Bismuth	µg/L	NV	0.00005	No	Lack of toxicity data/non-toxic
Boron	µg/L	1500	3.0	No	< G
Cadmium	µg/L	0.012 ^e	0.0002	No	< G
Calcium	µg/L	NV	2416	No	Essential nutrient/ameliorates metal toxicity
Chromium	µg/L	1 ^f	0.54	No	< G
Cobalt	µg/L	NV	0.03	No	Less than BCMOE guideline of 4 µg/L
Copper	µg/L	2 ^g	2.8	Yes	> G
Iron	µg/L	300	6.4	No	< G
Lead	µg/L	1 ^h	0.14	No	< G
Lithium	µg/L	NV	0.03	No	Less than BCMOE guideline of 14 µg/L
Magnesium	µg/L	NV	504	No	Essential nutrient/ameliorates metal toxicity
Manganese	µg/L	NV	1.8	No	Less than the BCMOE guideline of 649 µg/L
Mercury	µg/L	0.026	0.000001	No	< G
Molybdenum	µg/L	73	0.28	No	< G
Nickel	µg/L	38 ⁱ	0.45	No	< G
Potassium	µg/L	NV	443	No	Essential nutrient/ameliorate metal toxicity
Selenium	µg/L	1	0.03	No	< G
Sodium	µg/L	NV	1477	No	Essential nutrient/ameliorates metal toxicity
Strontium	µg/L	NV	24	No	Less than MDDEP criterion of 21 000 µg/L
Thallium	µg/L	0.8	0.000003	No	< G
Tin	µg/L	NV	0.02	No	Lack of toxicity data/non-toxic
Titanium	µg/L	NV	0.008	No	Less than BCMOE guideline of 2000 µg/L
Tungsten	µg/L	NV	0.003	No	Lack of toxicity data/non-toxic
Uranium	µg/L	15	0.08	No	< G
Vanadium	µg/L	NV	0.25	No	Less than the BCMOE guideline of 6 µg/L
Zinc	µg/L	30	1.3	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b predicted long-term summer conditions.

^c yes = the predicted surface water concentration is greater than the guideline, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline, and, therefore, the chemical was not identified as a COPC.

^d guideline for aluminum is pH dependant; assumes pH>6.5.

^e guideline is hardness dependent; assumes a hardness of 30 mg/L.

^f guideline depends on the valence of chromium ion. In the above table, the Cr(VI) criterion of 1 µg/L is shown.

^g total Kjeldahl nitrogen (TKN) is a measure of ammonia and inorganic forms of nitrogen. There is no CCME guideline for TKN for the protection of freshwater aquatic life. Still, potential adverse effects of ammonia on freshwater aquatic life has been addressed through the screening that was completed for ammonia. There is little toxicity information for organic forms of nitrogen; however, these are minor constituents and do not appear to affect water uses (BCMOE 2009). As such, TKN has not been considered further in the environmental risk assessment.

^h the CCME guideline for phosphorus is based on a change from baseline conditions. The predicted concentrations represent baseline conditions for the pit lakes. Therefore dissolved phosphorus has not been considered further in the environmental risk assessment.

ⁱ see note (h).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCO₃ = calcium carbonate; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-6b: Surface Water Screening for Aquatic Life at Wesmeg Open Pit Lake

Chemical	Units	CCME Guideline ^a	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	NV	20	No	Within range of US state criteria
Total Alkalinity	mg/L as CaCO ₃	NV	9.3	No	Ameliorates metal toxicity
Chloride	mg/L	120	3.6	No	< G
Fluoride	mg/L	0.12	0.00001	No	< G
Sulphate	mg/L	NV	2.1	No	Less than BCMOE guideline of 50 mg/L
Ammonium (as N)	mg N/L	NV	0.67	No	Less than the CCME guideline for total ammonia
Nitrate	mg/L	13	0.74	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.12	No	See note (g)
Dissolved Phosphorus	mg/L	NV	0.002	No	See note (h)
Phosphate	mg/L	NV	0.001	No	See note (i)
Aluminum	µg/L	100 ^d	2.2	No	< G
Antimony	µg/L	NV	0.02	No	Less than BCMOE guideline of 20 µg/L
Arsenic	µg/L	5	0.48	No	< G
Barium	µg/L	NV	3.3	No	Less than BCMOE guideline of 1000 µg/L
Beryllium	µg/L	NV	0.000012	No	Less than BCMOE guideline of 5.3 µg/L
Bismuth	µg/L	NV	0.0000006	No	Lack of toxicity data/non-toxic
Boron	µg/L	1500	1.7	No	< G
Cadmium	µg/L	0.012 ^e	0.00001	No	< G
Calcium	µg/L	NV	1105	No	Essential nutrient/ameliorates metal toxicity
Chromium	µg/L	1 ^f	0.35	No	< G
Cobalt	µg/L	NV	0.003	No	Less than BCMOE guideline of 4 µg/L
Copper	µg/L	2 ^g	0.63	No	< G
Iron	µg/L	300	3.8	No	< G
Lead	µg/L	1 ^h	0.09	No	< G
Lithium	µg/L	NV	0.0005	No	Less than BCMOE guideline of 14 µg/L
Magnesium	µg/L	NV	251	No	Essential nutrient/ameliorates metal toxicity
Manganese	µg/L	NV	1.0	No	Less than the BCMOE guideline of 649 µg/L
Mercury	µg/L	0.026	0.000006	No	< G
Molybdenum	µg/L	73	0.15	No	< G
Nickel	µg/L	38 ⁱ	0.28	No	< G
Potassium	µg/L	NV	204	No	Essential nutrient/ameliorates metal toxicity
Selenium	µg/L	1	0.003	No	< G
Sodium	µg/L	NV	931	No	Essential nutrient/ameliorates metal toxicity
Strontium	µg/L	NV	13	No	Less than MDDEP criterion of 21 000 µg/L
Thallium	µg/L	0.8	0.0000002	No	< G
Tin	µg/L	NV	0.006	No	Lack of toxicity data/non-toxic
Titanium	µg/L	NV	0.0006	No	Less than BCMOE guideline of 2000 µg/L
Tungsten	µg/L	NV	0.0009	No	Lack of toxicity data/non-toxic
Uranium	µg/L	15	0.04	No	< G
Vanadium	µg/L	NV	0.16	No	Less than the BCMOE guideline of 6 µg/L
Zinc	µg/L	30	0.80	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b predicted long-term summer conditions.

^c yes = the predicted surface water concentration is greater than the guideline, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline, and, therefore, the chemical was not identified as a COPC.

^d guideline for aluminum is pH dependant; assumes pH>6.5.

^e guideline is hardness dependent; assumes a hardness of 30 mg/L.

^f guideline depends on the valence of chromium ion. In the above table, the Cr(VI) criterion of 1 µg/L is shown.

^g total Kjeldahl nitrogen (TKN) is a measure of ammonia and inorganic forms of nitrogen. There is no CCME guideline for TKN for the protection of freshwater aquatic life. Still, potential adverse affects of ammonia on freshwater aquatic life has been addressed through the screening that was completed for ammonia. There is little toxicity information for organic forms of nitrogen; however, these are minor constituents and do not appear to affect water uses (BCMOE 2009). As such, TKN has not been considered further in the environmental risk assessment.

^h the CCME guideline for phosphorus is based on a change from baseline conditions. The predicted concentrations represent baseline conditions for the pit lakes. Therefore dissolved phosphorus has not been considered further in the environmental risk assessment.

ⁱ see note (h).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCQ = calcium carbonate; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-6c: Surface Water Screening for Aquatic Life at FZone Open Pit Lake

Chemical	Units	CCME Guideline ^a	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	NV	36	No	Within range of US state criteria
Total Alkalinity	mg/L as CaCO ₃	NV	16	No	Ameliorates metal toxicity
Chloride	mg/L	120	6.7	No	< G
Fluoride	mg/L	0.12	0.0000005	No	< G
Sulphate	mg/L	NV	2.7	No	Less than BCMOE guideline of 50 mg/L
Ammonium (as N)	mg N/L	NV	1.3	No	Less than the CCME guideline for total ammonia
Nitrate	mg/L	13	1.4	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.21	No	See note (g)
Dissolved Phosphorus	mg/L	NV	0.004	No	See note (h)
Phosphate	mg/L	NV	0.001	No	See note (i)
Aluminum	µg/L	100 ^d	2.2	No	< G
Antimony	µg/L	NV	0.003	No	Less than BCMOE guideline of 20 µg/L
Arsenic	µg/L	5	0.28	No	< G
Barium	µg/L	NV	6.0	No	Less than BCMOE guideline of 1000 µg/L
Beryllium	µg/L	NV	0.00000003	No	Less than BCMOE guideline of 5.3 µg/L
Bismuth	µg/L	NV	0.00000002	No	Lack of toxicity data/non-toxic
Boron	µg/L	1500	3.0	No	< G
Cadmium	µg/L	0.012 ^e	0.000002	No	< G
Calcium	µg/L	NV	1990	No	Essential nutrient/ameliorates metal toxicity
Chromium	µg/L	1 ^f	0.65	No	< G
Cobalt	µg/L	NV	0.0003	No	Less than BCMOE guideline of 4 µg/L
Copper	µg/L	2 ^g	1.2	No	< G
Iron	µg/L	300	6.9	No	< G
Lead	µg/L	1 ^h	0.17	No	< G
Lithium	µg/L	NV	0.002	No	Less than BCMOE guideline of 14 µg/L
Magnesium	µg/L	NV	436	No	Essential nutrient/ameliorates metal toxicity
Manganese	µg/L	NV	1.4	No	Less than the BCMOE guideline of 649 µg/L
Mercury	µg/L	0.026	0.0000002	No	< G
Molybdenum	µg/L	73	0.27	No	< G
Nickel	µg/L	38 ⁱ	0.51	No	< G
Potassium	µg/L	NV	365	No	Essential nutrient/ameliorates metal toxicity
Selenium	µg/L	1	0.001	No	< G
Sodium	µg/L	NV	1722	No	Essential nutrient/ameliorates metal toxicity
Strontium	µg/L	NV	24	No	Less than MDDEP criterion of 21 000 µg/L
Thallium	µg/L	0.8	0.0000000004	No	< G
Tin	µg/L	NV	0.0004	No	Lack of toxicity data/non-toxic
Titanium	µg/L	NV	0.0001	No	Less than BCMOE guideline of 2000 µg/L
Tungsten	µg/L	NV	0.0001	No	Lack of toxicity data/non-toxic
Uranium	µg/L	15	0.06	No	< G
Vanadium	µg/L	NV	0.29	No	Less than the BCMOE guideline of 6 µg/L
Zinc	µg/L	30	1.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b predicted long-term summer conditions.

^c yes = the predicted surface water concentration is greater than the guideline, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline, and, therefore, the chemical was not identified as a COPC.

^d guideline for aluminum is pH dependant; assumes pH>6.5.

^e guideline is hardness dependent; assumes a hardness of 30 mg/L.

^f guideline depends on the valence of chromium ion. In the above table, the Cr(VI) criterion of 1 µg/L is shown.

^g total Kjeldahl nitrogen (TKN) is a measure of ammonia and inorganic forms of nitrogen. There is no CCME guideline for TKN for the protection of freshwater aquatic life. Still, potential adverse effects of ammonia on freshwater aquatic life has been addressed through the screening that was completed for ammonia. There is little toxicity information for organic forms of nitrogen; however, these are minor constituents and do not appear to affect water uses (BCMOE 2009). As such, TKN has not been considered further in the environmental risk assessment.

^h the CCME guideline for phosphorus is based on a change from baseline conditions. The predicted concentrations represent baseline conditions for the pit lakes. Therefore dissolved phosphorus has not been considered further in the environmental risk assessment.

ⁱ see note (h).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCQ = calcium carbonate; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-6d: Surface Water Screening for Aquatic Life at Pump Open Pit Lake

Chemical	Units	CCME Guideline ^a	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	NV	37	No	Within range of US state criteria
Total Alkalinity	mg/L as CaCO ₃	NV	19	No	Ameliorates metal toxicity
Chloride	mg/L	120	6.4	No	< G
Fluoride	mg/L	0.12	0.00001	No	< G
Sulphate	mg/L	NV	3.9	No	Less than BCMOE guideline of 50 mg/L
Ammonium (as N)	mg N/L	NV	0.68	No	Less than the CCME guideline for total ammonia
Nitrate	mg/L	13	0.75	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.25	No	See note (g)
Dissolved Phosphorus	mg/L	NV	0.004	No	See note (h)
Phosphate	mg/L	NV	0.001	No	See note (i)
Aluminum	µg/L	100 ^d	2.7	No	< G
Antimony	µg/L	NV	0.01	No	Less than BCMOE guideline of 20 µg/L
Arsenic	µg/L	5	0.44	No	< G
Barium	µg/L	NV	5.7	No	Less than BCMOE guideline of 1000 µg/L
Beryllium	µg/L	NV	0.000002	No	Less than BCMOE guideline of 5.3 µg/L
Bismuth	µg/L	NV	0.000001	No	Lack of toxicity data/non-toxic
Boron	µg/L	1500	6.3	No	< G
Cadmium	µg/L	0.012 ^e	0.000004	No	< G
Calcium	µg/L	NV	2390	No	Essential nutrient/ameliorates metal toxicity
Chromium	µg/L	1 ^f	0.53	No	< G
Cobalt	µg/L	NV	0.001	No	Less than BCMOE guideline of 4 µg/L
Copper	µg/L	2 ^g	1.0	No	< G
Iron	µg/L	300	8.6	No	< G
Lead	µg/L	1 ^h	0.15	No	< G
Lithium	µg/L	NV	0.0004	No	Less than BCMOE guideline of 14 µg/L
Magnesium	µg/L	NV	444	No	Essential nutrient/ameliorates metal toxicity
Manganese	µg/L	NV	1.8	No	Less than the BCMOE guideline of 649 µg/L
Mercury	µg/L	0.026	0.00001	No	< G
Molybdenum	µg/L	73	0.26	No	< G
Nickel	µg/L	38 ⁱ	0.45	No	< G
Potassium	µg/L	NV	347	No	Essential nutrient/ameliorates metal toxicity
Selenium	µg/L	1	0.10	No	< G
Sodium	µg/L	NV	1486	No	Essential nutrient/ameliorates metal toxicity
Strontium	µg/L	NV	20	No	Less than MDDEP criterion of 21 000 µg/L
Thallium	µg/L	0.8	0.0000005	No	< G
Tin	µg/L	NV	0.004	No	Lack of toxicity data/non-toxic
Titanium	µg/L	NV	0.0003	No	Less than BCMOE guideline of 2000 µg/L
Tungsten	µg/L	NV	0.0003	No	Lack of toxicity data/non-toxic
Uranium	µg/L	15	0.05	No	< G
Vanadium	µg/L	NV	0.28	No	Less than the BCMOE guideline of 6 µg/L
Zinc	µg/L	30	1.4	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b predicted long-term summer conditions.

^c yes = the predicted surface water concentration is greater than the guideline, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline, and, therefore, the chemical was not identified as a COPC.

^d guideline for aluminum is pH dependant; assumes pH>6.5.

^e guideline is hardness dependent; assumes a hardness of 30 mg/L.

^f guideline depends on the valence of chromium ion. In the above table, the Cr(VI) criterion of 1 µg/L is shown.

^g total Kjeldahl nitrogen (TKN) is a measure of ammonia and inorganic forms of nitrogen. There is no CCME guideline for TKN for the protection of freshwater aquatic life. Still, potential adverse effects of ammonia on freshwater aquatic life has been addressed through the screening that was completed for ammonia. There is little toxicity information for organic forms of nitrogen; however, these are minor constituents and do not appear to affect water uses (BCMOE 2009). As such, TKN has not been considered further in the environmental risk assessment.

^h the CCME guideline for phosphorus is based on a change from baseline conditions. The predicted concentrations represent baseline conditions for the pit lakes. Therefore dissolved phosphorus has not been considered further in the environmental risk assessment.

ⁱ see note (h).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCQ = calcium carbonate; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG

Table 10.1-C-6e: Surface Water Screening for Aquatic Life at Discovery Open Pit lake

Chemical	Units	CCME Guideline ^a	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	NV	36	No	Within range of US state criteria
Total Alkalinity	mg/L as CaCO ₃	NV	17	No	Ameliorates metal toxicity
Chloride	mg/L	120	6.9	No	< G
Fluoride	mg/L	0.12	0.0004	No	< G
Sulphate	mg/L	NV	2.8	No	Less than BCMOE guideline of 50 mg/L
Ammonium (as N)	mg N/L	NV	0.68	No	Less than the CCME guideline for total ammonia
Nitrate	mg/L	13	0.75	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.22	No	See note (g)
Dissolved Phosphorus	mg/L	NV	0.004	No	See note (h)
Phosphate	mg/L	NV	0.001	No	See note (i)
Aluminum	µg/L	100 ^d	2.4	No	< G
Antimony	µg/L	NV	0.002	No	Less than BCMOE guideline of 20 µg/L
Arsenic	µg/L	5	0.54	No	< G
Barium	µg/L	NV	6.2	No	Less than BCMOE guideline of 1000 µg/L
Beryllium	µg/L	NV	0.000004	No	Less than BCMOE guideline of 5.3 µg/L
Bismuth	µg/L	NV	0.0000002	No	Lack of toxicity data/non-toxic
Boron	µg/L	1500	3.2	No	< G
Cadmium	µg/L	0.012 ^e	0.0004	No	< G
Calcium	µg/L	NV	2086	No	Essential nutrient/ameliorates metal toxicity
Chromium	µg/L	1 ^f	0.66	No	< G
Cobalt	µg/L	NV	0.002	No	Less than BCMOE guideline of 4 µg/L
Copper	µg/L	2 ^g	1.2	No	< G
Iron	µg/L	300	7.2	No	< G
Lead	µg/L	1 ^h	0.17	No	< G
Lithium	µg/L	NV	0.01	No	Less than BCMOE guideline of 14 µg/L
Magnesium	µg/L	NV	446	No	Essential nutrient/ameliorates metal toxicity
Manganese	µg/L	NV	1.3	No	Less than the BCMOE guideline of 649 µg/L
Mercury	µg/L	0.026	0.000002	No	< G
Molybdenum	µg/L	73	0.29	No	< G
Nickel	µg/L	38 ⁱ	0.52	No	< G
Potassium	µg/L	NV	385	No	Essential nutrient/ameliorates metal toxicity
Selenium	µg/L	1	0.01	No	< G
Silver	µg/L	0.1	0	No	< G
Sodium	µg/L	NV	1759	No	Essential nutrient/ameliorates metal toxicity
Strontium	µg/L	NV	25	No	Less than MDDEP criterion of 21000 µg/L
Thallium	µg/L	0.8	0.0000004	No	< G
Tin	µg/L	NV	0.001	No	Lack of toxicity data/non-toxic
Titanium	µg/L	NV	0.001	No	Less than BCMOE guideline of 2000 µg/L
Tungsten	µg/L	NV	0.0007	No	Lack of toxicity data/non-toxic
Uranium	µg/L	15	0.07	No	< G
Vanadium	µg/L	NV	0.30	No	Less than the BCMOE guideline of 6 µg/L
Zinc	µg/L	30	1.5	No	< G

^a Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines for the Protection of Aquatic Life - Freshwater (CCME 2012d, internet site).

^b predicted long-term summer conditions.

^c yes = the predicted surface water concentration is greater than the guideline and therefore the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and therefore the chemical was not identified as a COPC.

^d guideline for aluminum is pH dependant; assumes pH>6.5.

^e guideline is hardness dependent; assumes a hardness of 30 mg/L.

^f guideline depends on the valence of chromium ion. In the above table, the Cr(VI) criterion of 1 µg/L is shown.

^g total Kjeldahl nitrogen (TKN) is a measure of ammonia and inorganic forms of nitrogen. There is no CCME guideline for TKN for the protection of freshwater aquatic life. Still, potential adverse affects of ammonia on freshwater aquatic life has been addressed through the screening that was completed for ammonia. There is little toxicity information for organic forms of nitrogen; however, these are minor constituents and do not appear to affect water uses (BCMOE 2009). As such, TKN has not been considered further in the environmental risk assessment.

^h the CCME guideline for phosphorus is based on a change from baseline conditions. The predicted concentrations represent baseline conditions for the pit lakes. Therefore dissolved phosphorus has not been considered further in the environmental risk assessment.

ⁱ see note (h).

NV = no value; CCME = Canadian Council of Ministers of the Environment; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; CaCQ = calcium carbonate; < = less than; G = guideline; NG = no guideline.

Prepared by: SG

Checked by: TMG



APPENDIX 10.1-D

BLM

Table 10.1-D-1: Water Quality Input Parameters for the Copper and Silver Biotic Ligand Models for Lake A1

Water Body	Sampling Date	Temperature	pH	DOC	HA ^a	Ca	Mg	Na	K	SO ₄	Cl	NO ₃ ^b	Alkalinity	S ¹
		°C		mg C/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L CaCO ₃	mg/L
Lake A1	11-Aug-94	9.1	7.14	4.1	10	6.3	0.84	2.4	0.71	1.5	4.4	0.005	16	1E-10
Lake A6	11-Aug-94	9.0	7.55	4.1	10	7.8	0.94	1.1	0.49	2.3	2.0	0.005	22	1E-10
Lake A6	23-Jul-97	18.7	7.64	4.1	10	11	1.3	1.9	0.68	3.0	3.5	0.008	33	1E-10
Lake A6	25-Apr-98	0.9	6.90	4.1	10	46	5.7	8.2	2.7	5.7	15	0.31	137	1E-10
Lake A6	24-Jul-98	14.4	7.70	4.1	10	10	1.2	1.7	0.68	1.8	3.7	0.006	30	1E-10
Lake A6	18-Jul-99	9.8	7.30	4.1	10	13	1.6	2.1	0.78	3.2	5.7	0.009	33	1E-10
Lake A6	18-Jul-99 (dup)	9.8	7.40	4.1	10	13	1.6	2.2	0.81	3.2	5.6	0.006	32	1E-10
Lake A6	18-Jul-00	13.6	7.50	4.1	10	13	1.5	2.0	0.79	3.1	6.0	0.006	32	1E-10
Lake A6	29-Apr-09	0.5	7.87	4.1	10	55	6.9	10	2.98	13	40	0.06	145	1E-10
Lake A6	29-Jul-09	14.8	7.82	4.1	10	16	1.9	3.1	2.0	2.7	12	0.05	35	1E-10
Lake A8	22-Jul-97	17.7	7.75	4.1	10	10	1.6	1.9	0.71	3.0	4.3	0.008	32	1E-10
Lake A8	26-Apr-98	0.5	6.90	4.1	10	45	6.4	7.5	2.8	5.8	18	0.03	141	1E-10
Lake A8	23-Jul-98	12.4	7.70	4.1	10	10	1.4	1.7	0.71	1.6	4.5	0.006	31	1E-10
Lake A8	18-Jul-07	17.6	7.80	4.1	10	14	1.7	2.0	0.80	3.2	12	0.10	30	1E-10
Lake A8	8-Oct-07	0.5	7.70	4.1	10	17	2.2	3.0	1.0	4.1	17	0.10	33	1E-10
Lake A8	15-Jul-08	14.1	7.70	4.1	10	15	1.8	2.5	0.92	2.1	16	0.10	28	1E-10
Lake A8	27-Apr-09	0.1	7.76	4.1	10	66	9.7	12	3.6	9.8	78	0.05	125	1E-10

mg/L = milligram per litre.

^a assumed value (BLM User's Guide and Reference manual, February 2007).^b NO₃ was an input parameter for the silver BLM only.

Table 10.1-D-2: Water Quality Input Parameters for the Copper Biotic Ligand Model for Lake B6

Water Body	Sampling Date	Temperature	pH	DOC	HA ^a	Ca	Mg	Na	K	SO ₄	Cl	Alkalinity	S ^a
		°C		mg C/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L CaCO ₃	mg/L
Lake B2	21-Jul-97	17	7.7	4.3	10	11	1.4	3.0	0.87	3.0	5.2	33	1E-10
Lake B2	26-Apr-98	0.10	6.8	4.3	10	60	7.0	17	4.4	8.9	25	180	1E-10
Lake B2	21-Jul-98	9.7	7.2	4.3	10	8.1	0.99	2.4	0.73	1.6	3.7	22	1E-10
Lake B2	18-Jul-99	11	7.3	4.3	10	11	1.3	2.9	0.84	3.5	4.4	29	1E-10
Lake B2	19-Jul-00	13.6	7.3	4.3	10	8.8	0.98	2.0	0.70	2.8	3.0	24	1E-10
Lake B5	19-Jul-97	15.1	7.63	4.3	10	8.7	1.3	1.9	0.67	3.0	3.6	27	1E-10
Lake B5	26-Apr-98	0.1	6.8	4.3	10	98	14	21	6.1	18	37	298	1E-10
Lake B5	20-Jul-98	9.9	7.1	4.3	10	9.3	1.4	2.2	0.70	2.0	3.5	25	1E-10
Lake B5	18-Jul-99	10.4	7.2	4.3	10	9.6	1.4	2.1	0.67	3.1	3.6	27	1E-10
Lake B5	18-Jul-00	14.6	7.3	4.3	10	9.5	1.3	1.9	0.65	3.2	4.0	27	1E-10
Lake B5	18-Jul-00 (dup)	14.6	7.4	4.3	10	9.7	1.3	2.0	0.65	3.2	4.0	27	1E-10
Lake B5	14-Jul-08	13.82	7.6	4.3	10	10.9	1.3	2.6	0.71	2.6	7.0	28	1E-10
Lake B5	27-Apr-09	0.29	7.79	4.3	10	49.3	7.3	11	3.0	12	31	131	1E-10
Lake B6	12-Jul-08	15.4	7.6	4.9	10	13.9	1.5	2.5	0.90	3.0	12	27	1E-10
Lake B6	27-Apr-09	0.31	7.78	4.3	10	66.2	8.2	11	3.9	9.5	60	140	1E-10
Lake B6	28-Jul-09	16.2	7.71	5.1	10	19.4	2.1	3.2	2.0	2.2	21	33	1E-10
Lake B6	28-Jul-09 (dup)	16.2	7.7	5	10	19.2	2.1	3.2	2.0	2.1	20	31	1E-10

mg/L = milligram per litre.

^a assumed value (BLM User's Guide and Reference manual, February 2007).

Table 10.1-D-3: Water Quality Input Parameters for the Copper Biotic Ligand Model for Lake CH

Water Body	Sampling Date	Temperature	pH	DOC	HA ^a	Ca	Mg	Na	K	SO ₄	Cl	Alkalinity	S ^a
		°C		mg C/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L CaCO ₃	mg/L
DI1	11-Aug-94	8.7	7.1	3.8	10	4.13	0.640	1.71	0.63	2.8	2.9	11.6	1E-10
	16-Jul-95	12.3	7.55	3.8	10	3.94	0.618	2.2	2	2.3	2.9	11.6	1E-10
	20-Jul-08	14.88	7.40	3.8	10	5.07	0.728	2.14	0.71	2.8	3	13	1E-10
	29-Apr-09	0.88	7.49	3.8	10	14.5	2.3	5.87	1.85	7.38	11.7	39.7	1E-10
DI5	20-Jul-95	14.2	7.64	3.8	10	4.54	0.695	3.2	2	2.7	4.9	13.2	1E-10
DI2	11-Aug-94	9.4	7.1	3.8	10	8.02	1.25	3.16	0.92	3.4	4.4	23.9	1E-10
	10-Jul-95	12.5	7.76	3.8	10	5.65	0.884	3.00	2	2.9	3.7	11.6	1E-10

mg/L = milligram per litre.

^a assumed value (BLM User's Guide and Reference manual, February 2007).

Table 10.1-D-4: Toxicity Benchmarks for Copper in Lake A1

Water Body	Sampling Date	FAV^a (µg/L)	CMC^b (µg/L)	CCC^c (µg/L)
A1	11-Aug-94	18.49	9.25	5.74
A6	11-Aug-94	30.78	15.39	9.56
A6	23-Jul-97	35.00	17.50	10.87
A6	25-Apr-98	14.69	7.35	4.56
A6	24-Jul-98	36.91	18.46	11.46
A6	18-Jul-99	22.01	11.01	6.84
A6	18-Jul-99 (dup)	25.19	12.59	7.82
A6	18-Jul-00	28.75	14.38	8.93
A6	29-Apr-09	47.45	23.72	14.74
A6	29-Jul-09	42.61	21.30	13.23
A8	22-Jul-97	39.79	19.90	12.36
A8	26-Apr-98	14.67	7.34	4.56
A8	23-Jul-98	36.55	18.28	11.35
A8	18-Jul-07	41.96	20.98	13.03
A8	8-Oct-07	35.36	17.68	10.98
A8	15-Jul-08	36.88	18.44	11.45
A8	27-Apr-09	44.54	22.27	13.83
5th Percentile				4.56

µg/L = micrograms per litre.

^a FAV = Final Acute Value.^b CMC = Criterion Maximum Concentration; CMC = FAV/2 (µg/L).^c CCC = Criterion Continuous Concentration; CCC = FAV/Acute to Chronic Ratio (µg/L).

Table 10.1-E-5: Toxicity Benchmarks for Copper in Lake B6

Water Body	Sampling Date	FAV^a (µg/L)	CMC^b (µg/L)	CCC^c (µg/L)
B2	21-Jul-97	39.60	19.80	12.30
B2	26-Apr-98	14.65	7.33	4.55
B2	21-Jul-98	20.70	10.35	6.43
B2	18-Jul-99	23.47	11.73	7.29
B2	19-Jul-00	23.61	11.80	7.33
B5	19-Jul-97	36.11	18.05	11.21
B5	26-Apr-98	17.46	8.73	5.42
B5	20-Jul-98	17.74	8.87	5.51
B5	18-Jul-99	20.36	10.18	6.32
B5	18-Jul-00	23.46	11.73	7.29
B5	18-Jul-00 (dup)	26.84	13.42	8.33
B5	14-Jul-08	34.52	17.26	10.72
B5	27-Apr-09	46.18	23.09	14.34
B6	12-Jul-08	39.42	19.71	12.24
B6	27-Apr-09	47.36	23.68	14.71
B6	28-Jul-09	47.65	23.83	14.80
B6	28-Jul-09 (dup)	46.21	23.11	14.35
5th percentile				5.25

µg/L = micrograms per litre.

^a FAV = Final Acute Value.

^b CMC = Criterion Maximum Concentration; CMC = FAV/2 (µg/L).

^c CCC = Criterion Continuous Concentration; CCC = FAV/Acute to Chronic Ratio (µg/L).

Table 10.1-D-6: Toxicity Benchmarks for Copper in Lake CH

Water Body	Sampling Date	FAV ^a (µg/L)	CMC ^b (µg/L)	CCC ^c (µg/L)
DI1	11-Aug-94	16.71	8.36	5.19
	16-Jul-95	31.24	15.62	9.70
	20-Jul-08	25.15	12.57	7.81
	29-Apr-09	26.45	13.23	8.22
DI5	20-Jul-95	34.61	17.31	10.75
DI2	11-Aug-94	15.83	7.91	4.92
	10-Jul-95	38.72	19.36	12.03
5th percentile				5.00

µg/L = micrograms per litre

^a FAV = Final Acute Value^b CMC = Criterion Maximum Concentration; CMC = FAV/2 (µg/L).^c CCC = Criterion Continuous Concentration; CCC = FAV/Acute to Chronic Ratio (µg/L).

Table 10.1-D-7: Toxicity Benchmarks for Silver in Lake A1

Water Body	Sampling Date	<i>Daphnia magna</i>		Fathead Minnow		Rainbow Trout	
		LC50 (µg/L)	Chronic Toxicity Benchmark ^a (µg/L)	LC50 (µg/L)	Chronic Toxicity Benchmark ^a (µg/L)	LC50 (µg/L)	Chronic Toxicity Benchmark ^a (µg/L)
Lake A1	11-Aug-94	0.83	0.68	8.6	1.2	11	0.31
Lake A6	11-Aug-94	0.78	0.64	8.1	1.1	10	0.29
Lake A6	23-Jul-97	0.80	0.66	8.3	1.2	11	0.30
Lake A6	25-Apr-98	1.2	0.99	12	1.7	16	0.45
Lake A6	24-Jul-98	0.82	0.67	8.5	1.2	11	0.31
Lake A6	18-Jul-99	0.86	0.70	8.9	1.2	12	0.32
Lake A6	18-Jul-99 (dup)	0.87	0.71	9.0	1.2	12	0.32
Lake A6	18-Jul-00	0.86	0.71	8.9	1.2	12	0.32
Lake A6	29-Apr-09	1.8	1.5	19	2.6	24	0.68
Lake A6	29-Jul-09	1.0	0.82	10	1.4	13	0.37
Lake A8	22-Jul-97	0.83	0.68	8.6	1.2	11	0.31
Lake A8	26-Apr-98	1.3	1.0	13	1.8	17	0.48
Lake A8	23-Jul-98	0.85	0.69	8.8	1.2	11	0.32
Lake A8	18-Jul-07	0.98	0.80	10	1.4	13	0.37
Lake A8	8-Oct-07	1.3	1.0	13	1.8	17	0.47
Lake A8	15-Jul-08	1.1	0.88	11	1.5	14	0.40
Lake A8	27-Apr-09	2.4	2.0	25	3.4	32	0.90
5th Percentile		-	0.65	-	1.1	-	0.30

µg/L = micrograms per litre.

"- " = not calculated.

^a CCC = Criterion Continuous Concentration. CCC is calculated by dividing the FAV by the Acute to Chronic Ratio (1.223 for *D. magna*; 7.189 for fathead minnow; 35.81 for rainbow trout).



APPENDIX 10.2-A

Air Quality - Acute

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m ³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
Metals									
aluminum	NA	NA	NA	NA	NA	NA	50	167	TCEQ - PM ₁₀ , health
antimony	NA	NA	NA	NA	NA	NA	5	17	TCEQ - PM ₁₀ , health
arsenic	NA	NA	NA	NA	NA	NA	0.1	0.3	TCEQ - PM ₁₀ , health
barium	NA	NA	NA	NA	NA	NA	5	17	TCEQ - PM ₁₀ , health
beryllium	NA	NA	NA	NA	NA	NA	0.02	0.07	TCEQ - health
Bismuth	NA	NA	NA	NA	NA	NA	50	167	TCEQ - PM ₁₀ , health
Cadmium	NA	NA	NA	NA	NA	0.03	0.1	0.3	ATSDR - A LOAEL of 0.088 mg/m ³ was used to derive the MRL. The LOAEL was adjusted for duration, resulting in an adjusted LOAEL of 0.01 mg/m ³ . An uncertainty factor of 300 was then applied.
									TCEQ - PM ₁₀ , health
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	No 1-h thresholds are available
chromium	NA	NA	NA	NA	NA	NA	3.6	12	TCEQ - PM ₁₀ , health, final
chromium VI	NA	NA	NA	NA	NA	NA	0.1	0.3	TCEQ - PM ₁₀ , health, under review
cobalt	NA	NA	NA	NA	NA	NA	0.2	0.7	TCEQ - PM ₁₀ , health, final
copper	NA	NA	NA	NA	100	NA	10	33	CalEPA - The CalEPA threshold is based on respiratory system effects.
									TCEQ - PM ₁₀ , health, final
Gold	NA	NA	NA	NA	NA	NA	25	83	TCEQ - PM ₁₀ , health, final
iron	NA	NA	NA	NA	NA	NA	10	33	TCEQ - PM ₁₀ , health, final
lead	NA	NA	NA	NA	NA	NA	0.15 (quarterly average), 1.5 (three-month)	0.5 (quarterly average), 5 (three-month)	TCEQ - health, criteria pollutant, must meet US NAAQS. Texas defers to the US National Ambient Air Quality Standards for lead (1.5 µg/m ³ as the quarterly average primary standard, and 0.15 µg/m ³ as the rolling three month average primary standard).
Lithium	NA	NA	NA	NA	NA	NA	NA	NA	No 1-h thresholds are available
magnesium	NA	NA	NA	NA	NA	NA	50	167	TCEQ - PM ₁₀ , health
manganese	NA	NA	NA	NA	NA	NA	2	7	TCEQ - PM ₁₀ , health
molybdenum	NA	NA	NA	NA	NA	NA	30	100	TCEQ - PM ₁₀ , health
nickel	NA	NA	NA	NA	0.2	NA	0.33	1.1	CalEPA - immune system effects in mice
									TCEQ - PM ₁₀ , health, final
potassium	NA	NA	NA	NA	NA	NA	20	67	TCEQ - PM ₁₀ , health
selenium	NA	NA	NA	NA	NA	NA	2	7	TCEQ - PM ₁₀ , health
silver	NA	NA	NA	NA	NA	NA	0.1	0.3	TCEQ - PM ₁₀ , health
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	No 1-h thresholds are available
strontium	NA	NA	NA	NA	NA	NA	20	67	TCEQ - PM ₁₀ , health
thallium	NA	NA	NA	NA	NA	NA	1	3	TCEQ - PM ₁₀ , health
tin	NA	NA	NA	NA	NA	NA	20	67	TCEQ - PM ₁₀ , health
titanium	NA	NA	NA	NA	NA	NA	50	167	TCEQ - PM ₁₀ , health
uranium	NA	NA	NA	NA	NA	NA	2 (insoluble), 0.5 (soluble)	7 (insoluble), 2 (soluble)	TCEQ - PM ₁₀ , health
vanadium	NA	NA	NA	NA	30	0.8	0.5	2	CalEPA - The CalEPA OEHHA threshold is based on eye irritation and coughing and increased mucus production in humans exposed to vanadium pentoxide. An uncertainty factor of 10 was applied to account for intraspecies variation.
									ATSDR - A LOAEL of 0.56 mg/m ³ for lung inflammation was converted to a human equivalent concentration of 0.073 mg/m ³ and an uncertainty factor of 90 applied.
									TCEQ - PM ₁₀ , health
yttrium	NA	NA	NA	NA	NA	NA	10	33	TCEQ - PM ₁₀ , health

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
zinc	NA	NA	NA	NA	NA	NA	20	67	TCEQ - PM ₁₀ , health
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	NA	NA	NA	NA	NA	NA	1	3	TCEQ - health
Methyl acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	-
Acenaphthylene	NA	NA	NA	NA	NA	NA	1	3	TCEQ - health
2-Methylantracene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Anthracene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
C2 sub'd phenanthrene/anth.	NA	NA	NA	NA	NA	NA	NA	NA	-
C3 sub'd phenanthrene/anth.	NA	NA	NA	NA	NA	NA	NA	NA	-
C4 sub'd phenanthrene/anth.	NA	NA	NA	NA	NA	NA	NA	NA	-
Methyl phenanthrene/anthracene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
1,6-dinitropyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
1,8-dinitropyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Nitropyrene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	0.02	0.07	TCEQ - health
7H-Dibenzo(c,g)carbazole	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	0.03	0.1	TCEQ - health, under review
Benzo(b)fluorene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Benzo(e)pyrene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Cyclopenta(c,d)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
nitrobenzanthrone	NA	NA	NA	NA	NA	NA	NA	NA	-
Nitro-pyrene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
7,12-dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Benz(a)anthracene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Benzo(j)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	-
C2 sub'd B(b&k)F/B(a)P	NA	NA	NA	NA	NA	NA	NA	NA	-
Methyl B(b&k)F/B(a)P	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Coronene	NA	NA	NA	NA	NA	NA	NA	NA	-
Perylene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
C2 sub'd B(a)A/chrysene	NA	NA	NA	NA	NA	NA	NA	NA	-
Chrysene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Methyl B(a)A/chrysene	NA	NA	NA	NA	NA	NA	NA	NA	-
dibenz(a,h)acridine	NA	NA	NA	NA	NA	NA	NA	NA	-
dibenz(a,j)acridine	NA	NA	NA	NA	NA	NA	NA	NA	-
picene	NA	NA	NA	NA	NA	NA	NA	NA	-
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Acephenanthrylene	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzo(a)fluorene	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzo(g,h,i)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	-
Fluoranthene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
2-Methylfluorene	NA	NA	NA	NA	NA	NA	NA	NA	-
C2 sub'd fluorene	NA	NA	NA	NA	NA	NA	NA	NA	-
carbazole	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
Fluorene	NA	NA	NA	NA	NA	NA	10	33	TCEQ - health
Methyl fluorene	NA	NA	NA	NA	NA	NA	NA	NA	-
Dibenzo(a,i)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
Indeno(1,2,3-cd)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	-
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Indeno(1,2,3-W)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	30	100	TCEQ - health

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	30	100	TCEQ - health
C2 sub'd naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	-
C3 sub'd naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	-
C4 sub'd naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	-
Indole	NA	NA	NA	NA	NA	NA	20	67	TCEQ - health
Methyl naphthalene	NA	NA	NA	NA	NA	NA	30	100	TCEQ - health
Naphthalene	NA	NA	50 ⁱ	NA	NA	NA	440	1467	OMOE - odour TCEQ - odour, under review
1-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	-
2-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	-
4-+9-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	-
phenanthrene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
Retene	NA	NA	NA	NA	NA	NA	NA	NA	-
2-Methylpyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
Methyl fluoranthene/pyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
Pyrene	NA	NA	NA	NA	NA	NA	0.5	2	TCEQ - health
2,5-dimethylthiopene	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
3-Methyldibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA	-
4-Methyldibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA	-
C2 sub'd dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA	-
C3 sub'd dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA	-
C4 sub'd dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA	-
Dibenzothiophene	NA	NA	NA	NA	NA	NA	25	83	TCEQ - health
Methyl dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA	-
Volatile Organic Compounds									
1,3-Butadiene	NA	NA	NA	NA	NA	220	1100 (health), 510 (odour)	3666 (health), 1700 (odour)	ATSDR - The MRL was based on a LOAEL 40 ppm for reduced male fetal body weight gain from exposed pregnant mice. The LOAEL was adjusted for intermittent exposure (6 h/day), resulting in adjusted LOAEL of 10 ppm. An uncertainty factor of 90 was applied. TCEQ - health, final; odour final
2,5,5-TRIMETHYL-1,6-HEPTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	-
2,5,5-TRIMETHYL-1,6-HEPTADIENE (B)	NA	NA	NA	NA	NA	NA	NA	NA	-
2,5-dimethyl-1,3-hexadiene	NA	NA	NA	NA	NA	NA	1800	5999	TCEQ - health
2-METHYL-4,5-NONADIENE	NA	NA	NA	NA	NA	NA	NA	NA	-
3-ETHYL-2-METHYL-1,3HEXADIENE	NA	NA	NA	NA	NA	NA	NA	NA	-
4,8-DIMETHYL-1,7-NONADIENE	NA	NA	NA	NA	NA	NA	NA	NA	-
4-METHYL-2,7-OCTADIENE	NA	NA	NA	NA	NA	NA	NA	NA	-
5-METHYL-1,4-HEXADIENE	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2-Butadiene	NA	NA	NA	NA	NA	NA	1100	3666	TCEQ - health
1,2-Pentadiene	NA	NA	NA	NA	NA	NA	1800	5999	TCEQ - health
1,4-Pentadiene	NA	NA	NA	NA	NA	NA	1800	5999	TCEQ - health
2,3-Pentadiene	NA	NA	NA	NA	NA	NA	1800	5999	TCEQ - health
2-Methyl-1,3-butadiene	NA	NA	NA	NA	NA	NA	60	200	TCEQ - health, under review
3-Methyl-1,2-butadiene	NA	NA	NA	NA	NA	NA	1100	3666	TCEQ - health
cis-1,3-Pentadiene	NA	NA	NA	NA	NA	NA	1800	5999	TCEQ - health
Cyclopentadiene	NA	NA	NA	NA	NA	NA	2000	6666	TCEQ - health
trans-1,3-Pentadiene	NA	NA	NA	NA	NA	NA	1800	5999	TCEQ - health
Acetaldehyde	NA	NA	500 ^j	NA	470	NA	90	300	OMOE - health CalEPA - The CalEPA OEHHA threshold is based on a LOAEL from a human study. The critical effects of the study include sensory irritation in bronchi, eyes, nose and throat. TCEQ - odour, under review

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
Acetone	NA	NA	NA	NA	NA	NA	5900	19665	TCEQ - health, under review
Acrolein	NA	NA	4.5	NA	2.5	6.9	3.2 (health), 8.2 (odour)	10.7 (health), 27.3 (odour)	OMOE - health
									CalEPA - The CalEPA OEHHA threshold was based on a geometric mean of two reference exposure levels (2.3 µg/m³ and 2.7 µg/m³) from two studies for subjective ocular irritation in human volunteers.
									ATSDR - The ATSDR threshold was based on the LOAEL for a decrease in respiratory rate and nose and throat irritation in a study of human volunteers. The LOAEL was corrected for intermittent exposure and an uncertainty factor was applied.
									TCEQ - health, final; odour, final
Methacrolein	NA	NA	NA	NA	NA	NA	16 (health), 24 (odour)	53 (health), 80 (odour)	TCEQ - health, final; odour, final
2,5-dimethylbenzaldehyde	NA	NA	NA	NA	NA	NA	90	300	TCEQ - health
3-Methylbutanal	NA	NA	NA	NA	NA	NA	1800	5999	TCEQ - health
benzaldehyde	NA	NA	NA	NA	NA	NA	22	73	TCEQ - odour, under review
butanal	NA	NA	NA	NA	NA	NA	NA	NA	-
crotonaldehyde	NA	NA	NA	NA	NA	NA	9	30	TCEQ - health
decanal	NA	NA	NA	NA	NA	NA	40	133	TCEQ - health
dodecanal	NA	NA	NA	NA	NA	NA	40	133	TCEQ - health
heptanal	NA	NA	NA	NA	NA	NA	240	800	TCEQ - odour, under review
isobutyraldehyde	NA	NA	NA	NA	NA	NA	140	467	TCEQ - odour, under review
nonanal	NA	NA	NA	NA	NA	NA	1500	5000	TCEQ - health
octanal	NA	NA	NA	NA	NA	NA	15	50	TCEQ - odour
propanal	NA	NA	10 ⁱ	NA	NA	NA	20	67	OMOE - odour
									TCEQ - odour, under review
tridecanal	NA	NA	NA	NA	NA	NA	NA	NA	-
undecanal	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
Benzene	NA	NA	NA	NA	NA	28.75	170 (health), 8700 (odour)	567 (health), 28997 (odour)	ATSDR - The MRL was based on a LOAEL of 10.2 for reduced lymphocyte proliferation following mitogen stimulation in mice. The LOAEL was adjusted for intermittent exposure (6 h/day), resulting in a LOAEL of 2.55 ppm. An uncertainty factor of 300 was applied.
									TCEQ - health, final; odour, final
2,4-DIETHYL-1-METHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	-
2,2,7-TRIMETHYL-3-OCTYNE	NA	NA	NA	NA	NA	NA	NA	NA	-
2,2-DIMETHYL-3-DECENE	NA	NA	NA	NA	NA	NA	NA	NA	-
3-DODECENE	NA	NA	NA	NA	NA	NA	NA	NA	-
7-METHYL-5-UNDECENE	NA	NA	NA	NA	NA	NA	NA	NA	-
dodecane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
hexylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
pentylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
undecane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3-Ethylnonane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
4-Methyldecane	NA	NA	NA	NA	NA	NA	NA	NA	-
5-Methyldecane	NA	NA	NA	NA	NA	NA	NA	NA	-
C11-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA	-
C12-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA	-
n-Dodecane	NA	NA	NA	NA	NA	NA	NA	NA	-
n-Undecane	NA	NA	NA	NA	NA	NA	NA	NA	-
trans-1-Methyl-2(4-methylpentyl)-cyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-pentyl-2-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,6,10-trimethyltridecane	NA	NA	NA	NA	NA	NA	NA	NA	-
3,3,8-trimethyldecane	NA	NA	NA	NA	NA	NA	NA	NA	-
AMORPHANE B	NA	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
decylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
farnesane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
heptylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
Hexadecane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
nonylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
norfarnesane	NA	NA	NA	NA	NA	NA	NA	NA	-
n-pentadecane	NA	NA	NA	NA	NA	NA	NA	NA	-
octylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
Tetradecane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
Tridecane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
VALENCANE	NA	NA	NA	NA	NA	NA	NA	NA	-
n-Tridecane	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2,4-TMB+n-Decane	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2,3-TMB+P-C	NA	NA	NA	NA	NA	NA	NA	NA	-
Decylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
fluorenone	NA	NA	NA	NA	NA	NA	NA	NA	-
n-Octylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
xanthone	NA	NA	NA	NA	NA	NA	NA	NA	-
3-EICOSYNE	NA	NA	NA	NA	NA	NA	NA	NA	-
5-EICOSYNE	NA	NA	NA	NA	NA	NA	NA	NA	-
5-EICOSYNE (B)	NA	NA	NA	NA	NA	NA	NA	NA	-
dodecylcyclohexane	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
n-eicosane	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
n-heneicosane	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
n-heptadecane	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
n-nonadecane	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
n-octadecane	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
norpristane	NA	NA	NA	NA	NA	NA	NA	NA	-
pentadecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
phytane	NA	NA	NA	NA	NA	NA	NA	NA	-
pristane	NA	NA	NA	NA	NA	NA	100	333	TCEQ - health
tetradecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
tridecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
undecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
8b,13a-dimethyl-14b-[3'-methylbutyl]-podocarpene	NA	NA	NA	NA	NA	NA	NA	NA	-
8b,13a-dimethyl-14b-n-butylpodocarpene	NA	NA	NA	NA	NA	NA	NA	NA	-
1-methyl-1-(2-methylene)cyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-METHYL-4-(1-METHYLENE)CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	-
1-METHYL-4-(METHYLENE)CYCLOHEXENE	NA	NA	NA	NA	NA	NA	NA	NA	-
1-PROPYNE	NA	NA	NA	NA	NA	NA	16400	54661	TCEQ - health
2,2-DIMETHYLPROPANE	NA	NA	NA	NA	NA	NA	60000	199980	TCEQ - health, final
2-ethyl-2-hexene	NA	NA	NA	NA	NA	NA	NA	NA	-
2-Methyl pentane,2,3-Dimethylbutane	NA	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-1-butene	NA	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-1-pentene + 1-hexene	NA	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-4-pentene	NA	NA	NA	NA	NA	NA	NA	NA	-
2-METHYLBICYCLO[4.4.0]HEPTANE	NA	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-1-butene	NA	NA	NA	NA	NA	NA	720	2400	TCEQ - odour, under review
4-METHYL-1-(1-METHYLENE)CYCLOHEXENE	NA	NA	NA	NA	NA	NA	NA	NA	-
ACETYLENE + ETHANE	NA	NA	NA	NA	NA	NA	NA	NA	-
Butane	NA	NA	NA	NA	NA	NA	23750	79159	TCEQ - health
Butene	NA	NA	NA	NA	NA	NA	820	2733	TCEQ - odour
cis-2-butene	NA	NA	NA	NA	NA	NA	10 000 (health), 4800 (odour)	33 330 (health), 15 998 (odour)	TCEQ - health, final; odour, final

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
cyclopentane	NA	NA	NA	NA	NA	NA	3400	11332	TCEQ - health
ethane	NA	NA	NA	NA	NA	NA	Simple asphyxiant	NA	-
ethyne	NA	NA	NA	NA	NA	NA	26600	88658	TCEQ - health
i-butane	NA	NA	NA	NA	NA	NA	4800	15998	TCEQ - odour, under review
isobutene	NA	NA	NA	NA	NA	NA	320 000 (health), 3000 (odour)	1 066 560 (health), 9999 (odour)	TCEQ - health, final; odour, final
isopentane	NA	NA	NA	NA	NA	NA	60 000 (health), 3800 (odour)	199 980 (health), 12 665 (odour)	TCEQ - health, final; odour, final
pentane	NA	NA	NA	NA	NA	NA	60 000 (health), 4100 (odour)	199 980 (health), 13 665 (odour)	TCEQ - health, final; odour, final
pentene	NA	NA	NA	NA	NA	NA	NA	NA	-
Propane	NA	NA	NA	NA	NA	NA	Simple asphyxiant	NA	-
propene	NA	NA	NA	NA	NA	NA	Simple asphyxiant	NA	-
trans-2-butene	NA	NA	NA	NA	NA	NA	10 000 (health), 4800 (odour)	33 330 (health), 15 998 (odour)	TCEQ - health, final; odour, final
trans-2-pentene	NA	NA	NA	NA	NA	NA	7500	24998	TCEQ - health, final
1,2-Butane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Butene	NA	NA	NA	NA	NA	NA	34 000 (health), 820 (odour)	113 322 (health), 2733 (odour)	TCEQ - health, final; odour, final
1-Methyl-1-cyclopentene	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Pentene	NA	NA	NA	NA	NA	NA	7500 (health), 290 (odour)	24 998 (health), 967 (odour)	TCEQ - health, final; odour, final
1-Pentyne	NA	NA	NA	NA	NA	NA	1000	3333	TCEQ - health
2-Butanol	NA	NA	NA	NA	NA	NA	1240	4133	TCEQ - odour, under review
2-Butyne	NA	NA	NA	NA	NA	NA	14400	47995	TCEQ - health
2-Methyl-2-butene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-Methyl-2-butene	NA	NA	NA	NA	NA	NA	NA	NA	-
4-Methyl-1-cyclopentene	NA	NA	NA	NA	NA	NA	8100	26997	TCEQ - health
C6-Olefin	NA	NA	NA	NA	NA	NA	NA	NA	-
cis-2-Pentene	NA	NA	NA	NA	NA	NA	7500	24998	TCEQ - health, final
Cyclopentene	NA	NA	NA	NA	NA	NA	3400	11332	TCEQ - health
Ethene	NA	NA	NA	NA	NA	NA	1400	4666	TCEQ - vegetation
Isobutane	NA	NA	NA	NA	NA	NA	4800	15998	TCEQ - odour, under review
Isobutanol	NA	NA	2340 ⁱ	NA	NA	NA	1520	5066	OMOE - odour TCEQ - health
Methyl-tert-butyl ether	NA	NA	NA	NA	NA	7210	450	1500	ATSDR - A NOAEL of 800 ppm based on no CNS sedation in rats was used to derive the MRL. An uncertainty factor of 100 was applied. TCEQ - odour, under review
Naphthene	NA	NA	NA	NA	NA	NA	NA	NA	-
n-Butane	NA	NA	NA	NA	NA	NA	23750	79159	TCEQ - health
n-Butanol	NA	NA	2100 ⁱ	NA	NA	NA	610	2033	OMOE - odour TCEQ - health
n-Pentane	NA	NA	NA	NA	NA	NA	4100	13665	TCEQ - odour
n-Propanol	NA	NA	NA	NA	NA	NA	NA	NA	-
1,1-dimethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1,2-dimethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
1,3-dimethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1,5-dimethylcyclopentene	NA	NA	NA	NA	NA	NA	NA	NA	-
1-ethyl-1-methylcyclopropane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-HEXENE	NA	NA	NA	NA	NA	NA	70	233	TCEQ - odour, under review
1-METHYL-2-METHYLENE CYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	NA	-
2,2,3-TRIMETHYLBUTANE	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,2-dimethylbutane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,3-dimethylbutane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,3-dimethylpentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,4-dimethyl-1-pentene	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-dimethylpentane	NA	NA	NA	NA	NA	NA	NA	NA	-
2-hexene	NA	NA	NA	NA	NA	NA	70	233	TCEQ - health
2-methyl-2-pentene	NA	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-3-pentene	NA	NA	NA	NA	NA	NA	NA	NA	-
2-methylhexane	NA	NA	NA	NA	NA	NA	3070	10232	TCEQ - health
2-methylpentane	NA	NA	NA	NA	NA	NA	290	967	TCEQ - health
3,3-DIMETHYL-1-BUTENE	NA	NA	NA	NA	NA	NA	NA	NA	-
3,3-DIMETHYLPENTANE	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3,4-dimethyl-1-pentene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-1,3-pentadiene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-1-hexene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-2-hexene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-METHYL-2-HEXENE (B)	NA	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-2-pentene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-methylcyclopentene	NA	NA	NA	NA	NA	NA	8100	26997	TCEQ - health
3-methylhexane	NA	NA	NA	NA	NA	NA	3070	10232	TCEQ - health
3-methylpentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
4,4-dimethylcyclopentene	NA	NA	NA	NA	NA	NA	NA	NA	-
4-methylcyclohexene	NA	NA	NA	NA	NA	NA	NA	NA	-
cis-2-hexene	NA	NA	NA	NA	NA	NA	70	233	TCEQ - odour, under review
Cyclohexane	NA	NA	NA	NA	NA	NA	3400	11332	TCEQ - health
Cyclohexene	NA	NA	NA	NA	NA	NA	600	2000	TCEQ - odour
ethylcyclopentane	NA	NA	NA	NA	NA	NA	16300	54328	TCEQ - health
heptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
hexanal	NA	NA	NA	NA	NA	NA	80	267	TCEQ - odour
Methylcyclohexane	NA	NA	NA	NA	NA	NA	600	2000	TCEQ - odour
Methylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - odour
t-1,3-DIMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
trans-2-hexene	NA	NA	NA	NA	NA	NA	70	233	TCEQ - odour, under review
1,1,3-TRIMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1,1-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1,2,3-trimethylcyclopentene	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2,4-trimethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1,2-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1,4-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,2,3-TRIMETHYLPENTANE	NA	NA	NA	NA	NA	NA	NA	NA	-
2,2,4-trimethylpentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,3,4-trimethylpentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,3-dimethylhexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,4-dimethylhexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,5-dimethylhexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2-ethyl-3-methylcyclopentene	NA	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-1-pentene	NA	NA	NA	NA	NA	NA	1000	3333	TCEQ - health
2-methylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
2-octene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-ethylhexane	NA	NA	NA	NA	NA	NA	NA	NA	-
3-Methylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
4-methyl-3-heptene	NA	NA	NA	NA	NA	NA	NA	NA	-
4-METHYLHEPTANE	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
cyclooctane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
methylethycyclopentene	NA	NA	NA	NA	NA	NA	NA	NA	-
OCTAHYDROPENTALENE	NA	NA	NA	NA	NA	NA	NA	NA	-
octane	NA	NA	61 800 ⁱ	NA	NA	NA	3500	11666	OMOE - odour
									TCEQ - health
OCTYNE	NA	NA	NA	NA	NA	NA	NA	NA	-
Propane + Propylene	NA	NA	NA	NA	NA	NA	NA	NA	-
Propylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
t-1,3-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1-Heptene	NA	NA	NA	NA	NA	NA	16	53	TCEQ - odour, under review
1-Methyl-1-ethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1-Methyl-2-ethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-trans-3-ethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Octene	NA	NA	NA	NA	NA	NA	20	67	TCEQ - odour
2,2-Dimethylhexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,2-Dimethylpentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,3,3-Trimethylpentane	NA	NA	NA	NA	NA	NA	NA	NA	-
2-Methyl-3-ethylpentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3,4-Dimethylhexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3-Ethylpentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
C7-Olefin	NA	NA	NA	NA	NA	NA	NA	NA	-
C8-Olefin	NA	NA	NA	NA	NA	NA	NA	NA	-
C8-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA	-
cis,cis-1,2,3-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
cis,trans-1,2,4-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
cis-1,2-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
cis-1,3-Dimethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
cis-2-Heptene	NA	NA	NA	NA	NA	NA	NA	NA	-
cis-2-Octene	NA	NA	NA	NA	NA	NA	NA	NA	-
cis-3-Heptene	NA	NA	NA	NA	NA	NA	NA	NA	-
Ethylcyclohexane	NA	NA	NA	NA	NA	NA	18700	62327	TCEQ - health
Isopropylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
n-Heptane	NA	NA	NA	NA	NA	NA	NA	NA	-
n-Octane	NA	NA	NA	NA	NA	NA	NA	NA	-
trans,cis-1,2,3-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
trans,cis-1,2,4-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
trans-1,2-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
trans-1,2-Dimethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
trans-1,3-Dimethylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
trans-1,4-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
trans-2-Heptene	NA	NA	NA	NA	NA	NA	NA	NA	-
trans-2-Octene	NA	NA	NA	NA	NA	NA	NA	NA	-
trans-3-Heptene	NA	NA	NA	NA	NA	NA	NA	NA	-
1,1,2,3-TETRAMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	NA	-
1,1,3,4-TETRAMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	NA	-
1,1,3,5-TETRAMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	-
1,1,3-TRIMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1,1,4-TRIMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
1,3-DIMETHYL2-(1-METHYLENE)CYCLOPENETENE	NA	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
1-ETHYL-2,3-DIMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	-
1-ethyl-2,4-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-ETHYL-2-PROPYL CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	-
1-METHYL-4-(1-METHYLETHYL) CYCLOHEXANE	NA	NA	NA	NA	NA	NA	1100	3666	TCEQ - health
2,2,5-trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,2-DIMETHYL-3-OCTYNE	NA	NA	NA	NA	NA	NA	NA	NA	-
2,3,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,3-dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,5,5-TRIMETHYL-1-HEXENE	NA	NA	NA	NA	NA	NA	NA	NA	-
2,6-dimethyl-2-octene	NA	NA	NA	NA	NA	NA	NA	NA	-
2,6-dimethyl-4-octene	NA	NA	NA	NA	NA	NA	NA	NA	-
2,6-dimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2+4-Methyloctane	NA	NA	NA	NA	NA	NA	NA	NA	-
2-methyloctyne	NA	NA	NA	NA	NA	NA	NA	NA	-
2-METHYLPROPYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	NA	-
3,3,4-trimethylhexane + benzene	NA	NA	NA	NA	NA	NA	NA	NA	-
3,4,4-trimethylcyclohexene	NA	NA	NA	NA	NA	NA	NA	NA	-
3,7,7-TRIMETHYL BICYCLO[4.1.0]HEPTANE	NA	NA	NA	NA	NA	NA	NA	NA	-
3,7-dimethyl-1-octene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-ETHYL-2-METHYL-2-HEPTENE	NA	NA	NA	NA	NA	NA	NA	NA	-
3-ethyl-3-octene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-methyloctane	NA	NA	NA	NA	NA	NA	NA	NA	-
4-ethyloctane	NA	NA	NA	NA	NA	NA	NA	NA	-
4-methyloctane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
BICYCLO[3.3.1]NONANE	NA	NA	NA	NA	NA	NA	NA	NA	-
BICYCLO[33.3.1]NONANE	NA	NA	NA	NA	NA	NA	NA	NA	-
BUTYLIDENECYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	-
c-1,3-DIMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
c-1-BUTYL-2-METHYLCYCLOPROPANE	NA	NA	NA	NA	NA	NA	NA	NA	-
decane	NA	NA	NA	NA	NA	NA	10000	33330	TCEQ - health
ETHYLIDENECYCLOHEPTANE	NA	NA	NA	NA	NA	NA	NA	NA	-
isocamphane	NA	NA	NA	NA	NA	NA	NA	NA	-
nonane	NA	NA	NA	NA	NA	NA	10500	34997	TCEQ - health
1-Decene	NA	NA	NA	NA	NA	NA	116	387	TCEQ - odour, under review
1-Methyl-1-ethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-1-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-2-ethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-2-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-4-isopropylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Nonene	NA	NA	NA	NA	NA	NA	30	100	TCEQ - odour, under review
2,2,3,4-Tetramethylpentane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,2,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,2,Dimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,2-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,3,3-Trimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,3,5-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,4-Dimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,4-Dimethyloctane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,5-Dimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2,5-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA	-
2,6-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA	-
2-Methylnonane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
2-Methyloctane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
3,3,4-Trimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3,3,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA	-
3,3,5-Trimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3,3-Diethylpentane	NA	NA	NA	NA	NA	NA	NA	NA	-
3,3-Dimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3,3-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA	-
3,4-Dimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3,5-Dimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3,6-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA	-
3-Ethyl-octane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
3-Methyl-5-ethylheptane	NA	NA	NA	NA	NA	NA	NA	NA	-
3-Methylethylhexane	NA	NA	NA	NA	NA	NA	NA	NA	-
3-Methylnonane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
4-Ethylheptane	NA	NA	NA	NA	NA	NA	NA	NA	-
5-Methylnonane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
Butylcyclopentane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
C10-Olefin	NA	NA	NA	NA	NA	NA	NA	NA	-
C10-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA	-
C9-Olefin	NA	NA	NA	NA	NA	NA	NA	NA	-
C9-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA	-
cis-1,2,4-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
cis-1,3,5-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
cis-1-Ethyl-2-methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
cis-1-Ethyl-4-methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
cis-1-Ethyl--methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
cis-2-nonene	NA	NA	NA	NA	NA	NA	NA	NA	-
cis-3-Nonene	NA	NA	NA	NA	NA	NA	NA	NA	-
Isobutylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
Isobutylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
Isopropylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
n-Decane	NA	NA	60 000	NA	NA	NA	NA	NA	OMOE - health
n-Nonane	NA	NA	NA	NA	NA	NA	NA	NA	-
Propylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
q,q,2-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
sec-Butylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
sec-Butylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
tert-Butylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
trans-1,2,4-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
trans-1-Ethyl-4-methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
trans-1-Methyl-2-methyl-4-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	-
trans-1-Methyl-2-propylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	-
trans-2-nonene	NA	NA	NA	NA	NA	NA	NA	NA	-
trans-3-Nonene	NA	NA	NA	NA	NA	NA	NA	NA	-
1,1,2,3-TETRAMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	-
1,2-DIETHYL-1-METHYL-CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	-
2-Ethyl-toluene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
3-Ethyl-toluene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
4-Ethyl-toluene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
indanone	NA	NA	NA	NA	NA	NA	NA	NA	-
methylpropylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
n-Butylbenzene	NA	NA	NA	NA	NA	NA	2740	9132	TCEQ - health
p-cymene	NA	NA	NA	NA	NA	NA	2750	9166	TCEQ - health
Propylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1,2,3,4-tetrahydronaphthalene	NA	NA	NA	NA	NA	NA	3000	9999	TCEQ - health

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m ³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
1,2,3,4-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1,2,3,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1,2,4,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1,3-Diethylbenzene	NA	NA	NA	NA	NA	NA	2500	8333	TCEQ - health
1,3-Dimethyl-2-ethylbenzene	NA	NA	NA	NA	NA	NA	2560	8532	TCEQ - health
1,3-Dimethyl-4-ethylbenzene	NA	NA	NA	NA	NA	NA	2560	8532	TCEQ - health
1,3-Dimethyl-5-ethylbenzene	NA	NA	NA	NA	NA	NA	2560	8532	TCEQ - health
1,4-Diethylbenzene	NA	NA	NA	NA	NA	NA	2500	8333	TCEQ - health
1,4-Dimethyl-2-ethylbenzene	NA	NA	NA	NA	NA	NA	2560	8532	TCEQ - health
1-Ethyl-2-methylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1-Ethyl-3-methylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1-Ethyl-4-methylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1-Methyl-2-isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-2-propylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1-Methyl-3-isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-3-propylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1-Methyl-4-isopropylbenzene	NA	NA	NA	NA	NA	NA	2750	9166	TCEQ - health
1-Methyl-4-propylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
2,3-Dihydroindene	NA	NA	NA	NA	NA	NA	NA	NA	-
2,3-Dimethylheptane	NA	NA	NA	NA	NA	NA	3500	11666	TCEQ - health
Butylbenzene	NA	NA	NA	NA	NA	NA	2740	9132	TCEQ - health
C10-Aromatic	NA	NA	NA	NA	NA	NA	NA	NA	-
Isobutylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
Isopropylbenzene	NA	NA	NA	NA	NA	NA	500	1667	TCEQ - odour, under review
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	2740	9132	TCEQ - health
Ethylbenzene	NA	NA	1900 ⁱ	NA	NA	21 710	26 000 (health), 740 (odour)	86 658 (health), 2466 (odour)	OMOE - odour
									ATSDR - The MRL was based on damage to auditory capacity of rats. A human equivalency concentration of 154.26 ppm was selected and an uncertainty factor of 30 was applied.
									TCEQ - health, final; odour, final
ethylene	NA	NA	NA	NA	NA	NA	170 000 (health), 310 000 (odour), 1400 (vegetation)	566 610 (health), 1 033 230 (odour), 4666 (vegetation)	TCEQ - health, final; odour, final; vegetation, final
Formaldehyde	NA	NA	NA	100 ^j	NA	49.13	15 (health), 620 (odour)	50 (health), 2066 (odour)	WHO - The WHO guideline is based on the lowest concentration that has been associated with nose and throat irritation in humans. This concentration would also be associated with negligible risk of upper respiratory tract cancer in humans. The WHO also reports a detection threshold of 30 to 600 µg/m ³ .
									ATSDR - The MRL was based on a LOAEL of 0.4 ppm for nasal and eye irritation. An uncertainty factor of 9 was applied.
									TCEQ - health, final; odour, final
3-Buten-2-one	NA	NA	NA	NA	NA	NA	6	20	TCEQ - health
acetophenone	NA	NA	1167	NA	NA	NA	490	1633	OMOE - odour
CAMPHOR	NA	NA	NA	NA	NA	NA	20	67	TCEQ - health
Methyl Ethyl Ketone	NA	NA	NA	NA	13000	NA	18 000 (health), 1300 (odour)	59 994 (health), 4333 (odour)	CalEPA - The CalEPA OEHHa threshold was based on the LOAEL for eye, nose, and throat irritation in humans. An uncertainty factor of 60 was applied; 6 for use of a LOAEL and 10 for sensitive individuals.
									TCEQ - health, final; odour, final
									WHO - The WHO threshold is based on an odour detection threshold.

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
toluene	NA	NA	NA	1000	37000	3800	4500 (health), 640 (odour)	14 999 (health), 2133 (odour)	CalEPA - The CalEPA OEHHA threshold is based on a LOAEL (100 ppm) for headaches, dizziness, and slight eye and nose irritation in human males exposed for 6 h. The LOAEL was extrapolated to represent 1-h exposure (98 ppm) and an uncertainty factor of 10 was applied for intraspecies differences. ATSDR - The MRL was based on a NOAEL of 40 ppm for neurological effects. The 40 ppm NOAEL was adjusted for duration of 5 days per week and 8 h per day and an uncertainty factor of 10 was applied, resulting in an MRL of 1 ppm or 3.8 mg/m³. TCEQ - health, final; odour, final
1,2,3-trimethylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1,2,4-trimethylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
1,3,5-trimethylbenzene	NA	NA	NA	NA	NA	NA	1250	4166	TCEQ - health
p-Xylene	NA	NA	NA	NA	22000	8680	2200 (health), 250 (odour)	7333 (health), 833 (odour)	CalEPA - The OEHHA threshold was based on mild eye and respiratory system effects in humans. ATSDR - The MRL was based on a minimal LOAEL of 50 ppm for neurological and respiratory effects in humans exposed to m-xylene. An uncertainty factor of 30 was applied. The MRL is considered to be protective of human health under acute-duration (≤14 days) inhalation exposure to mixed xylenes or individual isomers. TCEQ - health, final; odour, final
m-xylene	NA	NA	NA	NA	22000	8680	2200 (health), 180 (odour)	7333 (health), 600 (odour)	CalEPA - The OEHHA threshold was based on mild eye and respiratory system effects in humans. ATSDR - The MRL was based on a minimal LOAEL of 50 ppm for neurological and respiratory effects in humans exposed to m-xylene. An uncertainty factor of 30 was applied. The MRL is considered to be protective of human health under acute-duration (≤14 days) inhalation exposure to mixed xylenes or individual isomers. TCEQ - health, final; odour, final
o-xylene	NA	NA	NA	NA	22000	8680	2200 (health), 1600 (odour)	7333 (health), 5333 (odour)	CalEPA - The OEHHA threshold was based on mild eye and respiratory system effects in humans. ATSDR - The MRL was based on a minimal LOAEL of 50 ppm for neurological and respiratory effects in humans exposed to m-xylene. An uncertainty factor of 30 was applied. The MRL is considered to be protective of human health under acute-duration (≤14 days) inhalation exposure to mixed xylenes or individual isomers. TCEQ - health, final; odour, final
Xylene	NA	NA	3000 ⁱ	NA	22000	8680	2200 (health), 350 (odour)	7333 (health), 1167 (odour)	OMOE - odour CalEPA - The CalEPA OEHHA threshold is based on a LOAEL (198 ppm) for eye, nose and throat irritation in humans exposed for 30 minutes. The LOAEL was extrapolated to 1 h (50 ppm) and an uncertainty factor of 10 was applied for intraspecies differences. ATSDR - The MRL was based on a minimal LOAEL of 50 ppm for neurological and respiratory effects in humans exposed to m-xylene. An uncertainty factor of 30 was applied. The MRL is considered to be protective of human health under acute-duration (≤14 days) inhalation exposure to mixed xylenes or individual isomers. TCEQ - health, final; odour, final

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m ³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	
Criteria Compounds									
Carbon monoxide	NA	15 000	36 200	30 000	23 000	NA	40000	133320	NAAQO - health and environment
									OMOE - health
		35 000							WHO - The WHO threshold is based on the Coburn-Foster-Kane exponential equation, which takes into account all the known physiological variables affecting carbon monoxide uptake. The threshold was determined so the carboxyhaemoglobin level of 2.5% is not exceeded, even when a subject engages in light or moderate exercise.
									CalEPA - The CalEPA OEHHA threshold is based on effects of angina in people with known cardiovascular diseases that are exercising heavily.
									TCEQ - health, criteria pollutant, must meet US NAAQS. Texas defers to the US National Ambient Air Quality Standards for NO ₂ .
Nitrogen dioxide	400	400	400	200	470	NA	188	627	Gov Nunavut - The Government of Nunavut standard is based on the NAAQO value for NO ₂ .
		1000							NAAQO - health and environment
									OMOE - health
									WHO - The WHO threshold is based on an increase in bronchial responsiveness in asthmatics.
									CalEPA - The CalEPA OEHHA threshold is based on increased airway reactivity in asthmatics.
TCEQ - health, criteria pollutant, must meet US NAAQS. Texas defers to the US National Ambient Air Quality Standards for NO ₂ .									
Nitrogen oxides (NOx)	NA	NA	NA	NA	NA	NA	NA	NA	No 1-h thresholds are available
Sulphur dioxide	450	450	690	500 ⁱ	660	26.2	197	657	Gov Nunavut - The Government of Nunavut standard is based on the NAAQO value for SO ₂ .
		900							NAAQO - health and environment
									OMOE - health & vegetation
									WHO - The WHO threshold is based on changes in pulmonary function and respiratory symptoms.
									CalEPA - The CalEPA threshold was based on an equivalent 1-h concentration of 0.25 ppm. This value was derived from a consensus value from several studies. An uncertainty factor of 1 was applied. This REL is the California AAQS.
ATSDR - The MRL was based on a minimal LOAEL of 0.1 ppm for bronchoconstriction in exercising asthmatics. An uncertainty factor of 9 was applied.									
TCEQ - health, criteria pollutant, must meet US NAAQS. Texas defers to the US National Ambient Air Quality Standards for SO ₂ .									
PM _{2.5}	NA	NA	NA	NA	NA	NA	NA	NA	No 1-h thresholds are available
PM ₁₀	NA	NA	NA	NA	NA	NA	NA	NA	No 1-h thresholds are available
Diesel particulate matter	NA	NA	NA	NA	NA	NA	1.5	5	TCEQ - PM ₁₀ , health
Total suspended particulate	NA	NA	NA	NA	NA	NA	NA	NA	No 1-h thresholds are available

Table 10.2-A-1: Acute 1-Hour Air Thresholds

Parameter	Acute Inhalation 1-Hour Health Based Thresholds (µg/m ³)								Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	OMOE AAQC ^c	WHO AQG ^{d,e}	CalEPA REL ^f	ATSDR MRL ^g	TCEQ ESL ^h	TCEQ ESL ^h Adjusted	

Notes:

- ^a Government of Nunavut Department of Environment (NDOE). (2011). Environmental Guideline for Ambient Air Quality.
- ^b Canadian Council of Ministers of the Environment (CCME). (1999). Canadian Environmental Quality Guidelines. Canadian National Ambient Air Quality Objectives.
- ^c Ontario Ministry of the Environment (OMOE). (2012). Ontario's Ambient Air Quality Criteria. Standards Development Branch.
- The OMOE Ambient Air Quality Criteria (AAQCs) are based on health, odour, vegetation, soiling, visibility, corrosion or other effects. The OMOE does not provide background information on how the AAQCs were derived on a chemical to chemical basis.
- ^d World Health Organization (WHO). (2000). Air Quality Guidelines for Europe, 2nd Ed. World Health Organization Regional Publications, European Series, No. 91. Copenhagen.
- ^e World Health Organization (WHO). (2005). Air Quality Guidelines Global Update. Report on Working Group Meeting. Bonn, Germany.
- ^f California Office of Environmental Health Hazard Assessment (OEHHA). (2012). Acute, 8-h and Chronic Reference Exposure Levels. Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Internet Site, last updated February 2012, accessed
- ^g Agency for Toxic Substances and Disease Registry (ATSDR). (2011). Minimal Risk Levels. Internet Site, last updated 3 May 2011, accessed 25 July 2012.
- The ATSDR defines acute exposure as 14 days or less.
- ^h Texas Commission on Environmental Quality (TCEQ). (2012). Interoffice Memorandum, March 2012 Effects Screening Levels. Toxicology Division for Air Permitting.
- the TCEQ ecological screening levels (ESLs) are based on health, odour/nuisance potential, and vegetation effects. The TCEQ ESLs are based on an HQ = 0.3 for non-carcinogens and were therefore adjusted with the following equation: threshold (µg/m³) = TCEQ value x 3.333. The TCEQ does not provide background information on how the ESLs were derived on a chemical to chemical basis. All ESLs are interim, unless otherwise stated.

NA = not available; PM = particulate matter; LOAEL = lowest observed adverse effect level.

ⁱ 10 minutes.

^j 30 minutes.

Target hazard quotient (HQ) = 1.0.

air concentrations given in ppm were converted to µg/m³ with the following equation: X (ppm) = Y (mg/m³)*(24.45/MW)*1000.

Centre for Disease Control and Prevention. (2003). Conversion Calculator. The National Institute for Occupational Safety and Health Publication No. 2004-101.

Selection criteria:

the lowest health-based air standard from the first six agencies listed was selected as the guideline for screening in the HHRA. The TCEQ standard was selected if it was the only agency with a standard.

200	= selected guideline for screening in the human health risk assessment (HHRA).

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	NV	1.33E+02	4.07E+01	4.53E+01	4.56E+01	4.80E+01	6.18E+01	1.25E+02	1.37E+01	1.51E+01	9.56E+00	1.37E+01	1.31E+01	5.47E+01	3.61E+01	3.62E+01
DPM	5	1.44E+01	5.92E+00	5.42E+00	5.42E+00	6.31E+00	7.68E+00	8.73E+00	1.57E+00	1.67E+00	1.34E+00	1.57E+00	1.68E+00	7.97E+00	5.81E+00	5.29E+00
PM10	NV	7.18E+01	2.17E+01	2.29E+01	2.28E+01	2.48E+01	3.16E+01	6.23E+01	7.48E+00	8.69E+00	5.12E+00	7.49E+00	7.73E+00	2.81E+01	2.03E+01	1.99E+01
PM2.5	NV	2.82E+01	8.62E+00	1.06E+01	1.05E+01	1.17E+01	1.48E+01	1.57E+01	2.93E+00	3.93E+00	2.39E+00	2.94E+00	3.71E+00	1.52E+01	1.02E+01	9.29E+00
SO2	500	1.36E+00	4.02E-01	4.46E-01	4.37E-01	4.74E-01	6.22E-01	6.32E-01	1.17E-01	1.60E-01	9.46E-02	1.17E-01	1.55E-01	5.93E-01	4.02E-01	3.51E-01
CO	15000	2.86E+02	1.11E+02	1.03E+02	1.03E+02	1.14E+02	1.39E+02	1.81E+02	3.25E+01	2.95E+01	2.42E+01	3.25E+01	3.10E+01	1.44E+02	1.08E+02	9.62E+01
NOX	NV	4.03E+02	1.66E+02	1.53E+02	1.53E+02	1.77E+02	2.19E+02	2.58E+02	4.95E+01	4.66E+01	3.78E+01	4.95E+01	4.71E+01	2.24E+02	1.63E+02	1.48E+02
NO2	200	1.19E+02	9.56E+01	9.43E+01	9.43E+01	9.67E+01	1.01E+02	1.05E+02	4.95E+01	4.66E+01	3.78E+01	4.95E+01	4.71E+01	1.01E+02	9.52E+01	9.38E+01
Metals																
Aluminum	167	9.24E+00	2.82E+00	3.14E+00	3.16E+00	3.33E+00	4.28E+00	8.66E+00	9.48E-01	1.04E+00	6.63E-01	9.48E-01	9.11E-01	3.80E+00	2.50E+00	2.51E+00
Antimony	17	5.22E-04	1.59E-04	1.77E-04	1.79E-04	1.88E-04	2.42E-04	4.89E-04	5.35E-05	5.90E-05	3.74E-05	5.36E-05	5.15E-05	2.14E-04	1.41E-04	1.42E-04
Arsenic	0.3	1.48E-02	4.52E-03	5.03E-03	5.07E-03	5.33E-03	6.86E-03	1.39E-02	1.52E-03	1.67E-03	1.06E-03	1.52E-03	1.46E-03	6.08E-03	4.01E-03	4.02E-03
Barium	17	5.21E-02	1.59E-02	1.77E-02	1.78E-02	1.88E-02	2.42E-02	4.89E-02	5.35E-03	5.89E-03	3.74E-03	5.35E-03	5.14E-03	2.14E-02	1.41E-02	1.42E-02
Beryllium	0.07	9.70E-05	2.96E-05	3.30E-05	3.32E-05	3.49E-05	4.50E-05	9.09E-05	9.95E-06	1.10E-05	6.96E-06	9.96E-06	9.57E-06	3.98E-05	2.63E-05	2.64E-05
Bismuth	167	2.67E-05	8.14E-06	9.05E-06	9.12E-06	9.60E-06	1.24E-05	2.50E-05	2.73E-06	3.01E-06	1.91E-06	2.74E-06	2.63E-06	1.09E-05	7.22E-06	7.24E-06
Cadmium	0.03	8.67E-03	3.56E-03	3.26E-03	3.26E-03	3.80E-03	4.63E-03	5.27E-03	9.43E-04	1.01E-03	8.08E-04	9.46E-04	1.01E-03	4.80E-03	3.50E-03	3.19E-03
Calcium	NV	5.27E+00	1.61E+00	1.79E+00	1.80E+00	1.90E+00	2.44E+00	4.94E+00	5.40E-01	5.96E-01	3.78E-01	5.41E-01	5.20E-01	2.16E+00	1.43E+00	1.43E+00
Chromium	12	2.36E-02	7.36E-03	8.07E-03	8.13E-03	8.61E-03	1.10E-02	2.17E-02	2.43E-03	2.67E-03	1.72E-03	2.43E-03	2.35E-03	9.90E-03	6.58E-03	6.55E-03
Cobalt	0.7	3.57E-03	1.09E-03	1.21E-03	1.22E-03	1.29E-03	1.66E-03	3.35E-03	3.66E-04	4.04E-04	2.56E-04	3.67E-04	3.52E-04	1.47E-03	9.67E-04	9.70E-04
Copper	100	9.45E-03	2.88E-03	3.21E-03	3.23E-03	3.40E-03	4.38E-03	8.86E-03	9.69E-04	1.07E-03	6.77E-04	9.70E-04	9.32E-04	3.88E-03	2.56E-03	2.57E-03
Gold	83	1.03E-05	3.15E-06	3.51E-06	3.53E-06	3.72E-06	4.79E-06	9.67E-06	1.06E-06	1.17E-06	7.40E-07	1.06E-06	1.02E-06	4.24E-06	2.79E-06	2.80E-06
Iron	33	1.01E+01	3.09E+00	3.44E+00	3.47E+00	3.65E+00	4.70E+00	9.50E+00	1.04E+00	1.15E+00	7.27E-01	1.04E+00	9.99E-01	4.16E+00	2.74E+00	2.75E+00
Lead	0.5	3.03E-03	1.08E-03	1.08E-03	1.09E-03	1.20E-03	1.51E-03	2.37E-03	3.20E-04	3.47E-04	2.48E-04	3.20E-04	3.25E-04	1.45E-03	1.01E-03	9.62E-04
Lithium	NV	4.31E-03	1.32E-03	1.46E-03	1.47E-03	1.55E-03	2.00E-03	4.04E-03	4.42E-04	4.87E-04	3.09E-04	4.42E-04	4.25E-04	1.77E-03	1.17E-03	1.17E-03
Magnesium	167	2.79E+00	8.53E-01	9.49E-01	9.56E-01	1.01E+00	1.30E+00	2.62E+00	2.87E-01	3.16E-01	2.00E-01	2.87E-01	2.76E-01	1.15E+00	7.57E-01	7.59E-01
Manganese	7	1.05E-01	3.21E-02	3.57E-02	3.59E-02	3.78E-02	4.87E-02	9.85E-02	1.08E-02	1.19E-02	7.53E-03	1.08E-02	1.04E-02	4.31E-02	2.84E-02	2.85E-02
Molybdenum	100	1.60E-04	4.88E-05	5.43E-05	5.47E-05	5.76E-05	7.42E-05	1.50E-04	1.64E-05	1.81E-05	1.15E-05	1.64E-05	1.58E-05	6.57E-05	4.33E-05	4.35E-05
Nickel	0.2	9.26E-03	2.83E-03	3.15E-03	3.17E-03	3.34E-03	4.30E-03	8.69E-03	9.50E-04	1.05E-03	6.64E-04	9.51E-04	9.14E-04	3.81E-03	2.51E-03	2.52E-03
Potassium	67	1.77E+00	5.40E-01	6.01E-01	6.05E-01	6.37E-01	8.20E-01	1.66E+00	1.81E-01	2.00E-01	1.27E-01	1.82E-01	1.74E-01	7.26E-01	4.79E-01	4.80E-01
Selenium	7	1.60E-04	4.87E-05	5.42E-05	5.46E-05	5.75E-05	7.40E-05	1.50E-04	1.64E-05	1.80E-05	1.14E-05	1.64E-05	1.57E-05	6.55E-05	4.32E-05	4.33E-05
Silver	0.3	3.92E-05	1.20E-05	1.33E-05	1.34E-05	1.41E-05	1.82E-05	3.68E-05	4.03E-06	4.44E-06	2.82E-06	4.03E-06	3.87E-06	1.61E-05	1.06E-05	1.07E-05
Sodium	NV	2.11E+00	6.45E-01	7.17E-01	7.23E-01	7.61E-01	9.79E-01	1.98E+00	2.17E-01	2.39E-01	1.51E-01	2.17E-01	2.08E-01	8.67E-01	5.72E-01	5.74E-01
Strontium	67	2.82E-02	8.61E-03	9.59E-03	9.66E-03	1.02E-02	1.31E-02	2.65E-02	2.89E-03	3.19E-03	2.02E-03	2.90E-03	2.78E-03	1.16E-02	7.64E-03	7.67E-03
Thallium	3	4.08E-05	1.24E-05	1.38E-05	1.39E-05	1.47E-05	1.89E-05	3.82E-05	4.18E-06	4.61E-06	2.92E-06	4.18E-06	4.02E-06	1.67E-05	1.10E-05	1.11E-05
Tin	67	1.44E-04	4.39E-05	4.88E-05	4.92E-05	5.17E-05	6.66E-05	1.35E-04	1.47E-05	1.62E-05	1.03E-05	1.47E-05	1.42E-05	5.90E-05	3.89E-05	3.90E-05
Titanium	167	4.65E-01	1.42E-01	1.58E-01	1.59E-01	1.67E-01	2.15E-01	4.36E-01	4.77E-02	5.25E-02	3.33E-02	4.77E-02	4.58E-02	1.91E-01	1.26E-01	1.26E-01
Uranium	2	1.30E-04	3.96E-05	4.40E-05	4.44E-05	4.67E-05	6.01E-05	1.22E-04	1.33E-05	1.47E-05	9.30E-06	1.33E-05	1.28E-05	5.33E-05	3.51E-05	3.52E-05
Vanadium	0.8	1.71E-02	5.22E-03	5.80E-03	5.85E-03	6.15E-03	7.92E-03	1.60E-02	1.75E-03	1.93E-03	1.23E-03	1.75E-03	1.69E-03	7.02E-03	4.63E-03	4.64E-03
Yttrium	33	1.26E-03	3.85E-04	4.28E-04	4.32E-04	4.54										

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	2	1.10E-05	4.52E-06	4.14E-06	4.14E-06	4.82E-06	5.87E-06	6.67E-06	1.20E-06	1.28E-06	1.03E-06	1.20E-06	1.28E-06	6.09E-06	4.44E-06	4.04E-06
indeno(1,2,3-cd)pyrene	2	6.99E-06	2.88E-06	2.63E-06	2.63E-06	3.06E-06	3.73E-06	4.24E-06	7.60E-07	8.11E-07	6.52E-07	7.62E-07	8.15E-07	3.87E-06	2.82E-06	2.57E-06
Volatile Oranic Compounds																
1,3-butadiene	220	8.17E-02	3.40E-02	3.14E-02	3.13E-02	3.54E-02	4.47E-02	5.26E-02	1.00E-02	9.10E-03	7.66E-03	1.00E-02	9.50E-03	4.58E-02	3.28E-02	2.99E-02
acetaldehyde	470	1.10E+01	4.59E+00	4.23E+00	4.23E+00	4.77E+00	6.02E+00	7.09E+00	1.35E+00	1.23E+00	1.03E+00	1.35E+00	1.28E+00	6.18E+00	4.43E+00	4.03E+00
acetone	19665	5.80E+00	2.42E+00	2.23E+00	2.22E+00	2.51E+00	3.17E+00	3.73E+00	7.11E-01	6.46E-01	5.43E-01	7.12E-01	6.74E-01	3.25E+00	2.33E+00	2.12E+00
acrolein	2.5	1.95E+00	8.12E-01	7.49E-01	7.48E-01	8.44E-01	1.07E+00	1.26E+00	2.39E-01	2.17E-01	1.83E-01	2.39E-01	2.27E-01	1.09E+00	7.84E-01	7.13E-01
aldehyde	10	1.47E+01	6.14E+00	5.66E+00	5.65E+00	6.38E+00	8.05E+00	9.49E+00	1.81E+00	1.64E+00	1.38E+00	1.81E+00	1.71E+00	8.26E+00	5.92E+00	5.39E+00
benzene	29	7.22E-01	3.01E-01	2.77E-01	2.77E-01	3.13E-01	3.95E-01	4.65E-01	8.86E-02	8.04E-02	6.77E-02	8.86E-02	8.39E-02	4.05E-01	2.90E-01	2.64E-01
C10-C12 aliphatic	11666	1.59E-01	6.61E-02	6.09E-02	6.09E-02	6.87E-02	8.67E-02	1.02E-01	1.95E-02	1.77E-02	1.49E-02	1.95E-02	1.84E-02	8.89E-02	6.37E-02	5.80E-02
C12-C16 aliphatic	11666	9.19E-01	3.83E-01	3.53E-01	3.52E-01	3.98E-01	5.02E-01	5.91E-01	1.13E-01	1.02E-01	8.61E-02	1.13E-01	1.07E-01	5.15E-01	3.69E-01	3.36E-01
C12-C16 aromatic	4166	1.24E-02	5.16E-03	4.76E-03	4.75E-03	5.36E-03	6.77E-03	7.98E-03	1.52E-03	1.38E-03	1.16E-03	1.52E-03	1.44E-03	6.94E-03	4.98E-03	4.53E-03
C16-C21 aliphatic	333	9.20E-01	3.83E-01	3.53E-01	3.53E-01	3.98E-01	5.03E-01	5.92E-01	1.13E-01	1.02E-01	8.62E-02	1.13E-01	1.07E-01	5.16E-01	3.70E-01	3.36E-01
C2-C6 aliphatic	2100	4.38E+00	1.82E+00	1.68E+00	1.68E+00	1.90E+00	2.39E+00	2.82E+00	5.37E-01	4.88E-01	4.10E-01	5.37E-01	5.09E-01	2.45E+00	1.76E+00	1.60E+00
C6-C8 aliphatic	61800	2.99E+00	1.25E+00	1.15E+00	1.15E+00	1.30E+00	1.64E+00	1.93E+00	3.67E-01	3.33E-01	2.81E-01	3.68E-01	3.48E-01	1.68E+00	1.20E+00	1.10E+00
C8-C10 aliphatic	60000	4.22E-02	1.76E-02	1.62E-02	1.62E-02	1.83E-02	2.31E-02	2.72E-02	5.17E-03	4.70E-03	3.95E-03	5.18E-03	4.90E-03	2.36E-02	1.69E-02	1.54E-02
C8-C10 aromatic	4166	2.37E-01	9.87E-02	9.10E-02	9.10E-02	1.03E-01	1.30E-01	1.53E-01	2.91E-02	2.64E-02	2.22E-02	2.91E-02	2.76E-02	1.33E-01	9.53E-02	8.67E-02
ethylbenzene	21710	1.24E-01	5.16E-02	4.76E-02	4.75E-02	5.36E-02	6.77E-02	7.98E-02	1.52E-02	1.38E-02	1.16E-02	1.52E-02	1.44E-02	6.94E-02	4.98E-02	4.53E-02
ethylene	566610	2.26E+00	9.40E-01	8.66E-01	8.66E-01	9.77E-01	1.23E+00	1.45E+00	2.77E-01	2.51E-01	2.11E-01	2.77E-01	2.62E-01	1.26E+00	9.07E-01	8.25E-01
formaldehyde	49	5.88E+00	2.45E+00	2.26E+00	2.26E+00	2.54E+00	3.21E+00	3.78E+00	7.21E-01	6.55E-01	5.51E-01	7.21E-01	6.83E-01	3.30E+00	2.36E+00	2.15E+00
ketone	1167	3.32E+00	1.38E+00	1.28E+00	1.27E+00	1.44E+00	1.82E+00	2.14E+00	4.07E-01	3.70E-01	3.11E-01	4.08E-01	3.86E-01	1.86E+00	1.33E+00	1.21E+00
toluene	1000	1.05E+00	4.37E-01	4.03E-01	4.02E-01	4.54E-01	5.73E-01	6.75E-01	1.29E-01	1.17E-01	9.83E-02	1.29E-01	1.22E-01	5.88E-01	4.22E-01	3.84E-01
trimethylbenzene	4166	3.00E-01	1.25E-01	1.15E-01	1.15E-01	1.30E-01	1.64E-01	1.93E-01	3.69E-02	3.35E-02	2.82E-02	3.69E-02	3.49E-02	1.68E-01	1.21E-01	1.10E-01
xylenes	8680	8.33E-01	3.47E-01	3.20E-01	3.20E-01	3.61E-01	4.55E-01	5.36E-01	1.02E-01	9.27E-02	7.81E-02	1.02E-01	9.68E-02	4.67E-01	3.35E-01	3.05E-01

All air concentrations are in units of µg/m³.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
NV = no value.

3.20E-03

 = greater than 1-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	NV	9.04E+00	6.70E+00	5.94E+00	5.68E+00	7.25E+00	9.00E+00	6.28E+01	2.74E+01	9.77E+00	1.01E+01	1.08E+01	3.08E+02	3.08E+02	No	No
DPM	5	2.00E+00	1.43E+00	1.29E+00	1.08E+00	1.52E+00	1.58E+00	1.16E+01	4.17E+00	1.40E+00	1.46E+00	1.53E+00	1.35E+02	1.35E+02	Yes	Yes
PM10	NV	5.56E+00	4.27E+00	3.81E+00	3.13E+00	4.59E+00	5.03E+00	3.31E+01	1.48E+01	5.01E+00	5.31E+00	5.59E+00	1.89E+02	1.89E+02	No	No
PM2.5	NV	3.01E+00	2.45E+00	2.21E+00	1.85E+00	2.62E+00	2.75E+00	1.91E+01	7.26E+00	2.55E+00	2.64E+00	2.78E+00	1.47E+02	1.47E+02	No	No
SO2	500	1.08E-01	8.86E-02	8.02E-02	6.69E-02	9.43E-02	9.92E-02	6.88E-01	2.81E-01	1.59E-01	1.68E-01	1.63E-01	8.20E+00	8.20E+00	No	No
CO	15000	3.62E+01	2.64E+01	2.38E+01	1.98E+01	2.80E+01	2.92E+01	2.15E+02	7.64E+01	4.49E+01	4.66E+01	4.63E+01	2.35E+03	2.35E+03	No	No
NOX	NV	5.61E+01	4.00E+01	3.61E+01	3.02E+01	4.24E+01	4.43E+01	3.24E+02	1.17E+02	6.88E+01	7.12E+01	7.10E+01	3.78E+03	3.78E+03	No	No
NO2	200	5.61E+01	4.00E+01	3.61E+01	3.02E+01	4.24E+01	4.43E+01	1.11E+02	9.06E+01	6.88E+01	7.12E+01	7.10E+01	4.57E+02	4.57E+02	Yes	Yes
Metals																
Aluminum	167	6.27E-01	4.65E-01	4.13E-01	3.94E-01	5.03E-01	6.24E-01	4.36E+00	1.90E+00	6.77E-01	7.03E-01	7.49E-01	2.14E+01	2.14E+01	No	No
Antimony	17	3.54E-05	2.62E-05	2.33E-05	2.22E-05	2.84E-05	3.52E-05	2.46E-04	1.07E-04	3.83E-05	3.97E-05	4.23E-05	1.21E-03	1.21E-03	No	No
Arsenic	0.3	1.00E-03	7.44E-04	6.60E-04	6.31E-04	8.05E-04	9.99E-04	6.98E-03	3.04E-03	1.08E-03	1.13E-03	1.20E-03	3.42E-02	3.42E-02	No	No
Barium	17	3.53E-03	2.62E-03	2.32E-03	2.22E-03	2.83E-03	3.52E-03	2.46E-02	1.07E-02	3.82E-03	3.96E-03	4.22E-03	1.21E-01	1.21E-01	No	No
Beryllium	0.07	6.58E-06	4.87E-06	4.33E-06	4.13E-06	5.28E-06	6.55E-06	4.57E-05	2.00E-05	7.11E-06	7.37E-06	7.86E-06	2.24E-04	2.24E-04	No	No
Bismuth	167	1.81E-06	1.34E-06	1.19E-06	1.14E-06	1.45E-06	1.80E-06	1.26E-05	5.48E-06	1.95E-06	2.03E-06	2.16E-06	6.17E-05	6.17E-05	No	No
Cadmium	0.03	1.20E-03	8.61E-04	7.77E-04	6.50E-04	9.14E-04	9.52E-04	6.95E-03	2.51E-03	8.42E-04	8.79E-04	9.21E-04	8.12E-02	8.12E-02	Yes	Yes
Calcium	NV	3.57E-01	2.65E-01	2.35E-01	2.24E-01	2.86E-01	3.56E-01	2.48E+00	1.08E+00	3.86E-01	4.00E-01	4.27E-01	1.22E+01	1.22E+01	No	No
Chromium	12	1.70E-03	1.26E-03	1.12E-03	1.05E-03	1.36E-03	1.65E-03	1.16E-02	4.98E-03	1.76E-03	1.83E-03	1.95E-03	6.48E-02	6.48E-02	No	No
Cobalt	0.7	2.42E-04	1.79E-04	1.59E-04	1.52E-04	1.94E-04	2.41E-04	1.68E-03	7.35E-04	2.62E-04	2.71E-04	2.89E-04	8.26E-03	8.26E-03	No	No
Copper	100	6.40E-04	4.75E-04	4.21E-04	4.02E-04	5.14E-04	6.38E-04	4.45E-03	1.94E-03	6.92E-04	7.18E-04	7.66E-04	2.18E-02	2.18E-02	No	No
Gold	83	7.00E-07	5.18E-07	4.60E-07	4.40E-07	5.61E-07	6.97E-07	4.86E-06	2.12E-06	7.56E-07	7.85E-07	8.37E-07	2.39E-05	2.39E-05	No	No
Iron	33	6.87E-01	5.09E-01	4.52E-01	4.32E-01	5.51E-01	6.84E-01	4.77E+00	2.08E+00	7.43E-01	7.70E-01	8.21E-01	2.34E+01	2.34E+01	No	No
Lead	0.5	3.08E-04	2.23E-04	2.00E-04	1.76E-04	2.38E-04	2.66E-04	1.91E-03	7.44E-04	2.57E-04	2.67E-04	2.82E-04	1.72E-02	1.72E-02	No	No
Lithium	NV	2.92E-04	2.16E-04	1.92E-04	1.84E-04	2.34E-04	2.91E-04	2.03E-03	8.86E-04	3.16E-04	3.28E-04	3.49E-04	9.97E-03	9.97E-03	No	No
Magnesium	167	1.89E-01	1.40E-01	1.25E-01	1.19E-01	1.52E-01	1.89E-01	1.32E+00	5.75E-01	2.05E-01	2.12E-01	2.26E-01	6.46E+00	6.46E+00	No	No
Manganese	7	7.12E-03	5.28E-03	4.69E-03	4.48E-03	5.71E-03	7.09E-03	4.95E-02	2.16E-02	7.70E-03	7.98E-03	8.51E-03	2.43E-01	2.43E-01	No	No
Molybdenum	100	1.08E-05	8.03E-06	7.13E-06	6.81E-06	8.70E-06	1.08E-05	7.54E-05	3.29E-05	1.17E-05	1.22E-05	1.30E-05	3.70E-04	3.70E-04	No	No
Nickel	0.2	6.28E-04	4.65E-04	4.13E-04	3.95E-04	5.04E-04	6.26E-04	4.37E-03	1.91E-03	6.79E-04	7.04E-04	7.51E-04	2.14E-02	2.14E-02	No	No
Potassium	67	1.20E-01	8.88E-02	7.89E-02	7.53E-02	9.61E-02	1.19E-01	8.33E-01	3.64E-01	1.30E-01	1.34E-01	1.43E-01	4.09E+00	4.09E+00	No	No
Selenium	7	1.08E-05	8.01E-06	7.12E-06	6.80E-06	8.67E-06	1.08E-05	7.52E-05	3.28E-05	1.17E-05	1.21E-05	1.29E-05	3.69E-04	3.69E-04	No	No
Silver	0.3	2.66E-06	1.97E-06	1.75E-06	1.67E-06	2.13E-06	2.65E-06	1.85E-05	8.07E-06	2.88E-06	2.98E-06	3.18E-06	9.08E-05	9.08E-05	No	No
Sodium	NV	1.43E-01	1.06E-01	9.42E-02	9.00E-02	1.15E-01	1.43E-01	9.95E-01	4.34E-01	1.55E-01	1.61E-01	1.71E-01	4.88E+00	4.88E+00	No	No
Strontium	67	1.91E-03	1.42E-03	1.26E-03	1.20E-03	1.53E-03	1.91E-03	1.33E-02	5.81E-03	2.07E-03	2.15E-03	2.29E-03	6.53E-02	6.53E-02	No	No
Thallium	3	2.76E-06	2.05E-06	1.82E-06	1.74E-06	2.22E-06	2.75E-06	1.92E-05	8.38E-06	2.99E-06	3.10E-06	3.30E-06	9.43E-05	9.43E-05	No	No
Tin	67	9.74E-06	7.22E-06	6.41E-06	6.12E-06	7.81E-06	9.70E-06	6.77E-05	2.96E-05	1.05E-05	1.09E-05	1.16E-05	3.32E-04	3.32E-04	No	No
Titanium	167	3.15E-02	2.33E-02	2.07E-02	1.98E-02	2.53E-02	3.14E-02	2.19E-01	9.56E-02	3.41E-02	3.53E-02	3.77E-02	1.07E+00	1.07E+00	No	No
Uranium	2	8.79E-06	6.51E-06	5.78E-06	5.52E-06	7.05E-06	8.75E-06	6.11E-05	2.67E-05	9.50E-06	9.86E-06	1.05E-05	3.00E-04	3.00E-04	No	No
Vanadium	0.8	1.16E-03	8.58E-04	7.62E-04	7.28E-04	9.29E-04	1.15E-03	8.05E-03	3.51E-03	1.25E-03	1.30E-03	1.38E-03	3.95E-02	3.95E-02	No	No
Yttrium	33	8.55E-05	6.34E-05	5.62E-05	5.37E-05	6.86E-05	8.51E-05	5.94E-04	2.59E-04	9.24E-05	9.59E-05	1.02E-04	2.92E-03	2.92E-03	No	No
Zinc	67	2.31E-03	1.67E-03	1.50E-03	1.33E-03	1.79E-03	2.01E-03	1.44E-02	5.66E-03	1.96E-03	2.04E-03	2.15E-03	1.25E-01	1.25E-01	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.07	2.21E-06	1.58E-06	1.42E-06	1.19E-06	1.67E-06	1.74E-06	1.27E-05	4.59E-06	1.54E-06	1.61E-06	1.68E-06	1.49E-04	1.49E-04	No	No
naphthalene	50	8.73E-04	6.24E-04	5.62E-04	4.71E-04	6.62E-04	6.89E-04	5.03E-03	1.81E-03	6.09E-04	6.36E-04	6.66E-04	5.89E-02	5.89E-02	No	No
phenanthrene	2	7.21E-05	5.15E-05	4.65E-05	3.89E-05	5.47E-05	5.69E-05	4.16E-04	1.50E-04	5.03E-05	5.25E-05	5.50E-05	4.86E-03	4.86E-03	No	No
anthracene	2	8.04E-06	5.75E-06	5.18E-06	4.34E-06	6.10E-06	6.35E-06	4.64E-05	1.67E-05	5.61E-06	5.86E-06	6.14E-06	5.42E-04	5.42E-04	No	No
fluorene	33	3.52E-05														

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	2	1.53E-06	1.09E-06	9.86E-07	8.26E-07	1.16E-06	1.21E-06	8.82E-06	3.18E-06	1.07E-06	1.12E-06	1.17E-06	1.03E-04	1.03E-04	No	No
indeno(1,2,3-cd)pyrene	2	9.73E-07	6.95E-07	6.27E-07	5.25E-07	7.38E-07	7.69E-07	5.61E-06	2.02E-06	6.79E-07	7.09E-07	7.43E-07	6.56E-05	6.56E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	220	1.09E-02	7.79E-03	7.01E-03	5.83E-03	8.23E-03	8.89E-03	6.56E-02	2.33E-02	1.35E-02	1.39E-02	1.40E-02	7.71E-01	7.71E-01	No	No
acetaldehyde	470	1.48E+00	1.05E+00	9.46E-01	7.87E-01	1.11E+00	1.20E+00	8.85E+00	3.14E+00	1.82E+00	1.88E+00	1.89E+00	1.04E+02	1.04E+02	No	No
acetone	19665	7.76E-01	5.53E-01	4.98E-01	4.14E-01	5.84E-01	6.31E-01	4.66E+00	1.65E+00	9.59E-01	9.89E-01	9.95E-01	5.47E+01	5.47E+01	No	No
acrolein	2.5	2.61E-01	1.86E-01	1.67E-01	1.39E-01	1.97E-01	2.12E-01	1.57E+00	5.56E-01	3.23E-01	3.33E-01	3.35E-01	1.84E+01	1.84E+01	Yes	Yes
aldehyde	10	1.97E+00	1.40E+00	1.26E+00	1.05E+00	1.48E+00	1.60E+00	1.18E+01	4.20E+00	2.44E+00	2.51E+00	2.53E+00	1.39E+02	1.39E+02	Yes	Yes
benzene	29	9.67E-02	6.88E-02	6.20E-02	5.16E-02	7.28E-02	7.86E-02	5.80E-01	2.06E-01	1.19E-01	1.23E-01	1.24E-01	6.82E+00	6.82E+00	No	No
C10-C12 aliphatic	11666	2.12E-02	1.51E-02	1.36E-02	1.13E-02	1.60E-02	1.73E-02	1.27E-01	4.52E-02	2.62E-02	2.71E-02	2.72E-02	1.50E+00	1.50E+00	No	No
C12-C16 aliphatic	11666	1.23E-01	8.76E-02	7.88E-02	6.56E-02	9.25E-02	9.99E-02	7.38E-01	2.62E-01	1.52E-01	1.57E-01	1.58E-01	8.67E+00	8.67E+00	No	No
C12-C16 aromatic	4166	1.66E-03	1.18E-03	1.06E-03	8.85E-04	1.25E-03	1.35E-03	9.95E-03	3.53E-03	2.05E-03	2.11E-03	2.13E-03	1.17E-01	1.17E-01	No	No
C16-C21 aliphatic	333	1.23E-01	8.77E-02	7.89E-02	6.57E-02	9.27E-02	1.00E-01	7.38E-01	2.62E-01	1.52E-01	1.57E-01	1.58E-01	8.68E+00	8.68E+00	No	No
C2-C6 aliphatic	2100	5.86E-01	4.17E-01	3.76E-01	3.13E-01	4.41E-01	4.76E-01	3.52E+00	1.25E+00	7.24E-01	7.47E-01	7.52E-01	4.13E+01	4.13E+01	No	No
C6-C8 aliphatic	61800	4.01E-01	2.85E-01	2.57E-01	2.14E-01	3.02E-01	3.26E-01	2.40E+00	8.54E-01	4.95E-01	5.11E-01	5.14E-01	2.83E+01	2.83E+01	No	No
C8-C10 aliphatic	60000	5.65E-03	4.02E-03	3.62E-03	3.01E-03	4.25E-03	4.59E-03	3.39E-02	1.20E-02	6.98E-03	7.19E-03	7.24E-03	3.98E-01	3.98E-01	No	No
C8-C10 aromatic	4166	3.17E-02	2.26E-02	2.03E-02	1.69E-02	2.39E-02	2.58E-02	1.90E-01	6.76E-02	3.92E-02	4.04E-02	4.07E-02	2.24E+00	2.24E+00	No	No
ethylbenzene	21710	1.66E-02	1.18E-02	1.06E-02	8.85E-03	1.25E-02	1.35E-02	9.95E-02	3.53E-02	2.05E-02	2.11E-02	2.13E-02	1.17E+00	1.17E+00	No	No
ethylene	566610	3.02E-01	2.15E-01	1.94E-01	1.61E-01	2.27E-01	2.45E-01	1.81E+00	6.43E-01	3.73E-01	3.85E-01	3.87E-01	2.13E+01	2.13E+01	No	No
formaldehyde	49	7.87E-01	5.60E-01	5.04E-01	4.20E-01	5.92E-01	6.39E-01	4.72E+00	1.68E+00	9.72E-01	1.00E+00	1.01E+00	5.55E+01	5.55E+01	Yes	Yes
ketone	1167	4.45E-01	3.17E-01	2.85E-01	2.37E-01	3.35E-01	3.61E-01	2.67E+00	9.47E-01	5.49E-01	5.67E-01	5.70E-01	3.13E+01	3.13E+01	No	No
toluene	1000	1.40E-01	1.00E-01	9.00E-02	7.49E-02	1.06E-01	1.14E-01	8.42E-01	2.99E-01	1.74E-01	1.79E-01	1.80E-01	9.90E+00	9.90E+00	No	No
trimethylbenzene	4166	4.02E-02	2.86E-02	2.58E-02	2.15E-02	3.03E-02	3.27E-02	2.41E-01	8.57E-02	4.97E-02	5.13E-02	5.16E-02	2.84E+00	2.84E+00	No	No
xylene	8680	1.12E-01	7.94E-02	7.15E-02	5.95E-02	8.39E-02	9.06E-02	6.69E-01	2.37E-01	1.38E-01	1.42E-01	1.43E-01	7.86E+00	7.86E+00	No	No

Notes:
All air concentrations are in units of µg/m³
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
NV = no value
3.20E-03 = greater than 1-h air threshold

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	NV	1.41E+02	4.26E+01	4.08E+01	4.13E+01	4.38E+01	5.03E+01	7.28E+01	1.66E+01	1.96E+01	1.13E+01	1.66E+01	1.83E+01	1.00E+02	9.34E+01	7.60E+01
DPM	5	1.52E+01	5.35E+00	4.78E+00	4.50E+00	5.66E+00	6.87E+00	7.27E+00	1.53E+00	1.71E+00	1.29E+00	1.54E+00	1.69E+00	7.40E+00	8.45E+00	6.84E+00
PM10	NV	7.81E+01	2.17E+01	2.12E+01	2.14E+01	2.27E+01	2.64E+01	3.80E+01	8.92E+00	1.08E+01	5.98E+00	8.93E+00	1.01E+01	5.16E+01	4.73E+01	3.91E+01
PM2.5	NV	3.32E+01	8.91E+00	1.00E+01	9.53E+00	1.08E+01	1.39E+01	1.41E+01	3.01E+00	4.17E+00	2.36E+00	3.02E+00	4.06E+00	1.38E+01	1.64E+01	1.30E+01
SO2	500	1.42E+00	4.03E-01	4.32E-01	4.11E-01	4.49E-01	6.00E-01	6.09E-01	1.15E-01	1.56E-01	9.21E-02	1.15E-01	1.54E-01	5.53E-01	4.58E-01	4.10E-01
CO	15000	2.67E+02	9.75E+01	8.37E+01	8.31E+01	9.89E+01	1.26E+02	1.34E+02	2.94E+01	3.01E+01	2.29E+01	2.94E+01	3.02E+01	1.47E+02	1.65E+02	1.30E+02
NOX	NV	4.24E+02	1.50E+02	1.34E+02	1.27E+02	1.59E+02	2.03E+02	2.11E+02	4.55E+01	4.75E+01	3.63E+01	4.56E+01	4.72E+01	2.08E+02	2.36E+02	1.90E+02
NO2	200	1.21E+02	9.40E+01	9.24E+01	9.17E+01	9.49E+01	9.92E+01	1.00E+02	4.55E+01	4.75E+01	3.63E+01	4.56E+01	4.72E+01	9.98E+01	1.03E+02	9.80E+01
Metals																
Aluminum	167	9.80E+00	2.95E+00	2.83E+00	2.86E+00	3.03E+00	3.49E+00	5.04E+00	1.15E+00	1.36E+00	7.85E-01	1.15E+00	1.27E+00	6.94E+00	6.48E+00	5.27E+00
Antimony	17	5.54E-04	1.67E-04	1.60E-04	1.62E-04	1.71E-04	1.97E-04	2.85E-04	6.49E-05	7.67E-05	4.43E-05	6.50E-05	7.17E-05	3.92E-04	3.66E-04	2.98E-04
Arsenic	0.3	1.57E-02	4.73E-03	4.53E-03	4.59E-03	4.86E-03	5.59E-03	8.08E-03	1.84E-03	2.18E-03	1.26E-03	1.84E-03	2.03E-03	1.11E-02	1.04E-02	8.44E-03
Barium	17	5.53E-02	1.67E-02	1.60E-02	1.62E-02	1.71E-02	1.97E-02	2.85E-02	6.48E-03	7.66E-03	4.43E-03	6.49E-03	7.16E-03	3.91E-02	3.65E-02	2.97E-02
Beryllium	0.07	1.03E-04	3.10E-05	2.97E-05	3.01E-05	3.18E-05	3.66E-05	5.30E-05	1.21E-05	1.43E-05	8.24E-06	1.21E-05	1.33E-05	7.29E-05	6.80E-05	5.54E-05
Bismuth	167	2.83E-05	8.52E-06	8.17E-06	8.26E-06	8.75E-06	1.01E-05	1.46E-05	3.31E-06	3.92E-06	2.26E-06	3.32E-06	3.66E-06	2.00E-05	1.87E-05	1.52E-05
Cadmium	0.03	9.14E-03	3.22E-03	2.88E-03	2.71E-03	3.41E-03	4.14E-03	4.38E-03	9.24E-04	1.03E-03	7.77E-04	9.26E-04	1.02E-03	4.47E-03	5.10E-03	4.12E-03
Calcium	NV	5.59E+00	1.68E+00	1.61E+00	1.63E+00	1.73E+00	1.99E+00	2.88E+00	6.55E-01	7.74E-01	4.47E-01	6.56E-01	7.23E-01	3.96E+00	3.69E+00	3.01E+00
Chromium	12	2.50E-02	7.62E-03	7.27E-03	7.32E-03	7.84E-03	9.05E-03	1.28E-02	2.91E-03	3.43E-03	2.01E-03	2.91E-03	3.21E-03	1.74E-02	1.64E-02	1.33E-02
Cobalt	0.7	3.79E-03	1.14E-03	1.09E-03	1.11E-03	1.17E-03	1.35E-03	1.95E-03	4.44E-04	5.25E-04	3.03E-04	4.45E-04	4.90E-04	2.68E-03	2.50E-03	2.04E-03
Copper	100	1.00E-02	3.02E-03	2.89E-03	2.93E-03	3.10E-03	3.57E-03	5.16E-03	1.17E-03	1.39E-03	8.02E-04	1.18E-03	1.30E-03	7.10E-03	6.62E-03	5.39E-03
Gold	83	1.09E-05	3.30E-06	3.16E-06	3.20E-06	3.39E-06	3.90E-06	5.64E-06	1.28E-06	1.52E-06	8.76E-07	1.28E-06	1.42E-06	7.75E-06	7.24E-06	5.89E-06
Iron	33	1.07E+01	3.24E+00	3.10E+00	3.14E+00	3.33E+00	3.82E+00	5.53E+00	1.26E+00	1.49E+00	8.60E-01	1.26E+00	1.39E+00	7.61E+00	7.10E+00	5.78E+00
Lead	0.5	3.21E-03	1.04E-03	9.66E-04	9.43E-04	1.09E-03	1.29E-03	1.60E-03	3.51E-04	4.05E-04	2.64E-04	3.52E-04	3.88E-04	1.94E-03	1.96E-03	1.59E-03
Lithium	NV	4.57E-03	1.38E-03	1.32E-03	1.34E-03	1.41E-03	1.63E-03	2.35E-03	5.36E-04	6.33E-04	3.66E-04	5.36E-04	5.92E-04	3.24E-03	3.02E-03	2.46E-03
Magnesium	167	2.96E+00	8.93E-01	8.56E-01	8.66E-01	9.17E-01	1.05E+00	1.53E+00	3.47E-01	4.11E-01	2.37E-01	3.48E-01	3.84E-01	2.10E+00	1.96E+00	1.59E+00
Manganese	7	1.11E-01	3.36E-02	3.22E-02	3.26E-02	3.45E-02	3.96E-02	5.74E-02	1.31E-02	1.54E-02	8.92E-03	1.31E-02	1.44E-02	7.89E-02	7.36E-02	5.99E-02
Molybdenum	100	1.70E-04	5.11E-05	4.90E-05	4.96E-05	5.25E-05	6.04E-05	8.73E-05	1.99E-05	2.35E-05	1.36E-05	1.99E-05	2.20E-05	1.20E-04	1.12E-04	9.12E-05
Nickel	0.2	9.83E-03	2.96E-03	2.84E-03	2.87E-03	3.04E-03	3.50E-03	5.06E-03	1.15E-03	1.36E-03	7.87E-04	1.15E-03	1.27E-03	6.96E-03	6.50E-03	5.29E-03
Potassium	67	1.88E+00	5.65E-01	5.42E-01	5.48E-01	5.80E-01	6.67E-01	9.65E-01	2.20E-01	2.60E-01	1.50E-01	2.20E-01	2.43E-01	1.33E+00	1.24E+00	1.01E+00
Selenium	7	1.69E-04	5.10E-05	4.89E-05	4.95E-05	5.24E-05	6.02E-05	8.71E-05	1.98E-05	2.35E-05	1.35E-05	1.99E-05	2.19E-05	1.20E-04	1.12E-04	9.10E-05
Silver	0.3	4.16E-05	1.25E-05	1.20E-05	1.22E-05	1.29E-05	1.48E-05	2.14E-05	4.88E-06	5.77E-06	3.33E-06	4.89E-06	5.39E-06	2.95E-05	2.75E-05	2.24E-05
Sodium	NV	2.24E+00	6.75E-01	6.47E-01	6.55E-01	6.93E-01	7.97E-01	1.15E+00	2.63E-01	3.10E-01	1.79E-01	2.63E-01	2.90E-01	1.59E+00	1.48E+00	1.20E+00
Strontium	67	2.99E-02	9.02E-03	8.65E-03	8.75E-03	9.26E-03	1.07E-02	1.54E-02	3.51E-03	4.15E-03	2.40E-03	3.51E-03	3.87E-03	2.12E-02	1.98E-02	1.61E-02
Thallium	3	4.32E-05	1.30E-05	1.25E-05	1.26E-05	1.34E-05	1.54E-05	2.23E-05	5.07E-06	5.99E-06	3.46E-06	5.07E-06	5.60E-06	3.06E-05	2.86E-05	2.33E-05
Tin	67	1.52E-04	4.59E-05	4.40E-05	4.45E-05	4.72E-05	5.42E-05	7.85E-05	1.79E-05	2.11E-05	1.22E-05	1.79E-05	1.97E-05	1.08E-04	1.01E-04	8.20E-05
Titanium	167	4.93E-01	1.48E-01	1.42E-01	1.44E-01	1.53E-01	1.75E-01	2.54E-01	5.78E-02	6.83E-02	3.95E-02	5.78E-02	6.38E-02	3.49E-01	3.26E-01	2.65E-01
Uranium	2	1.38E-04	4.14E-05	3.97E-05	4.02E-05	4.26E-05	4.89E-05	7.08E-05	1.61E-05	1.91E-05	1.10E-05	1.61E-05	1.78E-05	9.74E-05	9.09E-05	7.40E-05
Vanadium	0.8	1.81E-02	5.46E-03	5.23E-03	5.30E-03	5.61E-03	6.45E-03	9.33E-03	2.12E-03	2.51E-03	1.45E-03	2.13E-03	2.35E-03	1.28E-02	1.20E-02	9.75E-03
Yttrium	33	1.34E-03	4.03E-04	3.86E-04	3.91E-04	4.14										

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	2	1.16E-05	4.08E-06	3.65E-06	3.43E-06	4.33E-06	5.25E-06	5.55E-06	1.17E-06	1.30E-06	9.86E-07	1.17E-06	1.29E-06	5.65E-06	6.45E-06	5.22E-06
indeno(1,2,3-cd)pyrene	2	7.37E-06	2.60E-06	2.32E-06	2.18E-06	2.75E-06	3.34E-06	3.53E-06	7.44E-07	8.29E-07	6.27E-07	7.46E-07	8.22E-07	3.59E-06	4.10E-06	3.32E-06
Volatile Oranic Compounds																
1,3-butadiene	220	8.62E-02	3.08E-02	2.71E-02	2.62E-02	3.17E-02	4.14E-02	4.30E-02	9.25E-03	9.31E-03	7.37E-03	9.25E-03	9.35E-03	4.26E-02	4.79E-02	3.87E-02
acetaldehyde	470	1.16E+01	4.15E+00	3.65E+00	3.53E+00	4.28E+00	5.58E+00	5.80E+00	1.25E+00	1.26E+00	9.93E-01	1.25E+00	1.26E+00	5.74E+00	6.46E+00	5.21E+00
acetone	19665	6.12E+00	2.19E+00	1.92E+00	1.86E+00	2.25E+00	2.94E+00	3.05E+00	6.56E-01	6.61E-01	5.23E-01	6.57E-01	6.64E-01	3.02E+00	3.40E+00	2.74E+00
acrolein	2.5	2.06E+00	7.35E-01	6.47E-01	6.25E-01	7.57E-01	9.88E-01	1.03E+00	2.21E-01	2.22E-01	1.76E-01	2.21E-01	2.23E-01	1.02E+00	1.14E+00	9.23E-01
aldehyde	10	1.55E+01	5.55E+00	4.88E+00	4.72E+00	5.72E+00	7.46E+00	7.75E+00	1.67E+00	1.68E+00	1.33E+00	1.67E+00	1.69E+00	7.68E+00	8.63E+00	6.97E+00
benzene	29	7.62E-01	2.72E-01	2.39E-01	2.31E-01	2.80E-01	3.66E-01	3.80E-01	8.17E-02	8.23E-02	6.51E-02	8.18E-02	8.27E-02	3.76E-01	4.23E-01	3.42E-01
C10-C12 aliphatic	11666	1.67E-01	5.98E-02	5.26E-02	5.08E-02	6.16E-02	8.03E-02	8.35E-02	1.79E-02	1.81E-02	1.43E-02	1.80E-02	1.82E-02	8.26E-02	9.29E-02	7.51E-02
C12-C16 aliphatic	11666	9.69E-01	3.46E-01	3.05E-01	2.94E-01	3.56E-01	4.65E-01	4.83E-01	1.04E-01	1.05E-01	8.28E-02	1.04E-01	1.05E-01	4.79E-01	5.38E-01	4.35E-01
C12-C16 aromatic	4166	1.31E-02	4.67E-03	4.11E-03	3.97E-03	4.81E-03	6.27E-03	6.52E-03	1.40E-03	1.41E-03	1.12E-03	1.40E-03	1.42E-03	6.45E-03	7.26E-03	5.86E-03
C16-C21 aliphatic	333	9.71E-01	3.47E-01	3.05E-01	2.95E-01	3.57E-01	4.66E-01	4.84E-01	1.04E-01	1.05E-01	8.29E-02	1.04E-01	1.05E-01	4.79E-01	5.39E-01	4.35E-01
C2-C6 aliphatic	2100	4.62E+00	1.65E+00	1.45E+00	1.40E+00	1.70E+00	2.22E+00	2.30E+00	4.95E-01	4.99E-01	3.95E-01	4.96E-01	5.01E-01	2.28E+00	2.57E+00	2.07E+00
C6-C8 aliphatic	61800	3.16E+00	1.13E+00	9.93E-01	9.59E-01	1.16E+00	1.52E+00	1.58E+00	3.39E-01	3.41E-01	2.70E-01	3.39E-01	3.43E-01	1.56E+00	1.75E+00	1.42E+00
C8-C10 aliphatic	60000	4.45E-02	1.59E-02	1.40E-02	1.35E-02	1.64E-02	2.14E-02	2.22E-02	4.77E-03	4.80E-03	3.80E-03	4.78E-03	4.83E-03	2.20E-02	2.47E-02	2.00E-02
C8-C10 aromatic	4166	2.50E-01	8.94E-02	7.86E-02	7.59E-02	9.20E-02	1.20E-01	1.25E-01	2.68E-02	2.70E-02	2.14E-02	2.68E-02	2.71E-02	1.24E-01	1.39E-01	1.12E-01
ethylbenzene	21710	1.31E-01	4.67E-02	4.11E-02	3.97E-02	4.81E-02	6.27E-02	6.52E-02	1.40E-02	1.41E-02	1.12E-02	1.40E-02	1.42E-02	6.45E-02	7.26E-02	5.86E-02
ethylene	566610	2.38E+00	8.50E-01	7.48E-01	7.23E-01	8.75E-01	1.14E+00	1.19E+00	2.55E-01	2.57E-01	2.03E-01	2.55E-01	2.58E-01	1.18E+00	1.32E+00	1.07E+00
formaldehyde	49	6.20E+00	2.22E+00	1.95E+00	1.88E+00	2.28E+00	2.98E+00	3.09E+00	6.65E-01	6.70E-01	5.30E-01	6.66E-01	6.73E-01	3.06E+00	3.44E+00	2.78E+00
ketone	1167	3.50E+00	1.25E+00	1.10E+00	1.06E+00	1.29E+00	1.68E+00	1.75E+00	3.76E-01	3.78E-01	2.99E-01	3.76E-01	3.80E-01	1.73E+00	1.95E+00	1.57E+00
toluene	1000	1.11E+00	3.95E-01	3.48E-01	3.36E-01	4.07E-01	5.31E-01	5.52E-01	1.19E-01	1.20E-01	9.46E-02	1.19E-01	1.20E-01	5.46E-01	6.15E-01	4.96E-01
trimethylbenzene	4166	3.17E-01	1.13E-01	9.96E-02	9.62E-02	1.17E-01	1.52E-01	1.58E-01	3.40E-02	3.42E-02	2.71E-02	3.40E-02	3.44E-02	1.57E-01	1.76E-01	1.42E-01
xylenes	8680	8.79E-01	3.14E-01	2.76E-01	2.67E-01	3.23E-01	4.22E-01	4.38E-01	9.42E-02	9.49E-02	7.51E-02	9.43E-02	9.54E-02	4.34E-01	4.88E-01	3.94E-01

Notes:
All air concentrations are in units of µg/m³
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
NV = no value
3.20E-03 = greater than 1-h air threshold

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	NV	1.64E+01	1.11E+01	9.70E+00	9.51E+00	1.26E+01	1.69E+01	2.64E+02	3.46E+01	1.75E+01	1.86E+01	2.13E+01	3.17E+02	3.17E+02	No	No
DPM	5	2.19E+00	1.47E+00	1.32E+00	1.09E+00	1.55E+00	1.72E+00	2.02E+01	3.28E+00	1.47E+00	1.60E+00	1.60E+00	1.35E+02	1.35E+02	Yes	Yes
PM10	NV	8.92E+00	6.01E+00	5.29E+00	5.17E+00	6.82E+00	9.13E+00	1.36E+02	1.82E+01	9.14E+00	9.70E+00	1.11E+01	1.46E+02	1.46E+02	No	No
PM2.5	NV	3.52E+00	2.66E+00	2.40E+00	1.97E+00	2.83E+00	3.04E+00	3.86E+01	5.78E+00	2.88E+00	3.25E+00	3.54E+00	1.45E+02	1.45E+02	No	No
SO2	500	1.11E-01	8.98E-02	8.13E-02	6.74E-02	9.53E-02	1.02E-01	1.03E+00	2.44E-01	1.54E-01	1.60E-01	1.59E-01	8.15E+00	8.15E+00	No	No
CO	15000	4.02E+01	2.71E+01	2.44E+01	2.01E+01	2.86E+01	3.19E+01	4.09E+02	5.71E+01	4.22E+01	4.21E+01	4.40E+01	2.35E+03	2.35E+03	No	No
NOX	NV	6.12E+01	4.08E+01	3.69E+01	3.05E+01	4.31E+01	4.84E+01	5.61E+02	9.19E+01	6.53E+01	6.55E+01	6.82E+01	3.79E+03	3.79E+03	No	No
NO2	200	6.12E+01	4.08E+01	3.69E+01	3.05E+01	4.31E+01	4.84E+01	1.35E+02	8.82E+01	6.53E+01	6.55E+01	6.82E+01	4.58E+02	4.58E+02	Yes	Yes
Metals																
Aluminum	167	1.14E+00	7.68E-01	6.73E-01	6.59E-01	8.71E-01	1.17E+00	1.83E+01	2.40E+00	1.21E+00	1.29E+00	1.47E+00	2.21E+01	2.21E+01	No	No
Antimony	17	6.43E-05	4.34E-05	3.80E-05	3.72E-05	4.92E-05	6.60E-05	1.03E-03	1.35E-04	6.85E-05	7.29E-05	8.32E-05	1.24E-03	1.24E-03	No	No
Arsenic	0.3	1.82E-03	1.23E-03	1.08E-03	1.06E-03	1.39E-03	1.87E-03	2.93E-02	3.84E-03	1.94E-03	2.07E-03	2.36E-03	3.52E-02	3.52E-02	No	No
Barium	17	6.42E-03	4.33E-03	3.79E-03	3.72E-03	4.91E-03	6.59E-03	1.03E-01	1.35E-02	6.84E-03	7.28E-03	8.31E-03	1.24E-01	1.24E-01	No	No
Beryllium	0.07	1.20E-05	8.06E-06	7.06E-06	6.92E-06	9.14E-06	1.23E-05	1.92E-04	2.52E-05	1.27E-05	1.35E-05	1.55E-05	2.31E-04	2.31E-04	No	No
Bismuth	167	3.29E-06	2.22E-06	1.94E-06	1.90E-06	2.51E-06	3.37E-06	5.29E-05	6.92E-06	3.50E-06	3.72E-06	4.25E-06	6.34E-05	6.34E-05	No	No
Cadmium	0.03	1.32E-03	8.82E-04	7.96E-04	6.59E-04	9.32E-04	1.04E-03	1.22E-02	1.98E-03	8.86E-04	9.68E-04	9.67E-04	8.13E-02	8.13E-02	Yes	Yes
Calcium	NV	6.49E-01	4.38E-01	3.83E-01	3.76E-01	4.96E-01	6.67E-01	1.04E+01	1.37E+00	6.91E-01	7.35E-01	8.40E-01	1.25E+01	1.25E+01	No	No
Chromium	12	2.95E-03	1.99E-03	1.75E-03	1.69E-03	2.24E-03	2.98E-03	4.60E-02	6.08E-03	3.06E-03	3.25E-03	3.70E-03	6.63E-02	6.63E-02	No	No
Cobalt	0.7	4.40E-04	2.97E-04	2.60E-04	2.55E-04	3.36E-04	4.52E-04	7.08E-03	9.27E-04	4.69E-04	4.99E-04	5.70E-04	8.50E-03	8.50E-03	No	No
Copper	100	1.16E-03	7.85E-04	6.87E-04	6.74E-04	8.90E-04	1.20E-03	1.87E-02	2.45E-03	1.24E-03	1.32E-03	1.51E-03	2.25E-02	2.25E-02	No	No
Gold	83	1.27E-06	8.58E-07	7.51E-07	7.36E-07	9.72E-07	1.31E-06	2.05E-05	2.68E-06	1.35E-06	1.44E-06	1.65E-06	2.46E-05	2.46E-05	No	No
Iron	33	1.25E+00	8.42E-01	7.37E-01	7.23E-01	9.55E-01	1.28E+00	2.01E+01	2.63E+00	1.33E+00	1.41E+00	1.62E+00	2.41E+01	2.41E+01	No	No
Lead	0.5	4.15E-04	2.79E-04	2.48E-04	2.23E-04	3.05E-04	3.74E-04	5.18E-03	7.41E-04	3.56E-04	3.83E-04	4.14E-04	1.73E-02	1.73E-02	No	No
Lithium	NV	5.31E-04	3.58E-04	3.14E-04	3.07E-04	4.06E-04	5.45E-04	8.54E-03	1.12E-03	5.65E-04	6.02E-04	6.87E-04	1.03E-02	1.03E-02	No	No
Magnesium	167	3.44E-01	2.32E-01	2.03E-01	1.99E-01	2.63E-01	3.54E-01	5.54E+00	7.25E-01	3.67E-01	3.90E-01	4.46E-01	6.65E+00	6.65E+00	No	No
Manganese	7	1.29E-02	8.73E-03	7.64E-03	7.49E-03	9.90E-03	1.33E-02	2.08E-01	2.73E-02	1.38E-02	1.47E-02	1.68E-02	2.50E-01	2.50E-01	No	No
Molybdenum	100	1.97E-05	1.33E-05	1.16E-05	1.14E-05	1.51E-05	2.02E-05	3.17E-04	4.15E-05	2.10E-05	2.23E-05	2.55E-05	3.81E-04	3.81E-04	No	No
Nickel	0.2	1.14E-03	7.70E-04	6.74E-04	6.61E-04	8.73E-04	1.17E-03	1.84E-02	2.40E-03	1.22E-03	1.29E-03	1.48E-03	2.20E-02	2.20E-02	No	No
Potassium	67	2.18E-01	1.47E-01	1.29E-01	1.26E-01	1.67E-01	2.24E-01	3.51E+00	4.59E-01	2.32E-01	2.47E-01	2.82E-01	4.21E+00	4.21E+00	No	No
Selenium	7	1.97E-05	1.33E-05	1.16E-05	1.14E-05	1.50E-05	2.02E-05	3.16E-04	4.14E-05	2.09E-05	2.23E-05	2.54E-05	3.80E-04	3.80E-04	No	No
Silver	0.3	4.84E-06	3.26E-06	2.86E-06	2.80E-06	3.70E-06	4.97E-06	7.78E-05	1.02E-05	5.15E-06	5.48E-06	6.26E-06	9.34E-05	9.34E-05	No	No
Sodium	NV	2.60E-01	1.76E-01	1.54E-01	1.51E-01	1.99E-01	2.67E-01	4.19E+00	5.48E-01	2.77E-01	2.95E-01	3.37E-01	5.03E+00	5.03E+00	No	No
Strontium	67	3.48E-03	2.35E-03	2.05E-03	2.01E-03	2.66E-03	3.57E-03	5.60E-02	7.33E-03	3.70E-03	3.94E-03	4.50E-03	6.72E-02	6.72E-02	No	No
Thallium	3	5.02E-06	3.39E-06	2.97E-06	2.91E-06	3.84E-06	5.16E-06	8.08E-05	1.06E-05	5.35E-06	5.69E-06	6.50E-06	9.70E-05	9.70E-05	No	No
Tin	67	1.77E-05	1.19E-05	1.05E-05	1.02E-05	1.35E-05	1.82E-05	2.85E-04	3.73E-05	1.89E-05	2.01E-05	2.29E-05	3.42E-04	3.42E-04	No	No
Titanium	167	5.73E-02	3.86E-02	3.38E-02	3.31E-02	4.38E-02	5.88E-02	9.21E-01	1.21E-01	6.10E-02	6.49E-02	7.41E-02	1.11E+00	1.11E+00	No	No
Uranium	2	1.60E-05	1.08E-05	9.44E-06	9.25E-06	1.22E-05	1.64E-05	2.57E-04	3.37E-05	1.70E-05	1.81E-05	2.07E-05	3.09E-04	3.09E-04	No	No
Vanadium	0.8	2.11E-03	1.42E-03	1.24E-03	1.22E-03	1.61E-03	2.16E-03	3.39E-02	4.44E-03	2.24E-03	2.39E-03	2.73E-03	4.07E-02	4.07E-02	No	No
Yttrium	33	1.55E-04	1.05E-04	9.18E-05	8.99E-05	1.19E-04	1.60E-04	2.50E-03	3.27E-04	1.65E-04	1.76E-04	2.01E-04	3.00E-03	3.00E-03	No	No
Zinc	67	3.18E-03	2.13E-03	1.90E-03	1.72E-03	2.34E-03	2.89E-03	4.06E-02	5.76E-03	2.78E-03	2.99E-03	3.25E-03	1.27E-01	1.27E-01	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.07	2.41E-06	1.61E-06	1.45E-06	1.20E-06	1.70E-06	1.90E-06	2.23E-05	3.61E-06	1.62E-06	1.77E-06	1.76E-06	1.49E-04	1.49E-04	No	No
naphthalene	50	9.55E-04	6.38E-04	5.76E-04	4.76E-04	6.74E-04	7.50E-04	8.81E-03	1.43E-03	6.39E-04	6.99E-04	6.98E-04	5.90E-02	5.90E-02	No	No
phenanthrene	2	7.89E-05	5.27E-05	4.75E-05	3.94E-05	5.57E-05	6.20E-05	7.28E-04	1.18E-04	5.28E-05	5.77E-05	5.77E-05	4.87E-03	4.87E-03	No	No
anthracene	2	8.80E-06	5.88E-06	5.30E-06	4.39E-06	6.21E-06	6.91E-06	8.12E-05	1.32E-05	5.89E-06	6.44E-06	6.43E-06	5.43E-04	5.43E-04	No	No
fluorene	33	3.85E-05	2.57E-05	2.32E-05	1.92E-05	2.72E-05	3.									

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	2	1.67E-06	1.12E-06	1.01E-06	8.36E-07	1.18E-06	1.32E-06	1.55E-05	2.51E-06	1.12E-06	1.23E-06	1.22E-06	1.03E-04	1.03E-04	No	No
indeno(1,2,3-cd)pyrene	2	1.06E-06	7.12E-07	6.42E-07	5.31E-07	7.52E-07	8.37E-07	9.82E-06	1.59E-06	7.13E-07	7.79E-07	7.78E-07	6.58E-05	6.58E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	220	1.20E-02	7.98E-03	7.18E-03	5.91E-03	8.40E-03	9.84E-03	1.14E-01	1.83E-02	1.29E-02	1.28E-02	1.35E-02	7.73E-01	7.73E-01	No	No
acetaldehyde	470	1.62E+00	1.08E+00	9.69E-01	7.96E-01	1.13E+00	1.33E+00	1.54E+01	2.46E+00	1.73E+00	1.73E+00	1.82E+00	1.04E+02	1.04E+02	No	No
acetone	19665	8.54E-01	5.66E-01	5.10E-01	4.19E-01	5.96E-01	6.98E-01	8.12E+00	1.30E+00	9.12E-01	9.10E-01	9.57E-01	5.48E+01	5.48E+01	No	No
acrolein	2.5	2.87E-01	1.90E-01	1.71E-01	1.41E-01	2.00E-01	2.35E-01	2.73E+00	4.36E-01	3.07E-01	3.06E-01	3.22E-01	1.84E+01	1.84E+01	Yes	Yes
aldehyde	10	2.17E+00	1.44E+00	1.30E+00	1.07E+00	1.51E+00	1.77E+00	2.06E+01	3.29E+00	2.32E+00	2.31E+00	2.43E+00	1.39E+02	1.39E+02	Yes	Yes
benzene	29	1.06E-01	7.05E-02	6.35E-02	5.22E-02	7.42E-02	8.70E-02	1.01E+00	1.61E-01	1.14E-01	1.13E-01	1.19E-01	6.83E+00	6.83E+00	No	No
C10-C12 aliphatic	11666	2.33E-02	1.55E-02	1.39E-02	1.15E-02	1.63E-02	1.91E-02	2.22E-01	3.55E-02	2.50E-02	2.49E-02	2.62E-02	1.50E+00	1.50E+00	No	No
C12-C16 aliphatic	11666	1.35E-01	8.97E-02	8.08E-02	6.64E-02	9.44E-02	1.11E-01	1.29E+00	2.05E-01	1.45E-01	1.44E-01	1.52E-01	8.69E+00	8.69E+00	No	No
C12-C16 aromatic	4166	1.82E-03	1.21E-03	1.09E-03	8.96E-04	1.27E-03	1.49E-03	1.73E-02	2.77E-03	1.95E-03	1.94E-03	2.04E-03	1.17E-01	1.17E-01	No	No
C16-C21 aliphatic	333	1.35E-01	8.98E-02	8.09E-02	6.65E-02	9.45E-02	1.11E-01	1.29E+00	2.06E-01	1.45E-01	1.44E-01	1.52E-01	8.70E+00	8.70E+00	No	No
C2-C6 aliphatic	2100	6.44E-01	4.28E-01	3.85E-01	3.16E-01	4.50E-01	5.27E-01	6.13E+00	9.79E-01	6.89E-01	6.87E-01	7.23E-01	4.14E+01	4.14E+01	No	No
C6-C8 aliphatic	61800	4.41E-01	2.92E-01	2.63E-01	2.16E-01	3.08E-01	3.61E-01	4.19E+00	6.70E-01	4.71E-01	4.70E-01	4.94E-01	2.83E+01	2.83E+01	No	No
C8-C10 aliphatic	60000	6.21E-03	4.12E-03	3.71E-03	3.05E-03	4.33E-03	5.08E-03	5.90E-02	9.43E-03	6.64E-03	6.62E-03	6.96E-03	3.99E-01	3.99E-01	No	No
C8-C10 aromatic	4166	3.49E-02	2.32E-02	2.08E-02	1.71E-02	2.44E-02	2.86E-02	3.32E-01	5.30E-02	3.73E-02	3.72E-02	3.91E-02	2.24E+00	2.24E+00	No	No
ethylbenzene	21710	1.82E-02	1.21E-02	1.09E-02	8.96E-03	1.27E-02	1.49E-02	1.73E-01	2.77E-02	1.95E-02	1.94E-02	2.04E-02	1.17E+00	1.17E+00	No	No
ethylene	566610	3.32E-01	2.20E-01	1.98E-01	1.63E-01	2.32E-01	2.72E-01	3.16E+00	5.05E-01	3.55E-01	3.54E-01	3.72E-01	2.13E+01	2.13E+01	No	No
formaldehyde	49	8.65E-01	5.74E-01	5.17E-01	4.25E-01	6.04E-01	7.08E-01	8.23E+00	1.31E+00	9.25E-01	9.22E-01	9.70E-01	5.56E+01	5.56E+01	Yes	Yes
ketone	1167	4.89E-01	3.24E-01	2.92E-01	2.40E-01	3.41E-01	4.00E-01	4.65E+00	7.43E-01	5.23E-01	5.21E-01	5.48E-01	3.14E+01	3.14E+01	No	No
toluene	1000	1.54E-01	1.02E-01	9.22E-02	7.58E-02	1.08E-01	1.26E-01	1.47E+00	2.35E-01	1.65E-01	1.65E-01	1.73E-01	9.92E+00	9.92E+00	No	No
trimethylbenzene	4166	4.42E-02	2.93E-02	2.64E-02	2.17E-02	3.09E-02	3.62E-02	4.21E-01	6.72E-02	4.73E-02	4.71E-02	4.96E-02	2.84E+00	2.84E+00	No	No
xylenes	8680	1.23E-01	8.13E-02	7.32E-02	6.02E-02	8.56E-02	1.00E-01	1.17E+00	1.86E-01	1.31E-01	1.31E-01	1.37E-01	7.88E+00	7.88E+00	No	No

all air concentrations are in units of µg/m³.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
NV = no value.

3.20E-03

 = greater than 1-h air threshold.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	NV	1.39E+02	4.54E+01	6.38E+01	6.76E+01	7.68E+01	1.05E+02	1.91E+02	1.59E+01	1.50E+01	1.25E+01	1.59E+01	1.52E+01	6.13E+01	5.01E+01	4.16E+01
DPM	5	1.37E+01	5.51E+00	5.33E+00	5.39E+00	5.56E+00	6.84E+00	1.07E+01	1.39E+00	1.57E+00	1.21E+00	1.40E+00	1.52E+00	7.36E+00	6.55E+00	5.16E+00
PM10	NV	7.28E+01	2.40E+01	3.40E+01	3.59E+01	4.06E+01	5.54E+01	1.01E+02	8.82E+00	8.74E+00	6.98E+00	8.83E+00	8.34E+00	3.07E+01	2.78E+01	2.26E+01
PM2.5	NV	2.55E+01	8.17E+00	9.90E+00	9.34E+00	1.06E+01	1.39E+01	2.34E+01	3.00E+00	3.72E+00	2.21E+00	3.00E+00	3.42E+00	1.49E+01	1.21E+01	9.31E+00
SO2	500	1.28E+00	3.92E-01	4.29E-01	4.07E-01	4.45E-01	5.99E-01	6.09E-01	1.09E-01	1.48E-01	8.93E-02	1.09E-01	1.43E-01	5.69E-01	3.86E-01	3.46E-01
CO	15000	2.38E+02	1.01E+02	1.01E+02	1.03E+02	1.04E+02	1.32E+02	2.31E+02	2.98E+01	2.74E+01	2.25E+01	2.98E+01	2.72E+01	1.30E+02	1.24E+02	9.31E+01
NOX	NV	3.83E+02	1.55E+02	1.51E+02	1.53E+02	1.56E+02	2.02E+02	2.98E+02	4.60E+01	4.39E+01	3.41E+01	4.61E+01	4.24E+01	2.07E+02	1.83E+02	1.44E+02
NO2	200	1.17E+02	9.44E+01	9.41E+01	9.42E+01	9.46E+01	9.92E+01	1.09E+02	4.60E+01	4.39E+01	3.41E+01	4.61E+01	4.24E+01	9.97E+01	9.73E+01	9.34E+01
Metals																
Aluminum	167	9.66E+00	3.15E+00	4.42E+00	4.68E+00	5.32E+00	7.28E+00	1.32E+01	1.10E+00	1.04E+00	8.66E-01	1.10E+00	1.06E+00	4.25E+00	3.48E+00	2.88E+00
Antimony	17	5.46E-04	1.78E-04	2.50E-04	2.65E-04	3.01E-04	4.11E-04	7.47E-04	6.22E-05	5.87E-05	4.89E-05	6.22E-05	5.96E-05	2.40E-04	1.96E-04	1.63E-04
Arsenic	0.3	1.55E-02	5.04E-03	7.09E-03	7.50E-03	8.53E-03	1.17E-02	2.12E-02	1.76E-03	1.66E-03	1.39E-03	1.77E-03	1.69E-03	6.80E-03	5.57E-03	4.62E-03
Barium	17	5.45E-02	1.77E-02	2.49E-02	2.64E-02	3.00E-02	4.11E-02	7.46E-02	6.21E-03	5.86E-03	4.89E-03	6.22E-03	5.95E-03	2.40E-02	1.96E-02	1.63E-02
Beryllium	0.07	1.01E-04	3.30E-05	4.64E-05	4.92E-05	5.59E-05	7.65E-05	1.39E-04	1.16E-05	1.09E-05	9.09E-06	1.16E-05	1.11E-05	4.46E-05	3.65E-05	3.03E-05
Bismuth	167	2.79E-05	9.08E-06	1.28E-05	1.35E-05	1.54E-05	2.10E-05	3.81E-05	3.18E-06	3.00E-06	2.50E-06	3.18E-06	3.05E-06	1.23E-05	1.00E-05	8.32E-06
Cadmium	0.03	8.23E-03	3.32E-03	3.22E-03	3.25E-03	3.35E-03	4.13E-03	6.46E-03	8.39E-04	9.48E-04	7.31E-04	8.42E-04	9.16E-04	4.43E-03	3.94E-03	3.11E-03
Calcium	NV	5.51E+00	1.79E+00	2.52E+00	2.67E+00	3.04E+00	4.15E+00	7.54E+00	6.28E-01	5.92E-01	4.94E-01	6.28E-01	6.02E-01	2.42E+00	1.98E+00	1.64E+00
Chromium	12	2.46E-02	8.10E-03	1.11E-02	1.18E-02	1.33E-02	1.82E-02	3.28E-02	2.78E-03	2.65E-03	2.20E-03	2.78E-03	2.68E-03	1.09E-02	8.99E-03	7.43E-03
Cobalt	0.7	3.74E-03	1.22E-03	1.71E-03	1.81E-03	2.06E-03	2.82E-03	5.11E-03	4.26E-04	4.02E-04	3.35E-04	4.26E-04	4.08E-04	1.64E-03	1.34E-03	1.11E-03
Copper	100	9.88E-03	3.22E-03	4.52E-03	4.79E-03	5.44E-03	7.45E-03	1.35E-02	1.13E-03	1.06E-03	8.86E-04	1.13E-03	1.08E-03	4.34E-03	3.55E-03	2.95E-03
Gold	83	1.08E-05	3.51E-06	4.94E-06	5.23E-06	5.95E-06	8.14E-06	1.48E-05	1.23E-06	1.16E-06	9.67E-07	1.23E-06	1.18E-06	4.74E-06	3.88E-06	3.22E-06
Iron	33	1.06E+01	3.45E+00	4.85E+00	5.14E+00	5.84E+00	7.99E+00	1.45E+01	1.21E+00	1.14E+00	9.50E-01	1.21E+00	1.16E+00	4.66E+00	3.81E+00	3.16E+00
Lead	0.5	3.03E-03	1.09E-03	1.30E-03	1.35E-03	1.47E-03	1.94E-03	3.35E-03	3.29E-04	3.36E-04	2.71E-04	3.29E-04	3.34E-04	1.47E-03	1.25E-03	1.01E-03
Lithium	NV	4.51E-03	1.47E-03	2.06E-03	2.18E-03	2.48E-03	3.40E-03	6.17E-03	5.14E-04	4.85E-04	4.04E-04	5.14E-04	4.92E-04	1.98E-03	1.62E-03	1.35E-03
Magnesium	167	2.92E+00	9.51E-01	1.34E+00	1.42E+00	1.61E+00	2.20E+00	4.00E+00	3.33E-01	3.14E-01	2.62E-01	3.33E-01	3.19E-01	1.28E+00	1.05E+00	8.72E-01
Manganese	7	1.10E-01	3.58E-02	5.03E-02	5.33E-02	6.05E-02	8.28E-02	1.50E-01	1.25E-02	1.18E-02	9.85E-03	1.25E-02	1.20E-02	4.83E-02	3.95E-02	3.28E-02
Molybdenum	100	1.67E-04	5.44E-05	7.66E-05	8.11E-05	9.22E-05	1.26E-04	2.29E-04	1.91E-05	1.80E-05	1.50E-05	1.91E-05	1.83E-05	7.35E-05	6.02E-05	4.99E-05
Nickel	0.2	9.69E-03	3.15E-03	4.44E-03	4.70E-03	5.34E-03	7.30E-03	1.33E-02	1.10E-03	1.04E-03	8.69E-04	1.11E-03	1.06E-03	4.26E-03	3.49E-03	2.89E-03
Potassium	67	1.85E+00	6.02E-01	8.46E-01	8.96E-01	1.02E+00	1.39E+00	2.53E+00	2.11E-01	1.99E-01	1.66E-01	2.11E-01	2.02E-01	8.13E-01	6.65E-01	5.52E-01
Selenium	7	1.67E-04	5.43E-05	7.64E-05	8.09E-05	9.19E-05	1.26E-04	2.28E-04	1.90E-05	1.79E-05	1.50E-05	1.90E-05	1.82E-05	7.33E-05	6.00E-05	4.98E-05
Silver	0.3	4.11E-05	1.34E-05	1.88E-05	1.99E-05	2.26E-05	3.09E-05	5.62E-05	4.68E-06	4.41E-06	3.68E-06	4.68E-06	4.48E-06	1.80E-05	1.48E-05	1.23E-05
Sodium	NV	2.21E+00	7.19E-01	1.01E+00	1.07E+00	1.22E+00	1.66E+00	3.02E+00	2.52E-01	2.37E-01	1.98E-01	2.52E-01	2.41E-01	9.71E-01	7.94E-01	6.59E-01
Strontium	67	2.95E-02	9.61E-03	1.35E-02	1.43E-02	1.63E-02	2.22E-02	4.04E-02	3.36E-03	3.17E-03	2.65E-03	3.37E-03	3.22E-03	1.30E-02	1.06E-02	8.81E-03
Thallium	3	4.26E-05	1.39E-05	1.95E-05	2.07E-05	2.35E-05	3.21E-05	5.83E-05	4.86E-06	4.58E-06	3.82E-06	4.86E-06	4.66E-06	1.87E-05	1.53E-05	1.27E-05
Tin	67	1.50E-04	4.89E-05	6.88E-05	7.28E-05	8.28E-05	1.13E-04	2.06E-04	1.71E-05	1.62E-05	1.35E-05	1.71E-05	1.64E-05	6.60E-05	5.40E-05	4.48E-05
Titanium	167	4.86E-01	1.58E-01	2.22E-01	2.36E-01	2.68E-01	3.66E-01	6.65E-01	5.54E-02	5.23E-02	4.36E-02	5.54E-02	5.31E-02	2.14E-01	1.75E-01	1.45E-01
Uranium	2	1.36E-04	4.41E-05	6.21E-05	6.57E-05	7.47E-05	1.02E-04	1.86E-04	1.55E-05	1.46E-05	1.22E-05	1.55E-05	1.48E-05	5.96E-05	4.88E-05	4.05E-05
Vanadium	0.8	1.79E-02	5.82E-03	8.18E-03	8.66E-03	9.85E-03	1.35E-02	2.44E-02	2.04E-03	1.92E-03	1.60E-03	2.04E-03	1.95E-03	7.85E-03	6.43E-03	5.33E-03
Yttrium	33	1.32E-03	4.29E-04	6.04E-04	6.39E-04	7.27										

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	2	1.04E-05	4.21E-06	4.07E-06	4.12E-06	4.24E-06	5.22E-06	8.16E-06	1.06E-06	1.20E-06	9.27E-07	1.07E-06	1.16E-06	5.62E-06	5.00E-06	3.94E-06
indeno(1,2,3-cd)pyrene	2	6.63E-06	2.68E-06	2.59E-06	2.62E-06	2.70E-06	3.32E-06	5.19E-06	6.76E-07	7.64E-07	5.89E-07	6.78E-07	7.38E-07	3.58E-06	3.18E-06	2.50E-06
Volatile Oranic Compounds																
1,3-butadiene	220	7.76E-02	3.17E-02	3.09E-02	3.12E-02	3.14E-02	4.13E-02	6.06E-02	9.33E-03	8.55E-03	6.92E-03	9.34E-03	8.45E-03	4.24E-02	3.71E-02	2.91E-02
acetaldehyde	470	1.05E+01	4.27E+00	4.17E+00	4.21E+00	4.23E+00	5.57E+00	8.18E+00	1.26E+00	1.15E+00	9.34E-01	1.26E+00	1.14E+00	5.71E+00	5.00E+00	3.93E+00
acetone	19665	5.51E+00	2.25E+00	2.19E+00	2.22E+00	2.22E+00	2.93E+00	4.30E+00	6.62E-01	6.07E-01	4.91E-01	6.63E-01	5.99E-01	3.01E+00	2.63E+00	2.07E+00
acrolein	2.5	1.85E+00	7.56E-01	7.38E-01	7.46E-01	7.48E-01	9.86E-01	1.45E+00	2.23E-01	2.04E-01	1.65E-01	2.23E-01	2.02E-01	1.01E+00	8.84E-01	6.95E-01
aldehyde	10	1.40E+01	5.71E+00	5.58E+00	5.63E+00	5.65E+00	7.45E+00	1.09E+01	1.68E+00	1.54E+00	1.25E+00	1.68E+00	1.52E+00	7.64E+00	6.68E+00	5.25E+00
benzene	29	6.86E-01	2.80E-01	2.73E-01	2.76E-01	2.77E-01	3.65E-01	5.36E-01	8.24E-02	7.55E-02	6.12E-02	8.25E-02	7.47E-02	3.74E-01	3.27E-01	2.57E-01
C10-C12 aliphatic	11666	1.51E-01	6.15E-02	6.00E-02	6.06E-02	6.09E-02	8.02E-02	1.18E-01	1.81E-02	1.66E-02	1.34E-02	1.81E-02	1.64E-02	8.22E-02	7.19E-02	5.65E-02
C12-C16 aliphatic	11666	8.73E-01	3.56E-01	3.48E-01	3.51E-01	3.52E-01	4.64E-01	6.82E-01	1.05E-01	9.61E-02	7.78E-02	1.05E-01	9.50E-02	4.76E-01	4.17E-01	3.27E-01
C12-C16 aromatic	4166	1.18E-02	4.80E-03	4.69E-03	4.74E-03	4.75E-03	6.26E-03	9.19E-03	1.41E-03	1.30E-03	1.05E-03	1.42E-03	1.28E-03	6.42E-03	5.62E-03	4.41E-03
C16-C21 aliphatic	333	8.74E-01	3.57E-01	3.48E-01	3.52E-01	3.53E-01	4.65E-01	6.83E-01	1.05E-01	9.62E-02	7.79E-02	1.05E-01	9.51E-02	4.77E-01	4.17E-01	3.28E-01
C2-C6 aliphatic	2100	4.16E+00	1.70E+00	1.66E+00	1.67E+00	1.68E+00	2.21E+00	3.25E+00	5.00E-01	4.58E-01	3.71E-01	5.00E-01	4.53E-01	2.27E+00	1.99E+00	1.56E+00
C6-C8 aliphatic	61800	2.84E+00	1.16E+00	1.13E+00	1.14E+00	1.15E+00	1.51E+00	2.22E+00	3.42E-01	3.13E-01	2.54E-01	3.42E-01	3.10E-01	1.55E+00	1.36E+00	1.07E+00
C8-C10 aliphatic	60000	4.01E-02	1.63E-02	1.60E-02	1.61E-02	1.62E-02	2.13E-02	3.13E-02	4.81E-03	4.41E-03	3.57E-03	4.82E-03	4.36E-03	2.19E-02	1.91E-02	1.50E-02
C8-C10 aromatic	4166	2.25E-01	9.19E-02	8.97E-02	9.06E-02	9.10E-02	1.20E-01	1.76E-01	2.71E-02	2.48E-02	2.01E-02	2.71E-02	2.45E-02	1.23E-01	1.08E-01	8.45E-02
ethylbenzene	21710	1.18E-01	4.80E-02	4.69E-02	4.74E-02	4.75E-02	6.26E-02	9.19E-02	1.41E-02	1.30E-02	1.05E-02	1.42E-02	1.28E-02	6.42E-02	5.62E-02	4.41E-02
ethylene	566610	2.14E+00	8.75E-01	8.54E-01	8.62E-01	8.66E-01	1.14E+00	1.67E+00	2.58E-01	2.36E-01	1.91E-01	2.58E-01	2.33E-01	1.17E+00	1.02E+00	8.04E-01
formaldehyde	49	5.58E+00	2.28E+00	2.22E+00	2.25E+00	2.26E+00	2.97E+00	4.36E+00	6.71E-01	6.15E-01	4.98E-01	6.72E-01	6.08E-01	3.05E+00	2.67E+00	2.09E+00
ketone	1167	3.16E+00	1.29E+00	1.26E+00	1.27E+00	1.27E+00	1.68E+00	2.46E+00	3.79E-01	3.47E-01	2.81E-01	3.79E-01	3.43E-01	1.72E+00	1.51E+00	1.18E+00
toluene	1000	9.97E-01	4.07E-01	3.97E-01	4.01E-01	4.03E-01	5.30E-01	7.79E-01	1.20E-01	1.10E-01	8.89E-02	1.20E-01	1.08E-01	5.44E-01	4.76E-01	3.74E-01
trimethylbenzene	4166	2.85E-01	1.16E-01	1.14E-01	1.15E-01	1.15E-01	1.52E-01	2.23E-01	3.43E-02	3.14E-02	2.55E-02	3.43E-02	3.11E-02	1.56E-01	1.36E-01	1.07E-01
xylenes	8680	7.91E-01	3.23E-01	3.15E-01	3.18E-01	3.20E-01	4.21E-01	6.18E-01	9.51E-02	8.71E-02	7.06E-02	9.52E-02	8.61E-02	4.32E-01	3.78E-01	2.97E-01

all air concentrations are in units of µg/m³.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
NV = no value.
3.20E-03 = greater than 1-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	NV	1.15E+01	8.47E+00	7.59E+00	7.07E+00	9.39E+00	1.19E+01	9.92E+01	3.66E+01	1.29E+01	1.35E+01	1.42E+01	2.66E+02	2.66E+02	No	No
DPM	5	2.04E+00	1.47E+00	1.33E+00	1.13E+00	1.58E+00	1.66E+00	1.15E+01	4.59E+00	1.48E+00	1.54E+00	1.58E+00	1.35E+02	1.35E+02	Yes	Yes
PM10	NV	6.85E+00	5.31E+00	4.77E+00	3.99E+00	5.84E+00	6.80E+00	5.13E+01	2.04E+01	6.85E+00	7.25E+00	7.60E+00	1.73E+02	1.73E+02	No	No
PM2.5	NV	3.24E+00	2.65E+00	2.40E+00	2.02E+00	2.86E+00	3.05E+00	2.16E+01	7.75E+00	2.82E+00	2.85E+00	2.98E+00	1.45E+02	1.45E+02	No	No
SO2	500	1.09E-01	9.02E-02	8.18E-02	6.86E-02	9.67E-02	1.01E-01	6.96E-01	2.76E-01	1.61E-01	1.70E-01	1.64E-01	8.15E+00	8.15E+00	No	No
CO	15000	3.69E+01	2.73E+01	2.47E+01	2.08E+01	2.94E+01	3.10E+01	2.21E+02	8.65E+01	4.56E+01	4.78E+01	4.69E+01	2.34E+03	2.34E+03	No	No
NOX	NV	5.69E+01	4.12E+01	3.73E+01	3.15E+01	4.41E+01	4.62E+01	3.22E+02	1.28E+02	6.98E+01	7.28E+01	7.19E+01	3.78E+03	3.78E+03	No	No
NO2	200	5.69E+01	4.12E+01	3.73E+01	3.15E+01	4.41E+01	4.62E+01	1.11E+02	9.18E+01	6.98E+01	7.28E+01	7.19E+01	4.57E+02	4.57E+02	Yes	Yes
Metals																
Aluminum	167	7.97E-01	5.87E-01	5.26E-01	4.90E-01	6.51E-01	8.25E-01	6.87E+00	2.54E+00	8.93E-01	9.33E-01	9.87E-01	1.85E+01	1.85E+01	No	No
Antimony	17	4.50E-05	3.32E-05	2.97E-05	2.77E-05	3.68E-05	4.66E-05	3.88E-04	1.43E-04	5.04E-05	5.27E-05	5.57E-05	1.04E-03	1.04E-03	No	No
Arsenic	0.3	1.28E-03	9.40E-04	8.42E-04	7.85E-04	1.04E-03	1.32E-03	1.10E-02	4.07E-03	1.43E-03	1.49E-03	1.58E-03	2.95E-02	2.95E-02	No	No
Barium	17	4.49E-03	3.31E-03	2.97E-03	2.76E-03	3.67E-03	4.65E-03	3.88E-02	1.43E-02	5.04E-03	5.26E-03	5.57E-03	1.04E-01	1.04E-01	No	No
Beryllium	0.07	8.37E-06	6.16E-06	5.52E-06	5.14E-06	6.83E-06	8.66E-06	7.22E-05	2.66E-05	9.38E-06	9.79E-06	1.04E-05	1.93E-04	1.93E-04	No	No
Bismuth	167	2.30E-06	1.69E-06	1.52E-06	1.41E-06	1.88E-06	2.38E-06	1.98E-05	7.32E-06	2.58E-06	2.69E-06	2.85E-06	5.31E-05	5.31E-05	No	No
Cadmium	0.03	1.22E-03	8.86E-04	8.03E-04	6.78E-04	9.51E-04	9.97E-04	6.94E-03	2.76E-03	8.89E-04	9.26E-04	9.50E-04	8.10E-02	8.10E-02	Yes	Yes
Calcium	NV	4.54E-01	3.35E-01	3.00E-01	2.79E-01	3.71E-01	4.70E-01	3.92E+00	1.45E+00	5.09E-01	5.32E-01	5.63E-01	1.05E+01	1.05E+01	No	No
Chromium	12	2.11E-03	1.56E-03	1.40E-03	1.29E-03	1.72E-03	2.15E-03	1.76E-02	6.55E-03	2.29E-03	2.39E-03	2.53E-03	5.77E-02	5.77E-02	No	No
Cobalt	0.7	3.08E-04	2.27E-04	2.03E-04	1.89E-04	2.51E-04	3.19E-04	2.66E-03	9.81E-04	3.45E-04	3.60E-04	3.81E-04	7.12E-03	7.12E-03	No	No
Copper	100	8.15E-04	6.00E-04	5.38E-04	5.01E-04	6.65E-04	8.44E-04	7.03E-03	2.59E-03	9.13E-04	9.54E-04	1.01E-03	1.88E-02	1.88E-02	No	No
Gold	83	8.90E-07	6.56E-07	5.87E-07	5.47E-07	7.27E-07	9.22E-07	7.68E-06	2.83E-06	9.97E-07	1.04E-06	1.10E-06	2.06E-05	2.06E-05	No	No
Iron	33	8.74E-01	6.44E-01	5.77E-01	5.37E-01	7.13E-01	9.05E-01	7.54E+00	2.78E+00	9.79E-01	1.02E+00	1.08E+00	2.02E+01	2.02E+01	No	No
Lead	0.5	3.41E-04	2.49E-04	2.24E-04	1.97E-04	2.70E-04	3.08E-04	2.34E-03	8.96E-04	3.01E-04	3.14E-04	3.28E-04	1.67E-02	1.67E-02	No	No
Lithium	NV	3.72E-04	2.74E-04	2.45E-04	2.28E-04	3.03E-04	3.85E-04	3.21E-03	1.18E-03	4.16E-04	4.35E-04	4.60E-04	8.59E-03	8.59E-03	No	No
Magnesium	167	2.41E-01	1.78E-01	1.59E-01	1.48E-01	1.97E-01	2.50E-01	2.08E+00	7.68E-01	2.70E-01	2.82E-01	2.98E-01	5.57E+00	5.57E+00	No	No
Manganese	7	9.06E-03	6.67E-03	5.98E-03	5.57E-03	7.40E-03	9.38E-03	7.82E-02	2.89E-02	1.02E-02	1.06E-02	1.12E-02	2.09E-01	2.09E-01	No	No
Molybdenum	100	1.38E-05	1.02E-05	9.10E-06	8.48E-06	1.13E-05	1.43E-05	1.19E-04	4.39E-05	1.55E-05	1.61E-05	1.71E-05	3.19E-04	3.19E-04	No	No
Nickel	0.2	7.99E-04	5.89E-04	5.27E-04	4.91E-04	6.52E-04	8.27E-04	6.89E-03	2.54E-03	8.95E-04	9.35E-04	9.90E-04	1.85E-02	1.85E-02	No	No
Potassium	67	1.52E-01	1.12E-01	1.01E-01	9.37E-02	1.25E-01	1.58E-01	1.32E+00	4.86E-01	1.71E-01	1.78E-01	1.89E-01	3.52E+00	3.52E+00	No	No
Selenium	7	1.38E-05	1.01E-05	9.08E-06	8.46E-06	1.12E-05	1.42E-05	1.19E-04	4.38E-05	1.54E-05	1.61E-05	1.70E-05	3.18E-04	3.18E-04	No	No
Silver	0.3	3.38E-06	2.49E-06	2.23E-06	2.08E-06	2.76E-06	3.51E-06	2.92E-05	1.08E-05	3.79E-06	3.96E-06	4.19E-06	7.82E-05	7.82E-05	No	No
Sodium	NV	1.82E-01	1.34E-01	1.20E-01	1.12E-01	1.49E-01	1.89E-01	1.57E+00	5.80E-01	2.04E-01	2.13E-01	2.26E-01	4.21E+00	4.21E+00	No	No
Strontium	67	2.43E-03	1.79E-03	1.61E-03	1.50E-03	1.99E-03	2.52E-03	2.10E-02	7.75E-03	2.73E-03	2.85E-03	3.01E-03	5.62E-02	5.62E-02	No	No
Thallium	3	3.51E-06	2.59E-06	2.32E-06	2.16E-06	2.87E-06	3.64E-06	3.03E-05	1.12E-05	3.94E-06	4.11E-06	4.35E-06	8.12E-05	8.12E-05	No	No
Tin	67	1.24E-05	9.13E-06	8.18E-06	7.62E-06	1.01E-05	1.28E-05	1.07E-04	3.95E-05	1.39E-05	1.45E-05	1.53E-05	2.86E-04	2.86E-04	No	No
Titanium	167	4.01E-02	2.95E-02	2.64E-02	2.46E-02	3.27E-02	4.15E-02	3.46E-01	1.28E-01	4.49E-02	4.69E-02	4.96E-02	9.26E-01	9.26E-01	No	No
Uranium	2	1.12E-05	8.24E-06	7.38E-06	6.87E-06	9.13E-06	1.16E-05	9.65E-05	3.56E-05	1.25E-05	1.31E-05	1.38E-05	2.58E-04	2.58E-04	No	No
Vanadium	0.8	1.47E-03	1.09E-03	9.73E-04	9.06E-04	1.20E-03	1.53E-03	1.27E-02	4.69E-03	1.65E-03	1.72E-03	1.83E-03	3.40E-02	3.40E-02	No	No
Yttrium	33	1.09E-04	8.01E-05	7.18E-05	6.69E-05	8.88E-05	1.13E-04	9.38E-04	3.46E-04	1.22E-04	1.27E-04	1.35E-04	2.51E-03	2.51E-03	No	No
Zinc	67	2.57E-03	1.88E-03	1.69E-03	1.50E-03	2.05E-03	2.35E-03	1.80E-02	6.87E-03	2.32E-03	2.42E-03	2.53E-03	1.21E-01	1.21E-01	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.07	2.24E-06	1.62E-06	1.47E-06	1.24E-06	1.74E-06	1.82E-06	1.27E-05	5.05E-06	1.62E-06	1.69E-06	1.74E-06	1.48E-04	1.48E-04	No	No
naphthalene	50	8.86E-04	6.42E-04	5.81E-04	4.90E-04	6.89E-04	7.22E-04	5.02E-03	2.00E-03	6.43E-04	6.69E-04	6.87E-04	5.87E-02	5.87E-02	No	No
phenanthrene	2	7.32E-05	5.30E-05	4.80E-05	4.05E-05	5.69E-05	5.96E-05	4.15E-04	1.65E-04	5.31E-05	5.53E-05	5.67E-05	4.85E-03	4.85E-03	No	No
anthracene	2	8.17E-06	5.91E-06	5.36E-06	4.52E-06	6.34E-06	6.65E-06	4.63E-05	1.84E-05	5.92E-06	6.17E-06	6.33E-06	5.41E-04	5.41E-04	No	No
fluorene	33	3.57E-05														

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	2	1.55E-06	1.13E-06	1.02E-06	8.60E-07	1.21E-06	1.27E-06	8.80E-06	3.50E-06	1.13E-06	1.17E-06	1.20E-06	1.03E-04	1.03E-04	No	No
indeno(1,2,3-cd)pyrene	2	9.88E-07	7.16E-07	6.48E-07	5.47E-07	7.68E-07	8.05E-07	5.60E-06	2.23E-06	7.17E-07	7.46E-07	7.66E-07	6.55E-05	6.55E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	220	1.11E-02	8.03E-03	7.26E-03	6.09E-03	8.59E-03	8.95E-03	6.50E-02	2.54E-02	1.37E-02	1.43E-02	1.42E-02	7.70E-01	7.70E-01	No	No
acetaldehyde	470	1.50E+00	1.08E+00	9.79E-01	8.22E-01	1.16E+00	1.21E+00	8.77E+00	3.43E+00	1.85E+00	1.92E+00	1.92E+00	1.04E+02	1.04E+02	No	No
acetone	19665	7.89E-01	5.70E-01	5.15E-01	4.32E-01	6.09E-01	6.35E-01	4.61E+00	1.81E+00	9.75E-01	1.01E+00	1.01E+00	5.46E+01	5.46E+01	No	No
acrolein	2.5	2.65E-01	1.92E-01	1.73E-01	1.45E-01	2.05E-01	2.14E-01	1.55E+00	6.07E-01	3.28E-01	3.41E-01	3.39E-01	1.84E+01	1.84E+01	Yes	Yes
aldehyde	10	2.01E+00	1.45E+00	1.31E+00	1.10E+00	1.55E+00	1.61E+00	1.17E+01	4.59E+00	2.48E+00	2.57E+00	2.56E+00	1.39E+02	1.39E+02	Yes	Yes
benzene	29	9.83E-02	7.09E-02	6.42E-02	5.39E-02	7.59E-02	7.91E-02	5.75E-01	2.25E-01	1.21E-01	1.26E-01	1.26E-01	6.80E+00	6.80E+00	No	No
C10-C12 aliphatic	11666	2.16E-02	1.56E-02	1.41E-02	1.18E-02	1.67E-02	1.74E-02	1.26E-01	4.94E-02	2.67E-02	2.77E-02	2.76E-02	1.49E+00	1.49E+00	No	No
C12-C16 aliphatic	11666	1.25E-01	9.02E-02	8.16E-02	6.85E-02	9.65E-02	1.01E-01	7.31E-01	2.86E-01	1.54E-01	1.60E-01	1.60E-01	8.65E+00	8.65E+00	No	No
C12-C16 aromatic	4166	1.69E-03	1.22E-03	1.10E-03	9.24E-04	1.30E-03	1.36E-03	9.86E-03	3.86E-03	2.08E-03	2.16E-03	2.15E-03	1.17E-01	1.17E-01	No	No
C16-C21 aliphatic	333	1.25E-01	9.04E-02	8.17E-02	6.86E-02	9.66E-02	1.01E-01	7.32E-01	2.86E-01	1.55E-01	1.61E-01	1.60E-01	8.66E+00	8.66E+00	No	No
C2-C6 aliphatic	2100	5.96E-01	4.30E-01	3.89E-01	3.26E-01	4.60E-01	4.80E-01	3.48E+00	1.36E+00	7.36E-01	7.64E-01	7.61E-01	4.12E+01	4.12E+01	No	No
C6-C8 aliphatic	61800	4.08E-01	2.94E-01	2.66E-01	2.23E-01	3.15E-01	3.28E-01	2.38E+00	9.32E-01	5.03E-01	5.23E-01	5.21E-01	2.82E+01	2.82E+01	No	No
C8-C10 aliphatic	60000	5.74E-03	4.14E-03	3.75E-03	3.14E-03	4.43E-03	4.62E-03	3.36E-02	1.31E-02	7.09E-03	7.36E-03	7.33E-03	3.97E-01	3.97E-01	No	No
C8-C10 aromatic	4166	3.23E-02	2.33E-02	2.11E-02	1.77E-02	2.49E-02	2.60E-02	1.89E-01	7.38E-02	3.99E-02	4.14E-02	4.12E-02	2.23E+00	2.23E+00	No	No
ethylbenzene	21710	1.69E-02	1.22E-02	1.10E-02	9.24E-03	1.30E-02	1.36E-02	9.86E-02	3.86E-02	2.08E-02	2.16E-02	2.15E-02	1.17E+00	1.17E+00	No	No
ethylene	566610	3.07E-01	2.22E-01	2.00E-01	1.68E-01	2.37E-01	2.47E-01	1.80E+00	7.03E-01	3.79E-01	3.94E-01	3.92E-01	2.13E+01	2.13E+01	No	No
formaldehyde	49	8.00E-01	5.77E-01	5.22E-01	4.38E-01	6.18E-01	6.44E-01	4.68E+00	1.83E+00	9.88E-01	1.03E+00	1.02E+00	5.54E+01	5.54E+01	Yes	Yes
ketone	1167	4.52E-01	3.26E-01	2.95E-01	2.48E-01	3.49E-01	3.64E-01	2.64E+00	1.03E+00	5.58E-01	5.80E-01	5.77E-01	3.13E+01	3.13E+01	No	No
toluene	1000	1.43E-01	1.03E-01	9.32E-02	7.82E-02	1.10E-01	1.15E-01	8.35E-01	3.27E-01	1.76E-01	1.83E-01	1.82E-01	9.88E+00	9.88E+00	No	No
trimethylbenzene	4166	4.09E-02	2.95E-02	2.67E-02	2.24E-02	3.16E-02	3.29E-02	2.39E-01	9.36E-02	5.05E-02	5.25E-02	5.22E-02	2.83E+00	2.83E+00	No	No
xylene	8680	1.13E-01	8.18E-02	7.40E-02	6.21E-02	8.75E-02	9.12E-02	6.63E-01	2.59E-01	1.40E-01	1.45E-01	1.45E-01	7.85E+00	7.85E+00	No	No

Notes:
All air concentrations are in units of µg/m³
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
NV = no value
3.20E-03 = greater than 1-h air threshold

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	NV	7.78E+01	2.49E+01	2.22E+01	2.21E+01	2.34E+01	2.72E+01	3.66E+01	1.26E+01	1.48E+01	9.62E+00	1.26E+01	1.43E+01	2.83E+01	4.48E+01	7.19E+01
DPM	5	1.40E+01	4.61E+00	4.72E+00	4.38E+00	5.55E+00	6.85E+00	7.27E+00	1.42E+00	1.65E+00	1.23E+00	1.42E+00	1.58E+00	7.37E+00	5.11E+00	4.34E+00
PM10	NV	4.27E+01	1.24E+01	1.09E+01	1.05E+01	1.17E+01	1.43E+01	1.50E+01	5.65E+00	7.28E+00	3.91E+00	5.66E+00	7.20E+00	1.56E+01	2.21E+01	3.21E+01
PM2.5	NV	2.52E+01	8.85E+00	9.93E+00	9.37E+00	1.06E+01	1.39E+01	1.41E+01	2.80E+00	3.19E+00	2.26E+00	2.80E+00	3.22E+00	1.34E+01	9.34E+00	8.21E+00
SO2	500	1.24E+00	4.01E-01	4.29E-01	4.08E-01	4.45E-01	5.99E-01	6.09E-01	1.10E-01	1.37E-01	9.01E-02	1.10E-01	1.38E-01	5.52E-01	3.82E-01	3.13E-01
CO	15000	2.44E+02	8.10E+01	8.23E+01	7.63E+01	9.68E+01	1.25E+02	1.27E+02	2.54E+01	2.92E+01	2.18E+01	2.55E+01	2.78E+01	1.28E+02	8.91E+01	9.72E+01
NOX	NV	3.91E+02	1.29E+02	1.32E+02	1.23E+02	1.56E+02	2.02E+02	2.04E+02	3.96E+01	4.60E+01	3.46E+01	3.97E+01	4.41E+01	2.07E+02	1.44E+02	1.20E+02
NO2	200	1.18E+02	9.19E+01	9.22E+01	9.13E+01	9.45E+01	9.92E+01	9.94E+01	3.96E+01	4.60E+01	3.46E+01	3.97E+01	4.41E+01	9.97E+01	9.34E+01	9.10E+01
Metals																
Aluminum	167	5.40E+00	1.73E+00	1.54E+00	1.54E+00	1.63E+00	1.89E+00	2.54E+00	8.75E-01	1.03E+00	6.67E-01	8.76E-01	9.90E-01	1.97E+00	3.11E+00	4.98E+00
Antimony	17	3.05E-04	9.77E-05	8.70E-05	8.67E-05	9.17E-05	1.07E-04	1.44E-04	4.94E-05	5.80E-05	3.77E-05	4.95E-05	5.59E-05	1.11E-04	1.75E-04	2.81E-04
Arsenic	0.3	8.64E-03	2.77E-03	2.47E-03	2.46E-03	2.60E-03	3.02E-03	4.07E-03	1.40E-03	1.64E-03	1.07E-03	1.40E-03	1.59E-03	3.14E-03	4.97E-03	7.98E-03
Barium	17	3.04E-02	9.76E-03	8.68E-03	8.66E-03	9.16E-03	1.07E-02	1.43E-02	4.94E-03	5.79E-03	3.76E-03	4.94E-03	5.58E-03	1.11E-02	1.75E-02	2.81E-02
Beryllium	0.07	5.66E-05	1.82E-05	1.62E-05	1.61E-05	1.70E-05	1.98E-05	2.67E-05	9.19E-06	1.08E-05	7.00E-06	9.20E-06	1.04E-05	2.06E-05	3.26E-05	5.23E-05
Bismuth	167	1.56E-05	4.99E-06	4.44E-06	4.43E-06	4.68E-06	5.45E-06	7.33E-06	2.53E-06	2.96E-06	1.92E-06	2.53E-06	2.86E-06	5.66E-06	8.96E-06	1.44E-05
Cadmium	0.03	8.40E-03	2.77E-03	2.83E-03	2.64E-03	3.34E-03	4.11E-03	4.37E-03	8.54E-04	9.94E-04	7.41E-04	8.57E-04	9.52E-04	4.43E-03	3.08E-03	2.62E-03
Calcium	NV	3.07E+00	9.86E-01	8.78E-01	8.75E-01	9.26E-01	1.08E+00	1.45E+00	4.99E-01	5.85E-01	3.80E-01	5.00E-01	5.64E-01	1.12E+00	1.77E+00	2.84E+00
Chromium	12	1.43E-02	4.61E-03	4.16E-03	4.12E-03	4.45E-03	5.21E-03	6.82E-03	2.24E-03	2.63E-03	1.72E-03	2.24E-03	2.53E-03	5.44E-03	7.96E-03	1.24E-02
Cobalt	0.7	2.08E-03	6.68E-04	5.95E-04	5.93E-04	6.28E-04	7.30E-04	9.82E-04	3.38E-04	3.97E-04	2.58E-04	3.39E-04	3.83E-04	7.58E-04	1.20E-03	1.93E-03
Copper	100	5.51E-03	1.77E-03	1.57E-03	1.57E-03	1.66E-03	1.93E-03	2.60E-03	8.95E-04	1.05E-03	6.82E-04	8.96E-04	1.01E-03	2.01E-03	3.18E-03	5.09E-03
Gold	83	6.02E-06	1.93E-06	1.72E-06	1.71E-06	1.81E-06	2.11E-06	2.84E-06	9.78E-07	1.15E-06	7.45E-07	9.79E-07	1.11E-06	2.19E-06	3.47E-06	5.56E-06
Iron	33	5.91E+00	1.90E+00	1.69E+00	1.68E+00	1.78E+00	2.07E+00	2.79E+00	9.60E-01	1.12E+00	7.31E-01	9.61E-01	1.09E+00	2.15E+00	3.41E+00	5.46E+00
Lead	0.5	2.33E-03	7.59E-04	7.37E-04	7.03E-04	8.35E-04	1.01E-03	1.16E-03	2.93E-04	3.42E-04	2.38E-04	2.93E-04	3.29E-04	1.08E-03	1.05E-03	1.29E-03
Lithium	NV	2.52E-03	8.07E-04	7.18E-04	7.16E-04	7.57E-04	8.81E-04	1.18E-03	4.08E-04	4.78E-04	3.11E-04	4.09E-04	4.62E-04	9.15E-04	1.45E-03	2.32E-03
Magnesium	167	1.63E+00	5.23E-01	4.66E-01	4.64E-01	4.91E-01	5.71E-01	7.68E-01	2.65E-01	3.10E-01	2.02E-01	2.65E-01	2.99E-01	5.93E-01	9.39E-01	1.51E+00
Manganese	7	6.13E-02	1.97E-02	1.75E-02	1.75E-02	1.85E-02	2.15E-02	2.89E-02	9.95E-03	1.17E-02	7.58E-03	9.96E-03	1.13E-02	2.23E-02	3.53E-02	5.66E-02
Molybdenum	100	9.33E-05	2.99E-05	2.66E-05	2.66E-05	2.81E-05	3.27E-05	4.40E-05	1.51E-05	1.78E-05	1.15E-05	1.52E-05	1.71E-05	3.40E-05	5.38E-05	8.62E-05
Nickel	0.2	5.41E-03	1.73E-03	1.54E-03	1.54E-03	1.63E-03	1.89E-03	2.55E-03	8.78E-04	1.03E-03	6.69E-04	8.79E-04	9.92E-04	1.97E-03	3.11E-03	4.99E-03
Potassium	67	1.03E+00	3.31E-01	2.95E-01	2.94E-01	3.11E-01	3.61E-01	4.86E-01	1.67E-01	1.96E-01	1.28E-01	1.68E-01	1.89E-01	3.76E-01	5.94E-01	9.53E-01
Selenium	7	9.31E-05	2.99E-05	2.66E-05	2.65E-05	2.80E-05	3.26E-05	4.39E-05	1.51E-05	1.77E-05	1.15E-05	1.51E-05	1.71E-05	3.39E-05	5.36E-05	8.60E-05
Silver	0.3	2.29E-05	7.35E-06	6.54E-06	6.52E-06	6.90E-06	8.02E-06	1.08E-05	3.72E-06	4.36E-06	2.83E-06	3.72E-06	4.20E-06	8.34E-06	1.32E-05	2.12E-05
Sodium	NV	1.23E+00	3.95E-01	3.52E-01	3.51E-01	3.71E-01	4.32E-01	5.81E-01	2.00E-01	2.34E-01	1.52E-01	2.00E-01	2.26E-01	4.49E-01	7.10E-01	1.14E+00
Strontium	67	1.65E-02	5.28E-03	4.70E-03	4.69E-03	4.96E-03	5.77E-03	7.76E-03	2.67E-03	3.13E-03	2.04E-03	2.68E-03	3.02E-03	5.99E-03	9.49E-03	1.52E-02
Thallium	3	2.38E-05	7.63E-06	6.79E-06	6.77E-06	7.16E-06	8.33E-06	1.12E-05	3.86E-06	4.53E-06	2.94E-06	3.86E-06	4.37E-06	8.66E-06	1.37E-05	2.20E-05
Tin	67	8.39E-05	2.69E-05	2.39E-05	2.39E-05	2.52E-05	2.94E-05	3.95E-05	1.36E-05	1.60E-05	1.04E-05	1.36E-05	1.54E-05	3.05E-05	4.83E-05	7.75E-05
Titanium	167	2.71E-01	8.70E-02	7.74E-02	7.72E-02	8.16E-02	9.50E-02	1.28E-01	4.40E-02	5.16E-02	3.35E-02	4.41E-02	4.98E-02	9.87E-02	1.56E-01	2.50E-01
Uranium	2	7.57E-05	2.43E-05	2.16E-05	2.15E-05	2.28E-05	2.65E-05	3.56E-05	1.23E-05	1.44E-05	9.36E-06	1.23E-05	1.39E-05	2.75E-05	4.36E-05	6.99E-05
Vanadium	0.8	9.97E-03	3.20E-03	2.85E-03	2.84E-03	3.00E-03	3.49E-03	4.70E-03	1.62E-03	1.90E-03	1.23E-03	1.62E-03	1.83E-03	3.63E-03	5.74E-03	9.21E-03
Yttrium	33	7.36E-04	2.36E-04	2.10E-04	2.10E-04	2.22										

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	2	1.07E-05	3.52E-06	3.60E-06	3.35E-06	4.24E-06	5.23E-06	5.55E-06	1.08E-06	1.26E-06	9.40E-07	1.09E-06	1.21E-06	5.63E-06	3.91E-06	3.31E-06
indeno(1,2,3-cd)pyrene	2	6.78E-06	2.24E-06	2.29E-06	2.13E-06	2.69E-06	3.32E-06	3.53E-06	6.89E-07	8.01E-07	5.97E-07	6.91E-07	7.67E-07	3.58E-06	2.48E-06	2.11E-06
Volatile Oranic Compounds																
1,3-butadiene	220	7.93E-02	2.61E-02	2.67E-02	2.48E-02	3.10E-02	4.13E-02	4.16E-02	7.89E-03	9.12E-03	7.01E-03	7.90E-03	8.70E-03	4.24E-02	2.94E-02	2.42E-02
acetaldehyde	470	1.07E+01	3.52E+00	3.60E+00	3.34E+00	4.19E+00	5.57E+00	5.61E+00	1.06E+00	1.23E+00	9.46E-01	1.07E+00	1.17E+00	5.72E+00	3.96E+00	3.26E+00
acetone	19665	5.63E+00	1.85E+00	1.89E+00	1.76E+00	2.20E+00	2.93E+00	2.95E+00	5.60E-01	6.48E-01	4.98E-01	5.61E-01	6.17E-01	3.01E+00	2.08E+00	1.72E+00
acrolein	2.5	1.89E+00	6.23E-01	6.37E-01	5.92E-01	7.41E-01	9.86E-01	9.93E-01	1.88E-01	2.18E-01	1.67E-01	1.89E-01	2.08E-01	1.01E+00	7.01E-01	5.78E-01
aldehyde	10	1.43E+01	4.71E+00	4.81E+00	4.47E+00	5.60E+00	7.45E+00	7.50E+00	1.42E+00	1.65E+00	1.26E+00	1.42E+00	1.57E+00	7.65E+00	5.30E+00	4.36E+00
benzene	29	7.01E-01	2.31E-01	2.36E-01	2.19E-01	2.74E-01	3.65E-01	3.68E-01	6.97E-02	8.06E-02	6.20E-02	6.98E-02	7.69E-02	3.75E-01	2.60E-01	2.14E-01
C10-C12 aliphatic	11666	1.54E-01	5.07E-02	5.18E-02	4.81E-02	6.03E-02	8.02E-02	8.08E-02	1.53E-02	1.77E-02	1.36E-02	1.53E-02	1.69E-02	8.23E-02	5.70E-02	4.70E-02
C12-C16 aliphatic	11666	8.92E-01	2.93E-01	3.00E-01	2.79E-01	3.49E-01	4.65E-01	4.68E-01	8.87E-02	1.03E-01	7.88E-02	8.88E-02	9.78E-02	4.77E-01	3.30E-01	2.72E-01
C12-C16 aromatic	4166	1.20E-02	3.96E-03	4.05E-03	3.76E-03	4.71E-03	6.27E-03	6.31E-03	1.20E-03	1.38E-03	1.06E-03	1.20E-03	1.32E-03	6.43E-03	4.45E-03	3.67E-03
C16-C21 aliphatic	333	8.93E-01	2.94E-01	3.00E-01	2.79E-01	3.49E-01	4.65E-01	4.68E-01	8.88E-02	1.03E-01	7.89E-02	8.89E-02	9.79E-02	4.77E-01	3.31E-01	2.72E-01
C2-C6 aliphatic	2100	4.25E+00	1.40E+00	1.43E+00	1.33E+00	1.66E+00	2.21E+00	2.23E+00	4.23E-01	4.89E-01	3.76E-01	4.23E-01	4.66E-01	2.27E+00	1.57E+00	1.30E+00
C6-C8 aliphatic	61800	2.91E+00	9.57E-01	9.78E-01	9.09E-01	1.14E+00	1.51E+00	1.52E+00	2.89E-01	3.34E-01	2.57E-01	2.89E-01	3.19E-01	1.55E+00	1.08E+00	8.87E-01
C8-C10 aliphatic	60000	4.09E-02	1.35E-02	1.38E-02	1.28E-02	1.60E-02	2.13E-02	2.15E-02	4.07E-03	4.71E-03	3.62E-03	4.08E-03	4.49E-03	2.19E-02	1.52E-02	1.25E-02
C8-C10 aromatic	4166	2.30E-01	7.58E-02	7.75E-02	7.19E-02	9.01E-02	1.20E-01	1.21E-01	2.29E-02	2.65E-02	2.03E-02	2.29E-02	2.52E-02	1.23E-01	8.52E-02	7.02E-02
ethylbenzene	21710	1.20E-01	3.96E-02	4.05E-02	3.76E-02	4.71E-02	6.27E-02	6.31E-02	1.20E-02	1.38E-02	1.06E-02	1.20E-02	1.32E-02	6.43E-02	4.45E-02	3.67E-02
ethylene	566610	2.19E+00	7.21E-01	7.37E-01	6.85E-01	8.57E-01	1.14E+00	1.15E+00	2.18E-01	2.52E-01	1.94E-01	2.18E-01	2.40E-01	1.17E+00	8.11E-01	6.68E-01
formaldehyde	49	5.71E+00	1.88E+00	1.92E+00	1.78E+00	2.23E+00	2.97E+00	2.99E+00	5.68E-01	6.56E-01	5.04E-01	5.68E-01	6.26E-01	3.05E+00	2.11E+00	1.74E+00
ketone	1167	3.22E+00	1.06E+00	1.08E+00	1.01E+00	1.26E+00	1.68E+00	1.69E+00	3.21E-01	3.71E-01	2.85E-01	3.21E-01	3.54E-01	1.72E+00	1.19E+00	9.84E-01
toluene	1000	1.02E+00	3.35E-01	3.43E-01	3.18E-01	3.99E-01	5.31E-01	5.34E-01	1.01E-01	1.17E-01	9.00E-02	1.01E-01	1.12E-01	5.44E-01	3.77E-01	3.11E-01
trimethylbenzene	4166	2.92E-01	9.60E-02	9.82E-02	9.12E-02	1.14E-01	1.52E-01	1.53E-01	2.90E-02	3.36E-02	2.58E-02	2.90E-02	3.20E-02	1.56E-01	1.08E-01	8.90E-02
xylenes	8680	8.09E-01	2.66E-01	2.72E-01	2.53E-01	3.16E-01	4.21E-01	4.24E-01	8.04E-02	9.30E-02	7.15E-02	8.05E-02	8.87E-02	4.32E-01	2.99E-01	2.47E-01

all air concentrations are in units of µg/m³.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
NV = no value.

3.20E-03

 = greater than 1-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	NV	4.64E+01	2.63E+01	2.16E+01	1.77E+01	2.52E+01	3.73E+01	4.00E+01	1.68E+01	1.34E+01	1.38E+01	1.46E+01	1.49E+02	1.49E+02	No	No
DPM	5	3.47E+00	1.66E+00	1.36E+00	1.30E+00	1.88E+00	2.85E+00	8.44E+00	3.28E+00	1.08E+00	1.13E+00	1.18E+00	1.35E+02	1.35E+02	Yes	Yes
PM10	NV	2.41E+01	1.31E+01	1.05E+01	8.60E+00	1.26E+01	2.02E+01	1.98E+01	7.18E+00	5.70E+00	5.73E+00	5.69E+00	1.45E+02	1.45E+02	No	No
PM2.5	NV	6.30E+00	3.18E+00	2.56E+00	2.29E+00	3.29E+00	5.15E+00	1.46E+01	5.77E+00	2.17E+00	2.26E+00	2.48E+00	1.45E+02	1.45E+02	No	No
SO2	500	1.32E-01	9.57E-02	8.21E-02	6.28E-02	8.75E-02	1.12E-01	5.73E-01	2.44E-01	1.48E-01	1.54E-01	1.52E-01	8.15E+00	8.15E+00	No	No
CO	15000	7.74E+01	3.66E+01	2.95E+01	2.75E+01	4.03E+01	6.25E+01	1.47E+02	5.70E+01	4.07E+01	3.93E+01	4.30E+01	2.35E+03	2.35E+03	No	No
NOX	NV	9.59E+01	4.58E+01	3.77E+01	3.64E+01	5.23E+01	7.88E+01	2.36E+02	9.17E+01	6.12E+01	6.17E+01	6.46E+01	3.78E+03	3.78E+03	No	No
NO2	200	8.86E+01	4.58E+01	3.77E+01	3.64E+01	5.23E+01	7.88E+01	1.03E+02	8.82E+01	6.12E+01	6.17E+01	6.46E+01	4.57E+02	4.57E+02	Yes	Yes
Metals																
Aluminum	167	3.21E+00	1.82E+00	1.50E+00	1.23E+00	1.74E+00	2.59E+00	2.77E+00	1.17E+00	9.28E-01	9.57E-01	1.01E+00	1.04E+01	1.04E+01	No	No
Antimony	17	1.82E-04	1.03E-04	8.46E-05	6.93E-05	9.86E-05	1.46E-04	1.56E-04	6.58E-05	5.24E-05	5.41E-05	5.72E-05	5.84E-04	5.84E-04	No	No
Arsenic	0.3	5.15E-03	2.92E-03	2.40E-03	1.97E-03	2.80E-03	4.15E-03	4.44E-03	1.87E-03	1.49E-03	1.53E-03	1.62E-03	1.65E-02	1.65E-02	No	No
Barium	17	1.81E-02	1.03E-02	8.45E-03	6.92E-03	9.85E-03	1.46E-02	1.56E-02	6.57E-03	5.24E-03	5.40E-03	5.72E-03	5.83E-02	5.83E-02	No	No
Beryllium	0.07	3.38E-05	1.91E-05	1.57E-05	1.29E-05	1.83E-05	2.72E-05	2.91E-05	1.22E-05	9.75E-06	1.00E-05	1.06E-05	1.08E-04	1.08E-04	No	No
Bismuth	167	9.28E-06	5.26E-06	4.32E-06	3.54E-06	5.04E-06	7.47E-06	7.99E-06	3.36E-06	2.68E-06	2.76E-06	2.92E-06	2.98E-05	2.98E-05	No	No
Cadmium	0.03	2.10E-03	1.00E-03	8.21E-04	7.87E-04	1.14E-03	1.72E-03	5.07E-03	1.97E-03	6.50E-04	6.80E-04	7.11E-04	8.11E-02	8.11E-02	Yes	Yes
Calcium	NV	1.83E+00	1.04E+00	8.54E-01	7.00E-01	9.95E-01	1.48E+00	1.58E+00	6.64E-01	5.29E-01	5.46E-01	5.78E-01	5.89E+00	5.89E+00	No	No
Chromium	12	8.06E-03	4.54E-03	3.73E-03	3.07E-03	4.38E-03	6.50E-03	7.49E-03	3.12E-03	2.33E-03	2.41E-03	2.55E-03	3.83E-02	3.83E-02	No	No
Cobalt	0.7	1.24E-03	7.05E-04	5.79E-04	4.74E-04	6.75E-04	1.00E-03	1.07E-03	4.50E-04	3.59E-04	3.70E-04	3.92E-04	3.99E-03	3.99E-03	No	No
Copper	100	3.29E-03	1.86E-03	1.53E-03	1.25E-03	1.78E-03	2.65E-03	2.83E-03	1.19E-03	9.49E-04	9.78E-04	1.04E-03	1.06E-02	1.06E-02	No	No
Gold	83	3.59E-06	2.04E-06	1.67E-06	1.37E-06	1.95E-06	2.89E-06	3.09E-06	1.30E-06	1.04E-06	1.07E-06	1.13E-06	1.15E-05	1.15E-05	No	No
Iron	33	3.53E+00	2.00E+00	1.64E+00	1.35E+00	1.91E+00	2.84E+00	3.04E+00	1.28E+00	1.02E+00	1.05E+00	1.11E+00	1.13E+01	1.13E+01	No	No
Lead	0.5	9.02E-04	4.80E-04	3.94E-04	3.42E-04	4.89E-04	7.31E-04	1.32E-03	5.28E-04	2.68E-04	2.78E-04	2.92E-04	1.53E-02	1.53E-02	No	No
Lithium	NV	1.50E-03	8.50E-04	6.98E-04	5.72E-04	8.14E-04	1.21E-03	1.29E-03	5.43E-04	4.33E-04	4.46E-04	4.73E-04	4.82E-03	4.82E-03	No	No
Magnesium	167	9.73E-01	5.52E-01	4.53E-01	3.71E-01	5.28E-01	7.83E-01	8.38E-01	3.52E-01	2.81E-01	2.89E-01	3.07E-01	3.12E+00	3.12E+00	No	No
Manganese	7	3.66E-02	2.07E-02	1.70E-02	1.39E-02	1.98E-02	2.94E-02	3.15E-02	1.32E-02	1.06E-02	1.09E-02	1.15E-02	1.17E-01	1.17E-01	No	No
Molybdenum	100	5.57E-05	3.16E-05	2.59E-05	2.12E-05	3.02E-05	4.48E-05	4.80E-05	2.02E-05	1.61E-05	1.66E-05	1.75E-05	1.79E-04	1.79E-04	No	No
Nickel	0.2	3.22E-03	1.83E-03	1.50E-03	1.23E-03	1.75E-03	2.60E-03	2.78E-03	1.17E-03	9.31E-04	9.60E-04	1.02E-03	1.04E-02	1.04E-02	No	No
Potassium	67	6.15E-01	3.49E-01	2.87E-01	2.35E-01	3.34E-01	4.95E-01	5.30E-01	2.23E-01	1.78E-01	1.83E-01	1.94E-01	1.98E+00	1.98E+00	No	No
Selenium	7	5.55E-05	3.15E-05	2.59E-05	2.12E-05	3.01E-05	4.47E-05	4.78E-05	2.01E-05	1.60E-05	1.65E-05	1.75E-05	1.78E-04	1.78E-04	No	No
Silver	0.3	1.37E-05	7.75E-06	6.36E-06	5.21E-06	7.42E-06	1.10E-05	1.18E-05	4.95E-06	3.94E-06	4.07E-06	4.31E-06	4.39E-05	4.39E-05	No	No
Sodium	NV	7.35E-01	4.17E-01	3.42E-01	2.80E-01	3.99E-01	5.92E-01	6.33E-01	2.66E-01	2.12E-01	2.19E-01	2.32E-01	2.36E+00	2.36E+00	No	No
Strontium	67	9.82E-03	5.57E-03	4.57E-03	3.75E-03	5.33E-03	7.91E-03	8.46E-03	3.56E-03	2.84E-03	2.92E-03	3.10E-03	3.16E-02	3.16E-02	No	No
Thallium	3	1.42E-05	8.04E-06	6.60E-06	5.41E-06	7.70E-06	1.14E-05	1.22E-05	5.14E-06	4.09E-06	4.22E-06	4.47E-06	4.56E-05	4.56E-05	No	No
Tin	67	5.00E-05	2.84E-05	2.33E-05	1.91E-05	2.71E-05	4.03E-05	4.31E-05	1.81E-05	1.44E-05	1.49E-05	1.58E-05	1.61E-04	1.61E-04	No	No
Titanium	167	1.62E-01	9.17E-02	7.53E-02	6.17E-02	8.78E-02	1.30E-01	1.39E-01	5.86E-02	4.67E-02	4.81E-02	5.10E-02	5.20E-01	5.20E-01	No	No
Uranium	2	4.51E-05	2.56E-05	2.10E-05	1.72E-05	2.45E-05	3.63E-05	3.89E-05	1.63E-05	1.30E-05	1.34E-05	1.42E-05	1.45E-04	1.45E-04	No	No
Vanadium	0.8	5.95E-03	3.37E-03	2.77E-03	2.27E-03	3.23E-03	4.79E-03	5.12E-03	2.15E-03	1.72E-03	1.77E-03	1.87E-03	1.91E-02	1.91E-02	No	No
Yttrium	33	4.39E-04	2.49E-04	2.04E-04	1.67E-04	2.38E-04	3.53E-04	3.78E-04	1.59E-04	1.27E-04	1.31E-04	1.38E-04	1.41E-03	1.41E-03	No	No
Zinc	67	7.07E-03	3.79E-03	3.11E-03	2.68E-03	3.84E-03	5.73E-03	9.91E-03	3.97E-03	2.09E-03	2.17E-03	2.29E-03	1.09E-01	1.09E-01	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.07	3.82E-06	1.82E-06	1.49E-06	1.44E-06	2.07E-06	3.13E-06	9.29E-06	3.60E-06	1.19E-06	1.24E-06	1.30E-06	1.49E-04	1.49E-04	No	No
naphthalene	50	1.51E-03	7.21E-04	5.91E-04	5.68E-04	8.19E-04	1.24E-03	3.67E-03	1.43E-03	4.69E-04	4.91E-04	5.13E-04	5.88E-02	5.88E-02	No	No
phenanthrene	2	1.25E-04	5.95E-05	4.89E-05	4.69E-05	6.77E-05	1.02E-04	3.04E-04	1.18E-04	3.87E-05	4.05E-05	4.24E-05	4.86E-03	4.86E-03	No	No
anthracene	2	1.39E-05	6.64E-06	5.45E-06	5.23E-06	7.55E-06	1.14E-05	3.39E-05	1.31E-05	4.32E-06	4.52E-06	4.73E-06	5.42E-04	5.42E-04	No	No
fluorene	33	6.10E-05														

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	2	2.65E-06	1.26E-06	1.04E-06	9.96E-07	1.44E-06	2.18E-06	6.45E-06	2.50E-06	8.23E-07	8.60E-07	9.00E-07	1.03E-04	1.03E-04	No	No
indeno(1,2,3-cd)pyrene	2	1.69E-06	8.04E-07	6.59E-07	6.33E-07	9.14E-07	1.38E-06	4.10E-06	1.59E-06	5.23E-07	5.47E-07	5.72E-07	6.56E-05	6.56E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	220	1.93E-02	9.27E-03	7.56E-03	7.31E-03	1.06E-02	1.60E-02	4.79E-02	1.82E-02	1.20E-02	1.20E-02	1.27E-02	7.71E-01	7.71E-01	No	No
acetaldehyde	470	2.60E+00	1.25E+00	1.02E+00	9.85E-01	1.43E+00	2.15E+00	6.46E+00	2.46E+00	1.62E+00	1.62E+00	1.71E+00	1.04E+02	1.04E+02	No	No
acetone	19665	1.37E+00	6.58E-01	5.37E-01	5.19E-01	7.53E-01	1.13E+00	3.40E+00	1.29E+00	8.53E-01	8.52E-01	8.99E-01	5.47E+01	5.47E+01	No	No
acrolein	2.5	4.61E-01	2.21E-01	1.81E-01	1.74E-01	2.53E-01	3.81E-01	1.14E+00	4.35E-01	2.87E-01	2.87E-01	3.02E-01	1.84E+01	1.84E+01	Yes	Yes
aldehyde	10	3.48E+00	1.67E+00	1.36E+00	1.32E+00	1.91E+00	2.88E+00	8.63E+00	3.29E+00	2.17E+00	2.17E+00	2.29E+00	1.39E+02	1.39E+02	Yes	Yes
benzene	29	1.71E-01	8.19E-02	6.68E-02	6.46E-02	9.37E-02	1.41E-01	4.23E-01	1.61E-01	1.06E-01	1.06E-01	1.12E-01	6.81E+00	6.81E+00	No	No
C10-C12 aliphatic	11666	3.75E-02	1.80E-02	1.47E-02	1.42E-02	2.06E-02	3.10E-02	9.30E-02	3.54E-02	2.33E-02	2.33E-02	2.46E-02	1.50E+00	1.50E+00	No	No
C12-C16 aliphatic	11666	2.17E-01	1.04E-01	8.50E-02	8.22E-02	1.19E-01	1.80E-01	5.38E-01	2.05E-01	1.35E-01	1.35E-01	1.42E-01	8.66E+00	8.66E+00	No	No
C12-C16 aromatic	4166	2.93E-03	1.41E-03	1.15E-03	1.11E-03	1.61E-03	2.42E-03	7.26E-03	2.77E-03	1.82E-03	1.82E-03	1.92E-03	1.17E-01	1.17E-01	No	No
C16-C21 aliphatic	333	2.17E-01	1.04E-01	8.51E-02	8.23E-02	1.19E-01	1.80E-01	5.39E-01	2.05E-01	1.35E-01	1.35E-01	1.43E-01	8.67E+00	8.67E+00	No	No
C2-C6 aliphatic	2100	1.03E+00	4.97E-01	4.05E-01	3.92E-01	5.68E-01	8.56E-01	2.57E+00	9.78E-01	6.44E-01	6.44E-01	6.79E-01	4.13E+01	4.13E+01	No	No
C6-C8 aliphatic	61800	7.08E-01	3.40E-01	2.77E-01	2.68E-01	3.89E-01	5.85E-01	1.75E+00	6.69E-01	4.41E-01	4.40E-01	4.64E-01	2.82E+01	2.82E+01	No	No
C8-C10 aliphatic	60000	9.97E-03	4.78E-03	3.90E-03	3.77E-03	5.47E-03	8.24E-03	2.47E-02	9.42E-03	6.21E-03	6.20E-03	6.54E-03	3.98E-01	3.98E-01	No	No
C8-C10 aromatic	4166	5.60E-02	2.69E-02	2.19E-02	2.12E-02	3.08E-02	4.63E-02	1.39E-01	5.29E-02	3.49E-02	3.49E-02	3.68E-02	2.24E+00	2.24E+00	No	No
ethylbenzene	21710	2.93E-02	1.41E-02	1.15E-02	1.11E-02	1.61E-02	2.42E-02	7.26E-02	2.77E-02	1.82E-02	1.82E-02	1.92E-02	1.17E+00	1.17E+00	No	No
ethylene	566610	5.33E-01	2.56E-01	2.09E-01	2.02E-01	2.93E-01	4.41E-01	1.32E+00	5.04E-01	3.32E-01	3.32E-01	3.50E-01	2.13E+01	2.13E+01	No	No
formaldehyde	49	1.39E+00	6.67E-01	5.44E-01	5.26E-01	7.63E-01	1.15E+00	3.44E+00	1.31E+00	8.65E-01	8.64E-01	9.12E-01	5.54E+01	5.54E+01	Yes	Yes
ketone	1167	7.85E-01	3.77E-01	3.07E-01	2.97E-01	4.31E-01	6.49E-01	1.95E+00	7.42E-01	4.89E-01	4.88E-01	5.15E-01	3.13E+01	3.13E+01	No	No
toluene	1000	2.48E-01	1.19E-01	9.71E-02	9.38E-02	1.36E-01	2.05E-01	6.15E-01	2.34E-01	1.54E-01	1.54E-01	1.63E-01	9.89E+00	9.89E+00	No	No
trimethylbenzene	4166	7.10E-02	3.41E-02	2.78E-02	2.69E-02	3.90E-02	5.87E-02	1.76E-01	6.71E-02	4.42E-02	4.42E-02	4.66E-02	2.83E+00	2.83E+00	No	No
xylenes	8680	1.97E-01	9.45E-02	7.71E-02	7.45E-02	1.08E-01	1.63E-01	4.88E-01	1.86E-01	1.23E-01	1.22E-01	1.29E-01	7.85E+00	7.85E+00	No	No

Notes:
All air concentrations are in units of µg/m³
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
NV = no value

3.20E-03

 = greater than 1-h air threshold

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	NV	1.21E+02	4.03E+01	4.93E+01	5.08E+01	5.51E+01	7.85E+01	1.51E+02	1.37E+01	1.44E+01	1.00E+01	1.38E+01	1.25E+01	6.15E+01	3.59E+01	3.71E+01
DPM	5	1.39E+01	5.62E+00	4.96E+00	4.95E+00	5.81E+00	6.95E+00	7.81E+00	1.48E+00	1.63E+00	1.28E+00	1.49E+00	1.59E+00	7.40E+00	5.67E+00	5.34E+00
PM10	NV	6.54E+01	2.27E+01	2.64E+01	2.69E+01	2.87E+01	3.94E+01	7.69E+01	7.92E+00	8.80E+00	5.67E+00	7.93E+00	7.74E+00	3.23E+01	2.19E+01	2.19E+01
PM2.5	NV	2.86E+01	8.38E+00	1.01E+01	9.70E+00	1.10E+01	1.40E+01	1.76E+01	2.87E+00	3.80E+00	2.33E+00	2.87E+00	3.59E+00	1.49E+01	1.05E+01	9.62E+00
SO2	500	1.36E+00	3.96E-01	4.33E-01	4.16E-01	4.55E-01	6.00E-01	6.09E-01	1.13E-01	1.52E-01	9.22E-02	1.13E-01	1.48E-01	5.74E-01	3.90E-01	3.54E-01
CO	15000	2.43E+02	1.05E+02	9.36E+01	9.38E+01	1.03E+02	1.26E+02	1.70E+02	3.07E+01	2.88E+01	2.30E+01	3.07E+01	2.94E+01	1.34E+02	1.07E+02	9.86E+01
NOX	NV	3.89E+02	1.58E+02	1.40E+02	1.40E+02	1.63E+02	2.03E+02	2.28E+02	4.67E+01	4.55E+01	3.61E+01	4.68E+01	4.46E+01	2.08E+02	1.59E+02	1.49E+02
NO2	200	1.18E+02	9.48E+01	9.30E+01	9.30E+01	9.53E+01	9.93E+01	1.02E+02	4.67E+01	4.55E+01	3.61E+01	4.68E+01	4.46E+01	9.98E+01	9.49E+01	9.39E+01
Metals																
Aluminum	167	8.39E+00	2.79E+00	3.42E+00	3.52E+00	3.82E+00	5.44E+00	1.04E+01	9.53E-01	9.98E-01	6.96E-01	9.53E-01	8.64E-01	4.26E+00	2.49E+00	2.57E+00
Antimony	17	4.74E-04	1.58E-04	1.93E-04	1.99E-04	2.16E-04	3.07E-04	5.90E-04	5.38E-05	5.64E-05	3.93E-05	5.39E-05	4.88E-05	2.41E-04	1.40E-04	1.45E-04
Arsenic	0.3	1.34E-02	4.47E-03	5.48E-03	5.64E-03	6.12E-03	8.71E-03	1.67E-02	1.53E-03	1.60E-03	1.11E-03	1.53E-03	1.38E-03	6.82E-03	3.98E-03	4.12E-03
Barium	17	4.73E-02	1.58E-02	1.93E-02	1.99E-02	2.16E-02	3.07E-02	5.89E-02	5.37E-03	5.63E-03	3.93E-03	5.38E-03	4.87E-03	2.40E-02	1.40E-02	1.45E-02
Beryllium	0.07	8.81E-05	2.93E-05	3.59E-05	3.70E-05	4.01E-05	5.71E-05	1.10E-04	1.00E-05	1.05E-05	7.31E-06	1.00E-05	9.07E-06	4.47E-05	2.61E-05	2.70E-05
Bismuth	167	2.42E-05	8.06E-06	9.86E-06	1.02E-05	1.10E-05	1.57E-05	3.01E-05	2.75E-06	2.88E-06	2.01E-06	2.75E-06	2.49E-06	1.23E-05	7.17E-06	7.42E-06
Cadmium	0.03	8.37E-03	3.38E-03	2.99E-03	2.99E-03	3.50E-03	4.19E-03	4.73E-03	8.94E-04	9.83E-04	7.73E-04	8.96E-04	9.57E-04	4.46E-03	3.41E-03	3.22E-03
Calcium	NV	4.79E+00	1.59E+00	1.95E+00	2.01E+00	2.18E+00	3.10E+00	5.96E+00	5.43E-01	5.69E-01	3.97E-01	5.44E-01	4.92E-01	2.43E+00	1.42E+00	1.47E+00
Chromium	12	2.15E-02	7.26E-03	8.70E-03	8.94E-03	9.75E-03	1.37E-02	2.58E-02	2.43E-03	2.56E-03	1.80E-03	2.44E-03	2.23E-03	1.10E-02	6.53E-03	6.70E-03
Cobalt	0.7	3.24E-03	1.08E-03	1.32E-03	1.36E-03	1.48E-03	2.10E-03	4.04E-03	3.68E-04	3.86E-04	2.69E-04	3.69E-04	3.34E-04	1.65E-03	9.61E-04	9.94E-04
Copper	100	8.58E-03	2.86E-03	3.50E-03	3.60E-03	3.91E-03	5.56E-03	1.07E-02	9.74E-04	1.02E-03	7.12E-04	9.75E-04	8.83E-04	4.36E-03	2.54E-03	2.63E-03
Gold	83	9.37E-06	3.12E-06	3.82E-06	3.93E-06	4.27E-06	6.08E-06	1.17E-05	1.06E-06	1.12E-06	7.77E-07	1.07E-06	9.65E-07	4.76E-06	2.78E-06	2.87E-06
Iron	33	9.20E+00	3.06E+00	3.75E+00	3.86E+00	4.19E+00	5.96E+00	1.15E+01	1.04E+00	1.09E+00	7.63E-01	1.05E+00	9.47E-01	4.67E+00	2.73E+00	2.82E+00
Lead	0.5	2.83E-03	1.04E-03	1.09E-03	1.10E-03	1.24E-03	1.63E-03	2.58E-03	3.13E-04	3.35E-04	2.48E-04	3.13E-04	3.08E-04	1.47E-03	9.96E-04	9.77E-04
Lithium	NV	3.91E-03	1.30E-03	1.59E-03	1.64E-03	1.78E-03	2.54E-03	4.87E-03	4.44E-04	4.66E-04	3.25E-04	4.45E-04	4.03E-04	1.99E-03	1.16E-03	1.20E-03
Magnesium	167	2.54E+00	8.45E-01	1.03E+00	1.06E+00	1.16E+00	1.65E+00	3.16E+00	2.88E-01	3.02E-01	2.10E-01	2.88E-01	2.61E-01	1.29E+00	7.52E-01	7.78E-01
Manganese	7	9.54E-02	3.17E-02	3.89E-02	4.00E-02	4.35E-02	6.18E-02	1.19E-01	1.08E-02	1.13E-02	7.91E-03	1.08E-02	9.82E-03	4.84E-02	2.83E-02	2.92E-02
Molybdenum	100	1.45E-04	4.83E-05	5.92E-05	6.09E-05	6.62E-05	9.41E-05	1.81E-04	1.65E-05	1.73E-05	1.20E-05	1.65E-05	1.49E-05	7.37E-05	4.30E-05	4.45E-05
Nickel	0.2	8.42E-03	2.80E-03	3.43E-03	3.53E-03	3.83E-03	5.45E-03	1.05E-02	9.55E-04	1.00E-03	6.98E-04	9.56E-04	8.66E-04	4.27E-03	2.49E-03	2.58E-03
Potassium	67	1.61E+00	5.34E-01	6.54E-01	6.74E-01	7.31E-01	1.04E+00	2.00E+00	1.82E-01	1.91E-01	1.33E-01	1.82E-01	1.65E-01	8.15E-01	4.76E-01	4.92E-01
Selenium	7	1.45E-04	4.82E-05	5.90E-05	6.08E-05	6.60E-05	9.39E-05	1.80E-04	1.64E-05	1.72E-05	1.20E-05	1.65E-05	1.49E-05	7.36E-05	4.29E-05	4.44E-05
Silver	0.3	3.57E-05	1.19E-05	1.45E-05	1.50E-05	1.62E-05	2.31E-05	4.44E-05	4.05E-06	4.24E-06	2.96E-06	4.05E-06	3.67E-06	1.81E-05	1.06E-05	1.09E-05
Sodium	NV	1.92E+00	6.38E-01	7.82E-01	8.05E-01	8.74E-01	1.24E+00	2.39E+00	2.18E-01	2.28E-01	1.59E-01	2.18E-01	1.97E-01	9.74E-01	5.68E-01	5.88E-01
Strontium	67	2.56E-02	8.53E-03	1.04E-02	1.08E-02	1.17E-02	1.66E-02	3.19E-02	2.91E-03	3.05E-03	2.13E-03	2.91E-03	2.64E-03	1.30E-02	7.59E-03	7.85E-03
Thallium	3	3.70E-05	1.23E-05	1.51E-05	1.55E-05	1.69E-05	2.40E-05	4.61E-05	4.20E-06	4.40E-06	3.07E-06	4.21E-06	3.81E-06	1.88E-05	1.10E-05	1.13E-05
Tin	67	1.31E-04	4.34E-05	5.32E-05	5.47E-05	5.94E-05	8.46E-05	1.62E-04	1.48E-05	1.55E-05	1.08E-05	1.48E-05	1.34E-05	6.62E-05	3.87E-05	4.00E-05
Titanium	167	4.22E-01	1.40E-01	1.72E-01	1.77E-01	1.92E-01	2.74E-01	5.25E-01	4.79E-02	5.02E-02	3.50E-02	4.79E-02	4.34E-02	2.14E-01	1.25E-01	1.29E-01
Uranium	2	1.18E-04	3.92E-05	4.80E-05	4.94E-05	5.36E-05	7.63E-05	1.47E-04	1.34E-05	1.40E-05	9.77E-06	1.34E-05	1.21E-05	5.98E-05	3.49E-05	3.61E-05
Vanadium	0.8	1.55E-02	5.16E-03	6.32E-03	6.51E-03	7.07E-03	1.01E-02	1.93E-02	1.76E-03	1.85E-03	1.29E-03	1.76E-03	1.60E-03	7.88E-03	4.60E-03	4.75E-03
Yttrium	33	1.15E-03	3.81E-04	4.67E-04	4.80E-04	5.22										

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	2	1.06E-05	4.29E-06	3.79E-06	3.78E-06	4.44E-06	5.31E-06	5.96E-06	1.13E-06	1.25E-06	9.81E-07	1.14E-06	1.21E-06	5.65E-06	4.33E-06	4.08E-06
indeno(1,2,3-cd)pyrene	2	6.74E-06	2.73E-06	2.41E-06	2.41E-06	2.82E-06	3.38E-06	3.79E-06	7.20E-07	7.92E-07	6.23E-07	7.22E-07	7.72E-07	3.59E-06	2.75E-06	2.59E-06
Volatile Oranic Compounds																
1,3-butadiene	220	7.89E-02	3.23E-02	2.87E-02	2.87E-02	3.25E-02	4.15E-02	4.64E-02	9.47E-03	8.88E-03	7.32E-03	9.47E-03	8.99E-03	4.26E-02	3.20E-02	3.01E-02
acetaldehyde	470	1.06E+01	4.35E+00	3.87E+00	3.86E+00	4.38E+00	5.59E+00	6.26E+00	1.28E+00	1.20E+00	9.87E-01	1.28E+00	1.21E+00	5.74E+00	4.32E+00	4.07E+00
acetone	19665	5.60E+00	2.29E+00	2.04E+00	2.03E+00	2.31E+00	2.94E+00	3.29E+00	6.72E-01	6.30E-01	5.20E-01	6.72E-01	6.38E-01	3.02E+00	2.27E+00	2.14E+00
acrolein	2.5	1.88E+00	7.71E-01	6.86E-01	6.84E-01	7.76E-01	9.90E-01	1.11E+00	2.26E-01	2.12E-01	1.75E-01	2.26E-01	2.15E-01	1.02E+00	7.65E-01	7.20E-01
aldehyde	10	1.42E+01	5.82E+00	5.18E+00	5.17E+00	5.86E+00	7.48E+00	8.37E+00	1.71E+00	1.60E+00	1.32E+00	1.71E+00	1.62E+00	7.67E+00	5.78E+00	5.44E+00
benzene	29	6.97E-01	2.85E-01	2.54E-01	2.53E-01	2.87E-01	3.67E-01	4.10E-01	8.37E-02	7.85E-02	6.47E-02	8.37E-02	7.95E-02	3.76E-01	2.83E-01	2.66E-01
C10-C12 aliphatic	11666	1.53E-01	6.27E-02	5.58E-02	5.56E-02	6.31E-02	8.05E-02	9.01E-02	1.84E-02	1.72E-02	1.42E-02	1.84E-02	1.75E-02	8.26E-02	6.22E-02	5.85E-02
C12-C16 aliphatic	11666	8.87E-01	3.63E-01	3.23E-01	3.22E-01	3.66E-01	4.66E-01	5.22E-01	1.06E-01	9.98E-02	8.23E-02	1.06E-01	1.01E-01	4.78E-01	3.60E-01	3.39E-01
C12-C16 aromatic	4166	1.20E-02	4.89E-03	4.35E-03	4.34E-03	4.93E-03	6.29E-03	7.03E-03	1.44E-03	1.35E-03	1.11E-03	1.44E-03	1.36E-03	6.45E-03	4.86E-03	4.57E-03
C16-C21 aliphatic	333	8.88E-01	3.63E-01	3.23E-01	3.23E-01	3.66E-01	4.67E-01	5.22E-01	1.07E-01	9.99E-02	8.24E-02	1.07E-01	1.01E-01	4.79E-01	3.61E-01	3.39E-01
C2-C6 aliphatic	2100	4.23E+00	1.73E+00	1.54E+00	1.54E+00	1.74E+00	2.22E+00	2.49E+00	5.07E-01	4.76E-01	3.92E-01	5.08E-01	4.82E-01	2.28E+00	1.72E+00	1.62E+00
C6-C8 aliphatic	61800	2.89E+00	1.18E+00	1.05E+00	1.05E+00	1.19E+00	1.52E+00	1.70E+00	3.47E-01	3.25E-01	2.68E-01	3.47E-01	3.30E-01	1.56E+00	1.17E+00	1.10E+00
C8-C10 aliphatic	60000	4.07E-02	1.67E-02	1.48E-02	1.48E-02	1.68E-02	2.14E-02	2.39E-02	4.89E-03	4.58E-03	3.78E-03	4.89E-03	4.64E-03	2.20E-02	1.65E-02	1.56E-02
C8-C10 aromatic	4166	2.29E-01	9.37E-02	8.33E-02	8.31E-02	9.43E-02	1.20E-01	1.35E-01	2.75E-02	2.58E-02	2.12E-02	2.75E-02	2.61E-02	1.23E-01	9.30E-02	8.75E-02
ethylbenzene	21710	1.20E-01	4.89E-02	4.35E-02	4.34E-02	4.93E-02	6.29E-02	7.03E-02	1.44E-02	1.35E-02	1.11E-02	1.44E-02	1.36E-02	6.45E-02	4.86E-02	4.57E-02
ethylene	566610	2.18E+00	8.91E-01	7.93E-01	7.91E-01	8.98E-01	1.15E+00	1.28E+00	2.61E-01	2.45E-01	2.02E-01	2.62E-01	2.48E-01	1.18E+00	8.85E-01	8.32E-01
formaldehyde	49	5.68E+00	2.32E+00	2.07E+00	2.06E+00	2.34E+00	2.98E+00	3.34E+00	6.81E-01	6.39E-01	5.27E-01	6.81E-01	6.47E-01	3.06E+00	2.30E+00	2.17E+00
ketone	1167	3.21E+00	1.31E+00	1.17E+00	1.16E+00	1.32E+00	1.69E+00	1.89E+00	3.85E-01	3.61E-01	2.98E-01	3.85E-01	3.66E-01	1.73E+00	1.30E+00	1.23E+00
toluene	1000	1.01E+00	4.14E-01	3.69E-01	3.68E-01	4.17E-01	5.32E-01	5.96E-01	1.22E-01	1.14E-01	9.40E-02	1.22E-01	1.15E-01	5.46E-01	4.11E-01	3.87E-01
trimethylbenzene	4166	2.90E-01	1.19E-01	1.06E-01	1.05E-01	1.20E-01	1.53E-01	1.71E-01	3.48E-02	3.26E-02	2.69E-02	3.48E-02	3.31E-02	1.57E-01	1.18E-01	1.11E-01
xylenes	8680	8.04E-01	3.29E-01	2.93E-01	2.92E-01	3.31E-01	4.23E-01	4.73E-01	9.65E-02	9.05E-02	7.46E-02	9.66E-02	9.17E-02	4.34E-01	3.27E-01	3.07E-01

all air concentrations are in units of µg/m³.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
NV = no value.
3.20E-03 = greater than 1-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	NV	9.29E+00	6.96E+00	6.20E+00	5.81E+00	7.58E+00	9.49E+00	6.75E+01	2.86E+01	1.01E+01	1.05E+01	1.12E+01	3.59E+02	3.59E+02	No	No
DPM	5	1.96E+00	1.38E+00	1.24E+00	1.04E+00	1.46E+00	1.55E+00	1.08E+01	4.26E+00	1.34E+00	1.43E+00	1.49E+00	1.35E+02	1.35E+02	Yes	Yes
PM10	NV	5.90E+00	4.55E+00	4.07E+00	3.37E+00	4.92E+00	5.54E+00	3.79E+01	1.61E+01	5.51E+00	5.78E+00	6.10E+00	1.97E+02	1.97E+02	No	No
PM2.5	NV	3.01E+00	2.47E+00	2.23E+00	1.86E+00	2.63E+00	2.76E+00	1.85E+01	6.95E+00	2.57E+00	2.67E+00	2.82E+00	1.45E+02	1.45E+02	No	No
SO2	500	1.05E-01	8.67E-02	7.85E-02	6.56E-02	9.23E-02	9.74E-02	6.62E-01	2.64E-01	1.58E-01	1.66E-01	1.62E-01	8.15E+00	8.15E+00	No	No
CO	15000	3.56E+01	2.54E+01	2.29E+01	1.92E+01	2.70E+01	2.81E+01	2.01E+02	7.91E+01	4.44E+01	4.57E+01	4.59E+01	2.34E+03	2.34E+03	No	No
NOX	NV	5.49E+01	3.85E+01	3.48E+01	2.91E+01	4.08E+01	4.34E+01	3.02E+02	1.19E+02	6.75E+01	6.94E+01	6.99E+01	3.78E+03	3.78E+03	No	No
NO2	200	5.49E+01	3.85E+01	3.48E+01	2.91E+01	4.08E+01	4.34E+01	1.09E+02	9.09E+01	6.75E+01	6.94E+01	6.99E+01	4.57E+02	4.57E+02	Yes	Yes
Metals																
Aluminum	167	6.44E-01	4.83E-01	4.30E-01	4.03E-01	5.26E-01	6.58E-01	4.68E+00	1.98E+00	7.03E-01	7.30E-01	7.77E-01	2.50E+01	2.50E+01	No	No
Antimony	17	3.64E-05	2.72E-05	2.43E-05	2.28E-05	2.97E-05	3.71E-05	2.64E-04	1.12E-04	3.97E-05	4.12E-05	4.39E-05	1.41E-03	1.41E-03	No	No
Arsenic	0.3	1.03E-03	7.73E-04	6.89E-04	6.46E-04	8.42E-04	1.05E-03	7.49E-03	3.18E-03	1.13E-03	1.17E-03	1.24E-03	3.99E-02	3.99E-02	No	No
Barium	17	3.63E-03	2.72E-03	2.42E-03	2.27E-03	2.97E-03	3.71E-03	2.64E-02	1.12E-02	3.97E-03	4.12E-03	4.38E-03	1.40E-01	1.40E-01	No	No
Beryllium	0.07	6.76E-06	5.06E-06	4.51E-06	4.23E-06	5.52E-06	6.91E-06	4.91E-05	2.08E-05	7.38E-06	7.66E-06	8.16E-06	2.61E-04	2.61E-04	No	No
Bismuth	167	1.86E-06	1.39E-06	1.24E-06	1.16E-06	1.52E-06	1.90E-06	1.35E-05	5.72E-06	2.03E-06	2.11E-06	2.24E-06	7.19E-05	7.19E-05	No	No
Cadmium	0.03	1.18E-03	8.28E-04	7.48E-04	6.28E-04	8.79E-04	9.33E-04	6.49E-03	2.56E-03	8.08E-04	8.59E-04	8.99E-04	8.10E-02	8.10E-02	Yes	Yes
Calcium	NV	3.67E-01	2.75E-01	2.45E-01	2.30E-01	3.00E-01	3.75E-01	2.67E+00	1.13E+00	4.01E-01	4.16E-01	4.43E-01	1.42E+01	1.42E+01	No	No
Chromium	12	1.74E-03	1.29E-03	1.16E-03	1.07E-03	1.41E-03	1.73E-03	1.23E-02	5.18E-03	1.82E-03	1.89E-03	2.01E-03	7.32E-02	7.32E-02	No	No
Cobalt	0.7	2.49E-04	1.86E-04	1.66E-04	1.56E-04	2.03E-04	2.54E-04	1.81E-03	7.66E-04	2.72E-04	2.82E-04	3.00E-04	9.63E-03	9.63E-03	No	No
Copper	100	6.58E-04	4.93E-04	4.39E-04	4.12E-04	5.37E-04	6.72E-04	4.78E-03	2.03E-03	7.19E-04	7.46E-04	7.94E-04	2.55E-02	2.55E-02	No	No
Gold	83	7.19E-07	5.39E-07	4.80E-07	4.50E-07	5.87E-07	7.35E-07	5.23E-06	2.21E-06	7.85E-07	8.15E-07	8.68E-07	2.78E-05	2.78E-05	No	No
Iron	33	7.06E-01	5.29E-01	4.71E-01	4.42E-01	5.76E-01	7.21E-01	5.13E+00	2.17E+00	7.71E-01	8.00E-01	8.52E-01	2.73E+01	2.73E+01	No	No
Lead	0.5	3.07E-04	2.21E-04	1.98E-04	1.74E-04	2.37E-04	2.68E-04	1.88E-03	7.68E-04	2.55E-04	2.68E-04	2.83E-04	1.78E-02	1.78E-02	No	No
Lithium	NV	3.00E-04	2.25E-04	2.00E-04	1.88E-04	2.45E-04	3.07E-04	2.18E-03	9.25E-04	3.28E-04	3.40E-04	3.62E-04	1.16E-02	1.16E-02	No	No
Magnesium	167	1.95E-01	1.46E-01	1.30E-01	1.22E-01	1.59E-01	1.99E-01	1.41E+00	6.00E-01	2.13E-01	2.21E-01	2.35E-01	7.53E+00	7.53E+00	No	No
Manganese	7	7.32E-03	5.48E-03	4.89E-03	4.58E-03	5.98E-03	7.48E-03	5.32E-02	2.25E-02	7.99E-03	8.30E-03	8.83E-03	2.83E-01	2.83E-01	No	No
Molybdenum	100	1.11E-05	8.35E-06	7.44E-06	6.98E-06	9.10E-06	1.14E-05	8.10E-05	3.43E-05	1.22E-05	1.26E-05	1.34E-05	4.31E-04	4.31E-04	No	No
Nickel	0.2	6.46E-04	4.84E-04	4.31E-04	4.04E-04	5.27E-04	6.60E-04	4.69E-03	1.99E-03	7.05E-04	7.32E-04	7.79E-04	2.50E-02	2.50E-02	No	No
Potassium	67	1.23E-01	9.23E-02	8.23E-02	7.71E-02	1.01E-01	1.26E-01	8.95E-01	3.79E-01	1.35E-01	1.40E-01	1.49E-01	4.77E+00	4.77E+00	No	No
Selenium	7	1.11E-05	8.33E-06	7.42E-06	6.96E-06	9.08E-06	1.14E-05	8.08E-05	3.42E-05	1.21E-05	1.26E-05	1.34E-05	4.30E-04	4.30E-04	No	No
Silver	0.3	2.73E-06	2.05E-06	1.83E-06	1.71E-06	2.23E-06	2.79E-06	1.99E-05	8.42E-06	2.99E-06	3.10E-06	3.30E-06	1.06E-04	1.06E-04	No	No
Sodium	NV	1.47E-01	1.10E-01	9.83E-02	9.21E-02	1.20E-01	1.50E-01	1.07E+00	4.53E-01	1.61E-01	1.67E-01	1.78E-01	5.69E+00	5.69E+00	No	No
Strontium	67	1.97E-03	1.47E-03	1.31E-03	1.23E-03	1.61E-03	2.01E-03	1.43E-02	6.06E-03	2.15E-03	2.23E-03	2.37E-03	7.61E-02	7.61E-02	No	No
Thallium	3	2.84E-06	2.13E-06	1.90E-06	1.78E-06	2.32E-06	2.90E-06	2.06E-05	8.74E-06	3.10E-06	3.22E-06	3.43E-06	1.10E-04	1.10E-04	No	No
Tin	67	1.00E-05	7.50E-06	6.68E-06	6.27E-06	8.17E-06	1.02E-05	7.27E-05	3.08E-05	1.09E-05	1.13E-05	1.21E-05	3.87E-04	3.87E-04	No	No
Titanium	167	3.24E-02	2.43E-02	2.16E-02	2.03E-02	2.64E-02	3.31E-02	2.35E-01	9.97E-02	3.54E-02	3.67E-02	3.91E-02	1.25E+00	1.25E+00	No	No
Uranium	2	9.03E-06	6.77E-06	6.03E-06	5.66E-06	7.38E-06	9.23E-06	6.56E-05	2.78E-05	9.87E-06	1.02E-05	1.09E-05	3.49E-04	3.49E-04	No	No
Vanadium	0.8	1.19E-03	8.92E-04	7.95E-04	7.45E-04	9.72E-04	1.22E-03	8.65E-03	3.67E-03	1.30E-03	1.35E-03	1.44E-03	4.61E-02	4.61E-02	No	No
Yttrium	33	8.79E-05	6.58E-05	5.87E-05	5.50E-05	7.18E-05	8.98E-05	6.39E-04	2.71E-04	9.60E-05	9.96E-05	1.06E-04	3.40E-03	3.40E-03	No	No
Zinc	67	2.30E-03	1.66E-03	1.49E-03	1.31E-03	1.78E-03	2.04E-03	1.43E-02	5.85E-03	1.95E-03	2.05E-03	2.17E-03	1.30E-01	1.30E-01	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.07	2.16E-06	1.52E-06	1.37E-06	1.15E-06	1.61E-06	1.71E-06	1.19E-05	4.69E-06	1.48E-06	1.57E-06	1.64E-06	1.48E-04	1.48E-04	No	No
naphthalene	50	8.55E-04	6.00E-04	5.42E-04	4.54E-04	6.36E-04	6.75E-04	4.70E-03	1.86E-03	5.85E-04	6.21E-04	6.50E-04	5.87E-02	5.87E-02	No	No
phenanthrene	2	7.06E-05	4.95E-05	4.48E-05	3.75E-05	5.26E-05	5.58E-05	3.88E-04	1.53E-04	4.83E-05	5.13E-05	5.37E-05	4.85E-03	4.85E-03	No	No
anthracene	2	7.88E-06	5.53E-06	4.99E-06	4.19E-06	5.86E-06	6.22E-06	4.33E-05	1.71E-05	5.39E-06	5.73E-06	5.99E-06	5.41E-04	5.41E-04	No	No
fluorene	33	3.45E-05														

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	2	1.50E-06	1.05E-06	9.50E-07	7.97E-07	1.12E-06	1.18E-06	8.24E-06	3.26E-06	1.03E-06	1.09E-06	1.14E-06	1.03E-04	1.03E-04	No	No
indeno(1,2,3-cd)pyrene	2	9.53E-07	6.69E-07	6.04E-07	5.07E-07	7.09E-07	7.53E-07	5.24E-06	2.07E-06	6.52E-07	6.93E-07	7.25E-07	6.55E-05	6.55E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	220	1.07E-02	7.47E-03	6.74E-03	5.61E-03	7.89E-03	8.63E-03	6.12E-02	2.36E-02	1.33E-02	1.36E-02	1.38E-02	7.70E-01	7.70E-01	No	No
acetaldehyde	470	1.44E+00	1.01E+00	9.08E-01	7.57E-01	1.06E+00	1.16E+00	8.25E+00	3.18E+00	1.79E+00	1.83E+00	1.86E+00	1.04E+02	1.04E+02	No	No
acetone	19665	7.60E-01	5.30E-01	4.78E-01	3.98E-01	5.60E-01	6.12E-01	4.34E+00	1.68E+00	9.41E-01	9.63E-01	9.79E-01	5.46E+01	5.46E+01	No	No
acrolein	2.5	2.56E-01	1.78E-01	1.61E-01	1.34E-01	1.88E-01	2.06E-01	1.46E+00	5.64E-01	3.17E-01	3.24E-01	3.29E-01	1.84E+01	1.84E+01	Yes	Yes
aldehyde	10	1.93E+00	1.35E+00	1.21E+00	1.01E+00	1.42E+00	1.56E+00	1.10E+01	4.26E+00	2.39E+00	2.45E+00	2.49E+00	1.39E+02	1.39E+02	Yes	Yes
benzene	29	9.46E-02	6.60E-02	5.95E-02	4.96E-02	6.97E-02	7.63E-02	5.41E-01	2.09E-01	1.17E-01	1.20E-01	1.22E-01	6.80E+00	6.80E+00	No	No
C10-C12 aliphatic	11666	2.08E-02	1.45E-02	1.31E-02	1.09E-02	1.53E-02	1.68E-02	1.19E-01	4.58E-02	2.57E-02	2.63E-02	2.68E-02	1.49E+00	1.49E+00	No	No
C12-C16 aliphatic	11666	1.20E-01	8.39E-02	7.57E-02	6.31E-02	8.87E-02	9.70E-02	6.88E-01	2.65E-01	1.49E-01	1.53E-01	1.55E-01	8.65E+00	8.65E+00	No	No
C12-C16 aromatic	4166	1.62E-03	1.13E-03	1.02E-03	8.51E-04	1.20E-03	1.31E-03	9.27E-03	3.58E-03	2.01E-03	2.06E-03	2.09E-03	1.17E-01	1.17E-01	No	No
C16-C21 aliphatic	333	1.21E-01	8.40E-02	7.58E-02	6.32E-02	8.88E-02	9.71E-02	6.89E-01	2.66E-01	1.49E-01	1.53E-01	1.55E-01	8.66E+00	8.66E+00	No	No
C2-C6 aliphatic	2100	5.74E-01	4.00E-01	3.61E-01	3.01E-01	4.23E-01	4.62E-01	3.28E+00	1.27E+00	7.11E-01	7.27E-01	7.39E-01	4.12E+01	4.12E+01	No	No
C6-C8 aliphatic	61800	3.92E-01	2.74E-01	2.47E-01	2.06E-01	2.89E-01	3.16E-01	2.24E+00	8.65E-01	4.86E-01	4.97E-01	5.05E-01	2.82E+01	2.82E+01	No	No
C8-C10 aliphatic	60000	5.53E-03	3.85E-03	3.48E-03	2.90E-03	4.07E-03	4.45E-03	3.16E-02	1.22E-02	6.84E-03	7.00E-03	7.12E-03	3.97E-01	3.97E-01	No	No
C8-C10 aromatic	4166	3.11E-02	2.17E-02	1.95E-02	1.63E-02	2.29E-02	2.50E-02	1.78E-01	6.85E-02	3.85E-02	3.94E-02	4.00E-02	2.23E+00	2.23E+00	No	No
ethylbenzene	21710	1.62E-02	1.13E-02	1.02E-02	8.51E-03	1.20E-02	1.31E-02	9.27E-02	3.58E-02	2.01E-02	2.06E-02	2.09E-02	1.17E+00	1.17E+00	No	No
ethylene	566610	2.96E-01	2.06E-01	1.86E-01	1.55E-01	2.18E-01	2.38E-01	1.69E+00	6.52E-01	3.66E-01	3.75E-01	3.81E-01	2.13E+01	2.13E+01	No	No
formaldehyde	49	7.70E-01	5.37E-01	4.85E-01	4.04E-01	5.68E-01	6.21E-01	4.40E+00	1.70E+00	9.54E-01	9.76E-01	9.92E-01	5.54E+01	5.54E+01	Yes	Yes
ketone	1167	4.35E-01	3.03E-01	2.74E-01	2.28E-01	3.21E-01	3.51E-01	2.49E+00	9.60E-01	5.39E-01	5.52E-01	5.61E-01	3.13E+01	3.13E+01	No	No
toluene	1000	1.37E-01	9.59E-02	8.65E-02	7.21E-02	1.01E-01	1.11E-01	7.85E-01	3.03E-01	1.70E-01	1.74E-01	1.77E-01	9.88E+00	9.88E+00	No	No
trimethylbenzene	4166	3.94E-02	2.75E-02	2.48E-02	2.06E-02	2.90E-02	3.17E-02	2.25E-01	8.68E-02	4.88E-02	4.99E-02	5.07E-02	2.83E+00	2.83E+00	No	No
xylene	8680	1.09E-01	7.61E-02	6.87E-02	5.72E-02	8.04E-02	8.80E-02	6.24E-01	2.41E-01	1.35E-01	1.38E-01	1.41E-01	7.85E+00	7.85E+00	No	No

Notes:
All air concentrations are in units of µg/m³
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
NV = no value
3.20E-03 = greater than 1-h air threshold

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	NV	2.54E+01	8.67E+00	1.04E+01	9.77E+00	1.11E+01	1.42E+01	1.50E+01	2.56E+00	2.91E+00	2.20E+00	2.56E+00	2.78E+00	1.40E+01	9.62E+00	7.76E+00
DPM	5	1.36E+01	4.44E+00	4.70E+00	4.38E+00	5.49E+00	6.83E+00	7.27E+00	1.25E+00	1.53E+00	1.15E+00	1.25E+00	1.47E+00	7.36E+00	5.01E+00	4.08E+00
PM10	NV	2.54E+01	8.66E+00	1.04E+01	9.76E+00	1.11E+01	1.42E+01	1.50E+01	2.56E+00	2.91E+00	2.21E+00	2.56E+00	2.78E+00	1.40E+01	9.63E+00	7.78E+00
PM2.5	NV	2.39E+01	8.05E+00	9.82E+00	9.23E+00	1.05E+01	1.39E+01	1.41E+01	2.42E+00	2.73E+00	2.10E+00	2.42E+00	2.61E+00	1.34E+01	9.14E+00	7.41E+00
SO2	500	1.17E+00	3.91E-01	4.28E-01	4.05E-01	4.42E-01	5.99E-01	6.09E-01	1.03E-01	1.18E-01	8.70E-02	1.04E-01	1.19E-01	5.51E-01	3.79E-01	3.06E-01
CO	15000	2.37E+02	7.72E+01	8.18E+01	7.63E+01	9.56E+01	1.25E+02	1.27E+02	2.29E+01	2.66E+01	2.01E+01	2.29E+01	2.56E+01	1.28E+02	8.74E+01	7.11E+01
NOX	NV	3.82E+02	1.24E+02	1.32E+02	1.23E+02	1.54E+02	2.02E+02	2.04E+02	3.69E+01	4.27E+01	3.24E+01	3.69E+01	4.12E+01	2.07E+02	1.41E+02	1.14E+02
NO2	200	1.17E+02	9.14E+01	9.22E+01	9.13E+01	9.44E+01	9.92E+01	9.94E+01	3.69E+01	4.27E+01	3.24E+01	3.69E+01	4.12E+01	9.97E+01	9.31E+01	9.04E+01
Metals																
Aluminum	167	1.77E+00	6.04E-01	7.23E-01	6.80E-01	7.71E-01	9.90E-01	1.04E+00	1.78E-01	2.03E-01	1.53E-01	1.78E-01	1.93E-01	9.77E-01	6.70E-01	5.41E-01
Antimony	17	9.96E-05	3.40E-05	4.07E-05	3.83E-05	4.34E-05	5.57E-05	5.86E-05	1.00E-05	1.14E-05	8.61E-06	1.00E-05	1.09E-05	5.49E-05	3.77E-05	3.04E-05
Arsenic	0.3	2.82E-03	9.63E-04	1.15E-03	1.09E-03	1.23E-03	1.58E-03	1.66E-03	2.84E-04	3.24E-04	2.44E-04	2.84E-04	3.08E-04	1.56E-03	1.07E-03	8.62E-04
Barium	17	9.95E-03	3.39E-03	4.06E-03	3.82E-03	4.33E-03	5.56E-03	5.85E-03	9.99E-04	1.14E-03	8.60E-04	1.00E-03	1.09E-03	5.48E-03	3.76E-03	3.04E-03
Beryllium	0.07	1.85E-05	6.31E-06	7.56E-06	7.11E-06	8.06E-06	1.04E-05	1.09E-05	1.86E-06	2.12E-06	1.60E-06	1.86E-06	2.02E-06	1.02E-05	7.00E-06	5.65E-06
Bismuth	167	5.09E-06	1.73E-06	2.08E-06	1.95E-06	2.21E-06	2.84E-06	2.99E-06	5.11E-07	5.83E-07	4.40E-07	5.12E-07	5.55E-07	2.81E-06	1.92E-06	1.55E-06
Cadmium	0.03	8.18E-03	2.67E-03	2.83E-03	2.63E-03	3.30E-03	4.10E-03	4.37E-03	7.50E-04	9.19E-04	6.91E-04	7.51E-04	8.85E-04	4.42E-03	3.01E-03	2.45E-03
Calcium	NV	1.01E+00	3.43E-01	4.11E-01	3.86E-01	4.38E-01	5.62E-01	5.91E-01	1.01E-01	1.15E-01	8.69E-02	1.01E-01	1.10E-01	5.54E-01	3.80E-01	3.07E-01
Chromium	12	5.59E-03	1.89E-03	2.20E-03	2.06E-03	2.39E-03	3.05E-03	3.22E-03	5.50E-04	6.38E-04	4.81E-04	5.51E-04	6.09E-04	3.07E-03	2.10E-03	1.70E-03
Cobalt	0.7	6.81E-04	2.32E-04	2.78E-04	2.62E-04	2.97E-04	3.81E-04	4.01E-04	6.85E-05	7.81E-05	5.89E-05	6.86E-05	7.44E-05	3.76E-04	2.58E-04	2.08E-04
Copper	100	1.80E-03	6.15E-04	7.36E-04	6.93E-04	7.85E-04	1.01E-03	1.06E-03	1.81E-04	2.07E-04	1.56E-04	1.81E-04	1.97E-04	9.94E-04	6.82E-04	5.50E-04
Gold	83	1.97E-06	6.72E-07	8.04E-07	7.57E-07	8.57E-07	1.10E-06	1.16E-06	1.98E-07	2.26E-07	1.70E-07	1.98E-07	2.15E-07	1.09E-06	7.45E-07	6.01E-07
Iron	33	1.93E+00	6.59E-01	7.90E-01	7.43E-01	8.41E-01	1.08E+00	1.14E+00	1.94E-01	2.21E-01	1.67E-01	1.95E-01	2.11E-01	1.07E+00	7.31E-01	5.90E-01
Lead	0.5	1.67E-03	5.48E-04	5.95E-04	5.55E-04	6.81E-04	8.53E-04	9.06E-04	1.55E-04	1.88E-04	1.41E-04	1.56E-04	1.80E-04	9.03E-04	6.16E-04	5.01E-04
Lithium	NV	8.22E-04	2.80E-04	3.36E-04	3.16E-04	3.58E-04	4.60E-04	4.84E-04	8.26E-05	9.42E-05	7.11E-05	8.28E-05	8.97E-05	4.53E-04	3.11E-04	2.51E-04
Magnesium	167	5.33E-01	1.82E-01	2.18E-01	2.05E-01	2.32E-01	2.98E-01	3.14E-01	5.36E-02	6.11E-02	4.61E-02	5.37E-02	5.82E-02	2.94E-01	2.02E-01	1.63E-01
Manganese	7	2.00E-02	6.84E-03	8.19E-03	7.70E-03	8.72E-03	1.12E-02	1.18E-02	2.01E-03	2.30E-03	1.73E-03	2.02E-03	2.19E-03	1.11E-02	7.58E-03	6.12E-03
Molybdenum	100	3.05E-05	1.04E-05	1.25E-05	1.17E-05	1.33E-05	1.71E-05	1.80E-05	3.07E-06	3.50E-06	2.64E-06	3.07E-06	3.33E-06	1.68E-05	1.15E-05	9.32E-06
Nickel	0.2	1.77E-03	6.03E-04	7.22E-04	6.79E-04	7.70E-04	9.89E-04	1.04E-03	1.78E-04	2.03E-04	1.53E-04	1.78E-04	1.93E-04	9.75E-04	6.69E-04	5.40E-04
Potassium	67	3.37E-01	1.15E-01	1.38E-01	1.30E-01	1.47E-01	1.89E-01	1.99E-01	3.39E-02	3.87E-02	2.92E-02	3.40E-02	3.68E-02	1.86E-01	1.28E-01	1.03E-01
Selenium	7	3.04E-05	1.04E-05	1.24E-05	1.17E-05	1.33E-05	1.70E-05	1.79E-05	3.06E-06	3.49E-06	2.63E-06	3.06E-06	3.32E-06	1.68E-05	1.15E-05	9.29E-06
Silver	0.3	7.49E-06	2.55E-06	3.06E-06	2.88E-06	3.26E-06	4.19E-06	4.41E-06	7.53E-07	8.58E-07	6.47E-07	7.54E-07	8.17E-07	4.13E-06	2.83E-06	2.29E-06
Sodium	NV	4.03E-01	1.37E-01	1.65E-01	1.55E-01	1.75E-01	2.25E-01	2.37E-01	4.05E-02	4.62E-02	3.48E-02	4.06E-02	4.40E-02	2.22E-01	1.52E-01	1.23E-01
Strontium	67	5.39E-03	1.84E-03	2.20E-03	2.07E-03	2.34E-03	3.01E-03	3.17E-03	5.41E-04	6.17E-04	4.65E-04	5.42E-04	5.88E-04	2.97E-03	2.04E-03	1.64E-03
Thallium	3	7.78E-06	2.65E-06	3.18E-06	2.99E-06	3.39E-06	4.35E-06	4.58E-06	7.81E-07	8.91E-07	6.72E-07	7.83E-07	8.49E-07	4.29E-06	2.94E-06	2.37E-06
Tin	67	2.74E-05	9.35E-06	1.12E-05	1.05E-05	1.19E-05	1.53E-05	1.61E-05	2.75E-06	3.14E-06	2.37E-06	2.76E-06	2.99E-06	1.51E-05	1.04E-05	8.37E-06
Titanium	167	8.87E-02	3.02E-02	3.62E-02	3.41E-02	3.86E-02	4.96E-02	5.22E-02	8.91E-03	1.02E-02	7.66E-03	8.92E-03	9.68E-03	4.89E-02	3.35E-02	2.71E-02
Uranium	2	2.47E-05	8.44E-06	1.01E-05	9.51E-06	1.08E-05	1.38E-05	1.46E-05	2.49E-06	2.83E-06	2.14E-06	2.49E-06	2.70E-06	1.36E-05	9.35E-06	7.55E-06
Vanadium	0.8	3.26E-03	1.11E-03	1.33E-03	1.25E-03	1.42E-03	1.82E-03	1.92E-03	3.28E-04	3.74E-04	2.82E-04	3.28E-04	3.56E-04	1.80E-03	1.23E-03	9.95E-04
Yttrium	33	2.41E-04	8.21E-05	9.83E-05	9.25E-05	1.05										

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	2	1.04E-05	3.39E-06	3.59E-06	3.35E-06	4.19E-06	5.22E-06	5.55E-06	9.53E-07	1.17E-06	8.78E-07	9.54E-07	1.13E-06	5.62E-06	3.83E-06	3.12E-06
indeno(1,2,3-cd)pyrene	2	6.62E-06	2.16E-06	2.28E-06	2.13E-06	2.67E-06	3.32E-06	3.53E-06	6.06E-07	7.43E-07	5.58E-07	6.07E-07	7.15E-07	3.57E-06	2.43E-06	1.98E-06
Volatile Oranic Compounds																
1,3-butadiene	220	7.75E-02	2.52E-02	2.64E-02	2.48E-02	3.07E-02	4.13E-02	4.16E-02	7.46E-03	8.31E-03	6.57E-03	7.47E-03	8.10E-03	4.23E-02	2.88E-02	2.31E-02
acetaldehyde	470	1.04E+01	3.40E+00	3.56E+00	3.34E+00	4.14E+00	5.57E+00	5.61E+00	1.01E+00	1.12E+00	8.85E-01	1.01E+00	1.09E+00	5.71E+00	3.89E+00	3.11E+00
acetone	19665	5.50E+00	1.79E+00	1.87E+00	1.76E+00	2.18E+00	2.93E+00	2.95E+00	5.30E-01	5.90E-01	4.66E-01	5.30E-01	5.75E-01	3.00E+00	2.05E+00	1.64E+00
acrolein	2.5	1.85E+00	6.01E-01	6.30E-01	5.92E-01	7.33E-01	9.86E-01	9.93E-01	1.78E-01	1.98E-01	1.57E-01	1.78E-01	1.93E-01	1.01E+00	6.88E-01	5.50E-01
aldehyde	10	1.40E+01	4.54E+00	4.76E+00	4.47E+00	5.54E+00	7.45E+00	7.50E+00	1.35E+00	1.50E+00	1.18E+00	1.35E+00	1.46E+00	7.63E+00	5.20E+00	4.16E+00
benzene	29	6.85E-01	2.23E-01	2.33E-01	2.19E-01	2.71E-01	3.65E-01	3.68E-01	6.60E-02	7.35E-02	5.80E-02	6.61E-02	7.16E-02	3.74E-01	2.55E-01	2.04E-01
C10-C12 aliphatic	11666	1.50E-01	4.89E-02	5.13E-02	4.81E-02	5.96E-02	8.02E-02	8.08E-02	1.45E-02	1.61E-02	1.27E-02	1.45E-02	1.57E-02	8.21E-02	5.60E-02	4.48E-02
C12-C16 aliphatic	11666	8.71E-01	2.83E-01	2.97E-01	2.79E-01	3.45E-01	4.64E-01	4.68E-01	8.39E-02	9.34E-02	7.38E-02	8.40E-02	9.11E-02	4.76E-01	3.24E-01	2.59E-01
C12-C16 aromatic	4166	1.17E-02	3.82E-03	4.00E-03	3.76E-03	4.66E-03	6.26E-03	6.31E-03	1.13E-03	1.26E-03	9.96E-04	1.13E-03	1.23E-03	6.42E-03	4.37E-03	3.50E-03
C16-C21 aliphatic	333	8.72E-01	2.83E-01	2.97E-01	2.79E-01	3.46E-01	4.65E-01	4.68E-01	8.40E-02	9.36E-02	7.39E-02	8.41E-02	9.12E-02	4.76E-01	3.24E-01	2.60E-01
C2-C6 aliphatic	2100	4.15E+00	1.35E+00	1.41E+00	1.33E+00	1.65E+00	2.21E+00	2.23E+00	4.00E-01	4.45E-01	3.52E-01	4.00E-01	4.34E-01	2.27E+00	1.54E+00	1.24E+00
C6-C8 aliphatic	61800	2.84E+00	9.23E-01	9.68E-01	9.09E-01	1.13E+00	1.51E+00	1.52E+00	2.74E-01	3.05E-01	2.41E-01	2.74E-01	2.97E-01	1.55E+00	1.06E+00	8.45E-01
C8-C10 aliphatic	60000	4.00E-02	1.30E-02	1.36E-02	1.28E-02	1.59E-02	2.13E-02	2.15E-02	3.85E-03	4.29E-03	3.39E-03	3.86E-03	4.18E-03	2.18E-02	1.49E-02	1.19E-02
C8-C10 aromatic	4166	2.25E-01	7.31E-02	7.66E-02	7.19E-02	8.91E-02	1.20E-01	1.21E-01	2.17E-02	2.41E-02	1.91E-02	2.17E-02	2.35E-02	1.23E-01	8.36E-02	6.69E-02
ethylbenzene	21710	1.17E-01	3.82E-02	4.00E-02	3.76E-02	4.66E-02	6.26E-02	6.31E-02	1.13E-02	1.26E-02	9.96E-03	1.13E-02	1.23E-02	6.42E-02	4.37E-02	3.50E-02
ethylene	566610	2.14E+00	6.95E-01	7.29E-01	6.85E-01	8.48E-01	1.14E+00	1.15E+00	2.06E-01	2.30E-01	1.81E-01	2.06E-01	2.24E-01	1.17E+00	7.96E-01	6.37E-01
formaldehyde	49	5.57E+00	1.81E+00	1.90E+00	1.78E+00	2.21E+00	2.97E+00	2.99E+00	5.37E-01	5.98E-01	4.72E-01	5.38E-01	5.83E-01	3.04E+00	2.07E+00	1.66E+00
ketone	1167	3.15E+00	1.02E+00	1.07E+00	1.01E+00	1.25E+00	1.68E+00	1.69E+00	3.03E-01	3.38E-01	2.67E-01	3.04E-01	3.29E-01	1.72E+00	1.17E+00	9.37E-01
toluene	1000	9.95E-01	3.23E-01	3.39E-01	3.18E-01	3.94E-01	5.30E-01	5.34E-01	9.58E-02	1.07E-01	8.43E-02	9.60E-02	1.04E-01	5.43E-01	3.70E-01	2.96E-01
trimethylbenzene	4166	2.85E-01	9.26E-02	9.71E-02	9.12E-02	1.13E-01	1.52E-01	1.53E-01	2.75E-02	3.06E-02	2.41E-02	2.75E-02	2.98E-02	1.56E-01	1.06E-01	8.48E-02
xylenes	8680	7.90E-01	2.57E-01	2.69E-01	2.53E-01	3.13E-01	4.21E-01	4.24E-01	7.61E-02	8.47E-02	6.69E-02	7.62E-02	8.26E-02	4.31E-01	2.94E-01	2.35E-01

all air concentrations are in units of µg/m³.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
NV = no value.
3.20E-03 = greater than 1-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	NV	2.55E+00	1.93E+00	1.76E+00	1.48E+00	2.05E+00	2.08E+00	1.48E+01	6.02E+00	1.92E+00	2.05E+00	2.17E+00	1.45E+02	1.45E+02	No	No
DPM	5	1.67E+00	1.06E+00	9.66E-01	8.24E-01	1.12E+00	1.32E+00	7.96E+00	3.27E+00	9.68E-01	1.08E+00	1.11E+00	1.35E+02	1.35E+02	Yes	Yes
PM10	NV	2.56E+00	1.93E+00	1.76E+00	1.48E+00	2.05E+00	2.08E+00	1.47E+01	6.04E+00	1.93E+00	2.05E+00	2.18E+00	1.45E+02	1.45E+02	No	No
PM2.5	NV	2.41E+00	1.82E+00	1.66E+00	1.40E+00	1.93E+00	1.95E+00	1.36E+01	5.76E+00	1.82E+00	1.94E+00	2.05E+00	1.45E+02	1.45E+02	No	No
SO2	500	9.12E-02	7.45E-02	6.78E-02	5.72E-02	7.91E-02	8.41E-02	5.68E-01	2.44E-01	1.38E-01	1.45E-01	1.41E-01	8.15E+00	8.15E+00	No	No
CO	15000	2.90E+01	1.84E+01	1.68E+01	1.43E+01	1.94E+01	2.30E+01	1.38E+02	5.70E+01	3.29E+01	3.38E+01	3.42E+01	2.34E+03	2.34E+03	No	No
NOX	NV	4.66E+01	2.95E+01	2.69E+01	2.29E+01	3.11E+01	3.69E+01	2.23E+02	9.17E+01	5.29E+01	5.42E+01	5.50E+01	3.78E+03	3.78E+03	No	No
NO2	200	4.66E+01	2.95E+01	2.69E+01	2.29E+01	3.11E+01	3.69E+01	1.01E+02	8.81E+01	5.29E+01	5.42E+01	5.50E+01	4.56E+02	4.56E+02	Yes	Yes
Metals																
Aluminum	167	1.78E-01	1.34E-01	1.22E-01	1.03E-01	1.43E-01	1.45E-01	1.03E+00	4.20E-01	1.34E-01	1.43E-01	1.51E-01	1.02E+01	1.02E+01	No	No
Antimony	17	9.98E-06	7.56E-06	6.87E-06	5.80E-06	8.02E-06	8.16E-06	5.78E-05	2.36E-05	7.51E-06	8.02E-06	8.49E-06	5.69E-04	5.69E-04	No	No
Arsenic	0.3	2.83E-04	2.14E-04	1.95E-04	1.65E-04	2.27E-04	2.31E-04	1.64E-03	6.69E-04	2.13E-04	2.28E-04	2.41E-04	1.61E-02	1.61E-02	No	No
Barium	17	9.96E-04	7.55E-04	6.87E-04	5.79E-04	8.01E-04	8.15E-04	5.77E-03	2.35E-03	7.50E-04	8.01E-04	8.48E-04	5.68E-02	5.68E-02	No	No
Beryllium	0.07	1.85E-06	1.41E-06	1.28E-06	1.08E-06	1.49E-06	1.52E-06	1.07E-05	4.38E-06	1.40E-06	1.49E-06	1.58E-06	1.06E-04	1.06E-04	No	No
Bismuth	167	5.10E-07	3.86E-07	3.51E-07	2.96E-07	4.10E-07	4.17E-07	2.95E-06	1.20E-06	3.84E-07	4.10E-07	4.33E-07	2.91E-05	2.91E-05	No	No
Cadmium	0.03	1.00E-03	6.35E-04	5.80E-04	4.95E-04	6.71E-04	7.93E-04	4.78E-03	1.97E-03	5.81E-04	6.46E-04	6.69E-04	8.10E-02	8.10E-02	Yes	Yes
Calcium	NV	1.01E-01	7.63E-02	6.94E-02	5.86E-02	8.09E-02	8.24E-02	5.83E-01	2.38E-01	7.58E-02	8.10E-02	8.57E-02	5.74E+00	5.74E+00	No	No
Chromium	12	5.90E-04	4.27E-04	3.89E-04	3.29E-04	4.52E-04	4.79E-04	3.25E-03	1.33E-03	4.16E-04	4.48E-04	4.72E-04	3.76E-02	3.76E-02	No	No
Cobalt	0.7	6.83E-05	5.17E-05	4.70E-05	3.97E-05	5.49E-05	5.58E-05	3.95E-04	1.61E-04	5.14E-05	5.49E-05	5.81E-05	3.89E-03	3.89E-03	No	No
Copper	100	1.81E-04	1.37E-04	1.24E-04	1.05E-04	1.45E-04	1.48E-04	1.05E-03	4.27E-04	1.36E-04	1.45E-04	1.54E-04	1.03E-02	1.03E-02	No	No
Gold	83	1.97E-07	1.49E-07	1.36E-07	1.15E-07	1.59E-07	1.61E-07	1.14E-06	4.66E-07	1.49E-07	1.59E-07	1.68E-07	1.13E-05	1.13E-05	No	No
Iron	33	1.94E-01	1.47E-01	1.33E-01	1.13E-01	1.56E-01	1.58E-01	1.12E+00	4.58E-01	1.46E-01	1.56E-01	1.65E-01	1.10E+01	1.10E+01	No	No
Lead	0.5	1.97E-04	1.29E-04	1.18E-04	1.00E-04	1.36E-04	1.57E-04	9.72E-04	3.99E-04	1.20E-04	1.32E-04	1.37E-04	1.52E-02	1.52E-02	No	No
Lithium	NV	8.24E-05	6.24E-05	5.68E-05	4.79E-05	6.62E-05	6.74E-05	4.77E-04	1.95E-04	6.20E-05	6.62E-05	7.01E-05	4.70E-03	4.70E-03	No	No
Magnesium	167	5.34E-02	4.05E-02	3.68E-02	3.11E-02	4.29E-02	4.37E-02	3.09E-01	1.26E-01	4.02E-02	4.30E-02	4.54E-02	3.05E+00	3.05E+00	No	No
Manganese	7	2.01E-03	1.52E-03	1.38E-03	1.17E-03	1.61E-03	1.64E-03	1.16E-02	4.75E-03	1.51E-03	1.61E-03	1.71E-03	1.15E-01	1.15E-01	No	No
Molybdenum	100	3.06E-06	2.32E-06	2.11E-06	1.78E-06	2.46E-06	2.50E-06	1.77E-05	7.23E-06	2.30E-06	2.46E-06	2.60E-06	1.74E-04	1.74E-04	No	No
Nickel	0.2	1.77E-04	1.34E-04	1.22E-04	1.03E-04	1.42E-04	1.45E-04	1.03E-03	4.19E-04	1.33E-04	1.42E-04	1.51E-04	1.01E-02	1.01E-02	No	No
Potassium	67	3.38E-02	2.56E-02	2.33E-02	1.97E-02	2.72E-02	2.76E-02	1.96E-01	7.99E-02	2.54E-02	2.72E-02	2.88E-02	1.93E+00	1.93E+00	No	No
Selenium	7	3.05E-06	2.31E-06	2.10E-06	1.77E-06	2.45E-06	2.49E-06	1.77E-05	7.21E-06	2.30E-06	2.45E-06	2.59E-06	1.74E-04	1.74E-04	No	No
Silver	0.3	7.50E-07	5.69E-07	5.17E-07	4.36E-07	6.03E-07	6.14E-07	4.35E-06	1.77E-06	5.65E-07	6.03E-07	6.38E-07	4.28E-05	4.28E-05	No	No
Sodium	NV	4.04E-02	3.06E-02	2.78E-02	2.35E-02	3.24E-02	3.30E-02	2.34E-01	9.54E-02	3.04E-02	3.25E-02	3.43E-02	2.30E+00	2.30E+00	No	No
Strontium	67	5.39E-04	4.09E-04	3.72E-04	3.14E-04	4.34E-04	4.41E-04	3.12E-03	1.28E-03	4.06E-04	4.34E-04	4.59E-04	3.08E-02	3.08E-02	No	No
Thallium	3	7.79E-07	5.90E-07	5.37E-07	4.53E-07	6.26E-07	6.37E-07	4.51E-06	1.84E-06	5.87E-07	6.26E-07	6.63E-07	4.44E-05	4.44E-05	No	No
Tin	67	2.75E-06	2.08E-06	1.89E-06	1.60E-06	2.21E-06	2.25E-06	1.59E-05	6.49E-06	2.07E-06	2.21E-06	2.34E-06	1.57E-04	1.57E-04	No	No
Titanium	167	8.88E-03	6.73E-03	6.12E-03	5.17E-03	7.14E-03	7.26E-03	5.14E-02	2.10E-02	6.69E-03	7.14E-03	7.56E-03	5.07E-01	5.07E-01	No	No
Uranium	2	2.48E-06	1.88E-06	1.71E-06	1.44E-06	1.99E-06	2.03E-06	1.44E-05	5.86E-06	1.87E-06	1.99E-06	2.11E-06	1.41E-04	1.41E-04	No	No
Vanadium	0.8	3.27E-04	2.47E-04	2.25E-04	1.90E-04	2.63E-04	2.67E-04	1.89E-03	7.72E-04	2.46E-04	2.63E-04	2.78E-04	1.86E-02	1.86E-02	No	No
Yttrium	33	2.41E-05	1.83E-05	1.66E-05	1.40E-05	1.94E-05	1.97E-05	1.40E-04	5.70E-05	1.82E-05	1.94E-05	2.05E-05	1.37E-03	1.37E-03	No	No
Zinc	67	1.42E-03	9.34E-04	8.52E-04	7.25E-04	9.87E-04	1.13E-03	7.05E-03	2.89E-03	8.70E-04	9.58E-04	9.97E-04	1.09E-01	1.09E-01	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.07	1.83E-06	1.16E-06	1.06E-06	9.06E-07	1.23E-06	1.45E-06	8.76E-06	3.60E-06	1.07E-06	1.18E-06	1.23E-06	1.48E-04	1.48E-04	No	No
naphthalene	50	7.25E-04	4.61E-04	4.20E-04	3.59E-04	4.86E-04	5.75E-04	3.47E-03	1.43E-03	4.22E-04	4.69E-04	4.85E-04	5.87E-02	5.87E-02	No	No
phenanthrene	2	5.99E-05	3.81E-05	3.47E-05	2.96E-05	4.02E-05	4.75E-05	2.86E-04	1.18E-04	3.48E-05	3.87E-05	4.01E-05	4.85E-03	4.85E-03	No	No
anthracene	2	6.68E-06	4.25E-06	3.87E-06	3.30E-06	4.48E-06	5.30E-06	3.19E-05	1.31E-05	3.89E-06	4.32E-06	4.47E-06	5.41E-04	5.41E-04	No	No
fluorene	33	2.92E-05														

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	2	1.27E-06	8.08E-07	7.37E-07	6.29E-07	8.53E-07	1.01E-06	6.08E-06	2.50E-06	7.40E-07	8.22E-07	8.51E-07	1.03E-04	1.03E-04	No	No
indeno(1,2,3-cd)pyrene	2	8.09E-07	5.14E-07	4.69E-07	4.00E-07	5.42E-07	6.41E-07	3.86E-06	1.59E-06	4.70E-07	5.22E-07	5.41E-07	6.55E-05	6.55E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	220	9.01E-03	5.65E-03	5.15E-03	4.36E-03	5.93E-03	7.13E-03	4.52E-02	1.82E-02	1.03E-02	1.05E-02	1.08E-02	7.69E-01	7.69E-01	No	No
acetaldehyde	470	1.21E+00	7.62E-01	6.94E-01	5.88E-01	8.00E-01	9.62E-01	6.09E+00	2.46E+00	1.39E+00	1.41E+00	1.45E+00	1.04E+02	1.04E+02	No	No
acetone	19665	6.39E-01	4.01E-01	3.65E-01	3.09E-01	4.21E-01	5.06E-01	3.21E+00	1.29E+00	7.30E-01	7.44E-01	7.63E-01	5.46E+01	5.46E+01	No	No
acrolein	2.5	2.15E-01	1.35E-01	1.23E-01	1.04E-01	1.42E-01	1.70E-01	1.08E+00	4.35E-01	2.45E-01	2.50E-01	2.57E-01	1.84E+01	1.84E+01	Yes	Yes
aldehyde	10	1.62E+00	1.02E+00	9.28E-01	7.86E-01	1.07E+00	1.29E+00	8.15E+00	3.29E+00	1.85E+00	1.89E+00	1.94E+00	1.39E+02	1.39E+02	Yes	Yes
benzene	29	7.96E-02	4.99E-02	4.55E-02	3.85E-02	5.24E-02	6.31E-02	3.99E-01	1.61E-01	9.09E-02	9.27E-02	9.51E-02	6.80E+00	6.80E+00	No	No
C10-C12 aliphatic	11666	1.75E-02	1.10E-02	9.99E-03	8.46E-03	1.15E-02	1.39E-02	8.77E-02	3.54E-02	2.00E-02	2.04E-02	2.09E-02	1.49E+00	1.49E+00	No	No
C12-C16 aliphatic	11666	1.01E-01	6.35E-02	5.79E-02	4.90E-02	6.67E-02	8.02E-02	5.08E-01	2.05E-01	1.16E-01	1.18E-01	1.21E-01	8.65E+00	8.65E+00	No	No
C12-C16 aromatic	4166	1.37E-03	8.57E-04	7.80E-04	6.61E-04	8.99E-04	1.08E-03	6.85E-03	2.76E-03	1.56E-03	1.59E-03	1.63E-03	1.17E-01	1.17E-01	No	No
C16-C21 aliphatic	333	1.01E-01	6.36E-02	5.79E-02	4.91E-02	6.67E-02	8.03E-02	5.09E-01	2.05E-01	1.16E-01	1.18E-01	1.21E-01	8.66E+00	8.66E+00	No	No
C2-C6 aliphatic	2100	4.83E-01	3.03E-01	2.76E-01	2.34E-01	3.18E-01	3.82E-01	2.42E+00	9.77E-01	5.51E-01	5.62E-01	5.76E-01	4.12E+01	4.12E+01	No	No
C6-C8 aliphatic	61800	3.30E-01	2.07E-01	1.89E-01	1.60E-01	2.17E-01	2.61E-01	1.66E+00	6.68E-01	3.77E-01	3.84E-01	3.94E-01	2.82E+01	2.82E+01	No	No
C8-C10 aliphatic	60000	4.65E-03	2.92E-03	2.66E-03	2.25E-03	3.06E-03	3.68E-03	2.33E-02	9.41E-03	5.31E-03	5.41E-03	5.55E-03	3.97E-01	3.97E-01	No	No
C8-C10 aromatic	4166	2.61E-02	1.64E-02	1.49E-02	1.26E-02	1.72E-02	2.07E-02	1.31E-01	5.29E-02	2.98E-02	3.04E-02	3.12E-02	2.23E+00	2.23E+00	No	No
ethylbenzene	21710	1.37E-02	8.57E-03	7.80E-03	6.61E-03	8.99E-03	1.08E-02	6.85E-02	2.76E-02	1.56E-02	1.59E-02	1.63E-02	1.17E+00	1.17E+00	No	No
ethylene	566610	2.49E-01	1.56E-01	1.42E-01	1.20E-01	1.64E-01	1.97E-01	1.25E+00	5.03E-01	2.84E-01	2.90E-01	2.97E-01	2.12E+01	2.12E+01	No	No
formaldehyde	49	6.48E-01	4.06E-01	3.70E-01	3.14E-01	4.27E-01	5.13E-01	3.25E+00	1.31E+00	7.40E-01	7.54E-01	7.74E-01	5.54E+01	5.54E+01	Yes	Yes
ketone	1167	3.66E-01	2.30E-01	2.09E-01	1.77E-01	2.41E-01	2.90E-01	1.84E+00	7.41E-01	4.18E-01	4.26E-01	4.37E-01	3.13E+01	3.13E+01	No	No
toluene	1000	1.16E-01	7.25E-02	6.61E-02	5.60E-02	7.61E-02	9.16E-02	5.80E-01	2.34E-01	1.32E-01	1.35E-01	1.38E-01	9.88E+00	9.88E+00	No	No
trimethylbenzene	4166	3.31E-02	2.08E-02	1.89E-02	1.60E-02	2.18E-02	2.62E-02	1.66E-01	6.70E-02	3.78E-02	3.86E-02	3.96E-02	2.83E+00	2.83E+00	No	No
xylenes	8680	9.18E-02	5.76E-02	5.25E-02	4.44E-02	6.04E-02	7.27E-02	4.61E-01	1.86E-01	1.05E-01	1.07E-01	1.10E-01	7.84E+00	7.84E+00	No	No

Notes:
All air concentrations are in units of µg/m³
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
NV = no value

3.20E-03

 = greater than 1-h air threshold

Contaminant of Potential Concern	Guideline (µg/m³)	Air Concentration (µg/m³)														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	14.39	5.92	5.42	5.42	6.31	7.68	8.73	1.57	1.67	1.34	1.57	1.68	7.97	5.81	5.29
NO ₂	200	119.27	95.62	94.32	94.30	96.67	100.86	104.82	49.48	46.59	37.76	49.51	47.10	101.38	95.25	93.79
Cadmium	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acrolein	2.5	1.95	0.81	0.75	0.75	0.84	1.07	1.26	0.24	0.22	0.18	0.24	0.23	1.09	0.78	0.71
Aldehyde	10	14.73	6.14	5.66	5.65	6.38	8.05	9.49	1.81	1.64	1.38	1.81	1.71	8.26	5.92	5.39
Formaldehyde	49	5.88	2.45	2.26	2.26	2.54	3.21	3.78	0.72	0.65	0.55	0.72	0.68	3.30	2.36	2.15

Contaminant of Potential Concern	Guideline (µg/m³)	Hazard Quotient														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	3E+00	1E+00	1E+00	1E+00	1E+00	2E+00	2E+00	3E-01	3E-01	3E-01	3E-01	3E-01	2E+00	1E+00	1E+00
NO ₂	200	6E-01	5E-01	5E-01	5E-01	5E-01	5E-01	5E-01	2E-01	2E-01	2E-01	2E-01	2E-01	5E-01	5E-01	5E-01
Cadmium	0.03	3E-01	1E-01	1E-01	1E-01	1E-01	2E-01	2E-01	3E-02	3E-02	3E-02	3E-02	3E-02	2E-01	1E-01	1E-01
Acrolein	2.5	8E-01	3E-01	3E-01	3E-01	3E-01	4E-01	5E-01	1E-01	9E-02	7E-02	1E-01	9E-02	4E-01	3E-01	3E-01
Aldehyde	10	1E+00	6E-01	6E-01	6E-01	6E-01	8E-01	9E-01	2E-01	2E-01	1E-01	2E-01	2E-01	8E-01	6E-01	5E-01
Formaldehyde	49	1E-01	5E-02	5E-02	5E-02	5E-02	7E-02	8E-02	1E-02	1E-02	1E-02	1E-02	1E-02	7E-02	5E-02	4E-02

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	2.00	1.43	1.29	1.08	1.52	1.58	11.55	4.17	1.40	1.46	1.53	135.16
NO ₂	200	56.06	40.04	36.11	30.20	42.44	44.31	111.34	90.64	68.77	71.21	71.03	457.27
Cadmium	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.08
Acrolein	2.5	0.26	0.19	0.17	0.14	0.20	0.21	1.57	0.56	0.32	0.33	0.33	18.41
Aldehyde	10	1.97	1.40	1.26	1.05	1.48	1.60	11.83	4.20	2.44	2.51	2.53	139.04
Formaldehyde	49	0.79	0.56	0.50	0.42	0.59	0.64	4.72	1.68	0.97	1.00	1.01	55.47

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	4E-01	3E-01	3E-01	2E-01	3E-01	3E-01	2E+00	8E-01	3E-01	3E-01	3E-01	3E+01
NO ₂	200	3E-01	2E-01	2E-01	2E-01	2E-01	2E-01	6E-01	5E-01	3E-01	4E-01	4E-01	2E+00
Cadmium	0.03	4E-02	3E-02	3E-02	2E-02	3E-02	3E-02	2E-01	8E-02	3E-02	3E-02	3E-02	3E+00
Acrolein	2.5	1E-01	7E-02	7E-02	6E-02	8E-02	8E-02	6E-01	2E-01	1E-01	1E-01	1E-01	7E+00
Aldehyde	10	2E-01	1E-01	1E-01	1E-01	1E-01	2E-01	1E+00	4E-01	2E-01	3E-01	3E-01	1E+01
Formaldehyde	49	2E-02	1E-02	1E-02	9E-03	1E-02	1E-02	1E-01	3E-02	2E-02	2E-02	2E-02	1E+00

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)	Air Concentration (µg/m³)														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	15.17	5.35	4.78	4.50	5.66	6.87	7.27	1.53	1.71	1.29	1.54	1.69	7.40	8.45	6.84
NO ₂	200	121.40	93.98	92.40	91.72	94.85	99.24	100.05	45.54	47.55	36.26	45.58	47.23	99.79	102.53	98.03
Cadmium	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Acrolein	2.5	2.06	0.74	0.65	0.62	0.76	0.99	1.03	0.22	0.22	0.18	0.22	0.22	1.02	1.14	0.92
Aldehyde	10	15.55	5.55	4.88	4.72	5.72	7.46	7.75	1.67	1.68	1.33	1.67	1.69	7.68	8.63	6.97
Formaldehyde	49	6.20	2.22	1.95	1.88	2.28	2.98	3.09	0.67	0.67	0.53	0.67	0.67	3.06	3.44	2.78

Contaminant of Potential Concern	Guideline (µg/m³)	Hazard Quotient														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	3E+00	1E+00	1E+00	9E-01	1E+00	1E+00	1E+00	3E-01	3E-01	3E-01	3E-01	3E-01	1E+00	2E+00	1E+00
NO ₂	200	6E-01	5E-01	5E-01	5E-01	5E-01	5E-01	5E-01	2E-01	2E-01	2E-01	2E-01	2E-01	5E-01	5E-01	5E-01
Cadmium	0.03	3E-01	1E-01	1E-01	9E-02	1E-01	1E-01	1E-01	3E-02	3E-02	3E-02	3E-02	3E-02	1E-01	2E-01	1E-01
Acrolein	2.5	8E-01	3E-01	3E-01	2E-01	3E-01	4E-01	4E-01	9E-02	9E-02	7E-02	9E-02	9E-02	4E-01	5E-01	4E-01
Aldehyde	10	2E+00	6E-01	5E-01	5E-01	6E-01	7E-01	8E-01	2E-01	2E-01	1E-01	2E-01	2E-01	8E-01	9E-01	7E-01
Formaldehyde	49	1E-01	5E-02	4E-02	4E-02	5E-02	6E-02	6E-02	1E-02	1E-02	1E-02	1E-02	1E-02	6E-02	7E-02	6E-02

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	2.19	1.47	1.32	1.09	1.55	1.72	20.23	3.28	1.47	1.60	1.60	135.44
NO ₂	200	61.23	40.85	36.85	30.48	43.11	48.39	135.09	88.16	65.32	65.53	68.18	458.04
Cadmium	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.08
Acrolein	2.5	0.29	0.19	0.17	0.14	0.20	0.23	2.73	0.44	0.31	0.31	0.32	18.44
Aldehyde	10	2.17	1.44	1.30	1.07	1.51	1.77	20.63	3.29	2.32	2.31	2.43	139.33
Formaldehyde	49	0.87	0.57	0.52	0.42	0.60	0.71	8.23	1.31	0.92	0.92	0.97	55.58

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	4E-01	3E-01	3E-01	2E-01	3E-01	3E-01	4E+00	7E-01	3E-01	3E-01	3E-01	3E+01
NO ₂	200	3E-01	2E-01	2E-01	2E-01	2E-01	2E-01	7E-01	4E-01	3E-01	3E-01	3E-01	2E+00
Cadmium	0.03	4E-02	3E-02	3E-02	2E-02	3E-02	3E-02	4E-01	7E-02	3E-02	3E-02	3E-02	3E+00
Acrolein	2.5	1E-01	8E-02	7E-02	6E-02	8E-02	9E-02	1E+00	2E-01	1E-01	1E-01	1E-01	7E+00
Aldehyde	10	2E-01	1E-01	1E-01	1E-01	2E-01	2E-01	2E+00	3E-01	2E-01	2E-01	2E-01	1E+01
Formaldehyde	49	2E-02	1E-02	1E-02	9E-03	1E-02	1E-02	2E-01	3E-02	2E-02	2E-02	2E-02	1E+00

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)	Air Concentration (µg/m³)														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	13.66	5.51	5.33	5.39	5.56	6.84	10.69	1.39	1.57	1.21	1.40	1.52	7.36	6.55	5.16
NO ₂	200	117.26	94.44	94.08	94.23	94.55	99.20	108.76	46.03	43.86	34.14	46.06	42.45	99.68	97.30	93.40
Cadmium	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acrolein	2.5	1.85	0.76	0.74	0.75	0.75	0.99	1.45	0.22	0.20	0.17	0.22	0.20	1.01	0.88	0.70
Aldehyde	10	14.00	5.71	5.58	5.63	5.65	7.45	10.93	1.68	1.54	1.25	1.68	1.52	7.64	6.68	5.25
Formaldehyde	49	5.58	2.28	2.22	2.25	2.26	2.97	4.36	0.67	0.61	0.50	0.67	0.61	3.05	2.67	2.09

Contaminant of Potential Concern	Guideline (µg/m³)	Hazard Quotient														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	3E+00	1E+00	1E+00	1E+00	1E+00	1E+00	2E+00	3E-01	3E-01	2E-01	3E-01	3E-01	1E+00	1E+00	1E+00
NO ₂	200	6E-01	5E-01	5E-01	5E-01	5E-01	5E-01	5E-01	2E-01	2E-01	2E-01	2E-01	2E-01	5E-01	5E-01	5E-01
Cadmium	0.03	3E-01	1E-01	1E-01	1E-01	1E-01	1E-01	2E-01	3E-02	3E-02	2E-02	3E-02	3E-02	1E-01	1E-01	1E-01
Acrolein	2.5	7E-01	3E-01	3E-01	3E-01	3E-01	4E-01	6E-01	9E-02	8E-02	7E-02	9E-02	8E-02	4E-01	4E-01	3E-01
Aldehyde	10	1E+00	6E-01	6E-01	6E-01	6E-01	7E-01	1E+00	2E-01	2E-01	1E-01	2E-01	2E-01	8E-01	7E-01	5E-01
Formaldehyde	49	1E-01	5E-02	5E-02	5E-02	5E-02	6E-02	9E-02	1E-02	1E-02	1E-02	1E-02	1E-02	6E-02	5E-02	4E-02

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	2.04	1.47	1.33	1.13	1.58	1.66	11.53	4.59	1.48	1.54	1.58	134.90
NO ₂	200	56.93	41.18	37.30	31.45	44.14	46.16	111.16	91.76	69.79	72.75	71.86	456.58
Cadmium	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.08
Acrolein	2.5	0.27	0.19	0.17	0.15	0.20	0.21	1.55	0.61	0.33	0.34	0.34	18.37
Aldehyde	10	2.01	1.45	1.31	1.10	1.55	1.61	11.73	4.59	2.48	2.57	2.56	138.79
Formaldehyde	49	0.80	0.58	0.52	0.44	0.62	0.64	4.68	1.83	0.99	1.03	1.02	55.37

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	4E-01	3E-01	3E-01	2E-01	3E-01	3E-01	2E+00	9E-01	3E-01	3E-01	3E-01	3E+01
NO ₂	200	3E-01	2E-01	2E-01	2E-01	2E-01	2E-01	6E-01	5E-01	3E-01	4E-01	4E-01	2E+00
Cadmium	0.03	4E-02	3E-02	3E-02	2E-02	3E-02	3E-02	2E-01	9E-02	3E-02	3E-02	3E-02	3E+00
Acrolein	2.5	1E-01	8E-02	7E-02	6E-02	8E-02	9E-02	6E-01	2E-01	1E-01	1E-01	1E-01	7E+00
Aldehyde	10	2E-01	1E-01	1E-01	1E-01	2E-01	2E-01	1E+00	5E-01	2E-01	3E-01	3E-01	1E+01
Formaldehyde	49	2E-02	1E-02	1E-02	9E-03	1E-02	1E-02	1E-01	4E-02	2E-02	2E-02	2E-02	1E+00

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)	Air Concentration (µg/m³)														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	13.96	4.61	4.72	4.38	5.55	6.85	7.27	1.42	1.65	1.23	1.42	1.58	7.37	5.11	4.34
NO ₂	200	118.05	91.88	92.21	91.27	94.54	99.21	99.42	39.56	45.99	34.60	39.68	44.10	99.70	93.35	90.95
Cadmium	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acrolein	2.5	1.89	0.62	0.64	0.59	0.74	0.99	0.99	0.19	0.22	0.17	0.19	0.21	1.01	0.70	0.58
Aldehyde	10	14.30	4.71	4.81	4.47	5.60	7.45	7.50	1.42	1.65	1.26	1.42	1.57	7.65	5.30	4.36
Formaldehyde	49	5.71	1.88	1.92	1.78	2.23	2.97	2.99	0.57	0.66	0.50	0.57	0.63	3.05	2.11	1.74

Contaminant of Potential Concern	Guideline (µg/m³)	Hazard Quotient														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	3E+00	9E-01	9E-01	9E-01	1E+00	1E+00	1E+00	3E-01	3E-01	2E-01	3E-01	3E-01	1E+00	1E+00	9E-01
NO ₂	200	6E-01	5E-01	5E-01	5E-01	5E-01	5E-01	5E-01	2E-01	2E-01	2E-01	2E-01	2E-01	5E-01	5E-01	5E-01
Cadmium	0.03	3E-01	9E-02	9E-02	9E-02	1E-01	1E-01	1E-01	3E-02	3E-02	2E-02	3E-02	3E-02	1E-01	1E-01	9E-02
Acrolein	2.5	8E-01	2E-01	3E-01	2E-01	3E-01	4E-01	4E-01	8E-02	9E-02	7E-02	8E-02	8E-02	4E-01	3E-01	2E-01
Aldehyde	10	1E+00	5E-01	5E-01	4E-01	6E-01	7E-01	8E-01	1E-01	2E-01	1E-01	1E-01	2E-01	8E-01	5E-01	4E-01
Formaldehyde	49	1E-01	4E-02	4E-02	4E-02	5E-02	6E-02	6E-02	1E-02	1E-02	1E-02	1E-02	1E-02	6E-02	4E-02	4E-02

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	3.47	1.66	1.36	1.30	1.88	2.85	8.44	3.28	1.08	1.13	1.18	135.07
NO ₂	200	88.57	45.80	37.70	36.35	52.29	78.85	102.61	88.15	61.25	61.70	64.56	457.02
Cadmium	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.08
Acrolein	2.5	0.46	0.22	0.18	0.17	0.25	0.38	1.14	0.44	0.29	0.29	0.30	18.39
Aldehyde	10	3.48	1.67	1.36	1.32	1.91	2.88	8.63	3.29	2.17	2.17	2.29	138.95
Formaldehyde	49	1.39	0.67	0.54	0.53	0.76	1.15	3.44	1.31	0.87	0.86	0.91	55.43

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	7E-01	3E-01	3E-01	3E-01	4E-01	6E-01	2E+00	7E-01	2E-01	2E-01	2E-01	3E+01
NO ₂	200	4E-01	2E-01	2E-01	2E-01	3E-01	4E-01	5E-01	4E-01	3E-01	3E-01	3E-01	2E+00
Cadmium	0.03	7E-02	3E-02	3E-02	3E-02	4E-02	6E-02	2E-01	7E-02	2E-02	2E-02	2E-02	3E+00
Acrolein	2.5	2E-01	9E-02	7E-02	7E-02	1E-01	2E-01	5E-01	2E-01	1E-01	1E-01	1E-01	7E+00
Aldehyde	10	3E-01	2E-01	1E-01	1E-01	2E-01	3E-01	9E-01	3E-01	2E-01	2E-01	2E-01	1E+01
Formaldehyde	49	3E-02	1E-02	1E-02	1E-02	2E-02	2E-02	7E-02	3E-02	2E-02	2E-02	2E-02	1E+00

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)	Air Concentration (µg/m³)														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	13.89	5.62	4.96	4.95	5.81	6.95	7.81	1.48	1.63	1.28	1.49	1.59	7.40	5.67	5.34
NO ₂	200	117.89	94.76	93.01	92.98	95.26	99.29	101.76	46.74	45.51	36.11	46.78	44.62	99.79	94.86	93.92
Cadmium	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acrolein	2.5	1.88	0.77	0.69	0.68	0.78	0.99	1.11	0.23	0.21	0.17	0.23	0.21	1.02	0.76	0.72
Aldehyde	10	14.23	5.82	5.18	5.17	5.86	7.48	8.37	1.71	1.60	1.32	1.71	1.62	7.67	5.78	5.44
Formaldehyde	49	5.68	2.32	2.07	2.06	2.34	2.98	3.34	0.68	0.64	0.53	0.68	0.65	3.06	2.30	2.17

Contaminant of Potential Concern	Guideline (µg/m³)	Hazard Quotient														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	3E+00	1E+00	1E+00	1E+00	1E+00	1E+00	2E+00	3E-01	3E-01	3E-01	3E-01	3E-01	1E+00	1E+00	1E+00
NO ₂	200	6E-01	5E-01	5E-01	5E-01	5E-01	5E-01	5E-01	2E-01	2E-01	2E-01	2E-01	2E-01	5E-01	5E-01	5E-01
Cadmium	0.03	3E-01	1E-01	1E-01	1E-01	1E-01	1E-01	2E-01	3E-02	3E-02	3E-02	3E-02	3E-02	1E-01	1E-01	1E-01
Acrolein	2.5	8E-01	3E-01	3E-01	3E-01	3E-01	4E-01	4E-01	9E-02	8E-02	7E-02	9E-02	9E-02	4E-01	3E-01	3E-01
Aldehyde	10	1E+00	6E-01	5E-01	5E-01	6E-01	7E-01	8E-01	2E-01	2E-01	1E-01	2E-01	2E-01	8E-01	6E-01	5E-01
Formaldehyde	49	1E-01	5E-02	4E-02	4E-02	5E-02	6E-02	7E-02	1E-02	1E-02	1E-02	1E-02	1E-02	6E-02	5E-02	4E-02

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	1.96	1.38	1.24	1.04	1.46	1.55	10.79	4.26	1.34	1.43	1.49	134.91
NO ₂	200	54.92	38.45	34.75	29.12	40.76	43.41	109.18	90.86	67.51	69.41	69.89	456.61
Cadmium	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.08
Acrolein	2.5	0.26	0.18	0.16	0.13	0.19	0.21	1.46	0.56	0.32	0.32	0.33	18.37
Aldehyde	10	1.93	1.35	1.21	1.01	1.42	1.56	11.03	4.26	2.39	2.45	2.49	138.80
Formaldehyde	49	0.77	0.54	0.48	0.40	0.57	0.62	4.40	1.70	0.95	0.98	0.99	55.37

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	4E-01	3E-01	2E-01	2E-01	3E-01	3E-01	2E+00	9E-01	3E-01	3E-01	3E-01	3E+01
NO ₂	200	3E-01	2E-01	2E-01	1E-01	2E-01	2E-01	5E-01	5E-01	3E-01	3E-01	3E-01	2E+00
Cadmium	0.03	4E-02	3E-02	2E-02	2E-02	3E-02	3E-02	2E-01	9E-02	3E-02	3E-02	3E-02	3E+00
Acrolein	2.5	1E-01	7E-02	6E-02	5E-02	8E-02	8E-02	6E-01	2E-01	1E-01	1E-01	1E-01	7E+00
Aldehyde	10	2E-01	1E-01	1E-01	1E-01	1E-01	2E-01	1E+00	4E-01	2E-01	2E-01	2E-01	1E+01
Formaldehyde	49	2E-02	1E-02	1E-02	8E-03	1E-02	1E-02	9E-02	3E-02	2E-02	2E-02	2E-02	1E+00

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)	Air Concentration (µg/m³)														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	13.63	4.44	4.70	4.38	5.49	6.83	7.27	1.25	1.53	1.15	1.25	1.47	7.36	5.01	4.08
NO ₂	200	117.14	91.43	92.16	91.27	94.37	99.20	99.42	36.89	42.71	32.39	36.94	41.16	99.66	93.08	90.43
Cadmium	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acrolein	2.5	1.85	0.60	0.63	0.59	0.73	0.99	0.99	0.18	0.20	0.16	0.18	0.19	1.01	0.69	0.55
Aldehyde	10	13.97	4.54	4.76	4.47	5.54	7.45	7.50	1.35	1.50	1.18	1.35	1.46	7.63	5.20	4.16
Formaldehyde	49	5.57	1.81	1.90	1.78	2.21	2.97	2.99	0.54	0.60	0.47	0.54	0.58	3.04	2.07	1.66

Contaminant of Potential Concern	Guideline (µg/m³)	Hazard Quotient														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
DPM	5	3E+00	9E-01	9E-01	9E-01	1E+00	1E+00	1E+00	2E-01	3E-01	2E-01	2E-01	3E-01	1E+00	1E+00	8E-01
NO ₂	200	6E-01	5E-01	5E-01	5E-01	5E-01	5E-01	5E-01	2E-01	2E-01	2E-01	2E-01	2E-01	5E-01	5E-01	5E-01
Cadmium	0.03	3E-01	9E-02	9E-02	9E-02	1E-01	1E-01	1E-01	2E-02	3E-02	2E-02	3E-02	3E-02	1E-01	1E-01	8E-02
Acrolein	2.5	7E-01	2E-01	3E-01	2E-01	3E-01	4E-01	4E-01	7E-02	8E-02	6E-02	7E-02	8E-02	4E-01	3E-01	2E-01
Aldehyde	10	1E+00	5E-01	5E-01	4E-01	6E-01	7E-01	8E-01	1E-01	1E-01	1E-01	1E-01	1E-01	8E-01	5E-01	4E-01
Formaldehyde	49	1E-01	4E-02	4E-02	4E-02	5E-02	6E-02	6E-02	1E-02	1E-02	1E-02	1E-02	1E-02	6E-02	4E-02	3E-02

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	1.67	1.06	0.97	0.82	1.12	1.32	7.96	3.27	0.97	1.08	1.11	134.86
NO ₂	200	46.56	29.52	26.93	22.95	31.11	36.94	101.29	88.14	52.87	54.24	54.96	456.48
Cadmium	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Acrolein	2.5	0.21	0.13	0.12	0.10	0.14	0.17	1.08	0.44	0.25	0.25	0.26	18.37
Aldehyde	10	1.62	1.02	0.93	0.79	1.07	1.29	8.15	3.29	1.85	1.89	1.94	138.75
Formaldehyde	49	0.65	0.41	0.37	0.31	0.43	0.51	3.25	1.31	0.74	0.75	0.77	55.35

Contaminant of Potential Concern	Guideline (µg/m³)												
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp
DPM	5	3E-01	2E-01	2E-01	2E-01	2E-01	3E-01	2E+00	7E-01	2E-01	2E-01	2E-01	3E+01
NO ₂	200	2E-01	1E-01	1E-01	1E-01	2E-01	2E-01	5E-01	4E-01	3E-01	3E-01	3E-01	2E+00
Cadmium	0.03	3E-02	2E-02	2E-02	2E-02	2E-02	3E-02	2E-01	7E-02	2E-02	2E-02	2E-02	3E+00
Acrolein	2.5	9E-02	5E-02	5E-02	4E-02	6E-02	7E-02	4E-01	2E-01	1E-01	1E-01	1E-01	7E+00
Aldehyde	10	2E-01	1E-01	9E-02	8E-02	1E-01	1E-01	8E-01	3E-01	2E-01	2E-01	2E-01	1E+01
Formaldehyde	49	1E-02	8E-03	8E-03	6E-03	9E-03	1E-02	7E-02	3E-02	2E-02	2E-02	2E-02	1E+00

Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
1.00E+01 = greater than target HQ of 1.



APPENDIX 10.2-B

Air Quality - Chronic

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m³)							Basis of Screening Threshold	
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted		
Metals									
aluminum	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available	
antimony	NA	NA	25	NA	NA	NA	NA	MOE - health	
arsenic	NA	NA	0.3	NA	0.015 ⁿ	NA	NA	MOE - health	
					0.2 ^k			CalEPA - The CalEPA 8-h threshold for As was taken to be equivalent to the chronic REL due to the possibility of repeated exposure and the relatively slow clearance of As compounds. The chronic REL was based on a LOAEL of 0.23 µg/m³ for decrease in intellectual function and adverse effects on neurobehavioural development in children. An uncertainty factor of 30 was applied.	
								CalEPA - The CalEPA OEHHA 4-h threshold is based on a LOAEL for decreased fetal weight in mice following maternal inhalation exposure. An uncertainty factor of 1000 was applied: 10 for extrapolation from animals to humans, 10 for sensitive individuals and 10 for use of a LOAEL.	
barium	NA	NA	10	NA	NA	NA	NA	MOE - health	
beryllium	NA	NA	0.01	NA	NA	NA	NA	MOE - health	
Bismuth	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available	
Cadmium	NA	NA	0.025	NA	NA	NA	NA	MOE - health	
Calcium	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available	
chromium	NA	NA	0.5	NA	NA	5	NA	MOE - health	
						0.1		ATSDR - The MRL for insoluble Cr(III) particulate compounds was based on a LOAEL of 3 mg/m³ for trace-to-mild cell hyperplasia and chronic interstitial inflammation of the lung. The LOAEL was adjusted for intermittent exposure (6 h/day, 5 days/week) and a human equivalent concentration (0.789). An uncertainty factor of 90 was applied.	
								ATSDR - The MRL for soluble Cr(III) particulate compounds was based on a LOAEL of 3 mg/m³ for nasal and larynx lesions. The LOAEL was adjusted for intermittent exposure (6 h/day, 5 days/week) and a human equivalent concentration of 0.078. An uncertainty factor of 300 was applied.	
chromium VI	NA	NA	0.00035	NA	NA	0.005	NA	MOE - PM ₁₀ , health	
			0.0007			0.3		MOE - TSP, health	
								ATSDR - The MRL for dissolved Cr(VI) aerosols and mists was based on a LOAEL of 0.002 mg/m³ for nasal irritation, mucosal atrophy and decreased FVC, FEP ₁ and FEV. The LOAEL was adjusted for exposure duration (8 h/day, 5 days/week) and an uncertainty factor of 100 was applied.	
			0.0007			0.3		ATSDR - The MRL for Cr(VI) particulate compounds was based on a BMCL of 0.016 mg/m³ for alterations in lactate dehydrogenase levels in bronchoalveolar lavage. The BMCL was converted to a human equivalent concentration of 0.01 mg/m³ (regional deposited dose rate was 0.630). An uncertainty factor of 30 was applied.	
cobalt	NA	NA	0.1	NA	NA	NA	NA	MOE - health	
copper	NA	NA	50	NA	NA	NA	NA	MOE - health	
Gold	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available	
iron	NA	NA	4	NA	NA	NA	NA	MOE - health	
lead	NA	NA	0.5	NA	NA	NA	NA	MOE - health	
Lithium	NA	NA	20	NA	NA	NA	NA	MOE - health	
magnesium	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available	
manganese	NA	NA	0.1	NA	0.17 ⁿ	NA	NA	MOE - PM _{2.5} , health	
			0.2					MOE - PM ₁₀ , health	
								0.4	MOE - TSP, health
									CalEPA - The REL is based on a benchmark concentration of 72 µg/m³ for impaired neurobehaviour (visual reaction time, eye-hand coordination and hand steadiness). The benchmark concentration was adjusted for duration (5 days/week) and an uncertainty factor of 300 was applied.

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m³)							Basis of Screening Threshold	
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted		
molybdenum	NA	NA	120	NA	NA	NA	NA	MOE - particulate	
nickel	NA	NA	0.1	NA	0.06 ⁿ	NA	NA	MOE - PM ₁₀ , health	
								MOE - TSP, health	
			0.2					CalEPA - The threshold was based on a NOAEL of 0.03 µg/m³ for alveolar macrophage hyperplasia, alveolar proteinosis and chronic active inflammation. The NOAEL was corrected for a duration time of 5 days/week, a dosimetric adjustment factor of 0.264 and an uncertainty factor of 100.	
								ATSDR - The intermediate MRL was based on a NOAEL of 0.06 mg/m³ for chronic active inflammation in rats. The NOAEL was adjusted for exposure duration (6 h/day, 5 days/week) and a human equivalent concentration of 0.474. An uncertainty factor of 30 was applied.	
Potassium	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available	
selenium	NA	NA	10	NA	NA	NA	NA	NA	MOE - health
silver	NA	NA	1	NA	NA	NA	NA	NA	MOE - health
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
strontium	NA	NA	120	NA	NA	NA	NA	NA	MOE - particulate
thallium	NA	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
tin	NA	NA	10	NA	NA	NA	NA	NA	MOE - health
titanium	NA	NA	120	NA	NA	NA	NA	NA	MOE - particulate
uranium	NA	NA	0.15	NA	NA	2	NA	MOE - PM ₁₀ , health	
								MOE - TSP, health	
			0.3			ATSDR - The intermediate MRL for insoluble U was based on a NOAEL of 1.1 mg/m³ and a LOAEL of 8.2 mg/m³ for minimal microscopic lesions in the renal tubules in dogs. The NOAEL was adjusted for duration (6 h/day, 6 days/week) and an uncertainty factor of 100.			
vanadium	NA	NA	2	1	NA	NA	NA	ATSDR - The intermediate MRL for soluble U was based on a LOAEL of 0.15 mg/m³ for minimal microscopic lesions in the renal tubules in dogs. The LOAEL was adjusted for duration (6 h/day, 6 days/week) and an uncertainty factor of 300 was applied.	
								MOE - health	
yttrium	NA	NA	NA	NA	NA	NA	NA	WHO - effects other than cancer or odour/annoyance: The WHO threshold is based on a LOAEL of 20 µg/m³ for chronic upper respiratory tract symptoms. A protection factor of 20 was applied based on minimal upper respiratory tract effects and an unidentified susceptible sub-population.	
zinc	NA	NA	120	NA	NA	NA	NA	NA	No 24-h thresholds were available
MOE - particulate									
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
Methyl acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	-
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
2-Methylantracene	NA	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	-
C2 sub'd phenanthrene/anth.	NA	NA	NA	NA	NA	NA	NA	NA	-
C3 sub'd phenanthrene/anth.	NA	NA	NA	NA	NA	NA	NA	NA	-
C4 sub'd phenanthrene/anth.	NA	NA	NA	NA	NA	NA	NA	NA	-
Methyl phenanthrene/anthracene	NA	NA	NA	NA	NA	NA	NA	NA	-
1,6-dinitropyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
1,8-dinitropyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
1-Nitropyrene	NA	NA	NA	NA	NA	NA	NA	NA	-
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA	NA	NA	-
7H-Dibenzo(c,g)carbazole	NA	NA	NA	NA	NA	NA	NA	NA	-
Benzo(a)pyrene	NA	NA	0.00005	NA	NA	NA	NA	NA	MOE - health, as a surrogate of total PAHs

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
Benzo(b)fluorene	NA	NA	NA	NA	NA	NA	NA	-
Benzo(e)pyrene	NA	NA	NA	NA	NA	NA	NA	-
Cyclopenta(c,d)pyrene	NA	NA	NA	NA	NA	NA	NA	-
nitrobenzanthrone	NA	NA	NA	NA	NA	NA	NA	-
Nitro-pyrene	NA	NA	NA	NA	NA	NA	NA	-
7,12-dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
Benz(a)anthracene	NA	NA	NA	NA	NA	NA	NA	-
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
Benzo(j)fluoranthene	NA	NA	NA	NA	NA	NA	NA	-
C2 sub'd B(b&k)F/B(a)P	NA	NA	NA	NA	NA	NA	NA	-
Methyl B(b&k)F/B(a)P	NA	NA	NA	NA	NA	NA	NA	-
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
Coronene	NA	NA	NA	NA	NA	NA	NA	-
Perylene	NA	NA	NA	NA	NA	NA	NA	-
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
C2 sub'd B(a)A/chrysene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
Chrysene	NA	NA	NA	NA	NA	NA	NA	-
Methyl B(a)A/chrysene	NA	NA	NA	NA	NA	NA	NA	-
dibenz(a,h)acridine	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
dibenz(a,i)acridine	NA	NA	NA	NA	NA	NA	NA	-
picene	NA	NA	NA	NA	NA	NA	NA	-
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	-
Acephenanthrylene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
Benzo(a)fluorene	NA	NA	NA	NA	NA	NA	NA	-
Benzo(g,h,i)fluoranthene	NA	NA	NA	NA	NA	NA	NA	-
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	-
2-Methylfluorene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
C2 sub'd fluorene	NA	NA	NA	NA	NA	NA	NA	-
carbazole	NA	NA	NA	NA	NA	NA	NA	-
Fluorene	NA	NA	NA	NA	NA	NA	NA	-
Methyl fluorene	NA	NA	NA	NA	NA	NA	NA	-
Dibenzo(a,i)pyrene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
Indeno(1,2,3-cd)fluoranthene	NA	NA	NA	NA	NA	NA	NA	-
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	-
Indeno(1,2,3-W)pyrene	NA	NA	NA	NA	NA	NA	NA	-
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	-
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	-
C2 sub'd naphthalene	NA	NA	NA	NA	NA	NA	NA	-
C3 sub'd naphthalene	NA	NA	NA	NA	NA	NA	NA	-
C4 sub'd naphthalene	NA	NA	NA	NA	NA	NA	NA	-
Indole	NA	NA	NA	NA	NA	NA	NA	-
Methyl naphthalene	NA	NA	NA	NA	NA	NA	NA	-
Naphthalene	NA	NA	22.5	NA	NA	NA	NA	MOE - health
1-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
2-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	-
3-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	-
4-+9-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	-
phenanthrene	NA	NA	NA	NA	NA	NA	NA	-
Retene	NA	NA	NA	NA	NA	NA	NA	-
2-Methylpyrene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
Methyl fluoranthene/pyrene	NA	NA	NA	NA	NA	NA	NA	-
Pyrene	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
2,5-dimethylthiophene	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
3-Methyldibenzothiophene	NA	NA	NA	NA	NA	NA	NA	-
4-Methyldibenzothiophene	NA	NA	NA	NA	NA	NA	NA	-
C2 sub'd dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	-
C3 sub'd dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	-
C4 sub'd dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	-
Dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	-
Methyl dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	-
Volatile Organic Compounds								
1,3-Butadiene	NA	NA	10	NA	NA	NA	NA	MOE - health
2,5,5-TRIMETHYL-1,6-HEPTADIENE	NA	NA	NA	NA	NA	NA	NA	-
2,5,5-TRIMETHYL-1,6-HEPTADIENE (B)	NA	NA	NA	NA	NA	NA	NA	-
2,5-dimethyl-1,3-hexadiene	NA	NA	NA	NA	NA	NA	NA	-
2-METHYL-4,5-NONADIENE	NA	NA	NA	NA	NA	NA	NA	-
3-ETHYL-2-METHYL-1,3HEXADIENE	NA	NA	NA	NA	NA	NA	NA	-
4,8-DIMETHYL-1,7-NONADIENE	NA	NA	NA	NA	NA	NA	NA	-
4-METHYL-2,7-OCTADIENE	NA	NA	NA	NA	NA	NA	NA	-
5-METHYL-1,4-HEXADIENE	NA	NA	NA	NA	NA	NA	NA	-
1,2-Butadiene	NA	NA	NA	NA	NA	NA	NA	-
1,2-Pentadiene	NA	NA	NA	NA	NA	NA	NA	-
1,4-Pentadiene	NA	NA	NA	NA	NA	NA	NA	-
2,3-Pentadiene	NA	NA	NA	NA	NA	NA	NA	-
2-Methyl-1,3-butadiene	NA	NA	NA	NA	NA	NA	NA	-
3-Methyl-1,2-butadiene	NA	NA	NA	NA	NA	NA	NA	-
cis-1,3-Pentadiene	NA	NA	NA	NA	NA	NA	NA	-
Cyclopentadiene	NA	NA	NA	NA	NA	NA	NA	-
trans-1,3-Pentadiene	NA	NA	NA	NA	NA	NA	NA	-
Acetaldehyde	NA	NA	500	NA	300 ⁿ	NA	NA	MOE - health
								CalEPA - The 8-h threshold was based on a BMC ₀₅ of 178 mg/m ³ for degeneration of olfactory nasal epithelium. The BMC ₀₅ was adjusted for a human equivalent concentration (1.36 dosimetric adjustment factor) and duration (6 h/day, 5 days/week and 10 m ³ of inhaled air). An uncertainty factor of 300 was applied.
Acetone	NA	NA	11 880	NA	NA	30880	NA	MOE - health
						61760 ^k		ATSDR - The ATSDR threshold was based on a LOAEL of 1250 ppm for neurological effects in humans during a 6 week study. An uncertainty factor of 100 was applied. ATSDR - A LOAEL of 237 ppm based on neurobehavioural effects in humans was used to derive the 4-h MRL. An uncertainty factor of 9 was applied.
Acrolein	NA	NA	0.4	NA	0.7 ⁿ	0.09	NA	MOE - health
								CalEPA - The CalEPA threshold was based on a NOAEL of 0.2 ppm for lesions in the respiratory epithelium. The NOAEL was adjusted for duration and a human equivalent concentration. An uncertainty factor of 200 was applied. ATSDR - The ATSDR threshold is based on a LOAEL of 0.4 ppm for nasal metaplasia in rats. The LOAEL was adjusted for exposure duration (6 h/day, 5 days/week). A human equivalent concentration of 0.17 and an uncertainty factor of 300 were applied.
Methacrolein	NA	NA	NA	NA	NA	NA	NA	-
2,5-dimethylbenzaldehyde	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
3-Methylbutanal	NA	NA	NA	NA	NA	NA	NA	-
benzaldehyde	NA	NA	NA	NA	NA	NA	NA	-
butanal	NA	NA	NA	NA	NA	NA	NA	-
crotonaldehyde	NA	NA	NA	NA	NA	NA	NA	-
decanal	NA	NA	NA	NA	NA	NA	NA	-
dodecanal	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
heptanal	NA	NA	NA	NA	NA	NA	NA	-
isobutyraldehyde	NA	NA	NA	NA	NA	NA	NA	-
nonanal	NA	NA	NA	NA	NA	NA	NA	-
octanal	NA	NA	NA	NA	NA	NA	NA	-
propanal	NA	NA	NA	NA	NA	NA	NA	-
tridecanal	NA	NA	NA	NA	NA	NA	NA	-
undecanal	NA	NA	NA	NA	NA	NA	NA	-
Benzene	NA	NA	2.3	NA	1300 ⁱ	19.17	NA	MOE - health
								CalEPA - The CalEPA OEHHA threshold is based on health effects (reproductive and developmental toxicity).
								ATSDR - The threshold was based on a LOAEL of 10 ppm for significantly delayed splenic lymphocyte reaction to foreign antigens in mice. The LOAEL was adjusted for intermittent exposure (6 h/day, 5 days/week). A human equivalent concentration of 1 and an uncertainty factor of 300 was applied.
2,4-DIETHYL-1-METHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
2,2,7-TRIMETHYL-3-OCTYNE	NA	NA	NA	NA	NA	NA	NA	-
2,2-DIMETHYL-3-DECENE	NA	NA	NA	NA	NA	NA	NA	-
3-DODECENE	NA	NA	NA	NA	NA	NA	NA	-
7-METHYL-5-UNDECENE	NA	NA	NA	NA	NA	NA	NA	-
dodecane	NA	NA	NA	NA	NA	NA	NA	-
hexylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
pentylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
undecane	NA	NA	NA	NA	NA	NA	NA	-
3-Ethylnonane	NA	NA	NA	NA	NA	NA	NA	-
4-Methyldecane	NA	NA	NA	NA	NA	NA	NA	-
5-Methyldecane	NA	NA	NA	NA	NA	NA	NA	-
C11-Paraffin	NA	NA	NA	NA	NA	NA	NA	-
C12-Paraffin	NA	NA	NA	NA	NA	NA	NA	-
n-Dodecane	NA	NA	NA	NA	NA	NA	NA	-
n-Undecane	NA	NA	NA	NA	NA	NA	NA	-
trans-1-Methyl-2(4-methylpentyl)-cyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1-pentyl-2-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
2,6,10-trimethyltridecane	NA	NA	NA	NA	NA	NA	NA	-
3,3,8-trimethyldecane	NA	NA	NA	NA	NA	NA	NA	-
AMORPHANE B	NA	NA	NA	NA	NA	NA	NA	-
decylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
farnesane	NA	NA	NA	NA	NA	NA	NA	-
heptylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
Hexadecane	NA	NA	NA	NA	NA	NA	NA	-
nonylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
norfarnesane	NA	NA	NA	NA	NA	NA	NA	-
n-pentadecane	NA	NA	NA	NA	NA	NA	NA	-
octylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
Tetradecane	NA	NA	NA	NA	NA	NA	NA	-
Tridecane	NA	NA	NA	NA	NA	NA	NA	-
VALENCANE	NA	NA	NA	NA	NA	NA	NA	-
n-Tridecane	NA	NA	NA	NA	NA	NA	NA	-
1,2,4-TMB+n-Decane	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
1,2,3-TMB+P-C	NA	NA	NA	NA	NA	NA	NA	-
Decylbenzene	NA	NA	NA	NA	NA	NA	NA	-
fluorenone	NA	NA	NA	NA	NA	NA	NA	-
n-Octylbenzene	NA	NA	NA	NA	NA	NA	NA	-
xanthone	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
3-EICOSYNE	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
5-EICOSYNE	NA	NA	NA	NA	NA	NA	NA	-
5-EICOSYNE (B)	NA	NA	NA	NA	NA	NA	NA	-
dodecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
n-eicosane	NA	NA	NA	NA	NA	NA	NA	-
n-heneicosane	NA	NA	NA	NA	NA	NA	NA	-
n-heptadecane	NA	NA	NA	NA	NA	NA	NA	-
n-nonadecane	NA	NA	NA	NA	NA	NA	NA	-
n-octadecane	NA	NA	NA	NA	NA	NA	NA	-
norpristane	NA	NA	NA	NA	NA	NA	NA	-
pentadecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
phytane	NA	NA	NA	NA	NA	NA	NA	-
pristane	NA	NA	NA	NA	NA	NA	NA	-
tetradecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
tridecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
undecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
8b,13a-dimethyl-14b-[3'-methylbutyl]-podocarpane	NA	NA	NA	NA	NA	NA	NA	-
8b,13a-dimethyl-14b-n-butylpodocarpane	NA	NA	NA	NA	NA	NA	NA	-
1,3,5-TRIMETHYL2-OCTADECYL CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	No 24-h thresholds were available
1-methyl-1-(2-methylene)cyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1-METHYL-4-(1-METHYLENE)CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
1-METHYL-4-(METHYLENE)CYCLOHEXENE	NA	NA	NA	NA	NA	NA	NA	-
1-PROPYNE	NA	NA	NA	NA	NA	NA	NA	-
2,2-DIMETHYLPROPANE	NA	NA	NA	NA	NA	NA	NA	-
2-ethyl-2-hexene	NA	NA	NA	NA	NA	NA	NA	-
2-Methyl pentane,2,3-Dimethylbutane	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-1-butene	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-1-pentene + 1-hexene	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-4-pentene	NA	NA	NA	NA	NA	NA	NA	-
2-METHYLBICYCLO[4.4.0]HEPTANE	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-1-butene	NA	NA	NA	NA	NA	NA	NA	-
4-METHYL-1-(1-METHYLENE)CYCLOHEXENE	NA	NA	NA	NA	NA	NA	NA	-
ACETYLENE + ETHANE	NA	NA	NA	NA	NA	NA	NA	-
Butane	NA	NA	NA	NA	NA	NA	NA	-
Butene	NA	NA	NA	NA	NA	NA	NA	-
cis-2-butene	NA	NA	NA	NA	NA	NA	NA	-
cyclopentane	NA	NA	NA	NA	NA	NA	NA	-
ethane	NA	NA	NA	NA	NA	NA	NA	-
ethyne	NA	NA	56 000	NA	NA	NA	NA	MOE - odour, to be updated
i-butane	NA	NA	NA	NA	NA	NA	NA	-
isobutene	NA	NA	NA	NA	NA	NA	NA	-
isopentane	NA	NA	NA	NA	NA	NA	NA	-
pentane	NA	NA	NA	NA	NA	NA	NA	-
pentene	NA	NA	NA	NA	NA	NA	NA	-
Propane	NA	NA	NA	NA	NA	NA	NA	-
propene	NA	NA	4000	NA	NA	NA	NA	MOE - health
trans-2-butene	NA	NA	NA	NA	NA	NA	NA	-
trans-2-pentene	NA	NA	NA	NA	NA	NA	NA	-
1,2-Butane	NA	NA	NA	NA	NA	NA	NA	-
1-Butene	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-1-cyclopentene	NA	NA	NA	NA	NA	NA	NA	-
1-Pentene	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
1-Pentyne	NA	NA	NA	NA	NA	NA	NA	-
2-Butanol	NA	NA	NA	NA	NA	NA	NA	-
2-Butyne	NA	NA	NA	NA	NA	NA	NA	-
2-Methyl-2-butene	NA	NA	NA	NA	NA	NA	NA	-
3-Methyl-2-butene	NA	NA	NA	NA	NA	NA	NA	-
4-Methyl-1-cyclopentene	NA	NA	NA	NA	NA	NA	NA	-
C6-Olefin	NA	NA	NA	NA	NA	NA	NA	-
cis-2-Pentene	NA	NA	NA	NA	NA	NA	NA	-
Cyclopentene	NA	NA	NA	NA	NA	NA	NA	-
Ethene	NA	NA	NA	NA	NA	NA	NA	-
Isobutane	NA	NA	NA	NA	NA	NA	NA	-
Isobutanol	NA	NA	4600	NA	NA	NA	NA	MOE - health
Methyl-tert-butyl ether	NA	NA	7000	NA	NA	2520	NA	MOE - health
								ATSDR - The intermediate MRL was derived based on a NOAEL of 400 ppm for no CNS sedation in rats. The NOAEL was adjusted for duration (6 h/day, 5 days/week) and a human equivalent concentration of 1. An uncertainty factor of 100 was applied.
Naphthene	NA	NA	NA	NA	NA	NA	NA	-
n-Butane	NA	NA	NA	NA	NA	NA	NA	-
n-Butanol	NA	NA	920	NA	NA	NA	NA	MOE - health
n-Pentane	NA	NA	NA	NA	NA	NA	NA	-
n-Propanol	NA	NA	16 000	NA	NA	NA	NA	MOE - health
1,1-dimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1,2-dimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1,3-dimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1,5-dimethylcyclopentene	NA	NA	NA	NA	NA	NA	NA	-
1-ethyl-1-methylcyclopropane	NA	NA	NA	NA	NA	NA	NA	-
1-HEXENE	NA	NA	NA	NA	NA	NA	NA	-
1-METHYL-2-METHYLENE CYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	-
2,2,3-TRIMETHYLBUTANE	NA	NA	NA	NA	NA	NA	NA	-
2,2-dimethylbutane	NA	NA	NA	NA	NA	NA	NA	-
2,3-dimethylbutane	NA	NA	NA	NA	NA	NA	NA	-
2,3-dimethylpentane	NA	NA	NA	NA	NA	NA	NA	-
2,4-dimethyl-1-pentene	NA	NA	NA	NA	NA	NA	NA	-
2,4-dimethylpentane	NA	NA	NA	NA	NA	NA	NA	-
2-hexene	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-2-pentene	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-3-pentene	NA	NA	NA	NA	NA	NA	NA	-
2-methylhexane	NA	NA	NA	NA	NA	NA	NA	-
2-methylpentane	NA	NA	NA	NA	NA	NA	NA	-
3,3-DIMETHYL-1-BUTENE	NA	NA	NA	NA	NA	NA	NA	-
3,3-DIMETHYLPENTANE	NA	NA	NA	NA	NA	NA	NA	-
3,4-dimethyl-1-pentene	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-1,3-pentadiene	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-1-hexene	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-2-hexene	NA	NA	NA	NA	NA	NA	NA	-
3-METHYL-2-HEXENE (B)	NA	NA	NA	NA	NA	NA	NA	-
3-methyl-2-pentene	NA	NA	NA	NA	NA	NA	NA	-
3-methylcyclopentene	NA	NA	NA	NA	NA	NA	NA	-
3-methylhexane	NA	NA	NA	NA	NA	NA	NA	-
3-methylpentane	NA	NA	NA	NA	NA	NA	NA	-
4,4-dimethylcyclopentene	NA	NA	NA	NA	NA	NA	NA	-
4-methylcyclohexene	NA	NA	NA	NA	NA	NA	NA	-
cis-2-hexene	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
Cyclohexane	NA	NA	6100	NA	NA	NA	NA	MOE - health
Cyclohexene	NA	NA	NA	NA	NA	NA	NA	-
ethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
heptane	NA	NA	NA	NA	NA	NA	NA	-
hexanal	NA	NA	NA	NA	NA	NA	NA	-
Methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
Methylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
t-1,3-DIMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	-
trans-2-hexene	NA	NA	NA	NA	NA	NA	NA	-
1,1,3-TRIMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	-
1,1-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
1,2,3-trimethylcyclopentene	NA	NA	NA	NA	NA	NA	NA	-
1,2,4-trimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1,2-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
1,4-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
2,2,3-TRIMETHYLPENTANE	NA	NA	NA	NA	NA	NA	NA	-
2,2,4-trimethylpentane	NA	NA	NA	NA	NA	NA	NA	-
2,3,4-trimethylpentane	NA	NA	NA	NA	NA	NA	NA	-
2,3-dimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
2,4-dimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
2,5-dimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
2-ethyl-3-methylcyclopentene	NA	NA	NA	NA	NA	NA	NA	-
2-methyl-1-pentene	NA	NA	NA	NA	NA	NA	NA	-
2-methylheptane	NA	NA	NA	NA	NA	NA	NA	-
2-octene	NA	NA	NA	NA	NA	NA	NA	-
3-ethylhexane	NA	NA	NA	NA	NA	NA	NA	-
3-Methylheptane	NA	NA	NA	NA	NA	NA	NA	-
4-methyl-3-heptene	NA	NA	NA	NA	NA	NA	NA	-
4-METHYLHEPTANE	NA	NA	NA	NA	NA	NA	NA	-
cyclooctane	NA	NA	NA	NA	NA	NA	NA	-
methylethycycloenetene	NA	NA	NA	NA	NA	NA	NA	-
OCTAHYDROPENTALENE	NA	NA	NA	NA	NA	NA	NA	-
octane	NA	NA	NA	NA	NA	NA	NA	-
OCTYNE	NA	NA	NA	NA	NA	NA	NA	-
Propane + Propylene	NA	NA	NA	NA	NA	NA	NA	-
Propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
t-1,3-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
1-Heptene	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-1-ethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-2-ethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-trans-3-ethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1-Octene	NA	NA	50 000	NA	NA	NA	NA	MOE - health
2,2-Dimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
2,2-Dimethylpentane	NA	NA	NA	NA	NA	NA	NA	-
2,3,3-Trimethylpentane	NA	NA	NA	NA	NA	NA	NA	-
2-Methyl-3-ethylpentane	NA	NA	NA	NA	NA	NA	NA	-
3,4-Dimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
3-Ethylpentane	NA	NA	NA	NA	NA	NA	NA	-
C7-Olefin	NA	NA	NA	NA	NA	NA	NA	-
C8-Olefin	NA	NA	NA	NA	NA	NA	NA	-
C8-Paraffin	NA	NA	NA	NA	NA	NA	NA	-
cis,cis-1,2,3-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
cis,trans-1,2,4-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
cis-1,2-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
cis-1,3-Dimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
cis-2-Heptene	NA	NA	NA	NA	NA	NA	NA	-
cis-2-Octene	NA	NA	NA	NA	NA	NA	NA	-
cis-3-Heptene	NA	NA	NA	NA	NA	NA	NA	-
Ethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
Isopropylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
n-Heptane	NA	NA	11 000	NA	NA	NA	NA	MOE - health
n-Octane	NA	NA	NA	NA	NA	NA	NA	-
trans,cis-1,2,3-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
trans,cis-1,2,4-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
trans-1,2-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
trans-1,2-Dimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
trans-1,3-Dimethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
trans-1,4-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
trans-2-Heptene	NA	NA	NA	NA	NA	NA	NA	-
trans-2-Octene	NA	NA	NA	NA	NA	NA	NA	-
trans-3-Heptene	NA	NA	NA	NA	NA	NA	NA	-
1,1,2,3-TETRAMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	-
1,1,3,4-TETRAMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	-
1,1,3,5-TETRAMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
1,1,3-TRIMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
1,1,4-TRIMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
1,3-DIMETHYL2-(1-METHYLENE)CYCLOPENETENE	NA	NA	NA	NA	NA	NA	NA	-
1-ETHYL-2,3-DIMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
1-ethyl-2,4-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
1-ETHYL-2-PROPYL CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
1-METHYL-4-(1-METHYLETHYL) CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
2,2,5-trimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
2,2-DIMETHYL-3-OCTYNE	NA	NA	NA	NA	NA	NA	NA	-
2,3,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
2,3-dimethyloctane	NA	NA	NA	NA	NA	NA	NA	-
2,5,5-TRIMETHYL-1-HEXENE	NA	NA	NA	NA	NA	NA	NA	-
2,6-dimethyl-2-octene	NA	NA	NA	NA	NA	NA	NA	-
2,6-dimethyl-4-octene	NA	NA	NA	NA	NA	NA	NA	-
2,6-dimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
2+4-Methyloctane	NA	NA	NA	NA	NA	NA	NA	-
2-methyloctyne	NA	NA	NA	NA	NA	NA	NA	-
2-METHYLPROPYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	-
3,3,4-trimethylhexane + benzene	NA	NA	NA	NA	NA	NA	NA	-
3,4,4-trimethylcyclohexene	NA	NA	NA	NA	NA	NA	NA	-
3,7,7-TRIMETHYL BICYCLO[4.1.0]HEPTANE	NA	NA	NA	NA	NA	NA	NA	-
3,7-dimethyl-1-octene	NA	NA	NA	NA	NA	NA	NA	-
3-ETHYL-2-METHYL-2-HEPTENE	NA	NA	NA	NA	NA	NA	NA	-
3-ethyl-3-octene	NA	NA	NA	NA	NA	NA	NA	-
3-methyloctane	NA	NA	NA	NA	NA	NA	NA	-
4-ethyloctane	NA	NA	NA	NA	NA	NA	NA	-
4-methyloctane	NA	NA	NA	NA	NA	NA	NA	-
BICYCLO[3.3.1]NONANE	NA	NA	NA	NA	NA	NA	NA	-
BICYCLO[33.3.1]NONANE	NA	NA	NA	NA	NA	NA	NA	-
BUTYLIDENECYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
c-1,3-DIMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
c-1-BUTYL-2-METHYLCYCLOPROPANE	NA	NA	NA	NA	NA	NA	NA	-
decane	NA	NA	NA	NA	NA	NA	NA	-
ETHYLDIENE CYCLOHEPTANE	NA	NA	NA	NA	NA	NA	NA	-
isocamphane	NA	NA	NA	NA	NA	NA	NA	-
nonane	NA	NA	NA	NA	NA	NA	NA	-
1-Decene	NA	NA	60 000	NA	NA	NA	NA	MOE - health
1-Methyl-1-ethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-1-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-2-ethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-2-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-4-isopropylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
1-Nonene	NA	NA	NA	NA	NA	NA	NA	-
2,2,3,4-Tetramethylpentane	NA	NA	NA	NA	NA	NA	NA	-
2,2,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
2,2-Dimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
2,2-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	-
2,3,3-Trimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
2,3,5-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
2,4,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
2,4-Dimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
2,4-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	-
2,5-Dimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
2,5-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	-
2,6-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	-
2-Methylnonane	NA	NA	NA	NA	NA	NA	NA	-
2-Methyloctane	NA	NA	NA	NA	NA	NA	NA	-
3,3,4-Trimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
3,3,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	-
3,3,5-Trimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
3,3-Diethylpentane	NA	NA	NA	NA	NA	NA	NA	-
3,3-Dimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
3,3-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	-
3,4-Dimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
3,5-Dimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
3,6-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	-
3-Ethyl octane	NA	NA	NA	NA	NA	NA	NA	-
3-Methyl-5-ethylheptane	NA	NA	NA	NA	NA	NA	NA	-
3-Methylethylhexane	NA	NA	NA	NA	NA	NA	NA	-
3-Methylnonane	NA	NA	NA	NA	NA	NA	NA	-
4-Ethylheptane	NA	NA	NA	NA	NA	NA	NA	-
5-Methylnonane	NA	NA	NA	NA	NA	NA	NA	-
Butylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
C10-Olefin	NA	NA	NA	NA	NA	NA	NA	-
C10-Paraffin	NA	NA	NA	NA	NA	NA	NA	-
C9-Olefin	NA	NA	NA	NA	NA	NA	NA	-
C9-Paraffin	NA	NA	NA	NA	NA	NA	NA	-
cis-1,2,4-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
cis-1,3,5-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
cis-1-Ethyl-2-methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
cis-1-Ethyl-4-methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
cis-1-Ethyl--methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
cis-2-nonene	NA	NA	NA	NA	NA	NA	NA	-
cis-3-Nonene	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
Isobutylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
Isobutylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
Isopropylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
n-Decane	NA	NA	NA	NA	NA	NA	NA	-
n-Nonane	NA	NA	NA	NA	NA	NA	NA	-
Propylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
q,q,2-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
sec-Butylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
sec-Butylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
tert-Butylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
trans-1,2,4-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
trans-1-Ethyl-4-methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
trans-1-Methyl-2-methyl-4-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	-
trans-1-Methyl-2-propylcyclohexane	NA	NA	NA	NA	NA	NA	NA	-
trans-2-nonene	NA	NA	NA	NA	NA	NA	NA	-
trans-3-Nonene	NA	NA	NA	NA	NA	NA	NA	-
1,1,2,3-TETRAMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
1,2-DIETHYL-1-METHYL-CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	-
2-Ethyl-toluene	NA	NA	NA	NA	NA	NA	NA	-
3-Ethyl-toluene	NA	NA	NA	NA	NA	NA	NA	-
4-Ethyl-toluene	NA	NA	NA	NA	NA	NA	NA	-
indanone	NA	NA	NA	NA	NA	NA	NA	-
methylpropylbenzene	NA	NA	NA	NA	NA	NA	NA	-
n-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	-
p-cymene	NA	NA	NA	NA	NA	NA	NA	-
Propylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1,2,3,4-tetrahydronaphthalene	NA	NA	NA	NA	NA	NA	NA	-
1,2,3,4-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1,2,3,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1,2,4,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1,3-Diethylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1,3-Dimethyl-2-ethylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1,3-Dimethyl-4-ethylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1,3-Dimethyl-5-ethylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1,4-Diethylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1,4-Dimethyl-2-ethylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1-Ethyl-2-methylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1-Ethyl-3-methylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1-Ethyl-4-methylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-2-isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-2-propylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-3-isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-3-propylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-4-isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	-
1-Methyl-4-propylbenzene	NA	NA	NA	NA	NA	NA	NA	-
2,3-Dihydroindene	NA	NA	NA	NA	NA	NA	NA	-
2,3-Dimethylheptane	NA	NA	NA	NA	NA	NA	NA	-
Butylbenzene	NA	NA	NA	NA	NA	NA	NA	-
C10-Aromatic	NA	NA	NA	NA	NA	NA	NA	-
Isobutylbenzene	NA	NA	NA	NA	NA	NA	NA	-
Isopropylbenzene	NA	NA	400	NA	NA	NA	NA	MOE - health
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	-

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m³)							Basis of Screening Threshold	
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted		
Ethylbenzene	NA	NA	1000	NA	NA	8680	NA	MOE - health ATSDR - The intermediate MRL was based on was based on a BMDL1sd of 19.94 µmol/L for auditory shifts in rats. A human equivalent concentration of 63.64 ppm was predicted from the human PBPK model. An uncertainty factor of 30 was applied.	
ethylene	NA	NA	40	NA	NA	NA	NA	MOE - vegetation	
Formaldehyde	NA	NA	65	NA	9 ⁿ	36.85	NA	MOE - health	
								CalEPA - The 8-h REL was based on a NOAEL of 0.09 mg/m³ for nasal obstruction and discomfort, lower airway discomfort and eye irritation in occupationally-exposed workers. The NOAEL was adjusted for an uncertainty factor of 10.	
								CalEPA - The CalEPA OEHHA 3-h threshold was based on the benchmark concentration using the dose-response for eye irritation in humans; an intraspecies uncertainty factor of 10 was applied to account for potential asthma exacerbation.	
								ATSDR - The intermediate MRL was based on a NOAEL of 0.98 ppm for nasopharyngeal irritation. An uncertainty factor of 30 was applied.	
3-Buten-2-one	NA	NA	NA	NA	NA	NA	NA	-	
acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	-
CAMPHOR	NA	NA	NA	NA	NA	NA	NA	NA	-
Methyl Ethyl Ketone	NA	NA	1000	NA	NA	NA	NA	NA	MOE - health
toluene	NA	NA	2000	NA	NA	NA	NA	NA	MOE - odour, to be updated
1,2,3-trimethylbenzene	NA	NA	220	NA	NA	NA	NA	NA	MOE - health
1,2,4-trimethylbenzene	NA	NA	220	NA	NA	NA	NA	NA	MOE - health
1,3,5-trimethylbenzene	NA	NA	220	NA	NA	NA	NA	NA	MOE - health
p-Xylene	NA	NA	NA	NA	NA	2610	NA	NA	ATSDR - The ATSDR MRL was based on a LOAEL of 50 ppm for significant decreases in the mean latency of the paw-lick response in rats. The LOAEL was adjusted for a human equivalent concentration of 1 and an uncertainty factor of 90. Based on similar toxicokinetic properties and similar toxicological effects, a single intermediate duration MRL that applies to mixed xylenes and all of the individual isomers was derived based on data for m-xylene.
m-xylene	NA	NA	NA	NA	NA	2610	NA	NA	ATSDR - The ATSDR MRL was based on a LOAEL of 50 ppm for significant decreases in the mean latency of the paw-lick response in rats. The LOAEL was adjusted for a human equivalent concentration of 1 and an uncertainty factor of 90. Based on similar toxicokinetic properties and similar toxicological effects, a single intermediate duration MRL that applies to mixed xylenes and all of the individual isomers was derived based on data for m-xylene.
o-xylene	NA	NA	NA	NA	NA	2610	NA	NA	ATSDR - The ATSDR MRL was based on a LOAEL of 50 ppm for significant decreases in the mean latency of the paw-lick response in rats. The LOAEL was adjusted for a human equivalent concentration of 1 and an uncertainty factor of 90. Based on similar toxicokinetic properties and similar toxicological effects, a single intermediate duration MRL that applies to mixed xylenes and all of the individual isomers was derived based on data for m-xylene.
Xylene	NA	NA	730	NA	NA	2610	NA	MOE - health	
								ATSDR - The ATSDR MRL was based on a LOAEL of 50 ppm for significant decreases in the mean latency of the paw-lick response in rats. The LOAEL was adjusted for a human equivalent concentration of 1 and an uncertainty factor of 90. Based on similar toxicokinetic properties and similar toxicological effects, a single intermediate duration MRL that applies to mixed xylenes and all of the individual isomers was derived based on data for m-xylene.	

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m³)							Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted	
Criteria Compounds								
Carbon monoxide	NA	6000 ⁿ	15700 ⁿ	10000 ⁿ	NA	NA	NA	NAAQO - health and environment
		15000						MOE - health
								WHO - effects other than cancer or odour/annoyance: The threshold for CO was selected based on COHb levels. To protect non-smoking, middle-aged and elderly populations with documented or latent heart diseases, and fetuses of non-smoking pregnant women from untoward hypoxic effects, a COHb level of 2.5% should not be exceeded.
Nitrogen dioxide	200	200	200	120 ⁿ	NA	NA	NA	Gov Nunavut - The Government of Nunavut standard is based on the NAAQO value for NO ₂ .
		300						NAAQO - health and environment
								MOE - health
Nitrogen oxides (NOx)	NA	NA	9000	NA	NA	NA	NA	WHO - effects other than cancer or odour/annoyance
								MOE - health
Sulphur dioxide	150	150	275	125	NA	NA	NA	Gov Nunavut - The Government of Nunavut standard is based on the NAAQO value for SO ₂ .
		300						NAAQO - health and environment
		800						MOE - health & vegetation
PM _{2.5}	30	15	30	25	NA	NA	NA	WHO - effects other than cancer or odour/annoyance: The WHO threshold is based on exacerbation of symptoms among panels of selected sensitive patients at 250 µg/m³. An uncertainty factor of 2 was applied.
								Gov Nunavut - The Government of Nunavut standard is based on the CCME Canada-Wide Standard for fine PM.
								MOE - The MOE value is not technically an AAQC, but is the Canada-wide Standard for PM _{2.5} . The CWS is a long-term goal of minimizing risk that fine PM poses on human health and the environment. The MOE recommends that contribution of PM _{2.5} from a single facility be less than 25 µg/m³ (24-h) to achieve the CWS target.
PM ₁₀	NA	25	50	50	NA	NA	NA	WHO - The WHO AQG is based on a PM _{2.5} :PM ₁₀ ratio of 0.5.
								NAAQO - health and environment
								MOE - interim AAQC, provided for decision making.
Diesel Particulate Matter	NA	NA	NA	NA	NA	NA	NA	WHO - The WHO AQG is based on a 0.46 to 0.62% increase in mortality per 10 µg/m³ increase in PM ₁₀ . The AQG reflects the relationship between the distributions of 24-h means (and its 99th percentile) and annual average concentrations.
Total suspended particulate	120	NA	120	NA	NA	NA	NA	No 24-h thresholds were available.
		120						Gov Nunavut - The Government of Nunavut standard is based on the NAAQO value for TSP.
		400						NAAQO - health and environment
								MOE - visibility

Table 10.2-B-1: Chronic 24-Hour Air Thresholds

Parameter	Chronic Inhalation 24-Hour Health Based Thresholds (µg/m ³)						Basis of Screening Threshold
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ Adjusted

Notes:

^a Government of Nunavut. (2011). Environmental Guideline for Ambient Air Quality. Department of Environment.

^b Canadian Council of Ministers of the Environment. (1999). Canadian Environmental Quality Guidelines. Canadian National Ambient Air Quality Objectives.

^c Ontario Ministry of the Environment. (2012). Ontario's Ambient Air Quality Criteria. Standards Development Branch.
The ON MOE AAQCs are based on health, odour, vegetation, soiling, visibility, corrosion or other effects. The ON MOE does not provide background information on how the AAQCs were derived on a chemical to chemical basis.

^d World Health Organization. (2000). Air Quality Guidelines for Europe, 2nd Ed. World Health Organization Regional Publications, European Series, No. 91. Copenhagen.

^e World Health Organization. (2005). Air Quality Guidelines Global Update. Report on Working Group Meeting. Bonn, Germany.

^f World Health Organization. (2005). WHO Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulfur Dioxide. Global Update, Summary of Risk Assessment.

^g California Environmental Protection Agency. (2012). Acute, 8-h and Chronic Reference Exposure Levels. Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Internet Site, last updated Februrary 2012, accessed 31 July 2012.

^h Agency for Toxic Substances and Disease Registry. (2011). Minimal Risk Levels. Internet Site, last updated 3 May 2011, accessed 25 July 2012.
The ATSDR defines intermediate exposure as 15 to 365 days.

ⁱ Texas Commission on Environmental Quality. (2012). Interoffice Memorandum, March 2012 Effects Screening Levels. Toxicology Division for Air Permitting.

The TCEQ ESLs are based on health, odour/nuisance potential, and vegetation effects. The TCEQ ESLs are based on an HQ = 0.3 for non-carcinogens and were therefore adjusted with the following equation: threshold (µg/m³) = TCEQ value x 3.333. The TCEQ does not provide background information on how the ESLs were derived on a chemical to chemical basis. All ESLs are interim, unless otherwise stated.

NA = not available.

^j 3-h.

^k 4-h.

^l 6-h.

^m 7-h.

ⁿ 8-h.

Target HQ = 1.0.

Air concentrations given in ppm were converted to µg/m³ with the following equation: X (ppm) = Y (mg/m³)*24.45/MW.

Centre for Disease Control and Prevention. (2003). Conversion Calculator. The National Institue for Occupational Safety and Health Publication No. 2004-101.

Selection criteria:
the lowest health-based air threshold from the first six agencies listed was selected as the guideline for screening in the HHRA. The TCEQ threshold was selected if it was the only agency with a guideline.

200	= selected guideline for screening in the HHRA.

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Metals											
aluminum	NA	NA	NA	NA	NA	NA	5	17	3	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
antimony	NA	NA	NA	NA	NA	NA	5	17	3	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
arsenic	NA	NA	NA	0.006667	0.015	NA	0.01	0.01	0.003	WHO - carcinogenic risk estimates based on human studies, lung: A unit risk was derived from human exposure studies.	The CalEPA REL was the only available non-carcinogenic threshold and supporting documentation was available. The CalEPA unit risk was the lowest threshold and supporting documentation was available.
					0.00303					CalEPA - The chronic REL was based on a LOAEL of 0.23 µg/m ³ for decrease in intellectual function and adverse effects on neurobehavioural development in children. An uncertainty factor of 30 was applied.	
										The CalEPA unit risk was based on the 95% UCL predicted from fitting a linear model to human data, adjusted for interaction with smoking.	
										TCEQ - PM ₁₀ , health	
barium	NA	NA	NA	NA	NA	NA	0.5	2	0.3	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
beryllium	NA	NA	NA	NA	0.007	NA	0.002	0.002	0.0014	CalEPA - The REL is based on beryllium sensitization and chronic beryllium disease in occupationally-exposed humans. A LOAEL of 0.55 µg/m ³ for the above effects was selected. The LOAEL was adjusted for duration and a human equivalent concentration. The resulting LOAEL was 0.2 µg/m ³ . An uncertainty factor of 30 was applied.	The CalEPA REL was the only available non-carcinogenic threshold and supporting documentation was available. The CalEPA unit risk was the lowest threshold with supporting documentation available.
					0.004167					CalEPA - The CalEPA unit risk is the IRIS value for lung cancer in occupationally exposed males.	
										TCEQ - particulate, health	
Bismuth	NA	NA	NA	NA	NA	NA	5	17	3	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
Cadmium	NA	NA	0.005	0.005	0.02	0.01	0.01	0.01	0.001	MOE - health	The ON MOE and WHO both have the lowest threshold. Supporting documentation was available for WHO, but not for the MOE, therefore the WHO threshold was selected. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
					0.002381					WHO - effects other than cancer or odour/annoyance: The WHO threshold is based on renal effects.	
										CalEPA - The REL is based on a NOAEL of 1.4 µg/m ³ for kidney and respiratory effects. The NOAEL was adjusted for duration and a human equivalent concentration of 1. An uncertainty factor of 30 was applied.	
										CalEPA - The unit risk was based on human occupational exposures and lung cancer.	
										ATSDR - The ATSDR threshold was based on a UCD ₁₀ . The 95% UCDL ₁₀ of 0.5 µg/g creatinine was used as the point of departure. Chronic inhalation exposures to cadmium sulphide (0.1 µg/m ³) and a dietary intake of 0.3 µg/kg/day would result in 0.5 µg/g creatinine in urine. An uncertainty factor of 9 was applied.	
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	No annual thresholds were available	-
chromium	NA	NA	NA	NA	NA	NA	0.041	0.14	0.03	TCEQ - PM ₁₀ , health, final	The TCEQ value was selected in the absence of other values.

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
chromium VI	NA	NA	0.00007	0.00025	0.2	0.005	0.01	0.01	0.001	MOE - PM ₁₀ , health	The ATSDR MRL was the lowest non-carcinogenic threshold and supporting documentation was available. The CalEPA unit risk was the lowest threshold and supporting documentation was available.
										MOE - TSP, health	
										WHO - carcinogenic risk estimates based on human studies, lung: Several epidemiological studies indicate lifetime risks in the range of 1.3x10 ⁻¹ to 1.1x10 ⁻² . A geometric mean of 4x10 ⁻² was selected as the incremental unit risk for Cr(VI) at 1 µg/m ³ .	
										CalEPA - The REL was based on a LOAEL of 50 µg/m ³ for bronchoalveolar hyperplasia. The LOAEL was adjusted for BMC ₀₅ , exposure duration and a human equivalent concentration. An uncertainty factor of 100 was applied.	
										CalEPA - The unit risk was based on cancer mortality data.	
			0.00014		6.67E-05					ATSDR - The MRL for dissolved Cr(VI) aerosols and mists was based on a LOAEL of 0.002 mg/m ³ for nasal irritation, mucosal atrophy and decreased FVC, FEP ₁ and FEV. The LOAEL was adjusted for exposure duration (8 h/day, 5 days/week) and an uncertainty factor of 100 was applied.	
										TCEQ - PM ₁₀ , health, under review	
cobalt	NA	NA	NA	NA	NA	0.1	0.02	0.07	0.02	ATSDR - The MRL was based on a NOAEL of 0.0053 mg/m ³ for pulmonary function effects. The NOAEL was adjusted for duration (8 h/day, 5 days/week) and an uncertainty factor of 10 was applied.	The ATSDR MRL was the lowest threshold with supporting documentation available.
										TCEQ - PM ₁₀ , health	
copper	NA	NA	NA	NA	NA	NA	1	3	0.7	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
Gold	NA	NA	NA	NA	NA	NA	2.5	8.3	1.7	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
iron	NA	NA	NA	NA	NA	NA	1	3	0.7	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
lead	NA	NA	0.2 ⁱ	0.5	0.833333	NA	0.15 (quarterly average), 1.5 (three-month)	0.5 (quarterly average), 5 (three-month)	0.04	MOE - health	The ON MOE AAQC was the lowest threshold. The CalEPA unit risk was the only available carcinogenic threshold and supporting documentation was available.
										WHO - effects other than cancer or odour/annoyance: the WHO guideline is based on the concentration of Pb in blood. Critical effects occur in adults at 150-300 µg/L and include erythrocyte protoporphyrin elevation. Critical effects in children include cognitive deficit, hearing impairment and disturbed vitamin D metabolism and occurs at 100-150 µg/L.	
										CalEPA - The CalEPA unit risk was based on kidney tumours in rats exposed to Pb via the oral route. TCEQ - health, criteria pollutant, must meet US NAAQS. Texas defers to the US National Ambient Air Quality Standards for lead (1.5 µg/m ³ as the quarterly average primary standard, and 0.15 µg/m ³ as the rolling three month average primary standard).	
Lithium	NA	NA	NA	NA	NA	NA	NA	NA	NA	No annual thresholds were available	-
magnesium	NA	NA	NA	NA	NA	NA	5	17	3	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
manganese	NA	NA	NA	0.15	0.09	0.3	0.2	0.7	0.02	WHO - effects other than cancer or odour/annoyance: A NOAEL of 30 µg/m ³ for neurotoxic effects was selected as the basis of the WHO threshold. The NOAEL was divided by 4.2 to adjust continuous exposure and an uncertainty factor of 50 was applied. CalEPA - The REL is based on a benchmark concentration of 72 µg/m ³ for impaired neurobehaviour (visual reaction time, eye-hand coordination and hand steadiness). The benchmark concentration was adjusted for duration (5 days/week at 10 m ³ of Mn-contaminated air out of 20 m ³ total air inhaled) and an uncertainty factor of 300 was applied. ATSDR - The ATSDR MRL was based on a BMCL ₁₀ of 142 µg/m ³ for abnormal eye-hand coordination scores in workers. The BMCL was adjusted for duration (8 h/day, 5 days/week). An uncertainty factor of 100 was applied. TCEQ - PM ₁₀ , health	The CalEPA REL was the lowest threshold and supporting documentation was available.
molybdenum	NA	NA	NA	NA	NA	NA	3	10	2	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
nickel	NA	NA	0.02	0.025	0.014	0.09	0.059	0.059	0.0028	MOE - PM ₁₀ , health	The CalEPA REL was the lowest threshold with supporting documentation available.
										MOE - TSP, health	
			WHO - carcinogenic risk estimates based on human studies, lung: An incremental risk of 3.8x10 ⁻⁴ was derived from epidemiological studies for an exposure concentration of 1 µg/m ³ .		The ON MOE AAQC was the lowest carcinogenic threshold.						
			CalEPA - The threshold was based on a BMDL ₀₅ of 30.5 µg/m ³ for pathological changes in lung, lymph nodes and nasal epithelium. The BMDL ₀₅ was adjusted for duration (6 h/day, 5 days/week), a human equivalent concentration and an uncertainty factor of 100 was applied.								
			CalEPA - The CalEPA unit risk was based on a study that demonstrated an increased risk of lung cancer associated with occupationally-exposed humans.								
			ATSDR - The chronic MRL was based on a NOAEL of 0.03 mg/m ³ for chronic active inflammation and lung fibrosis in rats. The LOAEL was adjusted for exposure (6 h/day, 5 days/week) and a human equivalent concentration of 0.506. An uncertainty factor of 30 was applied.								
0.04	0.038462	TCEQ - PM ₁₀ , health, final									
Potassium	NA	NA	NA	NA	NA	NA	2	7	1	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
selenium	NA	NA	NA	NA	20	NA	0.2	0.7	4	CalEPA - The Se threshold was based on a NOAEL of 0.015 mg/kg/day. The NOAEL was adjusted for an uncertainty factor of 3 and extrapolated to an inhalation REL (3500 µg/m ³ per mg/kg/day). TCEQ - PM ₁₀ , health	The CalEPA REL was the lowest threshold with supporting documentation available.
silver	NA	NA	NA	NA	NA	NA	0.01	0.03	0.007	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	No annual thresholds were available	-
strontium	NA	NA	NA	NA	NA	NA	2	7	1	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
thallium	NA	NA	NA	NA	NA	NA	0.1	0.3	0.07	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
tin	NA	NA	NA	NA	NA	NA	2	7	1	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
titanium	NA	NA	NA	NA	NA	NA	5	17	3	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
uranium	NA	NA	0.03	NA	NA	0.8	0.2	0.7	0.006	MOE - PM ₁₀ , health	The ON MOE AAQC was the lowest threshold.
										MOE - TSP, health	
										ATSDR - The chronic MRL for insoluble U was based on a LOAEL of 5.1 mg/m ³ for fibrosis in the lungs and tracheobronchial lymph nodes in monkeys. The LOAEL was adjusted for duration (5.4 h/day, 5 days/week). An uncertainty factor of 1000 was applied.	
			0.06			0.04	0.05	0.2		ATSDR - The chronic MRL for soluble U was based on a BMCL ₁₀ of 0.019 mg/m ³ for renal toxicity in dogs. The BMCL ₁₀ was adjusted for duration (33 h/7 days) and an uncertainty factor of 100.	
										TCEQ - PM ₁₀ , health	
										TCEQ - PM ₁₀ , health	
vanadium	NA	NA	NA	NA	NA	0.1	0.05	0.2	0.02	ATSDR - The chronic MRL was based on a BMCL ₁₀ of 0.04 mg/m ³ for degeneration of respiratory epithelium of the epiglottis in rats. The BMCL ₁₀ was adjusted for intermittent exposure (6 h/day, 5 days/week) and a human equivalent concentration of 0.423. An uncertainty factor of 30 was applied.	The ATSDR MRL was the lowest threshold with supporting documentation available.
										TCEQ - PM ₁₀ , health	
yttrium	NA	NA	NA	NA	NA	NA	1	3	0.7	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
zinc	NA	NA	NA	NA	NA	NA	2	7	1	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	NA	NA	NA	NA	NA	NA	0.1	0.3	0.07	TCEQ - health	The TCEQ value was selected in the absence of other values.
Methyl acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Acenaphthylene	NA	NA	NA	NA	NA	NA	0.1	0.3	0.07	TCEQ - health	The TCEQ value was selected in the absence of other values.
2-Methylantracene	NA	NA	NA	NA	NA	NA	0.05	0.2	0.03	TCEQ - health	The TCEQ value was selected in the absence of other values.
Anthracene	NA	NA	NA	NA	NA	NA	0.05	0.2		TCEQ - PM ₁₀ , health	
C2 sub'd phenanthrene/anth.	NA	NA	NA	NA	NA	NA	NA	NA		-	
C3 sub'd phenanthrene/anth.	NA	NA	NA	NA	NA	NA	NA	NA		-	
C4 sub'd phenanthrene/anth.	NA	NA	NA	NA	NA	NA	NA	NA		-	
Methyl phenanthrene/anthracene	NA	NA	NA	NA	NA	NA	0.05	0.2		TCEQ - health	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
1,6-dinitropyrene	NA	NA	NA	NA	0.000909	NA	NA	NA	NA	CalEPA - The PEF was based on respiratory tract tumours. 1,6-Dinitropyrene was assigned a PEF of 10 (relative to the benzo(a)pyrene PEF, which equals 1).	The ON MOE AAQC was the lowest threshold.
1,8-dinitropyrene	NA	NA	NA	NA	0.009091	NA	NA	NA		CalEPA - The PEF was assigned a PEF of 1.0 (relative to the benzo(a)pyrene PEF, which equals 1) until better data become available. This was based on a low dose used in a carcinogenic study and the high potency of 1,6-dinitropyrene.	
1-Nitropyrene	NA	NA	NA	NA	0.090909	NA	0.05	0.05		CalEPA - The PEF was based on lung tumours in newborn mice. 1-Nitropyrene was assigned a PEF of 0.1 (relative to the benzo(a)pyrene PEF, which equals 1).	
3-Methylcholanthrene	NA	NA	NA	NA	0.001587	NA	0.002	0.002		TCEQ - health	
7H-Dibenzo(c,g)carbazole	NA	NA	NA	NA	0.009091	NA	NA	NA		CalEPA - The unit risk was based on increases in tumours of the mammary gland in female rats. The cancer potency factor of (22 mg/kg/day) ⁻¹ was converted to a unit risk.	
Benzo(a)pyrene	NA	NA	0.00001	0.000111	0.009091	NA	0.003	0.003		TCEQ - health	
										CalEPA - The PEF was based on the tumour initiating ability of 7H-Dibenzo(c,g)carbazole in mouse skin. The relative tumourigenic activity was 0.97, which was rounded to a PEF of 1 (relative to the benzo(a)pyrene PEF, which equals 1).	
										MOE - health, as a surrogate of total PAHs	
										WHO - carcinogenic risk estimates based on human studies, lung. Epidemiological studies were used to derive a unit risk of 8.7x10 ⁻⁵ per ng/m ³ .	
										CalEPA - The CalEPA unit risk was based on male hamster respiratory tract tumour incidence. The B(a)P PEF is 1.0.	
										TCEQ - PM ₁₀ , health, under review	
										TCEQ - PM ₁₀ , health	
Benzo(b)fluorene	NA	NA	NA	NA	NA	NA	0.05	0.17		TCEQ - PM ₁₀ , health	
Benzo(e)pyrene	NA	NA	NA	NA	NA	NA	0.05	0.17	TCEQ - PM ₁₀ , health		
Cyclopenta(c,d)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	-		
nitrobenzanthrone	NA	NA	NA	NA	NA	NA	NA	NA	-		
Nitro-pyrene	NA	NA	NA	NA	NA	NA	0.05	0.17	TCEQ - health		
7,12-dimethylbenz(a)anthracene	NA	NA	NA	NA	0.000141	NA	0.05	0.05	NA	CalEPA - The cancer potency of (250 mg/kg/day) ⁻¹ was based on mesenteric intestine angioendothelioma incidence. This was converted to a unit risk.	The CalEPA unit risk was the lowest threshold and supporting documentation was available.
Benz(a)anthracene	NA	NA	NA	NA	0.090909	NA	0.05	0.05		TCEQ - health	
										CalEPA - The PEF for benzo(a)anthracene was based on lung adenomas in newborn mice. Benzo(a)anthracene was assigned a PEF of 0.1 (relative to the benzo(a)pyrene PEF, which equals 1).	
										TCEQ - health	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Benzo(b)fluoranthene	NA	NA	NA	NA	0.090909	NA	0.05	0.05	NA	CalEPA - The PEF for benzo(b)fluoranthene was based on mouse skin carcinogenesis. Benzo(b)fluoranthene was assigned a PEF of 0.1 (relative to the benzo(a)pyrene PEF, which equals 1).	The CalEPA unit risk was the lowest threshold with supporting documentation available.
Benzo(j)fluoranthene	NA	NA	NA	NA	0.090909	NA	NA	NA		TCEQ - PM ₁₀ , health	
C2 sub'd B(b&k)F/B(a)P	NA	NA	NA	NA	NA	NA	NA	NA		CalEPA - The PEF for benzo(j)fluoranthene was based on mouse skin carcinogenesis. The estimated cancer potency relative to B(a)P was 0.0648. Benzo(j)fluoranthene was assigned a PEF of 0.1 (relative to the benzo(a)pyrene PEF, which equals 1).	
Methyl B(b&k)F/B(a)P	NA	NA	NA	NA	NA	NA	NA	NA		-	
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	0.05	0.2	0.03	TCEQ - PM ₁₀ , health	The TCEQ value was selected in the absence of other values.
Coronene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Perylene	NA	NA	NA	NA	NA	NA	0.05	0.2		TCEQ - PM ₁₀ , health	
Benzo(k)fluoranthene	NA	NA	NA	NA	0.090909	NA	0.05	0.05	NA	CalEPA - The PEF for benzo(k)fluoranthene was based on intrapulmonary administration to rats. The estimated PEF was 0.085. Benzo(k)fluoranthene was assigned a PEF of 0.1 (relative to the benzo(a)pyrene PEF, which equals 1).	The CalEPA unit risk was the lowest threshold with supporting documentation available.
									NA	TCEQ - PM ₁₀ , health	
Biphenyl	NA	NA	NA	NA	NA	NA	1	3	1	TCEQ - health, under review	The TCEQ value was selected in the absence of other values.
C2 sub'd biphenyl	NA	NA	NA	NA	NA	NA	NA	NA		-	
Methyl biphenyl	NA	NA	NA	NA	NA	NA	1	3		TCEQ - health	
C2 sub'd B(a)A/chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	The CalEPA unit risk was the lowest threshold with supporting documentation available.
Chrysene	NA	NA	NA	NA	0.909091	NA	0.05	0.05		CalEPA - The PEF was based on mouse skin carcinogenesis. The cancer potency relative to B(a)P was 0.0132. The assigned PEF was 0.01 (relative to the benzo(a)pyrene PEF, which equals 1).	
										TCEQ - health	
Methyl B(a)A/chrysene	NA	NA	NA	NA	NA	NA	NA	NA		-	
dibenz(a,h)acridine	NA	NA	NA	NA	0.090909	NA	NA	NA	NA	CalEPA - The PEF for dibenz(a,h)acridine was adopted from dibenz(a,j)acridine, which was assigned a value of 0.1 (relative to the benzo(a)pyrene PEF, which equals 1).	The CalEPA unit risk was the lowest threshold and supporting documentation was available.
dibenz(a,j)acridine	NA	NA	NA	NA	0.090909	NA	NA	NA		CalEPA - The PEF for dibenz(a,j)acridine was based on the tumour-initiating ability in mouse skin. The PEF for dibenz(a,j)acridine was assigned a value of 0.1 (relative to the benzo(a)pyrene PEF, which equals 1).	
picene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Dibenzo(a,h)anthracene	NA	NA	NA	NA	0.008333	NA	0.05	0.05		CalEPA - The unit risk was based on alveolar carcinomas of the lung in a drinking water study. The 4.1 (mg/kg/day) ⁻¹ cancer potency factor was converted to a unit risk.	
										TCEQ - PM ₁₀ , health	
Acephenanthrylene	NA	NA	NA	NA	NA	NA	NA	NA	0.03	-	The TCEQ value was selected in the absence of other values.
Benzo(a)fluorene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Benzo(g,h,i)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Fluoranthene	NA	NA	NA	NA	NA	NA	0.05	0.2		TCEQ - PM ₁₀ , health	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
2-Methylfluorene	NA	NA	NA	NA	NA	NA	NA	NA	0.7	-	The TCEQ value was selected in the absence of other values.
C2 sub'd fluorene	NA	NA	NA	NA	NA	NA	NA	NA		-	
carbazole	NA	NA	NA	NA	NA	NA	10	33		TCEQ - health	
Fluorene	NA	NA	NA	NA	NA	NA	1	3		TCEQ - PM ₁₀ , health	
Methyl fluorene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Dibenzo(a,i)pyrene	NA	NA	NA	NA	0.000909	NA	NA	NA	NA	CalEPA - The PEF was based on skin tumours in mice. Dibenzo(a,i)pyrene was assigned a PEF of 10 (relative to the benzo(a)pyrene PEF, which equals 1).	The CalEPA unit risk was the lowest threshold and supporting documentation was available.
Indeno(1,2,3-cd)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	0.090909	NA	0.05	0.05		CalEPA - The PEF was based on skin carcinogenesis and lung tumours. Indeno(1,2,3-cd)pyrene was assigned a PEF of 0.1 (relative to the benzo(a)pyrene PEF, which equals 1).	
Indeno(1,2,3-W)pyrene	NA	NA	NA	NA	NA	NA	NA	NA		TCEQ - health	
1-methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	0.734	-	The ATSDR MRL was the lowest threshold and supporting documentation was available.
2-methylnaphthalene	NA	NA	NA	NA	NA	NA	3	10		TCEQ - health	
C2 sub'd naphthalene	NA	NA	NA	NA	NA	NA	NA	NA		-	The CalEPA unit risk was the lowest threshold and supporting documentation was available.
C3 sub'd naphthalene	NA	NA	NA	NA	NA	NA	NA	NA		-	
C4 sub'd naphthalene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Indole	NA	NA	NA	NA	NA	NA	2	7		TCEQ - health	
Methyl naphthalene	NA	NA	NA	NA	NA	NA	3	10		TCEQ - health	
Naphthalene	NA	NA	NA	NA	9	3.67	50	167		CalEPA - The CalEPA REL was based on a LOAEL of 10 ppm for nasal inflammation, olfactory epithelial metaplasia and respiratory epithelial hyperplasia in mice. The LOAEL was adjusted for exposure duration (6 h/day, 5 days/week). An uncertainty factor of 1000 was applied.	
					0.294118					CalEPA - The unit risk was based on male rat respiratory epithelial adenoma and nasal olfactory epithelial neuroblastoma incidence.	
										ATSDR - The chronic MRL was based on a LOAEL of 10 ppm for nonneoplastic lesions in nasal olfactory epithelium and respiratory epithelium in rats. The LOAEL was adjusted for duration (6 h/day, 5 days/week) and a human equivalent concentration (0.132). An uncertainty factor of 300 was applied.	
										TCEQ - health, under review	
1-Methylphenanthrene	NA	NA	NA	NA	NA	NA	3	10	0.03	TCEQ - health	The TCEQ value was selected in the absence of other values.
2-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA		-	
4-+9-Methylphenanthrene	NA	NA	NA	NA	NA	NA	NA	NA		-	
phenanthrene	NA	NA	NA	NA	NA	NA	0.05	0.2		TCEQ - health	
Retene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-Methylpyrene	NA	NA	NA	NA	NA	NA	NA	NA	0.03	-	The TCEQ value was selected in the absence of other values.
Methyl fluoranthene/pyrene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Pyrene	NA	NA	NA	NA	NA	NA	0.05	0.2		TCEQ - health	
2,5-dimethylthiopene	NA	NA	NA	NA	NA	NA	10	33	2	TCEQ - health	The TCEQ value was selected in the absence of other values.
3-Methyldibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA		-	
4-Methyldibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA		-	
C2 sub'd dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA		-	
C3 sub'd dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA		-	
C4 sub'd dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Dibenzothiophene	NA	NA	NA	NA	NA	NA	2.5	8.3		TCEQ - health	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Methyl dibenzothiophene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Volatile Organic Compounds											
1,1,1-trichloroethane	NA	NA	NA	NA	1000	NA	1500	5000	200	CalEPA - The CalEPA chronic REL is based on a NOAEL of 70 ppm for astrogliosis in the sensorimotor cerebral cortex in Mongolian gerbils. The NOAEL was adjusted for an uncertainty factor of 300. TCEQ - health, final	The CalEPA REL was the lowest threshold and supporting documentation was available.
1,1,2-Trichloroethane	NA	NA	NA	NA	0.625	NA	55	55	NA	CalEPA - The CalEPA unit risk was based on male mouse hepatocellular carcinoma tumour. TCEQ - health, under review	The CalEPA unit risk was the lowest threshold and supporting documentation was available.
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	46	153	31	TCEQ - health	The TCEQ value was selected in the absence of other values.
1,3-Butadiene	NA	NA	2	NA	20 0.058824	NA	9.9	9.9	0.4	MOE - health CalEPA - The CalEPA threshold is based on a LOAEL of 6.25 ppm (BMC ₀₅ of 1.40 ppm) for increased incidence of ovarian atrophy in mice. The BMC ₀₅ was adjusted for duration (6 h/day, 5 days/week) and a human equivalent concentration (0.25 ppm). An uncertainty factor of 30 was applied. CalEPA - The unit risk is based on lung alveolar and bronchiolar neoplasms in female mice. TCEQ - health, final	The ON MOE AAQC was the lowest threshold. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
2,5,5-TRIMETHYL-1,6-HEPTADIENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,5,5-TRIMETHYL-1,6-HEPTADIENE (B)	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,5-dimethyl-1,3-hexadiene	NA	NA	NA	NA	NA	NA	180	600		TCEQ - health	
2-METHYL-4,5-NONADIENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-ETHYL-2-METHYL-1,3HEXADIENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
4,8-DIMETHYL-1,7-NONADIENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
4-METHYL-2,7-OCTADIENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
5-METHYL-1,4-HEXADIENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
1,2-Butadiene	NA	NA	NA	NA	NA	NA	9.9	33		TCEQ - health	
1,2-Pentadiene	NA	NA	NA	NA	NA	NA	180	600		TCEQ - health	
1,4-Pentadiene	NA	NA	NA	NA	NA	NA	180	600		TCEQ - health	
2,3-Pentadiene	NA	NA	NA	NA	NA	NA	180	600		TCEQ - health	
2-Methyl-1,3-butadiene	NA	NA	NA	NA	NA	NA	6	20		TCEQ - health, under review	
3-Methyl-1,2-butadiene	NA	NA	NA	NA	NA	NA	9.9	33		TCEQ - health	
cis-1,3-Pentadiene	NA	NA	NA	NA	NA	NA	180	600		TCEQ - health	
Cyclopentadiene	NA	NA	NA	NA	NA	NA	200	667		TCEQ - health	
trans-1,3-Pentadiene	NA	NA	NA	NA	NA	NA	180	600		TCEQ - health	
1,3-Dichloropropene	NA	NA	NA	NA	NA	31.77	4.5	15	6.4	ATSDR - The ATSDR MRL was based on a BMCL ₁₀ of 0.2009 ppm for nasal effects in female mice. An uncertainty factor of 30 was applied. TCEQ - health	The ATSDR MRL was the lowest threshold with supporting documentation available.
2-ethyl-1-hexanol	NA	NA	NA	NA	NA	NA	160	533	107	TCEQ - health, under review	The TCEQ value was selected in the absence of other values.

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG _{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Acetaldehyde	NA	NA	NA	NA	140	NA	45	45	28	CalEPA - The 8-h threshold was based on a BMC ₀₅ of 178 mg/m ³ for degenerative, inflammatory and hyperplastic changes of the nasal mucosa in animals. The BMC ₀₅ was adjusted for a human equivalent concentration (1.36 dosimetric adjustment factor) and duration (6 h/day, 5 days/week). An uncertainty factor of 300 was applied.	The CalEPA REL was the only threshold available and supporting documentation was available. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
					3.703704					CalEPA - The CalEPA unit risk was based on nasal tumours in rats and laryngeal tumours in hamsters. The entire human respiratory tract (including lungs) may be at risk for cancer induction by acetaldehyde.	
										TCEQ - health, under review	
Acetone	NA	NA	NA	NA	NA	30880	590	1966	6176	ATSDR - The ATSDR threshold was based on a LOAEL of 1250 ppm for neurological effects in humans during a 6 week study. An uncertainty factor of 100 was applied.	The ATSDR MRL was the lowest threshold with supporting documentation available.
										TCEQ - health, under review	
Acrolein	NA	NA	NA	NA	0.35	NA	0.15	0.5	0.07	CalEPA - The CalEPA threshold was based on a NOAEL of 0.2 ppm for lesions in the respiratory epithelium. The NOAEL was adjusted for duration and a human equivalent concentration. An uncertainty factor of 200 was applied.	The CalEPA REL was the lowest threshold with supporting documentation available.
Methacrolein	NA	NA	NA	NA	NA	NA	0.36	1.2		TCEQ - health, final	
										TCEQ - health, final	
2,5-dimethylbenzaldehyde	NA	NA	NA	NA	NA	NA	9	30	0.6	TCEQ - health	The TCEQ value was selected in the absence of other values.
3-Methylbutanal	NA	NA	NA	NA	NA	NA	180	600		TCEQ - health	
benzaldehyde	NA	NA	NA	NA	NA	NA	9	30		TCEQ - health, under review	
butanal	NA	NA	NA	NA	NA	NA	NA	NA		-	
crotonaldehyde	NA	NA	NA	NA	NA	NA	0.9	3		TCEQ - health	
decanal	NA	NA	NA	NA	NA	NA	4	13		TCEQ - health	
dodecanal	NA	NA	NA	NA	NA	NA	4	13		TCEQ - health	
heptanal	NA	NA	NA	NA	NA	NA	40	133		TCEQ - health, under review	
isobutyraldehyde	NA	NA	NA	NA	NA	NA	290	967		TCEQ - health, under review	
nonanal	NA	NA	NA	NA	NA	NA	150	500		TCEQ - health	
octanal	NA	NA	NA	NA	NA	NA	150	500		TCEQ - health	
propanal	NA	NA	NA	NA	NA	NA	46	153		TCEQ - health, under review	
tridecanal	NA	NA	NA	NA	NA	NA	NA	NA		-	
undecanal	NA	NA	NA	NA	NA	NA	10	33		TCEQ - health	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG _{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Benzene	NA	NA	0.45	1.666667	60	9.58	4.5	4.5	1.9	MOE - health WHO - carcinogenic risk estimates based on human studies, leukemia: The WHO threshold is based on a study by Crump and Allen (1984), which reported 5.1 leukemia cases per 1000 workers exposed to a benzene concentration of 3.2 mg/m ³ . CalEPA - The CalEPA threshold was based on a NOAEL of 0.53 ppm for hematological effects. The NOAEL was adjusted for duration (8 h/day, 5 days/week and 10 m ³ inhaled per 20 m ³ day) and a human equivalent concentration of 0.19 ppm. An uncertainty factor of 10 was applied. CalEPA - The unit risk was based on leukemia incidence in occupationally-exposed workers. ATSDR - The threshold was based on a BMCL _{0.25sd} of 0.1 ppm for significantly decreased counts of B-lymphocytes in workers. The BMCL was adjusted for exposure time (8 hr/day) and an uncertainty factor of 10 was applied. TCEQ - health, final	The ATSDR MRL was the lowest threshold and supporting documentation was available. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
2,4-DIETHYL-1-METHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	233	-	The TCEQ value was selected in the absence of other values.
2,2,7-TRIMETHYL-3-OCTYNE	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,2-DIMETHYL-3-DECENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-DODECENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
7-METHYL-5-UNDECENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
dodecane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
hexylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
pentylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
undecane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3-Ethylnonane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
4-Methyldecane	NA	NA	NA	NA	NA	NA	NA	NA		-	
5-Methyldecane	NA	NA	NA	NA	NA	NA	NA	NA		-	
C11-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA		-	
C12-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA		-	
n-Dodecane	NA	NA	NA	NA	NA	NA	NA	NA		-	
n-Undecane	NA	NA	NA	NA	NA	NA	NA	NA		-	
trans-1-Methyl-2(4-methylpentyl)-cyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
n-Hexylbenzene	NA	NA	NA	NA	NA	NA	125	417	4	TCEQ - health	The TCEQ value was selected in the absence of other values.
1,2,4-Triethylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1,2-Diethylbenzene	NA	NA	NA	NA	NA	NA	250	833		TCEQ - health	
1,2-Dimethyl-3-ethylbenzene	NA	NA	NA	NA	NA	NA	156	520		TCEQ - health	
1,2-Dimethyl-4-ethylbenzene	NA	NA	NA	NA	NA	NA	256	853		TCEQ - health	
1,3,5-Triethylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1,3-Diisopropylbenzene	NA	NA	NA	NA	NA	NA	330	1100		TCEQ - health	
1-Ethyl-2-isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Ethyl-2-propylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1-Ethyl-4-isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Methyl-3-butylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1-Methyl-4-pentylbenzene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Methyl-4-tert-butylbenzene	NA	NA	NA	NA	NA	NA	6	20		TCEQ - health	
2-Methylbutylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
C11-Aromatic	NA	NA	NA	NA	NA	NA	NA	NA		-	
Hexylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
Pentylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
tert-1-Butyl-2-methylbenzene	NA	NA	NA	NA	NA	NA	NA	NA		-	
tert-1-Butyl-3,5-dimethylbenzene	NA	NA	NA	NA	NA	NA	330	1100		TCEQ - health	
tert-1-Butyl-4-ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-pentyl-2-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA	233	-	The TCEQ value was selected in the absence of other values.
2,6,10-trimethyltridecane	NA	NA	NA	NA	NA	NA	NA	NA		-	
3,3,8-trimethyldecane	NA	NA	NA	NA	NA	NA	NA	NA		-	
AMORPHANE B	NA	NA	NA	NA	NA	NA	NA	NA		-	
decylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
farnesane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
heptylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
Hexadecane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
nonylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
norfarnesane	NA	NA	NA	NA	NA	NA	NA	NA		-	
n-pentadecane	NA	NA	NA	NA	NA	NA	NA	NA		-	
octylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
Tetradecane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
Tridecane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
VALENCANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
n-Tridecane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1,2,4-TMB+n-Decane	NA	NA	NA	NA	NA	NA	NA	NA	83	-	The TCEQ value was selected in the absence of other values.
1,2,3-TMB+P-C	NA	NA	NA	NA	NA	NA	NA	NA		-	
Decylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
fluorenone	NA	NA	NA	NA	NA	NA	NA	NA		-	
n-Octylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
xanthone	NA	NA	NA	NA	NA	NA	NA	NA		-	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
3-EICOSYNE	NA	NA	NA	NA	NA	NA	NA	NA	7	-	The TCEQ value was selected in the absence of other values.
5-EICOSYNE	NA	NA	NA	NA	NA	NA	NA	NA		-	
5-EICOSYNE (B)	NA	NA	NA	NA	NA	NA	NA	NA		-	
dodecylcyclohexane	NA	NA	NA	NA	NA	NA	10	33		TCEQ - health	
n-eicosane	NA	NA	NA	NA	NA	NA	10	33		TCEQ - health	
n-heneicosane	NA	NA	NA	NA	NA	NA	10	33		TCEQ - health	
n-heptadecane	NA	NA	NA	NA	NA	NA	10	33		TCEQ - health	
n-nonadecane	NA	NA	NA	NA	NA	NA	10	33		TCEQ - health	
n-octadecane	NA	NA	NA	NA	NA	NA	10	33		TCEQ - health	
norpristane	NA	NA	NA	NA	NA	NA	NA	NA		-	
pentadecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
phytane	NA	NA	NA	NA	NA	NA	NA	NA		-	
pristane	NA	NA	NA	NA	NA	NA	10	33		TCEQ - health	
tetradecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
tridecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
undecylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
8b,13a-dimethyl-14b-[3'-methylbutyl]-podocarpane	NA	NA	NA	NA	NA	NA	NA	NA		-	
8b,13a-dimethyl-14b-n-butylpodocarpane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1,3,5-TRIMETHYL2-OCTADECYL CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	NA	No annual thresholds were available	-
1-methyl-1-(2-methylene)cyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	The ATSDR MRL was the lowest threshold with supporting documentation available.
1-METHYL-4-(1-METHYLENE)CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-METHYL-4-(METHYLENE)CYCLOHEXENE	NA	NA	NA	NA	NA	NA	NA	NA		-	The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
1-PROPYLENE	NA	NA	NA	NA	NA	NA	1640	5466		TCEQ - health	
2,2-DIMETHYLPROPANE	NA	NA	NA	NA	NA	NA	7200	23998		TCEQ - health, final	
2-ethyl-2-hexene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-Methyl pentane,2,3-Dimethylbutane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-methyl-1-butene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-methyl-1-pentene + 1-hexene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-methyl-4-pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-METHYLBICYCLO[4.4.0]HEPTANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-methyl-1-butene	NA	NA	NA	NA	NA	NA	2230	7433		TCEQ - health, under review	
4-METHYL-1-(1-METHYLENE)CYCLOHEXENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
ACETYLENE + ETHANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
Butane	NA	NA	NA	NA	NA	NA	2375	7916		TCEQ - health	
Butene	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-2-butene	NA	NA	NA	NA	NA	NA	NA	NA		-	
cyclopentane	NA	NA	NA	NA	NA	NA	340	1133		TCEQ - health	
ethane	NA	NA	NA	NA	NA	NA	NA	NA		-	
ethyne	NA	NA	NA	NA	NA	NA	2660	8866		TCEQ - health	
i-butane	NA	NA	NA	NA	NA	NA	1900	6333		TCEQ - health, under review	
isobutene	NA	NA	NA	NA	NA	NA	32000	106656		TCEQ - health, final	
isopentane	NA	NA	NA	NA	NA	NA	7200	23998		TCEQ - health, final	
pentane	NA	NA	NA	NA	NA	NA	7200	23998		TCEQ - health, final	
pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Propane	NA	NA	NA	NA	NA	NA	NA	NA		-	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
propene	NA	NA	NA	NA	3000	NA	NA	NA	504	CalEPA - The chronic REL was based on a LOAEL of 8570 mg/m ³ for respiratory system effects; squamous cell metaplasia, epithelial hyperplasia and inflammation of the nasal cavity in rats. The LOAEL was adjusted for exposure duration (6 hr/day, 5 days/week) and a human equivalent concentration of 0.21. An uncertainty factor of 100 was applied.	
trans-2-butene	NA	NA	NA	NA	NA	NA	NA	NA		-	
trans-2-pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1,2-Butane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Butene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Methyl-1-cyclopentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Pentyne	NA	NA	NA	NA	NA	NA	100	333		TCEQ - health	
2-Butanol	NA	NA	NA	NA	NA	NA	300	1000		TCEQ - health, under review	
2-Butyne	NA	NA	NA	NA	NA	NA	1440	4800		TCEQ - health	
2-Methyl-2-butene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-Methyl-2-butene	NA	NA	NA	NA	NA	NA	NA	NA		-	
4-Methyl-1-cyclopentene	NA	NA	NA	NA	NA	NA	810	2700		TCEQ - health	
C6-Olefin	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-2-Pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Cyclopentene	NA	NA	NA	NA	NA	NA	340	1133		TCEQ - health	
Ethene	NA	NA	NA	NA	NA	NA	34	113		TCEQ - health	
Isobutane	NA	NA	NA	NA	NA	NA	1900	6333		TCEQ - health, under review	
Isobutanol	NA	NA	NA	NA	NA	NA	152	507		TCEQ - health	
Methyl-tert-butyl ether	NA	NA	NA	NA	8000	2520	180	180		CalEPA - The chronic REL was based on a NOAEL of 403 ppm for nephrotoxicity, increased liver and kidney weight and prostration and periocular swelling. The NOAEL was adjusted for exposure duration (6 h/day, 5 days/week) and a human equivalent concentration of 1. An uncertainty factor of 30 was applied.	
										CalEPA - The CalEPA unit risk was based on male rat kidney adenomas and carcinomas, male rat Leydig interstitial cell tumours and female rat leukemia and lymphomas.	
					38.46154					ATSDR - The chronic MRL was based on a NOAEL of 400 ppm for no increased incidence and severity of chronic progressive nephropathy. The NOAEL was adjusted for duration (6 h/day, 5 days/week) and a human equivalent concentration (1). An uncertainty factor of 100 was applied.	
Naphthene	NA	NA	NA	NA	NA	NA	NA	NA	TCEQ - health, under review		
n-Butane	NA	NA	NA	NA	NA	NA	2375	7916	-		
n-Butanol	NA	NA	NA	NA	NA	NA	61	203	TCEQ - health		
n-Pentane	NA	NA	NA	NA	NA	NA	7200	23998	TCEQ - health		
n-Propanol	NA	NA	NA	NA	NA	NA	246	820	TCEQ - health, final		
									TCEQ - health		

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
1,1-dimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167	67	TCEQ - health	The TCEQ value was selected in the absence of other values.
1,2-dimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1,3-dimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1,5-dimethylcyclopentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-ethyl-1-methylcyclopropane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-HEXENE	NA	NA	NA	NA	NA	NA	170	567		TCEQ - health, under review	
1-METHYL-2-METHYLENE CYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,2,3-TRIMETHYLBUTANE	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,2-dimethylbutane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,3-dimethylbutane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,3-dimethylpentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,4-dimethyl-1-pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,4-dimethylpentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2-hexene	NA	NA	NA	NA	NA	NA	170	567		TCEQ - health, under review	
2-methyl-2-pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-methyl-3-pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-methylhexane	NA	NA	NA	NA	NA	NA	307	1023		TCEQ - health	
2-methylpentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health, under review	
3,3-DIMETHYL-1-BUTENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
3,3-DIMETHYLPENTANE	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3,4-dimethyl-1-pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-methyl-1,3-pentadiene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-methyl-1-hexene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-methyl-2-hexene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-METHYL-2-HEXENE (B)	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-methyl-2-pentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-methylcyclopentene	NA	NA	NA	NA	NA	NA	810	2700		TCEQ - health	
3-methylhexane	NA	NA	NA	NA	NA	NA	307	1023		TCEQ - health	
3-methylpentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
4,4-dimethylcyclopentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
4-methylcyclohexene	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-2-hexene	NA	NA	NA	NA	NA	NA	170	567		TCEQ - health, under review	
Cyclohexane	NA	NA	NA	NA	NA	NA	340	1133		TCEQ - health	
Cyclohexene	NA	NA	NA	NA	NA	NA	1000	3333		TCEQ - health, under review	
ethylcyclopentane	NA	NA	NA	NA	NA	NA	1630	5433		TCEQ - health	
heptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
hexanal	NA	NA	NA	NA	NA	NA	818	2726		TCEQ - health	
Methylcyclohexane	NA	NA	NA	NA	NA	NA	1610	5366		TCEQ - health, under review	
Methylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
t-1,3-DIMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
trans-2-hexene	NA	NA	NA	NA	NA	NA	170	567		TCEQ - health, under review	
1,1,3-TRIMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1,1-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1,2,3-trimethylcyclopentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1,2,4-trimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1,2-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1,4-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,2,3-TRIMETHYLPENTANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,2,4-trimethylpentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,3,4-trimethylpentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,3-dimethylhexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,4-dimethylhexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,5-dimethylhexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
2-ethyl-3-methylcyclopentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-methyl-1-pentene	NA	NA	NA	NA	NA	NA	100	333		TCEQ - health	
2-methylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2-octene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-ethylhexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-Methylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
4-methyl-3-heptene	NA	NA	NA	NA	NA	NA	NA	NA		-	
4-METHYLHEPTANE	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
cyclooctane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
methylethycyclopentene	NA	NA	NA	NA	NA	NA	NA	NA		-	
OCTAHYDROPENTALENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
octane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
OCTYNE	NA	NA	NA	NA	NA	NA	NA	NA		-	
Propane + Propylene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Propylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
t-1,3-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1-Heptene	NA	NA	NA	NA	NA	NA	1400	4666		TCEQ - health, under review	
1-Methyl-1-ethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1-Methyl-2-ethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Methyl-trans-3-ethylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Octene	NA	NA	NA	NA	NA	NA	340	1133		TCEQ - health	
2,2-Dimethylhexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,2-Dimethylpentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,3,3-Trimethylpentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-Methyl-3-ethylpentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3,4-Dimethylhexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3-Ethylpentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
C7-Olefin	NA	NA	NA	NA	NA	NA	NA	NA		-	
C8-Olefin	NA	NA	NA	NA	NA	NA	NA	NA		-	
C8-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis,cis-1,2,3-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
cis,trans-1,2,4-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
cis-1,2-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
cis-1,3-Dimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
cis-2-Heptene	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-2-Octene	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-3-Heptene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Ethylcyclohexane	NA	NA	NA	NA	NA	NA	1870	6233		TCEQ - health	
Isopropylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
n-Heptane	NA	NA	NA	NA	NA	NA	NA	NA		-	
n-Octane	NA	NA	NA	NA	NA	NA	NA	NA		-	
trans,cis-1,2,3-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
trans,cis-1,2,4-Trimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
trans-1,2-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
trans-1,2-Dimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
trans-1,3-Dimethylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
trans-1,4-Dimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
trans-2-Heptene	NA	NA	NA	NA	NA	NA	NA	NA		-	
trans-2-Octene	NA	NA	NA	NA	NA	NA	NA	NA		-	
trans-3-Heptene	NA	NA	NA	NA	NA	NA	NA	NA		-	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
1,1,2,3-TETRAMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	NA		-	The TCEQ value was selected in the absence of other values.
1,1,3,4-TETRAMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
1,1,3,5-TETRAMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
1,1,3-TRIMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1,1,4-TRIMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
1,3-DIMETHYL2-(1-METHYLENE)CYCLOPENETENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-ETHYL-2,3-DIMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-ethyl-2,4-dimethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-ETHYL-2-PROPYL CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-METHYL-4-(1-METHYLETHYL) CYCLOHEXANE	NA	NA	NA	NA	NA	NA	110	367		TCEQ - health	
2,2,5-trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,2-DIMETHYL-3-OCTYNE	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,3,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,3-dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,5,5-TRIMETHYL-1-HEXENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,6-dimethyl-2-octene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,6-dimethyl-4-octene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,6-dimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2+4-Methyloctane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-methyloctyne	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-METHYLPROPYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
3,3,4-trimethylhexane + benzene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3,4,4-trimethylcyclohexene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3,7,7-TRIMETHYL BICYCLO[4.1.0]HEPTANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
3,7-dimethyl-1-octene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-ETHYL-2-METHYL-2-HEPTENE	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-ethyl-3-octene	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-methyloctane	NA	NA	NA	NA	NA	NA	NA	NA		-	
4-ethyloctane	NA	NA	NA	NA	NA	NA	NA	NA		-	
4-methyloctane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
BICYCLO[3.3.1]NONANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
BICYCLO[33.3.1]NONANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
BUTYLIDENECYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
c-1,3-DIMETHYLCYCLOPENTANE	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
c-1-BUTYL-2-METHYLCYCLOPROPANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
decane	NA	NA	NA	NA	NA	NA	1000	3333		TCEQ - health	
ETHYLIDENECYCLOHEPTANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
isocamphane	NA	NA	NA	NA	NA	NA	NA	NA		-	
nonane	NA	NA	NA	NA	NA	NA	1050	3500		TCEQ - health	
1-Decene	NA	NA	NA	NA	NA	NA	100	333		TCEQ - health, under review	
1-Methyl-1-ethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Methyl-1-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Methyl-2-ethylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Methyl-2-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
1-Methyl-4-isopropylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA	67	-	
1-Nonene	NA	NA	NA	NA	NA	NA	520	1733		TCEQ - health	
2,2,3,4-Tetramethylpentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,2,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,2-Dimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,2-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,3,3-Trimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,3,5-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,4,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,4-Dimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,4-Dimethyloctane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,5-Dimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2,5-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,6-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-Methylnonane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
2-Methyloctane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3,3,4-Trimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3,3,4-Trimethylhexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
3,3,5-Trimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3,3-Diethylpentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
3,3-Dimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3,3-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA		-	
3,4-Dimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3,5-Dimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3,6-Dimethyloctane	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-Ethyloctane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
3-Methyl-5-ethylheptane	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-Methylethylhexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
3-Methylnonane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
4-Ethylheptane	NA	NA	NA	NA	NA	NA	NA	NA		-	
5-Methylnonane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
Butylcyclopentane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
C10-Olefin	NA	NA	NA	NA	NA	NA	NA	NA		-	
C10-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA		-	
C9-Olefin	NA	NA	NA	NA	NA	NA	NA	NA		-	
C9-Paraffin	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-1,2,4-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
cis-1,3,5-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
cis-1-Ethyl-2-methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-1-Ethyl-4-methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-1-Ethyl--methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-2-nonene	NA	NA	NA	NA	NA	NA	NA	NA		-	
cis-3-Nonene	NA	NA	NA	NA	NA	NA	NA	NA		-	
Isobutylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
Isobutylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
Isopropylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
n-Decane	NA	NA	NA	NA	NA	NA	1000	3333		TCEQ - health	
n-Nonane	NA	NA	NA	NA	NA	NA	NA	NA		-	
Propylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
q,q,2-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
sec-Butylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
sec-Butylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
tert-Butylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
trans-1,2,4-Trimethylcyclohexane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
trans-1-Ethyl-4-methylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL ⁱ Adjusted	Adjusted Non-carcinogenic Threshold ^j		
trans-1-Methyl-2-methyl-4-propylcyclopentane	NA	NA	NA	NA	NA	NA	NA	NA		-	
trans-1-Methyl-2-propylcyclohexane	NA	NA	NA	NA	NA	NA	NA	NA		-	
trans-2-nonene	NA	NA	NA	NA	NA	NA	NA	NA		-	
trans-3-Nonene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1,1,2,3-TETRAMETHYLCYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA	83	-	The TCEQ value was selected in the absence of other values.
1,2-DIETHYL-1-METHYL-CYCLOHEXANE	NA	NA	NA	NA	NA	NA	NA	NA		-	
2-Ethyl-toluene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
3-Ethyl-toluene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
4-Ethyl-toluene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
indanone	NA	NA	NA	NA	NA	NA	NA	NA		-	
methylpropylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
n-Butylbenzene	NA	NA	NA	NA	NA	NA	274	913		TCEQ - health	
p-cymene	NA	NA	NA	NA	NA	NA	275	917		TCEQ - health	
Propylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1,2,3,4-tetrahydronaphthalene	NA	NA	NA	NA	NA	NA	300	1000		TCEQ - health	
1,2,3,4-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1,2,3,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1,2,4,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1,3-Diethylbenzene	NA	NA	NA	NA	NA	NA	250	833		TCEQ - health	
1,3-Dimethyl-2-ethylbenzene	NA	NA	NA	NA	NA	NA	256	853		TCEQ - health	
1,3-Dimethyl-4-ethylbenzene	NA	NA	NA	NA	NA	NA	256	853		TCEQ - health	
1,3-Dimethyl-5-ethylbenzene	NA	NA	NA	NA	NA	NA	256	853		TCEQ - health	
1,4-Diethylbenzene	NA	NA	NA	NA	NA	NA	250	833		TCEQ - health	
1,4-Dimethyl-2-ethylbenzene	NA	NA	NA	NA	NA	NA	256	853		TCEQ - health	
1-Ethyl-2-methylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1-Ethyl-3-methylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1-Ethyl-4-methylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1-Methyl-2-isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Methyl-2-propylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1-Methyl-3-isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA		-	
1-Methyl-3-propylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1-Methyl-4-isopropylbenzene	NA	NA	NA	NA	NA	NA	275	917		TCEQ - health	
1-Methyl-4-propylbenzene	NA	NA	NA	NA	NA	NA	1250	4166		TCEQ - health	
2,3-Dihydroindene	NA	NA	NA	NA	NA	NA	NA	NA		-	
2,3-Dimethylheptane	NA	NA	NA	NA	NA	NA	350	1167		TCEQ - health	
Butylbenzene	NA	NA	NA	NA	NA	NA	274	913		TCEQ - health	
C10-Aromatic	NA	NA	NA	NA	NA	NA	NA	NA		-	
Isobutylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
Isopropylbenzene	NA	NA	NA	NA	NA	NA	250	833		TCEQ - health	
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	274	913		TCEQ - health	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Carbon Tetrachloride	NA	NA	NA	NA	40	190	13	13	8	CalEPA - The threshold is based on a LOAEL of 5 ppm for increased liver weight and hepatic fatty infiltration in guinea pigs. The LOAEL was adjusted for duration and a human equivalent concentration. An uncertainty factor of 300 was applied.	The CalEPA REL was the lowest threshold and supporting documentation was available. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
										CalEPA - The unit risk is based on mouse liver tumour incidence.	
					0.238095					ATSDR - The ATSDR MRL is based on a NOAEL of 5 ppm for increased liver weight, serum enzymes and liver histopathology. The NOAEL was adjusted for exposure duration (6 h/day, 5 days/week) and a human equivalent concentration of 1. An uncertainty factor of 30 was applied.	
										TCEQ - health, under review	
1-Chloronaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	200	-	The CalEPA REL was the lowest threshold with supporting documentation available.
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	2	7		TCEQ - health	
Chlorobenzene	NA	NA	NA	NA	1000	NA	46	153		CalEPA - The threshold is based on a NOAEL of 50 ppm for increased liver weights, hepatocellular hypertrophy, renal degeneration and inflammation and testicular degeneration in rats. The NOAEL was adjusted for duration (6 h/day) and a human equivalent concentration of 2. An uncertainty factor of 100 was applied.	
										TCEQ - health	
Chloroethane	NA	NA	NA	NA	30000	NA	50	167	6000	CalEPA - The threshold is based on a NOAEL of 4000 mg/m ³ for delayed ossification of skull formation in mice. The NOAEL was adjusted for exposure duration (6 h/day) and a human equivalent concentration of 1. An uncertainty factor of 30 was applied.	The CalEPA REL was the lowest threshold with supporting documentation available.
										TCEQ - health	
Chloroform	NA	NA	0.2	NA	300	97.65	10	10	19.53	MOE - health	The ATSDR MRL was the lowest threshold and supporting documentation was available. The ON MOE AAQC was the lowest carcinogenic threshold.
										CalEPA - The CalEPA threshold was based on a LOAEL of 25 ppm for liver toxicity in rats and increased liver weights in male rats. The LOAEL was adjusted for exposure duration (7 h/day, 5 days/week) and a human equivalent concentration (3). An uncertainty factor of 300 was applied.	
										CalEPA - The CalEPA unit risk was based on renal tumours in rats and mice.	
					1.886792					ATSDR - The MRL was based on a LOAEL of 2 ppm for hepatic effects. An uncertainty factor of 100 was applied.	
										TCEQ - health, under review	
Cumene	NA	NA	NA	NA	NA	NA	250	833	167	TCEQ - health, under review	The TCEQ value was selected in the absence of other values.

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria			
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j					
Dichlorobenzene	NA	NA	NA	NA	800	60.12	32	32	12.0	CalEPA - The threshold was based on a NOAEL of 50 ppm for general effects in rats, including reduced body weights and food consumption; CNS effects; respiratory/dermal effects; liver effects; and kidney effects. The NOAEL was adjusted for exposure duration (6 hr/day) and a human equivalent concentration of 1. An uncertainty factor of 100 was applied.	The ATSDR MRL was the lowest threshold and supporting documentation was available. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.			
														CalEPA - The CalEPA unit risk was based on increases in several types of tumours in mice and rats.
					0.909091									ATSDR - The MRL was based on a BMCL ₁₀ of 9.51 ppm for increased incidences of nasal lesions in female rats. The BMCL was adjusted for duration (6 h/day, 5 days/week) and a human equivalent concentration (0.16). An uncertainty factor of 30 was applied.
														TCEQ - health, final
1,1-Dichloroethane	NA	NA	NA	NA	6.25	NA	400	400	80	CalEPA - The unit risk was based on female rat mammary gland adenocarcinoma tumours.	The CalEPA REL was the lowest threshold and supporting documentation was available.			
										TCEQ - health				
										MOE - health	The ON MOE AAQC was the lowest carcinogenic threshold.			
1,2-Dichloroethane	NA	NA	0.4	NA	400	2430	4	4		CalEPA - The chronic REL was based on a NOAEL of 10 ppm for significant elevations in liver enzymes. The NOAEL was adjusted for exposure duration (7 h/day, 5 days/week) and a human equivalent concentration of 1.5. An uncertainty factor of 30 was applied.				
												CalEPA - The unit risk was based on the incidence of hemangiosarcomas in male rats.		
												0.47619		
													TCEQ - health	
Ethanol	NA	NA	NA	NA	NA	NA	1880	6266	1253	TCEQ - health	The TCEQ value was selected in the absence of other values.			
Ethylbenzene	NA	NA	NA	NA	2000	260	570	570	52	CalEPA - The CalEPA threshold was based on a NOAEL of 75 ppm for nephrotoxicity and body weight reduction in rats and hyperplasia of the pituitary gland, liver cellular alterations and necrosis in mice. The NOAEL was adjusted for duration (6 h/day, 5 days/week) and a human equivalent concentration of 1. An uncertainty factor of 30 was applied.	The ATSDR MRL was the lowest threshold and supporting documentation was available. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.			
														CalEPA - The CalEPA unit risk was based on male rat renal tumours)
					4									ATSDR - The ATSDR MRL was based on a LOAEL of 75 ppm for increased severity of chronic progressive nephropathy in female rats. A human equivalent concentration of 17.45 ppm was selected as the point of departure and an uncertainty factor of 300 was applied.
														TCEQ - health, final
ethylene	NA	NA	NA	NA	NA	NA	1800 (health), 34 (vegetation)	6000 (health), 113 (vegetation)	1200 (health), 23 (vegetation)	TCEQ - health, final; vegetation, final	The TCEQ value was selected in the absence of other values.			

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Ethylene Dibromide	NA	NA	NA	NA	0.8	NA	0.4	0.4	0.16	CalEPA - The chronic REL was based on a LOAEL of 88 ppb for reproductive toxicity in human males. Effects included decreased sperm count/ejaculate, decreased percentage of viable and motile sperm and sperm morphological abnormalities. The LOAEL was adjusted for exposure continuity and duration and an uncertainty factor of 300.	The CalEPA REL was the only available threshold and supporting documentation was available. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
					0.140845					CalEPA - The unit risk was based on male rat nasal tumour incidence.	
										TCEQ - health	
Formaldehyde	NA	NA	NA	NA	9	9.83	3.3	3.3	1.8	CalEPA - The chronic REL was based on a NOAEL of 0.09 mg/m ³ for nasal obstruction and discomfort and lower airway discomfort in occupationally-exposed workers. The NOAEL was adjusted for an uncertainty factor of 10.	The CalEPA REL was the lowest threshold and supporting documentation was available. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
										CalEPA - The unit risk was based on rat nasal squamous carcinoma incidence.	
					1.666667					ATSDR - The chronic MRL was based on a LOAEL of 0.24 ppm for mild eye and upper respiratory tract irritation and mild damage to the nasal epithelium. An uncertainty factor of 30 was applied. An uncertainty factor of 30 was applied.	
										TCEQ - health, final	
Hexane	NA	NA	NA	NA	NA	NA	200	667	422	TCEQ - health, final	The ATSDR MRL was the lowest threshold with supporting documentation available.
n-Hexane	NA	NA	NA	NA	7000	2110	200	667		CalEPA - The chronic REL was based on a NOAEL of 100 ppm for peripheral neuropathy in male mice. The NOAEL was adjusted for exposure duration and a human equivalent concentration. An uncertainty factor of 30 was applied.	
										ATSDR - The chronic MRL is based on a LOAEL of 58 ppm for reduced motor nerve conduction velocity in occupationally-exposed workers. An uncertainty factor of 100 was applied.	
Isopropanol	NA	NA	NA	NA	7000	NA	492	1640	1400	CalEPA - The chronic REL is based on a NOAEL of 504 ppm for kidney lesions in mice and rats. The NOAEL was adjusted for exposure duration (6 h/day, 5 days/week) and a human equivalent concentration (1). An uncertainty factor of 30 was applied.	The CalEPA REL was the lowest threshold with supporting documentation available.
									TCEQ - health		
3-Buten-2-one	NA	NA	NA	NA	NA	NA	0.6	2	0.4	TCEQ - health	The TCEQ value was selected in the absence of other values.
acetophenone	NA	NA	NA	NA	NA	NA	49	163		TCEQ - health	
CAMPHOR	NA	NA	NA	NA	NA	NA	2	7		TCEQ - health	
Methyl Ethyl Ketone	NA	NA	NA	NA	NA	NA	2600	8666		TCEQ - health, final	
Methane	NA	NA	NA	NA	NA	NA	NA	NA	NA	No annual thresholds were available	-
Methanol	NA	NA	NA	NA	4000	NA	262	873	800	CalEPA - The CalEPA threshold was based on a NOAEL of 1000 ppm (BMC ₀₅ of 305 ppm) for abnormal cervical ribs, exencephaly and cleft palate in mice. The BMC ₀₅ was adjusted for exposure duration (7 h/day) and a human equivalent concentration (1). An uncertainty factor of 30 was applied.	The CalEPA REL was the lowest threshold with supporting documentation available.

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Methylene Chloride	NA	NA	44	450 ^k	400	1040	350	350	80	MOE - health	The CalEPA REL was the lowest threshold and supporting documentation was available. The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
										WHO - effects other than cancer or odour/annoyance: The biological endpoint from exposure to methylene chloride is formation of COHb. The weekly average is one-seventh of the 24-h guideline.	
										CalEPA - The CalEPA chronic REL was based on a LOAEL of 40 ppm for elevated carboxyhemoglobin levels in occupationally-exposed humans. The LOAEL was adjusted for exposure duration. An uncertainty factor of 100 was applied.	
										CalEPA - The unit risk was based on female mouse lung tumours.	
										ATSDR - The chronic MRL was based on a NOAEL of 50 ppm for liver histopathology in female rats. The NOAEL was adjusted for duration (6 h/day, 5 days/week) and a human equivalency concentration (1). An uncertainty factor of 30 was applied.	
										TCEQ - health, final	
OCDD (Octachlorodibenzo-p-dioxin)	NA	NA	NA	NA	0.002632	NA	NA	NA	NA	CalEPA - The OCDD unit risk is based on various cancers in humans and animals. The unit risk was determined using a TEF approach. OCDD was assigned a TEF of 0.0001, relative to 2,3,7,8-TCDD, which has a TEF of 1 and unit risk of 3.8x10 ¹ .	The CalEPA unit risk was the only available threshold and supporting documentation was available.
Phenol	NA	NA	NA	NA	200	NA	19	63	40	CalEPA - The chronic REL was based on a NOAEL of 5 ppm for systemic effects (liver and nervous system effects). The NOAEL was adjusted for a human equivalent concentration of 1 and an uncertainty factor of 100 was applied.	The CalEPA REL was the lowest threshold with supporting documentation available.
										TCEQ - health, under review	
Propylene Oxide	NA	NA	0.3	NA	30	NA	7	7	0.06	MOE - health	The ON MOE AAQC was the lowest threshold. The CalEPA unit risk was the lowest carcinogenic threshold with supporting documentation available.
										CalEPA - The CalEPA threshold is based on a LOAEL of 30 ppm for degenerative and hyperplastic changes in the respiratory epithelium in rats. The LOAEL was adjusted for exposure duration (6 h/day, 5 days/week) and a human equivalent concentration of 0.23. An uncertainty factor of 100 was applied.	
										CalEPA - The CalEPA unit risk was based on male rat nasal cavity hemangioma/hemangiosarcoma.	
										TCEQ - health	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Styrene	NA	NA	NA	260 ^k	900	850	140	467	52	WHO - effects other than cancer or odour/annoyance: A LOAEL of 107 mg/m ³ for reduced visuomotor accuracy and verbal learning skills and subclincial effects on colour vision was used to derive the WHO threshold value. The LOAEL was adjusted for continuous exposure by a factor of 4.2. An uncertainty factor of 100 was applied.	The WHO AQG was the lowest threshold and supporting documentation was available.
										CalEPA - The CalEPA threshold was based on a LOAEL of 15 ppm for CNS effects in occupationally-exposed humans (BMC ₀₅ of 1.7 ppm). The LOAEL was adjusted for exposure duration and inhalation of 10 m ³ of contaminated air per 20 m ³ of total air. An uncertainty factor of 3 was applied.	
										ATSDR - The chronic MRL was based on a LOAEL of 20 ppm for reversible alterations in colour vision. The LOAEL was adjusted for exposure duration (8 h/day, 5 days/week) and an uncertainty factor of 30 was applied.	
										TCEQ - health, final	
1,1,1,2-tetrachloroethane	NA	NA	NA	NA	NA	NA	105	350	70	TCEQ - health	The TCEQ value was selected in the absence of other values.
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	0.172414	NA	7	7		CalEPA - The unit risk was based on female mouse hepatocellular carcinoma tumour.	
										TCEQ - health	
toluene	NA	NA	NA	260 ^k	300	300	330	1100	52	WHO - effects other than cancer or odour/annoyance: A LOAEL of 332 mg/m ³ for CNS effects was used to derive the WHO threshold. The LOAEL was adjusted for continuous exposure by a factor of 4.2 and an uncertainty factor of 300 was applied.	The WHO AQG was the lowest threshold and supporting documentation was available.
										CalEPA - The chronic REL was based on a NOAEL of 40 ppm for decreased brain weight and altered dopamine receptor binding in male rats. The NOAEL was adjusted for exposure duration (6 h/day, 5 days/week) and a human equivalent concentration of 1. An uncertainty factor of 100 was applied.	
										ATSDR - The chronic MRL was based on a LOAEL of 35 ppm for alcohol- and age-adjusted colour vision impairment. The LOAEL was adjusted for duration (8 h/day, 5 days/week) and an uncertainty factor of 100 was applied.	
										TCEQ - health, final	
1,2,3-trimethylbenzene	NA	NA	NA	NA	NA	NA	125	417	83	TCEQ - health	The TCEQ value was selected in the absence of other values.
1,2,4-trimethylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
1,3,5-trimethylbenzene	NA	NA	NA	NA	NA	NA	125	417		TCEQ - health	
Vinyl Chloride	NA	NA	0.2	10	0.128205	NA	1.2	1.2	NA	MOE - health	The CalEPA unit risk was the lowest carcinogenic threshold and supporting documentation was available.
										WHO - carcinogenic risk estimates based on human studies, liver and other sites.	
										CalEPA - The CalEPA unit risk was based on female mouse lung tumour incidence.	
										TCEQ - health, final	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted ⁱ	Adjusted Non-carcinogenic Threshold ^j		
p-Xylene	NA	NA	NA	NA	NA	220	180	600	44	ATSDR - The chronic MRL was based on a LOAEL of 14 ppm for neurotoxicity, respiratory toxicity and eye irritation in humans. An uncertainty factor of 100 and a modifying factor of 3 were applied. Based on similar toxicokinetic properties and similar toxicological effects, a single chronic duration MRL that applies to mixed xylenes and all of the individual isomers was derived based on data for m-xylene.	The ATSDR MRL was the lowest threshold and supporting documentation was available.
										TCEQ - health, final	
m-xylene	NA	NA	NA	NA	NA	220	180	600		ATSDR - The chronic MRL was based on a LOAEL of 14 ppm for neurotoxicity, respiratory toxicity and eye irritation in humans. An uncertainty factor of 100 and a modifying factor of 3 were applied. Based on similar toxicokinetic properties and similar toxicological effects, a single chronic duration MRL that applies to mixed xylenes and all of the individual isomers was derived based on data for m-xylene.	
										TCEQ - health, final	
o-xylene	NA	NA	NA	NA	NA	220	180	600		ATSDR - The chronic MRL was based on a LOAEL of 14 ppm for neurotoxicity, respiratory toxicity and eye irritation in humans. An uncertainty factor of 100 and a modifying factor of 3 were applied. Based on similar toxicokinetic properties and similar toxicological effects, a single chronic duration MRL that applies to mixed xylenes and all of the individual isomers was derived based on data for m-xylene.	
										TCEQ - health, final	
Xylene	NA	NA	NA	NA	700	220	180	600		CalEPA - The chronic REL was based on a LOAEL of 14.2 ppm for dose-related increases in the prevalence of eye irritation, sore throat, floating sensation and poor appetite in factory workers. The LOAEL was adjusted for exposure duration (5 days/week) and an inhalation rate of 10 m ³ /day. An uncertainty factor of 30 was applied.	
										ATSDR - The chronic MRL was based on a LOAEL of 14 ppm for neurotoxicity, respiratory toxicity and eye irritation in humans. An uncertainty factor of 100 and a modifying factor of 3 were applied. Based on similar toxicokinetic properties and similar toxicological effects, a single chronic duration MRL that applies to mixed xylenes and all of the individual isomers was derived based on data for m-xylene.	
										TCEQ - health, final	

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted	Adjusted Non-carcinogenic Threshold ^j		
Criteria Compounds											
Carbon monoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	No annual thresholds were available	-
Nitrogen dioxide	60	60	NA	40	NA	NA	99.73	332.4	8	Gov Nunavut - The Government of Nunavut standard is based on the NAAQO value for NO ₂ .	The WHO AQG was the lowest threshold and supporting documentation was available.
		NAAQO - health and environment									
		WHO - effects other than cancer or odour/annoyance: The WHO guideline was derived based on outdoor epidemiological studies that found exposures to NO ₂ in ambient air associated with increased respiratory symptoms and lung function decreases in children.									
		TCEQ - health, criteria pollutant, must meet US NAAQS. Texas defers to the US National Ambient Air Quality Standards for NO ₂ .									
Nitrogen Oxides (NOx)	NA	NA	NA	NA	NA	NA	NA	NA	NA	No annual thresholds were available	-
Sulphur dioxide	30	30	55	50	NA	NA	NA	NA	6	Gov Nunavut - The Government of Nunavut standard is based on the NAAQO value for SO ₂ .	The Government of NWT threshold is adopted from the Canadian NAAQO. The Government of NWT threshold was selected preferentially over the Canadian NAAQO due to the location of the Site.
		NAAQO - health and environment									
		MOE - health & vegetation									
		WHO - effects other than cancer or odour/annoyance: A LOAEL of 100 µg/m ³ for respiratory symptoms and illnesses or differences in lung function values was the basis for the WHO threshold.									
PM _{2.5}	NA	NA	NA	10	NA	NA	NA	NA	2	WHO - The AQG is based on cardiopulmonary and lung cancer mortality.	The WHO AQG was the only threshold and supporting documentation was available.
PM ₁₀	NA	NA	NA	20	NA	NA	NA	NA	4	WHO - The WHO AQG is based on a PM _{2.5} :PM ₁₀ ratio of 0.5.	The WHO AQG was the only threshold and supporting documentation was available.
Diesel Particulate Matter	NA	NA	NA	NA	5	NA	0.15	0.15	1	TCEQ - PM ₁₀ , health	The CalEPA chronic REL was the only non-carcinogenic threshold and supporting documentation was available.
					CalEPA - The chronic REL was based on respiratory effects.						
					CalEPA - The unit risk was based on lung cancer risk in occupationally exposed individuals.					The CalEPA unit risk was the lowest carcinogenic threshold and supporting	
Total suspended particulate	60	60	60	NA	NA	NA	NA	NA	12	Gov Nunavut - The Government of Nunavut standard is based on the NAAQO value for TSP.	The Government of NWT threshold is adopted from the Canadian NAAQO. The Government of NWT threshold was selected preferentially over the Canadian NAAQO due to the location of the
		NAAQO - health and environment									
		MOE - visibility									

Table 10.2-B-2: Chronic Annual Air Thresholds

Parameter	Chronic Inhalation Annual Health Based Thresholds (µg/m ³)									Basis of Screening Threshold	Decision Criteria
	Government of Nunavut AAQS ^a	Canadian NAAQO ^b	ON MOE AAQC ^c	WHO AQG ^{d,e,f}	CalEPA REL ^g	ATSDR MRL ^h	TCEQ ESL ⁱ	TCEQ ESL Adjusted ⁱ	Adjusted Non-carcinogenic Threshold ^j		

Notes:

^a Government of Nunavut. (2011). Environmental Guideline for Ambient Air Quality. Department of Environment.

^b Canadian Council of Ministers of the Environment. (1999). Canadian Environmental Quality Guidelines. Canadian National Ambient Air Quality Objectives.

^c Ontario Ministry of the Environment. (2012). Ontario's Ambient Air Quality Criteria. Standards Development Branch.

The ON MOE AAQCs are based on health, odour, vegetation, soiling, visibility, corrosion or other effects. The ON MOE does not provide background information on how the AAQCs were derived on a chemical to chemical basis, and therefore the following parameters were

^d World Health Organization. (2000). Air Quality Guidelines for Europe, 2nd Ed. World Health Organization Regional Publications, European Series, No. 91. Copenhagen.

^e World Health Organization. (2005). Air Quality Guidelines Global Update. Report on Working Group Meeting. Bonn, Germany.

^f World Health Organization. (2005). WHO Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulfur Dioxide. Global Update, Summary of Risk Assessment.

The WHO provides carcinogenic unit risks based on human studies. Unit risks (based on a risk level of 1x10⁻⁶) were adjusted to a risk based concentration and used as a screening value with the following formula: threshold (µg/m³) = 1x10⁻⁶/unit risk (µg/m³)⁻¹. This value was

^g California Environmental Protection Agency. (2012). Acute, 8-h and Chronic Reference Exposure Levels. Office of Environmental Health Hazard Assessment, Air Toxicology and Epidemiology. Internet Site, last updated Februrary 2012, accessed 31 July 2012.

The CalEPA OEHHA provides carcinogenic unit risks. Unit risks (based on a risk level of 1x10⁻⁶) were adjusted to a risk based concentration and used as a screening value with the following formula: threshold (µg/m³) = 1x10⁻⁶/unit risk (µg/m³)⁻¹. This value was then multiplied by 10 to account for a target risk level of 1x10⁻⁵.

^h Agency for Toxic Substances and Disease Registry. (2011). Minimal Risk Levels. Internet Site, last updated 3 May 2011, accessed 25 July 2012.

The ATSDR defines chronic exposure as 365 days or more.

ⁱ Texas Commission on Environmental Quality. (2012). Interoffice Memorandum, March 2012 Effects Screening Levels. Toxicology Division for Air Permitting.

The TCEQ ESLs are based on health, odour/nuisance potential, and vegetation effects. The TCEQ ESLs are based on an HQ = 0.3 for non-carcinogens and an ILCR = 1x10⁻⁵ for carcinogens. HQs were adjusted with the following equation: threshold (µg/m³) = TCEQ value x 3.333. ILCRs were not adjusted. TCEQ values were assumed to be carcinogenic if other agencies have assessed the parameter as such (i.e. As, Be, Cd, CrVI, Ni, 1-nitropyrene, 3-methylcolanthrene, B(a)P, 7,12-dimethylbenz(a)anthracene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluroanthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-c,d)pyrene, 1,3-butadiene, acetaldehyde, benzene, MTBE, ethylbenzene, and formaldehyde were assumed carcinogens). The TCEQ does not provide background information on how the ESLs were derived on a chemical to chemical basis. All ESLs are interim, unless otherwise stated.

^j The selected non-carcinogenic thresholds were divided by 5 to adjust for a final target HQ of 0.2.

NA = not available.

^k 7 days.

^l 30 days.

200

= carcinogenic chemical.

Target HQ = 1.0, see comment (9) above.

Target cancer risk = 1x10⁻⁵.

air concentrations given in ppm were converted to µg/m³ with the following equation: X (ppm) = Y (mg/m³)*24.45/MW.

Centre for Disease Control and Prevention. (2003). Conversion Calculator. The National Institue for Occupational Safety and Health Publication No. 2004-101.

Selection criteria:

the lowest health-based air threshold from the first six agencies listed was selected as the guideline for screening in the HHRA. The TCEQ threshold was selected if it was the only agency with a guideline. Carcinogens have two standards selected, non-carcinogenic and carcinogenic.

200

= seletcted non-carcinogenic guideline for screening in the HHRA.

200

= seletcted carcinogenic guideline for screening in the HHRA.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	120	3.84E+01	1.17E+01	2.10E+01	2.12E+01	2.16E+01	2.49E+01	5.09E+01	3.54E+00	4.24E+00	3.75E+00	3.55E+00	3.90E+00	2.85E+01	1.60E+01	1.52E+01
DPM	NV	4.98E+00	1.74E+00	2.34E+00	1.76E+00	1.29E+00	3.78E+00	3.00E+00	6.87E-01	6.34E-01	5.84E-01	6.87E-01	6.59E-01	2.71E+00	3.36E+00	2.93E+00
PM10	25	2.02E+01	6.58E+00	1.03E+01	1.02E+01	1.03E+01	1.55E+01	2.33E+01	2.16E+00	2.52E+00	2.26E+00	2.16E+00	2.38E+00	1.50E+01	1.06E+01	9.66E+00
PM2.5	15	9.80E+00	3.62E+00	5.17E+00	4.13E+00	2.85E+00	7.58E+00	5.77E+00	1.29E+00	1.19E+00	1.14E+00	1.29E+00	1.19E+00	5.24E+00	6.87E+00	5.87E+00
SO2	125	4.85E-01	1.46E-01	2.20E-01	1.74E-01	1.20E-01	2.79E-01	1.68E-01	5.05E-02	4.85E-02	4.20E-02	5.06E-02	4.40E-02	1.67E-01	2.77E-01	2.31E-01
CO	6000	1.60E+02	6.17E+01	5.74E+01	5.75E+01	6.35E+01	7.74E+01	1.01E+02	1.82E+01	1.65E+01	1.35E+01	1.82E+01	1.73E+01	8.03E+01	6.03E+01	5.37E+01
NOX	9000	1.39E+02	4.89E+01	6.81E+01	5.08E+01	3.63E+01	1.10E+02	8.38E+01	1.97E+01	1.79E+01	1.64E+01	1.97E+01	1.86E+01	7.58E+01	9.43E+01	8.20E+01
NO2	120	9.29E+01	4.89E+01	6.81E+01	5.08E+01	3.63E+01	9.00E+01	8.38E+01	1.97E+01	1.79E+01	1.64E+01	1.97E+01	1.86E+01	7.58E+01	8.84E+01	8.20E+01
Metals																
Aluminum	NV	2.66E+00	8.13E-01	1.45E+00	1.47E+00	1.49E+00	1.73E+00	3.53E+00	2.46E-01	2.94E-01	2.60E-01	2.46E-01	2.71E-01	1.98E+00	1.11E+00	1.06E+00
Antimony	25	1.50E-04	4.59E-05	8.21E-05	8.28E-05	8.45E-05	9.76E-05	1.99E-04	1.39E-05	1.66E-05	1.47E-05	1.39E-05	1.53E-05	1.12E-04	6.27E-05	5.96E-05
Arsenic	0.015	4.26E-03	1.30E-03	2.33E-03	2.35E-03	2.40E-03	2.77E-03	5.65E-03	3.94E-04	4.71E-04	4.16E-04	3.94E-04	4.33E-04	3.17E-03	1.78E-03	1.69E-03
Barium	10	1.50E-02	4.58E-03	8.19E-03	8.27E-03	8.43E-03	9.75E-03	1.99E-02	1.39E-03	1.66E-03	1.47E-03	1.39E-03	1.53E-03	1.12E-02	6.26E-03	5.96E-03
Beryllium	0.01	2.79E-05	8.53E-06	1.53E-05	1.54E-05	1.57E-05	1.81E-05	3.71E-05	2.58E-06	3.09E-06	2.73E-06	2.58E-06	2.84E-06	2.08E-05	1.17E-05	1.11E-05
Bismuth	NV	7.67E-06	2.34E-06	4.19E-06	4.23E-06	4.31E-06	4.99E-06	1.02E-05	7.09E-07	8.49E-07	7.49E-07	7.10E-07	7.80E-07	5.71E-06	3.20E-06	3.05E-06
Cadmium	0.025	3.00E-03	1.05E-03	1.41E-03	1.06E-03	7.79E-04	2.27E-03	1.81E-03	4.13E-04	3.82E-04	3.52E-04	4.13E-04	3.97E-04	1.64E-03	2.02E-03	1.76E-03
Calcium	NV	1.52E+00	4.63E-01	8.28E-01	8.36E-01	8.53E-01	9.85E-01	2.01E+00	1.40E-01	1.68E-01	1.48E-01	1.40E-01	1.54E-01	1.13E+00	6.33E-01	6.02E-01
Chromium	0.1	6.88E-03	2.12E-03	3.72E-03	3.69E-03	3.72E-03	4.52E-03	8.77E-03	6.58E-04	7.69E-04	6.82E-04	6.59E-04	7.15E-04	5.02E-03	3.00E-03	2.83E-03
Cobalt	0.1	1.03E-03	3.14E-04	5.61E-04	5.67E-04	5.78E-04	6.68E-04	1.36E-03	9.50E-05	1.14E-04	1.00E-04	9.51E-05	1.04E-04	7.64E-04	4.29E-04	4.08E-04
Copper	50	2.72E-03	8.31E-04	1.49E-03	1.50E-03	1.53E-03	1.77E-03	3.61E-03	2.51E-04	3.01E-04	2.66E-04	2.52E-04	2.76E-04	2.02E-03	1.13E-03	1.08E-03
Gold	NV	2.97E-06	9.07E-07	1.62E-06	1.64E-06	1.67E-06	1.93E-06	3.94E-06	2.74E-07	3.29E-07	2.90E-07	2.75E-07	3.02E-07	2.21E-06	1.24E-06	1.18E-06
Iron	4	2.92E+00	8.91E-01	1.59E+00	1.61E+00	1.64E+00	1.89E+00	3.87E+00	2.69E-01	3.23E-01	2.85E-01	2.70E-01	2.96E-01	2.17E+00	1.22E+00	1.16E+00
Lead	0.5	9.56E-04	3.14E-04	4.85E-04	4.28E-04	3.87E-04	6.75E-04	9.08E-04	1.11E-04	1.14E-04	1.03E-04	1.11E-04	1.13E-04	6.12E-04	5.27E-04	4.75E-04
Lithium	20	1.24E-03	3.79E-04	6.77E-04	6.84E-04	6.97E-04	8.06E-04	1.65E-03	1.15E-04	1.37E-04	1.21E-04	1.15E-04	1.26E-04	9.22E-04	5.18E-04	4.92E-04
Magnesium	NV	8.04E-01	2.46E-01	4.39E-01	4.43E-01	4.52E-01	5.23E-01	1.07E+00	7.43E-02	8.90E-02	7.86E-02	7.44E-02	8.18E-02	5.98E-01	3.36E-01	3.19E-01
Manganese	0.1	3.02E-02	9.24E-03	1.65E-02	1.67E-02	1.70E-02	1.96E-02	4.01E-02	2.79E-03	3.35E-03	2.95E-03	2.80E-03	3.07E-03	2.25E-02	1.26E-02	1.20E-02
Molybdenum	120	4.60E-05	1.41E-05	2.51E-05	2.54E-05	2.59E-05	2.99E-05	6.11E-05	4.25E-06	5.09E-06	4.50E-06	4.26E-06	4.68E-06	3.42E-05	1.92E-05	1.83E-05
Nickel	0.06	2.67E-03	8.15E-04	1.46E-03	1.47E-03	1.50E-03	1.73E-03	3.54E-03	2.46E-04	2.95E-04	2.60E-04	2.47E-04	2.71E-04	1.98E-03	1.11E-03	1.06E-03
Potassium	NV	5.09E-01	1.55E-01	2.78E-01	2.81E-01	2.86E-01	3.31E-01	6.76E-01	4.70E-02	5.63E-02	4.97E-02	4.71E-02	5.17E-02	3.78E-01	2.12E-01	2.02E-01
Selenium	10	4.59E-05	1.40E-05	2.51E-05	2.53E-05	2.58E-05	2.98E-05	6.09E-05	4.24E-06	5.08E-06	4.48E-06	4.25E-06	4.67E-06	3.41E-05	1.92E-05	1.82E-05
Silver	1	1.13E-05	3.45E-06	6.17E-06	6.23E-06	6.35E-06	7.34E-06	1.50E-05	1.04E-06	1.25E-06	1.10E-06	1.05E-06	1.15E-06	8.40E-06	4.72E-06	4.49E-06
Sodium	NV	6.08E-01	1.86E-01	3.32E-01	3.35E-01	3.42E-01	3.95E-01	8.07E-01	5.62E-02	6.73E-02	5.94E-02	5.62E-02	6.18E-02	4.52E-01	2.54E-01	2.41E-01
Strontium	120	8.12E-03	2.48E-03	4.44E-03	4.48E-03	4.57E-03	5.28E-03	1.08E-02	7.51E-04	8.99E-04	7.93E-04	7.51E-04	8.26E-04	6.04E-03	3.39E-03	3.22E-03
Thallium	NV	1.17E-05	3.58E-06	6.41E-06	6.47E-06	6.60E-06	7.62E-06	1.56E-05	1.08E-06	1.30E-06	1.15E-06	1.09E-06	1.19E-06	8.72E-06	4.90E-06	4.66E-06
Tin	10	4.13E-05	1.26E-05	2.26E-05	2.28E-05	2.33E-05	2.69E-05	5.49E-05	3.82E-06	4.58E-06	4.04E-06	3.83E-06	4.20E-06	3.08E-05	1.73E-05	1.64E-05
Titanium	120	1.34E-01	4.09E-02	7.31E-02	7.37E-02	7.52E-02	8.69E-02	1.78E-01	1.24E-02	1.48E-02	1.31E-02	1.24E-02	1.36E-02	9.95E-02	5.58E-02	5.31E-02
Uranium	0.1	3.73E-05	1.14E-05	2.04E-05	2.06E-05	2.10E-05	2.42E-05	4.95E-05	3.45E-06	4.13E-06	3.65E-06	3.45E-06	3.79E-06	2.78E-05	1.56E-05	1.48E-05
Vanadium	1	4.92E-03	1.50E-03	2.69E-03	2.71E-03	2.77E-03	3.20E-03	6.53E-03	4.54E-04	5.44E-04	4.80E-04	4.55E-04	5.00E-04	3.66E-03	2.05E-03	1.95E-03
Yttrium	NV	3.63E-04	1.11E-04	1.98E-04	2.00E-04											

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	NV	3.81E-06	1.33E-06	1.79E-06	1.34E-06	9.85E-07	2.88E-06	2.29E-06	5.24E-07	4.85E-07	4.46E-07	5.25E-07	5.03E-07	2.07E-06	2.57E-06	2.24E-06
indeno(1,2,3-cd)pyrene	NV	2.42E-06	8.47E-07	1.14E-06	8.52E-07	6.26E-07	1.83E-06	1.46E-06	3.33E-07	3.08E-07	2.84E-07	3.34E-07	3.20E-07	1.32E-06	1.63E-06	1.42E-06
Volatile Oranic Compounds																
1,3-butadiene	10	2.81E-02	9.92E-03	1.38E-02	1.03E-02	7.27E-03	2.24E-02	1.70E-02	3.89E-03	3.61E-03	3.31E-03	3.89E-03	3.77E-03	1.53E-02	1.92E-02	1.67E-02
acetaldehyde	300	3.79E+00	1.34E+00	1.86E+00	1.38E+00	9.80E-01	3.02E+00	2.29E+00	5.24E-01	4.86E-01	4.47E-01	5.25E-01	5.08E-01	2.06E+00	2.59E+00	2.25E+00
acetone	11880	2.00E+00	7.04E-01	9.79E-01	7.28E-01	5.16E-01	1.59E+00	1.20E+00	2.76E-01	2.56E-01	2.35E-01	2.76E-01	2.67E-01	1.09E+00	1.36E+00	1.18E+00
acrolein	0.09	6.71E-01	2.37E-01	3.29E-01	2.45E-01	1.73E-01	5.35E-01	4.05E-01	9.28E-02	8.61E-02	7.91E-02	9.29E-02	9.00E-02	3.65E-01	4.59E-01	3.98E-01
aldehyde	NV	5.07E+00	1.79E+00	2.49E+00	1.85E+00	1.31E+00	4.04E+00	3.06E+00	7.01E-01	6.50E-01	5.98E-01	7.02E-01	6.80E-01	2.76E+00	3.47E+00	3.01E+00
benzene	2.3	2.49E-01	8.77E-02	1.22E-01	9.06E-02	6.42E-02	1.98E-01	1.50E-01	3.44E-02	3.19E-02	2.93E-02	3.44E-02	3.33E-02	1.35E-01	1.70E-01	1.48E-01
C10-C12 aliphatic	NV	5.46E-02	1.93E-02	2.68E-02	1.99E-02	1.41E-02	4.35E-02	3.29E-02	7.55E-03	7.00E-03	6.43E-03	7.56E-03	7.32E-03	2.97E-02	3.73E-02	3.24E-02
C12-C16 aliphatic	NV	3.16E-01	1.12E-01	1.55E-01	1.15E-01	8.17E-02	2.52E-01	1.91E-01	4.37E-02	4.05E-02	3.73E-02	4.38E-02	4.24E-02	1.72E-01	2.16E-01	1.88E-01
C12-C16 aromatic	NV	4.26E-03	1.50E-03	2.09E-03	1.55E-03	1.10E-03	3.40E-03	2.57E-03	5.89E-04	5.47E-04	5.02E-04	5.90E-04	5.71E-04	2.32E-03	2.91E-03	2.53E-03
C16-C21 aliphatic	NV	3.17E-01	1.12E-01	1.55E-01	1.15E-01	8.18E-02	2.52E-01	1.91E-01	4.38E-02	4.06E-02	3.73E-02	4.38E-02	4.24E-02	1.72E-01	2.16E-01	1.88E-01
C2-C6 aliphatic	920	1.51E+00	5.32E-01	7.39E-01	5.49E-01	3.89E-01	1.20E+00	9.08E-01	2.08E-01	1.93E-01	1.78E-01	2.09E-01	2.02E-01	8.20E-01	1.03E+00	8.94E-01
C6-C8 aliphatic	6100	1.03E+00	3.64E-01	5.05E-01	3.76E-01	2.66E-01	8.21E-01	6.21E-01	1.42E-01	1.32E-01	1.21E-01	1.43E-01	1.38E-01	5.61E-01	7.04E-01	6.12E-01
C8-C10 aliphatic	60000	1.45E-02	5.12E-03	7.12E-03	5.29E-03	3.75E-03	1.16E-02	8.75E-03	2.01E-03	1.86E-03	1.71E-03	2.01E-03	1.95E-03	7.90E-03	9.92E-03	8.61E-03
C8-C10 aromatic	400	8.16E-02	2.88E-02	4.00E-02	2.97E-02	2.11E-02	6.50E-02	4.92E-02	1.13E-02	1.05E-02	9.62E-03	1.13E-02	1.09E-02	4.44E-02	5.58E-02	4.84E-02
ethylbenzene	1000	4.26E-02	1.50E-02	2.09E-02	1.55E-02	1.10E-02	3.40E-02	2.57E-02	5.89E-03	5.47E-03	5.02E-03	5.90E-03	5.71E-03	2.32E-02	2.91E-02	2.53E-02
ethylene	40	7.77E-01	2.74E-01	3.81E-01	2.83E-01	2.01E-01	6.19E-01	4.68E-01	1.07E-01	9.96E-02	9.15E-02	1.07E-01	1.04E-01	4.23E-01	5.31E-01	4.61E-01
formaldehyde	9	2.02E+00	7.14E-01	9.92E-01	7.37E-01	5.23E-01	1.61E+00	1.22E+00	2.80E-01	2.59E-01	2.38E-01	2.80E-01	2.71E-01	1.10E+00	1.38E+00	1.20E+00
ketone	1000	1.14E+00	4.03E-01	5.60E-01	4.17E-01	2.95E-01	9.11E-01	6.89E-01	1.58E-01	1.47E-01	1.35E-01	1.58E-01	1.53E-01	6.22E-01	7.81E-01	6.78E-01
toluene	2000	3.61E-01	1.27E-01	1.77E-01	1.32E-01	9.33E-02	2.88E-01	2.18E-01	4.99E-02	4.63E-02	4.25E-02	5.00E-02	4.84E-02	1.96E-01	2.47E-01	2.14E-01
trimethylbenzene	220	1.03E-01	3.65E-02	5.07E-02	3.77E-02	2.67E-02	8.24E-02	6.23E-02	1.43E-02	1.33E-02	1.22E-02	1.43E-02	1.39E-02	5.63E-02	7.07E-02	6.14E-02
xylenes	730	2.87E-01	1.01E-01	1.41E-01	1.04E-01	7.41E-02	2.28E-01	1.73E-01	3.96E-02	3.68E-02	3.38E-02	3.97E-02	3.84E-02	1.56E-01	1.96E-01	1.70E-01

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
*the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	120	4.70E+00	3.17E+00	2.95E+00	2.77E+00	4.07E+00	5.07E+00	2.41E+01	7.11E+00	3.70E+00	4.33E+00	4.07E+00	1.15E+02	1.15E+02	No	No
DPM	NV	9.01E-01	6.89E-01	6.30E-01	5.51E-01	7.79E-01	8.61E-01	3.91E+00	1.39E+00	6.49E-01	7.55E-01	7.21E-01	2.99E+01	2.99E+01	No	No
PM10	25	2.97E+00	2.07E+00	1.91E+00	1.74E+00	2.55E+00	3.06E+00	1.50E+01	4.08E+00	2.17E+00	2.60E+00	2.45E+00	9.69E+01	9.69E+01	Yes	Yes
PM2.5	15	1.75E+00	1.28E+00	1.17E+00	1.02E+00	1.48E+00	1.68E+00	9.04E+00	2.45E+00	1.20E+00	1.43E+00	1.36E+00	7.99E+01	7.99E+01	Yes	Yes
SO2	125	6.72E-02	4.90E-02	4.42E-02	3.80E-02	5.60E-02	6.28E-02	3.72E-01	9.12E-02	4.51E-02	5.36E-02	5.11E-02	4.25E+00	4.25E+00	No	No
CO	6000	2.02E+01	1.47E+01	1.33E+01	1.11E+01	1.56E+01	1.63E+01	1.20E+02	4.27E+01	2.51E+01	2.60E+01	2.59E+01	1.31E+03	1.31E+03	No	No
NOX	9000	2.53E+01	1.94E+01	1.77E+01	1.55E+01	2.19E+01	2.42E+01	1.10E+02	3.88E+01	1.82E+01	2.11E+01	2.02E+01	8.38E+02	8.38E+02	No	No
NO2	120	2.53E+01	1.94E+01	1.77E+01	1.55E+01	2.19E+01	2.42E+01	8.99E+01	3.88E+01	1.82E+01	2.11E+01	2.02E+01	1.63E+02	1.63E+02	Yes	Yes
Metals																
Aluminum	NV	3.26E-01	2.20E-01	2.05E-01	1.92E-01	2.83E-01	3.52E-01	1.67E+00	4.93E-01	2.57E-01	3.00E-01	2.82E-01	7.97E+00	7.97E+00	No	No
Antimony	25	1.84E-05	1.24E-05	1.15E-05	1.08E-05	1.59E-05	1.99E-05	9.43E-05	2.78E-05	1.45E-05	1.69E-05	1.59E-05	4.50E-04	4.50E-04	No	No
Arsenic	0.015	5.22E-04	3.52E-04	3.27E-04	3.07E-04	4.52E-04	5.63E-04	2.67E-03	7.89E-04	4.11E-04	4.81E-04	4.52E-04	1.27E-02	1.27E-02	No	No
Barium	10	1.84E-03	1.24E-03	1.15E-03	1.08E-03	1.59E-03	1.98E-03	9.41E-03	2.78E-03	1.45E-03	1.69E-03	1.59E-03	4.49E-02	4.49E-02	No	No
Beryllium	0.01	3.42E-06	2.31E-06	2.14E-06	2.01E-06	2.96E-06	3.69E-06	1.75E-05	5.17E-06	2.69E-06	3.15E-06	2.96E-06	8.36E-05	8.36E-05	No	No
Bismuth	NV	9.40E-07	6.35E-07	5.89E-07	5.53E-07	8.14E-07	1.01E-06	4.82E-06	1.42E-06	7.40E-07	8.66E-07	8.14E-07	2.30E-05	2.30E-05	No	No
Cadmium	0.025	5.42E-04	4.14E-04	3.79E-04	3.31E-04	4.69E-04	5.18E-04	2.35E-03	8.33E-04	3.90E-04	4.54E-04	4.34E-04	1.80E-02	1.80E-02	No	No
Calcium	NV	1.86E-01	1.25E-01	1.16E-01	1.09E-01	1.61E-01	2.00E-01	9.52E-01	2.81E-01	1.46E-01	1.71E-01	1.61E-01	4.54E+00	4.54E+00	No	No
Chromium	0.1	8.72E-04	5.97E-04	5.53E-04	5.15E-04	7.55E-04	9.29E-04	4.40E-03	1.32E-03	6.80E-04	7.95E-04	7.49E-04	2.21E-02	2.21E-02	No	No
Cobalt	0.1	1.26E-04	8.50E-05	7.90E-05	7.41E-05	1.09E-04	1.36E-04	6.45E-04	1.90E-04	9.92E-05	1.16E-04	1.09E-04	3.08E-03	3.08E-03	No	No
Copper	50	3.33E-04	2.25E-04	2.09E-04	1.96E-04	2.89E-04	3.59E-04	1.71E-03	5.04E-04	2.62E-04	3.07E-04	2.89E-04	8.14E-03	8.14E-03	No	No
Gold	NV	3.64E-07	2.46E-07	2.28E-07	2.14E-07	3.15E-07	3.93E-07	1.86E-06	5.50E-07	2.87E-07	3.35E-07	3.15E-07	8.89E-06	8.89E-06	No	No
Iron	4	3.57E-01	2.41E-01	2.24E-01	2.10E-01	3.09E-01	3.85E-01	1.83E+00	5.40E-01	2.81E-01	3.29E-01	3.09E-01	8.73E+00	8.73E+00	Yes	No*
Lead	0.5	1.46E-04	1.07E-04	9.82E-05	8.81E-05	1.27E-04	1.47E-04	6.79E-04	2.23E-04	1.09E-04	1.27E-04	1.21E-04	4.36E-03	4.36E-03	No	No
Lithium	20	1.52E-04	1.03E-04	9.53E-05	8.95E-05	1.32E-04	1.64E-04	7.78E-04	2.30E-04	1.20E-04	1.40E-04	1.32E-04	3.71E-03	3.71E-03	No	No
Magnesium	NV	9.85E-02	6.65E-02	6.18E-02	5.80E-02	8.54E-02	1.06E-01	5.05E-01	1.49E-01	7.76E-02	9.07E-02	8.54E-02	2.41E+00	2.41E+00	No	No
Manganese	0.1	3.70E-03	2.50E-03	2.32E-03	2.18E-03	3.21E-03	4.00E-03	1.90E-02	5.60E-03	2.92E-03	3.41E-03	3.21E-03	9.05E-02	9.05E-02	No	No
Molybdenum	120	5.64E-06	3.81E-06	3.54E-06	3.32E-06	4.89E-06	6.08E-06	2.89E-05	8.53E-06	4.44E-06	5.19E-06	4.88E-06	1.38E-04	1.38E-04	No	No
Nickel	0.06	3.27E-04	2.21E-04	2.05E-04	1.92E-04	2.83E-04	3.52E-04	1.67E-03	4.94E-04	2.57E-04	3.01E-04	2.83E-04	7.98E-03	7.98E-03	No	No
Potassium	NV	6.23E-02	4.21E-02	3.91E-02	3.67E-02	5.40E-02	6.73E-02	3.19E-01	9.43E-02	4.91E-02	5.74E-02	5.40E-02	1.52E+00	1.52E+00	No	No
Selenium	10	5.62E-06	3.80E-06	3.53E-06	3.31E-06	4.87E-06	6.07E-06	2.88E-05	8.51E-06	4.43E-06	5.18E-06	4.87E-06	1.37E-04	1.37E-04	No	No
Silver	1	1.38E-06	9.35E-07	8.68E-07	8.15E-07	1.20E-06	1.49E-06	7.09E-06	2.09E-06	1.09E-06	1.27E-06	1.20E-06	3.38E-05	3.38E-05	No	No
Sodium	NV	7.45E-02	5.03E-02	4.67E-02	4.38E-02	6.45E-02	8.03E-02	3.81E-01	1.13E-01	5.86E-02	6.86E-02	6.45E-02	1.82E+00	1.82E+00	No	No
Strontium	120	9.95E-04	6.72E-04	6.24E-04	5.86E-04	8.62E-04	1.07E-03	5.10E-03	1.51E-03	7.84E-04	9.16E-04	8.62E-04	2.43E-02	2.43E-02	No	No
Thallium	NV	1.44E-06	9.70E-07	9.01E-07	8.46E-07	1.25E-06	1.55E-06	7.36E-06	2.17E-06	1.13E-06	1.32E-06	1.24E-06	3.51E-05	3.51E-05	No	No
Tin	10	5.07E-06	3.42E-06	3.18E-06	2.98E-06	4.39E-06	5.47E-06	2.60E-05	7.66E-06	3.99E-06	4.67E-06	4.39E-06	1.24E-04	1.24E-04	No	No
Titanium	120	1.64E-02	1.11E-02	1.03E-02	9.65E-03	1.42E-02	1.77E-02	8.39E-02	2.48E-02	1.29E-02	1.51E-02	1.42E-02	4.00E-01	4.00E-01	No	No
Uranium	0.1	4.57E-06	3.09E-06	2.87E-06	2.69E-06	3.96E-06	4.93E-06	2.34E-05	6.91E-06	3.60E-06	4.21E-06	3.96E-06	1.12E-04	1.12E-04	No	No
Vanadium	1	6.02E-04	4.07E-04	3.78E-04	3.55E-04	5.22E-04	6.50E-04	3.09E-03	9.11E-04	4.74E-04	5.55E-04	5.22E-04	1.47E-02	1.47E-02	No	No
Yttrium	NV	4.45E-05	3.00E-05	2.79E-05	2.62E-05	3.85E-05	4.80E-05	2.28E-04	6.73E-05	3.50E-05	4.10E-05	3.85E-05	1.09E-03	1.09E-03	No	No
Zinc	120	1.10E-03	8.00E-04	7.36E-04	6.62E-04	9.53E-04	1.11E-03	5.15E-03	1.68E-03	8.25E-04	9.62E-04	9.12E-04	3.24E-02	3.24E-02	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00005	9.91E-07	7.58E-07	6.94E-07	6.06E-07	8.57E-07	9.47E-07	4.31E-06	1.52E-06	7.14E-07	8.31E-07	7.93E-07	3.29E-05	3.29E-05	No	No
naphthalene	22.5	3.92E-04	3.00E-04	2.75E-04	2.40E-04	3.39E-04	3.75E-04	1.70E-03	6.03E-04	2.83E-04	3.29E-04	3.14E-04	1.30E-02	1.30E-02	No	No
phenanthrene	NV	3.24E-05	2.48E-05	2.27E-05	1.98E-05	2.80E-05	3.10E-05	1.41E-04	4.98E-05	2.33E-05	2.72E-05	2.59E-05	1.07E-03	1.07E-03	No	No
anthracene	NV	3.61E-06	2.77E-06	2.53E-06	2.21E-06	3.13E-06	3.45E-06	1.57E-05	5.56E-06	2.60E-06	3.03E-06	2.89E-06	1.20E-04	1.20E-04	No	No
fluorene	NV</															

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	NV	6.88E-07	5.26E-07	4.81E-07	4.21E-07	5.95E-07	6.57E-07	2.99E-06	1.06E-06	4.96E-07	5.77E-07	5.51E-07	2.28E-05	2.28E-05	No	No
indeno(1,2,3-cd)pyrene	NV	4.37E-07	3.35E-07	3.06E-07	2.67E-07	3.78E-07	4.18E-07	1.90E-06	6.73E-07	3.15E-07	3.67E-07	3.50E-07	1.45E-05	1.45E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	10	5.16E-03	3.94E-03	3.60E-03	3.12E-03	4.44E-03	4.90E-03	2.23E-02	7.78E-03	3.66E-03	4.23E-03	4.05E-03	1.71E-01	1.71E-01	No	No
acetaldehyde	300	6.96E-01	5.31E-01	4.85E-01	4.20E-01	5.99E-01	6.61E-01	3.00E+00	1.05E+00	4.93E-01	5.71E-01	5.46E-01	2.30E+01	2.30E+01	No	No
acetone	11880	3.66E-01	2.80E-01	2.55E-01	2.21E-01	3.15E-01	3.48E-01	1.58E+00	5.52E-01	2.59E-01	3.00E-01	2.87E-01	1.21E+01	1.21E+01	No	No
acrolein	0.09	1.23E-01	9.41E-02	8.59E-02	7.44E-02	1.06E-01	1.17E-01	5.32E-01	1.86E-01	8.73E-02	1.01E-01	9.67E-02	4.08E+00	4.08E+00	Yes	Yes
aldehyde	NV	9.31E-01	7.11E-01	6.49E-01	5.62E-01	8.01E-01	8.84E-01	4.02E+00	1.40E+00	6.59E-01	7.63E-01	7.31E-01	3.08E+01	3.08E+01	No	No
benzene	2.3	4.56E-02	3.48E-02	3.18E-02	2.76E-02	3.92E-02	4.33E-02	1.97E-01	6.87E-02	3.23E-02	3.74E-02	3.58E-02	1.51E+00	1.51E+00	No	No
C10-C12 aliphatic	NV	1.00E-02	7.65E-03	6.98E-03	6.05E-03	8.62E-03	9.52E-03	4.32E-02	1.51E-02	7.10E-03	8.22E-03	7.86E-03	3.32E-01	3.32E-01	No	No
C12-C16 aliphatic	NV	5.80E-02	4.43E-02	4.04E-02	3.51E-02	4.99E-02	5.51E-02	2.50E-01	8.74E-02	4.11E-02	4.76E-02	4.55E-02	1.92E+00	1.92E+00	No	No
C12-C16 aromatic	NV	7.83E-04	5.97E-04	5.45E-04	4.73E-04	6.73E-04	7.43E-04	3.38E-03	1.18E-03	5.54E-04	6.42E-04	6.14E-04	2.59E-02	2.59E-02	No	No
C16-C21 aliphatic	NV	5.81E-02	4.44E-02	4.05E-02	3.51E-02	5.00E-02	5.52E-02	2.51E-01	8.75E-02	4.11E-02	4.77E-02	4.56E-02	1.92E+00	1.92E+00	No	No
C2-C6 aliphatic	920	2.77E-01	2.11E-01	1.93E-01	1.67E-01	2.38E-01	2.63E-01	1.19E+00	4.17E-01	1.96E-01	2.27E-01	2.17E-01	9.16E+00	9.16E+00	No	No
C6-C8 aliphatic	6100	1.89E-01	1.44E-01	1.32E-01	1.14E-01	1.63E-01	1.80E-01	8.16E-01	2.85E-01	1.34E-01	1.55E-01	1.48E-01	6.26E+00	6.26E+00	No	No
C8-C10 aliphatic	60000	2.66E-03	2.03E-03	1.86E-03	1.61E-03	2.29E-03	2.53E-03	1.15E-02	4.01E-03	1.89E-03	2.18E-03	2.09E-03	8.82E-02	8.82E-02	No	No
C8-C10 aromatic	400	1.50E-02	1.14E-02	1.04E-02	9.05E-03	1.29E-02	1.42E-02	6.46E-02	2.26E-02	1.06E-02	1.23E-02	1.18E-02	4.96E-01	4.96E-01	No	No
ethylbenzene	1000	7.83E-03	5.97E-03	5.45E-03	4.73E-03	6.73E-03	7.43E-03	3.38E-02	1.18E-02	5.54E-03	6.42E-03	6.14E-03	2.59E-01	2.59E-01	No	No
ethylene	40	1.43E-01	1.09E-01	9.93E-02	8.61E-02	1.23E-01	1.35E-01	6.15E-01	2.15E-01	1.01E-01	1.17E-01	1.12E-01	4.72E+00	4.72E+00	No	No
formaldehyde	9	3.71E-01	2.83E-01	2.59E-01	2.24E-01	3.19E-01	3.53E-01	1.60E+00	5.59E-01	2.63E-01	3.05E-01	2.91E-01	1.23E+01	1.23E+01	Yes	Yes
ketone	1000	2.10E-01	1.60E-01	1.46E-01	1.27E-01	1.80E-01	1.99E-01	9.05E-01	3.16E-01	1.49E-01	1.72E-01	1.65E-01	6.95E+00	6.95E+00	No	No
toluene	2000	6.63E-02	5.06E-02	4.62E-02	4.00E-02	5.70E-02	6.29E-02	2.86E-01	9.98E-02	4.69E-02	5.43E-02	5.20E-02	2.19E+00	2.19E+00	No	No
trimethylbenzene	220	1.90E-02	1.45E-02	1.32E-02	1.15E-02	1.63E-02	1.80E-02	8.19E-02	2.86E-02	1.34E-02	1.56E-02	1.49E-02	6.29E-01	6.29E-01	No	No
xylenes	730	5.26E-02	4.02E-02	3.67E-02	3.18E-02	4.53E-02	5.00E-02	2.27E-01	7.93E-02	3.73E-02	4.32E-02	4.13E-02	1.74E+00	1.74E+00	No	No

All air concentrations are in units of µg/m³
Carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
* The selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	120	3.89E+01	1.21E+01	1.88E+01	1.91E+01	1.98E+01	2.04E+01	2.47E+01	3.97E+00	5.06E+00	4.11E+00	3.97E+00	4.98E+00	3.68E+01	2.56E+01	2.84E+01
DPM	NV	4.53E+00	1.54E+00	2.19E+00	1.47E+00	1.19E+00	2.36E+00	2.13E+00	6.60E-01	6.14E-01	5.36E-01	6.61E-01	6.32E-01	2.13E+00	3.41E+00	3.35E+00
PM10	25	2.09E+01	6.67E+00	9.36E+00	9.53E+00	9.98E+00	1.04E+01	1.15E+01	2.41E+00	2.88E+00	2.40E+00	2.41E+00	2.86E+00	1.77E+01	1.34E+01	1.55E+01
PM2.5	15	1.04E+01	3.56E+00	4.96E+00	3.73E+00	2.55E+00	5.47E+00	4.25E+00	1.31E+00	1.24E+00	1.13E+00	1.31E+00	1.24E+00	4.48E+00	7.12E+00	7.03E+00
SO2	125	4.89E-01	1.39E-01	2.14E-01	1.63E-01	1.12E-01	2.22E-01	1.54E-01	4.94E-02	4.85E-02	4.01E-02	4.94E-02	4.37E-02	1.37E-01	2.78E-01	2.45E-01
CO	6000	1.49E+02	5.45E+01	4.67E+01	4.64E+01	5.53E+01	7.01E+01	7.50E+01	1.64E+01	1.68E+01	1.28E+01	1.64E+01	1.69E+01	8.19E+01	9.24E+01	7.24E+01
NOX	9000	1.27E+02	4.32E+01	6.36E+01	4.26E+01	3.31E+01	6.88E+01	5.94E+01	1.89E+01	1.71E+01	1.50E+01	1.89E+01	1.78E+01	6.01E+01	9.54E+01	9.35E+01
NO2	120	9.16E+01	4.32E+01	6.36E+01	4.26E+01	3.31E+01	6.88E+01	5.94E+01	1.89E+01	1.71E+01	1.50E+01	1.89E+01	1.78E+01	6.01E+01	8.85E+01	8.83E+01
Metals																
Aluminum	NV	2.70E+00	8.36E-01	1.30E+00	1.32E+00	1.37E+00	1.41E+00	1.71E+00	2.75E-01	3.51E-01	2.85E-01	2.75E-01	3.45E-01	2.55E+00	1.78E+00	1.97E+00
Antimony	25	1.52E-04	4.72E-05	7.37E-05	7.46E-05	7.75E-05	7.98E-05	9.66E-05	1.55E-05	1.98E-05	1.61E-05	1.55E-05	1.95E-05	1.44E-04	1.00E-04	1.11E-04
Arsenic	0.015	4.32E-03	1.34E-03	2.09E-03	2.12E-03	2.20E-03	2.26E-03	2.74E-03	4.40E-04	5.62E-04	4.56E-04	4.41E-04	5.53E-04	4.09E-03	2.85E-03	3.15E-03
Barium	10	1.52E-02	4.72E-03	7.36E-03	7.45E-03	7.74E-03	7.97E-03	9.64E-03	1.55E-03	1.98E-03	1.61E-03	1.55E-03	1.95E-03	1.44E-02	1.00E-02	1.11E-02
Beryllium	0.01	2.83E-05	8.78E-06	1.37E-05	1.39E-05	1.44E-05	1.48E-05	1.79E-05	2.89E-06	3.68E-06	2.99E-06	2.89E-06	3.62E-06	2.68E-05	1.87E-05	2.06E-05
Bismuth	NV	7.78E-06	2.41E-06	3.76E-06	3.81E-06	3.96E-06	4.08E-06	4.93E-06	7.93E-07	1.01E-06	8.22E-07	7.94E-07	9.96E-07	7.36E-06	5.13E-06	5.67E-06
Cadmium	0.025	2.73E-03	9.29E-04	1.32E-03	8.90E-04	7.20E-04	1.42E-03	1.28E-03	3.97E-04	3.70E-04	3.22E-04	3.98E-04	3.80E-04	1.29E-03	2.06E-03	2.02E-03
Calcium	NV	1.54E+00	4.77E-01	7.44E-01	7.53E-01	7.83E-01	8.05E-01	9.75E-01	1.57E-01	2.00E-01	1.62E-01	1.57E-01	1.97E-01	1.45E+00	1.01E+00	1.12E+00
Chromium	0.1	6.93E-03	2.16E-03	3.35E-03	3.32E-03	3.41E-03	3.62E-03	4.31E-03	7.26E-04	9.03E-04	7.37E-04	7.27E-04	8.91E-04	6.34E-03	4.61E-03	5.05E-03
Cobalt	0.1	1.04E-03	3.23E-04	5.04E-04	5.11E-04	5.31E-04	5.46E-04	6.61E-04	1.06E-04	1.36E-04	1.10E-04	1.06E-04	1.33E-04	9.86E-04	6.87E-04	7.60E-04
Copper	50	2.76E-03	8.55E-04	1.33E-03	1.35E-03	1.40E-03	1.44E-03	1.75E-03	2.81E-04	3.59E-04	2.91E-04	2.81E-04	3.53E-04	2.61E-03	1.82E-03	2.01E-03
Gold	NV	3.01E-06	9.34E-07	1.46E-06	1.48E-06	1.53E-06	1.58E-06	1.91E-06	3.07E-07	3.92E-07	3.18E-07	3.07E-07	3.86E-07	2.85E-06	1.99E-06	2.20E-06
Iron	4	2.96E+00	9.17E-01	1.43E+00	1.45E+00	1.51E+00	1.55E+00	1.87E+00	3.01E-01	3.85E-01	3.12E-01	3.02E-01	3.79E-01	2.80E+00	1.95E+00	2.15E+00
Lead	0.5	9.18E-04	2.98E-04	4.44E-04	3.75E-04	3.56E-04	4.79E-04	5.07E-04	1.13E-04	1.22E-04	1.03E-04	1.14E-04	1.23E-04	6.53E-04	6.48E-04	6.74E-04
Lithium	20	1.26E-03	3.90E-04	6.08E-04	6.16E-04	6.40E-04	6.59E-04	7.97E-04	1.28E-04	1.64E-04	1.33E-04	1.28E-04	1.61E-04	1.19E-03	8.29E-04	9.17E-04
Magnesium	NV	8.16E-01	2.53E-01	3.95E-01	4.00E-01	4.15E-01	4.27E-01	5.17E-01	8.32E-02	1.06E-01	8.62E-02	8.33E-02	1.04E-01	7.72E-01	5.38E-01	5.94E-01
Manganese	0.1	3.07E-02	9.51E-03	1.48E-02	1.50E-02	1.56E-02	1.61E-02	1.94E-02	3.13E-03	3.99E-03	3.24E-03	3.13E-03	3.92E-03	2.90E-02	2.02E-02	2.23E-02
Molybdenum	120	4.67E-05	1.45E-05	2.26E-05	2.29E-05	2.38E-05	2.44E-05	2.96E-05	4.76E-06	6.07E-06	4.93E-06	4.76E-06	5.98E-06	4.42E-05	3.08E-05	3.40E-05
Nickel	0.06	2.71E-03	8.39E-04	1.31E-03	1.32E-03	1.38E-03	1.42E-03	1.71E-03	2.76E-04	3.52E-04	2.86E-04	2.76E-04	3.46E-04	2.56E-03	1.78E-03	1.97E-03
Potassium	NV	5.16E-01	1.60E-01	2.50E-01	2.53E-01	2.63E-01	2.70E-01	3.27E-01	5.26E-02	6.72E-02	5.45E-02	5.27E-02	6.61E-02	4.88E-01	3.40E-01	3.76E-01
Selenium	10	4.66E-05	1.44E-05	2.25E-05	2.28E-05	2.37E-05	2.44E-05	2.95E-05	4.75E-06	6.06E-06	4.92E-06	4.75E-06	5.96E-06	4.41E-05	3.07E-05	3.39E-05
Silver	1	1.15E-05	3.55E-06	5.54E-06	5.61E-06	5.83E-06	6.00E-06	7.26E-06	1.17E-06	1.49E-06	1.21E-06	1.17E-06	1.47E-06	1.08E-05	7.55E-06	8.35E-06
Sodium	NV	6.17E-01	1.91E-01	2.98E-01	3.02E-01	3.14E-01	3.23E-01	3.91E-01	6.28E-02	8.02E-02	6.51E-02	6.29E-02	7.89E-02	5.83E-01	4.06E-01	4.49E-01
Strontium	120	8.24E-03	2.55E-03	3.98E-03	4.04E-03	4.19E-03	4.31E-03	5.22E-03	8.40E-04	1.07E-03	8.70E-04	8.41E-04	1.05E-03	7.79E-03	5.43E-03	6.00E-03
Thallium	NV	1.19E-05	3.69E-06	5.75E-06	5.83E-06	6.05E-06	6.23E-06	7.54E-06	1.21E-06	1.55E-06	1.26E-06	1.21E-06	1.52E-06	1.13E-05	7.84E-06	8.67E-06
Tin	10	4.20E-05	1.30E-05	2.03E-05	2.05E-05	2.13E-05	2.20E-05	2.66E-05	4.28E-06	5.46E-06	4.43E-06	4.28E-06	5.37E-06	3.97E-05	2.76E-05	3.06E-05
Titanium	120	1.36E-01	4.21E-02	6.56E-02	6.64E-02	6.90E-02	7.10E-02	8.60E-02	1.38E-02	1.76E-02	1.43E-02	1.38E-02	1.74E-02	1.28E-01	8.94E-02	9.88E-02
Uranium	0.1	3.79E-05	1.17E-05	1.83E-05	1.85E-05	1.93E-05	1.98E-05	2.40E-05	3.86E-06	4.92E-06	4.00E-06	3.86E-06	4.84E-06	3.58E-05	2.49E-05	2.76E-05
Vanadium	1	4.99E-03	1.55E-03	2.41E-03	2.44E-03	2.54E-03	2.61E-03	3.16E-03	5.08E-04	6.49E-04	5.27E-04	5.09E-04	6.38E-04	4.72E-03	3.29E-03	3.63E-03
Yttrium	NV	3.68E-04	1.14E-04	1.78E-04	1.80E-04											

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	NV	3.46E-06	1.18E-06	1.67E-06	1.13E-06	9.10E-07	1.80E-06	1.63E-06	5.04E-07	4.69E-07	4.09E-07	5.05E-07	4.83E-07	1.63E-06	2.61E-06	2.56E-06
indeno(1,2,3-cd)pyrene	NV	2.20E-06	7.50E-07	1.06E-06	7.16E-07	5.78E-07	1.15E-06	1.03E-06	3.21E-07	2.98E-07	2.60E-07	3.21E-07	3.07E-07	1.04E-06	1.66E-06	1.63E-06
Volatile Oranic Compounds																
1,3-butadiene	10	2.56E-02	8.80E-03	1.29E-02	8.60E-03	6.80E-03	1.41E-02	1.19E-02	3.74E-03	3.34E-03	3.04E-03	3.74E-03	3.62E-03	1.24E-02	1.96E-02	1.91E-02
acetaldehyde	300	3.45E+00	1.19E+00	1.74E+00	1.16E+00	9.17E-01	1.89E+00	1.61E+00	5.04E-01	4.50E-01	4.10E-01	5.05E-01	4.88E-01	1.67E+00	2.64E+00	2.58E+00
acetone	11880	1.81E+00	6.25E-01	9.15E-01	6.11E-01	4.83E-01	9.97E-01	8.45E-01	2.65E-01	2.37E-01	2.16E-01	2.66E-01	2.57E-01	8.77E-01	1.39E+00	1.36E+00
acrolein	0.09	6.10E-01	2.10E-01	3.08E-01	2.05E-01	1.62E-01	3.35E-01	2.84E-01	8.92E-02	7.97E-02	7.26E-02	8.93E-02	8.64E-02	2.95E-01	4.67E-01	4.57E-01
aldehyde	NV	4.61E+00	1.59E+00	2.32E+00	1.55E+00	1.23E+00	2.53E+00	2.15E+00	6.74E-01	6.02E-01	5.48E-01	6.75E-01	6.53E-01	2.23E+00	3.53E+00	3.45E+00
benzene	2.3	2.26E-01	7.78E-02	1.14E-01	7.60E-02	6.01E-02	1.24E-01	1.05E-01	3.30E-02	2.95E-02	2.69E-02	3.31E-02	3.20E-02	1.09E-01	1.73E-01	1.69E-01
C10-C12 aliphatic	NV	4.96E-02	1.71E-02	2.50E-02	1.67E-02	1.32E-02	2.73E-02	2.31E-02	7.26E-03	6.48E-03	5.90E-03	7.27E-03	7.03E-03	2.40E-02	3.80E-02	3.71E-02
C12-C16 aliphatic	NV	2.87E-01	9.90E-02	1.45E-01	9.67E-02	7.65E-02	1.58E-01	1.34E-01	4.20E-02	3.75E-02	3.42E-02	4.21E-02	4.07E-02	1.39E-01	2.20E-01	2.15E-01
C12-C16 aromatic	NV	3.88E-03	1.33E-03	1.95E-03	1.30E-03	1.03E-03	2.13E-03	1.81E-03	5.67E-04	5.06E-04	4.61E-04	5.67E-04	5.49E-04	1.87E-03	2.97E-03	2.90E-03
C16-C21 aliphatic	NV	2.88E-01	9.91E-02	1.45E-01	9.68E-02	7.66E-02	1.58E-01	1.34E-01	4.21E-02	3.76E-02	3.42E-02	4.21E-02	4.07E-02	1.39E-01	2.20E-01	2.15E-01
C2-C6 aliphatic	920	1.37E+00	4.72E-01	6.91E-01	4.61E-01	3.64E-01	7.53E-01	6.38E-01	2.00E-01	1.79E-01	1.63E-01	2.01E-01	1.94E-01	6.62E-01	1.05E+00	1.03E+00
C6-C8 aliphatic	6100	9.37E-01	3.23E-01	4.72E-01	3.15E-01	2.49E-01	5.15E-01	4.36E-01	1.37E-01	1.22E-01	1.11E-01	1.37E-01	1.33E-01	4.53E-01	7.17E-01	7.01E-01
C8-C10 aliphatic	60000	1.32E-02	4.54E-03	6.65E-03	4.44E-03	3.51E-03	7.25E-03	6.15E-03	1.93E-03	1.72E-03	1.57E-03	1.93E-03	1.87E-03	6.38E-03	1.01E-02	9.87E-03
C8-C10 aromatic	400	7.42E-02	2.55E-02	3.74E-02	2.50E-02	1.97E-02	4.08E-02	3.45E-02	1.08E-02	9.68E-03	8.82E-03	1.09E-02	1.05E-02	3.59E-02	5.67E-02	5.55E-02
ethylbenzene	1000	3.88E-02	1.33E-02	1.95E-02	1.30E-02	1.03E-02	2.13E-02	1.81E-02	5.67E-03	5.06E-03	4.61E-03	5.67E-03	5.49E-03	1.87E-02	2.97E-02	2.90E-02
ethylene	40	7.06E-01	2.43E-01	3.56E-01	2.38E-01	1.88E-01	3.88E-01	3.29E-01	1.03E-01	9.22E-02	8.40E-02	1.03E-01	1.00E-01	3.41E-01	5.40E-01	5.28E-01
formaldehyde	9	1.84E+00	6.33E-01	9.27E-01	6.19E-01	4.89E-01	1.01E+00	8.57E-01	2.69E-01	2.40E-01	2.19E-01	2.69E-01	2.60E-01	8.89E-01	1.41E+00	1.38E+00
ketone	1000	1.04E+00	3.58E-01	5.24E-01	3.50E-01	2.76E-01	5.71E-01	4.84E-01	1.52E-01	1.36E-01	1.24E-01	1.52E-01	1.47E-01	5.03E-01	7.95E-01	7.78E-01
toluene	2000	3.28E-01	1.13E-01	1.66E-01	1.10E-01	8.73E-02	1.80E-01	1.53E-01	4.80E-02	4.28E-02	3.90E-02	4.80E-02	4.65E-02	1.59E-01	2.51E-01	2.46E-01
trimethylbenzene	220	9.40E-02	3.24E-02	4.74E-02	3.16E-02	2.50E-02	5.17E-02	4.38E-02	1.37E-02	1.23E-02	1.12E-02	1.38E-02	1.33E-02	4.55E-02	7.19E-02	7.04E-02
xylenes	730	2.61E-01	8.97E-02	1.31E-01	8.77E-02	6.93E-02	1.43E-01	1.21E-01	3.81E-02	3.40E-02	3.10E-02	3.82E-02	3.69E-02	1.26E-01	1.99E-01	1.95E-01

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
*the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	120	7.42E+00	4.77E+00	4.47E+00	4.20E+00	6.39E+00	8.32E+00	1.03E+02	9.65E+00	7.09E+00	7.50E+00	7.63E+00	1.08E+02	1.08E+02	No	No
DPM	NV	9.67E-01	7.26E-01	6.67E-01	5.86E-01	8.40E-01	9.50E-01	6.05E+00	1.03E+00	7.87E-01	8.56E-01	8.45E-01	2.99E+01	2.99E+01	No	No
PM10	25	4.26E+00	2.83E+00	2.64E+00	2.45E+00	3.69E+00	4.68E+00	5.26E+01	4.89E+00	3.92E+00	4.19E+00	4.23E+00	7.31E+01	7.31E+01	Yes	Yes
PM2.5	15	1.99E+00	1.42E+00	1.30E+00	1.15E+00	1.70E+00	1.99E+00	1.27E+01	1.88E+00	1.58E+00	1.75E+00	1.73E+00	7.30E+01	7.30E+01	Yes	Yes
SO2	125	6.95E-02	5.02E-02	4.56E-02	3.93E-02	5.82E-02	6.61E-02	3.60E-01	7.77E-02	5.03E-02	5.73E-02	5.58E-02	4.10E+00	4.10E+00	No	No
CO	6000	2.25E+01	1.51E+01	1.36E+01	1.12E+01	1.60E+01	1.78E+01	2.28E+02	3.19E+01	2.35E+01	2.35E+01	2.46E+01	1.31E+03	1.31E+03	No	No
NOX	9000	2.71E+01	2.04E+01	1.87E+01	1.64E+01	2.35E+01	2.66E+01	1.67E+02	2.89E+01	2.20E+01	2.39E+01	2.36E+01	8.39E+02	8.39E+02	No	No
NO2	120	2.71E+01	2.04E+01	1.87E+01	1.64E+01	2.35E+01	2.66E+01	9.57E+01	2.89E+01	2.20E+01	2.39E+01	2.36E+01	1.63E+02	1.63E+02	Yes	Yes
Metals																
Aluminum	NV	5.14E-01	3.31E-01	3.10E-01	2.91E-01	4.43E-01	5.76E-01	7.11E+00	6.69E-01	4.92E-01	5.20E-01	5.29E-01	7.53E+00	7.53E+00	No	No
Antimony	25	2.90E-05	1.87E-05	1.75E-05	1.64E-05	2.50E-05	3.26E-05	4.02E-04	3.78E-05	2.78E-05	2.94E-05	2.99E-05	4.24E-04	4.24E-04	No	No
Arsenic	0.015	8.24E-04	5.29E-04	4.96E-04	4.66E-04	7.09E-04	9.23E-04	1.14E-02	1.07E-03	7.88E-04	8.33E-04	8.47E-04	1.20E-02	1.20E-02	No	No
Barium	10	2.90E-03	1.86E-03	1.75E-03	1.64E-03	2.50E-03	3.25E-03	4.01E-02	3.77E-03	2.77E-03	2.93E-03	2.98E-03	4.24E-02	4.24E-02	No	No
Beryllium	0.01	5.40E-06	3.47E-06	3.25E-06	3.06E-06	4.65E-06	6.05E-06	7.47E-05	7.03E-06	5.16E-06	5.46E-06	5.55E-06	7.89E-05	7.89E-05	No	No
Bismuth	NV	1.48E-06	9.54E-07	8.93E-07	8.40E-07	1.28E-06	1.66E-06	2.05E-05	1.93E-06	1.42E-06	1.50E-06	1.53E-06	2.17E-05	2.17E-05	No	No
Cadmium	0.025	5.82E-04	4.37E-04	4.01E-04	3.53E-04	5.05E-04	5.72E-04	3.66E-03	6.20E-04	4.74E-04	5.16E-04	5.09E-04	1.80E-02	1.80E-02	No	No
Calcium	NV	2.93E-01	1.88E-01	1.77E-01	1.66E-01	2.52E-01	3.29E-01	4.06E+00	3.82E-01	2.80E-01	2.97E-01	3.02E-01	4.28E+00	4.28E+00	No	No
Chromium	0.1	1.33E-03	8.65E-04	8.10E-04	7.57E-04	1.15E-03	1.48E-03	1.77E-02	1.71E-03	1.26E-03	1.33E-03	1.35E-03	2.10E-02	2.10E-02	No	No
Cobalt	0.1	1.99E-04	1.28E-04	1.20E-04	1.12E-04	1.71E-04	2.23E-04	2.75E-03	2.59E-04	1.90E-04	2.01E-04	2.04E-04	2.90E-03	2.90E-03	No	No
Copper	50	5.26E-04	3.38E-04	3.17E-04	2.98E-04	4.53E-04	5.89E-04	7.27E-03	6.84E-04	5.03E-04	5.32E-04	5.41E-04	7.68E-03	7.68E-03	No	No
Gold	NV	5.74E-07	3.69E-07	3.46E-07	3.25E-07	4.95E-07	6.44E-07	7.95E-06	7.47E-07	5.49E-07	5.81E-07	5.91E-07	8.39E-06	8.39E-06	No	No
Iron	4	5.64E-01	3.62E-01	3.40E-01	3.19E-01	4.86E-01	6.32E-01	7.80E+00	7.34E-01	5.39E-01	5.70E-01	5.80E-01	8.24E+00	8.24E+00	Yes	No*
Lead	0.5	1.85E-04	1.29E-04	1.20E-04	1.09E-04	1.60E-04	1.94E-04	1.83E-03	2.18E-04	1.63E-04	1.75E-04	1.76E-04	4.29E-03	4.29E-03	No	No
Lithium	20	2.40E-04	1.54E-04	1.44E-04	1.36E-04	2.07E-04	2.69E-04	3.32E-03	3.12E-04	2.29E-04	2.43E-04	2.47E-04	3.50E-03	3.50E-03	No	No
Magnesium	NV	1.56E-01	1.00E-01	9.37E-02	8.80E-02	1.34E-01	1.74E-01	2.15E+00	2.02E-01	1.49E-01	1.57E-01	1.60E-01	2.27E+00	2.27E+00	No	No
Manganese	0.1	5.85E-03	3.76E-03	3.52E-03	3.31E-03	5.03E-03	6.55E-03	8.09E-02	7.61E-03	5.59E-03	5.91E-03	6.01E-03	8.54E-02	8.54E-02	No	No
Molybdenum	120	8.90E-06	5.72E-06	5.36E-06	5.04E-06	7.66E-06	9.98E-06	1.23E-04	1.16E-05	8.51E-06	9.00E-06	9.16E-06	1.30E-04	1.30E-04	No	No
Nickel	0.06	5.16E-04	3.31E-04	3.11E-04	2.92E-04	4.44E-04	5.78E-04	7.13E-03	6.71E-04	4.93E-04	5.22E-04	5.30E-04	7.54E-03	7.54E-03	No	No
Potassium	NV	9.84E-02	6.32E-02	5.93E-02	5.57E-02	8.47E-02	1.10E-01	1.36E+00	1.28E-01	9.41E-02	9.95E-02	1.01E-01	1.44E+00	1.44E+00	No	No
Selenium	10	8.88E-06	5.71E-06	5.35E-06	5.02E-06	7.65E-06	9.95E-06	1.23E-04	1.16E-05	8.49E-06	8.98E-06	9.13E-06	1.30E-04	1.30E-04	No	No
Silver	1	2.18E-06	1.40E-06	1.32E-06	1.24E-06	1.88E-06	2.45E-06	3.02E-05	2.84E-06	2.09E-06	2.21E-06	2.25E-06	3.19E-05	3.19E-05	No	No
Sodium	NV	1.18E-01	7.55E-02	7.08E-02	6.65E-02	1.01E-01	1.32E-01	1.63E+00	1.53E-01	1.12E-01	1.19E-01	1.21E-01	1.72E+00	1.72E+00	No	No
Strontium	120	1.57E-03	1.01E-03	9.46E-04	8.89E-04	1.35E-03	1.76E-03	2.17E-02	2.04E-03	1.50E-03	1.59E-03	1.62E-03	2.30E-02	2.30E-02	No	No
Thallium	NV	2.27E-06	1.46E-06	1.37E-06	1.28E-06	1.95E-06	2.54E-06	3.14E-05	2.95E-06	2.17E-06	2.29E-06	2.33E-06	3.31E-05	3.31E-05	No	No
Tin	10	8.00E-06	5.14E-06	4.82E-06	4.53E-06	6.89E-06	8.96E-06	1.11E-04	1.04E-05	7.65E-06	8.09E-06	8.23E-06	1.17E-04	1.17E-04	No	No
Titanium	120	2.59E-02	1.66E-02	1.56E-02	1.46E-02	2.23E-02	2.90E-02	3.58E-01	3.37E-02	2.47E-02	2.62E-02	2.66E-02	3.78E-01	3.78E-01	No	No
Uranium	0.1	7.22E-06	4.64E-06	4.35E-06	4.08E-06	6.21E-06	8.09E-06	9.98E-05	9.39E-06	6.90E-06	7.30E-06	7.42E-06	1.05E-04	1.05E-04	No	No
Vanadium	1	9.51E-04	6.11E-04	5.73E-04	5.38E-04	8.19E-04	1.07E-03	1.32E-02	1.24E-03	9.09E-04	9.62E-04	9.78E-04	1.39E-02	1.39E-02	No	No
Yttrium	NV	7.02E-05	4.51E-05	4.23E-05	3.97E-05	6.04E-05	7.87E-05	9.71E-04	9.13E-05	6.71E-05	7.10E-05	7.22E-05	1.03E-03	1.03E-03	No	No
Zinc	120	1.42E-03	9.85E-04	9.14E-04	8.30E-04	1.23E-03	1.50E-03	1.45E-02	1.69E-03	1.26E-03	1.35E-03	1.36E-03	3.18E-02	3.18E-02	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00005	1.06E-06	7.98E-07	7.34E-07	6.45E-07	9.24E-07	1.05E-06	6.66E-06	1.13E-06	8.67E-07	9.42E-07	9.30E-07	3.29E-05	3.29E-05	No	No
naphthalene	22.5	4.21E-04	3.16E-04	2.90E-04	2.55E-04	3.66E-04	4.14E-04	2.64E-03	4.48E-04	3.43E-04	3.73E-04	3.68E-04	1.30E-02	1.30E-02	No	No
phenanthrene	NV	3.48E-05	2.61E-05	2.40E-05	2.11E-05	3.02E-05	3.42E-05	2.18E-04	3.70E-05	2.83E-05	3.08E-05	3.04E-05	1.08E-03	1.08E-03	No	No
anthracene	NV	3.88E-06	2.91E-06	2.68E-06	2.35E-06	3.37E-06	3.81E-06	2.43E-05	4.13E-06	3.16E-06	3.44E-06	3.39E-06	1.20E-04	1.20E-04	No	No
fluorene	NV</															

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	NV	7.38E-07	5.54E-07	5.09E-07	4.48E-07	6.41E-07	7.26E-07	4.62E-06	7.86E-07	6.01E-07	6.54E-07	6.46E-07	2.28E-05	2.28E-05	No	No
indeno(1,2,3-cd)pyrene	NV	4.69E-07	3.52E-07	3.24E-07	2.85E-07	4.08E-07	4.61E-07	2.94E-06	5.00E-07	3.82E-07	4.16E-07	4.10E-07	1.45E-05	1.45E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	10	5.54E-03	4.15E-03	3.81E-03	3.32E-03	4.79E-03	5.42E-03	3.42E-02	5.76E-03	4.45E-03	4.81E-03	4.76E-03	1.71E-01	1.71E-01	No	No
acetaldehyde	300	7.47E-01	5.59E-01	5.13E-01	4.48E-01	6.46E-01	7.30E-01	4.61E+00	7.77E-01	6.00E-01	6.49E-01	6.42E-01	2.31E+01	2.31E+01	No	No
acetone	11880	3.93E-01	2.94E-01	2.70E-01	2.36E-01	3.40E-01	3.84E-01	2.43E+00	4.09E-01	3.16E-01	3.42E-01	3.38E-01	1.21E+01	1.21E+01	No	No
acrolein	0.09	1.32E-01	9.90E-02	9.09E-02	7.93E-02	1.14E-01	1.29E-01	8.16E-01	1.38E-01	1.06E-01	1.15E-01	1.14E-01	4.09E+00	4.09E+00	Yes	Yes
aldehyde	NV	9.99E-01	7.48E-01	6.86E-01	5.99E-01	8.63E-01	9.77E-01	6.17E+00	1.04E+00	8.02E-01	8.68E-01	8.59E-01	3.09E+01	3.09E+01	No	No
benzene	2.3	4.90E-02	3.67E-02	3.36E-02	2.94E-02	4.23E-02	4.79E-02	3.02E-01	5.09E-02	3.93E-02	4.25E-02	4.21E-02	1.51E+00	1.51E+00	No	No
C10-C12 aliphatic	NV	1.08E-02	8.05E-03	7.39E-03	6.45E-03	9.29E-03	1.05E-02	6.64E-02	1.12E-02	8.63E-03	9.34E-03	9.25E-03	3.32E-01	3.32E-01	No	No
C12-C16 aliphatic	NV	6.23E-02	4.66E-02	4.28E-02	3.73E-02	5.38E-02	6.09E-02	3.84E-01	6.48E-02	5.00E-02	5.41E-02	5.35E-02	1.92E+00	1.92E+00	No	No
C12-C16 aromatic	NV	8.40E-04	6.29E-04	5.77E-04	5.04E-04	7.26E-04	8.21E-04	5.18E-03	8.74E-04	6.74E-04	7.30E-04	7.22E-04	2.59E-02	2.59E-02	No	No
C16-C21 aliphatic	NV	6.24E-02	4.67E-02	4.28E-02	3.74E-02	5.39E-02	6.10E-02	3.85E-01	6.49E-02	5.01E-02	5.42E-02	5.36E-02	1.93E+00	1.93E+00	No	No
C2-C6 aliphatic	920	2.97E-01	2.22E-01	2.04E-01	1.78E-01	2.57E-01	2.90E-01	1.83E+00	3.09E-01	2.38E-01	2.58E-01	2.55E-01	9.17E+00	9.17E+00	No	No
C6-C8 aliphatic	6100	2.03E-01	1.52E-01	1.39E-01	1.22E-01	1.75E-01	1.98E-01	1.25E+00	2.11E-01	1.63E-01	1.76E-01	1.75E-01	6.27E+00	6.27E+00	No	No
C8-C10 aliphatic	60000	2.86E-03	2.14E-03	1.96E-03	1.71E-03	2.47E-03	2.80E-03	1.76E-02	2.98E-03	2.30E-03	2.48E-03	2.46E-03	8.83E-02	8.83E-02	No	No
C8-C10 aromatic	400	1.61E-02	1.20E-02	1.10E-02	9.64E-03	1.39E-02	1.57E-02	9.92E-02	1.67E-02	1.29E-02	1.40E-02	1.38E-02	4.97E-01	4.97E-01	No	No
ethylbenzene	1000	8.40E-03	6.29E-03	5.77E-03	5.04E-03	7.26E-03	8.21E-03	5.18E-02	8.74E-03	6.74E-03	7.30E-03	7.22E-03	2.59E-01	2.59E-01	No	No
ethylene	40	1.53E-01	1.15E-01	1.05E-01	9.17E-02	1.32E-01	1.50E-01	9.44E-01	1.59E-01	1.23E-01	1.33E-01	1.32E-01	4.73E+00	4.73E+00	No	No
formaldehyde	9	3.98E-01	2.98E-01	2.74E-01	2.39E-01	3.44E-01	3.90E-01	2.46E+00	4.15E-01	3.20E-01	3.46E-01	3.43E-01	1.23E+01	1.23E+01	Yes	Yes
ketone	1000	2.25E-01	1.69E-01	1.55E-01	1.35E-01	1.95E-01	2.20E-01	1.39E+00	2.34E-01	1.81E-01	1.96E-01	1.94E-01	6.96E+00	6.96E+00	No	No
toluene	2000	7.11E-02	5.33E-02	4.89E-02	4.27E-02	6.15E-02	6.95E-02	4.39E-01	7.40E-02	5.71E-02	6.18E-02	6.11E-02	2.20E+00	2.20E+00	No	No
trimethylbenzene	220	2.04E-02	1.53E-02	1.40E-02	1.22E-02	1.76E-02	1.99E-02	1.26E-01	2.12E-02	1.64E-02	1.77E-02	1.75E-02	6.29E-01	6.29E-01	No	No
xylenes	730	5.65E-02	4.23E-02	3.88E-02	3.39E-02	4.88E-02	5.52E-02	3.49E-01	5.88E-02	4.53E-02	4.91E-02	4.85E-02	1.74E+00	1.74E+00	No	No

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
* the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	120	4.87E+01	1.34E+01	3.00E+01	3.29E+01	3.74E+01	3.31E+01	8.40E+01	4.29E+00	4.49E+00	4.25E+00	4.30E+00	4.46E+00	2.06E+01	1.50E+01	1.25E+01
DPM	NV	4.75E+00	1.56E+00	2.22E+00	1.78E+00	2.03E+00	2.45E+00	4.00E+00	6.55E-01	5.63E-01	5.51E-01	6.56E-01	5.74E-01	1.83E+00	2.76E+00	2.47E+00
PM10	25	2.54E+01	7.17E+00	1.53E+01	1.69E+01	1.93E+01	1.77E+01	4.20E+01	2.39E+00	2.66E+00	2.56E+00	2.39E+00	2.61E+00	1.05E+01	8.31E+00	8.22E+00
PM2.5	15	8.99E+00	3.24E+00	5.04E+00	3.98E+00	4.53E+00	5.84E+00	9.59E+00	1.27E+00	1.15E+00	1.17E+00	1.27E+00	1.12E+00	3.31E+00	6.05E+00	5.30E+00
SO2	125	4.61E-01	1.32E-01	2.15E-01	1.64E-01	1.12E-01	2.25E-01	1.69E-01	4.83E-02	4.65E-02	4.07E-02	4.83E-02	4.28E-02	1.33E-01	2.54E-01	2.13E-01
CO	6000	1.33E+02	5.66E+01	5.64E+01	5.73E+01	5.81E+01	7.35E+01	1.29E+02	1.66E+01	1.53E+01	1.26E+01	1.66E+01	1.52E+01	7.27E+01	6.95E+01	5.20E+01
NOX	9000	1.33E+02	4.37E+01	6.44E+01	4.96E+01	5.65E+01	7.10E+01	1.14E+02	1.82E+01	1.59E+01	1.55E+01	1.83E+01	1.62E+01	5.12E+01	7.75E+01	6.92E+01
NO2	120	9.22E+01	4.37E+01	6.44E+01	4.96E+01	5.65E+01	7.10E+01	9.04E+01	1.82E+01	1.59E+01	1.55E+01	1.83E+01	1.62E+01	5.12E+01	7.75E+01	6.92E+01
Metals																
Aluminum	NV	3.37E+00	9.31E-01	2.08E+00	2.28E+00	2.59E+00	2.29E+00	5.82E+00	2.98E-01	3.11E-01	2.95E-01	2.98E-01	3.09E-01	1.42E+00	1.04E+00	8.67E-01
Antimony	25	1.91E-04	5.26E-05	1.17E-04	1.29E-04	1.47E-04	1.30E-04	3.29E-04	1.68E-05	1.76E-05	1.66E-05	1.68E-05	1.75E-05	8.05E-05	5.86E-05	4.89E-05
Arsenic	0.015	5.41E-03	1.49E-03	3.33E-03	3.65E-03	4.15E-03	3.68E-03	9.32E-03	4.76E-04	4.98E-04	4.72E-04	4.77E-04	4.95E-04	2.28E-03	1.66E-03	1.39E-03
Barium	10	1.90E-02	5.25E-03	1.17E-02	1.29E-02	1.46E-02	1.29E-02	3.28E-02	1.68E-03	1.76E-03	1.66E-03	1.68E-03	1.74E-03	8.04E-03	5.85E-03	4.89E-03
Beryllium	0.01	3.54E-05	9.77E-06	2.18E-05	2.39E-05	2.72E-05	2.41E-05	6.11E-05	3.12E-06	3.27E-06	3.09E-06	3.13E-06	3.25E-06	1.50E-05	1.09E-05	9.10E-06
Bismuth	NV	9.74E-06	2.69E-06	6.00E-06	6.58E-06	7.48E-06	6.62E-06	1.68E-05	8.58E-07	8.98E-07	8.50E-07	8.59E-07	8.92E-07	4.11E-06	2.99E-06	2.50E-06
Cadmium	0.025	2.86E-03	9.39E-04	1.34E-03	1.08E-03	1.23E-03	1.48E-03	2.42E-03	3.94E-04	3.39E-04	3.32E-04	3.95E-04	3.46E-04	1.10E-03	1.66E-03	1.49E-03
Calcium	NV	1.92E+00	5.31E-01	1.18E+00	1.30E+00	1.48E+00	1.31E+00	3.32E+00	1.70E-01	1.77E-01	1.68E-01	1.70E-01	1.76E-01	8.13E-01	5.92E-01	4.94E-01
Chromium	0.1	8.57E-03	2.39E-03	5.21E-03	5.65E-03	6.42E-03	5.75E-03	1.44E-02	7.79E-04	8.03E-04	7.62E-04	7.80E-04	7.99E-04	3.60E-03	2.77E-03	2.33E-03
Cobalt	0.1	1.30E-03	3.60E-04	8.03E-04	8.81E-04	1.00E-03	8.87E-04	2.25E-03	1.15E-04	1.20E-04	1.14E-04	1.15E-04	1.20E-04	5.51E-04	4.01E-04	3.35E-04
Copper	50	3.45E-03	9.52E-04	2.12E-03	2.33E-03	2.65E-03	2.35E-03	5.95E-03	3.04E-04	3.18E-04	3.01E-04	3.04E-04	3.16E-04	1.46E-03	1.06E-03	8.86E-04
Gold	NV	3.77E-06	1.04E-06	2.32E-06	2.55E-06	2.90E-06	2.56E-06	6.50E-06	3.32E-07	3.48E-07	3.29E-07	3.33E-07	3.45E-07	1.59E-06	1.16E-06	9.68E-07
Iron	4	3.70E+00	1.02E+00	2.28E+00	2.50E+00	2.84E+00	2.52E+00	6.38E+00	3.26E-01	3.41E-01	3.23E-01	3.26E-01	3.39E-01	1.56E+00	1.14E+00	9.50E-01
Lead	0.5	1.06E-03	3.16E-04	5.80E-04	5.71E-04	6.50E-04	6.40E-04	1.40E-03	1.17E-04	1.10E-04	1.06E-04	1.17E-04	1.11E-04	4.29E-04	4.55E-04	3.96E-04
Lithium	20	1.57E-03	4.34E-04	9.69E-04	1.06E-03	1.21E-03	1.07E-03	2.71E-03	1.39E-04	1.45E-04	1.37E-04	1.39E-04	1.44E-04	6.65E-04	4.84E-04	4.04E-04
Magnesium	NV	1.02E+00	2.81E-01	6.29E-01	6.89E-01	7.84E-01	6.94E-01	1.76E+00	9.00E-02	9.41E-02	8.91E-02	9.01E-02	9.35E-02	4.31E-01	3.14E-01	2.62E-01
Manganese	0.1	3.84E-02	1.06E-02	2.36E-02	2.59E-02	2.95E-02	2.61E-02	6.62E-02	3.38E-03	3.54E-03	3.35E-03	3.38E-03	3.52E-03	1.62E-02	1.18E-02	9.85E-03
Molybdenum	120	5.84E-05	1.61E-05	3.60E-05	3.94E-05	4.49E-05	3.97E-05	1.01E-04	5.15E-06	5.39E-06	5.10E-06	5.15E-06	5.35E-06	2.47E-05	1.80E-05	1.50E-05
Nickel	0.06	3.38E-03	9.33E-04	2.08E-03	2.29E-03	2.60E-03	2.30E-03	5.84E-03	2.98E-04	3.12E-04	2.95E-04	2.99E-04	3.10E-04	1.43E-03	1.04E-03	8.69E-04
Potassium	NV	6.46E-01	1.78E-01	3.98E-01	4.36E-01	4.96E-01	4.39E-01	1.11E+00	5.69E-02	5.95E-02	5.64E-02	5.70E-02	5.92E-02	2.73E-01	1.99E-01	1.66E-01
Selenium	10	5.83E-05	1.61E-05	3.59E-05	3.93E-05	4.48E-05	3.96E-05	1.00E-04	5.14E-06	5.37E-06	5.08E-06	5.14E-06	5.34E-06	2.46E-05	1.79E-05	1.50E-05
Silver	1	1.43E-05	3.95E-06	8.83E-06	9.68E-06	1.10E-05	9.75E-06	2.47E-05	1.26E-06	1.32E-06	1.25E-06	1.26E-06	1.31E-06	6.06E-06	4.41E-06	3.68E-06
Sodium	NV	7.72E-01	2.13E-01	4.75E-01	5.21E-01	5.93E-01	5.25E-01	1.33E+00	6.80E-02	7.11E-02	6.73E-02	6.81E-02	7.07E-02	3.26E-01	2.37E-01	1.98E-01
Strontium	120	1.03E-02	2.84E-03	6.35E-03	6.96E-03	7.92E-03	7.01E-03	1.78E-02	9.09E-04	9.50E-04	9.00E-04	9.09E-04	9.45E-04	4.35E-03	3.17E-03	2.65E-03
Thallium	NV	1.49E-05	4.11E-06	9.17E-06	1.01E-05	1.14E-05	1.01E-05	2.57E-05	1.31E-06	1.37E-06	1.30E-06	1.31E-06	1.36E-06	6.29E-06	4.58E-06	3.82E-06
Tin	10	5.25E-05	1.45E-05	3.23E-05	3.54E-05	4.03E-05	3.57E-05	9.05E-05	4.63E-06	4.84E-06	4.58E-06	4.63E-06	4.81E-06	2.22E-05	1.61E-05	1.35E-05
Titanium	120	1.70E-01	4.68E-02	1.05E-01	1.15E-01	1.30E-01	1.15E-01	2.93E-01	1.50E-02	1.56E-02	1.48E-02	1.50E-02	1.56E-02	7.17E-02	5.22E-02	4.36E-02
Uranium	0.1	4.74E-05	1.31E-05	2.92E-05	3.20E-05	3.64E-05	3.22E-05	8.17E-05	4.17E-06	4.37E-06	4.13E-06	4.18E-06	4.34E-06	2.00E-05	1.46E-05	1.22E-05
Vanadium	1	6.24E-03	1.72E-03	3.84E-03	4.21E-03	4.80E-03	4.24E-03	1.08E-02	5.50E-04	5.75E-04	5.45E-04	5.51E-04	5.72E-04	2.64E-03	1.92E-03	1.60E-03
Yttrium	NV	4.61E-04	1.27E-04	2.84E-04	3.11E-04											

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	NV	3.63E-06	1.19E-06	1.70E-06	1.36E-06	1.55E-06	1.87E-06	3.05E-06	5.00E-07	4.30E-07	4.21E-07	5.01E-07	4.38E-07	1.40E-06	2.11E-06	1.89E-06
indeno(1,2,3-cd)pyrene	NV	2.31E-06	7.57E-07	1.08E-06	8.65E-07	9.85E-07	1.19E-06	1.94E-06	3.18E-07	2.73E-07	2.67E-07	3.18E-07	2.79E-07	8.89E-07	1.34E-06	1.20E-06
Volatile Oranic Compounds																
1,3-butadiene	10	2.68E-02	8.88E-03	1.30E-02	1.01E-02	1.15E-02	1.45E-02	2.33E-02	3.57E-03	3.19E-03	3.12E-03	3.57E-03	3.28E-03	1.03E-02	1.58E-02	1.41E-02
acetaldehyde	300	3.61E+00	1.20E+00	1.76E+00	1.36E+00	1.55E+00	1.95E+00	3.15E+00	4.81E-01	4.31E-01	4.21E-01	4.82E-01	4.42E-01	1.38E+00	2.13E+00	1.90E+00
acetone	11880	1.90E+00	6.30E-01	9.25E-01	7.18E-01	8.17E-01	1.03E+00	1.66E+00	2.53E-01	2.27E-01	2.22E-01	2.53E-01	2.33E-01	7.29E-01	1.12E+00	1.00E+00
acrolein	0.09	6.40E-01	2.12E-01	3.11E-01	2.41E-01	2.75E-01	3.46E-01	5.57E-01	8.52E-02	7.62E-02	7.45E-02	8.53E-02	7.83E-02	2.45E-01	3.78E-01	3.37E-01
aldehyde	NV	4.83E+00	1.60E+00	2.35E+00	1.82E+00	2.08E+00	2.61E+00	4.21E+00	6.43E-01	5.76E-01	5.63E-01	6.44E-01	5.91E-01	1.85E+00	2.85E+00	2.54E+00
benzene	2.3	2.37E-01	7.85E-02	1.15E-01	8.94E-02	1.02E-01	1.28E-01	2.06E-01	3.15E-02	2.82E-02	2.76E-02	3.16E-02	2.90E-02	9.08E-02	1.40E-01	1.25E-01
C10-C12 aliphatic	NV	5.20E-02	1.72E-02	2.53E-02	1.96E-02	2.23E-02	2.81E-02	4.53E-02	6.92E-03	6.20E-03	6.06E-03	6.93E-03	6.37E-03	1.99E-02	3.07E-02	2.74E-02
C12-C16 aliphatic	NV	3.01E-01	9.98E-02	1.47E-01	1.14E-01	1.29E-01	1.63E-01	2.62E-01	4.01E-02	3.59E-02	3.51E-02	4.02E-02	3.69E-02	1.15E-01	1.78E-01	1.59E-01
C12-C16 aromatic	NV	4.06E-03	1.35E-03	1.98E-03	1.53E-03	1.75E-03	2.20E-03	3.54E-03	5.41E-04	4.84E-04	4.73E-04	5.42E-04	4.97E-04	1.56E-03	2.40E-03	2.14E-03
C16-C21 aliphatic	NV	3.02E-01	9.99E-02	1.47E-01	1.14E-01	1.30E-01	1.63E-01	2.63E-01	4.02E-02	3.59E-02	3.51E-02	4.02E-02	3.69E-02	1.16E-01	1.78E-01	1.59E-01
C2-C6 aliphatic	920	1.44E+00	4.76E-01	6.99E-01	5.42E-01	6.17E-01	7.76E-01	1.25E+00	1.91E-01	1.71E-01	1.67E-01	1.91E-01	1.76E-01	5.50E-01	8.48E-01	7.55E-01
C6-C8 aliphatic	6100	9.82E-01	3.25E-01	4.78E-01	3.71E-01	4.22E-01	5.31E-01	8.55E-01	1.31E-01	1.17E-01	1.14E-01	1.31E-01	1.20E-01	3.76E-01	5.80E-01	5.17E-01
C8-C10 aliphatic	60000	1.38E-02	4.58E-03	6.73E-03	5.22E-03	5.94E-03	7.48E-03	1.20E-02	1.84E-03	1.65E-03	1.61E-03	1.84E-03	1.69E-03	5.30E-03	8.17E-03	7.28E-03
C8-C10 aromatic	400	7.77E-02	2.58E-02	3.78E-02	2.94E-02	3.34E-02	4.20E-02	6.77E-02	1.04E-02	9.26E-03	9.06E-03	1.04E-02	9.52E-03	2.98E-02	4.59E-02	4.09E-02
ethylbenzene	1000	4.06E-02	1.35E-02	1.98E-02	1.53E-02	1.75E-02	2.20E-02	3.54E-02	5.41E-03	4.84E-03	4.73E-03	5.42E-03	4.97E-03	1.56E-02	2.40E-02	2.14E-02
ethylene	40	7.40E-01	2.45E-01	3.60E-01	2.79E-01	3.18E-01	4.00E-01	6.44E-01	9.85E-02	8.82E-02	8.62E-02	9.86E-02	9.06E-02	2.84E-01	4.37E-01	3.89E-01
formaldehyde	9	1.93E+00	6.39E-01	9.38E-01	7.28E-01	8.28E-01	1.04E+00	1.68E+00	2.57E-01	2.30E-01	2.25E-01	2.57E-01	2.36E-01	7.39E-01	1.14E+00	1.01E+00
ketone	1000	1.09E+00	3.61E-01	5.30E-01	4.11E-01	4.68E-01	5.89E-01	9.48E-01	1.45E-01	1.30E-01	1.27E-01	1.45E-01	1.33E-01	4.17E-01	6.43E-01	5.73E-01
toluene	2000	3.44E-01	1.14E-01	1.67E-01	1.30E-01	1.48E-01	1.86E-01	3.00E-01	4.58E-02	4.10E-02	4.01E-02	4.59E-02	4.21E-02	1.32E-01	2.03E-01	1.81E-01
trimethylbenzene	220	9.85E-02	3.26E-02	4.80E-02	3.72E-02	4.23E-02	5.33E-02	8.58E-02	1.31E-02	1.17E-02	1.15E-02	1.31E-02	1.21E-02	3.78E-02	5.82E-02	5.19E-02
xylenes	730	2.73E-01	9.05E-02	1.33E-01	1.03E-01	1.17E-01	1.48E-01	2.38E-01	3.64E-02	3.25E-02	3.18E-02	3.64E-02	3.34E-02	1.05E-01	1.61E-01	1.44E-01

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
*the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	120	5.09E+00	3.52E+00	3.37E+00	3.48E+00	4.92E+00	6.50E+00	3.17E+01	9.91E+00	4.82E+00	5.27E+00	5.32E+00	1.03E+02	1.03E+02	No	No
DPM	NV	8.65E-01	6.72E-01	6.22E-01	5.67E-01	7.87E-01	9.04E-01	2.64E+00	1.44E+00	6.56E-01	7.82E-01	7.39E-01	2.99E+01	2.99E+01	No	No
PM10	25	3.22E+00	2.28E+00	2.16E+00	2.15E+00	3.04E+00	3.89E+00	1.73E+01	5.57E+00	2.82E+00	3.16E+00	3.11E+00	8.75E+01	8.75E+01	Yes	Yes
PM2.5	15	1.76E+00	1.30E+00	1.20E+00	1.10E+00	1.57E+00	1.85E+00	7.19E+00	2.65E+00	1.26E+00	1.54E+00	1.45E+00	7.55E+01	7.55E+01	Yes	Yes
SO2	125	6.58E-02	4.83E-02	4.39E-02	3.86E-02	5.63E-02	6.44E-02	3.23E-01	9.33E-02	4.53E-02	5.45E-02	5.18E-02	4.11E+00	4.11E+00	No	No
CO	6000	2.06E+01	1.53E+01	1.38E+01	1.16E+01	1.64E+01	1.73E+01	1.23E+02	4.83E+01	2.55E+01	2.67E+01	2.62E+01	1.31E+03	1.31E+03	No	No
NOX	9000	2.43E+01	1.89E+01	1.75E+01	1.59E+01	2.21E+01	2.54E+01	7.41E+01	4.02E+01	1.83E+01	2.18E+01	2.07E+01	8.38E+02	8.38E+02	No	No
NO2	120	2.43E+01	1.89E+01	1.75E+01	1.59E+01	2.21E+01	2.54E+01	7.41E+01	4.02E+01	1.83E+01	2.18E+01	2.07E+01	1.63E+02	1.63E+02	Yes	Yes
Metals																
Aluminum	NV	3.53E-01	2.44E-01	2.34E-01	2.41E-01	3.41E-01	4.50E-01	2.20E+00	6.87E-01	3.34E-01	3.66E-01	3.69E-01	7.18E+00	7.18E+00	No	No
Antimony	25	1.99E-05	1.38E-05	1.32E-05	1.36E-05	1.93E-05	2.54E-05	1.24E-04	3.88E-05	1.89E-05	2.07E-05	2.08E-05	4.05E-04	4.05E-04	No	No
Arsenic	0.015	5.65E-04	3.91E-04	3.74E-04	3.86E-04	5.47E-04	7.21E-04	3.52E-03	1.10E-03	5.36E-04	5.86E-04	5.91E-04	1.15E-02	1.15E-02	No	No
Barium	10	1.99E-03	1.38E-03	1.32E-03	1.36E-03	1.93E-03	2.54E-03	1.24E-02	3.87E-03	1.89E-03	2.06E-03	2.08E-03	4.04E-02	4.04E-02	No	No
Beryllium	0.01	3.70E-06	2.56E-06	2.45E-06	2.53E-06	3.58E-06	4.73E-06	2.31E-05	7.21E-06	3.51E-06	3.84E-06	3.87E-06	7.53E-05	7.53E-05	No	No
Bismuth	NV	1.02E-06	7.04E-07	6.74E-07	6.95E-07	9.85E-07	1.30E-06	6.35E-06	1.98E-06	9.65E-07	1.05E-06	1.06E-06	2.07E-05	2.07E-05	No	No
Cadmium	0.025	5.21E-04	4.04E-04	3.74E-04	3.41E-04	4.74E-04	5.44E-04	1.59E-03	8.65E-04	3.95E-04	4.70E-04	4.45E-04	1.79E-02	1.79E-02	No	No
Calcium	NV	2.01E-01	1.39E-01	1.33E-01	1.37E-01	1.95E-01	2.57E-01	1.25E+00	3.92E-01	1.91E-01	2.08E-01	2.10E-01	4.09E+00	4.09E+00	No	No
Chromium	0.1	9.32E-04	6.53E-04	6.23E-04	6.35E-04	8.97E-04	1.17E-03	5.54E-03	1.79E-03	8.68E-04	9.55E-04	9.59E-04	2.02E-02	2.02E-02	No	No
Cobalt	0.1	1.36E-04	9.43E-05	9.03E-05	9.31E-05	1.32E-04	1.74E-04	8.50E-04	2.65E-04	1.29E-04	1.41E-04	1.43E-04	2.77E-03	2.77E-03	No	No
Copper	50	3.60E-04	2.50E-04	2.39E-04	2.46E-04	3.49E-04	4.60E-04	2.25E-03	7.02E-04	3.42E-04	3.74E-04	3.77E-04	7.33E-03	7.33E-03	No	No
Gold	NV	3.94E-07	2.73E-07	2.61E-07	2.69E-07	3.81E-07	5.03E-07	2.46E-06	7.67E-07	3.73E-07	4.08E-07	4.12E-07	8.01E-06	8.01E-06	No	No
Iron	4	3.87E-01	2.68E-01	2.56E-01	2.64E-01	3.74E-01	4.94E-01	2.41E+00	7.53E-01	3.67E-01	4.01E-01	4.04E-01	7.86E+00	7.86E+00	Yes	No*
Lead	0.5	1.47E-04	1.09E-04	1.03E-04	9.83E-05	1.38E-04	1.68E-04	6.43E-04	2.62E-04	1.23E-04	1.41E-04	1.37E-04	4.22E-03	4.22E-03	No	No
Lithium	20	1.64E-04	1.14E-04	1.09E-04	1.12E-04	1.59E-04	2.10E-04	1.03E-03	3.20E-04	1.56E-04	1.71E-04	1.72E-04	3.34E-03	3.34E-03	No	No
Magnesium	NV	1.07E-01	7.38E-02	7.07E-02	7.29E-02	1.03E-01	1.36E-01	6.65E-01	2.08E-01	1.01E-01	1.11E-01	1.12E-01	2.17E+00	2.17E+00	No	No
Manganese	0.1	4.01E-03	2.77E-03	2.66E-03	2.74E-03	3.88E-03	5.12E-03	2.50E-02	7.81E-03	3.80E-03	4.16E-03	4.19E-03	8.15E-02	8.15E-02	No	No
Molybdenum	120	6.10E-06	4.22E-06	4.05E-06	4.17E-06	5.91E-06	7.79E-06	3.81E-05	1.19E-05	5.79E-06	6.33E-06	6.38E-06	1.24E-04	1.24E-04	No	No
Nickel	0.06	3.54E-04	2.45E-04	2.34E-04	2.42E-04	3.42E-04	4.52E-04	2.21E-03	6.89E-04	3.35E-04	3.67E-04	3.70E-04	7.19E-03	7.19E-03	No	No
Potassium	NV	6.75E-02	4.67E-02	4.47E-02	4.61E-02	6.53E-02	8.62E-02	4.21E-01	1.31E-01	6.40E-02	7.00E-02	7.06E-02	1.37E+00	1.37E+00	No	No
Selenium	10	6.09E-06	4.21E-06	4.04E-06	4.16E-06	5.89E-06	7.77E-06	3.80E-05	1.19E-05	5.77E-06	6.31E-06	6.37E-06	1.24E-04	1.24E-04	No	No
Silver	1	1.50E-06	1.04E-06	9.93E-07	1.02E-06	1.45E-06	1.91E-06	9.34E-06	2.92E-06	1.42E-06	1.55E-06	1.57E-06	3.05E-05	3.05E-05	No	No
Sodium	NV	8.06E-02	5.58E-02	5.34E-02	5.51E-02	7.80E-02	1.03E-01	5.03E-01	1.57E-01	7.64E-02	8.36E-02	8.43E-02	1.64E+00	1.64E+00	No	No
Strontium	120	1.08E-03	7.46E-04	7.14E-04	7.36E-04	1.04E-03	1.38E-03	6.72E-03	2.10E-03	1.02E-03	1.12E-03	1.13E-03	2.19E-02	2.19E-02	No	No
Thallium	NV	1.56E-06	1.08E-06	1.03E-06	1.06E-06	1.51E-06	1.99E-06	9.70E-06	3.03E-06	1.47E-06	1.61E-06	1.63E-06	3.16E-05	3.16E-05	No	No
Tin	10	5.48E-06	3.80E-06	3.63E-06	3.75E-06	5.31E-06	7.00E-06	3.42E-05	1.07E-05	5.20E-06	5.69E-06	5.73E-06	1.11E-04	1.11E-04	No	No
Titanium	120	1.77E-02	1.23E-02	1.18E-02	1.21E-02	1.72E-02	2.26E-02	1.11E-01	3.45E-02	1.68E-02	1.84E-02	1.85E-02	3.60E-01	3.60E-01	No	No
Uranium	0.1	4.95E-06	3.43E-06	3.28E-06	3.38E-06	4.79E-06	6.32E-06	3.09E-05	9.64E-06	4.69E-06	5.13E-06	5.17E-06	1.01E-04	1.01E-04	No	No
Vanadium	1	6.52E-04	4.51E-04	4.32E-04	4.46E-04	6.31E-04	8.33E-04	4.07E-03	1.27E-03	6.18E-04	6.76E-04	6.82E-04	1.33E-02	1.33E-02	No	No
Yttrium	NV	4.81E-05	3.33E-05	3.19E-05	3.29E-05	4.66E-05	6.15E-05	3.00E-04	9.37E-05	4.56E-05	4.99E-05	5.03E-05	9.78E-04	9.78E-04	No	No
Zinc	120	1.11E-03	8.23E-04	7.73E-04	7.45E-04	1.04E-03	1.28E-03	5.02E-03	2.00E-03	9.42E-04	1.07E-03	1.05E-03	3.12E-02	3.12E-02	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00005	9.52E-07	7.40E-07	6.85E-07	6.24E-07	8.66E-07	9.95E-07	2.91E-06	1.58E-06	7.22E-07	8.60E-07	8.14E-07	3.29E-05	3.29E-05	No	No
naphthalene	22.5	3.77E-04	2.93E-04	2.71E-04	2.47E-04	3.43E-04	3.94E-04	1.15E-03	6.26E-04	2.86E-04	3.40E-04	3.22E-04	1.30E-02	1.30E-02	No	No
phenanthrene	NV	3.11E-05	2.42E-05	2.24E-05	2.04E-05	2.83E-05	3.25E-05	9.50E-05	5.17E-05	2.36E-05	2.81E-05	2.66E-05	1.07E-03	1.07E-03	No	No
anthracene	NV	3.47E-06	2.70E-06	2.50E-06	2.28E-06	3.16E-06	3.63E-06	1.06E-05	5.77E-06	2.63E-06	3.14E-06	2.97E-06	1.20E-04	1.20E-04	No	No
fluorene	NV</															

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	NV	6.61E-07	5.13E-07	4.75E-07	4.33E-07	6.01E-07	6.90E-07	2.02E-06	1.10E-06	5.01E-07	5.97E-07	5.65E-07	2.28E-05	2.28E-05	No	No
indeno(1,2,3-cd)pyrene	NV	4.20E-07	3.26E-07	3.02E-07	2.75E-07	3.82E-07	4.39E-07	1.28E-06	6.98E-07	3.18E-07	3.79E-07	3.59E-07	1.45E-05	1.45E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	10	4.96E-03	3.84E-03	3.55E-03	3.21E-03	4.49E-03	5.15E-03	1.51E-02	8.07E-03	3.69E-03	4.38E-03	4.15E-03	1.71E-01	1.71E-01	No	No
acetaldehyde	300	6.69E-01	5.18E-01	4.79E-01	4.33E-01	6.05E-01	6.94E-01	2.03E+00	1.09E+00	4.98E-01	5.90E-01	5.60E-01	2.30E+01	2.30E+01	No	No
acetone	11880	3.52E-01	2.73E-01	2.52E-01	2.28E-01	3.18E-01	3.65E-01	1.07E+00	5.72E-01	2.62E-01	3.11E-01	2.95E-01	1.21E+01	1.21E+01	No	No
acrolein	0.09	1.18E-01	9.17E-02	8.48E-02	7.67E-02	1.07E-01	1.23E-01	3.60E-01	1.93E-01	8.81E-02	1.05E-01	9.91E-02	4.08E+00	4.08E+00	Yes	Yes
aldehyde	NV	8.94E-01	6.93E-01	6.40E-01	5.79E-01	8.09E-01	9.28E-01	2.72E+00	1.45E+00	6.66E-01	7.90E-01	7.49E-01	3.08E+01	3.08E+01	No	No
benzene	2.3	4.38E-02	3.40E-02	3.14E-02	2.84E-02	3.97E-02	4.55E-02	1.33E-01	7.13E-02	3.26E-02	3.87E-02	3.67E-02	1.51E+00	1.51E+00	No	No
C10-C12 aliphatic	NV	9.63E-03	7.46E-03	6.89E-03	6.24E-03	8.71E-03	9.99E-03	2.93E-02	1.57E-02	7.17E-03	8.50E-03	8.06E-03	3.32E-01	3.32E-01	No	No
C12-C16 aliphatic	NV	5.57E-02	4.32E-02	3.99E-02	3.61E-02	5.04E-02	5.79E-02	1.70E-01	9.07E-02	4.15E-02	4.92E-02	4.67E-02	1.92E+00	1.92E+00	No	No
C12-C16 aromatic	NV	7.52E-04	5.82E-04	5.38E-04	4.87E-04	6.80E-04	7.80E-04	2.29E-03	1.22E-03	5.60E-04	6.64E-04	6.29E-04	2.59E-02	2.59E-02	No	No
C16-C21 aliphatic	NV	5.58E-02	4.32E-02	4.00E-02	3.62E-02	5.05E-02	5.79E-02	1.70E-01	9.08E-02	4.16E-02	4.93E-02	4.67E-02	1.92E+00	1.92E+00	No	No
C2-C6 aliphatic	920	2.66E-01	2.06E-01	1.90E-01	1.72E-01	2.40E-01	2.76E-01	8.08E-01	4.32E-01	1.98E-01	2.35E-01	2.22E-01	9.15E+00	9.15E+00	No	No
C6-C8 aliphatic	6100	1.82E-01	1.41E-01	1.30E-01	1.18E-01	1.64E-01	1.89E-01	5.53E-01	2.96E-01	1.35E-01	1.60E-01	1.52E-01	6.26E+00	6.26E+00	No	No
C8-C10 aliphatic	60000	2.56E-03	1.98E-03	1.83E-03	1.66E-03	2.32E-03	2.66E-03	7.78E-03	4.16E-03	1.91E-03	2.26E-03	2.14E-03	8.82E-02	8.82E-02	No	No
C8-C10 aromatic	400	1.44E-02	1.11E-02	1.03E-02	9.32E-03	1.30E-02	1.49E-02	4.38E-02	2.34E-02	1.07E-02	1.27E-02	1.20E-02	4.96E-01	4.96E-01	No	No
ethylbenzene	1000	7.52E-03	5.82E-03	5.38E-03	4.87E-03	6.80E-03	7.80E-03	2.29E-02	1.22E-02	5.60E-03	6.64E-03	6.29E-03	2.59E-01	2.59E-01	No	No
ethylene	40	1.37E-01	1.06E-01	9.81E-02	8.87E-02	1.24E-01	1.42E-01	4.16E-01	2.23E-01	1.02E-01	1.21E-01	1.15E-01	4.72E+00	4.72E+00	No	No
formaldehyde	9	3.57E-01	2.76E-01	2.55E-01	2.31E-01	3.23E-01	3.70E-01	1.08E+00	5.80E-01	2.66E-01	3.15E-01	2.99E-01	1.23E+01	1.23E+01	Yes	Yes
ketone	1000	2.02E-01	1.56E-01	1.44E-01	1.31E-01	1.82E-01	2.09E-01	6.13E-01	3.28E-01	1.50E-01	1.78E-01	1.69E-01	6.94E+00	6.94E+00	No	No
toluene	2000	6.37E-02	4.93E-02	4.56E-02	4.12E-02	5.76E-02	6.61E-02	1.94E-01	1.04E-01	4.74E-02	5.62E-02	5.33E-02	2.19E+00	2.19E+00	No	No
trimethylbenzene	220	1.82E-02	1.41E-02	1.31E-02	1.18E-02	1.65E-02	1.89E-02	5.55E-02	2.97E-02	1.36E-02	1.61E-02	1.53E-02	6.28E-01	6.28E-01	No	No
xylene	730	5.05E-02	3.92E-02	3.62E-02	3.27E-02	4.57E-02	5.25E-02	1.54E-01	8.22E-02	3.76E-02	4.46E-02	4.23E-02	1.74E+00	1.74E+00	No	No

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
* the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	120	2.22E+01	8.63E+00	1.08E+01	1.11E+01	1.19E+01	1.40E+01	1.65E+01	3.36E+00	3.54E+00	3.36E+00	3.36E+00	3.50E+00	1.00E+01	2.11E+01	3.16E+01
DPM	NV	4.55E+00	1.27E+00	2.11E+00	1.37E+00	1.03E+00	2.18E+00	1.76E+00	5.89E-01	5.60E-01	4.51E-01	5.90E-01	5.84E-01	1.83E+00	2.59E+00	2.12E+00
PM10	25	1.22E+01	4.78E+00	5.45E+00	4.25E+00	4.47E+00	6.65E+00	6.16E+00	1.91E+00	1.81E+00	1.80E+00	1.92E+00	1.86E+00	4.92E+00	9.01E+00	1.48E+01
PM2.5	15	8.53E+00	3.06E+00	4.79E+00	3.53E+00	2.47E+00	4.67E+00	3.42E+00	1.19E+00	1.14E+00	9.56E-01	1.19E+00	9.99E-01	3.19E+00	5.75E+00	4.67E+00
SO2	125	4.55E-01	1.30E-01	2.10E-01	1.59E-01	1.11E-01	2.05E-01	1.44E-01	4.71E-02	4.65E-02	3.69E-02	4.71E-02	4.08E-02	1.29E-01	2.48E-01	2.00E-01
CO	6000	1.36E+02	4.52E+01	4.59E+01	4.26E+01	5.41E+01	7.00E+01	7.08E+01	1.42E+01	1.63E+01	1.22E+01	1.43E+01	1.55E+01	7.17E+01	4.98E+01	5.43E+01
NOX	9000	1.27E+02	3.55E+01	6.11E+01	3.97E+01	2.91E+01	6.11E+01	4.91E+01	1.72E+01	1.56E+01	1.26E+01	1.72E+01	1.63E+01	5.13E+01	7.29E+01	5.95E+01
NO2	120	9.17E+01	3.55E+01	6.11E+01	3.97E+01	2.91E+01	6.11E+01	4.91E+01	1.72E+01	1.56E+01	1.26E+01	1.72E+01	1.63E+01	5.13E+01	7.29E+01	5.95E+01
Metals																
Aluminum	NV	1.54E+00	5.99E-01	7.47E-01	7.70E-01	8.24E-01	9.71E-01	1.14E+00	2.33E-01	2.46E-01	2.33E-01	2.33E-01	2.42E-01	6.94E-01	1.46E+00	2.19E+00
Antimony	25	8.70E-05	3.38E-05	4.21E-05	4.35E-05	4.66E-05	5.49E-05	6.45E-05	1.32E-05	1.39E-05	1.32E-05	1.32E-05	1.37E-05	3.92E-05	8.26E-05	1.24E-04
Arsenic	0.015	2.47E-03	9.59E-04	1.19E-03	1.23E-03	1.32E-03	1.56E-03	1.83E-03	3.73E-04	3.93E-04	3.74E-04	3.73E-04	3.88E-04	1.11E-03	2.34E-03	3.51E-03
Barium	10	8.69E-03	3.38E-03	4.21E-03	4.34E-03	4.65E-03	5.48E-03	6.44E-03	1.31E-03	1.39E-03	1.32E-03	1.31E-03	1.37E-03	3.91E-03	8.25E-03	1.24E-02
Beryllium	0.01	1.62E-05	6.28E-06	7.83E-06	8.08E-06	8.66E-06	1.02E-05	1.20E-05	2.44E-06	2.58E-06	2.45E-06	2.45E-06	2.54E-06	7.28E-06	1.54E-05	2.30E-05
Bismuth	NV	4.44E-06	1.73E-06	2.15E-06	2.22E-06	2.38E-06	2.80E-06	3.29E-06	6.72E-07	7.08E-07	6.73E-07	6.72E-07	6.99E-07	2.00E-06	4.22E-06	6.33E-06
Cadmium	0.025	2.73E-03	7.62E-04	1.27E-03	8.26E-04	6.22E-04	1.31E-03	1.06E-03	3.54E-04	3.37E-04	2.71E-04	3.55E-04	3.51E-04	1.10E-03	1.56E-03	1.28E-03
Calcium	NV	8.78E-01	3.41E-01	4.25E-01	4.39E-01	4.70E-01	5.54E-01	6.51E-01	1.33E-01	1.40E-01	1.33E-01	1.33E-01	1.38E-01	3.96E-01	8.34E-01	1.25E+00
Chromium	0.1	4.15E-03	1.56E-03	2.00E-03	1.98E-03	2.08E-03	2.55E-03	2.91E-03	6.17E-04	6.45E-04	6.05E-04	6.18E-04	6.40E-04	1.85E-03	3.77E-03	5.47E-03
Cobalt	0.1	5.95E-04	2.31E-04	2.88E-04	2.98E-04	3.19E-04	3.75E-04	4.41E-04	9.00E-05	9.49E-05	9.01E-05	9.00E-05	9.37E-05	2.68E-04	5.65E-04	8.48E-04
Copper	50	1.57E-03	6.12E-04	7.63E-04	7.87E-04	8.43E-04	9.93E-04	1.17E-03	2.38E-04	2.51E-04	2.38E-04	2.38E-04	2.48E-04	7.09E-04	1.50E-03	2.24E-03
Gold	NV	1.72E-06	6.69E-07	8.33E-07	8.60E-07	9.21E-07	1.08E-06	1.28E-06	2.60E-07	2.74E-07	2.60E-07	2.60E-07	2.71E-07	7.75E-07	1.63E-06	2.45E-06
Iron	4	1.69E+00	6.56E-01	8.18E-01	8.44E-01	9.04E-01	1.06E+00	1.25E+00	2.55E-01	2.69E-01	2.56E-01	2.55E-01	2.66E-01	7.61E-01	1.60E+00	2.40E+00
Lead	0.5	7.20E-04	2.30E-04	3.39E-04	2.70E-04	2.45E-04	3.86E-04	3.72E-04	9.90E-05	9.83E-05	8.53E-05	9.91E-05	1.00E-04	3.03E-04	5.11E-04	5.90E-04
Lithium	20	7.18E-04	2.79E-04	3.48E-04	3.59E-04	3.85E-04	4.53E-04	5.33E-04	1.09E-04	1.15E-04	1.09E-04	1.09E-04	1.13E-04	3.24E-04	6.82E-04	1.02E-03
Magnesium	NV	4.66E-01	1.81E-01	2.26E-01	2.33E-01	2.49E-01	2.94E-01	3.45E-01	7.04E-02	7.43E-02	7.05E-02	7.05E-02	7.33E-02	2.10E-01	4.42E-01	6.63E-01
Manganese	0.1	1.75E-02	6.80E-03	8.48E-03	8.75E-03	9.38E-03	1.10E-02	1.30E-02	2.65E-03	2.79E-03	2.65E-03	2.65E-03	2.75E-03	7.89E-03	1.66E-02	2.49E-02
Molybdenum	120	2.67E-05	1.04E-05	1.29E-05	1.33E-05	1.43E-05	1.68E-05	1.98E-05	4.03E-06	4.25E-06	4.04E-06	4.03E-06	4.19E-06	1.20E-05	2.53E-05	3.80E-05
Nickel	0.06	1.54E-03	6.00E-04	7.48E-04	7.72E-04	8.27E-04	9.74E-04	1.15E-03	2.33E-04	2.46E-04	2.34E-04	2.34E-04	2.43E-04	6.96E-04	1.47E-03	2.20E-03
Potassium	NV	2.95E-01	1.15E-01	1.43E-01	1.47E-01	1.58E-01	1.86E-01	2.19E-01	4.46E-02	4.70E-02	4.46E-02	4.46E-02	4.64E-02	1.33E-01	2.80E-01	4.20E-01
Selenium	10	2.66E-05	1.03E-05	1.29E-05	1.33E-05	1.42E-05	1.68E-05	1.97E-05	4.02E-06	4.24E-06	4.03E-06	4.02E-06	4.18E-06	1.20E-05	2.53E-05	3.79E-05
Silver	1	6.54E-06	2.54E-06	3.17E-06	3.27E-06	3.50E-06	4.13E-06	4.85E-06	9.89E-07	1.04E-06	9.91E-07	9.90E-07	1.03E-06	2.95E-06	6.22E-06	9.32E-06
Sodium	NV	3.52E-01	1.37E-01	1.71E-01	1.76E-01	1.89E-01	2.22E-01	2.61E-01	5.32E-02	5.61E-02	5.33E-02	5.32E-02	5.54E-02	1.59E-01	3.34E-01	5.01E-01
Strontium	120	4.70E-03	1.83E-03	2.28E-03	2.35E-03	2.52E-03	2.97E-03	3.49E-03	7.11E-04	7.50E-04	7.12E-04	7.12E-04	7.40E-04	2.12E-03	4.47E-03	6.70E-03
Thallium	NV	6.79E-06	2.64E-06	3.29E-06	3.40E-06	3.64E-06	4.28E-06	5.04E-06	1.03E-06	1.08E-06	1.03E-06	1.03E-06	1.07E-06	3.06E-06	6.45E-06	9.67E-06
Tin	10	2.39E-05	9.31E-06	1.16E-05	1.20E-05	1.28E-05	1.51E-05	1.78E-05	3.62E-06	3.82E-06	3.63E-06	3.62E-06	3.77E-06	1.08E-05	2.28E-05	3.41E-05
Titanium	120	7.74E-02	3.01E-02	3.75E-02	3.87E-02	4.15E-02	4.88E-02	5.74E-02	1.17E-02	1.23E-02	1.17E-02	1.17E-02	1.22E-02	3.49E-02	7.36E-02	1.10E-01
Uranium	0.1	2.16E-05	8.40E-06	1.05E-05	1.08E-05	1.16E-05	1.36E-05	1.60E-05	3.27E-06	3.45E-06	3.27E-06	3.27E-06	3.40E-06	9.74E-06	2.05E-05	3.08E-05
Vanadium	1	2.85E-03	1.11E-03	1.38E-03	1.42E-03	1.53E-03	1.80E-03	2.11E-03	4.31E-04	4.54E-04	4.31E-04	4.31E-04	4.48E-04	1.28E-03	2.71E-03	4.06E-03
Yttrium	NV	2.10E-04	8.17E-05	1.02E-04	1.05E-04											

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	NV	3.47E-06	9.67E-07	1.61E-06	1.05E-06	7.87E-07	1.67E-06	1.34E-06	4.50E-07	4.28E-07	3.44E-07	4.50E-07	4.46E-07	1.40E-06	1.98E-06	1.62E-06
indeno(1,2,3-cd)pyrene	NV	2.21E-06	6.15E-07	1.02E-06	6.66E-07	5.01E-07	1.06E-06	8.52E-07	2.86E-07	2.72E-07	2.19E-07	2.86E-07	2.83E-07	8.90E-07	1.26E-06	1.03E-06
Volatile Oranic Compounds																
1,3-butadiene	10	2.56E-02	7.20E-03	1.24E-02	8.01E-03	5.81E-03	1.21E-02	9.77E-03	3.38E-03	2.99E-03	2.55E-03	3.39E-03	3.22E-03	1.03E-02	1.49E-02	1.21E-02
acetaldehyde	300	3.46E+00	9.70E-01	1.67E+00	1.08E+00	7.83E-01	1.63E+00	1.32E+00	4.56E-01	4.03E-01	3.43E-01	4.57E-01	4.34E-01	1.39E+00	2.01E+00	1.63E+00
acetone	11880	1.82E+00	5.11E-01	8.79E-01	5.68E-01	4.12E-01	8.58E-01	6.93E-01	2.40E-01	2.12E-01	1.81E-01	2.40E-01	2.28E-01	7.29E-01	1.06E+00	8.59E-01
acrolein	0.09	6.12E-01	1.72E-01	2.96E-01	1.91E-01	1.39E-01	2.88E-01	2.33E-01	8.07E-02	7.14E-02	6.08E-02	8.08E-02	7.68E-02	2.45E-01	3.55E-01	2.89E-01
aldehyde	NV	4.62E+00	1.30E+00	2.23E+00	1.44E+00	1.05E+00	2.18E+00	1.76E+00	6.10E-01	5.39E-01	4.59E-01	6.11E-01	5.80E-01	1.85E+00	2.68E+00	2.18E+00
benzene	2.3	2.27E-01	6.36E-02	1.09E-01	7.08E-02	5.13E-02	1.07E-01	8.64E-02	2.99E-02	2.64E-02	2.25E-02	2.99E-02	2.84E-02	9.08E-02	1.31E-01	1.07E-01
C10-C12 aliphatic	NV	4.98E-02	1.40E-02	2.40E-02	1.55E-02	1.13E-02	2.35E-02	1.90E-02	6.57E-03	5.81E-03	4.94E-03	6.57E-03	6.24E-03	2.00E-02	2.89E-02	2.35E-02
C12-C16 aliphatic	NV	2.88E-01	8.09E-02	1.39E-01	9.00E-02	6.53E-02	1.36E-01	1.10E-01	3.80E-02	3.36E-02	2.86E-02	3.81E-02	3.62E-02	1.16E-01	1.67E-01	1.36E-01
C12-C16 aromatic	NV	3.89E-03	1.09E-03	1.88E-03	1.21E-03	8.80E-04	1.83E-03	1.48E-03	5.13E-04	4.54E-04	3.86E-04	5.13E-04	4.88E-04	1.56E-03	2.26E-03	1.84E-03
C16-C21 aliphatic	NV	2.89E-01	8.10E-02	1.39E-01	9.01E-02	6.53E-02	1.36E-01	1.10E-01	3.81E-02	3.37E-02	2.87E-02	3.81E-02	3.62E-02	1.16E-01	1.67E-01	1.36E-01
C2-C6 aliphatic	920	1.37E+00	3.86E-01	6.63E-01	4.29E-01	3.11E-01	6.48E-01	5.24E-01	1.81E-01	1.60E-01	1.36E-01	1.81E-01	1.72E-01	5.51E-01	7.97E-01	6.49E-01
C6-C8 aliphatic	6100	9.40E-01	2.64E-01	4.54E-01	2.93E-01	2.13E-01	4.43E-01	3.58E-01	1.24E-01	1.10E-01	9.33E-02	1.24E-01	1.18E-01	3.77E-01	5.45E-01	4.44E-01
C8-C10 aliphatic	60000	1.32E-02	3.71E-03	6.39E-03	4.13E-03	3.00E-03	6.24E-03	5.04E-03	1.75E-03	1.54E-03	1.31E-03	1.75E-03	1.66E-03	5.30E-03	7.68E-03	6.25E-03
C8-C10 aromatic	400	7.44E-02	2.09E-02	3.59E-02	2.32E-02	1.68E-02	3.51E-02	2.84E-02	9.81E-03	8.68E-03	7.39E-03	9.83E-03	9.33E-03	2.98E-02	4.32E-02	3.51E-02
ethylbenzene	1000	3.89E-02	1.09E-02	1.88E-02	1.21E-02	8.80E-03	1.83E-02	1.48E-02	5.13E-03	4.54E-03	3.86E-03	5.13E-03	4.88E-03	1.56E-02	2.26E-02	1.84E-02
ethylene	40	7.08E-01	1.99E-01	3.42E-01	2.21E-01	1.60E-01	3.34E-01	2.70E-01	9.34E-02	8.26E-02	7.03E-02	9.35E-02	8.88E-02	2.84E-01	4.11E-01	3.34E-01
formaldehyde	9	1.84E+00	5.18E-01	8.91E-01	5.76E-01	4.18E-01	8.69E-01	7.03E-01	2.43E-01	2.15E-01	1.83E-01	2.44E-01	2.31E-01	7.39E-01	1.07E+00	8.71E-01
ketone	1000	1.04E+00	2.93E-01	5.03E-01	3.25E-01	2.36E-01	4.91E-01	3.97E-01	1.37E-01	1.22E-01	1.03E-01	1.38E-01	1.31E-01	4.18E-01	6.05E-01	4.92E-01
toluene	2000	3.29E-01	9.24E-02	1.59E-01	1.03E-01	7.45E-02	1.55E-01	1.25E-01	4.34E-02	3.84E-02	3.27E-02	4.35E-02	4.13E-02	1.32E-01	1.91E-01	1.55E-01
trimethylbenzene	220	9.43E-02	2.65E-02	4.55E-02	2.94E-02	2.13E-02	4.44E-02	3.59E-02	1.24E-02	1.10E-02	9.36E-03	1.25E-02	1.18E-02	3.78E-02	5.47E-02	4.45E-02
xylene	730	2.61E-01	7.34E-02	1.26E-01	8.16E-02	5.92E-02	1.23E-01	9.96E-02	3.45E-02	3.05E-02	2.59E-02	3.45E-02	3.28E-02	1.05E-01	1.52E-01	1.23E-01

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
* the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	120	1.95E+01	5.86E+00	5.85E+00	7.66E+00	1.07E+01	1.29E+01	1.49E+01	7.03E+00	4.18E+00	4.39E+00	4.31E+00	7.30E+01	7.30E+01	No	No
DPM	NV	1.40E+00	7.34E-01	6.25E-01	5.04E-01	7.29E-01	9.20E-01	2.56E+00	1.02E+00	5.31E-01	5.88E-01	5.64E-01	2.99E+01	2.99E+01	No	No
PM10	25	1.09E+01	3.18E+00	3.15E+00	3.98E+00	5.69E+00	6.60E+00	9.34E+00	3.04E+00	1.92E+00	2.09E+00	2.03E+00	7.30E+01	7.30E+01	Yes	Yes
PM2.5	15	2.77E+00	1.39E+00	1.18E+00	9.99E-01	1.44E+00	1.71E+00	7.11E+00	1.87E+00	1.05E+00	1.19E+00	1.14E+00	7.30E+01	7.30E+01	Yes	Yes
SO2	125	6.37E-02	5.04E-02	4.37E-02	3.59E-02	5.23E-02	5.78E-02	3.21E-01	7.75E-02	4.03E-02	4.69E-02	4.48E-02	4.10E+00	4.10E+00	No	No
CO	6000	4.33E+01	2.05E+01	1.65E+01	1.54E+01	2.25E+01	3.49E+01	8.21E+01	3.19E+01	2.28E+01	2.19E+01	2.40E+01	1.31E+03	1.31E+03	No	No
NOX	9000	3.84E+01	2.05E+01	1.75E+01	1.41E+01	2.01E+01	2.54E+01	7.20E+01	2.87E+01	1.48E+01	1.64E+01	1.58E+01	8.39E+02	8.39E+02	No	No
NO2	120	3.84E+01	2.05E+01	1.75E+01	1.41E+01	2.01E+01	2.54E+01	7.20E+01	2.87E+01	1.48E+01	1.64E+01	1.58E+01	1.63E+02	1.63E+02	Yes	Yes
Metals																
Aluminum	NV	1.35E+00	4.07E-01	4.06E-01	5.31E-01	7.40E-01	8.94E-01	1.04E+00	4.88E-01	2.90E-01	3.05E-01	2.99E-01	5.08E+00	5.08E+00	No	No
Antimony	25	7.64E-05	2.30E-05	2.29E-05	3.00E-05	4.18E-05	5.05E-05	5.85E-05	2.75E-05	1.64E-05	1.72E-05	1.69E-05	2.86E-04	2.86E-04	No	No
Arsenic	0.015	2.17E-03	6.51E-04	6.50E-04	8.51E-04	1.19E-03	1.43E-03	1.66E-03	7.81E-04	4.65E-04	4.88E-04	4.78E-04	8.11E-03	8.11E-03	No	No
Barium	10	7.63E-03	2.29E-03	2.29E-03	3.00E-03	4.17E-03	5.05E-03	5.84E-03	2.75E-03	1.64E-03	1.72E-03	1.68E-03	2.86E-02	2.86E-02	No	No
Beryllium	0.01	1.42E-05	4.27E-06	4.26E-06	5.58E-06	7.77E-06	9.39E-06	1.09E-05	5.12E-06	3.05E-06	3.20E-06	3.13E-06	5.32E-05	5.32E-05	No	No
Bismuth	NV	3.90E-06	1.17E-06	1.17E-06	1.53E-06	2.14E-06	2.58E-06	2.99E-06	1.41E-06	8.37E-07	8.78E-07	8.61E-07	1.46E-05	1.46E-05	No	No
Cadmium	0.025	8.43E-04	4.42E-04	3.76E-04	3.05E-04	4.40E-04	5.56E-04	1.54E-03	6.16E-04	3.19E-04	3.54E-04	3.39E-04	1.80E-02	1.80E-02	No	No
Calcium	NV	7.71E-01	2.32E-01	2.31E-01	3.03E-01	4.22E-01	5.10E-01	5.90E-01	2.78E-01	1.65E-01	1.74E-01	1.70E-01	2.89E+00	2.89E+00	No	No
Chromium	0.1	3.38E-03	1.05E-03	1.04E-03	1.32E-03	1.85E-03	2.24E-03	2.74E-03	1.27E-03	7.49E-04	7.89E-04	7.73E-04	1.51E-02	1.51E-02	No	No
Cobalt	0.1	5.23E-04	1.57E-04	1.57E-04	2.05E-04	2.86E-04	3.46E-04	4.00E-04	1.88E-04	1.12E-04	1.18E-04	1.15E-04	1.96E-03	1.96E-03	No	No
Copper	50	1.38E-03	4.16E-04	4.15E-04	5.43E-04	7.57E-04	9.15E-04	1.06E-03	4.98E-04	2.97E-04	3.11E-04	3.05E-04	5.18E-03	5.18E-03	No	No
Gold	NV	1.51E-06	4.54E-07	4.53E-07	5.93E-07	8.27E-07	9.99E-07	1.16E-06	5.45E-07	3.24E-07	3.40E-07	3.33E-07	5.65E-06	5.65E-06	No	No
Iron	4	1.48E+00	4.46E-01	4.45E-01	5.82E-01	8.11E-01	9.81E-01	1.13E+00	5.35E-01	3.18E-01	3.34E-01	3.27E-01	5.55E+00	5.55E+00	Yes	No*
Lead	0.5	3.73E-04	1.43E-04	1.32E-04	1.42E-04	2.00E-04	2.46E-04	4.35E-04	1.86E-04	1.03E-04	1.11E-04	1.08E-04	3.86E-03	3.86E-03	No	No
Lithium	20	6.30E-04	1.90E-04	1.89E-04	2.48E-04	3.45E-04	4.17E-04	4.83E-04	2.27E-04	1.35E-04	1.42E-04	1.39E-04	2.36E-03	2.36E-03	No	No
Magnesium	NV	4.09E-01	1.23E-01	1.23E-01	1.61E-01	2.24E-01	2.71E-01	3.13E-01	1.47E-01	8.77E-02	9.21E-02	9.03E-02	1.53E+00	1.53E+00	No	No
Manganese	0.1	1.54E-02	4.62E-03	4.61E-03	6.04E-03	8.41E-03	1.02E-02	1.18E-02	5.54E-03	3.30E-03	3.46E-03	3.39E-03	5.76E-02	5.76E-02	No	No
Molybdenum	120	2.34E-05	7.04E-06	7.02E-06	9.19E-06	1.28E-05	1.55E-05	1.79E-05	8.44E-06	5.02E-06	5.27E-06	5.17E-06	8.76E-05	8.76E-05	No	No
Nickel	0.06	1.36E-03	4.08E-04	4.07E-04	5.32E-04	7.42E-04	8.97E-04	1.04E-03	4.89E-04	2.91E-04	3.05E-04	2.99E-04	5.08E-03	5.08E-03	No	No
Potassium	NV	2.59E-01	7.78E-02	7.76E-02	1.02E-01	1.42E-01	1.71E-01	1.98E-01	9.33E-02	5.55E-02	5.83E-02	5.71E-02	9.69E-01	9.69E-01	No	No
Selenium	10	2.33E-05	7.02E-06	7.00E-06	9.17E-06	1.28E-05	1.54E-05	1.79E-05	8.42E-06	5.01E-06	5.26E-06	5.15E-06	8.74E-05	8.74E-05	No	No
Silver	1	5.74E-06	1.73E-06	1.72E-06	2.26E-06	3.14E-06	3.80E-06	4.40E-06	2.07E-06	1.23E-06	1.29E-06	1.27E-06	2.15E-05	2.15E-05	No	No
Sodium	NV	3.09E-01	9.29E-02	9.27E-02	1.21E-01	1.69E-01	2.05E-01	2.37E-01	1.11E-01	6.63E-02	6.96E-02	6.82E-02	1.16E+00	1.16E+00	No	No
Strontium	120	4.13E-03	1.24E-03	1.24E-03	1.62E-03	2.26E-03	2.73E-03	3.16E-03	1.49E-03	8.86E-04	9.30E-04	9.12E-04	1.55E-02	1.55E-02	No	No
Thallium	NV	5.96E-06	1.79E-06	1.79E-06	2.34E-06	3.26E-06	3.95E-06	4.57E-06	2.15E-06	1.28E-06	1.34E-06	1.32E-06	2.23E-05	2.23E-05	No	No
Tin	10	2.10E-05	6.32E-06	6.31E-06	8.26E-06	1.15E-05	1.39E-05	1.61E-05	7.58E-06	4.51E-06	4.73E-06	4.64E-06	7.87E-05	7.87E-05	No	No
Titanium	120	6.80E-02	2.04E-02	2.04E-02	2.67E-02	3.72E-02	4.50E-02	5.20E-02	2.45E-02	1.46E-02	1.53E-02	1.50E-02	2.55E-01	2.55E-01	No	No
Uranium	0.1	1.90E-05	5.70E-06	5.69E-06	7.45E-06	1.04E-05	1.26E-05	1.45E-05	6.84E-06	4.07E-06	4.27E-06	4.19E-06	7.10E-05	7.10E-05	No	No
Vanadium	1	2.50E-03	7.52E-04	7.50E-04	9.82E-04	1.37E-03	1.65E-03	1.91E-03	9.02E-04	5.36E-04	5.63E-04	5.52E-04	9.36E-03	9.36E-03	No	No
Yttrium	NV	1.85E-04	5.55E-05	5.54E-05	7.25E-05	1.01E-04	1.22E-04	1.41E-04	6.65E-05	3.96E-05	4.16E-05	4.07E-05	6.91E-04	6.91E-04	No	No
Zinc	120	2.93E-03	1.10E-03	1.02E-03	1.12E-03	1.58E-03	1.94E-03	3.29E-03	1.42E-03	7.90E-04	8.51E-04	8.26E-04	2.82E-02	2.82E-02	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00005	1.54E-06	8.07E-07	6.87E-07	5.55E-07	8.03E-07	1.01E-06	2.82E-06	1.13E-06	5.84E-07	6.47E-07	6.20E-07	3.29E-05	3.29E-05	No	No
naphthalene	22.5	6.08E-04	3.19E-04	2.72E-04	2.20E-04	3.18E-04	4.01E-04	1.12E-03	4.46E-04	2.31E-04	2.56E-04	2.45E-04	1.30E-02	1.30E-02	No	No
phenanthrene	NV	5.02E-05	2.64E-05	2.25E-05	1.81E-05	2.62E-05	3.31E-05	9.22E-05	3.68E-05	1.91E-05	2.11E-05	2.03E-05	1.08E-03	1.08E-03	No	No
anthracene	NV	5.60E-06	2.94E-06	2.51E-06	2.02E-06	2.93E-06	3.69E-06	1.03E-05	4.11E-06	2.13E-06	2.36E-06	2.26E-06	1.20E-04	1.20E-04	No	No
fluorene	NV</															

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	NV	1.07E-06	5.60E-07	4.77E-07	3.85E-07	5.57E-07	7.03E-07	1.96E-06	7.82E-07	4.05E-07	4.49E-07	4.30E-07	2.28E-05	2.28E-05	No	No
indeno(1,2,3-cd)pyrene	NV	6.78E-07	3.56E-07	3.03E-07	2.45E-07	3.54E-07	4.47E-07	1.25E-06	4.97E-07	2.58E-07	2.85E-07	2.74E-07	1.45E-05	1.45E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	10	7.73E-03	4.17E-03	3.55E-03	2.85E-03	4.06E-03	5.12E-03	1.46E-02	5.73E-03	2.98E-03	3.32E-03	3.15E-03	1.71E-01	1.71E-01	No	No
acetaldehyde	300	1.04E+00	5.62E-01	4.79E-01	3.84E-01	5.47E-01	6.91E-01	1.97E+00	7.72E-01	4.02E-01	4.47E-01	4.25E-01	2.31E+01	2.31E+01	No	No
acetone	11880	5.49E-01	2.96E-01	2.52E-01	2.02E-01	2.88E-01	3.64E-01	1.04E+00	4.07E-01	2.11E-01	2.35E-01	2.24E-01	1.21E+01	1.21E+01	No	No
acrolein	0.09	1.85E-01	9.95E-02	8.48E-02	6.80E-02	9.69E-02	1.22E-01	3.50E-01	1.37E-01	7.11E-02	7.92E-02	7.53E-02	4.08E+00	4.08E+00	Yes	Yes
aldehyde	NV	1.39E+00	7.52E-01	6.40E-01	5.14E-01	7.32E-01	9.24E-01	2.64E+00	1.03E+00	5.37E-01	5.98E-01	5.69E-01	3.08E+01	3.08E+01	No	No
benzene	2.3	6.83E-02	3.68E-02	3.14E-02	2.52E-02	3.59E-02	4.53E-02	1.29E-01	5.06E-02	2.63E-02	2.93E-02	2.79E-02	1.51E+00	1.51E+00	No	No
C10-C12 aliphatic	NV	1.50E-02	8.09E-03	6.89E-03	5.53E-03	7.88E-03	9.95E-03	2.84E-02	1.11E-02	5.78E-03	6.44E-03	6.12E-03	3.32E-01	3.32E-01	No	No
C12-C16 aliphatic	NV	8.69E-02	4.69E-02	3.99E-02	3.20E-02	4.56E-02	5.76E-02	1.65E-01	6.44E-02	3.35E-02	3.73E-02	3.55E-02	1.92E+00	1.92E+00	No	No
C12-C16 aromatic	NV	1.17E-03	6.32E-04	5.38E-04	4.32E-04	6.15E-04	7.77E-04	2.22E-03	8.69E-04	4.52E-04	5.03E-04	4.78E-04	2.59E-02	2.59E-02	No	No
C16-C21 aliphatic	NV	8.70E-02	4.69E-02	4.00E-02	3.21E-02	4.57E-02	5.77E-02	1.65E-01	6.45E-02	3.35E-02	3.73E-02	3.55E-02	1.93E+00	1.93E+00	No	No
C2-C6 aliphatic	920	4.14E-01	2.23E-01	1.90E-01	1.53E-01	2.17E-01	2.75E-01	7.85E-01	3.07E-01	1.60E-01	1.78E-01	1.69E-01	9.16E+00	9.16E+00	No	No
C6-C8 aliphatic	6100	2.83E-01	1.53E-01	1.30E-01	1.04E-01	1.49E-01	1.88E-01	5.37E-01	2.10E-01	1.09E-01	1.22E-01	1.16E-01	6.27E+00	6.27E+00	No	No
C8-C10 aliphatic	60000	3.99E-03	2.15E-03	1.83E-03	1.47E-03	2.09E-03	2.64E-03	7.56E-03	2.96E-03	1.54E-03	1.71E-03	1.63E-03	8.83E-02	8.83E-02	No	No
C8-C10 aromatic	400	2.24E-02	1.21E-02	1.03E-02	8.27E-03	1.18E-02	1.49E-02	4.25E-02	1.66E-02	8.65E-03	9.63E-03	9.15E-03	4.96E-01	4.96E-01	No	No
ethylbenzene	1000	1.17E-02	6.32E-03	5.38E-03	4.32E-03	6.15E-03	7.77E-03	2.22E-02	8.69E-03	4.52E-03	5.03E-03	4.78E-03	2.59E-01	2.59E-01	No	No
ethylene	40	2.13E-01	1.15E-01	9.80E-02	7.87E-02	1.12E-01	1.41E-01	4.04E-01	1.58E-01	8.23E-02	9.16E-02	8.71E-02	4.72E+00	4.72E+00	No	No
formaldehyde	9	5.56E-01	3.00E-01	2.55E-01	2.05E-01	2.92E-01	3.69E-01	1.05E+00	4.12E-01	2.14E-01	2.39E-01	2.27E-01	1.23E+01	1.23E+01	Yes	Yes
ketone	1000	3.14E-01	1.69E-01	1.44E-01	1.16E-01	1.65E-01	2.08E-01	5.95E-01	2.33E-01	1.21E-01	1.35E-01	1.28E-01	6.95E+00	6.95E+00	No	No
toluene	2000	9.92E-02	5.35E-02	4.56E-02	3.66E-02	5.21E-02	6.58E-02	1.88E-01	7.35E-02	3.83E-02	4.26E-02	4.05E-02	2.20E+00	2.20E+00	No	No
trimethylbenzene	220	2.84E-02	1.53E-02	1.31E-02	1.05E-02	1.49E-02	1.88E-02	5.39E-02	2.11E-02	1.10E-02	1.22E-02	1.16E-02	6.29E-01	6.29E-01	No	No
xylenes	730	7.88E-02	4.25E-02	3.62E-02	2.90E-02	4.14E-02	5.22E-02	1.49E-01	5.84E-02	3.04E-02	3.38E-02	3.22E-02	1.74E+00	1.74E+00	No	No

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
* the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	120	3.62E+01	1.16E+01	2.35E+01	2.44E+01	2.55E+01	2.06E+01	6.44E+01	3.53E+00	4.17E+00	3.76E+00	3.53E+00	3.83E+00	2.60E+01	1.39E+01	1.45E+01
DPM	NV	4.87E+00	1.58E+00	2.20E+00	1.50E+00	1.24E+00	2.91E+00	3.01E+00	6.48E-01	5.87E-01	5.36E-01	6.49E-01	6.03E-01	2.10E+00	3.12E+00	2.79E+00
PM10	25	1.97E+01	6.65E+00	1.22E+01	1.25E+01	1.29E+01	1.34E+01	3.22E+01	2.22E+00	2.60E+00	2.35E+00	2.22E+00	2.42E+00	1.46E+01	1.01E+01	9.86E+00
PM2.5	15	9.45E+00	3.46E+00	5.01E+00	3.80E+00	2.88E+00	6.58E+00	7.30E+00	1.27E+00	1.17E+00	1.13E+00	1.27E+00	1.16E+00	4.77E+00	6.64E+00	5.83E+00
SO2	125	4.77E-01	1.40E-01	2.14E-01	1.64E-01	1.19E-01	2.45E-01	1.55E-01	4.91E-02	4.76E-02	4.03E-02	4.91E-02	4.31E-02	1.44E-01	2.69E-01	2.26E-01
CO	6000	1.36E+02	5.87E+01	5.23E+01	5.24E+01	5.74E+01	7.04E+01	9.51E+01	1.71E+01	1.61E+01	1.29E+01	1.71E+01	1.64E+01	7.47E+01	5.95E+01	5.51E+01
NOX	9000	1.36E+02	4.42E+01	6.40E+01	4.34E+01	3.50E+01	8.49E+01	8.62E+01	1.85E+01	1.63E+01	1.50E+01	1.85E+01	1.70E+01	5.84E+01	8.74E+01	7.81E+01
NO2	120	9.26E+01	4.42E+01	6.40E+01	4.34E+01	3.50E+01	8.49E+01	8.62E+01	1.85E+01	1.63E+01	1.50E+01	1.85E+01	1.70E+01	5.84E+01	8.74E+01	7.81E+01
Metals																
Aluminum	NV	2.51E+00	8.02E-01	1.63E+00	1.69E+00	1.76E+00	1.43E+00	4.46E+00	2.45E-01	2.89E-01	2.61E-01	2.45E-01	2.65E-01	1.80E+00	9.67E-01	1.01E+00
Antimony	25	1.42E-04	4.53E-05	9.22E-05	9.54E-05	9.97E-05	8.07E-05	2.52E-04	1.38E-05	1.63E-05	1.47E-05	1.38E-05	1.50E-05	1.02E-04	5.46E-05	5.68E-05
Arsenic	0.015	4.02E-03	1.28E-03	2.61E-03	2.71E-03	2.83E-03	2.29E-03	7.15E-03	3.92E-04	4.64E-04	4.17E-04	3.92E-04	4.25E-04	2.89E-03	1.55E-03	1.61E-03
Barium	10	1.42E-02	4.52E-03	9.21E-03	9.53E-03	9.95E-03	8.06E-03	2.52E-02	1.38E-03	1.63E-03	1.47E-03	1.38E-03	1.50E-03	1.02E-02	5.45E-03	5.68E-03
Beryllium	0.01	2.63E-05	8.42E-06	1.71E-05	1.77E-05	1.85E-05	1.50E-05	4.69E-05	2.57E-06	3.04E-06	2.74E-06	2.57E-06	2.79E-06	1.89E-05	1.01E-05	1.06E-05
Bismuth	NV	7.24E-06	2.31E-06	4.71E-06	4.87E-06	5.09E-06	4.12E-06	1.29E-05	7.05E-07	8.35E-07	7.52E-07	7.06E-07	7.66E-07	5.20E-06	2.79E-06	2.90E-06
Cadmium	0.025	2.93E-03	9.49E-04	1.33E-03	9.05E-04	7.53E-04	1.75E-03	1.82E-03	3.90E-04	3.53E-04	3.22E-04	3.90E-04	3.63E-04	1.26E-03	1.87E-03	1.68E-03
Calcium	NV	1.43E+00	4.57E-01	9.31E-01	9.63E-01	1.01E+00	8.15E-01	2.55E+00	1.39E-01	1.65E-01	1.49E-01	1.40E-01	1.51E-01	1.03E+00	5.51E-01	5.74E-01
Chromium	0.1	6.51E-03	2.08E-03	4.14E-03	4.20E-03	4.36E-03	3.72E-03	1.10E-02	6.51E-04	7.53E-04	6.79E-04	6.52E-04	6.97E-04	4.53E-03	2.63E-03	2.69E-03
Cobalt	0.1	9.70E-04	3.10E-04	6.31E-04	6.53E-04	6.82E-04	5.52E-04	1.73E-03	9.45E-05	1.12E-04	1.01E-04	9.46E-05	1.03E-04	6.96E-04	3.73E-04	3.89E-04
Copper	50	2.57E-03	8.20E-04	1.67E-03	1.73E-03	1.80E-03	1.46E-03	4.57E-03	2.50E-04	2.96E-04	2.66E-04	2.50E-04	2.71E-04	1.84E-03	9.88E-04	1.03E-03
Gold	NV	2.80E-06	8.96E-07	1.82E-06	1.89E-06	1.97E-06	1.60E-06	4.99E-06	2.73E-07	3.23E-07	2.91E-07	2.73E-07	2.96E-07	2.01E-06	1.08E-06	1.12E-06
Iron	4	2.75E+00	8.79E-01	1.79E+00	1.85E+00	1.93E+00	1.57E+00	4.90E+00	2.68E-01	3.17E-01	2.86E-01	2.68E-01	2.91E-01	1.97E+00	1.06E+00	1.10E+00
Lead	0.5	9.19E-04	2.96E-04	5.02E-04	4.41E-04	4.28E-04	5.37E-04	1.07E-03	1.07E-04	1.09E-04	9.84E-05	1.07E-04	1.06E-04	5.20E-04	4.78E-04	4.52E-04
Lithium	20	1.17E-03	3.74E-04	7.61E-04	7.88E-04	8.23E-04	6.67E-04	2.08E-03	1.14E-04	1.35E-04	1.22E-04	1.14E-04	1.24E-04	8.40E-04	4.50E-04	4.69E-04
Magnesium	NV	7.59E-01	2.43E-01	4.94E-01	5.11E-01	5.34E-01	4.32E-01	1.35E+00	7.39E-02	8.75E-02	7.88E-02	7.40E-02	8.03E-02	5.45E-01	2.92E-01	3.04E-01
Manganese	0.1	2.85E-02	9.12E-03	1.86E-02	1.92E-02	2.01E-02	1.62E-02	5.08E-02	2.78E-03	3.29E-03	2.96E-03	2.78E-03	3.02E-03	2.05E-02	1.10E-02	1.14E-02
Molybdenum	120	4.34E-05	1.39E-05	2.83E-05	2.92E-05	3.05E-05	2.47E-05	7.73E-05	4.23E-06	5.01E-06	4.51E-06	4.24E-06	4.59E-06	3.12E-05	1.67E-05	1.74E-05
Nickel	0.06	2.52E-03	8.04E-04	1.64E-03	1.69E-03	1.77E-03	1.43E-03	4.48E-03	2.45E-04	2.90E-04	2.61E-04	2.45E-04	2.66E-04	1.81E-03	9.69E-04	1.01E-03
Potassium	NV	4.80E-01	1.53E-01	3.12E-01	3.23E-01	3.38E-01	2.74E-01	8.55E-01	4.68E-02	5.54E-02	4.99E-02	4.68E-02	5.08E-02	3.45E-01	1.85E-01	1.93E-01
Selenium	10	4.33E-05	1.38E-05	2.82E-05	2.92E-05	3.05E-05	2.47E-05	7.71E-05	4.22E-06	5.00E-06	4.50E-06	4.23E-06	4.58E-06	3.11E-05	1.67E-05	1.74E-05
Silver	1	1.07E-05	3.41E-06	6.94E-06	7.18E-06	7.50E-06	6.07E-06	1.90E-05	1.04E-06	1.23E-06	1.11E-06	1.04E-06	1.13E-06	7.65E-06	4.10E-06	4.27E-06
Sodium	NV	5.74E-01	1.83E-01	3.73E-01	3.86E-01	4.03E-01	3.27E-01	1.02E+00	5.59E-02	6.61E-02	5.95E-02	5.59E-02	6.06E-02	4.12E-01	2.21E-01	2.30E-01
Strontium	120	7.67E-03	2.45E-03	4.99E-03	5.16E-03	5.39E-03	4.37E-03	1.36E-02	7.47E-04	8.84E-04	7.96E-04	7.48E-04	8.10E-04	5.50E-03	2.95E-03	3.07E-03
Thallium	NV	1.11E-05	3.54E-06	7.20E-06	7.45E-06	7.78E-06	6.30E-06	1.97E-05	1.08E-06	1.28E-06	1.15E-06	1.08E-06	1.17E-06	7.94E-06	4.26E-06	4.44E-06
Tin	10	3.90E-05	1.25E-05	2.54E-05	2.63E-05	2.74E-05	2.22E-05	6.95E-05	3.80E-06	4.50E-06	4.05E-06	3.81E-06	4.13E-06	2.80E-05	1.50E-05	1.56E-05
Titanium	120	1.26E-01	4.03E-02	8.21E-02	8.49E-02	8.87E-02	7.19E-02	2.25E-01	1.23E-02	1.46E-02	1.31E-02	1.23E-02	1.33E-02	9.06E-02	4.86E-02	5.06E-02
Uranium	0.1	3.52E-05	1.13E-05	2.29E-05	2.37E-05	2.48E-05	2.01E-05	6.27E-05	3.43E-06	4.06E-06	3.66E-06	3.43E-06	3.72E-06	2.53E-05	1.36E-05	1.41E-05
Vanadium	1	4.64E-03	1.48E-03	3.02E-03	3.12E-03	3.26E-03	2.64E-03	8.26E-03	4.52E-04	5.35E-04	4.82E-04	4.53E-04	4.91E-04	3.33E-03	1.79E-03	1.86E-03
Yttrium	NV	3.43E-04	1.09E-04	2.23E-04	2.31E-04											

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	NV	3.72E-06	1.20E-06	1.68E-06	1.14E-06	9.49E-07	2.22E-06	2.29E-06	4.95E-07	4.48E-07	4.09E-07	4.96E-07	4.60E-07	1.60E-06	2.38E-06	2.13E-06
indeno(1,2,3-cd)pyrene	NV	2.36E-06	7.66E-07	1.07E-06	7.27E-07	6.04E-07	1.41E-06	1.46E-06	3.15E-07	2.85E-07	2.60E-07	3.15E-07	2.93E-07	1.02E-06	1.51E-06	1.35E-06
Volatile Oranic Compounds																
1,3-butadiene	10	2.75E-02	8.96E-03	1.30E-02	8.74E-03	7.00E-03	1.73E-02	1.75E-02	3.66E-03	3.25E-03	3.03E-03	3.66E-03	3.44E-03	1.18E-02	1.78E-02	1.59E-02
acetaldehyde	300	3.70E+00	1.21E+00	1.75E+00	1.18E+00	9.44E-01	2.33E+00	2.37E+00	4.93E-01	4.38E-01	4.09E-01	4.94E-01	4.64E-01	1.58E+00	2.40E+00	2.14E+00
acetone	11880	1.95E+00	6.36E-01	9.20E-01	6.20E-01	4.97E-01	1.23E+00	1.25E+00	2.59E-01	2.31E-01	2.15E-01	2.60E-01	2.44E-01	8.34E-01	1.26E+00	1.13E+00
acrolein	0.09	6.56E-01	2.14E-01	3.09E-01	2.09E-01	1.67E-01	4.12E-01	4.19E-01	8.73E-02	7.76E-02	7.24E-02	8.74E-02	8.21E-02	2.81E-01	4.25E-01	3.79E-01
aldehyde	NV	4.95E+00	1.62E+00	2.34E+00	1.58E+00	1.26E+00	3.12E+00	3.16E+00	6.59E-01	5.86E-01	5.47E-01	6.60E-01	6.20E-01	2.12E+00	3.21E+00	2.86E+00
benzene	2.3	2.43E-01	7.92E-02	1.15E-01	7.73E-02	6.19E-02	1.53E-01	1.55E-01	3.23E-02	2.87E-02	2.68E-02	3.24E-02	3.04E-02	1.04E-01	1.57E-01	1.40E-01
C10-C12 aliphatic	NV	5.33E-02	1.74E-02	2.52E-02	1.70E-02	1.36E-02	3.35E-02	3.41E-02	7.10E-03	6.31E-03	5.89E-03	7.11E-03	6.68E-03	2.28E-02	3.46E-02	3.08E-02
C12-C16 aliphatic	NV	3.09E-01	1.01E-01	1.46E-01	9.83E-02	7.87E-02	1.94E-01	1.97E-01	4.11E-02	3.65E-02	3.41E-02	4.11E-02	3.87E-02	1.32E-01	2.00E-01	1.79E-01
C12-C16 aromatic	NV	4.16E-03	1.36E-03	1.97E-03	1.33E-03	1.06E-03	2.62E-03	2.66E-03	5.54E-04	4.93E-04	4.60E-04	5.55E-04	5.22E-04	1.78E-03	2.70E-03	2.41E-03
C16-C21 aliphatic	NV	3.09E-01	1.01E-01	1.46E-01	9.84E-02	7.88E-02	1.95E-01	1.98E-01	4.12E-02	3.66E-02	3.41E-02	4.12E-02	3.87E-02	1.32E-01	2.01E-01	1.79E-01
C2-C6 aliphatic	920	1.47E+00	4.80E-01	6.94E-01	4.68E-01	3.75E-01	9.26E-01	9.40E-01	1.96E-01	1.74E-01	1.62E-01	1.96E-01	1.84E-01	6.30E-01	9.55E-01	8.51E-01
C6-C8 aliphatic	6100	1.01E+00	3.28E-01	4.75E-01	3.20E-01	2.56E-01	6.33E-01	6.43E-01	1.34E-01	1.19E-01	1.11E-01	1.34E-01	1.26E-01	4.31E-01	6.53E-01	5.82E-01
C8-C10 aliphatic	60000	1.42E-02	4.63E-03	6.69E-03	4.51E-03	3.61E-03	8.92E-03	9.06E-03	1.89E-03	1.68E-03	1.56E-03	1.89E-03	1.78E-03	6.06E-03	9.20E-03	8.20E-03
C8-C10 aromatic	400	7.97E-02	2.60E-02	3.76E-02	2.54E-02	2.03E-02	5.01E-02	5.09E-02	1.06E-02	9.43E-03	8.80E-03	1.06E-02	9.98E-03	3.41E-02	5.17E-02	4.61E-02
ethylbenzene	1000	4.16E-02	1.36E-02	1.97E-02	1.33E-02	1.06E-02	2.62E-02	2.66E-02	5.54E-03	4.93E-03	4.60E-03	5.55E-03	5.22E-03	1.78E-02	2.70E-02	2.41E-02
ethylene	40	7.59E-01	2.47E-01	3.58E-01	2.41E-01	1.93E-01	4.77E-01	4.85E-01	1.01E-01	8.97E-02	8.37E-02	1.01E-01	9.50E-02	3.24E-01	4.92E-01	4.39E-01
formaldehyde	9	1.98E+00	6.45E-01	9.32E-01	6.29E-01	5.03E-01	1.24E+00	1.26E+00	2.63E-01	2.34E-01	2.18E-01	2.63E-01	2.47E-01	8.45E-01	1.28E+00	1.14E+00
ketone	1000	1.12E+00	3.64E-01	5.27E-01	3.55E-01	2.84E-01	7.02E-01	7.13E-01	1.49E-01	1.32E-01	1.23E-01	1.49E-01	1.40E-01	4.78E-01	7.24E-01	6.45E-01
toluene	2000	3.53E-01	1.15E-01	1.66E-01	1.12E-01	8.98E-02	2.22E-01	2.25E-01	4.69E-02	4.17E-02	3.89E-02	4.70E-02	4.42E-02	1.51E-01	2.29E-01	2.04E-01
trimethylbenzene	220	1.01E-01	3.30E-02	4.77E-02	3.22E-02	2.57E-02	6.35E-02	6.45E-02	1.34E-02	1.19E-02	1.11E-02	1.35E-02	1.26E-02	4.32E-02	6.55E-02	5.84E-02
xylene	730	2.80E-01	9.14E-02	1.32E-01	8.91E-02	7.13E-02	1.76E-01	1.79E-01	3.73E-02	3.31E-02	3.09E-02	3.73E-02	3.51E-02	1.20E-01	1.82E-01	1.62E-01

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
* the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	120	4.68E+00	3.19E+00	2.99E+00	2.88E+00	4.20E+00	5.30E+00	2.00E+01	7.49E+00	3.86E+00	4.48E+00	4.21E+00	1.03E+02	1.03E+02	No	No
DPM	NV	8.59E-01	6.63E-01	6.07E-01	5.32E-01	7.50E-01	8.27E-01	3.47E+00	1.30E+00	6.39E-01	7.36E-01	7.08E-01	2.99E+01	2.99E+01	No	No
PM10	25	3.09E+00	2.16E+00	2.00E+00	1.86E+00	2.72E+00	3.32E+00	1.39E+01	4.37E+00	2.34E+00	2.82E+00	2.67E+00	8.33E+01	8.33E+01	Yes	Yes
PM2.5	15	1.74E+00	1.28E+00	1.17E+00	1.03E+00	1.49E+00	1.70E+00	8.59E+00	2.39E+00	1.23E+00	1.46E+00	1.39E+00	7.47E+01	7.47E+01	Yes	Yes
SO2	125	6.57E-02	4.80E-02	4.35E-02	3.74E-02	5.50E-02	6.17E-02	3.56E-01	8.79E-02	4.50E-02	5.30E-02	5.08E-02	4.10E+00	4.10E+00	No	No
CO	6000	1.99E+01	1.42E+01	1.28E+01	1.07E+01	1.51E+01	1.57E+01	1.12E+02	4.42E+01	2.48E+01	2.55E+01	2.56E+01	1.31E+03	1.31E+03	No	No
NOX	9000	2.41E+01	1.86E+01	1.71E+01	1.49E+01	2.11E+01	2.32E+01	9.73E+01	3.63E+01	1.79E+01	2.06E+01	1.98E+01	8.38E+02	8.38E+02	No	No
NO2	120	2.41E+01	1.86E+01	1.71E+01	1.49E+01	2.11E+01	2.32E+01	8.87E+01	3.63E+01	1.79E+01	2.06E+01	1.98E+01	1.63E+02	1.63E+02	Yes	Yes
Metals																
Aluminum	NV	3.24E-01	2.21E-01	2.07E-01	2.00E-01	2.91E-01	3.67E-01	1.39E+00	5.20E-01	2.68E-01	3.11E-01	2.92E-01	7.16E+00	7.16E+00	No	No
Antimony	25	1.83E-05	1.25E-05	1.17E-05	1.13E-05	1.64E-05	2.07E-05	7.84E-05	2.93E-05	1.51E-05	1.75E-05	1.65E-05	4.03E-04	4.03E-04	No	No
Arsenic	0.015	5.19E-04	3.54E-04	3.32E-04	3.20E-04	4.66E-04	5.88E-04	2.22E-03	8.32E-04	4.29E-04	4.97E-04	4.67E-04	1.14E-02	1.14E-02	No	No
Barium	10	1.83E-03	1.25E-03	1.17E-03	1.13E-03	1.64E-03	2.07E-03	7.82E-03	2.93E-03	1.51E-03	1.75E-03	1.64E-03	4.03E-02	4.03E-02	No	No
Beryllium	0.01	3.40E-06	2.32E-06	2.17E-06	2.10E-06	3.06E-06	3.86E-06	1.46E-05	5.45E-06	2.81E-06	3.26E-06	3.06E-06	7.50E-05	7.50E-05	No	No
Bismuth	NV	9.35E-07	6.37E-07	5.97E-07	5.76E-07	8.40E-07	1.06E-06	4.00E-06	1.50E-06	7.72E-07	8.96E-07	8.41E-07	2.06E-05	2.06E-05	No	No
Cadmium	0.025	5.17E-04	3.98E-04	3.65E-04	3.20E-04	4.51E-04	4.98E-04	2.09E-03	7.80E-04	3.85E-04	4.43E-04	4.26E-04	1.79E-02	1.79E-02	No	No
Calcium	NV	1.85E-01	1.26E-01	1.18E-01	1.14E-01	1.66E-01	2.09E-01	7.91E-01	2.96E-01	1.53E-01	1.77E-01	1.66E-01	4.07E+00	4.07E+00	No	No
Chromium	0.1	8.64E-04	5.96E-04	5.57E-04	5.32E-04	7.73E-04	9.64E-04	3.67E-03	1.38E-03	7.06E-04	8.18E-04	7.70E-04	2.01E-02	2.01E-02	No	No
Cobalt	0.1	1.25E-04	8.54E-05	8.00E-05	7.72E-05	1.12E-04	1.42E-04	5.36E-04	2.01E-04	1.03E-04	1.20E-04	1.13E-04	2.76E-03	2.76E-03	No	No
Copper	50	3.31E-04	2.26E-04	2.12E-04	2.04E-04	2.97E-04	3.75E-04	1.42E-03	5.31E-04	2.74E-04	3.17E-04	2.98E-04	7.30E-03	7.30E-03	No	No
Gold	NV	3.62E-07	2.47E-07	2.31E-07	2.23E-07	3.25E-07	4.10E-07	1.55E-06	5.80E-07	2.99E-07	3.47E-07	3.26E-07	7.98E-06	7.98E-06	No	No
Iron	4	3.55E-01	2.42E-01	2.27E-01	2.19E-01	3.19E-01	4.03E-01	1.52E+00	5.69E-01	2.93E-01	3.40E-01	3.20E-01	7.83E+00	7.83E+00	Yes	No*
Lead	0.5	1.42E-04	1.04E-04	9.64E-05	8.76E-05	1.25E-04	1.46E-04	5.86E-04	2.19E-04	1.10E-04	1.27E-04	1.21E-04	4.22E-03	4.22E-03	No	No
Lithium	20	1.51E-04	1.03E-04	9.66E-05	9.32E-05	1.36E-04	1.71E-04	6.47E-04	2.42E-04	1.25E-04	1.45E-04	1.36E-04	3.33E-03	3.33E-03	No	No
Magnesium	NV	9.81E-02	6.68E-02	6.26E-02	6.04E-02	8.80E-02	1.11E-01	4.20E-01	1.57E-01	8.09E-02	9.39E-02	8.82E-02	2.16E+00	2.16E+00	No	No
Manganese	0.1	3.69E-03	2.51E-03	2.35E-03	2.27E-03	3.31E-03	4.17E-03	1.58E-02	5.90E-03	3.04E-03	3.53E-03	3.31E-03	8.12E-02	8.12E-02	No	No
Molybdenum	120	5.61E-06	3.82E-06	3.58E-06	3.46E-06	5.04E-06	6.36E-06	2.40E-05	8.99E-06	4.63E-06	5.37E-06	5.05E-06	1.24E-04	1.24E-04	No	No
Nickel	0.06	3.25E-04	2.22E-04	2.08E-04	2.00E-04	2.92E-04	3.68E-04	1.39E-03	5.21E-04	2.68E-04	3.11E-04	2.92E-04	7.16E-03	7.16E-03	No	No
Potassium	NV	6.20E-02	4.23E-02	3.96E-02	3.82E-02	5.57E-02	7.03E-02	2.65E-01	9.94E-02	5.12E-02	5.94E-02	5.58E-02	1.37E+00	1.37E+00	No	No
Selenium	10	5.60E-06	3.81E-06	3.57E-06	3.45E-06	5.02E-06	6.34E-06	2.39E-05	8.97E-06	4.62E-06	5.36E-06	5.03E-06	1.23E-04	1.23E-04	No	No
Silver	1	1.38E-06	9.38E-07	8.80E-07	8.49E-07	1.24E-06	1.56E-06	5.89E-06	2.21E-06	1.14E-06	1.32E-06	1.24E-06	3.03E-05	3.03E-05	No	No
Sodium	NV	7.41E-02	5.05E-02	4.73E-02	4.57E-02	6.65E-02	8.39E-02	3.17E-01	1.19E-01	6.12E-02	7.10E-02	6.66E-02	1.63E+00	1.63E+00	No	No
Strontium	120	9.90E-04	6.75E-04	6.32E-04	6.10E-04	8.89E-04	1.12E-03	4.24E-03	1.59E-03	8.17E-04	9.48E-04	8.91E-04	2.18E-02	2.18E-02	No	No
Thallium	NV	1.43E-06	9.74E-07	9.13E-07	8.81E-07	1.28E-06	1.62E-06	6.12E-06	2.29E-06	1.18E-06	1.37E-06	1.29E-06	3.15E-05	3.15E-05	No	No
Tin	10	5.04E-06	3.44E-06	3.22E-06	3.11E-06	4.52E-06	5.71E-06	2.16E-05	8.07E-06	4.16E-06	4.83E-06	4.53E-06	1.11E-04	1.11E-04	No	No
Titanium	120	1.63E-02	1.11E-02	1.04E-02	1.00E-02	1.46E-02	1.85E-02	6.98E-02	2.61E-02	1.35E-02	1.56E-02	1.47E-02	3.59E-01	3.59E-01	No	No
Uranium	0.1	4.55E-06	3.10E-06	2.91E-06	2.80E-06	4.08E-06	5.15E-06	1.95E-05	7.29E-06	3.75E-06	4.36E-06	4.09E-06	1.00E-04	1.00E-04	No	No
Vanadium	1	6.00E-04	4.09E-04	3.83E-04	3.69E-04	5.38E-04	6.79E-04	2.57E-03	9.60E-04	4.95E-04	5.74E-04	5.39E-04	1.32E-02	1.32E-02	No	No
Yttrium	NV	4.43E-05	3.02E-05	2.83E-05	2.73E-05	3.97E-05	5.01E-05	1.89E-04	7.09E-05	3.65E-05	4.24E-05	3.98E-05	9.75E-04	9.75E-04	No	No
Zinc	120	1.07E-03	7.83E-04	7.24E-04	6.61E-04	9.45E-04	1.11E-03	4.43E-03	1.66E-03	8.34E-04	9.63E-04	9.16E-04	3.12E-02	3.12E-02	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00005	9.45E-07	7.29E-07	6.68E-07	5.85E-07	8.25E-07	9.10E-07	3.82E-06	1.43E-06	7.04E-07	8.10E-07	7.79E-07	3.29E-05	3.29E-05	No	No
naphthalene	22.5	3.74E-04	2.89E-04	2.64E-04	2.32E-04	3.26E-04	3.60E-04	1.51E-03	5.65E-04	2.78E-04	3.20E-04	3.08E-04	1.30E-02	1.30E-02	No	No
phenanthrene	NV	3.09E-05	2.38E-05	2.18E-05	1.91E-05	2.70E-05	2.98E-05	1.25E-04	4.67E-05	2.30E-05	2.65E-05	2.55E-05	1.07E-03	1.07E-03	No	No
anthracene	NV	3.45E-06	2.66E-06	2.44E-06	2.13E-06	3.01E-06	3.32E-06	1.39E-05	5.20E-06	2.57E-06	2.95E-06	2.84E-06	1.20E-04	1.20E-04	No	No
fluorene	NV</															

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	NV	6.56E-07	5.06E-07	4.64E-07	4.06E-07	5.72E-07	6.32E-07	2.65E-06	9.90E-07	4.88E-07	5.62E-07	5.41E-07	2.28E-05	2.28E-05	No	No
indeno(1,2,3-cd)pyrene	NV	4.17E-07	3.22E-07	2.95E-07	2.58E-07	3.64E-07	4.02E-07	1.69E-06	6.30E-07	3.10E-07	3.57E-07	3.44E-07	1.45E-05	1.45E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	10	4.92E-03	3.79E-03	3.46E-03	3.01E-03	4.27E-03	4.71E-03	1.98E-02	7.27E-03	3.60E-03	4.12E-03	3.97E-03	1.71E-01	1.71E-01	No	No
acetaldehyde	300	6.63E-01	5.10E-01	4.67E-01	4.06E-01	5.76E-01	6.35E-01	2.66E+00	9.80E-01	4.85E-01	5.55E-01	5.35E-01	2.30E+01	2.30E+01	No	No
acetone	11880	3.49E-01	2.69E-01	2.46E-01	2.13E-01	3.03E-01	3.34E-01	1.40E+00	5.16E-01	2.55E-01	2.92E-01	2.82E-01	1.21E+01	1.21E+01	No	No
acrolein	0.09	1.17E-01	9.04E-02	8.26E-02	7.18E-02	1.02E-01	1.12E-01	4.72E-01	1.74E-01	8.59E-02	9.83E-02	9.48E-02	4.08E+00	4.08E+00	Yes	Yes
aldehyde	NV	8.87E-01	6.83E-01	6.24E-01	5.42E-01	7.70E-01	8.49E-01	3.56E+00	1.31E+00	6.49E-01	7.42E-01	7.16E-01	3.08E+01	3.08E+01	No	No
benzene	2.3	4.35E-02	3.35E-02	3.06E-02	2.66E-02	3.77E-02	4.16E-02	1.75E-01	6.43E-02	3.18E-02	3.64E-02	3.51E-02	1.51E+00	1.51E+00	No	No
C10-C12 aliphatic	NV	9.55E-03	7.35E-03	6.72E-03	5.84E-03	8.29E-03	9.14E-03	3.84E-02	1.41E-02	6.98E-03	7.99E-03	7.71E-03	3.32E-01	3.32E-01	No	No
C12-C16 aliphatic	NV	5.53E-02	4.26E-02	3.89E-02	3.38E-02	4.80E-02	5.29E-02	2.22E-01	8.17E-02	4.04E-02	4.63E-02	4.46E-02	1.92E+00	1.92E+00	No	No
C12-C16 aromatic	NV	7.46E-04	5.74E-04	5.25E-04	4.56E-04	6.47E-04	7.14E-04	3.00E-03	1.10E-03	5.45E-04	6.24E-04	6.02E-04	2.59E-02	2.59E-02	No	No
C16-C21 aliphatic	NV	5.54E-02	4.26E-02	3.90E-02	3.39E-02	4.80E-02	5.30E-02	2.22E-01	8.18E-02	4.05E-02	4.63E-02	4.47E-02	1.92E+00	1.92E+00	No	No
C2-C6 aliphatic	920	2.64E-01	2.03E-01	1.85E-01	1.61E-01	2.29E-01	2.52E-01	1.06E+00	3.90E-01	1.93E-01	2.21E-01	2.13E-01	9.15E+00	9.15E+00	No	No
C6-C8 aliphatic	6100	1.80E-01	1.39E-01	1.27E-01	1.10E-01	1.56E-01	1.72E-01	7.24E-01	2.66E-01	1.32E-01	1.51E-01	1.45E-01	6.26E+00	6.26E+00	No	No
C8-C10 aliphatic	60000	2.54E-03	1.95E-03	1.79E-03	1.55E-03	2.20E-03	2.43E-03	1.02E-02	3.75E-03	1.86E-03	2.12E-03	2.05E-03	8.82E-02	8.82E-02	No	No
C8-C10 aromatic	400	1.43E-02	1.10E-02	1.00E-02	8.73E-03	1.24E-02	1.37E-02	5.73E-02	2.11E-02	1.04E-02	1.19E-02	1.15E-02	4.96E-01	4.96E-01	No	No
ethylbenzene	1000	7.46E-03	5.74E-03	5.25E-03	4.56E-03	6.47E-03	7.14E-03	3.00E-02	1.10E-02	5.45E-03	6.24E-03	6.02E-03	2.59E-01	2.59E-01	No	No
ethylene	40	1.36E-01	1.05E-01	9.56E-02	8.31E-02	1.18E-01	1.30E-01	5.46E-01	2.01E-01	9.93E-02	1.14E-01	1.10E-01	4.72E+00	4.72E+00	No	No
formaldehyde	9	3.54E-01	2.72E-01	2.49E-01	2.16E-01	3.07E-01	3.39E-01	1.42E+00	5.23E-01	2.59E-01	2.96E-01	2.86E-01	1.23E+01	1.23E+01	Yes	Yes
ketone	1000	2.00E-01	1.54E-01	1.41E-01	1.22E-01	1.73E-01	1.91E-01	8.03E-01	2.95E-01	1.46E-01	1.67E-01	1.61E-01	6.94E+00	6.94E+00	No	No
toluene	2000	6.31E-02	4.86E-02	4.44E-02	3.86E-02	5.48E-02	6.04E-02	2.54E-01	9.33E-02	4.62E-02	5.29E-02	5.10E-02	2.19E+00	2.19E+00	No	No
trimethylbenzene	220	1.81E-02	1.39E-02	1.27E-02	1.11E-02	1.57E-02	1.73E-02	7.26E-02	2.67E-02	1.32E-02	1.51E-02	1.46E-02	6.28E-01	6.28E-01	No	No
xylenes	730	5.01E-02	3.86E-02	3.53E-02	3.07E-02	4.35E-02	4.80E-02	2.01E-01	7.41E-02	3.67E-02	4.20E-02	4.05E-02	1.74E+00	1.74E+00	No	No

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
*the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	120	8.25E+00	2.84E+00	4.83E+00	3.53E+00	2.58E+00	4.75E+00	3.58E+00	1.04E+00	1.09E+00	8.05E-01	1.04E+00	9.51E-01	3.33E+00	5.88E+00	4.69E+00
DPM	NV	4.40E+00	1.08E+00	2.04E+00	1.31E+00	1.01E+00	2.14E+00	1.76E+00	4.99E-01	5.04E-01	3.48E-01	5.00E-01	5.28E-01	1.83E+00	2.47E+00	2.00E+00
PM10	25	8.24E+00	2.83E+00	4.83E+00	3.53E+00	2.57E+00	4.73E+00	3.57E+00	1.04E+00	1.09E+00	8.07E-01	1.04E+00	9.51E-01	3.32E+00	5.88E+00	4.69E+00
PM2.5	15	8.15E+00	2.67E+00	4.66E+00	3.39E+00	2.43E+00	4.41E+00	3.41E+00	1.01E+00	1.03E+00	7.45E-01	1.01E+00	9.01E-01	3.17E+00	5.51E+00	4.43E+00
SO2	125	4.48E-01	1.22E-01	2.08E-01	1.56E-01	1.10E-01	1.98E-01	1.44E-01	4.37E-02	4.45E-02	3.29E-02	4.37E-02	3.90E-02	1.29E-01	2.44E-01	1.96E-01
CO	6000	1.32E+02	4.32E+01	4.57E+01	4.26E+01	5.34E+01	7.00E+01	7.08E+01	1.28E+01	1.49E+01	1.12E+01	1.28E+01	1.43E+01	7.16E+01	4.88E+01	3.97E+01
NOX	9000	1.23E+02	3.01E+01	5.94E+01	3.78E+01	2.86E+01	5.99E+01	4.91E+01	1.46E+01	1.40E+01	1.10E+01	1.46E+01	1.48E+01	5.11E+01	6.96E+01	5.62E+01
NO2	120	9.13E+01	3.01E+01	5.94E+01	3.78E+01	2.86E+01	5.99E+01	4.91E+01	1.46E+01	1.40E+01	1.10E+01	1.46E+01	1.48E+01	5.11E+01	6.96E+01	5.62E+01
Metals																
Aluminum	NV	5.75E-01	1.98E-01	3.36E-01	2.46E-01	1.79E-01	3.31E-01	2.49E-01	7.23E-02	7.61E-02	5.60E-02	7.24E-02	6.63E-02	2.32E-01	4.09E-01	3.26E-01
Antimony	25	3.23E-05	1.11E-05	1.89E-05	1.38E-05	1.01E-05	1.86E-05	1.40E-05	4.07E-06	4.28E-06	3.15E-06	4.07E-06	3.72E-06	1.30E-05	2.30E-05	1.84E-05
Arsenic	0.015	9.17E-04	3.16E-04	5.37E-04	3.92E-04	2.86E-04	5.27E-04	3.97E-04	1.15E-04	1.21E-04	8.94E-05	1.15E-04	1.06E-04	3.69E-04	6.53E-04	5.20E-04
Barium	10	3.23E-03	1.11E-03	1.89E-03	1.38E-03	1.01E-03	1.86E-03	1.40E-03	4.06E-04	4.27E-04	3.15E-04	4.07E-04	3.72E-04	1.30E-03	2.30E-03	1.83E-03
Beryllium	0.01	6.01E-06	2.07E-06	3.52E-06	2.57E-06	1.88E-06	3.46E-06	2.60E-06	7.56E-07	7.96E-07	5.86E-07	7.57E-07	6.92E-07	2.42E-06	4.28E-06	3.41E-06
Bismuth	NV	1.65E-06	5.68E-07	9.67E-07	7.06E-07	5.15E-07	9.50E-07	7.15E-07	2.08E-07	2.19E-07	1.61E-07	2.08E-07	1.90E-07	6.65E-07	1.18E-06	9.37E-07
Cadmium	0.025	2.64E-03	6.46E-04	1.23E-03	7.86E-04	6.09E-04	1.28E-03	1.05E-03	2.99E-04	3.03E-04	2.09E-04	3.00E-04	3.17E-04	1.10E-03	1.49E-03	1.20E-03
Calcium	NV	3.26E-01	1.12E-01	1.91E-01	1.40E-01	1.02E-01	1.88E-01	1.41E-01	4.11E-02	4.32E-02	3.18E-02	4.11E-02	3.76E-02	1.32E-01	2.32E-01	1.85E-01
Chromium	0.1	1.81E-03	5.80E-04	1.01E-03	7.18E-04	5.30E-04	1.00E-03	7.70E-04	2.23E-04	2.32E-04	1.69E-04	2.23E-04	2.11E-04	7.36E-04	1.23E-03	9.79E-04
Cobalt	0.1	2.21E-04	7.61E-05	1.30E-04	9.46E-05	6.91E-05	1.27E-04	9.58E-05	2.78E-05	2.93E-05	2.16E-05	2.79E-05	2.55E-05	8.91E-05	1.58E-04	1.26E-04
Copper	50	5.85E-04	2.01E-04	3.43E-04	2.50E-04	1.83E-04	3.37E-04	2.53E-04	7.36E-05	7.75E-05	5.71E-05	7.37E-05	6.74E-05	2.36E-04	4.17E-04	3.32E-04
Gold	NV	6.39E-07	2.20E-07	3.74E-07	2.73E-07	2.00E-07	3.68E-07	2.77E-07	8.04E-08	8.46E-08	6.23E-08	8.05E-08	7.36E-08	2.58E-07	4.55E-07	3.63E-07
Iron	4	6.27E-01	2.16E-01	3.67E-01	2.68E-01	1.96E-01	3.61E-01	2.72E-01	7.90E-02	8.31E-02	6.12E-02	7.91E-02	7.23E-02	2.53E-01	4.47E-01	3.56E-01
Lead	0.5	5.39E-04	1.41E-04	2.62E-04	1.73E-04	1.32E-04	2.71E-04	2.18E-04	6.23E-05	6.35E-05	4.44E-05	6.24E-05	6.42E-05	2.22E-04	3.17E-04	2.56E-04
Lithium	20	2.67E-04	9.19E-05	1.56E-04	1.14E-04	8.33E-05	1.54E-04	1.16E-04	3.36E-05	3.53E-05	2.60E-05	3.36E-05	3.07E-05	1.08E-04	1.90E-04	1.52E-04
Magnesium	NV	1.73E-01	5.96E-02	1.01E-01	7.41E-02	5.40E-02	9.96E-02	7.50E-02	2.18E-02	2.29E-02	1.69E-02	2.18E-02	1.99E-02	6.98E-02	1.23E-01	9.83E-02
Manganese	0.1	6.50E-03	2.24E-03	3.81E-03	2.78E-03	2.03E-03	3.74E-03	2.82E-03	8.19E-04	8.62E-04	6.35E-04	8.20E-04	7.50E-04	2.62E-03	4.63E-03	3.69E-03
Molybdenum	120	9.90E-06	3.41E-06	5.80E-06	4.24E-06	3.09E-06	5.70E-06	4.29E-06	1.25E-06	1.31E-06	9.66E-07	1.25E-06	1.14E-06	3.99E-06	7.06E-06	5.62E-06
Nickel	0.06	5.74E-04	1.98E-04	3.36E-04	2.46E-04	1.79E-04	3.30E-04	2.49E-04	7.22E-05	7.60E-05	5.60E-05	7.23E-05	6.61E-05	2.31E-04	4.09E-04	3.26E-04
Potassium	NV	1.09E-01	3.77E-02	6.41E-02	4.69E-02	3.42E-02	6.30E-02	4.74E-02	1.38E-02	1.45E-02	1.07E-02	1.38E-02	1.26E-02	4.41E-02	7.80E-02	6.22E-02
Selenium	10	9.88E-06	3.40E-06	5.79E-06	4.23E-06	3.08E-06	5.68E-06	4.28E-06	1.24E-06	1.31E-06	9.64E-07	1.24E-06	1.14E-06	3.98E-06	7.04E-06	5.61E-06
Silver	1	2.43E-06	8.37E-07	1.42E-06	1.04E-06	7.59E-07	1.40E-06	1.05E-06	3.06E-07	3.22E-07	2.37E-07	3.06E-07	2.80E-07	9.80E-07	1.73E-06	1.38E-06
Sodium	NV	1.31E-01	4.50E-02	7.66E-02	5.60E-02	4.08E-02	7.53E-02	5.67E-02	1.65E-02	1.73E-02	1.28E-02	1.65E-02	1.51E-02	5.27E-02	9.32E-02	7.43E-02
Strontium	120	1.75E-03	6.02E-04	1.02E-03	7.48E-04	5.46E-04	1.01E-03	7.57E-04	2.20E-04	2.31E-04	1.70E-04	2.20E-04	2.01E-04	7.04E-04	1.25E-03	9.92E-04
Thallium	NV	2.52E-06	8.69E-07	1.48E-06	1.08E-06	7.88E-07	1.45E-06	1.09E-06	3.18E-07	3.34E-07	2.46E-07	3.18E-07	2.91E-07	1.02E-06	1.80E-06	1.43E-06
Tin	10	8.90E-06	3.06E-06	5.21E-06	3.81E-06	2.78E-06	5.12E-06	3.85E-06	1.12E-06	1.18E-06	8.68E-07	1.12E-06	1.03E-06	3.59E-06	6.34E-06	5.05E-06
Titanium	120	2.88E-02	9.90E-03	1.69E-02	1.23E-02	8.98E-03	1.66E-02	1.25E-02	3.62E-03	3.81E-03	2.81E-03	3.63E-03	3.32E-03	1.16E-02	2.05E-02	1.63E-02
Uranium	0.1	8.03E-06	2.76E-06	4.70E-06	3.44E-06	2.51E-06	4.62E-06	3.48E-06	1.01E-06	1.06E-06	7.83E-07	1.01E-06	9.25E-07	3.24E-06	5.72E-06	4.56E-06
Vanadium	1	1.06E-03	3.64E-04	6.20E-04	4.53E-04	3.30E-04	6.09E-04	4.58E-04	1.33E-04	1.40E-04	1.03E-04	1.33E-04	1.22E-04	4.27E-04	7.54E-04	6.01E-04
Yttrium	NV	7.81E-05	2.69E-05	4.57E-05	3.34E-05											

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	NV	3.36E-06	8.21E-07	1.56E-06	9.99E-07	7.74E-07	1.63E-06	1.34E-06	3.81E-07	3.85E-07	2.66E-07	3.81E-07	4.03E-07	1.39E-06	1.89E-06	1.53E-06
indeno(1,2,3-cd)pyrene	NV	2.14E-06	5.22E-07	9.92E-07	6.35E-07	4.92E-07	1.04E-06	8.52E-07	2.42E-07	2.45E-07	1.69E-07	2.43E-07	2.56E-07	8.87E-07	1.20E-06	9.70E-07
Volatile Oranic Compounds																
1,3-butadiene	10	2.48E-02	5.88E-03	1.20E-02	7.60E-03	5.71E-03	1.18E-02	9.77E-03	2.86E-03	2.68E-03	2.15E-03	2.86E-03	2.91E-03	1.02E-02	1.42E-02	1.14E-02
acetaldehyde	300	3.35E+00	7.92E-01	1.62E+00	1.03E+00	7.70E-01	1.60E+00	1.32E+00	3.86E-01	3.61E-01	2.90E-01	3.86E-01	3.92E-01	1.38E+00	1.91E+00	1.54E+00
acetone	11880	1.76E+00	4.17E-01	8.54E-01	5.40E-01	4.05E-01	8.40E-01	6.93E-01	2.03E-01	1.90E-01	1.53E-01	2.03E-01	2.06E-01	7.27E-01	1.01E+00	8.12E-01
acrolein	0.09	5.93E-01	1.40E-01	2.87E-01	1.81E-01	1.36E-01	2.83E-01	2.33E-01	6.83E-02	6.40E-02	5.13E-02	6.84E-02	6.94E-02	2.44E-01	3.39E-01	2.73E-01
aldehyde	NV	4.48E+00	1.06E+00	2.17E+00	1.37E+00	1.03E+00	2.13E+00	1.76E+00	5.16E-01	4.83E-01	3.88E-01	5.16E-01	5.24E-01	1.85E+00	2.56E+00	2.06E+00
benzene	2.3	2.20E-01	5.19E-02	1.06E-01	6.72E-02	5.05E-02	1.05E-01	8.64E-02	2.53E-02	2.37E-02	1.90E-02	2.53E-02	2.57E-02	9.05E-02	1.25E-01	1.01E-01
C10-C12 aliphatic	NV	4.82E-02	1.14E-02	2.34E-02	1.48E-02	1.11E-02	2.30E-02	1.90E-02	5.55E-03	5.20E-03	4.17E-03	5.56E-03	5.64E-03	1.99E-02	2.76E-02	2.22E-02
C12-C16 aliphatic	NV	2.79E-01	6.61E-02	1.35E-01	8.55E-02	6.42E-02	1.33E-01	1.10E-01	3.21E-02	3.01E-02	2.42E-02	3.22E-02	3.27E-02	1.15E-01	1.60E-01	1.29E-01
C12-C16 aromatic	NV	3.77E-03	8.91E-04	1.82E-03	1.15E-03	8.66E-04	1.79E-03	1.48E-03	4.33E-04	4.06E-04	3.26E-04	4.34E-04	4.41E-04	1.55E-03	2.15E-03	1.73E-03
C16-C21 aliphatic	NV	2.80E-01	6.62E-02	1.35E-01	8.56E-02	6.43E-02	1.33E-01	1.10E-01	3.22E-02	3.02E-02	2.42E-02	3.22E-02	3.27E-02	1.15E-01	1.60E-01	1.29E-01
C2-C6 aliphatic	920	1.33E+00	3.15E-01	6.45E-01	4.07E-01	3.06E-01	6.34E-01	5.24E-01	1.53E-01	1.44E-01	1.15E-01	1.53E-01	1.56E-01	5.49E-01	7.61E-01	6.13E-01
C6-C8 aliphatic	6100	9.11E-01	2.15E-01	4.41E-01	2.79E-01	2.09E-01	4.34E-01	3.58E-01	1.05E-01	9.82E-02	7.88E-02	1.05E-01	1.07E-01	3.75E-01	5.20E-01	4.19E-01
C8-C10 aliphatic	60000	1.28E-02	3.03E-03	6.21E-03	3.92E-03	2.95E-03	6.11E-03	5.04E-03	1.48E-03	1.38E-03	1.11E-03	1.48E-03	1.50E-03	5.29E-03	7.33E-03	5.90E-03
C8-C10 aromatic	400	7.21E-02	1.71E-02	3.49E-02	2.21E-02	1.66E-02	3.43E-02	2.84E-02	8.30E-03	7.77E-03	6.24E-03	8.31E-03	8.43E-03	2.97E-02	4.12E-02	3.32E-02
ethylbenzene	1000	3.77E-02	8.91E-03	1.82E-02	1.15E-02	8.66E-03	1.79E-02	1.48E-02	4.33E-03	4.06E-03	3.26E-03	4.34E-03	4.41E-03	1.55E-02	2.15E-02	1.73E-02
ethylene	40	6.86E-01	1.62E-01	3.32E-01	2.10E-01	1.58E-01	3.27E-01	2.70E-01	7.90E-02	7.40E-02	5.94E-02	7.91E-02	8.03E-02	2.83E-01	3.92E-01	3.16E-01
formaldehyde	9	1.79E+00	4.23E-01	8.65E-01	5.47E-01	4.11E-01	8.51E-01	7.03E-01	2.06E-01	1.93E-01	1.55E-01	2.06E-01	2.09E-01	7.37E-01	1.02E+00	8.23E-01
ketone	1000	1.01E+00	2.39E-01	4.89E-01	3.09E-01	2.32E-01	4.81E-01	3.97E-01	1.16E-01	1.09E-01	8.74E-02	1.16E-01	1.18E-01	4.16E-01	5.77E-01	4.65E-01
toluene	2000	3.19E-01	7.55E-02	1.54E-01	9.76E-02	7.33E-02	1.52E-01	1.25E-01	3.67E-02	3.44E-02	2.76E-02	3.68E-02	3.73E-02	1.31E-01	1.82E-01	1.47E-01
trimethylbenzene	220	9.14E-02	2.16E-02	4.42E-02	2.80E-02	2.10E-02	4.35E-02	3.59E-02	1.05E-02	9.85E-03	7.91E-03	1.05E-02	1.07E-02	3.77E-02	5.22E-02	4.21E-02
xylenes	730	2.53E-01	5.99E-02	1.23E-01	7.75E-02	5.82E-02	1.21E-01	9.96E-02	2.91E-02	2.73E-02	2.19E-02	2.92E-02	2.96E-02	1.04E-01	1.45E-01	1.17E-01

carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
* the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.
3.20E+01 = greater than 24-h air threshold.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
Criteria Pollutants																
SPM	120	1.38E+00	1.05E+00	9.49E-01	8.02E-01	1.16E+00	1.25E+00	7.03E+00	1.97E+00	9.21E-01	1.07E+00	1.02E+00	7.30E+01	7.30E+01	No	No
DPM	NV	6.27E-01	5.19E-01	4.72E-01	4.02E-01	5.53E-01	5.65E-01	2.35E+00	1.02E+00	4.31E-01	5.17E-01	4.72E-01	2.99E+01	2.99E+01	No	No
PM10	25	1.39E+00	1.06E+00	9.56E-01	8.08E-01	1.17E+00	1.26E+00	7.03E+00	1.97E+00	9.22E-01	1.07E+00	1.02E+00	7.30E+01	7.30E+01	Yes	Yes
PM2.5	15	1.31E+00	1.00E+00	9.04E-01	7.67E-01	1.11E+00	1.19E+00	6.69E+00	1.86E+00	8.60E-01	1.00E+00	9.54E-01	7.30E+01	7.30E+01	Yes	Yes
SO2	125	5.69E-02	4.25E-02	3.83E-02	3.24E-02	4.75E-02	5.17E-02	3.13E-01	7.73E-02	3.70E-02	4.35E-02	4.15E-02	4.10E+00	4.10E+00	No	No
CO	6000	1.62E+01	1.03E+01	9.39E+00	8.00E+00	1.08E+01	1.29E+01	7.73E+01	3.18E+01	1.84E+01	1.89E+01	1.91E+01	1.31E+03	1.31E+03	No	No
NOX	9000	1.77E+01	1.46E+01	1.33E+01	1.13E+01	1.56E+01	1.59E+01	6.61E+01	2.86E+01	1.21E+01	1.46E+01	1.33E+01	8.38E+02	8.38E+02	No	No
NO2	120	1.77E+01	1.46E+01	1.33E+01	1.13E+01	1.56E+01	1.59E+01	6.61E+01	2.86E+01	1.21E+01	1.46E+01	1.33E+01	1.63E+02	1.63E+02	Yes	Yes
Metals																
Aluminum	NV	9.64E-02	7.33E-02	6.60E-02	5.59E-02	8.09E-02	8.69E-02	4.89E-01	1.37E-01	6.41E-02	7.45E-02	7.12E-02	5.08E+00	5.08E+00	No	No
Antimony	25	5.42E-06	4.12E-06	3.71E-06	3.14E-06	4.55E-06	4.89E-06	2.75E-05	7.71E-06	3.61E-06	4.19E-06	4.00E-06	2.86E-04	2.86E-04	No	No
Arsenic	0.015	1.54E-04	1.17E-04	1.05E-04	8.91E-05	1.29E-04	1.39E-04	7.81E-04	2.19E-04	1.02E-04	1.19E-04	1.14E-04	8.11E-03	8.11E-03	No	No
Barium	10	5.41E-04	4.12E-04	3.71E-04	3.14E-04	4.54E-04	4.88E-04	2.75E-03	7.70E-04	3.60E-04	4.19E-04	4.00E-04	2.85E-02	2.85E-02	No	No
Beryllium	0.01	1.01E-06	7.66E-07	6.90E-07	5.84E-07	8.46E-07	9.08E-07	5.12E-06	1.43E-06	6.70E-07	7.79E-07	7.44E-07	5.31E-05	5.31E-05	No	No
Bismuth	NV	2.77E-07	2.11E-07	1.90E-07	1.60E-07	2.32E-07	2.50E-07	1.41E-06	3.94E-07	1.84E-07	2.14E-07	2.05E-07	1.46E-05	1.46E-05	No	No
Cadmium	0.025	3.77E-04	3.12E-04	2.83E-04	2.41E-04	3.32E-04	3.40E-04	1.41E-03	6.12E-04	2.59E-04	3.11E-04	2.83E-04	1.79E-02	1.79E-02	No	No
Calcium	NV	5.47E-02	4.16E-02	3.75E-02	3.17E-02	4.59E-02	4.93E-02	2.78E-01	7.78E-02	3.64E-02	4.23E-02	4.04E-02	2.89E+00	2.89E+00	No	No
Chromium	0.1	2.93E-04	2.27E-04	2.05E-04	1.74E-04	2.49E-04	2.64E-04	1.40E-03	4.29E-04	1.96E-04	2.30E-04	2.17E-04	1.51E-02	1.51E-02	No	No
Cobalt	0.1	3.71E-05	2.82E-05	2.54E-05	2.15E-05	3.11E-05	3.34E-05	1.88E-04	5.27E-05	2.47E-05	2.87E-05	2.74E-05	1.96E-03	1.96E-03	No	No
Copper	50	9.81E-05	7.46E-05	6.72E-05	5.69E-05	8.23E-05	8.85E-05	4.98E-04	1.40E-04	6.53E-05	7.59E-05	7.25E-05	5.17E-03	5.17E-03	No	No
Gold	NV	1.07E-07	8.15E-08	7.35E-08	6.21E-08	9.00E-08	9.67E-08	5.44E-07	1.52E-07	7.13E-08	8.29E-08	7.92E-08	5.65E-06	5.65E-06	No	No
Iron	4	1.05E-01	8.00E-02	7.21E-02	6.10E-02	8.83E-02	9.49E-02	5.34E-01	1.50E-01	7.00E-02	8.14E-02	7.77E-02	5.55E+00	5.55E+00	Yes	No*
Lead	0.5	7.93E-05	6.45E-05	5.85E-05	4.97E-05	6.92E-05	7.14E-05	3.19E-04	1.25E-04	5.41E-05	6.45E-05	5.94E-05	3.86E-03	3.86E-03	No	No
Lithium	20	4.48E-05	3.40E-05	3.07E-05	2.59E-05	3.76E-05	4.04E-05	2.27E-04	6.36E-05	2.98E-05	3.46E-05	3.31E-05	2.36E-03	2.36E-03	No	No
Magnesium	NV	2.90E-02	2.21E-02	1.99E-02	1.68E-02	2.44E-02	2.62E-02	1.47E-01	4.13E-02	1.93E-02	2.24E-02	2.14E-02	1.53E+00	1.53E+00	No	No
Manganese	0.1	1.09E-03	8.30E-04	7.48E-04	6.32E-04	9.16E-04	9.84E-04	5.54E-03	1.55E-03	7.26E-04	8.44E-04	8.06E-04	5.75E-02	5.75E-02	No	No
Molybdenum	120	1.66E-06	1.26E-06	1.14E-06	9.63E-07	1.39E-06	1.50E-06	8.44E-06	2.36E-06	1.10E-06	1.28E-06	1.23E-06	8.76E-05	8.76E-05	No	No
Nickel	0.06	9.63E-05	7.32E-05	6.59E-05	5.58E-05	8.08E-05	8.68E-05	4.89E-04	1.37E-04	6.40E-05	7.44E-05	7.11E-05	5.07E-03	5.07E-03	No	No
Potassium	NV	1.84E-02	1.40E-02	1.26E-02	1.06E-02	1.54E-02	1.66E-02	9.33E-02	2.61E-02	1.22E-02	1.42E-02	1.36E-02	9.68E-01	9.68E-01	No	No
Selenium	10	1.66E-06	1.26E-06	1.14E-06	9.60E-07	1.39E-06	1.49E-06	8.41E-06	2.36E-06	1.10E-06	1.28E-06	1.22E-06	8.74E-05	8.74E-05	No	No
Silver	1	4.08E-07	3.10E-07	2.79E-07	2.36E-07	3.42E-07	3.68E-07	2.07E-06	5.80E-07	2.71E-07	3.15E-07	3.01E-07	2.15E-05	2.15E-05	No	No
Sodium	NV	2.19E-02	1.67E-02	1.50E-02	1.27E-02	1.84E-02	1.98E-02	1.11E-01	3.12E-02	1.46E-02	1.70E-02	1.62E-02	1.16E+00	1.16E+00	No	No
Strontium	120	2.93E-04	2.23E-04	2.01E-04	1.70E-04	2.46E-04	2.64E-04	1.49E-03	4.17E-04	1.95E-04	2.27E-04	2.17E-04	1.55E-02	1.55E-02	No	No
Thallium	NV	4.23E-07	3.22E-07	2.90E-07	2.45E-07	3.55E-07	3.82E-07	2.15E-06	6.02E-07	2.82E-07	3.27E-07	3.13E-07	2.23E-05	2.23E-05	No	No
Tin	10	1.49E-06	1.13E-06	1.02E-06	8.65E-07	1.25E-06	1.35E-06	7.58E-06	2.12E-06	9.93E-07	1.15E-06	1.10E-06	7.87E-05	7.87E-05	No	No
Titanium	120	4.83E-03	3.67E-03	3.31E-03	2.80E-03	4.05E-03	4.35E-03	2.45E-02	6.86E-03	3.21E-03	3.73E-03	3.57E-03	2.54E-01	2.54E-01	No	No
Uranium	0.1	1.35E-06	1.02E-06	9.23E-07	7.80E-07	1.13E-06	1.21E-06	6.84E-06	1.91E-06	8.96E-07	1.04E-06	9.95E-07	7.10E-05	7.10E-05	No	No
Vanadium	1	1.78E-04	1.35E-04	1.22E-04	1.03E-04	1.49E-04	1.60E-04	9.01E-04	2.52E-04	1.18E-04	1.37E-04	1.31E-04	9.36E-03	9.36E-03	No	No
Yttrium	NV	1.31E-05	9.96E-06	8.98E-06	7.59E-06	1.10E-05	1.18E-05	6.65E-05	1.86E-05	8.71E-06	1.01E-05	9.68E-06	6.91E-04	6.91E-04	No	No
Zinc	120	5.78E-04	4.69E-04	4.25E-04	3.61E-04	5.04E-04	5.21E-04	2.35E-03	9.10E-04	3.94E-04	4.69E-04	4.33E-04	2.82E-02	2.82E-02	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00005	6.90E-07	5.71E-07	5.19E-07	4.42E-07	6.09E-07	6.22E-07	2.58E-06	1.12E-06	4.75E-07	5.69E-07	5.19E-07	3.28E-05	3.28E-05	No	No
naphthalene	22.5	2.73E-04	2.26E-04	2.05E-04	1.75E-04	2.41E-04	2.46E-04	1.02E-03	4.44E-04	1.88E-04	2.25E-04	2.05E-04	1.30E-02	1.30E-02	No	No
phenanthrene	NV	2.26E-05	1.87E-05	1.70E-05	1.44E-05	1.99E-05	2.03E-05	8.45E-05	3.67E-05	1.55E-05	1.86E-05	1.70E-05	1.07E-03	1.07E-03	No	No
anthracene	NV	2.52E-06	2.08E-06	1.89E-06	1.61E-06	2.22E-06	2.27E-06	9.42E-06	4.09E-06	1.73E-06	2.08E-06	1.89E-06	1.20E-04	1.20E-04	No	No
fluorene	NV</															

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin 2	Rankin 3	Camp			
dibenzo(a,h)anthracene	NV	4.79E-07	3.96E-07	3.60E-07	3.07E-07	4.22E-07	4.32E-07	1.79E-06	7.78E-07	3.29E-07	3.95E-07	3.60E-07	2.28E-05	2.28E-05	No	No
indeno(1,2,3-cd)pyrene	NV	3.05E-07	2.52E-07	2.29E-07	1.95E-07	2.69E-07	2.74E-07	1.14E-06	4.95E-07	2.09E-07	2.51E-07	2.29E-07	1.45E-05	1.45E-05	No	No
Volatile Oranic Compounds																
1,3-butadiene	10	3.61E-03	2.97E-03	2.70E-03	2.27E-03	3.16E-03	3.23E-03	1.34E-02	5.70E-03	2.42E-03	2.94E-03	2.69E-03	1.71E-01	1.71E-01	No	No
acetaldehyde	300	4.86E-01	4.01E-01	3.64E-01	3.06E-01	4.26E-01	4.35E-01	1.81E+00	7.69E-01	3.27E-01	3.96E-01	3.63E-01	2.30E+01	2.30E+01	No	No
acetone	11880	2.56E-01	2.11E-01	1.91E-01	1.61E-01	2.24E-01	2.29E-01	9.54E-01	4.05E-01	1.72E-01	2.09E-01	1.91E-01	1.21E+01	1.21E+01	No	No
acrolein	0.09	8.61E-02	7.10E-02	6.44E-02	5.42E-02	7.54E-02	7.70E-02	3.21E-01	1.36E-01	5.79E-02	7.02E-02	6.42E-02	4.08E+00	4.08E+00	Yes	Yes
aldehyde	NV	6.51E-01	5.36E-01	4.86E-01	4.10E-01	5.69E-01	5.82E-01	2.42E+00	1.03E+00	4.37E-01	5.30E-01	4.85E-01	3.08E+01	3.08E+01	No	No
benzene	2.3	3.19E-02	2.63E-02	2.38E-02	2.01E-02	2.79E-02	2.85E-02	1.19E-01	5.04E-02	2.14E-02	2.60E-02	2.38E-02	1.51E+00	1.51E+00	No	No
C10-C12 aliphatic	NV	7.00E-03	5.77E-03	5.23E-03	4.41E-03	6.13E-03	6.26E-03	2.61E-02	1.11E-02	4.71E-03	5.71E-03	5.22E-03	3.32E-01	3.32E-01	No	No
C12-C16 aliphatic	NV	4.06E-02	3.34E-02	3.03E-02	2.55E-02	3.55E-02	3.63E-02	1.51E-01	6.41E-02	2.72E-02	3.31E-02	3.02E-02	1.92E+00	1.92E+00	No	No
C12-C16 aromatic	NV	5.47E-04	4.51E-04	4.09E-04	3.44E-04	4.79E-04	4.89E-04	2.04E-03	8.65E-04	3.67E-04	4.46E-04	4.08E-04	2.59E-02	2.59E-02	No	No
C16-C21 aliphatic	NV	4.06E-02	3.35E-02	3.03E-02	2.56E-02	3.55E-02	3.63E-02	1.51E-01	6.42E-02	2.73E-02	3.31E-02	3.03E-02	1.92E+00	1.92E+00	No	No
C2-C6 aliphatic	920	1.93E-01	1.59E-01	1.44E-01	1.22E-01	1.69E-01	1.73E-01	7.20E-01	3.06E-01	1.30E-01	1.58E-01	1.44E-01	9.15E+00	9.15E+00	No	No
C6-C8 aliphatic	6100	1.32E-01	1.09E-01	9.88E-02	8.32E-02	1.16E-01	1.18E-01	4.92E-01	2.09E-01	8.88E-02	1.08E-01	9.85E-02	6.26E+00	6.26E+00	No	No
C8-C10 aliphatic	60000	1.86E-03	1.53E-03	1.39E-03	1.17E-03	1.63E-03	1.66E-03	6.94E-03	2.94E-03	1.25E-03	1.52E-03	1.39E-03	8.82E-02	8.82E-02	No	No
C8-C10 aromatic	400	1.05E-02	8.62E-03	7.82E-03	6.59E-03	9.16E-03	9.36E-03	3.90E-02	1.66E-02	7.03E-03	8.53E-03	7.80E-03	4.96E-01	4.96E-01	No	No
ethylbenzene	1000	5.47E-03	4.51E-03	4.09E-03	3.44E-03	4.79E-03	4.89E-03	2.04E-02	8.65E-03	3.67E-03	4.46E-03	4.08E-03	2.59E-01	2.59E-01	No	No
ethylene	40	9.96E-02	8.21E-02	7.44E-02	6.27E-02	8.72E-02	8.91E-02	3.71E-01	1.57E-01	6.69E-02	8.12E-02	7.43E-02	4.72E+00	4.72E+00	No	No
formaldehyde	9	2.60E-01	2.14E-01	1.94E-01	1.63E-01	2.27E-01	2.32E-01	9.67E-01	4.10E-01	1.74E-01	2.11E-01	1.93E-01	1.23E+01	1.23E+01	Yes	Yes
ketone	1000	1.47E-01	1.21E-01	1.10E-01	9.23E-02	1.28E-01	1.31E-01	5.46E-01	2.32E-01	9.85E-02	1.19E-01	1.09E-01	6.94E+00	6.94E+00	No	No
toluene	2000	4.63E-02	3.82E-02	3.46E-02	2.92E-02	4.05E-02	4.14E-02	1.73E-01	7.32E-02	3.11E-02	3.77E-02	3.45E-02	2.19E+00	2.19E+00	No	No
trimethylbenzene	220	1.33E-02	1.09E-02	9.91E-03	8.35E-03	1.16E-02	1.19E-02	4.94E-02	2.10E-02	8.91E-03	1.08E-02	9.89E-03	6.28E-01	6.28E-01	No	No
xylenes	730	3.68E-02	3.03E-02	2.75E-02	2.32E-02	3.22E-02	3.29E-02	1.37E-01	5.81E-02	2.47E-02	3.00E-02	2.74E-02	1.74E+00	1.74E+00	No	No

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.
* the selected air threshold is based upon particulate matter toxicity rather than chemical toxicity; particulate matter health effects are assessed further in the particulate matter assessment section of the HHRA.

3.20E+01

 = greater than 24-h air threshold.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	12	1.36E+00	2.75E-01	3.55E-01	3.59E-01	4.03E-01	5.75E-01	8.86E-01	7.43E-02	8.43E-02	6.09E-02	7.43E-02	9.26E-02	5.92E-01	4.60E-01	4.13E-01
DPM	0.03	1.71E-01	4.05E-02	4.35E-02	4.37E-02	4.78E-02	6.70E-02	9.62E-02	1.31E-02	1.39E-02	9.88E-03	1.31E-02	1.50E-02	6.78E-02	8.00E-02	7.22E-02
PM10	20	7.96E-01	1.63E-01	1.97E-01	2.00E-01	2.23E-01	3.18E-01	4.85E-01	4.58E-02	5.16E-02	3.67E-02	4.58E-02	5.36E-02	3.15E-01	2.70E-01	2.45E-01
PM2.5	10	3.75E-01	8.02E-02	8.56E-02	8.61E-02	9.22E-02	1.31E-01	1.99E-01	2.46E-02	2.82E-02	1.90E-02	2.47E-02	2.92E-02	1.26E-01	1.47E-01	1.31E-01
SO2	6	1.41E-02	2.93E-03	3.20E-03	3.19E-03	3.15E-03	4.54E-03	6.70E-03	9.06E-04	1.07E-03	6.96E-04	9.07E-04	1.10E-03	4.16E-03	5.56E-03	4.93E-03
CO	NV	3.40E+00	7.96E-01	8.97E-01	9.22E-01	1.01E+00	1.38E+00	1.90E+00	2.56E-01	2.83E-01	1.98E-01	2.56E-01	3.02E-01	1.34E+00	1.48E+00	1.34E+00
NOX	NV	4.87E+00	1.16E+00	1.28E+00	1.31E+00	1.43E+00	1.97E+00	2.72E+00	3.81E-01	4.19E-01	2.93E-01	3.82E-01	4.49E-01	1.91E+00	2.26E+00	2.04E+00
NO2	8	4.87E+00	1.16E+00	1.28E+00	1.31E+00	1.43E+00	1.97E+00	2.72E+00	3.81E-01	4.19E-01	2.93E-01	3.82E-01	4.49E-01	1.91E+00	2.26E+00	2.04E+00
Metals																
Aluminum	3	9.40E-02	1.90E-02	2.46E-02	2.49E-02	2.79E-02	3.99E-02	6.14E-02	5.15E-03	5.85E-03	4.22E-03	5.16E-03	6.42E-03	4.11E-02	3.19E-02	2.86E-02
Antimony	3	5.31E-06	1.08E-06	1.39E-06	1.41E-06	1.58E-06	2.25E-06	3.47E-06	2.91E-07	3.30E-07	2.38E-07	2.91E-07	3.63E-07	2.32E-06	1.80E-06	1.62E-06
Arsenic	0.003	1.51E-04	3.05E-05	3.94E-05	3.99E-05	4.47E-05	6.39E-05	9.84E-05	8.25E-06	9.37E-06	6.76E-06	8.26E-06	1.03E-05	6.58E-05	5.11E-05	4.58E-05
Barium	0.3	5.30E-04	1.07E-04	1.39E-04	1.40E-04	1.58E-04	2.25E-04	3.47E-04	2.91E-05	3.30E-05	2.38E-05	2.91E-05	3.62E-05	2.32E-04	1.80E-04	1.61E-04
Beryllium	0.0014	9.87E-07	2.00E-07	2.58E-07	2.61E-07	2.93E-07	4.19E-07	6.45E-07	5.41E-08	6.14E-08	4.43E-08	5.41E-08	6.74E-08	4.31E-07	3.35E-07	3.00E-07
Bismuth	3	2.71E-07	5.49E-08	7.10E-08	7.18E-08	8.06E-08	1.15E-07	1.77E-07	1.49E-08	1.69E-08	1.22E-08	1.49E-08	1.85E-08	1.18E-07	9.20E-08	8.25E-08
Cadmium	0.001	1.03E-04	2.44E-05	2.62E-05	2.63E-05	2.88E-05	4.04E-05	5.79E-05	7.89E-06	8.35E-06	5.94E-06	7.90E-06	9.00E-06	4.08E-05	4.81E-05	4.34E-05
Calcium	NV	5.36E-02	1.09E-02	1.40E-02	1.42E-02	1.59E-02	2.27E-02	3.50E-02	2.94E-03	3.33E-03	2.41E-03	2.94E-03	3.66E-03	2.34E-02	1.82E-02	1.63E-02
Chromium	0.03	2.43E-04	4.97E-05	6.34E-05	6.41E-05	7.18E-05	1.02E-04	1.57E-04	1.37E-05	1.54E-05	1.11E-05	1.37E-05	1.69E-05	1.05E-04	8.45E-05	7.58E-05
Cobalt	0.02	3.63E-05	7.36E-06	9.51E-06	9.62E-06	1.08E-05	1.54E-05	2.37E-05	1.99E-06	2.26E-06	1.63E-06	1.99E-06	2.48E-06	1.59E-05	1.23E-05	1.11E-05
Copper	0.7	9.61E-05	1.95E-05	2.52E-05	2.54E-05	2.86E-05	4.08E-05	6.28E-05	5.27E-06	5.98E-06	4.31E-06	5.27E-06	6.56E-06	4.20E-05	3.26E-05	2.92E-05
Gold	1.7	1.05E-07	2.13E-08	2.75E-08	2.78E-08	3.12E-08	4.45E-08	6.86E-08	5.75E-09	6.53E-09	4.71E-09	5.76E-09	7.17E-09	4.59E-08	3.56E-08	3.19E-08
Iron	0.7	1.03E-01	2.09E-02	2.70E-02	2.73E-02	3.06E-02	4.37E-02	6.74E-02	5.65E-03	6.41E-03	4.63E-03	5.65E-03	7.04E-03	4.50E-02	3.50E-02	3.14E-02
Lead	0.04	3.33E-05	7.33E-06	8.59E-06	8.65E-06	9.59E-06	1.36E-05	2.02E-05	2.20E-06	2.40E-06	1.71E-06	2.20E-06	2.60E-06	1.39E-05	1.35E-05	1.21E-05
Lithium	NV	4.38E-05	8.88E-06	1.15E-05	1.16E-05	1.30E-05	1.86E-05	2.87E-05	2.40E-06	2.73E-06	1.97E-06	2.40E-06	2.99E-06	1.92E-05	1.49E-05	1.33E-05
Magnesium	3	2.84E-02	5.76E-03	7.44E-03	7.53E-03	8.45E-03	1.21E-02	1.86E-02	1.56E-03	1.77E-03	1.28E-03	1.56E-03	1.94E-03	1.24E-02	9.64E-03	8.65E-03
Manganese	0.02	1.07E-03	2.16E-04	2.80E-04	2.83E-04	3.17E-04	4.53E-04	6.99E-04	5.86E-05	6.65E-05	4.80E-05	5.86E-05	7.30E-05	4.67E-04	3.62E-04	3.25E-04
Molybdenum	2	1.63E-06	3.29E-07	4.26E-07	4.31E-07	4.83E-07	6.90E-07	1.06E-06	8.92E-08	1.01E-07	7.30E-08	8.92E-08	1.11E-07	7.11E-07	5.52E-07	4.95E-07
Nickel	0.0028	9.43E-05	1.91E-05	2.47E-05	2.50E-05	2.80E-05	4.00E-05	6.16E-05	5.17E-06	5.86E-06	4.23E-06	5.17E-06	6.44E-06	4.12E-05	3.20E-05	2.87E-05
Potassium	1	1.80E-02	3.64E-03	4.71E-03	4.76E-03	5.34E-03	7.63E-03	1.18E-02	9.86E-04	1.12E-03	8.07E-04	9.86E-04	1.23E-03	7.86E-03	6.10E-03	5.47E-03
Selenium	4	1.62E-06	3.29E-07	4.25E-07	4.30E-07	4.82E-07	6.89E-07	1.06E-06	8.89E-08	1.01E-07	7.28E-08	8.90E-08	1.11E-07	7.09E-07	5.50E-07	4.94E-07
Silver	0.007	3.99E-07	8.09E-08	1.05E-07	1.06E-07	1.19E-07	1.69E-07	2.61E-07	2.19E-08	2.48E-08	1.79E-08	2.19E-08	2.73E-08	1.74E-07	1.35E-07	1.22E-07
Sodium	NV	2.15E-02	4.35E-03	5.62E-03	5.69E-03	6.38E-03	9.12E-03	1.40E-02	1.18E-03	1.34E-03	9.64E-04	1.18E-03	1.47E-03	9.39E-03	7.29E-03	6.54E-03
Strontium	1	2.87E-04	5.81E-05	7.52E-05	7.60E-05	8.53E-05	1.22E-04	1.88E-04	1.57E-05	1.79E-05	1.29E-05	1.57E-05	1.96E-05	1.25E-04	9.74E-05	8.74E-05
Thallium	0.07	4.15E-07	8.40E-08	1.09E-07	1.10E-07	1.23E-07	1.76E-07	2.71E-07	2.27E-08	2.58E-08	1.86E-08	2.27E-08	2.83E-08	1.81E-07	1.41E-07	1.26E-07
Tin	1	1.46E-06	2.96E-07	3.83E-07	3.87E-07	4.34E-07	6.20E-07	9.55E-07	8.01E-08	9.09E-08	6.56E-08	8.01E-08	9.98E-08	6.39E-07	4.96E-07	4.45E-07
Titanium	3	4.73E-03	9.57E-04	1.24E-03	1.25E-03	1.40E-03	2.01E-03	3.09E-03	2.59E-04	2.94E-04	2.12E-04	2.59E-04	3.23E-04	2.07E-03	1.60E-03	1.44E-03
Uranium	0.006	1.32E-06	2.67E-07	3.45E-07	3.49E-07	3.92E-07	5.60E-07	8.62E-07	7.23E-08	8.20E-08	5.92E-08	7.23E-08	9.01E-08	5.76E-07	4.47E-07	4.01E-07
Vanadium	0.02	1.74E-04	3.52E-05	4.55E-05	4.60E-05	5.16E-05	7.38E-05	1.14E-04	9.53E-06	1.08E-05	7.80E-06	9.53E-06	1.19E-05	7.59E-05	5.90E-05	5.29E-05
Yttrium	0.7	1.28E-05	2.60E-06	3.36E-06												

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	0.008	1.30E-07	3.09E-08	3.32E-08	3.33E-08	3.65E-08	5.12E-08	7.34E-08	1.00E-08	1.06E-08	7.55E-09	1.00E-08	1.14E-08	5.18E-08	6.11E-08	5.51E-08
indeno(1,2,3-cd)pyrene	0.0009	8.29E-08	1.97E-08	2.11E-08	2.12E-08	2.32E-08	3.25E-08	4.67E-08	6.37E-09	6.74E-09	4.80E-09	6.38E-09	7.26E-09	3.29E-08	3.88E-08	3.51E-08
Volatile Oranic Compounds																
1,3-butadiene	0.06	9.68E-04	2.31E-04	2.53E-04	2.60E-04	2.84E-04	3.92E-04	5.43E-04	7.54E-05	8.25E-05	5.79E-05	7.55E-05	8.86E-05	3.84E-04	4.53E-04	4.07E-04
acetaldehyde	4	1.31E-01	3.12E-02	3.42E-02	3.50E-02	3.83E-02	5.29E-02	7.33E-02	1.02E-02	1.11E-02	7.81E-03	1.02E-02	1.19E-02	5.18E-02	6.10E-02	5.49E-02
acetone	6176	6.87E-02	1.64E-02	1.80E-02	1.84E-02	2.01E-02	2.78E-02	3.86E-02	5.35E-03	5.86E-03	4.11E-03	5.35E-03	6.29E-03	2.73E-02	3.21E-02	2.89E-02
acrolein	0.07	2.31E-02	5.52E-03	6.05E-03	6.20E-03	6.78E-03	9.36E-03	1.30E-02	1.80E-03	1.97E-03	1.38E-03	1.80E-03	2.11E-03	9.17E-03	1.08E-02	9.72E-03
aldehyde	0.6	1.75E-01	4.17E-02	4.57E-02	4.69E-02	5.12E-02	7.07E-02	9.80E-02	1.36E-02	1.49E-02	1.04E-02	1.36E-02	1.60E-02	6.93E-02	8.16E-02	7.34E-02
benzene	0.3	8.56E-03	2.04E-03	2.24E-03	2.30E-03	2.51E-03	3.47E-03	4.80E-03	6.66E-04	7.30E-04	5.12E-04	6.67E-04	7.83E-04	3.40E-03	4.00E-03	3.60E-03
C10-C12 aliphatic	233	1.88E-03	4.49E-04	4.92E-04	5.04E-04	5.51E-04	7.61E-04	1.05E-03	1.46E-04	1.60E-04	1.12E-04	1.46E-04	1.72E-04	7.46E-04	8.79E-04	7.90E-04
C12-C16 aliphatic	233	1.09E-02	2.60E-03	2.85E-03	2.92E-03	3.19E-03	4.41E-03	6.11E-03	8.48E-04	9.28E-04	6.51E-04	8.48E-04	9.96E-04	4.32E-03	5.09E-03	4.58E-03
C12-C16 aromatic	83	1.47E-04	3.51E-05	3.84E-05	3.94E-05	4.30E-05	5.94E-05	8.24E-05	1.14E-05	1.25E-05	8.78E-06	1.14E-05	1.34E-05	5.82E-05	6.86E-05	6.17E-05
C16-C21 aliphatic	7	1.09E-02	2.60E-03	2.85E-03	2.92E-03	3.20E-03	4.41E-03	6.12E-03	8.49E-04	9.29E-04	6.52E-04	8.49E-04	9.97E-04	4.32E-03	5.10E-03	4.58E-03
C2-C6 aliphatic	38	5.19E-02	1.24E-02	1.36E-02	1.39E-02	1.52E-02	2.10E-02	2.91E-02	4.04E-03	4.42E-03	3.10E-03	4.04E-03	4.75E-03	2.06E-02	2.43E-02	2.18E-02
C6-C8 aliphatic	67	3.55E-02	8.47E-03	9.29E-03	9.52E-03	1.04E-02	1.44E-02	1.99E-02	2.76E-03	3.03E-03	2.12E-03	2.76E-03	3.25E-03	1.41E-02	1.66E-02	1.49E-02
C8-C10 aliphatic	67	5.00E-04	1.19E-04	1.31E-04	1.34E-04	1.47E-04	2.02E-04	2.80E-04	3.89E-05	4.26E-05	2.99E-05	3.89E-05	4.57E-05	1.98E-04	2.34E-04	2.10E-04
C8-C10 aromatic	83	2.81E-03	6.71E-04	7.36E-04	7.54E-04	8.24E-04	1.14E-03	1.58E-03	2.19E-04	2.40E-04	1.68E-04	2.19E-04	2.57E-04	1.11E-03	1.31E-03	1.18E-03
ethylbenzene	4	1.47E-03	3.51E-04	3.84E-04	3.94E-04	4.30E-04	5.94E-04	8.24E-04	1.14E-04	1.25E-04	8.78E-05	1.14E-04	1.34E-04	5.82E-04	6.86E-04	6.17E-04
ethylene	1200	2.67E-02	6.38E-03	7.00E-03	7.18E-03	7.84E-03	1.08E-02	1.50E-02	2.08E-03	2.28E-03	1.60E-03	2.08E-03	2.45E-03	1.06E-02	1.25E-02	1.12E-02
formaldehyde	2	6.96E-02	1.66E-02	1.82E-02	1.87E-02	2.04E-02	2.82E-02	3.91E-02	5.42E-03	5.94E-03	4.17E-03	5.43E-03	6.37E-03	2.76E-02	3.26E-02	2.93E-02
ketone	0.4	3.93E-02	9.40E-03	1.03E-02	1.06E-02	1.15E-02	1.59E-02	2.21E-02	3.06E-03	3.36E-03	2.35E-03	3.07E-03	3.60E-03	1.56E-02	1.84E-02	1.65E-02
toluene	52	1.24E-02	2.97E-03	3.25E-03	3.34E-03	3.64E-03	5.03E-03	6.98E-03	9.68E-04	1.06E-03	7.44E-04	9.69E-04	1.14E-03	4.93E-03	5.81E-03	5.23E-03
trimethylbenzene	83	3.56E-03	8.50E-04	9.32E-04	9.56E-04	1.04E-03	1.44E-03	2.00E-03	2.77E-04	3.04E-04	2.13E-04	2.77E-04	3.26E-04	1.41E-03	1.66E-03	1.50E-03
xylenes	44	9.87E-03	2.36E-03	2.58E-03	2.65E-03	2.89E-03	4.00E-03	5.54E-03	7.68E-04	8.41E-04	5.91E-04	7.69E-04	9.03E-04	3.92E-03	4.62E-03	4.15E-03

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
Criteria Pollutants																
SPM	12	1.32E-01	9.16E-02	8.49E-02	8.93E-02	1.14E-01	1.45E-01	8.42E-01	4.13E-01	2.61E-01	2.70E-01	2.78E-01	8.72E+00	8.72E+00	No	No
DPM	0.03	2.44E-02	1.84E-02	1.78E-02	1.96E-02	2.36E-02	2.89E-02	1.42E-01	5.95E-02	4.64E-02	4.79E-02	4.91E-02	1.76E+00	1.76E+00	Yes	Yes
PM10	20	8.12E-02	5.75E-02	5.34E-02	5.78E-02	7.10E-02	8.96E-02	4.87E-01	2.38E-01	1.57E-01	1.64E-01	1.68E-01	6.62E+00	6.62E+00	No	No
PM2.5	10	4.46E-02	3.32E-02	3.19E-02	3.48E-02	4.25E-02	5.22E-02	2.57E-01	1.14E-01	8.50E-02	8.81E-02	9.04E-02	4.58E+00	4.58E+00	No	No
SO2	6	1.68E-03	1.25E-03	1.20E-03	1.30E-03	1.59E-03	1.95E-03	9.67E-03	4.01E-03	3.11E-03	3.22E-03	3.30E-03	2.04E-01	2.04E-01	No	No
CO	NV	4.60E-01	3.46E-01	3.35E-01	3.67E-01	4.43E-01	5.43E-01	2.68E+00	1.14E+00	8.81E-01	9.10E-01	9.33E-01	3.25E+01	3.25E+01	No	No
NOX	NV	7.00E-01	5.27E-01	5.10E-01	5.58E-01	6.73E-01	8.24E-01	4.02E+00	1.68E+00	1.32E+00	1.36E+00	1.39E+00	4.96E+01	4.96E+01	No	No
NO2	8	7.00E-01	5.27E-01	5.10E-01	5.58E-01	6.73E-01	8.24E-01	4.02E+00	1.68E+00	1.32E+00	1.36E+00	1.39E+00	4.96E+01	4.96E+01	Yes	Yes
Metals																
Aluminum	3	9.13E-03	6.36E-03	5.89E-03	6.20E-03	7.88E-03	1.01E-02	5.84E-02	2.86E-02	1.81E-02	1.88E-02	1.93E-02	6.05E-01	6.05E-01	No	No
Antimony	3	5.15E-07	3.59E-07	3.32E-07	3.50E-07	4.44E-07	5.68E-07	3.30E-06	1.62E-06	1.02E-06	1.06E-06	1.09E-06	3.42E-05	3.42E-05	No	No
Arsenic	0.003	1.46E-05	1.02E-05	9.42E-06	9.92E-06	1.26E-05	1.61E-05	9.35E-05	4.59E-05	2.89E-05	3.00E-05	3.09E-05	9.69E-04	9.69E-04	No	No
Barium	0.3	5.14E-05	3.58E-05	3.32E-05	3.49E-05	4.44E-05	5.67E-05	3.29E-04	1.62E-04	1.02E-04	1.06E-04	1.09E-04	3.41E-03	3.41E-03	No	No
Beryllium	0.0014	9.57E-08	6.67E-08	6.18E-08	6.50E-08	8.26E-08	1.06E-07	6.13E-07	3.01E-07	1.90E-07	1.97E-07	2.03E-07	6.35E-06	6.35E-06	No	No
Bismuth	3	2.63E-08	1.83E-08	1.70E-08	1.79E-08	2.27E-08	2.90E-08	1.68E-07	8.26E-08	5.21E-08	5.41E-08	5.57E-08	1.74E-06	1.74E-06	No	No
Cadmium	0.001	1.47E-05	1.11E-05	1.07E-05	1.18E-05	1.42E-05	1.74E-05	8.52E-05	3.58E-05	2.79E-05	2.88E-05	2.95E-05	1.06E-03	1.06E-03	Yes	Yes
Calcium	NV	5.20E-03	3.62E-03	3.35E-03	3.53E-03	4.49E-03	5.73E-03	3.33E-02	1.63E-02	1.03E-02	1.07E-02	1.10E-02	3.45E-01	3.45E-01	No	No
Chromium	0.03	2.43E-05	1.71E-05	1.59E-05	1.68E-05	2.12E-05	2.70E-05	1.54E-04	7.46E-05	4.80E-05	4.97E-05	5.12E-05	1.63E-03	1.63E-03	No	No
Cobalt	0.02	3.52E-06	2.45E-06	2.27E-06	2.39E-06	3.04E-06	3.88E-06	2.26E-05	1.11E-05	6.98E-06	7.24E-06	7.46E-06	2.34E-04	2.34E-04	No	No
Copper	0.7	9.32E-06	6.49E-06	6.01E-06	6.33E-06	8.04E-06	1.03E-05	5.97E-05	2.93E-05	1.85E-05	1.92E-05	1.97E-05	6.18E-04	6.18E-04	No	No
Gold	1.7	1.02E-08	7.09E-09	6.57E-09	6.92E-09	8.79E-09	1.12E-08	6.52E-08	3.20E-08	2.02E-08	2.09E-08	2.16E-08	6.75E-07	6.75E-07	No	No
Iron	0.7	1.00E-02	6.96E-03	6.45E-03	6.79E-03	8.63E-03	1.10E-02	6.40E-02	3.14E-02	1.98E-02	2.05E-02	2.12E-02	6.63E-01	6.63E-01	No	No
Lead	0.04	4.02E-06	2.93E-06	2.79E-06	3.02E-06	3.71E-06	4.62E-06	2.42E-05	1.09E-05	7.75E-06	8.02E-06	8.23E-06	2.80E-04	2.80E-04	No	No
Lithium	NV	4.25E-06	2.96E-06	2.74E-06	2.89E-06	3.67E-06	4.69E-06	2.72E-05	1.34E-05	8.43E-06	8.74E-06	9.00E-06	2.82E-04	2.82E-04	No	No
Magnesium	3	2.76E-03	1.92E-03	1.78E-03	1.87E-03	2.38E-03	3.04E-03	1.77E-02	8.66E-03	5.47E-03	5.67E-03	5.84E-03	1.83E-01	1.83E-01	No	No
Manganese	0.02	1.04E-04	7.22E-05	6.69E-05	7.04E-05	8.94E-05	1.14E-04	6.64E-04	3.26E-04	2.05E-04	2.13E-04	2.19E-04	6.87E-03	6.87E-03	No	No
Molybdenum	2	1.58E-07	1.10E-07	1.02E-07	1.07E-07	1.36E-07	1.74E-07	1.01E-06	4.96E-07	3.13E-07	3.24E-07	3.34E-07	1.05E-05	1.05E-05	No	No
Nickel	0.0028	9.14E-06	6.37E-06	5.90E-06	6.21E-06	7.89E-06	1.01E-05	5.86E-05	2.87E-05	1.81E-05	1.88E-05	1.94E-05	6.06E-04	6.06E-04	No	No
Potassium	1	1.75E-03	1.22E-03	1.13E-03	1.18E-03	1.51E-03	1.92E-03	1.12E-02	5.48E-03	3.46E-03	3.59E-03	3.69E-03	1.16E-01	1.16E-01	No	No
Selenium	4	1.57E-07	1.10E-07	1.02E-07	1.07E-07	1.36E-07	1.74E-07	1.01E-06	4.94E-07	3.12E-07	3.24E-07	3.33E-07	1.04E-05	1.04E-05	No	No
Silver	0.007	3.87E-08	2.70E-08	2.50E-08	2.63E-08	3.34E-08	4.27E-08	2.48E-07	1.22E-07	7.68E-08	7.96E-08	8.20E-08	2.57E-06	2.57E-06	No	No
Sodium	NV	2.08E-03	1.45E-03	1.34E-03	1.42E-03	1.80E-03	2.30E-03	1.33E-02	6.55E-03	4.13E-03	4.28E-03	4.41E-03	1.38E-01	1.38E-01	No	No
Strontium	1	2.79E-05	1.94E-05	1.80E-05	1.89E-05	2.40E-05	3.07E-05	1.78E-04	8.75E-05	5.52E-05	5.72E-05	5.89E-05	1.85E-03	1.85E-03	No	No
Thallium	0.07	4.02E-08	2.80E-08	2.59E-08	2.73E-08	3.47E-08	4.43E-08	2.58E-07	1.26E-07	7.97E-08	8.27E-08	8.51E-08	2.67E-06	2.67E-06	No	No
Tin	1	1.42E-07	9.87E-08	9.15E-08	9.63E-08	1.22E-07	1.56E-07	9.08E-07	4.45E-07	2.81E-07	2.91E-07	3.00E-07	9.40E-06	9.40E-06	No	No
Titanium	3	4.59E-04	3.19E-04	2.96E-04	3.11E-04	3.96E-04	5.05E-04	2.94E-03	1.44E-03	9.09E-04	9.42E-04	9.70E-04	3.04E-02	3.04E-02	No	No
Uranium	0.006	1.28E-07	8.91E-08	8.25E-08	8.69E-08	1.10E-07	1.41E-07	8.19E-07	4.02E-07	2.54E-07	2.63E-07	2.71E-07	8.49E-06	8.49E-06	No	No
Vanadium	0.02	1.69E-05	1.17E-05	1.09E-05	1.14E-05	1.46E-05	1.86E-05	1.08E-04	5.30E-05	3.34E-05	3.47E-05	3.57E-05	1.12E-03	1.12E-03	No	No
Yttrium	0.7	1.24E-06	8.67E-07	8.03E-07	8.45E-07	1.07E-06	1.37E-06	7.97E-06	3.91E-06	2.47E-06	2.56E-06	2.63E-06	8.25E-05	8.25E-05	No	No
Zinc	1	3.03E-05	2.20E-05	2.10E-05	2.26E-05	2.79E-05	3.47E-05	1.83E-04	8.30E-05	5.86E-05	6.06E-05	6.22E-05	2.10E-03	2.10E-03	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00001	2.69E-08	2.02E-08	1.96E-08	2.15E-08	2.59E-08	3.18E-08	1.56E-07	6.55E-08	5.11E-08	5.27E-08	5.40E-08	1.94E-06	1.94E-06	No	No
naphthalene	0.3	1.06E-05	8.01E-06	7.75E-06	8.51E-06	1.03E-05	1.26E-05	6.17E-05	2.59E-05	2.02E-05	2.09E-05	2.14E-05	7.66E-04	7.66E-04	No	No
phenanthrene	0.03	8.79E-07	6.62E-07	6.40E-07	7.03E-07	8.48E-07	1.04E-06	5.09E-06	2.14E-06	1.67E-06	1.72E-06	1.77E-06	6.33E-05	6.33E-05	No	No
anthracene	0.03	9.81E-08	7.38E-08	7.14E-08	7.85E-08	9.45E-08	1.16E-07	5.68E-07	2.39E-07	1.86E-07	1.92E-07	1.97E-07				

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
dibenzo(a,h)anthracene	0.008	1.87E-08	1.40E-08	1.36E-08	1.49E-08	1.80E-08	2.21E-08	1.08E-07	4.55E-08	3.54E-08	3.66E-08	3.75E-08	1.34E-06	1.34E-06	No	No
indeno(1,2,3-cd)pyrene	0.0009	1.19E-08	8.93E-09	8.64E-09	9.49E-09	1.14E-08	1.40E-08	6.87E-08	2.89E-08	2.25E-08	2.33E-08	2.38E-08	8.54E-07	8.54E-07	No	No
Volatile Oranic Compounds																
1,3-butadiene	0.06	1.39E-04	1.04E-04	1.01E-04	1.10E-04	1.33E-04	1.63E-04	8.06E-04	3.33E-04	2.59E-04	2.67E-04	2.74E-04	1.00E-02	1.00E-02	No	No
acetaldehyde	4	1.87E-02	1.41E-02	1.36E-02	1.48E-02	1.79E-02	2.19E-02	1.09E-01	4.49E-02	3.49E-02	3.60E-02	3.69E-02	1.35E+00	1.35E+00	No	No
acetone	6176	9.86E-03	7.41E-03	7.16E-03	7.80E-03	9.44E-03	1.15E-02	5.72E-02	2.36E-02	1.84E-02	1.89E-02	1.94E-02	7.11E-01	7.11E-01	No	No
acrolein	0.07	3.32E-03	2.49E-03	2.41E-03	2.62E-03	3.17E-03	3.88E-03	1.93E-02	7.94E-03	6.18E-03	6.37E-03	6.53E-03	2.39E-01	2.39E-01	Yes	No*
aldehyde	0.6	2.51E-02	1.88E-02	1.82E-02	1.98E-02	2.40E-02	2.93E-02	1.45E-01	6.00E-02	4.67E-02	4.81E-02	4.93E-02	1.81E+00	1.81E+00	Yes	No*
benzene	0.3	1.23E-03	9.23E-04	8.91E-04	9.72E-04	1.18E-03	1.44E-03	7.13E-03	2.94E-03	2.29E-03	2.36E-03	2.42E-03	8.85E-02	8.85E-02	No	No
C10-C12 aliphatic	233	2.70E-04	2.03E-04	1.96E-04	2.13E-04	2.58E-04	3.16E-04	1.57E-03	6.46E-04	5.02E-04	5.18E-04	5.31E-04	1.94E-02	1.94E-02	No	No
C12-C16 aliphatic	233	1.56E-03	1.17E-03	1.13E-03	1.24E-03	1.49E-03	1.83E-03	9.07E-03	3.74E-03	2.91E-03	3.00E-03	3.08E-03	1.13E-01	1.13E-01	No	No
C12-C16 aromatic	83	2.11E-05	1.58E-05	1.53E-05	1.67E-05	2.02E-05	2.47E-05	1.22E-04	5.04E-05	3.92E-05	4.04E-05	4.15E-05	1.52E-03	1.52E-03	No	No
C16-C21 aliphatic	7	1.56E-03	1.18E-03	1.13E-03	1.24E-03	1.50E-03	1.83E-03	9.08E-03	3.74E-03	2.91E-03	3.00E-03	3.08E-03	1.13E-01	1.13E-01	No	No
C2-C6 aliphatic	38	7.45E-03	5.60E-03	5.40E-03	5.89E-03	7.12E-03	8.72E-03	4.32E-02	1.78E-02	1.39E-02	1.43E-02	1.47E-02	5.37E-01	5.37E-01	No	No
C6-C8 aliphatic	67	5.09E-03	3.83E-03	3.69E-03	4.03E-03	4.87E-03	5.96E-03	2.96E-02	1.22E-02	9.48E-03	9.78E-03	1.00E-02	3.67E-01	3.67E-01	No	No
C8-C10 aliphatic	67	7.17E-05	5.39E-05	5.20E-05	5.67E-05	6.86E-05	8.40E-05	4.16E-04	1.72E-04	1.34E-04	1.38E-04	1.41E-04	5.17E-03	5.17E-03	No	No
C8-C10 aromatic	83	4.03E-04	3.03E-04	2.93E-04	3.19E-04	3.86E-04	4.72E-04	2.34E-03	9.65E-04	7.51E-04	7.74E-04	7.94E-04	2.91E-02	2.91E-02	No	No
ethylbenzene	4	2.11E-04	1.58E-04	1.53E-04	1.67E-04	2.02E-04	2.47E-04	1.22E-03	5.04E-04	3.92E-04	4.04E-04	4.15E-04	1.52E-02	1.52E-02	No	No
ethylene	1200	3.84E-03	2.88E-03	2.78E-03	3.04E-03	3.67E-03	4.49E-03	2.23E-02	9.19E-03	7.15E-03	7.37E-03	7.55E-03	2.76E-01	2.76E-01	No	No
formaldehyde	2	1.00E-02	7.52E-03	7.25E-03	7.91E-03	9.56E-03	1.17E-02	5.80E-02	2.39E-02	1.86E-02	1.92E-02	1.97E-02	7.20E-01	7.20E-01	No	No
ketone	0.4	5.65E-03	4.25E-03	4.10E-03	4.47E-03	5.40E-03	6.61E-03	3.28E-02	1.35E-02	1.05E-02	1.08E-02	1.11E-02	4.07E-01	4.07E-01	Yes	Yes
toluene	52	1.78E-03	1.34E-03	1.29E-03	1.41E-03	1.71E-03	2.09E-03	1.04E-02	4.27E-03	3.32E-03	3.43E-03	3.51E-03	1.29E-01	1.29E-01	No	No
trimethylbenzene	83	5.11E-04	3.84E-04	3.71E-04	4.04E-04	4.89E-04	5.98E-04	2.97E-03	1.22E-03	9.52E-04	9.81E-04	1.01E-03	3.68E-02	3.68E-02	No	No
xylenes	44	1.42E-03	1.06E-03	1.03E-03	1.12E-03	1.36E-03	1.66E-03	8.22E-03	3.39E-03	2.64E-03	2.72E-03	2.79E-03	1.02E-01	1.02E-01	No	No

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	12	1.13E+00	2.83E-01	3.27E-01	3.32E-01	3.53E-01	4.53E-01	6.48E-01	8.42E-02	9.35E-02	6.91E-02	8.43E-02	9.49E-02	9.38E-01	9.77E-01	8.31E-01
DPM	0.03	1.22E-01	3.59E-02	3.80E-02	3.77E-02	3.95E-02	5.38E-02	7.27E-02	1.24E-02	1.29E-02	9.35E-03	1.24E-02	1.41E-02	7.42E-02	9.88E-02	8.62E-02
PM10	20	6.61E-01	1.63E-01	1.84E-01	1.87E-01	1.99E-01	2.54E-01	3.53E-01	5.02E-02	5.55E-02	4.06E-02	5.02E-02	5.68E-02	4.79E-01	5.21E-01	4.49E-01
PM2.5	10	3.16E-01	7.65E-02	7.87E-02	7.82E-02	8.39E-02	1.13E-01	1.61E-01	2.47E-02	2.80E-02	1.92E-02	2.48E-02	2.92E-02	1.51E-01	1.96E-01	1.72E-01
SO2	6	1.22E-02	2.74E-03	2.98E-03	2.93E-03	2.82E-03	4.03E-03	5.80E-03	8.76E-04	1.03E-03	6.74E-04	8.77E-04	1.06E-03	4.39E-03	6.00E-03	5.36E-03
CO	NV	2.32E+00	6.90E-01	7.31E-01	7.39E-01	7.78E-01	1.04E+00	1.39E+00	2.39E-01	2.61E-01	1.85E-01	2.39E-01	2.80E-01	1.46E+00	1.93E+00	1.69E+00
NOX	NV	3.48E+00	1.03E+00	1.10E+00	1.08E+00	1.14E+00	1.52E+00	2.06E+00	3.59E-01	3.90E-01	2.77E-01	3.60E-01	4.21E-01	2.08E+00	2.81E+00	2.46E+00
NO2	8	3.48E+00	1.03E+00	1.10E+00	1.08E+00	1.14E+00	1.52E+00	2.06E+00	3.59E-01	3.90E-01	2.77E-01	3.60E-01	4.21E-01	2.08E+00	2.81E+00	2.46E+00
Metals																
Aluminum	3	7.86E-02	1.96E-02	2.27E-02	2.30E-02	2.45E-02	3.14E-02	4.49E-02	5.84E-03	6.48E-03	4.79E-03	5.84E-03	6.58E-03	6.50E-02	6.77E-02	5.76E-02
Antimony	3	4.44E-06	1.11E-06	1.28E-06	1.30E-06	1.38E-06	1.77E-06	2.54E-06	3.30E-07	3.66E-07	2.71E-07	3.30E-07	3.72E-07	3.67E-06	3.83E-06	3.25E-06
Arsenic	0.003	1.26E-04	3.14E-05	3.63E-05	3.69E-05	3.92E-05	5.03E-05	7.20E-05	9.35E-06	1.04E-05	7.68E-06	9.36E-06	1.05E-05	1.04E-04	1.09E-04	9.22E-05
Barium	0.3	4.43E-04	1.11E-04	1.28E-04	1.30E-04	1.38E-04	1.77E-04	2.53E-04	3.29E-05	3.66E-05	2.70E-05	3.29E-05	3.71E-05	3.67E-04	3.82E-04	3.25E-04
Beryllium	0.0014	8.25E-07	2.06E-07	2.38E-07	2.42E-07	2.57E-07	3.30E-07	4.72E-07	6.13E-08	6.81E-08	5.03E-08	6.13E-08	6.91E-08	6.83E-07	7.11E-07	6.05E-07
Bismuth	3	2.27E-07	5.66E-08	6.54E-08	6.64E-08	7.06E-08	9.06E-08	1.30E-07	1.68E-08	1.87E-08	1.38E-08	1.69E-08	1.90E-08	1.88E-07	1.95E-07	1.66E-07
Cadmium	0.001	7.35E-05	2.16E-05	2.29E-05	2.27E-05	2.38E-05	3.24E-05	4.38E-05	7.46E-06	7.79E-06	5.63E-06	7.47E-06	8.47E-06	4.48E-05	5.95E-05	5.20E-05
Calcium	NV	4.48E-02	1.12E-02	1.29E-02	1.31E-02	1.39E-02	1.79E-02	2.56E-02	3.33E-03	3.70E-03	2.73E-03	3.33E-03	3.75E-03	3.71E-02	3.86E-02	3.28E-02
Chromium	0.03	2.01E-04	5.06E-05	5.82E-05	5.90E-05	6.26E-05	8.07E-05	1.15E-04	1.52E-05	1.68E-05	1.24E-05	1.53E-05	1.72E-05	1.63E-04	1.72E-04	1.47E-04
Cobalt	0.02	3.04E-05	7.58E-06	8.76E-06	8.89E-06	9.46E-06	1.21E-05	1.74E-05	2.26E-06	2.51E-06	1.85E-06	2.26E-06	2.54E-06	2.51E-05	2.62E-05	2.23E-05
Copper	0.7	8.04E-05	2.00E-05	2.32E-05	2.35E-05	2.50E-05	3.21E-05	4.59E-05	5.97E-06	6.63E-06	4.90E-06	5.97E-06	6.73E-06	6.65E-05	6.93E-05	5.89E-05
Gold	1.7	8.78E-08	2.19E-08	2.53E-08	2.57E-08	2.73E-08	3.51E-08	5.02E-08	6.52E-09	7.24E-09	5.35E-09	6.52E-09	7.35E-09	7.26E-08	7.57E-08	6.43E-08
Iron	0.7	8.62E-02	2.15E-02	2.49E-02	2.52E-02	2.68E-02	3.44E-02	4.93E-02	6.40E-03	7.11E-03	5.25E-03	6.40E-03	7.22E-03	7.13E-02	7.43E-02	6.31E-02
Lead	0.04	2.57E-05	6.97E-06	7.70E-06	7.73E-06	8.17E-06	1.08E-05	1.50E-05	2.25E-06	2.41E-06	1.76E-06	2.25E-06	2.54E-06	1.86E-05	2.16E-05	1.85E-05
Lithium	NV	3.67E-05	9.14E-06	1.06E-05	1.07E-05	1.14E-05	1.46E-05	2.10E-05	2.72E-06	3.02E-06	2.23E-06	2.72E-06	3.07E-06	3.03E-05	3.16E-05	2.69E-05
Magnesium	3	2.38E-02	5.93E-03	6.85E-03	6.96E-03	7.40E-03	9.50E-03	1.36E-02	1.77E-03	1.96E-03	1.45E-03	1.77E-03	1.99E-03	1.97E-02	2.05E-02	1.74E-02
Manganese	0.02	8.94E-04	2.23E-04	2.58E-04	2.62E-04	2.78E-04	3.57E-04	5.11E-04	6.64E-05	7.37E-05	5.45E-05	6.64E-05	7.48E-05	7.39E-04	7.70E-04	6.55E-04
Molybdenum	2	1.36E-06	3.39E-07	3.92E-07	3.98E-07	4.23E-07	5.44E-07	7.78E-07	1.01E-07	1.12E-07	8.29E-08	1.01E-07	1.14E-07	1.13E-06	1.17E-06	9.97E-07
Nickel	0.0028	7.88E-05	1.97E-05	2.27E-05	2.31E-05	2.45E-05	3.15E-05	4.50E-05	5.85E-06	6.50E-06	4.81E-06	5.86E-06	6.60E-06	6.52E-05	6.79E-05	5.77E-05
Potassium	1	1.50E-02	3.75E-03	4.34E-03	4.40E-03	4.68E-03	6.01E-03	8.60E-03	1.12E-03	1.24E-03	9.17E-04	1.12E-03	1.26E-03	1.24E-02	1.30E-02	1.10E-02
Selenium	4	1.36E-06	3.38E-07	3.91E-07	3.97E-07	4.22E-07	5.42E-07	7.76E-07	1.01E-07	1.12E-07	8.27E-08	1.01E-07	1.14E-07	1.12E-06	1.17E-06	9.94E-07
Silver	0.007	3.34E-07	8.33E-08	9.63E-08	9.78E-08	1.04E-07	1.33E-07	1.91E-07	2.48E-08	2.75E-08	2.04E-08	2.48E-08	2.80E-08	2.76E-07	2.88E-07	2.45E-07
Sodium	NV	1.80E-02	4.48E-03	5.18E-03	5.26E-03	5.59E-03	7.18E-03	1.03E-02	1.33E-03	1.48E-03	1.10E-03	1.34E-03	1.50E-03	1.49E-02	1.55E-02	1.32E-02
Strontium	1	2.40E-04	5.99E-05	6.92E-05	7.03E-05	7.47E-05	9.59E-05	1.37E-04	1.78E-05	1.98E-05	1.46E-05	1.78E-05	2.01E-05	1.99E-04	2.07E-04	1.76E-04
Thallium	0.07	3.47E-07	8.65E-08	1.00E-07	1.02E-07	1.08E-07	1.39E-07	1.98E-07	2.58E-08	2.86E-08	2.11E-08	2.58E-08	2.90E-08	2.87E-07	2.99E-07	2.54E-07
Tin	1	1.22E-06	3.05E-07	3.52E-07	3.58E-07	3.80E-07	4.88E-07	6.99E-07	9.08E-08	1.01E-07	7.45E-08	9.08E-08	1.02E-07	1.01E-06	1.05E-06	8.95E-07
Titanium	3	3.95E-03	9.86E-04	1.14E-03	1.16E-03	1.23E-03	1.58E-03	2.26E-03	2.94E-04	3.26E-04	2.41E-04	2.94E-04	3.31E-04	3.27E-03	3.41E-03	2.90E-03
Uranium	0.006	1.10E-06	2.75E-07	3.18E-07	3.23E-07	3.43E-07	4.41E-07	6.30E-07	8.19E-08	9.10E-08	6.72E-08	8.20E-08	9.24E-08	9.12E-07	9.51E-07	8.08E-07
Vanadium	0.02	1.45E-04	3.62E-05	4.19E-05	4.26E-05	4.52E-05	5.81E-05	8.31E-05	1.08E-05	1.20E-05	8.86E-06	1.08E-05	1.22E-05	1.20E-04	1.25E-04	1.06E-04
Yttrium	0.7	1.07E-05	2.68E-06	3.09E-06												

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	0.008	9.31E-08	2.74E-08	2.90E-08	2.88E-08	3.02E-08	4.11E-08	5.55E-08	9.47E-09	9.88E-09	7.14E-09	9.47E-09	1.07E-08	5.67E-08	7.54E-08	6.58E-08
indeno(1,2,3-cd)pyrene	0.0009	5.92E-08	1.74E-08	1.84E-08	1.83E-08	1.92E-08	2.61E-08	3.53E-08	6.02E-09	6.28E-09	4.54E-09	6.02E-09	6.83E-09	3.60E-08	4.80E-08	4.19E-08
Volatile Oranic Compounds																
1,3-butadiene	0.06	6.89E-04	2.05E-04	2.17E-04	2.16E-04	2.27E-04	3.04E-04	4.10E-04	7.13E-05	7.69E-05	5.49E-05	7.13E-05	8.32E-05	4.22E-04	5.68E-04	4.97E-04
acetaldehyde	4	9.30E-02	2.76E-02	2.93E-02	2.91E-02	3.06E-02	4.10E-02	5.53E-02	9.61E-03	1.04E-02	7.41E-03	9.62E-03	1.12E-02	5.69E-02	7.66E-02	6.70E-02
acetone	6176	4.89E-02	1.46E-02	1.54E-02	1.53E-02	1.61E-02	2.16E-02	2.91E-02	5.06E-03	5.46E-03	3.90E-03	5.06E-03	5.91E-03	3.00E-02	4.03E-02	3.52E-02
acrolein	0.07	1.65E-02	4.89E-03	5.18E-03	5.15E-03	5.42E-03	7.25E-03	9.80E-03	1.70E-03	1.84E-03	1.31E-03	1.70E-03	1.99E-03	1.01E-02	1.36E-02	1.19E-02
aldehyde	0.6	1.24E-01	3.70E-02	3.92E-02	3.89E-02	4.09E-02	5.48E-02	7.40E-02	1.28E-02	1.39E-02	9.91E-03	1.29E-02	1.50E-02	7.62E-02	1.02E-01	8.96E-02
benzene	0.3	6.09E-03	1.81E-03	1.92E-03	1.91E-03	2.01E-03	2.69E-03	3.63E-03	6.30E-04	6.80E-04	4.86E-04	6.30E-04	7.36E-04	3.73E-03	5.02E-03	4.39E-03
C10-C12 aliphatic	233	1.34E-03	3.98E-04	4.22E-04	4.19E-04	4.41E-04	5.90E-04	7.97E-04	1.38E-04	1.49E-04	1.07E-04	1.38E-04	1.62E-04	8.20E-04	1.10E-03	9.64E-04
C12-C16 aliphatic	233	7.75E-03	2.31E-03	2.44E-03	2.43E-03	2.55E-03	3.42E-03	4.61E-03	8.01E-04	8.65E-04	6.18E-04	8.02E-04	9.36E-04	4.75E-03	6.39E-03	5.58E-03
C12-C16 aromatic	83	1.05E-04	3.11E-05	3.29E-05	3.27E-05	3.44E-05	4.61E-05	6.22E-05	1.08E-05	1.17E-05	8.33E-06	1.08E-05	1.26E-05	6.40E-05	8.61E-05	7.53E-05
C16-C21 aliphatic	7	7.76E-03	2.31E-03	2.44E-03	2.43E-03	2.55E-03	3.42E-03	4.62E-03	8.02E-04	8.66E-04	6.18E-04	8.03E-04	9.37E-04	4.75E-03	6.39E-03	5.59E-03
C2-C6 aliphatic	38	3.69E-02	1.10E-02	1.16E-02	1.16E-02	1.22E-02	1.63E-02	2.20E-02	3.82E-03	4.12E-03	2.94E-03	3.82E-03	4.46E-03	2.26E-02	3.04E-02	2.66E-02
C6-C8 aliphatic	67	2.53E-02	7.51E-03	7.96E-03	7.91E-03	8.32E-03	1.11E-02	1.50E-02	2.61E-03	2.82E-03	2.01E-03	2.61E-03	3.05E-03	1.55E-02	2.08E-02	1.82E-02
C8-C10 aliphatic	67	3.56E-04	1.06E-04	1.12E-04	1.11E-04	1.17E-04	1.57E-04	2.12E-04	3.68E-05	3.97E-05	2.84E-05	3.68E-05	4.30E-05	2.18E-04	2.93E-04	2.56E-04
C8-C10 aromatic	83	2.00E-03	5.95E-04	6.30E-04	6.27E-04	6.58E-04	8.82E-04	1.19E-03	2.07E-04	2.23E-04	1.59E-04	2.07E-04	2.41E-04	1.23E-03	1.65E-03	1.44E-03
ethylbenzene	4	1.05E-03	3.11E-04	3.29E-04	3.27E-04	3.44E-04	4.61E-04	6.22E-04	1.08E-04	1.17E-04	8.33E-05	1.08E-04	1.26E-04	6.40E-04	8.61E-04	7.53E-04
ethylene	1200	1.90E-02	5.66E-03	6.00E-03	5.96E-03	6.27E-03	8.39E-03	1.13E-02	1.97E-03	2.12E-03	1.52E-03	1.97E-03	2.30E-03	1.17E-02	1.57E-02	1.37E-02
formaldehyde	2	4.96E-02	1.47E-02	1.56E-02	1.55E-02	1.63E-02	2.19E-02	2.95E-02	5.13E-03	5.53E-03	3.95E-03	5.13E-03	5.99E-03	3.04E-02	4.09E-02	3.57E-02
ketone	0.4	2.80E-02	8.33E-03	8.83E-03	8.78E-03	9.22E-03	1.24E-02	1.67E-02	2.90E-03	3.13E-03	2.23E-03	2.90E-03	3.38E-03	1.72E-02	2.31E-02	2.02E-02
toluene	52	8.85E-03	2.63E-03	2.79E-03	2.77E-03	2.91E-03	3.90E-03	5.27E-03	9.15E-04	9.87E-04	7.05E-04	9.16E-04	1.07E-03	5.42E-03	7.29E-03	6.38E-03
trimethylbenzene	83	2.54E-03	7.54E-04	7.98E-04	7.94E-04	8.35E-04	1.12E-03	1.51E-03	2.62E-04	2.83E-04	2.02E-04	2.62E-04	3.06E-04	1.55E-03	2.09E-03	1.83E-03
xylenes	44	7.03E-03	2.09E-03	2.21E-03	2.20E-03	2.31E-03	3.10E-03	4.18E-03	7.26E-04	7.84E-04	5.60E-04	7.27E-04	8.48E-04	4.31E-03	5.79E-03	5.06E-03

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
Criteria Pollutants																
SPM	12	2.10E-01	1.43E-01	1.33E-01	1.41E-01	1.81E-01	2.36E-01	2.54E+00	4.70E-01	3.60E-01	3.69E-01	3.82E-01	6.31E+00	6.31E+00	No	No
DPM	0.03	2.63E-02	1.96E-02	1.90E-02	2.10E-02	2.55E-02	3.17E-02	2.15E-01	5.85E-02	4.83E-02	4.95E-02	5.08E-02	1.44E+00	1.44E+00	Yes	Yes
PM10	20	1.20E-01	8.29E-02	7.70E-02	8.35E-02	1.04E-01	1.35E-01	1.31E+00	2.69E-01	2.09E-01	2.14E-01	2.21E-01	5.23E+00	5.23E+00	No	No
PM2.5	10	5.23E-02	3.75E-02	3.63E-02	3.98E-02	4.89E-02	6.12E-02	4.28E-01	1.18E-01	9.45E-02	9.70E-02	9.98E-02	4.13E+00	4.13E+00	No	No
SO2	6	1.75E-03	1.30E-03	1.25E-03	1.36E-03	1.66E-03	2.05E-03	1.21E-02	3.97E-03	3.18E-03	3.27E-03	3.37E-03	1.92E-01	1.92E-01	No	No
CO	NV	4.98E-01	3.71E-01	3.60E-01	3.97E-01	4.83E-01	6.02E-01	4.25E+00	1.12E+00	9.22E-01	9.45E-01	9.70E-01	2.55E+01	2.55E+01	No	No
NOX	NV	7.50E-01	5.60E-01	5.43E-01	5.98E-01	7.25E-01	8.99E-01	6.06E+00	1.65E+00	1.37E+00	1.40E+00	1.44E+00	4.07E+01	4.07E+01	No	No
NO2	8	7.50E-01	5.60E-01	5.43E-01	5.98E-01	7.25E-01	8.99E-01	6.06E+00	1.65E+00	1.37E+00	1.40E+00	1.44E+00	4.07E+01	4.07E+01	Yes	Yes
Metals																
Aluminum	3	1.46E-02	9.91E-03	9.19E-03	9.79E-03	1.25E-02	1.64E-02	1.76E-01	3.26E-02	2.50E-02	2.56E-02	2.65E-02	4.38E-01	4.38E-01	No	No
Antimony	3	8.24E-07	5.59E-07	5.19E-07	5.53E-07	7.09E-07	9.26E-07	9.95E-06	1.84E-06	1.41E-06	1.45E-06	1.49E-06	2.47E-05	2.47E-05	No	No
Arsenic	0.003	2.34E-05	1.59E-05	1.47E-05	1.57E-05	2.01E-05	2.63E-05	2.82E-04	5.22E-05	4.00E-05	4.10E-05	4.24E-05	7.01E-04	7.01E-04	No	No
Barium	0.3	8.23E-05	5.59E-05	5.18E-05	5.52E-05	7.08E-05	9.25E-05	9.94E-04	1.84E-04	1.41E-04	1.44E-04	1.49E-04	2.47E-03	2.47E-03	No	No
Beryllium	0.0014	1.53E-07	1.04E-07	9.65E-08	1.03E-07	1.32E-07	1.72E-07	1.85E-06	3.42E-07	2.62E-07	2.69E-07	2.78E-07	4.60E-06	4.60E-06	No	No
Bismuth	3	4.21E-08	2.86E-08	2.65E-08	2.82E-08	3.62E-08	4.73E-08	5.08E-07	9.40E-08	7.21E-08	7.38E-08	7.63E-08	1.26E-06	1.26E-06	No	No
Cadmium	0.001	1.58E-05	1.18E-05	1.14E-05	1.26E-05	1.53E-05	1.91E-05	1.30E-04	3.52E-05	2.91E-05	2.98E-05	3.06E-05	8.67E-04	8.67E-04	No	No
Calcium	NV	8.31E-03	5.65E-03	5.24E-03	5.58E-03	7.15E-03	9.35E-03	1.00E-01	1.86E-02	1.42E-02	1.46E-02	1.51E-02	2.50E-01	2.50E-01	No	No
Chromium	0.03	3.76E-05	2.57E-05	2.39E-05	2.56E-05	3.26E-05	4.25E-05	4.44E-04	8.40E-05	6.48E-05	6.64E-05	6.85E-05	1.19E-03	1.19E-03	No	No
Cobalt	0.02	5.64E-06	3.83E-06	3.55E-06	3.78E-06	4.85E-06	6.34E-06	6.81E-05	1.26E-05	9.66E-06	9.89E-06	1.02E-05	1.69E-04	1.69E-04	No	No
Copper	0.7	1.49E-05	1.01E-05	9.39E-06	1.00E-05	1.28E-05	1.68E-05	1.80E-04	3.33E-05	2.55E-05	2.62E-05	2.70E-05	4.48E-04	4.48E-04	No	No
Gold	1.7	1.63E-08	1.11E-08	1.03E-08	1.09E-08	1.40E-08	1.83E-08	1.97E-07	3.64E-08	2.79E-08	2.86E-08	2.95E-08	4.89E-07	4.89E-07	No	No
Iron	0.7	1.60E-02	1.09E-02	1.01E-02	1.07E-02	1.38E-02	1.80E-02	1.93E-01	3.57E-02	2.74E-02	2.81E-02	2.90E-02	4.80E-01	4.80E-01	No	No
Lead	0.04	5.14E-06	3.67E-06	3.48E-06	3.79E-06	4.71E-06	5.99E-06	5.19E-05	1.15E-05	9.13E-06	9.36E-06	9.63E-06	2.20E-04	2.20E-04	No	No
Lithium	NV	6.80E-06	4.62E-06	4.28E-06	4.56E-06	5.85E-06	7.65E-06	8.22E-05	1.52E-05	1.17E-05	1.19E-05	1.23E-05	2.04E-04	2.04E-04	No	No
Magnesium	3	4.41E-03	3.00E-03	2.78E-03	2.96E-03	3.79E-03	4.96E-03	5.33E-02	9.85E-03	7.56E-03	7.74E-03	8.00E-03	1.32E-01	1.32E-01	No	No
Manganese	0.02	1.66E-04	1.13E-04	1.04E-04	1.11E-04	1.43E-04	1.86E-04	2.00E-03	3.70E-04	2.84E-04	2.91E-04	3.01E-04	4.98E-03	4.98E-03	No	No
Molybdenum	2	2.52E-07	1.71E-07	1.59E-07	1.69E-07	2.17E-07	2.84E-07	3.05E-06	5.64E-07	4.32E-07	4.43E-07	4.58E-07	7.58E-06	7.58E-06	No	No
Nickel	0.0028	1.46E-05	9.93E-06	9.21E-06	9.81E-06	1.26E-05	1.64E-05	1.77E-04	3.27E-05	2.51E-05	2.57E-05	2.65E-05	4.39E-04	4.39E-04	No	No
Potassium	1	2.79E-03	1.90E-03	1.76E-03	1.87E-03	2.40E-03	3.14E-03	3.37E-02	6.23E-03	4.78E-03	4.90E-03	5.06E-03	8.38E-02	8.38E-02	No	No
Selenium	4	2.52E-07	1.71E-07	1.59E-07	1.69E-07	2.17E-07	2.83E-07	3.04E-06	5.62E-07	4.31E-07	4.42E-07	4.57E-07	7.56E-06	7.56E-06	No	No
Silver	0.007	6.20E-08	4.21E-08	3.90E-08	4.16E-08	5.33E-08	6.96E-08	7.49E-07	1.38E-07	1.06E-07	1.09E-07	1.12E-07	1.86E-06	1.86E-06	No	No
Sodium	NV	3.33E-03	2.26E-03	2.10E-03	2.24E-03	2.87E-03	3.75E-03	4.03E-02	7.45E-03	5.71E-03	5.85E-03	6.05E-03	1.00E-01	1.00E-01	No	No
Strontium	1	4.45E-05	3.03E-05	2.81E-05	2.99E-05	3.83E-05	5.01E-05	5.38E-04	9.95E-05	7.63E-05	7.82E-05	8.08E-05	1.34E-03	1.34E-03	No	No
Thallium	0.07	6.43E-08	4.37E-08	4.05E-08	4.32E-08	5.53E-08	7.23E-08	7.77E-07	1.44E-07	1.10E-07	1.13E-07	1.17E-07	1.93E-06	1.93E-06	No	No
Tin	1	2.27E-07	1.54E-07	1.43E-07	1.52E-07	1.95E-07	2.55E-07	2.74E-06	5.07E-07	3.88E-07	3.98E-07	4.11E-07	6.81E-06	6.81E-06	No	No
Titanium	3	7.33E-04	4.98E-04	4.62E-04	4.92E-04	6.31E-04	8.24E-04	8.86E-03	1.64E-03	1.26E-03	1.29E-03	1.33E-03	2.20E-02	2.20E-02	No	No
Uranium	0.006	2.05E-07	1.39E-07	1.29E-07	1.37E-07	1.76E-07	2.30E-07	2.47E-06	4.57E-07	3.51E-07	3.59E-07	3.71E-07	6.14E-06	6.14E-06	No	No
Vanadium	0.02	2.70E-05	1.83E-05	1.70E-05	1.81E-05	2.32E-05	3.03E-05	3.26E-04	6.02E-05	4.62E-05	4.73E-05	4.89E-05	8.09E-04	8.09E-04	No	No
Yttrium	0.7	1.99E-06	1.35E-06	1.25E-06	1.34E-06	1.71E-06	2.24E-06	2.41E-05	4.45E-06	3.41E-06	3.49E-06	3.61E-06	5.97E-05	5.97E-05	No	No
Zinc	1	3.94E-05	2.80E-05	2.66E-05	2.88E-05	3.59E-05	4.58E-05	4.05E-04	8.80E-05	6.99E-05	7.16E-05	7.37E-05	1.64E-03	1.64E-03	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00001	2.89E-08	2.16E-08	2.09E-08	2.31E-08	2.80E-08	3.48E-08	2.37E-07	6.43E-08	5.31E-08	5.45E-08	5.59E-08	1.59E-06	1.59E-06	No	No
naphthalene	0.3	1.14E-05	8.53E-06	8.28E-06	9.14E-06	1.11E-05	1.38E-05	9.38E-05	2.55E-05	2.10E-05	2.16E-05	2.21E-05	6.28E-04	6.28E-04	No	No
phenanthrene	0.03	9.45E-07	7.05E-07	6.84E-07	7.55E-07	9.16E-07	1.14E-06	7.75E-06	2.10E-06	1.74E-06	1.78E-06	1.83E-06	5.19E-05	5.19E-05	No	No
anthracene	0.03	1.05E-07	7.86E-08	7.63E-08	8.42E-08	1.02E-07	1.27E-07	8.64E-07	2.35E-07	1.94E-07	1.99E-07	2.04E-07	5.			

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
dibenzo(a,h)anthracene	0.008	2.01E-08	1.50E-08	1.45E-08	1.60E-08	1.95E-08	2.42E-08	1.64E-07	4.47E-08	3.69E-08	3.78E-08	3.88E-08	1.10E-06	1.10E-06	No	No
indeno(1,2,3-cd)pyrene	0.0009	1.28E-08	9.51E-09	9.23E-09	1.02E-08	1.24E-08	1.54E-08	1.05E-07	2.84E-08	2.34E-08	2.40E-08	2.47E-08	7.00E-07	7.00E-07	No	No
Volatile Oranic Compounds																
1,3-butadiene	0.06	1.50E-04	1.12E-04	1.08E-04	1.18E-04	1.44E-04	1.79E-04	1.23E-03	3.28E-04	2.70E-04	2.76E-04	2.84E-04	8.22E-03	8.22E-03	No	No
acetaldehyde	4	2.02E-02	1.50E-02	1.46E-02	1.60E-02	1.94E-02	2.41E-02	1.66E-01	4.42E-02	3.64E-02	3.73E-02	3.83E-02	1.11E+00	1.11E+00	No	No
acetone	6176	1.06E-02	7.91E-03	7.66E-03	8.40E-03	1.02E-02	1.27E-02	8.72E-02	2.33E-02	1.92E-02	1.96E-02	2.01E-02	5.84E-01	5.84E-01	No	No
acrolein	0.07	3.57E-03	2.66E-03	2.58E-03	2.83E-03	3.44E-03	4.26E-03	2.93E-02	7.82E-03	6.45E-03	6.60E-03	6.77E-03	1.96E-01	1.96E-01	Yes	No*
aldehyde	0.6	2.70E-02	2.01E-02	1.95E-02	2.13E-02	2.60E-02	3.22E-02	2.22E-01	5.91E-02	4.87E-02	4.98E-02	5.12E-02	1.48E+00	1.48E+00	Yes	No*
benzene	0.3	1.32E-03	9.86E-04	9.54E-04	1.05E-03	1.27E-03	1.58E-03	1.09E-02	2.90E-03	2.39E-03	2.44E-03	2.51E-03	7.27E-02	7.27E-02	No	No
C10-C12 aliphatic	233	2.91E-04	2.16E-04	2.10E-04	2.30E-04	2.80E-04	3.47E-04	2.39E-03	6.36E-04	5.24E-04	5.36E-04	5.51E-04	1.60E-02	1.60E-02	No	No
C12-C16 aliphatic	233	1.68E-03	1.25E-03	1.21E-03	1.33E-03	1.62E-03	2.01E-03	1.38E-02	3.68E-03	3.04E-03	3.11E-03	3.19E-03	9.25E-02	9.25E-02	No	No
C12-C16 aromatic	83	2.27E-05	1.69E-05	1.64E-05	1.79E-05	2.19E-05	2.71E-05	1.86E-04	4.97E-05	4.09E-05	4.19E-05	4.30E-05	1.25E-03	1.25E-03	No	No
C16-C21 aliphatic	7	1.69E-03	1.26E-03	1.22E-03	1.33E-03	1.62E-03	2.01E-03	1.38E-02	3.69E-03	3.04E-03	3.11E-03	3.19E-03	9.26E-02	9.26E-02	No	No
C2-C6 aliphatic	38	8.02E-03	5.97E-03	5.78E-03	6.34E-03	7.72E-03	9.57E-03	6.59E-02	1.76E-02	1.45E-02	1.48E-02	1.52E-02	4.41E-01	4.41E-01	No	No
C6-C8 aliphatic	67	5.49E-03	4.09E-03	3.96E-03	4.34E-03	5.28E-03	6.55E-03	4.50E-02	1.20E-02	9.90E-03	1.01E-02	1.04E-02	3.01E-01	3.01E-01	No	No
C8-C10 aliphatic	67	7.73E-05	5.75E-05	5.57E-05	6.11E-05	7.44E-05	9.22E-05	6.34E-04	1.69E-04	1.39E-04	1.43E-04	1.46E-04	4.24E-03	4.24E-03	No	No
C8-C10 aromatic	83	4.34E-04	3.24E-04	3.13E-04	3.43E-04	4.18E-04	5.18E-04	3.57E-03	9.51E-04	7.84E-04	8.02E-04	8.23E-04	2.39E-02	2.39E-02	No	No
ethylbenzene	4	2.27E-04	1.69E-04	1.64E-04	1.79E-04	2.19E-04	2.71E-04	1.86E-03	4.97E-04	4.09E-04	4.19E-04	4.30E-04	1.25E-02	1.25E-02	No	No
ethylene	1200	4.13E-03	3.08E-03	2.98E-03	3.27E-03	3.98E-03	4.93E-03	3.39E-02	9.05E-03	7.46E-03	7.63E-03	7.83E-03	2.27E-01	2.27E-01	No	No
formaldehyde	2	1.08E-02	8.02E-03	7.77E-03	8.51E-03	1.04E-02	1.29E-02	8.84E-02	2.36E-02	1.94E-02	1.99E-02	2.04E-02	5.92E-01	5.92E-01	No	No
ketone	0.4	6.08E-03	4.53E-03	4.39E-03	4.81E-03	5.86E-03	7.26E-03	5.00E-02	1.33E-02	1.10E-02	1.12E-02	1.15E-02	3.34E-01	3.34E-01	No	No
toluene	52	1.92E-03	1.43E-03	1.39E-03	1.52E-03	1.85E-03	2.29E-03	1.58E-02	4.21E-03	3.47E-03	3.55E-03	3.64E-03	1.06E-01	1.06E-01	No	No
trimethylbenzene	83	5.50E-04	4.10E-04	3.97E-04	4.35E-04	5.30E-04	6.57E-04	4.52E-03	1.20E-03	9.93E-04	1.02E-03	1.04E-03	3.02E-02	3.02E-02	No	No
xylene	44	1.53E-03	1.14E-03	1.10E-03	1.21E-03	1.47E-03	1.82E-03	1.25E-02	3.34E-03	2.75E-03	2.82E-03	2.89E-03	8.38E-02	8.38E-02	No	No

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	12	1.52E+00	3.55E-01	4.78E-01	4.93E-01	5.36E-01	7.30E-01	1.33E+00	8.58E-02	1.04E-01	7.41E-02	8.59E-02	1.20E-01	6.47E-01	5.44E-01	4.83E-01
DPM	0.03	1.56E-01	3.71E-02	4.56E-02	4.63E-02	4.92E-02	6.52E-02	9.98E-02	1.27E-02	1.34E-02	9.81E-03	1.27E-02	1.45E-02	6.15E-02	7.94E-02	7.15E-02
PM10	20	8.75E-01	2.02E-01	2.68E-01	2.76E-01	3.00E-01	4.04E-01	7.12E-01	5.27E-02	6.10E-02	4.45E-02	5.28E-02	6.97E-02	3.53E-01	3.26E-01	2.90E-01
PM2.5	10	3.59E-01	8.05E-02	9.66E-02	9.91E-02	1.07E-01	1.44E-01	2.30E-01	2.55E-02	2.92E-02	2.03E-02	2.55E-02	3.03E-02	1.28E-01	1.53E-01	1.38E-01
SO2	6	1.26E-02	2.79E-03	3.13E-03	3.09E-03	3.19E-03	4.47E-03	6.83E-03	8.88E-04	1.05E-03	6.92E-04	8.89E-04	1.08E-03	3.92E-03	5.46E-03	4.78E-03
CO	NV	3.04E+00	7.20E-01	9.11E-01	9.28E-01	9.90E-01	1.33E+00	1.98E+00	2.46E-01	2.72E-01	1.96E-01	2.46E-01	2.91E-01	1.20E+00	1.52E+00	1.37E+00
NOX	NV	4.45E+00	1.07E+00	1.30E+00	1.32E+00	1.41E+00	1.90E+00	2.82E+00	3.68E-01	4.05E-01	2.90E-01	3.69E-01	4.35E-01	1.73E+00	2.27E+00	2.05E+00
NO2	8	4.45E+00	1.07E+00	1.30E+00	1.32E+00	1.41E+00	1.90E+00	2.82E+00	3.68E-01	4.05E-01	2.90E-01	3.69E-01	4.35E-01	1.73E+00	2.27E+00	2.05E+00
Metals																
Aluminum	3	1.05E-01	2.46E-02	3.31E-02	3.41E-02	3.72E-02	5.06E-02	9.24E-02	5.95E-03	7.24E-03	5.14E-03	5.95E-03	8.33E-03	4.48E-02	3.77E-02	3.35E-02
Antimony	3	5.95E-06	1.39E-06	1.87E-06	1.93E-06	2.10E-06	2.86E-06	5.22E-06	3.36E-07	4.09E-07	2.90E-07	3.36E-07	4.71E-07	2.53E-06	2.13E-06	1.89E-06
Arsenic	0.003	1.69E-04	3.94E-05	5.31E-05	5.47E-05	5.95E-05	8.10E-05	1.48E-04	9.53E-06	1.16E-05	8.23E-06	9.53E-06	1.33E-05	7.18E-05	6.04E-05	5.36E-05
Barium	0.3	5.94E-04	1.39E-04	1.87E-04	1.93E-04	2.10E-04	2.85E-04	5.21E-04	3.36E-05	4.08E-05	2.90E-05	3.36E-05	4.70E-05	2.53E-04	2.13E-04	1.89E-04
Beryllium	0.0014	1.11E-06	2.59E-07	3.48E-07	3.58E-07	3.90E-07	5.31E-07	9.71E-07	6.25E-08	7.60E-08	5.39E-08	6.25E-08	8.75E-08	4.71E-07	3.96E-07	3.51E-07
Bismuth	3	3.04E-07	7.10E-08	9.56E-08	9.85E-08	1.07E-07	1.46E-07	2.67E-07	1.72E-08	2.09E-08	1.48E-08	1.72E-08	2.40E-08	1.29E-07	1.09E-07	9.66E-08
Cadmium	0.001	9.42E-05	2.24E-05	2.75E-05	2.79E-05	2.97E-05	3.93E-05	6.02E-05	7.63E-06	8.05E-06	5.90E-06	7.64E-06	8.72E-06	3.71E-05	4.78E-05	4.30E-05
Calcium	NV	6.01E-02	1.40E-02	1.89E-02	1.95E-02	2.12E-02	2.88E-02	5.27E-02	3.39E-03	4.13E-03	2.93E-03	3.39E-03	4.75E-03	2.56E-02	2.15E-02	1.91E-02
Chromium	0.03	2.68E-04	6.28E-05	8.41E-05	8.65E-05	9.41E-05	1.28E-04	2.32E-04	1.55E-05	1.87E-05	1.33E-05	1.55E-05	2.14E-05	1.14E-04	9.84E-05	8.74E-05
Cobalt	0.02	4.07E-05	9.52E-06	1.28E-05	1.32E-05	1.44E-05	1.95E-05	3.57E-05	2.30E-06	2.80E-06	1.98E-06	2.30E-06	3.22E-06	1.73E-05	1.46E-05	1.29E-05
Copper	0.7	1.08E-04	2.52E-05	3.39E-05	3.49E-05	3.80E-05	5.17E-05	9.45E-05	6.08E-06	7.40E-06	5.25E-06	6.08E-06	8.52E-06	4.59E-05	3.86E-05	3.42E-05
Gold	1.7	1.18E-07	2.75E-08	3.70E-08	3.81E-08	4.15E-08	5.65E-08	1.03E-07	6.64E-09	8.08E-09	5.74E-09	6.65E-09	9.31E-09	5.01E-08	4.21E-08	3.74E-08
Iron	0.7	1.16E-01	2.70E-02	3.63E-02	3.74E-02	4.08E-02	5.54E-02	1.01E-01	6.52E-03	7.94E-03	5.63E-03	6.53E-03	9.14E-03	4.92E-02	4.13E-02	3.67E-02
Lead	0.04	3.38E-05	7.95E-06	1.03E-05	1.05E-05	1.13E-05	1.52E-05	2.59E-05	2.29E-06	2.58E-06	1.87E-06	2.29E-06	2.88E-06	1.39E-05	1.44E-05	1.29E-05
Lithium	NV	4.91E-05	1.15E-05	1.55E-05	1.59E-05	1.73E-05	2.36E-05	4.31E-05	2.77E-06	3.38E-06	2.39E-06	2.78E-06	3.89E-06	2.09E-05	1.76E-05	1.56E-05
Magnesium	3	3.19E-02	7.45E-03	1.00E-02	1.03E-02	1.12E-02	1.53E-02	2.80E-02	1.80E-03	2.19E-03	1.55E-03	1.80E-03	2.52E-03	1.36E-02	1.14E-02	1.01E-02
Manganese	0.02	1.20E-03	2.80E-04	3.77E-04	3.88E-04	4.23E-04	5.75E-04	1.05E-03	6.76E-05	8.23E-05	5.84E-05	6.77E-05	9.47E-05	5.10E-04	4.29E-04	3.80E-04
Molybdenum	2	1.82E-06	4.26E-07	5.74E-07	5.91E-07	6.43E-07	8.75E-07	1.60E-06	1.03E-07	1.25E-07	8.89E-08	1.03E-07	1.44E-07	7.76E-07	6.53E-07	5.79E-07
Nickel	0.0028	1.06E-04	2.47E-05	3.32E-05	3.42E-05	3.73E-05	5.07E-05	9.27E-05	5.97E-06	7.26E-06	5.15E-06	5.97E-06	8.35E-06	4.50E-05	3.78E-05	3.36E-05
Potassium	1	2.02E-02	4.71E-03	6.34E-03	6.53E-03	7.11E-03	9.68E-03	1.77E-02	1.14E-03	1.39E-03	9.83E-04	1.14E-03	1.59E-03	8.58E-03	7.22E-03	6.40E-03
Selenium	4	1.82E-06	4.25E-07	5.72E-07	5.89E-07	6.42E-07	8.73E-07	1.60E-06	1.03E-07	1.25E-07	8.87E-08	1.03E-07	1.44E-07	7.74E-07	6.51E-07	5.78E-07
Silver	0.007	4.48E-07	1.05E-07	1.41E-07	1.45E-07	1.58E-07	2.15E-07	3.93E-07	2.53E-08	3.07E-08	2.18E-08	2.53E-08	3.54E-08	1.91E-07	1.60E-07	1.42E-07
Sodium	NV	2.41E-02	5.63E-03	7.57E-03	7.80E-03	8.50E-03	1.16E-02	2.11E-02	1.36E-03	1.65E-03	1.17E-03	1.36E-03	1.90E-03	1.03E-02	8.62E-03	7.65E-03
Strontium	1	3.22E-04	7.52E-05	1.01E-04	1.04E-04	1.14E-04	1.54E-04	2.82E-04	1.82E-05	2.21E-05	1.57E-05	1.82E-05	2.54E-05	1.37E-04	1.15E-04	1.02E-04
Thallium	0.07	4.65E-07	1.09E-07	1.46E-07	1.51E-07	1.64E-07	2.23E-07	4.08E-07	2.62E-08	3.19E-08	2.27E-08	2.63E-08	3.68E-08	1.98E-07	1.66E-07	1.48E-07
Tin	1	1.64E-06	3.83E-07	5.15E-07	5.31E-07	5.78E-07	7.86E-07	1.44E-06	9.25E-08	1.13E-07	7.99E-08	9.25E-08	1.30E-07	6.97E-07	5.86E-07	5.20E-07
Titanium	3	5.30E-03	1.24E-03	1.67E-03	1.72E-03	1.87E-03	2.54E-03	4.65E-03	2.99E-04	3.64E-04	2.58E-04	2.99E-04	4.19E-04	2.26E-03	1.90E-03	1.68E-03
Uranium	0.006	1.48E-06	3.45E-07	4.65E-07	4.79E-07	5.22E-07	7.10E-07	1.30E-06	8.35E-08	1.02E-07	7.21E-08	8.35E-08	1.17E-07	6.29E-07	5.29E-07	4.70E-07
Vanadium	0.02	1.95E-04	4.55E-05	6.13E-05	6.31E-05	6.87E-05	9.35E-05	1.71E-04	1.10E-05	1.34E-05	9.50E-06	1.10E-05	1.54E-05	8.29E-05	6.97E-05	6.19E-05
Yttrium	0.7	1.44E-05	3.36E-06	4.52E-06												

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	0.008	1.19E-07	2.83E-08	3.48E-08	3.54E-08	3.76E-08	4.98E-08	7.62E-08	9.68E-09	1.02E-08	7.49E-09	9.69E-09	1.11E-08	4.70E-08	6.07E-08	5.46E-08
indeno(1,2,3-cd)pyrene	0.0009	7.59E-08	1.80E-08	2.21E-08	2.25E-08	2.39E-08	3.17E-08	4.85E-08	6.16E-09	6.49E-09	4.76E-09	6.16E-09	7.03E-09	2.99E-08	3.86E-08	3.47E-08
Volatile Oranic Compounds																
1,3-butadiene	0.06	8.85E-04	2.12E-04	2.60E-04	2.65E-04	2.82E-04	3.80E-04	5.63E-04	7.28E-05	7.97E-05	5.74E-05	7.29E-05	8.58E-05	3.49E-04	4.56E-04	4.11E-04
acetaldehyde	4	1.19E-01	2.85E-02	3.51E-02	3.57E-02	3.80E-02	5.12E-02	7.60E-02	9.82E-03	1.07E-02	7.75E-03	9.83E-03	1.16E-02	4.71E-02	6.15E-02	5.54E-02
acetone	6176	6.28E-02	1.50E-02	1.85E-02	1.88E-02	2.00E-02	2.70E-02	4.00E-02	5.17E-03	5.66E-03	4.08E-03	5.17E-03	6.09E-03	2.48E-02	3.24E-02	2.92E-02
acrolein	0.07	2.11E-02	5.05E-03	6.21E-03	6.32E-03	6.72E-03	9.07E-03	1.34E-02	1.74E-03	1.90E-03	1.37E-03	1.74E-03	2.05E-03	8.33E-03	1.09E-02	9.81E-03
aldehyde	0.6	1.59E-01	3.82E-02	4.69E-02	4.77E-02	5.08E-02	6.85E-02	1.02E-01	1.31E-02	1.44E-02	1.04E-02	1.31E-02	1.55E-02	6.30E-02	8.22E-02	7.41E-02
benzene	0.3	7.82E-03	1.87E-03	2.30E-03	2.34E-03	2.49E-03	3.36E-03	4.98E-03	6.44E-04	7.05E-04	5.08E-04	6.44E-04	7.59E-04	3.09E-03	4.03E-03	3.63E-03
C10-C12 aliphatic	233	1.72E-03	4.11E-04	5.05E-04	5.14E-04	5.47E-04	7.38E-04	1.09E-03	1.41E-04	1.55E-04	1.12E-04	1.42E-04	1.67E-04	6.78E-04	8.85E-04	7.98E-04
C12-C16 aliphatic	233	9.94E-03	2.38E-03	2.93E-03	2.98E-03	3.17E-03	4.27E-03	6.33E-03	8.19E-04	8.96E-04	6.46E-04	8.20E-04	9.65E-04	3.93E-03	5.13E-03	4.62E-03
C12-C16 aromatic	83	1.34E-04	3.21E-05	3.95E-05	4.01E-05	4.27E-05	5.76E-05	8.54E-05	1.10E-05	1.21E-05	8.71E-06	1.11E-05	1.30E-05	5.29E-05	6.91E-05	6.23E-05
C16-C21 aliphatic	7	9.96E-03	2.38E-03	2.93E-03	2.98E-03	3.17E-03	4.28E-03	6.34E-03	8.20E-04	8.97E-04	6.47E-04	8.21E-04	9.66E-04	3.93E-03	5.13E-03	4.62E-03
C2-C6 aliphatic	38	4.74E-02	1.13E-02	1.39E-02	1.42E-02	1.51E-02	2.04E-02	3.02E-02	3.90E-03	4.27E-03	3.08E-03	3.91E-03	4.60E-03	1.87E-02	2.44E-02	2.20E-02
C6-C8 aliphatic	67	3.24E-02	7.76E-03	9.54E-03	9.70E-03	1.03E-02	1.39E-02	2.06E-02	2.67E-03	2.92E-03	2.11E-03	2.67E-03	3.15E-03	1.28E-02	1.67E-02	1.51E-02
C8-C10 aliphatic	67	4.57E-04	1.09E-04	1.34E-04	1.37E-04	1.45E-04	1.96E-04	2.91E-04	3.76E-05	4.11E-05	2.96E-05	3.76E-05	4.43E-05	1.80E-04	2.35E-04	2.12E-04
C8-C10 aromatic	83	2.57E-03	6.14E-04	7.55E-04	7.68E-04	8.17E-04	1.10E-03	1.63E-03	2.11E-04	2.31E-04	1.67E-04	2.12E-04	2.49E-04	1.01E-03	1.32E-03	1.19E-03
ethylbenzene	4	1.34E-03	3.21E-04	3.95E-04	4.01E-04	4.27E-04	5.76E-04	8.54E-04	1.10E-04	1.21E-04	8.71E-05	1.11E-04	1.30E-04	5.29E-04	6.91E-04	6.23E-04
ethylene	1200	2.44E-02	5.84E-03	7.19E-03	7.31E-03	7.78E-03	1.05E-02	1.56E-02	2.01E-03	2.20E-03	1.59E-03	2.01E-03	2.37E-03	9.64E-03	1.26E-02	1.13E-02
formaldehyde	2	6.36E-02	1.52E-02	1.87E-02	1.90E-02	2.03E-02	2.73E-02	4.05E-02	5.24E-03	5.73E-03	4.13E-03	5.24E-03	6.17E-03	2.51E-02	3.28E-02	2.96E-02
ketone	0.4	3.60E-02	8.60E-03	1.06E-02	1.08E-02	1.14E-02	1.54E-02	2.29E-02	2.96E-03	3.24E-03	2.33E-03	2.96E-03	3.49E-03	1.42E-02	1.85E-02	1.67E-02
toluene	52	1.14E-02	2.72E-03	3.34E-03	3.40E-03	3.62E-03	4.88E-03	7.23E-03	9.35E-04	1.02E-03	7.38E-04	9.36E-04	1.10E-03	4.48E-03	5.85E-03	5.27E-03
trimethylbenzene	83	3.25E-03	7.78E-04	9.57E-04	9.73E-04	1.04E-03	1.40E-03	2.07E-03	2.68E-04	2.93E-04	2.11E-04	2.68E-04	3.16E-04	1.28E-03	1.68E-03	1.51E-03
xylenes	44	9.02E-03	2.16E-03	2.65E-03	2.70E-03	2.87E-03	3.87E-03	5.74E-03	7.42E-04	8.13E-04	5.86E-04	7.43E-04	8.75E-04	3.56E-03	4.65E-03	4.19E-03

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
Criteria Pollutants																
SPM	12	1.56E-01	1.08E-01	1.00E-01	1.05E-01	1.35E-01	1.74E-01	9.75E-01	5.68E-01	3.38E-01	3.50E-01	3.62E-01	7.69E+00	7.69E+00	No	No
DPM	0.03	2.39E-02	1.81E-02	1.75E-02	1.95E-02	2.33E-02	2.88E-02	1.43E-01	6.46E-02	4.84E-02	5.02E-02	5.15E-02	1.53E+00	1.53E+00	Yes	Yes
PM10	20	9.61E-02	6.76E-02	6.29E-02	6.65E-02	8.41E-02	1.07E-01	5.77E-01	3.28E-01	2.02E-01	2.10E-01	2.16E-01	5.97E+00	5.97E+00	No	No
PM2.5	10	4.71E-02	3.43E-02	3.28E-02	3.62E-02	4.39E-02	5.44E-02	2.73E-01	1.32E-01	9.35E-02	9.74E-02	1.00E-01	4.31E+00	4.31E+00	No	No
SO2	6	1.66E-03	1.24E-03	1.19E-03	1.30E-03	1.58E-03	1.94E-03	9.54E-03	4.20E-03	3.19E-03	3.30E-03	3.39E-03	1.96E-01	1.96E-01	No	No
CO	NV	4.51E-01	3.38E-01	3.28E-01	3.65E-01	4.37E-01	5.41E-01	2.71E+00	1.26E+00	9.25E-01	9.60E-01	9.86E-01	2.74E+01	2.74E+01	No	No
NOX	NV	6.83E-01	5.18E-01	5.02E-01	5.55E-01	6.65E-01	8.19E-01	4.05E+00	1.82E+00	1.37E+00	1.42E+00	1.46E+00	4.32E+01	4.32E+01	No	No
NO2	8	6.83E-01	5.18E-01	5.02E-01	5.55E-01	6.65E-01	8.19E-01	4.05E+00	1.82E+00	1.37E+00	1.42E+00	1.46E+00	4.32E+01	4.32E+01	Yes	Yes
Metals																
Aluminum	3	1.08E-02	7.49E-03	6.96E-03	7.30E-03	9.39E-03	1.21E-02	6.76E-02	3.94E-02	2.34E-02	2.43E-02	2.51E-02	5.33E-01	5.33E-01	No	No
Antimony	3	6.10E-07	4.23E-07	3.93E-07	4.12E-07	5.30E-07	6.80E-07	3.82E-06	2.23E-06	1.32E-06	1.37E-06	1.42E-06	3.01E-05	3.01E-05	No	No
Arsenic	0.003	1.73E-05	1.20E-05	1.11E-05	1.17E-05	1.50E-05	1.93E-05	1.08E-04	6.31E-05	3.75E-05	3.88E-05	4.02E-05	8.54E-04	8.54E-04	No	No
Barium	0.3	6.09E-05	4.23E-05	3.93E-05	4.12E-05	5.29E-05	6.80E-05	3.81E-04	2.22E-04	1.32E-04	1.37E-04	1.42E-04	3.01E-03	3.01E-03	No	No
Beryllium	0.0014	1.13E-07	7.86E-08	7.31E-08	7.66E-08	9.85E-08	1.26E-07	7.10E-07	4.14E-07	2.46E-07	2.55E-07	2.64E-07	5.60E-06	5.60E-06	No	No
Bismuth	3	3.11E-08	2.16E-08	2.01E-08	2.11E-08	2.71E-08	3.48E-08	1.95E-07	1.14E-07	6.76E-08	7.00E-08	7.25E-08	1.54E-06	1.54E-06	No	No
Cadmium	0.001	1.44E-05	1.09E-05	1.05E-05	1.17E-05	1.40E-05	1.73E-05	8.59E-05	3.89E-05	2.91E-05	3.02E-05	3.10E-05	9.22E-04	9.22E-04	No	No
Calcium	NV	6.15E-03	4.27E-03	3.97E-03	4.16E-03	5.35E-03	6.87E-03	3.85E-02	2.25E-02	1.34E-02	1.38E-02	1.43E-02	3.04E-01	3.04E-01	No	No
Chromium	0.03	2.83E-05	1.98E-05	1.84E-05	1.94E-05	2.48E-05	3.18E-05	1.76E-04	1.01E-04	6.11E-05	6.32E-05	6.54E-05	1.43E-03	1.43E-03	No	No
Cobalt	0.02	4.17E-06	2.90E-06	2.69E-06	2.82E-06	3.63E-06	4.66E-06	2.61E-05	1.52E-05	9.06E-06	9.37E-06	9.71E-06	2.06E-04	2.06E-04	No	No
Copper	0.7	1.10E-05	7.66E-06	7.11E-06	7.46E-06	9.59E-06	1.23E-05	6.91E-05	4.03E-05	2.40E-05	2.48E-05	2.57E-05	5.45E-04	5.45E-04	No	No
Gold	1.7	1.21E-08	8.37E-09	7.77E-09	8.15E-09	1.05E-08	1.35E-08	7.55E-08	4.40E-08	2.62E-08	2.71E-08	2.81E-08	5.95E-07	5.95E-07	No	No
Iron	0.7	1.18E-02	8.21E-03	7.63E-03	8.00E-03	1.03E-02	1.32E-02	7.41E-02	4.32E-02	2.57E-02	2.66E-02	2.75E-02	5.84E-01	5.84E-01	No	No
Lead	0.04	4.25E-06	3.10E-06	2.95E-06	3.20E-06	3.95E-06	4.95E-06	2.59E-05	1.33E-05	8.88E-06	9.20E-06	9.48E-06	2.45E-04	2.45E-04	No	No
Lithium	NV	5.03E-06	3.49E-06	3.25E-06	3.40E-06	4.38E-06	5.62E-06	3.15E-05	1.84E-05	1.09E-05	1.13E-05	1.17E-05	2.49E-04	2.49E-04	No	No
Magnesium	3	3.26E-03	2.27E-03	2.10E-03	2.21E-03	2.84E-03	3.64E-03	2.04E-02	1.19E-02	7.09E-03	7.33E-03	7.60E-03	1.61E-01	1.61E-01	No	No
Manganese	0.02	1.23E-04	8.52E-05	7.91E-05	8.29E-05	1.07E-04	1.37E-04	7.69E-04	4.48E-04	2.66E-04	2.76E-04	2.86E-04	6.06E-03	6.06E-03	No	No
Molybdenum	2	1.87E-07	1.30E-07	1.20E-07	1.26E-07	1.62E-07	2.08E-07	1.17E-06	6.82E-07	4.06E-07	4.20E-07	4.35E-07	9.22E-06	9.22E-06	No	No
Nickel	0.0028	1.08E-05	7.51E-06	6.98E-06	7.32E-06	9.41E-06	1.21E-05	6.78E-05	3.95E-05	2.35E-05	2.43E-05	2.52E-05	5.34E-04	5.34E-04	No	No
Potassium	1	2.07E-03	1.43E-03	1.33E-03	1.40E-03	1.80E-03	2.31E-03	1.29E-02	7.54E-03	4.48E-03	4.64E-03	4.81E-03	1.02E-01	1.02E-01	No	No
Selenium	4	1.86E-07	1.29E-07	1.20E-07	1.26E-07	1.62E-07	2.08E-07	1.17E-06	6.80E-07	4.05E-07	4.19E-07	4.34E-07	9.20E-06	9.20E-06	No	No
Silver	0.007	4.58E-08	3.18E-08	2.96E-08	3.10E-08	3.99E-08	5.12E-08	2.87E-07	1.67E-07	9.96E-08	1.03E-07	1.07E-07	2.26E-06	2.26E-06	No	No
Sodium	NV	2.47E-03	1.71E-03	1.59E-03	1.67E-03	2.14E-03	2.75E-03	1.55E-02	9.01E-03	5.36E-03	5.54E-03	5.74E-03	1.22E-01	1.22E-01	No	No
Strontium	1	3.30E-05	2.29E-05	2.13E-05	2.23E-05	2.87E-05	3.68E-05	2.06E-04	1.20E-04	7.16E-05	7.41E-05	7.67E-05	1.63E-03	1.63E-03	No	No
Thallium	0.07	4.76E-08	3.30E-08	3.07E-08	3.22E-08	4.14E-08	5.31E-08	2.98E-07	1.74E-07	1.03E-07	1.07E-07	1.11E-07	2.35E-06	2.35E-06	No	No
Tin	1	1.68E-07	1.16E-07	1.08E-07	1.13E-07	1.46E-07	1.87E-07	1.05E-06	6.13E-07	3.64E-07	3.77E-07	3.91E-07	8.29E-06	8.29E-06	No	No
Titanium	3	5.43E-04	3.77E-04	3.50E-04	3.67E-04	4.72E-04	6.06E-04	3.40E-03	1.98E-03	1.18E-03	1.22E-03	1.26E-03	2.68E-02	2.68E-02	No	No
Uranium	0.006	1.51E-07	1.05E-07	9.76E-08	1.02E-07	1.32E-07	1.69E-07	9.49E-07	5.53E-07	3.29E-07	3.40E-07	3.52E-07	7.48E-06	7.48E-06	No	No
Vanadium	0.02	2.00E-05	1.39E-05	1.29E-05	1.35E-05	1.74E-05	2.23E-05	1.25E-04	7.29E-05	4.33E-05	4.48E-05	4.64E-05	9.86E-04	9.86E-04	No	No
Yttrium	0.7	1.47E-06	1.02E-06	9.50E-07	9.96E-07	1.28E-06	1.64E-06	9.23E-06	5.38E-06	3.20E-06	3.31E-06	3.43E-06	7.27E-05	7.27E-05	No	No
Zinc	1	3.23E-05	2.35E-05	2.23E-05	2.42E-05	2.99E-05	3.75E-05	1.98E-04	1.02E-04	6.77E-05	7.02E-05	7.23E-05	1.84E-03	1.84E-03	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00001	2.63E-08	1.99E-08	1.93E-08	2.14E-08	2.57E-08	3.17E-08	1.57E-07	7.11E-08	5.33E-08	5.52E-08	5.67E-08	1.69E-06	1.69E-06	No	No
naphthalene	0.3	1.04E-05	7.86E-06	7.63E-06	8.47E-06	1.02E-05	1.25E-05	6.21E-05	2.81E-05	2.11E-05	2.19E-05	2.24E-05	6.68E-04	6.68E-04	No	No
phenanthrene	0.03	8.59E-07	6.50E-07	6.30E-07	7.00E-07	8.39E-07	1.04E-06	5.13E-06	2.32E-06	1.74E-06	1.81E-06	1.85E-06	5.51E-05	5.51E-05	No	No
anthracene	0.03	9.59E-08	7.25E-08	7.03E-08	7.81E-08	9.36E-08	1.15E-07	5.73E-07	2.59E-07	1.94E-07	2.01E-07	2.07E-07	6.			

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
dibenzo(a,h)anthracene	0.008	1.82E-08	1.38E-08	1.34E-08	1.49E-08	1.78E-08	2.20E-08	1.09E-07	4.94E-08	3.70E-08	3.83E-08	3.93E-08	1.17E-06	1.17E-06	No	No
indeno(1,2,3-cd)pyrene	0.0009	1.16E-08	8.77E-09	8.51E-09	9.45E-09	1.13E-08	1.40E-08	6.93E-08	3.14E-08	2.35E-08	2.44E-08	2.50E-08	7.44E-07	7.44E-07	No	No
Volatile Oranic Compounds																
1,3-butadiene	0.06	1.36E-04	1.03E-04	9.92E-05	1.09E-04	1.32E-04	1.62E-04	8.13E-04	3.62E-04	2.70E-04	2.80E-04	2.87E-04	8.73E-03	8.73E-03	No	No
acetaldehyde	4	1.83E-02	1.38E-02	1.34E-02	1.47E-02	1.77E-02	2.18E-02	1.10E-01	4.88E-02	3.64E-02	3.77E-02	3.87E-02	1.18E+00	1.18E+00	No	No
acetone	6176	9.63E-03	7.28E-03	7.04E-03	7.76E-03	9.33E-03	1.15E-02	5.77E-02	2.57E-02	1.92E-02	1.98E-02	2.04E-02	6.20E-01	6.20E-01	No	No
acrolein	0.07	3.24E-03	2.45E-03	2.37E-03	2.61E-03	3.14E-03	3.87E-03	1.94E-02	8.63E-03	6.45E-03	6.67E-03	6.85E-03	2.08E-01	2.08E-01	Yes	No*
aldehyde	0.6	2.45E-02	1.85E-02	1.79E-02	1.97E-02	2.37E-02	2.92E-02	1.47E-01	6.52E-02	4.87E-02	5.04E-02	5.18E-02	1.57E+00	1.57E+00	Yes	No*
benzene	0.3	1.20E-03	9.06E-04	8.77E-04	9.67E-04	1.16E-03	1.43E-03	7.19E-03	3.20E-03	2.39E-03	2.47E-03	2.54E-03	7.72E-02	7.72E-02	No	No
C10-C12 aliphatic	233	2.64E-04	1.99E-04	1.93E-04	2.12E-04	2.55E-04	3.14E-04	1.58E-03	7.02E-04	5.24E-04	5.43E-04	5.57E-04	1.70E-02	1.70E-02	No	No
C12-C16 aliphatic	233	1.53E-03	1.15E-03	1.12E-03	1.23E-03	1.48E-03	1.82E-03	9.14E-03	4.06E-03	3.04E-03	3.14E-03	3.23E-03	9.82E-02	9.82E-02	No	No
C12-C16 aromatic	83	2.06E-05	1.55E-05	1.50E-05	1.66E-05	1.99E-05	2.46E-05	1.23E-04	5.48E-05	4.10E-05	4.24E-05	4.35E-05	1.32E-03	1.32E-03	No	No
C16-C21 aliphatic	7	1.53E-03	1.15E-03	1.12E-03	1.23E-03	1.48E-03	1.82E-03	9.15E-03	4.07E-03	3.04E-03	3.15E-03	3.23E-03	9.83E-02	9.83E-02	No	No
C2-C6 aliphatic	38	7.27E-03	5.49E-03	5.32E-03	5.86E-03	7.05E-03	8.68E-03	4.36E-02	1.94E-02	1.45E-02	1.50E-02	1.54E-02	4.68E-01	4.68E-01	No	No
C6-C8 aliphatic	67	4.97E-03	3.76E-03	3.64E-03	4.01E-03	4.82E-03	5.93E-03	2.98E-02	1.32E-02	9.90E-03	1.02E-02	1.05E-02	3.20E-01	3.20E-01	No	No
C8-C10 aliphatic	67	7.01E-05	5.29E-05	5.12E-05	5.64E-05	6.79E-05	8.36E-05	4.20E-04	1.87E-04	1.39E-04	1.44E-04	1.48E-04	4.51E-03	4.51E-03	No	No
C8-C10 aromatic	83	3.94E-04	2.98E-04	2.88E-04	3.17E-04	3.82E-04	4.70E-04	2.36E-03	1.05E-03	7.84E-04	8.11E-04	8.33E-04	2.53E-02	2.53E-02	No	No
ethylbenzene	4	2.06E-04	1.55E-04	1.50E-04	1.66E-04	1.99E-04	2.46E-04	1.23E-03	5.48E-04	4.10E-04	4.24E-04	4.35E-04	1.32E-02	1.32E-02	No	No
ethylene	1200	3.75E-03	2.83E-03	2.74E-03	3.02E-03	3.63E-03	4.47E-03	2.25E-02	9.98E-03	7.46E-03	7.72E-03	7.93E-03	2.41E-01	2.41E-01	No	No
formaldehyde	2	9.77E-03	7.38E-03	7.14E-03	7.87E-03	9.46E-03	1.16E-02	5.85E-02	2.60E-02	1.94E-02	2.01E-02	2.07E-02	6.28E-01	6.28E-01	No	No
ketone	0.4	5.52E-03	4.17E-03	4.03E-03	4.44E-03	5.35E-03	6.58E-03	3.31E-02	1.47E-02	1.10E-02	1.14E-02	1.17E-02	3.55E-01	3.55E-01	No	No
toluene	52	1.74E-03	1.32E-03	1.27E-03	1.40E-03	1.69E-03	2.08E-03	1.04E-02	4.64E-03	3.47E-03	3.59E-03	3.69E-03	1.12E-01	1.12E-01	No	No
trimethylbenzene	83	4.99E-04	3.77E-04	3.65E-04	4.02E-04	4.84E-04	5.96E-04	2.99E-03	1.33E-03	9.93E-04	1.03E-03	1.06E-03	3.21E-02	3.21E-02	No	No
xylenes	44	1.38E-03	1.05E-03	1.01E-03	1.11E-03	1.34E-03	1.65E-03	8.29E-03	3.69E-03	2.75E-03	2.85E-03	2.93E-03	8.90E-02	8.90E-02	No	No

All air concentrations are in units of µg/m³
Carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3

3.20E+01

 = greater than annual air threshold
* Using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2 in the DDEAR.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	12	7.45E-01	2.14E-01	2.52E-01	2.56E-01	2.73E-01	3.23E-01	4.43E-01	7.28E-02	7.74E-02	6.06E-02	7.28E-02	8.17E-02	6.32E-01	1.14E+00	1.56E+00
DPM	0.03	1.01E-01	2.88E-02	3.22E-02	3.07E-02	2.98E-02	4.26E-02	5.45E-02	1.08E-02	1.08E-02	8.01E-03	1.08E-02	1.20E-02	5.00E-02	9.81E-02	1.04E-01
PM10	20	4.08E-01	1.14E-01	1.20E-01	1.23E-01	1.31E-01	1.63E-01	2.27E-01	3.89E-02	4.05E-02	3.11E-02	3.89E-02	4.22E-02	2.62E-01	4.67E-01	6.11E-01
PM2.5	10	2.48E-01	6.25E-02	6.72E-02	6.54E-02	6.41E-02	9.08E-02	1.26E-01	2.14E-02	2.35E-02	1.64E-02	2.14E-02	2.47E-02	9.96E-02	1.88E-01	1.97E-01
SO2	6	1.09E-02	2.46E-03	2.75E-03	2.68E-03	2.52E-03	3.59E-03	5.10E-03	8.11E-04	9.37E-04	6.20E-04	8.12E-04	9.69E-04	3.50E-03	6.21E-03	6.05E-03
CO	NV	1.81E+00	5.33E-01	5.87E-01	5.59E-01	5.56E-01	7.72E-01	9.88E-01	2.02E-01	2.09E-01	1.54E-01	2.02E-01	2.29E-01	9.55E-01	1.84E+00	1.96E+00
NOX	NV	2.88E+00	8.26E-01	9.28E-01	8.81E-01	8.60E-01	1.21E+00	1.55E+00	3.12E-01	3.24E-01	2.38E-01	3.12E-01	3.56E-01	1.41E+00	2.76E+00	2.91E+00
NO2	8	2.88E+00	8.26E-01	9.28E-01	8.81E-01	8.60E-01	1.21E+00	1.55E+00	3.12E-01	3.24E-01	2.38E-01	3.12E-01	3.56E-01	1.41E+00	2.76E+00	2.91E+00
Metals																
Aluminum	3	5.16E-02	1.49E-02	1.74E-02	1.78E-02	1.89E-02	2.24E-02	3.07E-02	5.05E-03	5.37E-03	4.20E-03	5.05E-03	5.66E-03	4.38E-02	7.89E-02	1.08E-01
Antimony	3	2.92E-06	8.40E-07	9.85E-07	1.00E-06	1.07E-06	1.27E-06	1.73E-06	2.85E-07	3.03E-07	2.37E-07	2.85E-07	3.20E-07	2.47E-06	4.46E-06	6.12E-06
Arsenic	0.003	8.27E-05	2.38E-05	2.79E-05	2.85E-05	3.03E-05	3.59E-05	4.91E-05	8.08E-06	8.59E-06	6.72E-06	8.09E-06	9.07E-06	7.02E-05	1.26E-04	1.74E-04
Barium	0.3	2.91E-04	8.39E-05	9.84E-05	1.00E-04	1.07E-04	1.26E-04	1.73E-04	2.85E-05	3.03E-05	2.37E-05	2.85E-05	3.19E-05	2.47E-04	4.45E-04	6.11E-04
Beryllium	0.0014	5.42E-07	1.56E-07	1.83E-07	1.87E-07	1.98E-07	2.35E-07	3.22E-07	5.30E-08	5.63E-08	4.41E-08	5.30E-08	5.94E-08	4.60E-07	8.29E-07	1.14E-06
Bismuth	3	1.49E-07	4.29E-08	5.03E-08	5.13E-08	5.45E-08	6.47E-08	8.85E-08	1.46E-08	1.55E-08	1.21E-08	1.46E-08	1.63E-08	1.26E-07	2.28E-07	3.13E-07
Cadmium	0.001	6.06E-05	1.73E-05	1.94E-05	1.85E-05	1.79E-05	2.57E-05	3.28E-05	6.47E-06	6.51E-06	4.82E-06	6.48E-06	7.20E-06	3.01E-05	5.92E-05	6.27E-05
Calcium	NV	2.94E-02	8.48E-03	9.95E-03	1.01E-02	1.08E-02	1.28E-02	1.75E-02	2.88E-03	3.06E-03	2.39E-03	2.88E-03	3.23E-03	2.50E-02	4.50E-02	6.18E-02
Chromium	0.03	1.34E-04	3.85E-05	4.51E-05	4.57E-05	4.83E-05	5.80E-05	7.90E-05	1.32E-05	1.39E-05	1.09E-05	1.32E-05	1.48E-05	1.10E-04	1.99E-04	2.70E-04
Cobalt	0.02	2.00E-05	5.75E-06	6.74E-06	6.87E-06	7.30E-06	8.66E-06	1.19E-05	1.95E-06	2.07E-06	1.62E-06	1.95E-06	2.19E-06	1.69E-05	3.05E-05	4.19E-05
Copper	0.7	5.28E-05	1.52E-05	1.78E-05	1.82E-05	1.93E-05	2.29E-05	3.14E-05	5.16E-06	5.48E-06	4.29E-06	5.16E-06	5.79E-06	4.48E-05	8.07E-05	1.11E-04
Gold	1.7	5.77E-08	1.66E-08	1.95E-08	1.99E-08	2.11E-08	2.50E-08	3.43E-08	5.64E-09	5.99E-09	4.69E-09	5.64E-09	6.32E-09	4.89E-08	8.82E-08	1.21E-07
Iron	0.7	5.66E-02	1.63E-02	1.91E-02	1.95E-02	2.07E-02	2.46E-02	3.36E-02	5.53E-03	5.88E-03	4.60E-03	5.54E-03	6.21E-03	4.80E-02	8.65E-02	1.19E-01
Lead	0.04	1.90E-05	5.44E-06	6.23E-06	6.13E-06	6.23E-06	8.12E-06	1.07E-05	1.95E-06	2.00E-06	1.52E-06	1.95E-06	2.17E-06	1.25E-05	2.34E-05	2.91E-05
Lithium	NV	2.41E-05	6.93E-06	8.14E-06	8.29E-06	8.81E-06	1.05E-05	1.43E-05	2.35E-06	2.50E-06	1.96E-06	2.35E-06	2.64E-06	2.04E-05	3.68E-05	5.06E-05
Magnesium	3	1.56E-02	4.50E-03	5.28E-03	5.38E-03	5.71E-03	6.78E-03	9.28E-03	1.53E-03	1.62E-03	1.27E-03	1.53E-03	1.71E-03	1.32E-02	2.39E-02	3.28E-02
Manganese	0.02	5.87E-04	1.69E-04	1.98E-04	2.02E-04	2.15E-04	2.55E-04	3.49E-04	5.74E-05	6.10E-05	4.77E-05	5.74E-05	6.43E-05	4.98E-04	8.97E-04	1.23E-03
Molybdenum	2	8.94E-07	2.57E-07	3.02E-07	3.08E-07	3.27E-07	3.88E-07	5.31E-07	8.73E-08	9.28E-08	7.27E-08	8.74E-08	9.80E-08	7.58E-07	1.37E-06	1.88E-06
Nickel	0.0028	5.18E-05	1.49E-05	1.75E-05	1.78E-05	1.89E-05	2.25E-05	3.08E-05	5.06E-06	5.38E-06	4.21E-06	5.06E-06	5.68E-06	4.39E-05	7.91E-05	1.09E-04
Potassium	1	9.88E-03	2.84E-03	3.34E-03	3.40E-03	3.61E-03	4.29E-03	5.87E-03	9.66E-04	1.03E-03	8.03E-04	9.66E-04	1.08E-03	8.38E-03	1.51E-02	2.07E-02
Selenium	4	8.91E-07	2.57E-07	3.01E-07	3.07E-07	3.26E-07	3.87E-07	5.30E-07	8.71E-08	9.26E-08	7.25E-08	8.72E-08	9.77E-08	7.56E-07	1.36E-06	1.87E-06
Silver	0.007	2.19E-07	6.32E-08	7.41E-08	7.55E-08	8.03E-08	9.52E-08	1.30E-07	2.14E-08	2.28E-08	1.78E-08	2.14E-08	2.40E-08	1.86E-07	3.35E-07	4.61E-07
Sodium	NV	1.18E-02	3.40E-03	3.99E-03	4.06E-03	4.32E-03	5.12E-03	7.01E-03	1.15E-03	1.23E-03	9.59E-04	1.15E-03	1.29E-03	1.00E-02	1.80E-02	2.48E-02
Strontium	1	1.58E-04	4.54E-05	5.33E-05	5.43E-05	5.77E-05	6.85E-05	9.37E-05	1.54E-05	1.64E-05	1.28E-05	1.54E-05	1.73E-05	1.34E-04	2.41E-04	3.31E-04
Thallium	0.07	2.28E-07	6.56E-08	7.69E-08	7.84E-08	8.33E-08	9.89E-08	1.35E-07	2.23E-08	2.37E-08	1.85E-08	2.23E-08	2.50E-08	1.93E-07	3.48E-07	4.78E-07
Tin	1	8.03E-07	2.31E-07	2.71E-07	2.76E-07	2.94E-07	3.49E-07	4.77E-07	7.85E-08	8.34E-08	6.53E-08	7.85E-08	8.80E-08	6.81E-07	1.23E-06	1.69E-06
Titanium	3	2.60E-03	7.48E-04	8.77E-04	8.94E-04	9.50E-04	1.13E-03	1.54E-03	2.54E-04	2.70E-04	2.11E-04	2.54E-04	2.85E-04	2.20E-03	3.97E-03	5.45E-03
Uranium	0.006	7.24E-07	2.09E-07	2.45E-07	2.49E-07	2.65E-07	3.15E-07	4.30E-07	7.08E-08	7.53E-08	5.89E-08	7.08E-08	7.94E-08	6.15E-07	1.11E-06	1.52E-06
Vanadium	0.02	9.55E-05	2.75E-05	3.23E-05	3.29E-05	3.49E-05	4.15E-05	5.67E-05	9.33E-06	9.92E-06	7.76E-06	9.34E-06	1.05E-05	8.10E-05	1.46E-04	2.00E-04
Yttrium	0.7	7.05E-06	2.03E-06	2.38E-06												

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	0.008	7.69E-08	2.20E-08	2.46E-08	2.34E-08	2.27E-08	3.25E-08	4.16E-08	8.21E-09	8.25E-09	6.11E-09	8.22E-09	9.14E-09	3.82E-08	7.50E-08	7.93E-08
indeno(1,2,3-cd)pyrene	0.0009	4.89E-08	1.40E-08	1.56E-08	1.49E-08	1.45E-08	2.07E-08	2.65E-08	5.22E-09	5.25E-09	3.89E-09	5.23E-09	5.81E-09	2.43E-08	4.77E-08	5.04E-08
Volatile Oranic Compounds																
1,3-butadiene	0.06	5.63E-04	1.63E-04	1.82E-04	1.72E-04	1.70E-04	2.38E-04	3.05E-04	6.13E-05	6.33E-05	4.68E-05	6.14E-05	6.98E-05	2.80E-04	5.53E-04	5.83E-04
acetaldehyde	4	7.60E-02	2.19E-02	2.46E-02	2.32E-02	2.29E-02	3.22E-02	4.12E-02	8.27E-03	8.53E-03	6.31E-03	8.28E-03	9.41E-03	3.78E-02	7.46E-02	7.86E-02
acetone	6176	4.00E-02	1.15E-02	1.29E-02	1.22E-02	1.21E-02	1.69E-02	2.17E-02	4.35E-03	4.49E-03	3.32E-03	4.36E-03	4.95E-03	1.99E-02	3.93E-02	4.14E-02
acrolein	0.07	1.34E-02	3.88E-03	4.35E-03	4.11E-03	4.05E-03	5.69E-03	7.29E-03	1.46E-03	1.51E-03	1.12E-03	1.47E-03	1.67E-03	6.69E-03	1.32E-02	1.39E-02
aldehyde	0.6	1.02E-01	2.93E-02	3.29E-02	3.10E-02	3.06E-02	4.30E-02	5.51E-02	1.11E-02	1.14E-02	8.43E-03	1.11E-02	1.26E-02	5.06E-02	9.98E-02	1.05E-01
benzene	0.3	4.98E-03	1.44E-03	1.61E-03	1.52E-03	1.50E-03	2.11E-03	2.70E-03	5.42E-04	5.59E-04	4.13E-04	5.43E-04	6.17E-04	2.48E-03	4.89E-03	5.15E-03
C10-C12 aliphatic	233	1.09E-03	3.16E-04	3.54E-04	3.34E-04	3.30E-04	4.63E-04	5.93E-04	1.19E-04	1.23E-04	9.08E-05	1.19E-04	1.35E-04	5.44E-04	1.07E-03	1.13E-03
C12-C16 aliphatic	233	6.33E-03	1.83E-03	2.05E-03	1.94E-03	1.91E-03	2.68E-03	3.43E-03	6.90E-04	7.11E-04	5.26E-04	6.90E-04	7.84E-04	3.15E-03	6.22E-03	6.55E-03
C12-C16 aromatic	83	8.54E-05	2.47E-05	2.76E-05	2.61E-05	2.57E-05	3.62E-05	4.63E-05	9.30E-06	9.59E-06	7.09E-06	9.31E-06	1.06E-05	4.25E-05	8.39E-05	8.83E-05
C16-C21 aliphatic	7	6.34E-03	1.83E-03	2.05E-03	1.94E-03	1.91E-03	2.68E-03	3.44E-03	6.91E-04	7.12E-04	5.27E-04	6.91E-04	7.85E-04	3.16E-03	6.23E-03	6.56E-03
C2-C6 aliphatic	38	3.02E-02	8.72E-03	9.76E-03	9.22E-03	9.10E-03	1.28E-02	1.64E-02	3.29E-03	3.39E-03	2.51E-03	3.29E-03	3.74E-03	1.50E-02	2.96E-02	3.12E-02
C6-C8 aliphatic	67	2.06E-02	5.96E-03	6.68E-03	6.31E-03	6.22E-03	8.74E-03	1.12E-02	2.25E-03	2.32E-03	1.71E-03	2.25E-03	2.56E-03	1.03E-02	2.03E-02	2.14E-02
C8-C10 aliphatic	67	2.91E-04	8.40E-05	9.41E-05	8.89E-05	8.77E-05	1.23E-04	1.58E-04	3.17E-05	3.26E-05	2.41E-05	3.17E-05	3.60E-05	1.45E-04	2.86E-04	3.01E-04
C8-C10 aromatic	83	1.63E-03	4.72E-04	5.29E-04	5.00E-04	4.93E-04	6.92E-04	8.86E-04	1.78E-04	1.84E-04	1.36E-04	1.78E-04	2.02E-04	8.14E-04	1.61E-03	1.69E-03
ethylbenzene	4	8.54E-04	2.47E-04	2.76E-04	2.61E-04	2.57E-04	3.62E-04	4.63E-04	9.30E-05	9.59E-05	7.09E-05	9.31E-05	1.06E-04	4.25E-04	8.39E-04	8.83E-04
ethylene	1200	1.56E-02	4.49E-03	5.03E-03	4.75E-03	4.69E-03	6.58E-03	8.44E-03	1.69E-03	1.75E-03	1.29E-03	1.70E-03	1.93E-03	7.74E-03	1.53E-02	1.61E-02
formaldehyde	2	4.05E-02	1.17E-02	1.31E-02	1.24E-02	1.22E-02	1.72E-02	2.20E-02	4.41E-03	4.55E-03	3.36E-03	4.42E-03	5.02E-03	2.02E-02	3.98E-02	4.19E-02
ketone	0.4	2.29E-02	6.61E-03	7.41E-03	7.00E-03	6.90E-03	9.69E-03	1.24E-02	2.49E-03	2.57E-03	1.90E-03	2.50E-03	2.84E-03	1.14E-02	2.25E-02	2.37E-02
toluene	52	7.23E-03	2.09E-03	2.34E-03	2.21E-03	2.18E-03	3.06E-03	3.92E-03	7.88E-04	8.12E-04	6.01E-04	7.88E-04	8.96E-04	3.60E-03	7.10E-03	7.48E-03
trimethylbenzene	83	2.07E-03	5.98E-04	6.70E-04	6.33E-04	6.25E-04	8.77E-04	1.12E-03	2.26E-04	2.33E-04	1.72E-04	2.26E-04	2.57E-04	1.03E-03	2.03E-03	2.14E-03
xylenes	44	5.74E-03	1.66E-03	1.86E-03	1.75E-03	1.73E-03	2.43E-03	3.11E-03	6.25E-04	6.45E-04	4.77E-04	6.26E-04	7.11E-04	2.86E-03	5.64E-03	5.94E-03

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
Criteria Pollutants																
SPM	12	8.44E-01	4.13E-01	3.60E-01	3.58E-01	5.33E-01	9.06E-01	1.30E+00	4.25E-01	3.87E-01	3.96E-01	4.03E-01	5.56E+00	5.56E+00	No	No
DPM	0.03	6.22E-02	3.29E-02	3.01E-02	3.12E-02	4.31E-02	6.83E-02	1.38E-01	4.82E-02	4.40E-02	4.52E-02	4.60E-02	1.38E+00	1.38E+00	Yes	Yes
PM10	20	4.33E-01	2.06E-01	1.79E-01	1.79E-01	2.68E-01	4.56E-01	5.52E-01	2.01E-01	1.83E-01	1.87E-01	1.90E-01	4.80E+00	4.80E+00	No	No
PM2.5	10	1.27E-01	6.57E-02	5.91E-02	6.13E-02	8.64E-02	1.37E-01	2.65E-01	9.69E-02	8.48E-02	8.72E-02	8.90E-02	4.01E+00	4.01E+00	No	No
SO2	6	3.17E-03	1.83E-03	1.69E-03	1.76E-03	2.36E-03	3.49E-03	9.54E-03	3.56E-03	3.01E-03	3.10E-03	3.17E-03	1.90E-01	1.90E-01	No	No
CO	NV	1.33E+00	6.80E-01	6.16E-01	6.31E-01	8.91E-01	1.44E+00	2.50E+00	8.84E-01	8.20E-01	8.42E-01	8.57E-01	2.42E+01	2.42E+01	No	No
NOX	NV	1.74E+00	9.29E-01	8.50E-01	8.80E-01	1.21E+00	1.91E+00	3.89E+00	1.36E+00	1.25E+00	1.28E+00	1.31E+00	3.90E+01	3.90E+01	No	No
NO2	8	1.74E+00	9.29E-01	8.50E-01	8.80E-01	1.21E+00	1.91E+00	3.89E+00	1.36E+00	1.25E+00	1.28E+00	1.31E+00	3.90E+01	3.90E+01	Yes	No*
Metals																
Aluminum	3	5.85E-02	2.86E-02	2.49E-02	2.48E-02	3.70E-02	6.27E-02	8.99E-02	2.95E-02	2.69E-02	2.75E-02	2.79E-02	3.86E-01	3.86E-01	No	No
Antimony	3	3.30E-06	1.62E-06	1.41E-06	1.40E-06	2.09E-06	3.55E-06	5.08E-06	1.66E-06	1.52E-06	1.55E-06	1.58E-06	2.18E-05	2.18E-05	No	No
Arsenic	0.003	9.37E-05	4.58E-05	3.99E-05	3.97E-05	5.92E-05	1.01E-04	1.44E-04	4.72E-05	4.30E-05	4.40E-05	4.47E-05	6.17E-04	6.17E-04	No	No
Barium	0.3	3.30E-04	1.61E-04	1.41E-04	1.40E-04	2.09E-04	3.54E-04	5.07E-04	1.66E-04	1.51E-04	1.55E-04	1.58E-04	2.17E-03	2.17E-03	No	No
Beryllium	0.0014	6.14E-07	3.00E-07	2.62E-07	2.60E-07	3.88E-07	6.59E-07	9.44E-07	3.09E-07	2.82E-07	2.88E-07	2.93E-07	4.04E-06	4.04E-06	No	No
Bismuth	3	1.69E-07	8.26E-08	7.20E-08	7.15E-08	1.07E-07	1.81E-07	2.59E-07	8.50E-08	7.75E-08	7.92E-08	8.06E-08	1.11E-06	1.11E-06	No	No
Cadmium	0.001	3.75E-05	1.99E-05	1.81E-05	1.88E-05	2.60E-05	4.12E-05	8.34E-05	2.90E-05	2.65E-05	2.72E-05	2.77E-05	8.31E-04	8.31E-04	No	No
Calcium	NV	3.34E-02	1.63E-02	1.42E-02	1.41E-02	2.11E-02	3.58E-02	5.13E-02	1.68E-02	1.53E-02	1.57E-02	1.59E-02	2.20E-01	2.20E-01	No	No
Chromium	0.03	1.47E-04	7.19E-05	6.28E-05	6.26E-05	9.30E-05	1.57E-04	2.30E-04	7.55E-05	6.88E-05	7.04E-05	7.16E-05	1.06E-03	1.06E-03	No	No
Cobalt	0.02	2.26E-05	1.11E-05	9.64E-06	9.58E-06	1.43E-05	2.43E-05	3.48E-05	1.14E-05	1.04E-05	1.06E-05	1.08E-05	1.49E-04	1.49E-04	No	No
Copper	0.7	5.98E-05	2.93E-05	2.55E-05	2.54E-05	3.78E-05	6.42E-05	9.19E-05	3.01E-05	2.75E-05	2.81E-05	2.86E-05	3.94E-04	3.94E-04	No	No
Gold	1.7	6.54E-08	3.20E-08	2.79E-08	2.77E-08	4.13E-08	7.01E-08	1.00E-07	3.29E-08	3.00E-08	3.07E-08	3.12E-08	4.30E-07	4.30E-07	No	No
Iron	0.7	6.42E-02	3.14E-02	2.73E-02	2.72E-02	4.05E-02	6.88E-02	9.86E-02	3.23E-02	2.94E-02	3.01E-02	3.06E-02	4.22E-01	4.22E-01	No	No
Lead	0.04	1.63E-05	8.22E-06	7.30E-06	7.39E-06	1.07E-05	1.76E-05	2.93E-05	9.90E-06	9.03E-06	9.25E-06	9.41E-06	2.05E-04	2.05E-04	No	No
Lithium	NV	2.73E-05	1.33E-05	1.16E-05	1.16E-05	1.72E-05	2.93E-05	4.19E-05	1.37E-05	1.25E-05	1.28E-05	1.30E-05	1.80E-04	1.80E-04	No	No
Magnesium	3	1.77E-02	8.65E-03	7.54E-03	7.50E-03	1.12E-02	1.90E-02	2.72E-02	8.91E-03	8.12E-03	8.31E-03	8.45E-03	1.16E-01	1.16E-01	No	No
Manganese	0.02	6.65E-04	3.25E-04	2.84E-04	2.82E-04	4.20E-04	7.14E-04	1.02E-03	3.35E-04	3.05E-04	3.12E-04	3.18E-04	4.38E-03	4.38E-03	No	No
Molybdenum	2	1.01E-06	4.95E-07	4.32E-07	4.29E-07	6.40E-07	1.09E-06	1.56E-06	5.10E-07	4.65E-07	4.75E-07	4.84E-07	6.67E-06	6.67E-06	No	No
Nickel	0.0028	5.87E-05	2.87E-05	2.50E-05	2.49E-05	3.71E-05	6.29E-05	9.02E-05	2.96E-05	2.69E-05	2.75E-05	2.80E-05	3.86E-04	3.86E-04	No	No
Potassium	1	1.12E-02	5.48E-03	4.77E-03	4.74E-03	7.08E-03	1.20E-02	1.72E-02	5.64E-03	5.14E-03	5.26E-03	5.35E-03	7.37E-02	7.37E-02	No	No
Selenium	4	1.01E-06	4.94E-07	4.31E-07	4.28E-07	6.38E-07	1.08E-06	1.55E-06	5.09E-07	4.64E-07	4.74E-07	4.82E-07	6.65E-06	6.65E-06	No	No
Silver	0.007	2.49E-07	1.22E-07	1.06E-07	1.05E-07	1.57E-07	2.67E-07	3.82E-07	1.25E-07	1.14E-07	1.17E-07	1.19E-07	1.64E-06	1.64E-06	No	No
Sodium	NV	1.34E-02	6.54E-03	5.70E-03	5.67E-03	8.45E-03	1.43E-02	2.06E-02	6.74E-03	6.14E-03	6.28E-03	6.39E-03	8.80E-02	8.80E-02	No	No
Strontium	1	1.79E-04	8.74E-05	7.62E-05	7.57E-05	1.13E-04	1.92E-04	2.75E-04	9.00E-05	8.20E-05	8.39E-05	8.53E-05	1.18E-03	1.18E-03	No	No
Thallium	0.07	2.58E-07	1.26E-07	1.10E-07	1.09E-07	1.63E-07	2.77E-07	3.97E-07	1.30E-07	1.18E-07	1.21E-07	1.23E-07	1.70E-06	1.70E-06	No	No
Tin	1	9.10E-07	4.45E-07	3.88E-07	3.86E-07	5.75E-07	9.76E-07	1.40E-06	4.58E-07	4.18E-07	4.27E-07	4.34E-07	5.99E-06	5.99E-06	No	No
Titanium	3	2.94E-03	1.44E-03	1.25E-03	1.25E-03	1.86E-03	3.16E-03	4.52E-03	1.48E-03	1.35E-03	1.38E-03	1.40E-03	1.94E-02	1.94E-02	No	No
Uranium	0.006	8.21E-07	4.01E-07	3.50E-07	3.48E-07	5.19E-07	8.81E-07	1.26E-06	4.14E-07	3.77E-07	3.85E-07	3.92E-07	5.40E-06	5.40E-06	No	No
Vanadium	0.02	1.08E-04	5.29E-05	4.61E-05	4.59E-05	6.84E-05	1.16E-04	1.66E-04	5.45E-05	4.97E-05	5.08E-05	5.17E-05	7.12E-04	7.12E-04	No	No
Yttrium	0.7	7.99E-06	3.91E-06	3.40E-06	3.38E-06	5.05E-06	8.57E-06	1.23E-05	4.02E-06	3.67E-06	3.75E-06	3.81E-06	5.26E-05	5.26E-05	No	No
Zinc	1	1.28E-04	6.43E-05	5.70E-05	5.76E-05	8.36E-05	1.38E-04	2.27E-04	7.63E-05	6.96E-05	7.13E-05	7.25E-05	1.52E-03	1.52E-03	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00001	6.84E-08	3.62E-08	3.31E-08	3.43E-08	4.75E-08	7.52E-08	1.52E-07	5.30E-08	4.84E-08	4.97E-08	5.06E-08	1.52E-06	1.52E-06	No	No
naphthalene	0.3	2.71E-05	1.43E-05	1.31E-05	1.36E-05	1.88E-05	2.97E-05	6.03E-05	2.10E-05	1.92E-05	1.97E-05	2.00E-05	6.02E-04	6.02E-04	No	No
phenanthrene	0.03	2.24E-06	1.18E-06	1.08E-06	1.12E-06	1.55E-06	2.46E-06	4.98E-06	1.73E-06	1.58E-06	1.63E-06	1.65E-06	4.97E-05	4.97E-05	No	No
anthracene	0.03	2.49E-07	1.32E-07	1.21E-07	1.25E-07	1.73E-07	2.74E-07	5.55E-07	1.93E-07	1.77E-07	1.81E-07	1.85E-07	5.5.			

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
dibenzo(a,h)anthracene	0.008	4.75E-08	2.51E-08	2.30E-08	2.38E-08	3.29E-08	5.22E-08	1.06E-07	3.68E-08	3.36E-08	3.45E-08	3.51E-08	1.06E-06	1.06E-06	No	No
indeno(1,2,3-cd)pyrene	0.0009	3.02E-08	1.60E-08	1.46E-08	1.51E-08	2.09E-08	3.32E-08	6.72E-08	2.34E-08	2.14E-08	2.19E-08	2.23E-08	6.71E-07	6.71E-07	No	No
Volatile Oranic Compounds																
1,3-butadiene	0.06	3.49E-04	1.85E-04	1.69E-04	1.75E-04	2.42E-04	3.81E-04	7.80E-04	2.67E-04	2.45E-04	2.51E-04	2.56E-04	7.87E-03	7.87E-03	No	No
acetaldehyde	4	4.70E-02	2.50E-02	2.28E-02	2.36E-02	3.27E-02	5.14E-02	1.05E-01	3.60E-02	3.30E-02	3.39E-02	3.45E-02	1.06E+00	1.06E+00	No	No
acetone	6176	2.47E-02	1.32E-02	1.20E-02	1.24E-02	1.72E-02	2.70E-02	5.53E-02	1.90E-02	1.74E-02	1.78E-02	1.82E-02	5.59E-01	5.59E-01	No	No
acrolein	0.07	8.32E-03	4.43E-03	4.04E-03	4.18E-03	5.78E-03	9.10E-03	1.86E-02	6.38E-03	5.85E-03	5.99E-03	6.11E-03	1.88E-01	1.88E-01	Yes	No*
aldehyde	0.6	6.29E-02	3.34E-02	3.05E-02	3.15E-02	4.37E-02	6.87E-02	1.41E-01	4.82E-02	4.42E-02	4.53E-02	4.61E-02	1.42E+00	1.42E+00	Yes	No*
benzene	0.3	3.08E-03	1.64E-03	1.50E-03	1.55E-03	2.14E-03	3.37E-03	6.89E-03	2.36E-03	2.17E-03	2.22E-03	2.26E-03	6.96E-02	6.96E-02	No	No
C10-C12 aliphatic	233	6.77E-04	3.60E-04	3.29E-04	3.40E-04	4.70E-04	7.40E-04	1.51E-03	5.19E-04	4.76E-04	4.88E-04	4.97E-04	1.53E-02	1.53E-02	No	No
C12-C16 aliphatic	233	3.92E-03	2.09E-03	1.90E-03	1.97E-03	2.72E-03	4.28E-03	8.76E-03	3.00E-03	2.76E-03	2.82E-03	2.88E-03	8.85E-02	8.85E-02	No	No
C12-C16 aromatic	83	5.29E-05	2.81E-05	2.57E-05	2.65E-05	3.67E-05	5.78E-05	1.18E-04	4.05E-05	3.72E-05	3.81E-05	3.88E-05	1.19E-03	1.19E-03	No	No
C16-C21 aliphatic	7	3.93E-03	2.09E-03	1.91E-03	1.97E-03	2.73E-03	4.29E-03	8.78E-03	3.01E-03	2.76E-03	2.83E-03	2.88E-03	8.86E-02	8.86E-02	No	No
C2-C6 aliphatic	38	1.87E-02	9.94E-03	9.07E-03	9.37E-03	1.30E-02	2.04E-02	4.18E-02	1.43E-02	1.31E-02	1.35E-02	1.37E-02	4.22E-01	4.22E-01	No	No
C6-C8 aliphatic	67	1.28E-02	6.80E-03	6.21E-03	6.41E-03	8.88E-03	1.40E-02	2.86E-02	9.79E-03	8.98E-03	9.20E-03	9.38E-03	2.89E-01	2.89E-01	No	No
C8-C10 aliphatic	67	1.80E-04	9.57E-05	8.74E-05	9.03E-05	1.25E-04	1.97E-04	4.02E-04	1.38E-04	1.27E-04	1.30E-04	1.32E-04	4.06E-03	4.06E-03	No	No
C8-C10 aromatic	83	1.01E-03	5.38E-04	4.91E-04	5.08E-04	7.03E-04	1.11E-03	2.26E-03	7.75E-04	7.11E-04	7.29E-04	7.43E-04	2.28E-02	2.28E-02	No	No
ethylbenzene	4	5.29E-04	2.81E-04	2.57E-04	2.65E-04	3.67E-04	5.78E-04	1.18E-03	4.05E-04	3.72E-04	3.81E-04	3.88E-04	1.19E-02	1.19E-02	No	No
ethylene	1200	9.63E-03	5.12E-03	4.68E-03	4.83E-03	6.69E-03	1.05E-02	2.15E-02	7.38E-03	6.77E-03	6.93E-03	7.07E-03	2.17E-01	2.17E-01	No	No
formaldehyde	2	2.51E-02	1.33E-02	1.22E-02	1.26E-02	1.74E-02	2.74E-02	5.61E-02	1.92E-02	1.76E-02	1.81E-02	1.84E-02	5.66E-01	5.66E-01	No	No
ketone	0.4	1.42E-02	7.54E-03	6.88E-03	7.11E-03	9.85E-03	1.55E-02	3.17E-02	1.09E-02	9.96E-03	1.02E-02	1.04E-02	3.20E-01	3.20E-01	No	No
toluene	52	4.48E-03	2.38E-03	2.17E-03	2.25E-03	3.11E-03	4.89E-03	1.00E-02	3.43E-03	3.15E-03	3.22E-03	3.29E-03	1.01E-01	1.01E-01	No	No
trimethylbenzene	83	1.28E-03	6.82E-04	6.23E-04	6.43E-04	8.91E-04	1.40E-03	2.87E-03	9.82E-04	9.01E-04	9.24E-04	9.41E-04	2.90E-02	2.90E-02	No	No
xylenes	44	3.55E-03	1.89E-03	1.73E-03	1.78E-03	2.47E-03	3.89E-03	7.95E-03	2.72E-03	2.50E-03	2.56E-03	2.61E-03	8.03E-02	8.03E-02	No	No

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	12	1.31E+00	2.79E-01	3.78E-01	3.85E-01	4.11E-01	5.99E-01	9.93E-01	7.45E-02	8.45E-02	6.20E-02	7.46E-02	9.57E-02	6.08E-01	4.65E-01	4.19E-01
DPM	0.03	1.46E-01	3.62E-02	3.97E-02	3.97E-02	4.13E-02	5.89E-02	8.60E-02	1.22E-02	1.28E-02	9.15E-03	1.22E-02	1.39E-02	6.37E-02	7.63E-02	6.95E-02
PM10	20	7.94E-01	1.66E-01	2.17E-01	2.21E-01	2.35E-01	3.41E-01	5.35E-01	4.76E-02	5.36E-02	3.87E-02	4.77E-02	5.72E-02	3.49E-01	2.90E-01	2.63E-01
PM2.5	10	3.58E-01	7.79E-02	8.41E-02	8.54E-02	9.09E-02	1.29E-01	2.00E-01	2.43E-02	2.78E-02	1.89E-02	2.43E-02	2.89E-02	1.29E-01	1.45E-01	1.31E-01
SO2	6	1.32E-02	2.77E-03	3.06E-03	3.01E-03	2.92E-03	4.23E-03	6.33E-03	8.71E-04	1.03E-03	6.69E-04	8.72E-04	1.06E-03	4.04E-03	5.43E-03	4.84E-03
CO	NV	2.90E+00	7.12E-01	7.92E-01	7.96E-01	8.75E-01	1.22E+00	1.71E+00	2.38E-01	2.62E-01	1.83E-01	2.38E-01	2.80E-01	1.29E+00	1.45E+00	1.31E+00
NOX	NV	4.10E+00	1.04E+00	1.15E+00	1.14E+00	1.24E+00	1.73E+00	2.43E+00	3.54E-01	3.86E-01	2.71E-01	3.54E-01	4.16E-01	1.79E+00	2.16E+00	1.96E+00
NO2	8	4.10E+00	1.04E+00	1.15E+00	1.14E+00	1.24E+00	1.73E+00	2.43E+00	3.54E-01	3.86E-01	2.71E-01	3.54E-01	4.16E-01	1.79E+00	2.16E+00	1.96E+00
Metals																
Aluminum	3	9.06E-02	1.93E-02	2.62E-02	2.67E-02	2.85E-02	4.15E-02	6.88E-02	5.17E-03	5.86E-03	4.30E-03	5.17E-03	6.64E-03	4.21E-02	3.23E-02	2.91E-02
Antimony	3	5.12E-06	1.09E-06	1.48E-06	1.51E-06	1.61E-06	2.34E-06	3.89E-06	2.92E-07	3.31E-07	2.43E-07	2.92E-07	3.75E-07	2.38E-06	1.82E-06	1.64E-06
Arsenic	0.003	1.45E-04	3.10E-05	4.19E-05	4.27E-05	4.56E-05	6.65E-05	1.10E-04	8.28E-06	9.39E-06	6.89E-06	8.28E-06	1.06E-05	6.75E-05	5.16E-05	4.65E-05
Barium	0.3	5.11E-04	1.09E-04	1.48E-04	1.50E-04	1.61E-04	2.34E-04	3.88E-04	2.91E-05	3.31E-05	2.43E-05	2.92E-05	3.74E-05	2.38E-04	1.82E-04	1.64E-04
Beryllium	0.0014	9.51E-07	2.03E-07	2.75E-07	2.80E-07	2.99E-07	4.36E-07	7.23E-07	5.42E-08	6.15E-08	4.51E-08	5.43E-08	6.97E-08	4.43E-07	3.38E-07	3.05E-07
Bismuth	3	2.61E-07	5.58E-08	7.55E-08	7.69E-08	8.22E-08	1.20E-07	1.99E-07	1.49E-08	1.69E-08	1.24E-08	1.49E-08	1.91E-08	1.22E-07	9.30E-08	8.38E-08
Cadmium	0.001	8.77E-05	2.18E-05	2.39E-05	2.39E-05	2.49E-05	3.55E-05	5.19E-05	7.33E-06	7.71E-06	5.51E-06	7.34E-06	8.36E-06	3.84E-05	4.59E-05	4.18E-05
Calcium	NV	5.16E-02	1.10E-02	1.49E-02	1.52E-02	1.62E-02	2.37E-02	3.93E-02	2.95E-03	3.34E-03	2.45E-03	2.95E-03	3.78E-03	2.40E-02	1.84E-02	1.66E-02
Chromium	0.03	2.32E-04	5.00E-05	6.68E-05	6.79E-05	7.25E-05	1.05E-04	1.74E-04	1.36E-05	1.53E-05	1.12E-05	1.36E-05	1.73E-05	1.07E-04	8.50E-05	7.67E-05
Cobalt	0.02	3.50E-05	7.47E-06	1.01E-05	1.03E-05	1.10E-05	1.60E-05	2.66E-05	2.00E-06	2.26E-06	1.66E-06	2.00E-06	2.56E-06	1.63E-05	1.25E-05	1.12E-05
Copper	0.7	9.26E-05	1.98E-05	2.68E-05	2.73E-05	2.91E-05	4.24E-05	7.04E-05	5.28E-06	5.99E-06	4.40E-06	5.29E-06	6.78E-06	4.31E-05	3.30E-05	2.97E-05
Gold	1.7	1.01E-07	2.16E-08	2.92E-08	2.98E-08	3.18E-08	4.63E-08	7.69E-08	5.77E-09	6.54E-09	4.80E-09	5.77E-09	7.41E-09	4.71E-08	3.60E-08	3.25E-08
Iron	0.7	9.93E-02	2.12E-02	2.87E-02	2.92E-02	3.12E-02	4.55E-02	7.55E-02	5.67E-03	6.42E-03	4.71E-03	5.67E-03	7.27E-03	4.62E-02	3.53E-02	3.19E-02
Lead	0.04	3.02E-05	6.95E-06	8.48E-06	8.56E-06	9.04E-06	1.30E-05	2.05E-05	2.11E-06	2.29E-06	1.66E-06	2.11E-06	2.53E-06	1.36E-05	1.32E-05	1.20E-05
Lithium	NV	4.22E-05	9.01E-06	1.22E-05	1.24E-05	1.33E-05	1.94E-05	3.21E-05	2.41E-06	2.73E-06	2.01E-06	2.41E-06	3.09E-06	1.97E-05	1.50E-05	1.36E-05
Magnesium	3	2.74E-02	5.85E-03	7.92E-03	8.07E-03	8.61E-03	1.25E-02	2.08E-02	1.56E-03	1.77E-03	1.30E-03	1.56E-03	2.01E-03	1.27E-02	9.75E-03	8.79E-03
Manganese	0.02	1.03E-03	2.20E-04	2.98E-04	3.03E-04	3.24E-04	4.72E-04	7.83E-04	5.87E-05	6.66E-05	4.89E-05	5.88E-05	7.54E-05	4.79E-04	3.66E-04	3.30E-04
Molybdenum	2	1.57E-06	3.35E-07	4.53E-07	4.62E-07	4.93E-07	7.18E-07	1.19E-06	8.94E-08	1.01E-07	7.44E-08	8.95E-08	1.15E-07	7.30E-07	5.58E-07	5.03E-07
Nickel	0.0028	9.08E-05	1.94E-05	2.63E-05	2.67E-05	2.86E-05	4.16E-05	6.90E-05	5.18E-06	5.88E-06	4.31E-06	5.18E-06	6.65E-06	4.23E-05	3.23E-05	2.91E-05
Potassium	1	1.73E-02	3.70E-03	5.01E-03	5.10E-03	5.45E-03	7.94E-03	1.32E-02	9.89E-04	1.12E-03	8.23E-04	9.89E-04	1.27E-03	8.07E-03	6.17E-03	5.56E-03
Selenium	4	1.56E-06	3.34E-07	4.52E-07	4.60E-07	4.92E-07	7.16E-07	1.19E-06	8.92E-08	1.01E-07	7.42E-08	8.92E-08	1.15E-07	7.28E-07	5.57E-07	5.02E-07
Silver	0.007	3.85E-07	8.21E-08	1.11E-07	1.13E-07	1.21E-07	1.76E-07	2.93E-07	2.20E-08	2.49E-08	1.83E-08	2.20E-08	2.82E-08	1.79E-07	1.37E-07	1.23E-07
Sodium	NV	2.07E-02	4.42E-03	5.98E-03	6.10E-03	6.51E-03	9.48E-03	1.57E-02	1.18E-03	1.34E-03	9.83E-04	1.18E-03	1.52E-03	9.63E-03	7.37E-03	6.64E-03
Strontium	1	2.77E-04	5.90E-05	8.00E-05	8.14E-05	8.70E-05	1.27E-04	2.10E-04	1.58E-05	1.79E-05	1.31E-05	1.58E-05	2.03E-05	1.29E-04	9.85E-05	8.88E-05
Thallium	0.07	4.00E-07	8.53E-08	1.15E-07	1.18E-07	1.26E-07	1.83E-07	3.04E-07	2.28E-08	2.58E-08	1.90E-08	2.28E-08	2.93E-08	1.86E-07	1.42E-07	1.28E-07
Tin	1	1.41E-06	3.01E-07	4.07E-07	4.15E-07	4.43E-07	6.45E-07	1.07E-06	8.03E-08	9.11E-08	6.69E-08	8.04E-08	1.03E-07	6.55E-07	5.01E-07	4.52E-07
Titanium	3	4.55E-03	9.72E-04	1.32E-03	1.34E-03	1.43E-03	2.09E-03	3.46E-03	2.60E-04	2.95E-04	2.16E-04	2.60E-04	3.34E-04	2.12E-03	1.62E-03	1.46E-03
Uranium	0.006	1.27E-06	2.71E-07	3.67E-07	3.74E-07	4.00E-07	5.82E-07	9.66E-07	7.25E-08	8.22E-08	6.03E-08	7.25E-08	9.31E-08	5.91E-07	4.52E-07	4.08E-07
Vanadium	0.02	1.67E-04	3.57E-05	4.84E-05	4.93E-05	5.27E-05	7.67E-05	1.27E-04	9.55E-06	1.08E-05	7.95E-06	9.56E-06	1.23E-05	7.79E-05	5.96E-05	5.37E-05
Yttrium	0.7	1.24E-05	2.64E-06	3.57E-06												

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	0.008	1.11E-07	2.77E-08	3.03E-08	3.03E-08	3.16E-08	4.50E-08	6.57E-08	9.31E-09	9.79E-09	6.99E-09	9.31E-09	1.06E-08	4.87E-08	5.83E-08	5.30E-08
indeno(1,2,3-cd)pyrene	0.0009	7.07E-08	1.76E-08	1.93E-08	1.93E-08	2.01E-08	2.86E-08	4.17E-08	5.92E-09	6.22E-09	4.44E-09	5.92E-09	6.74E-09	3.10E-08	3.70E-08	3.37E-08
Volatile Oranic Compounds																
1,3-butadiene	0.06	8.12E-04	2.06E-04	2.26E-04	2.26E-04	2.45E-04	3.43E-04	4.84E-04	6.98E-05	7.58E-05	5.35E-05	6.98E-05	8.19E-05	3.60E-04	4.31E-04	3.91E-04
acetaldehyde	4	1.09E-01	2.78E-02	3.05E-02	3.05E-02	3.30E-02	4.63E-02	6.53E-02	9.41E-03	1.02E-02	7.22E-03	9.42E-03	1.10E-02	4.86E-02	5.81E-02	5.27E-02
acetone	6176	5.76E-02	1.46E-02	1.61E-02	1.61E-02	1.74E-02	2.44E-02	3.44E-02	4.95E-03	5.38E-03	3.80E-03	4.96E-03	5.81E-03	2.56E-02	3.06E-02	2.77E-02
acrolein	0.07	1.94E-02	4.92E-03	5.40E-03	5.40E-03	5.84E-03	8.20E-03	1.16E-02	1.67E-03	1.81E-03	1.28E-03	1.67E-03	1.95E-03	8.60E-03	1.03E-02	9.33E-03
aldehyde	0.6	1.46E-01	3.72E-02	4.08E-02	4.08E-02	4.41E-02	6.19E-02	8.73E-02	1.26E-02	1.37E-02	9.65E-03	1.26E-02	1.48E-02	6.50E-02	7.77E-02	7.05E-02
benzene	0.3	7.17E-03	1.82E-03	2.00E-03	2.00E-03	2.16E-03	3.04E-03	4.28E-03	6.17E-04	6.70E-04	4.73E-04	6.17E-04	7.24E-04	3.19E-03	3.81E-03	3.46E-03
C10-C12 aliphatic	233	1.58E-03	4.00E-04	4.39E-04	4.39E-04	4.75E-04	6.67E-04	9.40E-04	1.35E-04	1.47E-04	1.04E-04	1.36E-04	1.59E-04	7.00E-04	8.37E-04	7.59E-04
C12-C16 aliphatic	233	9.12E-03	2.32E-03	2.55E-03	2.54E-03	2.75E-03	3.86E-03	5.44E-03	7.85E-04	8.53E-04	6.02E-04	7.85E-04	9.20E-04	4.05E-03	4.85E-03	4.40E-03
C12-C16 aromatic	83	1.23E-04	3.13E-05	3.43E-05	3.43E-05	3.71E-05	5.21E-05	7.34E-05	1.06E-05	1.15E-05	8.12E-06	1.06E-05	1.24E-05	5.46E-05	6.54E-05	5.93E-05
C16-C21 aliphatic	7	9.14E-03	2.32E-03	2.55E-03	2.55E-03	2.76E-03	3.87E-03	5.45E-03	7.86E-04	8.54E-04	6.03E-04	7.86E-04	9.22E-04	4.06E-03	4.85E-03	4.40E-03
C2-C6 aliphatic	38	4.35E-02	1.10E-02	1.21E-02	1.21E-02	1.31E-02	1.84E-02	2.59E-02	3.74E-03	4.06E-03	2.87E-03	3.74E-03	4.39E-03	1.93E-02	2.31E-02	2.09E-02
C6-C8 aliphatic	67	2.97E-02	7.56E-03	8.30E-03	8.29E-03	8.97E-03	1.26E-02	1.77E-02	2.56E-03	2.78E-03	1.96E-03	2.56E-03	3.00E-03	1.32E-02	1.58E-02	1.43E-02
C8-C10 aliphatic	67	4.19E-04	1.06E-04	1.17E-04	1.17E-04	1.26E-04	1.77E-04	2.50E-04	3.60E-05	3.91E-05	2.76E-05	3.60E-05	4.23E-05	1.86E-04	2.22E-04	2.02E-04
C8-C10 aromatic	83	2.35E-03	5.98E-04	6.57E-04	6.56E-04	7.10E-04	9.96E-04	1.40E-03	2.02E-04	2.20E-04	1.55E-04	2.03E-04	2.38E-04	1.05E-03	1.25E-03	1.13E-03
ethylbenzene	4	1.23E-03	3.13E-04	3.43E-04	3.43E-04	3.71E-04	5.21E-04	7.34E-04	1.06E-04	1.15E-04	8.12E-05	1.06E-04	1.24E-04	5.46E-04	6.54E-04	5.93E-04
ethylene	1200	2.24E-02	5.69E-03	6.25E-03	6.25E-03	6.76E-03	9.48E-03	1.34E-02	1.93E-03	2.09E-03	1.48E-03	1.93E-03	2.26E-03	9.95E-03	1.19E-02	1.08E-02
formaldehyde	2	5.84E-02	1.48E-02	1.63E-02	1.63E-02	1.76E-02	2.47E-02	3.48E-02	5.02E-03	5.46E-03	3.85E-03	5.02E-03	5.89E-03	2.59E-02	3.10E-02	2.81E-02
ketone	0.4	3.30E-02	8.38E-03	9.20E-03	9.20E-03	9.95E-03	1.40E-02	1.97E-02	2.84E-03	3.08E-03	2.18E-03	2.84E-03	3.33E-03	1.47E-02	1.75E-02	1.59E-02
toluene	52	1.04E-02	2.65E-03	2.91E-03	2.90E-03	3.14E-03	4.41E-03	6.22E-03	8.96E-04	9.74E-04	6.87E-04	8.97E-04	1.05E-03	4.63E-03	5.53E-03	5.02E-03
trimethylbenzene	83	2.98E-03	7.58E-04	8.33E-04	8.32E-04	9.00E-04	1.26E-03	1.78E-03	2.57E-04	2.79E-04	1.97E-04	2.57E-04	3.01E-04	1.33E-03	1.59E-03	1.44E-03
xylenes	44	8.27E-03	2.10E-03	2.31E-03	2.31E-03	2.50E-03	3.50E-03	4.93E-03	7.11E-04	7.73E-04	5.46E-04	7.12E-04	8.35E-04	3.67E-03	4.39E-03	3.99E-03

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
Criteria Pollutants																
SPM	12	1.34E-01	9.31E-02	8.64E-02	9.08E-02	1.16E-01	1.48E-01	8.50E-01	4.36E-01	2.71E-01	2.81E-01	2.90E-01	8.21E+00	8.21E+00	No	No
DPM	0.03	2.35E-02	1.77E-02	1.71E-02	1.89E-02	2.27E-02	2.78E-02	1.38E-01	5.55E-02	4.44E-02	4.57E-02	4.69E-02	1.63E+00	1.63E+00	Yes	Yes
PM10	20	8.62E-02	6.10E-02	5.66E-02	6.10E-02	7.53E-02	9.56E-02	5.29E-01	2.59E-01	1.69E-01	1.76E-01	1.82E-01	6.42E+00	6.42E+00	No	No
PM2.5	10	4.48E-02	3.31E-02	3.20E-02	3.49E-02	4.26E-02	5.25E-02	2.63E-01	1.15E-01	8.58E-02	8.88E-02	9.12E-02	4.46E+00	4.46E+00	No	No
SO2	6	1.65E-03	1.23E-03	1.18E-03	1.28E-03	1.56E-03	1.91E-03	9.46E-03	3.87E-03	3.04E-03	3.14E-03	3.23E-03	2.00E-01	2.00E-01	No	No
CO	NV	4.43E-01	3.34E-01	3.23E-01	3.55E-01	4.29E-01	5.26E-01	2.64E+00	1.07E+00	8.47E-01	8.73E-01	8.96E-01	2.98E+01	2.98E+01	No	No
NOX	NV	6.71E-01	5.07E-01	4.91E-01	5.38E-01	6.48E-01	7.93E-01	3.90E+00	1.57E+00	1.26E+00	1.30E+00	1.33E+00	4.59E+01	4.59E+01	No	No
NO2	8	6.71E-01	5.07E-01	4.91E-01	5.38E-01	6.48E-01	7.93E-01	3.90E+00	1.57E+00	1.26E+00	1.30E+00	1.33E+00	4.59E+01	4.59E+01	Yes	Yes
Metals																
Aluminum	3	9.28E-03	6.46E-03	6.00E-03	6.30E-03	8.05E-03	1.03E-02	5.89E-02	3.02E-02	1.88E-02	1.95E-02	2.01E-02	5.70E-01	5.70E-01	No	No
Antimony	3	5.24E-07	3.65E-07	3.38E-07	3.55E-07	4.54E-07	5.81E-07	3.33E-06	1.71E-06	1.06E-06	1.10E-06	1.13E-06	3.21E-05	3.21E-05	No	No
Arsenic	0.003	1.49E-05	1.03E-05	9.60E-06	1.01E-05	1.29E-05	1.65E-05	9.43E-05	4.84E-05	3.01E-05	3.12E-05	3.22E-05	9.11E-04	9.11E-04	No	No
Barium	0.3	5.23E-05	3.64E-05	3.38E-05	3.55E-05	4.53E-05	5.80E-05	3.32E-04	1.70E-04	1.06E-04	1.10E-04	1.13E-04	3.21E-03	3.21E-03	No	No
Beryllium	0.0014	9.74E-08	6.78E-08	6.29E-08	6.61E-08	8.44E-08	1.08E-07	6.18E-07	3.17E-07	1.98E-07	2.05E-07	2.11E-07	5.97E-06	5.97E-06	No	No
Bismuth	3	2.68E-08	1.86E-08	1.73E-08	1.82E-08	2.32E-08	2.97E-08	1.70E-07	8.72E-08	5.43E-08	5.62E-08	5.80E-08	1.64E-06	1.64E-06	No	No
Cadmium	0.001	1.41E-05	1.06E-05	1.03E-05	1.13E-05	1.37E-05	1.67E-05	8.29E-05	3.34E-05	2.67E-05	2.75E-05	2.82E-05	9.80E-04	9.80E-04	No	No
Calcium	NV	5.29E-03	3.68E-03	3.42E-03	3.59E-03	4.58E-03	5.86E-03	3.36E-02	1.72E-02	1.07E-02	1.11E-02	1.15E-02	3.24E-01	3.24E-01	No	No
Chromium	0.03	2.46E-05	1.73E-05	1.61E-05	1.70E-05	2.16E-05	2.75E-05	1.55E-04	7.80E-05	4.96E-05	5.13E-05	5.29E-05	1.53E-03	1.53E-03	No	No
Cobalt	0.02	3.58E-06	2.50E-06	2.32E-06	2.43E-06	3.11E-06	3.97E-06	2.28E-05	1.17E-05	7.27E-06	7.54E-06	7.77E-06	2.20E-04	2.20E-04	No	No
Copper	0.7	9.48E-06	6.60E-06	6.13E-06	6.43E-06	8.22E-06	1.05E-05	6.02E-05	3.09E-05	1.92E-05	1.99E-05	2.05E-05	5.82E-04	5.82E-04	No	No
Gold	1.7	1.04E-08	7.21E-09	6.69E-09	7.03E-09	8.98E-09	1.15E-08	6.58E-08	3.37E-08	2.10E-08	2.18E-08	2.24E-08	6.36E-07	6.36E-07	No	No
Iron	0.7	1.02E-02	7.08E-03	6.57E-03	6.90E-03	8.81E-03	1.13E-02	6.46E-02	3.31E-02	2.06E-02	2.14E-02	2.20E-02	6.24E-01	6.24E-01	No	No
Lead	0.04	3.94E-06	2.88E-06	2.75E-06	2.97E-06	3.66E-06	4.56E-06	2.39E-05	1.08E-05	7.68E-06	7.93E-06	8.15E-06	2.61E-04	2.61E-04	No	No
Lithium	NV	4.32E-06	3.01E-06	2.79E-06	2.93E-06	3.75E-06	4.80E-06	2.75E-05	1.41E-05	8.77E-06	9.09E-06	9.37E-06	2.65E-04	2.65E-04	No	No
Magnesium	3	2.80E-03	1.95E-03	1.81E-03	1.90E-03	2.43E-03	3.11E-03	1.78E-02	9.14E-03	5.69E-03	5.90E-03	6.08E-03	1.72E-01	1.72E-01	No	No
Manganese	0.02	1.05E-04	7.34E-05	6.81E-05	7.15E-05	9.14E-05	1.17E-04	6.70E-04	3.43E-04	2.14E-04	2.22E-04	2.28E-04	6.47E-03	6.47E-03	No	No
Molybdenum	2	1.61E-07	1.12E-07	1.04E-07	1.09E-07	1.39E-07	1.78E-07	1.02E-06	5.23E-07	3.26E-07	3.37E-07	3.48E-07	9.85E-06	9.85E-06	No	No
Nickel	0.0028	9.30E-06	6.47E-06	6.01E-06	6.31E-06	8.06E-06	1.03E-05	5.91E-05	3.03E-05	1.89E-05	1.96E-05	2.01E-05	5.71E-04	5.71E-04	No	No
Potassium	1	1.77E-03	1.24E-03	1.15E-03	1.20E-03	1.54E-03	1.97E-03	1.13E-02	5.78E-03	3.60E-03	3.73E-03	3.84E-03	1.09E-01	1.09E-01	No	No
Selenium	4	1.60E-07	1.11E-07	1.03E-07	1.09E-07	1.39E-07	1.78E-07	1.02E-06	5.22E-07	3.25E-07	3.37E-07	3.47E-07	9.82E-06	9.82E-06	No	No
Silver	0.007	3.94E-08	2.74E-08	2.55E-08	2.67E-08	3.42E-08	4.37E-08	2.50E-07	1.28E-07	7.99E-08	8.28E-08	8.54E-08	2.42E-06	2.42E-06	No	No
Sodium	NV	2.12E-03	1.48E-03	1.37E-03	1.44E-03	1.84E-03	2.35E-03	1.35E-02	6.91E-03	4.30E-03	4.46E-03	4.59E-03	1.30E-01	1.30E-01	No	No
Strontium	1	2.83E-05	1.97E-05	1.83E-05	1.92E-05	2.46E-05	3.14E-05	1.80E-04	9.23E-05	5.75E-05	5.95E-05	6.14E-05	1.74E-03	1.74E-03	No	No
Thallium	0.07	4.09E-08	2.85E-08	2.64E-08	2.78E-08	3.55E-08	4.54E-08	2.60E-07	1.33E-07	8.30E-08	8.60E-08	8.86E-08	2.51E-06	2.51E-06	No	No
Tin	1	1.44E-07	1.00E-07	9.32E-08	9.79E-08	1.25E-07	1.60E-07	9.16E-07	4.70E-07	2.93E-07	3.03E-07	3.12E-07	8.85E-06	8.85E-06	No	No
Titanium	3	4.66E-04	3.25E-04	3.01E-04	3.16E-04	4.04E-04	5.17E-04	2.96E-03	1.52E-03	9.46E-04	9.80E-04	1.01E-03	2.86E-02	2.86E-02	No	No
Uranium	0.006	1.30E-07	9.06E-08	8.41E-08	8.83E-08	1.13E-07	1.44E-07	8.26E-07	4.24E-07	2.64E-07	2.74E-07	2.82E-07	7.98E-06	7.98E-06	No	No
Vanadium	0.02	1.71E-05	1.19E-05	1.11E-05	1.16E-05	1.49E-05	1.90E-05	1.09E-04	5.59E-05	3.48E-05	3.61E-05	3.72E-05	1.05E-03	1.05E-03	No	No
Yttrium	0.7	1.27E-06	8.81E-07	8.18E-07	8.59E-07	1.10E-06	1.40E-06	8.04E-06	4.12E-06	2.57E-06	2.66E-06	2.74E-06	7.77E-05	7.77E-05	No	No
Zinc	1	2.98E-05	2.17E-05	2.07E-05	2.23E-05	2.75E-05	3.43E-05	1.81E-04	8.25E-05	5.82E-05	6.02E-05	6.18E-05	1.96E-03	1.96E-03	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00001	2.58E-08	1.95E-08	1.89E-08	2.08E-08	2.50E-08	3.06E-08	1.52E-07	6.11E-08	4.89E-08	5.03E-08	5.16E-08	1.79E-06	1.79E-06	No	No
naphthalene	0.3	1.02E-05	7.71E-06	7.47E-06	8.21E-06	9.89E-06	1.21E-05	6.00E-05	2.42E-05	1.93E-05	1.99E-05	2.04E-05	7.10E-04	7.10E-04	No	No
phenanthrene	0.03	8.44E-07	6.37E-07	6.17E-07	6.79E-07	8.17E-07	1.00E-06	4.95E-06	2.00E-06	1.60E-06	1.65E-06	1.69E-06	5.86E-05	5.86E-05	No	No
anthracene	0.03	9.42E-08	7.10E-08	6.88E-08	7.57E-08	9.11E-08	1.12E-07	5.53E-07	2.23E-07	1.78E-07	1.83E-07	1.88E-07	6.			

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
dibenzo(a,h)anthracene	0.008	1.79E-08	1.35E-08	1.31E-08	1.44E-08	1.73E-08	2.13E-08	1.05E-07	4.24E-08	3.39E-08	3.49E-08	3.58E-08	1.24E-06	1.24E-06	No	No
indeno(1,2,3-cd)pyrene	0.0009	1.14E-08	8.59E-09	8.33E-09	9.16E-09	1.10E-08	1.35E-08	6.69E-08	2.70E-08	2.16E-08	2.22E-08	2.28E-08	7.92E-07	7.92E-07	No	No
Volatile Oranic Compounds																
1,3-butadiene	0.06	1.33E-04	1.00E-04	9.69E-05	1.06E-04	1.28E-04	1.56E-04	7.83E-04	3.09E-04	2.47E-04	2.54E-04	2.61E-04	9.27E-03	9.27E-03	No	No
acetaldehyde	4	1.80E-02	1.35E-02	1.31E-02	1.43E-02	1.72E-02	2.11E-02	1.06E-01	4.17E-02	3.33E-02	3.42E-02	3.51E-02	1.25E+00	1.25E+00	No	No
acetone	6176	9.45E-03	7.12E-03	6.88E-03	7.51E-03	9.07E-03	1.11E-02	5.56E-02	2.20E-02	1.75E-02	1.80E-02	1.85E-02	6.58E-01	6.58E-01	No	No
acrolein	0.07	3.18E-03	2.40E-03	2.31E-03	2.53E-03	3.05E-03	3.73E-03	1.87E-02	7.39E-03	5.89E-03	6.06E-03	6.22E-03	2.21E-01	2.21E-01	Yes	No*
aldehyde	0.6	2.40E-02	1.81E-02	1.75E-02	1.91E-02	2.31E-02	2.82E-02	1.41E-01	5.58E-02	4.45E-02	4.58E-02	4.70E-02	1.67E+00	1.67E+00	Yes	No*
benzene	0.3	1.18E-03	8.87E-04	8.57E-04	9.35E-04	1.13E-03	1.38E-03	6.92E-03	2.73E-03	2.18E-03	2.24E-03	2.30E-03	8.20E-02	8.20E-02	No	No
C10-C12 aliphatic	233	2.59E-04	1.95E-04	1.88E-04	2.05E-04	2.48E-04	3.04E-04	1.52E-03	6.01E-04	4.79E-04	4.93E-04	5.06E-04	1.80E-02	1.80E-02	No	No
C12-C16 aliphatic	233	1.50E-03	1.13E-03	1.09E-03	1.19E-03	1.44E-03	1.76E-03	8.80E-03	3.48E-03	2.78E-03	2.85E-03	2.93E-03	1.04E-01	1.04E-01	No	No
C12-C16 aromatic	83	2.02E-05	1.52E-05	1.47E-05	1.60E-05	1.94E-05	2.37E-05	1.19E-04	4.69E-05	3.74E-05	3.85E-05	3.95E-05	1.41E-03	1.41E-03	No	No
C16-C21 aliphatic	7	1.50E-03	1.13E-03	1.09E-03	1.19E-03	1.44E-03	1.76E-03	8.81E-03	3.48E-03	2.78E-03	2.86E-03	2.93E-03	1.04E-01	1.04E-01	No	No
C2-C6 aliphatic	38	7.14E-03	5.38E-03	5.19E-03	5.67E-03	6.85E-03	8.38E-03	4.20E-02	1.66E-02	1.32E-02	1.36E-02	1.40E-02	4.97E-01	4.97E-01	No	No
C6-C8 aliphatic	67	4.88E-03	3.68E-03	3.55E-03	3.88E-03	4.68E-03	5.73E-03	2.87E-02	1.13E-02	9.05E-03	9.30E-03	9.55E-03	3.40E-01	3.40E-01	No	No
C8-C10 aliphatic	67	6.87E-05	5.18E-05	5.00E-05	5.46E-05	6.60E-05	8.07E-05	4.04E-04	1.60E-04	1.27E-04	1.31E-04	1.35E-04	4.79E-03	4.79E-03	No	No
C8-C10 aromatic	83	3.86E-04	2.91E-04	2.81E-04	3.07E-04	3.71E-04	4.54E-04	2.27E-03	8.98E-04	7.16E-04	7.37E-04	7.56E-04	2.69E-02	2.69E-02	No	No
ethylbenzene	4	2.02E-04	1.52E-04	1.47E-04	1.60E-04	1.94E-04	2.37E-04	1.19E-03	4.69E-04	3.74E-04	3.85E-04	3.95E-04	1.41E-02	1.41E-02	No	No
ethylene	1200	3.68E-03	2.77E-03	2.68E-03	2.92E-03	3.53E-03	4.32E-03	2.16E-02	8.54E-03	6.82E-03	7.01E-03	7.20E-03	2.56E-01	2.56E-01	No	No
formaldehyde	2	9.58E-03	7.22E-03	6.97E-03	7.61E-03	9.20E-03	1.12E-02	5.63E-02	2.23E-02	1.78E-02	1.83E-02	1.87E-02	6.67E-01	6.67E-01	No	No
ketone	0.4	5.41E-03	4.08E-03	3.94E-03	4.30E-03	5.20E-03	6.36E-03	3.18E-02	1.26E-02	1.00E-02	1.03E-02	1.06E-02	3.77E-01	3.77E-01	No	No
toluene	52	1.71E-03	1.29E-03	1.24E-03	1.36E-03	1.64E-03	2.01E-03	1.01E-02	3.97E-03	3.17E-03	3.26E-03	3.35E-03	1.19E-01	1.19E-01	No	No
trimethylbenzene	83	4.90E-04	3.69E-04	3.56E-04	3.89E-04	4.70E-04	5.75E-04	2.88E-03	1.14E-03	9.08E-04	9.33E-04	9.58E-04	3.41E-02	3.41E-02	No	No
xylenes	44	1.36E-03	1.02E-03	9.88E-04	1.08E-03	1.30E-03	1.59E-03	7.98E-03	3.15E-03	2.52E-03	2.59E-03	2.66E-03	9.45E-02	9.45E-02	No	No

All air concentrations are in units of µg/m³
Carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3

3.20E+01

 = greater than annual air threshold
* Using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2 in the DDEAR.

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
Criteria Pollutants																
SPM	12	2.37E-01	5.38E-02	6.26E-02	6.07E-02	5.62E-02	8.03E-02	1.12E-01	1.76E-02	1.95E-02	1.29E-02	1.76E-02	2.07E-02	7.21E-02	1.20E-01	1.05E-01
DPM	0.03	8.75E-02	2.24E-02	2.81E-02	2.64E-02	2.31E-02	3.39E-02	4.25E-02	8.48E-03	8.59E-03	6.06E-03	8.49E-03	9.68E-03	2.87E-02	5.92E-02	5.24E-02
PM10	20	2.36E-01	5.37E-02	6.27E-02	6.07E-02	5.61E-02	8.02E-02	1.11E-01	1.77E-02	1.96E-02	1.29E-02	1.77E-02	2.08E-02	7.17E-02	1.20E-01	1.05E-01
PM2.5	10	2.14E-01	4.97E-02	5.89E-02	5.68E-02	5.20E-02	7.37E-02	1.02E-01	1.67E-02	1.89E-02	1.24E-02	1.67E-02	2.00E-02	6.34E-02	1.13E-01	9.88E-02
SO2	6	1.03E-02	2.23E-03	2.59E-03	2.52E-03	2.35E-03	3.28E-03	4.67E-03	7.23E-04	8.48E-04	5.45E-04	7.24E-04	8.77E-04	2.86E-03	4.78E-03	4.18E-03
CO	NV	1.55E+00	4.01E-01	5.04E-01	4.71E-01	4.12E-01	6.00E-01	7.55E-01	1.53E-01	1.60E-01	1.13E-01	1.53E-01	1.78E-01	5.07E-01	1.04E+00	9.23E-01
NOX	NV	2.49E+00	6.44E-01	8.09E-01	7.57E-01	6.62E-01	9.65E-01	1.21E+00	2.46E-01	2.56E-01	1.81E-01	2.46E-01	2.86E-01	8.17E-01	1.68E+00	1.48E+00
NO2	8	2.49E+00	6.44E-01	8.09E-01	7.57E-01	6.62E-01	9.65E-01	1.21E+00	2.46E-01	2.56E-01	1.81E-01	2.46E-01	2.86E-01	8.17E-01	1.68E+00	1.48E+00
Metals																
Aluminum	3	1.65E-02	3.74E-03	4.36E-03	4.23E-03	3.91E-03	5.59E-03	7.76E-03	1.22E-03	1.36E-03	8.95E-04	1.23E-03	1.44E-03	5.01E-03	8.33E-03	7.28E-03
Antimony	3	9.29E-07	2.11E-07	2.45E-07	2.38E-07	2.20E-07	3.15E-07	4.37E-07	6.89E-08	7.65E-08	5.04E-08	6.90E-08	8.10E-08	2.82E-07	4.69E-07	4.10E-07
Arsenic	0.003	2.63E-05	5.98E-06	6.95E-06	6.74E-06	6.25E-06	8.92E-06	1.24E-05	1.95E-06	2.17E-06	1.43E-06	1.96E-06	2.30E-06	8.00E-06	1.33E-05	1.16E-05
Barium	0.3	9.28E-05	2.10E-05	2.45E-05	2.37E-05	2.20E-05	3.14E-05	4.36E-05	6.88E-06	7.64E-06	5.03E-06	6.89E-06	8.08E-06	2.82E-05	4.68E-05	4.09E-05
Beryllium	0.0014	1.73E-07	3.92E-08	4.56E-08	4.42E-08	4.09E-08	5.85E-08	8.12E-08	1.28E-08	1.42E-08	9.36E-09	1.28E-08	1.50E-08	5.24E-08	8.71E-08	7.61E-08
Bismuth	3	4.75E-08	1.08E-08	1.25E-08	1.21E-08	1.12E-08	1.61E-08	2.23E-08	3.52E-09	3.91E-09	2.57E-09	3.52E-09	4.14E-09	1.44E-08	2.39E-08	2.09E-08
Cadmium	0.001	5.25E-05	1.35E-05	1.69E-05	1.58E-05	1.38E-05	2.04E-05	2.55E-05	5.09E-06	5.16E-06	3.64E-06	5.10E-06	5.82E-06	1.72E-05	3.56E-05	3.14E-05
Calcium	NV	9.38E-03	2.13E-03	2.47E-03	2.40E-03	2.22E-03	3.17E-03	4.41E-03	6.96E-04	7.73E-04	5.08E-04	6.96E-04	8.17E-04	2.85E-03	4.73E-03	4.13E-03
Chromium	0.03	4.82E-05	1.12E-05	1.32E-05	1.27E-05	1.17E-05	1.68E-05	2.28E-05	3.77E-06	4.11E-06	2.75E-06	3.78E-06	4.41E-06	1.48E-05	2.58E-05	2.26E-05
Cobalt	0.02	6.36E-06	1.44E-06	1.68E-06	1.63E-06	1.51E-06	2.15E-06	2.99E-06	4.71E-07	5.24E-07	3.45E-07	4.72E-07	5.54E-07	1.93E-06	3.21E-06	2.80E-06
Copper	0.7	1.68E-05	3.81E-06	4.44E-06	4.30E-06	3.99E-06	5.69E-06	7.91E-06	1.25E-06	1.39E-06	9.12E-07	1.25E-06	1.47E-06	5.11E-06	8.48E-06	7.41E-06
Gold	1.7	1.84E-08	4.17E-09	4.85E-09	4.70E-09	4.36E-09	6.22E-09	8.64E-09	1.36E-09	1.51E-09	9.96E-10	1.36E-09	1.60E-09	5.58E-09	9.27E-09	8.10E-09
Iron	0.7	1.80E-02	4.09E-03	4.76E-03	4.62E-03	4.28E-03	6.11E-03	8.48E-03	1.34E-03	1.49E-03	9.78E-04	1.34E-03	1.57E-03	5.48E-03	9.10E-03	7.95E-03
Lead	0.04	1.16E-05	2.88E-06	3.56E-06	3.36E-06	2.98E-06	4.35E-06	5.58E-06	1.06E-06	1.09E-06	7.59E-07	1.06E-06	1.22E-06	3.73E-06	7.35E-06	6.49E-06
Lithium	NV	7.67E-06	1.74E-06	2.02E-06	1.96E-06	1.82E-06	2.60E-06	3.61E-06	5.69E-07	6.32E-07	4.16E-07	5.70E-07	6.68E-07	2.33E-06	3.87E-06	3.38E-06
Magnesium	3	4.97E-03	1.13E-03	1.31E-03	1.27E-03	1.18E-03	1.68E-03	2.34E-03	3.69E-04	4.10E-04	2.70E-04	3.69E-04	4.33E-04	1.51E-03	2.51E-03	2.19E-03
Manganese	0.02	1.87E-04	4.24E-05	4.93E-05	4.79E-05	4.43E-05	6.33E-05	8.79E-05	1.39E-05	1.54E-05	1.01E-05	1.39E-05	1.63E-05	5.68E-05	9.43E-05	8.24E-05
Molybdenum	2	2.85E-07	6.46E-08	7.51E-08	7.29E-08	6.75E-08	9.64E-08	1.34E-07	2.11E-08	2.35E-08	1.54E-08	2.11E-08	2.48E-08	8.65E-08	1.44E-07	1.26E-07
Nickel	0.0028	1.65E-05	3.74E-06	4.35E-06	4.22E-06	3.91E-06	5.58E-06	7.75E-06	1.22E-06	1.36E-06	8.94E-07	1.22E-06	1.44E-06	5.01E-06	8.32E-06	7.27E-06
Potassium	1	3.15E-03	7.14E-04	8.31E-04	8.06E-04	7.46E-04	1.07E-03	1.48E-03	2.33E-04	2.59E-04	1.71E-04	2.34E-04	2.74E-04	9.56E-04	1.59E-03	1.39E-03
Selenium	4	2.84E-07	6.44E-08	7.49E-08	7.27E-08	6.73E-08	9.61E-08	1.34E-07	2.11E-08	2.34E-08	1.54E-08	2.11E-08	2.47E-08	8.62E-08	1.43E-07	1.25E-07
Silver	0.007	6.99E-08	1.58E-08	1.84E-08	1.79E-08	1.66E-08	2.37E-08	3.29E-08	5.18E-09	5.76E-09	3.79E-09	5.19E-09	6.09E-09	2.12E-08	3.53E-08	3.08E-08
Sodium	NV	3.76E-03	8.53E-04	9.92E-04	9.62E-04	8.91E-04	1.27E-03	1.77E-03	2.79E-04	3.10E-04	2.04E-04	2.79E-04	3.28E-04	1.14E-03	1.90E-03	1.66E-03
Strontium	1	5.02E-05	1.14E-05	1.33E-05	1.29E-05	1.19E-05	1.70E-05	2.36E-05	3.73E-06	4.14E-06	2.72E-06	3.73E-06	4.38E-06	1.53E-05	2.53E-05	2.21E-05
Thallium	0.07	7.26E-08	1.65E-08	1.91E-08	1.86E-08	1.72E-08	2.46E-08	3.41E-08	5.38E-09	5.98E-09	3.93E-09	5.39E-09	6.32E-09	2.20E-08	3.66E-08	3.20E-08
Tin	1	2.56E-07	5.80E-08	6.75E-08	6.55E-08	6.06E-08	8.66E-08	1.20E-07	1.90E-08	2.11E-08	1.39E-08	1.90E-08	2.23E-08	7.77E-08	1.29E-07	1.13E-07
Titanium	3	8.27E-04	1.88E-04	2.18E-04	2.12E-04	1.96E-04	2.80E-04	3.89E-04	6.13E-05	6.81E-05	4.48E-05	6.14E-05	7.21E-05	2.51E-04	4.17E-04	3.65E-04
Uranium	0.006	2.31E-07	5.23E-08	6.09E-08	5.91E-08	5.47E-08	7.81E-08	1.09E-07	1.71E-08	1.90E-08	1.25E-08	1.71E-08	2.01E-08	7.01E-08	1.16E-07	1.02E-07
Vanadium	0.02	3.04E-05	6.90E-06	8.03E-06	7.79E-06	7.21E-06	1.03E-05	1.43E-05	2.26E-06	2.51E-06	1.65E-06	2.26E-06	2.65E-06	9.24E-06	1.53E-05	1.34E-05
Yttrium	0.7	2.25E-06	5.09E-07	5.92E-07												

Parameter	Air Threshold	Receptor Locations														
		Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12	Receptor 13	Receptor 14	Receptor 15
dibenzo(a,h)anthracene	0.008	6.68E-08	1.71E-08	2.15E-08	2.01E-08	1.76E-08	2.59E-08	3.25E-08	6.48E-09	6.56E-09	4.63E-09	6.48E-09	7.40E-09	2.19E-08	4.52E-08	4.00E-08
indeno(1,2,3-cd)pyrene	0.0009	4.25E-08	1.09E-08	1.36E-08	1.28E-08	1.12E-08	1.65E-08	2.06E-08	4.12E-09	4.17E-09	2.94E-09	4.12E-09	4.70E-09	1.39E-08	2.88E-08	2.54E-08
Volatile Organic Compounds																
1,3-butadiene	0.06	4.84E-04	1.26E-04	1.58E-04	1.47E-04	1.27E-04	1.89E-04	2.37E-04	4.78E-05	4.95E-05	3.52E-05	4.79E-05	5.55E-05	1.62E-04	3.34E-04	2.93E-04
acetaldehyde	4	6.53E-02	1.70E-02	2.13E-02	1.98E-02	1.71E-02	2.54E-02	3.20E-02	6.45E-03	6.67E-03	4.74E-03	6.46E-03	7.49E-03	2.19E-02	4.50E-02	3.96E-02
acetone	6176	3.44E-02	8.92E-03	1.12E-02	1.04E-02	9.02E-03	1.34E-02	1.68E-02	3.40E-03	3.51E-03	2.50E-03	3.40E-03	3.94E-03	1.15E-02	2.37E-02	2.08E-02
acrolein	0.07	1.16E-02	3.00E-03	3.77E-03	3.51E-03	3.03E-03	4.51E-03	5.66E-03	1.14E-03	1.18E-03	8.39E-04	1.14E-03	1.33E-03	3.88E-03	7.97E-03	7.01E-03
aldehyde	0.6	8.73E-02	2.27E-02	2.85E-02	2.65E-02	2.29E-02	3.40E-02	4.28E-02	8.63E-03	8.92E-03	6.34E-03	8.64E-03	1.00E-02	2.93E-02	6.02E-02	5.29E-02
benzene	0.3	4.28E-03	1.11E-03	1.40E-03	1.30E-03	1.12E-03	1.67E-03	2.10E-03	4.23E-04	4.37E-04	3.11E-04	4.23E-04	4.91E-04	1.44E-03	2.95E-03	2.59E-03
C10-C12 aliphatic	233	9.40E-04	2.44E-04	3.07E-04	2.85E-04	2.47E-04	3.66E-04	4.60E-04	9.29E-05	9.60E-05	6.83E-05	9.30E-05	1.08E-04	3.15E-04	6.48E-04	5.70E-04
C12-C16 aliphatic	233	5.44E-03	1.41E-03	1.78E-03	1.65E-03	1.43E-03	2.12E-03	2.67E-03	5.38E-04	5.56E-04	3.95E-04	5.39E-04	6.24E-04	1.83E-03	3.75E-03	3.30E-03
C12-C16 aromatic	83	7.34E-05	1.91E-05	2.40E-05	2.23E-05	1.93E-05	2.86E-05	3.60E-05	7.25E-06	7.50E-06	5.33E-06	7.26E-06	8.42E-06	2.46E-05	5.06E-05	4.45E-05
C16-C21 aliphatic	7	5.45E-03	1.42E-03	1.78E-03	1.65E-03	1.43E-03	2.12E-03	2.67E-03	5.39E-04	5.57E-04	3.96E-04	5.39E-04	6.25E-04	1.83E-03	3.76E-03	3.30E-03
C2-C6 aliphatic	38	2.59E-02	6.74E-03	8.47E-03	7.87E-03	6.81E-03	1.01E-02	1.27E-02	2.56E-03	2.65E-03	1.88E-03	2.57E-03	2.98E-03	8.70E-03	1.79E-02	1.57E-02
C6-C8 aliphatic	67	1.77E-02	4.61E-03	5.79E-03	5.38E-03	4.66E-03	6.92E-03	8.69E-03	1.75E-03	1.81E-03	1.29E-03	1.76E-03	2.04E-03	5.95E-03	1.22E-02	1.08E-02
C8-C10 aliphatic	67	2.50E-04	6.49E-05	8.15E-05	7.58E-05	6.56E-05	9.74E-05	1.22E-04	2.47E-05	2.55E-05	1.81E-05	2.47E-05	2.87E-05	8.39E-05	1.72E-04	1.51E-04
C8-C10 aromatic	83	1.40E-03	3.65E-04	4.58E-04	4.26E-04	3.69E-04	5.48E-04	6.88E-04	1.39E-04	1.44E-04	1.02E-04	1.39E-04	1.61E-04	4.71E-04	9.69E-04	8.52E-04
ethylbenzene	4	7.34E-04	1.91E-04	2.40E-04	2.23E-04	1.93E-04	2.86E-04	3.60E-04	7.25E-05	7.50E-05	5.33E-05	7.26E-05	8.42E-05	2.46E-04	5.06E-04	4.45E-04
ethylene	1200	1.34E-02	3.47E-03	4.36E-03	4.06E-03	3.51E-03	5.21E-03	6.55E-03	1.32E-03	1.37E-03	9.71E-04	1.32E-03	1.53E-03	4.49E-03	9.22E-03	8.10E-03
formaldehyde	2	3.48E-02	9.04E-03	1.14E-02	1.06E-02	9.14E-03	1.36E-02	1.71E-02	3.44E-03	3.56E-03	2.53E-03	3.45E-03	4.00E-03	1.17E-02	2.40E-02	2.11E-02
ketone	0.4	1.97E-02	5.11E-03	6.42E-03	5.97E-03	5.17E-03	7.67E-03	9.64E-03	1.94E-03	2.01E-03	1.43E-03	1.95E-03	2.26E-03	6.60E-03	1.36E-02	1.19E-02
toluene	52	6.22E-03	1.61E-03	2.03E-03	1.89E-03	1.63E-03	2.42E-03	3.04E-03	6.14E-04	6.35E-04	4.51E-04	6.15E-04	7.13E-04	2.09E-03	4.29E-03	3.77E-03
trimethylbenzene	83	1.78E-03	4.62E-04	5.81E-04	5.40E-04	4.67E-04	6.94E-04	8.72E-04	1.76E-04	1.82E-04	1.29E-04	1.76E-04	2.04E-04	5.97E-04	1.23E-03	1.08E-03
xylene	44	4.93E-03	1.28E-03	1.61E-03	1.50E-03	1.30E-03	1.92E-03	2.42E-03	4.88E-04	5.04E-04	3.58E-04	4.88E-04	5.66E-04	1.66E-03	3.40E-03	2.99E-03

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
Criteria Pollutants																
SPM	12	3.52E-02	2.64E-02	2.53E-02	2.73E-02	3.32E-02	4.04E-02	2.09E-01	7.44E-02	6.17E-02	6.36E-02	6.52E-02	4.49E+00	4.49E+00	No	No
DPM	0.03	1.80E-02	1.38E-02	1.33E-02	1.45E-02	1.73E-02	2.08E-02	1.02E-01	3.46E-02	3.09E-02	3.17E-02	3.24E-02	1.35E+00	1.35E+00	Yes	Yes
PM10	20	3.57E-02	2.68E-02	2.57E-02	2.78E-02	3.37E-02	4.09E-02	2.09E-01	7.49E-02	6.24E-02	6.43E-02	6.58E-02	4.45E+00	4.45E+00	No	No
PM2.5	10	3.39E-02	2.55E-02	2.45E-02	2.64E-02	3.20E-02	3.88E-02	1.95E-01	7.04E-02	5.89E-02	6.07E-02	6.22E-02	3.94E+00	3.94E+00	No	No
SO2	6	1.44E-03	1.08E-03	1.03E-03	1.11E-03	1.35E-03	1.64E-03	8.24E-03	3.06E-03	2.52E-03	2.60E-03	2.66E-03	1.89E-01	1.89E-01	No	No
CO	NV	3.21E-01	2.46E-01	2.37E-01	2.58E-01	3.07E-01	3.69E-01	1.79E+00	6.11E-01	5.48E-01	5.63E-01	5.74E-01	2.36E+01	2.36E+01	No	No
NOX	NV	5.16E-01	3.96E-01	3.82E-01	4.14E-01	4.94E-01	5.93E-01	2.89E+00	9.81E-01	8.79E-01	9.03E-01	9.20E-01	3.81E+01	3.81E+01	No	No
NO2	8	5.16E-01	3.96E-01	3.82E-01	4.14E-01	4.94E-01	5.93E-01	2.89E+00	9.81E-01	8.79E-01	9.03E-01	9.20E-01	3.81E+01	3.81E+01	Yes	No*
Metals																
Aluminum	3	2.45E-03	1.84E-03	1.76E-03	1.90E-03	2.31E-03	2.81E-03	1.45E-02	5.18E-03	4.29E-03	4.43E-03	4.54E-03	3.12E-01	3.12E-01	No	No
Antimony	3	1.38E-07	1.03E-07	9.90E-08	1.07E-07	1.30E-07	1.58E-07	8.16E-07	2.91E-07	2.41E-07	2.49E-07	2.55E-07	1.76E-05	1.76E-05	No	No
Arsenic	0.003	3.91E-06	2.93E-06	2.81E-06	3.03E-06	3.69E-06	4.48E-06	2.32E-05	8.26E-06	6.85E-06	7.06E-06	7.23E-06	4.98E-04	4.98E-04	No	No
Barium	0.3	1.38E-05	1.03E-05	9.89E-06	1.07E-05	1.30E-05	1.58E-05	8.15E-05	2.91E-05	2.41E-05	2.49E-05	2.55E-05	1.75E-03	1.75E-03	No	No
Beryllium	0.0014	2.56E-08	1.92E-08	1.84E-08	1.99E-08	2.42E-08	2.94E-08	1.52E-07	5.42E-08	4.49E-08	4.63E-08	4.74E-08	3.27E-06	3.27E-06	No	No
Bismuth	3	7.04E-09	5.27E-09	5.06E-09	5.46E-09	6.64E-09	8.07E-09	4.17E-08	1.49E-08	1.23E-08	1.27E-08	1.30E-08	8.97E-07	8.97E-07	No	No
Cadmium	0.001	1.08E-05	8.28E-06	7.99E-06	8.71E-06	1.04E-05	1.25E-05	6.14E-05	2.08E-05	1.85E-05	1.91E-05	1.94E-05	8.11E-04	8.11E-04	No	No
Calcium	NV	1.39E-03	1.04E-03	1.00E-03	1.08E-03	1.31E-03	1.59E-03	8.24E-03	2.94E-03	2.44E-03	2.51E-03	2.58E-03	1.77E-01	1.77E-01	No	No
Chromium	0.03	7.65E-06	5.76E-06	5.54E-06	5.99E-06	7.25E-06	8.79E-06	4.49E-05	1.58E-05	1.33E-05	1.38E-05	1.41E-05	8.81E-04	8.81E-04	No	No
Cobalt	0.02	9.43E-07	7.06E-07	6.78E-07	7.32E-07	8.90E-07	1.08E-06	5.59E-06	1.99E-06	1.65E-06	1.70E-06	1.75E-06	1.20E-04	1.20E-04	No	No
Copper	0.7	2.49E-06	1.87E-06	1.79E-06	1.94E-06	2.35E-06	2.86E-06	1.48E-05	5.27E-06	4.37E-06	4.51E-06	4.62E-06	3.18E-04	3.18E-04	No	No
Gold	1.7	2.73E-09	2.04E-09	1.96E-09	2.12E-09	2.57E-09	3.12E-09	1.61E-08	5.76E-09	4.78E-09	4.92E-09	5.04E-09	3.47E-07	3.47E-07	No	No
Iron	0.7	2.68E-03	2.00E-03	1.92E-03	2.08E-03	2.52E-03	3.07E-03	1.58E-02	5.66E-03	4.69E-03	4.83E-03	4.95E-03	3.41E-01	3.41E-01	No	No
Lead	0.04	2.22E-06	1.69E-06	1.63E-06	1.78E-06	2.12E-06	2.56E-06	1.27E-05	4.35E-06	3.83E-06	3.93E-06	4.01E-06	1.89E-04	1.89E-04	No	No
Lithium	NV	1.14E-06	8.52E-07	8.18E-07	8.83E-07	1.07E-06	1.30E-06	6.74E-06	2.41E-06	1.99E-06	2.06E-06	2.11E-06	1.45E-04	1.45E-04	No	No
Magnesium	3	7.38E-04	5.53E-04	5.30E-04	5.73E-04	6.96E-04	8.46E-04	4.37E-03	1.56E-03	1.29E-03	1.33E-03	1.37E-03	9.41E-02	9.41E-02	No	No
Manganese	0.02	2.77E-05	2.08E-05	1.99E-05	2.15E-05	2.62E-05	3.18E-05	1.64E-04	5.86E-05	4.86E-05	5.01E-05	5.13E-05	3.54E-03	3.54E-03	No	No
Molybdenum	2	4.22E-08	3.16E-08	3.03E-08	3.28E-08	3.98E-08	4.84E-08	2.50E-07	8.93E-08	7.40E-08	7.63E-08	7.82E-08	5.38E-06	5.38E-06	No	No
Nickel	0.0028	2.45E-06	1.83E-06	1.76E-06	1.90E-06	2.31E-06	2.81E-06	1.45E-05	5.17E-06	4.29E-06	4.42E-06	4.53E-06	3.12E-04	3.12E-04	No	No
Potassium	1	4.67E-04	3.50E-04	3.36E-04	3.62E-04	4.41E-04	5.35E-04	2.77E-03	9.87E-04	8.18E-04	8.44E-04	8.64E-04	5.95E-02	5.95E-02	No	No
Selenium	4	4.21E-08	3.16E-08	3.03E-08	3.27E-08	3.97E-08	4.83E-08	2.50E-07	8.91E-08	7.38E-08	7.61E-08	7.80E-08	5.37E-06	5.37E-06	No	No
Silver	0.007	1.04E-08	7.76E-09	7.45E-09	8.05E-09	9.78E-09	1.19E-08	6.14E-08	2.19E-08	1.82E-08	1.87E-08	1.92E-08	1.32E-06	1.32E-06	No	No
Sodium	NV	5.58E-04	4.18E-04	4.01E-04	4.33E-04	5.26E-04	6.39E-04	3.30E-03	1.18E-03	9.77E-04	1.01E-03	1.03E-03	7.11E-02	7.11E-02	No	No
Strontium	1	7.45E-06	5.58E-06	5.36E-06	5.78E-06	7.03E-06	8.54E-06	4.41E-05	1.58E-05	1.31E-05	1.35E-05	1.38E-05	9.50E-04	9.50E-04	No	No
Thallium	0.07	1.08E-08	8.06E-09	7.73E-09	8.35E-09	1.02E-08	1.23E-08	6.38E-08	2.28E-08	1.89E-08	1.94E-08	1.99E-08	1.37E-06	1.37E-06	No	No
Tin	1	3.79E-08	2.84E-08	2.73E-08	2.94E-08	3.58E-08	4.35E-08	2.25E-07	8.02E-08	6.65E-08	6.86E-08	7.02E-08	4.84E-06	4.84E-06	No	No
Titanium	3	1.23E-04	9.19E-05	8.82E-05	9.52E-05	1.16E-04	1.41E-04	7.27E-04	2.59E-04	2.15E-04	2.22E-04	2.27E-04	1.56E-02	1.56E-02	No	No
Uranium	0.006	3.42E-08	2.56E-08	2.46E-08	2.66E-08	3.23E-08	3.93E-08	2.03E-07	7.24E-08	6.00E-08	6.19E-08	6.34E-08	4.36E-06	4.36E-06	No	No
Vanadium	0.02	4.51E-06	3.38E-06	3.24E-06	3.50E-06	4.26E-06	5.17E-06	2.67E-05	9.54E-06	7.91E-06	8.15E-06	8.35E-06	5.75E-04	5.75E-04	No	No
Yttrium	0.7	3.33E-07	2.49E-07	2.39E-07	2.58E-07	3.14E-07	3.82E-07	1.97E-06	7.04E-07	5.83E-07	6.02E-07	6.16E-07	4.25E-05	4.25E-05	No	No
Zinc	1	1.61E-05	1.23E-05	1.18E-05	1.29E-05	1.54E-05	1.86E-05	9.25E-05	3.17E-05	2.78E-05	2.86E-05	2.92E-05	1.39E-03	1.39E-03	No	No
Polycyclic Aromatic Hydrocarbons																
benzo(a)pyrene	0.00001	1.98E-08	1.52E-08	1.46E-08	1.60E-08	1.90E-08	2.29E-08	1.13E-07	3.81E-08	3.40E-08	3.49E-08	3.56E-08	1.48E-06	1.48E-06	No	No
naphthalene	0.3	7.84E-06	6.00E-06	5.80E-06	6.31E-06	7.52E-06	9.05E-06	4.45E-05	1.51E-05	1.35E-05	1.38E-05	1.41E-05	5.87E-04	5.87E-04	No	No
phenanthrene	0.03	6.47E-07	4.96E-07	4.79E-07	5.22E-07	6.21E-07	7.47E-07	3.68E-06	1.24E-06	1.11E-06	1.14E-06	1.16E-06	4.85E-05	4.85E-05	No	No
anthracene	0.03	7.22E-08	5.53E-08	5.34E-08	5.82E-08	6.93E-08	8.34E-08	4.10E-07	1.39E-07	1.24E-07	1.27E-07	1.30E-07	5.41			

Parameter	Air Threshold													Maximum Concentration	Maximum Above	Retained as a COPC?
		Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1	Rankin2	Rankin 3	Camp			
dibenzo(a,h)anthracene	0.008	1.37E-08	1.05E-08	1.02E-08	1.11E-08	1.32E-08	1.59E-08	7.81E-08	2.64E-08	2.36E-08	2.42E-08	2.47E-08	1.03E-06	1.03E-06	No	No
indeno(1,2,3-cd)pyrene	0.0009	8.74E-09	6.69E-09	6.46E-09	7.04E-09	8.38E-09	1.01E-08	4.97E-08	1.68E-08	1.50E-08	1.54E-08	1.57E-08	6.55E-07	6.55E-07	No	No
Volatile Oranic Compounds																
1,3-butadiene	0.06	1.02E-04	7.77E-05	7.47E-05	8.06E-05	9.64E-05	1.16E-04	5.75E-04	1.90E-04	1.69E-04	1.73E-04	1.77E-04	7.68E-03	7.68E-03	No	No
acetaldehyde	4	1.37E-02	1.05E-02	1.01E-02	1.09E-02	1.30E-02	1.56E-02	7.76E-02	2.56E-02	2.28E-02	2.34E-02	2.39E-02	1.04E+00	1.04E+00	No	No
acetone	6176	7.21E-03	5.51E-03	5.30E-03	5.72E-03	6.84E-03	8.21E-03	4.08E-02	1.35E-02	1.20E-02	1.23E-02	1.26E-02	5.45E-01	5.45E-01	No	No
acrolein	0.07	2.42E-03	1.85E-03	1.78E-03	1.92E-03	2.30E-03	2.76E-03	1.37E-02	4.53E-03	4.04E-03	4.14E-03	4.23E-03	1.83E-01	1.83E-01	Yes	No*
aldehyde	0.6	1.83E-02	1.40E-02	1.35E-02	1.45E-02	1.74E-02	2.09E-02	1.04E-01	3.42E-02	3.05E-02	3.13E-02	3.19E-02	1.39E+00	1.39E+00	Yes	No*
benzene	0.3	8.98E-04	6.86E-04	6.60E-04	7.13E-04	8.52E-04	1.02E-03	5.08E-03	1.68E-03	1.50E-03	1.53E-03	1.56E-03	6.79E-02	6.79E-02	No	No
C10-C12 aliphatic	233	1.97E-04	1.51E-04	1.45E-04	1.56E-04	1.87E-04	2.25E-04	1.12E-03	3.68E-04	3.29E-04	3.37E-04	3.44E-04	1.49E-02	1.49E-02	No	No
C12-C16 aliphatic	233	1.14E-03	8.73E-04	8.40E-04	9.06E-04	1.08E-03	1.30E-03	6.47E-03	2.13E-03	1.90E-03	1.95E-03	1.99E-03	8.64E-02	8.64E-02	No	No
C12-C16 aromatic	83	1.54E-05	1.18E-05	1.13E-05	1.22E-05	1.46E-05	1.75E-05	8.72E-05	2.88E-05	2.57E-05	2.63E-05	2.68E-05	1.16E-03	1.16E-03	No	No
C16-C21 aliphatic	7	1.14E-03	8.74E-04	8.41E-04	9.07E-04	1.09E-03	1.30E-03	6.48E-03	2.14E-03	1.91E-03	1.95E-03	1.99E-03	8.65E-02	8.65E-02	No	No
C2-C6 aliphatic	38	5.44E-03	4.16E-03	4.00E-03	4.32E-03	5.17E-03	6.20E-03	3.08E-02	1.02E-02	9.07E-03	9.30E-03	9.49E-03	4.12E-01	4.12E-01	No	No
C6-C8 aliphatic	67	3.72E-03	2.85E-03	2.74E-03	2.95E-03	3.53E-03	4.24E-03	2.11E-02	6.95E-03	6.20E-03	6.36E-03	6.49E-03	2.82E-01	2.82E-01	No	No
C8-C10 aliphatic	67	5.24E-05	4.01E-05	3.86E-05	4.16E-05	4.98E-05	5.97E-05	2.97E-04	9.79E-05	8.74E-05	8.95E-05	9.14E-05	3.96E-03	3.96E-03	No	No
C8-C10 aromatic	83	2.95E-04	2.25E-04	2.17E-04	2.34E-04	2.80E-04	3.36E-04	1.67E-03	5.50E-04	4.91E-04	5.03E-04	5.14E-04	2.23E-02	2.23E-02	No	No
ethylbenzene	4	1.54E-04	1.18E-04	1.13E-04	1.22E-04	1.46E-04	1.75E-04	8.72E-04	2.88E-04	2.57E-04	2.63E-04	2.68E-04	1.16E-02	1.16E-02	No	No
ethylene	1200	2.80E-03	2.14E-03	2.06E-03	2.23E-03	2.66E-03	3.19E-03	1.59E-02	5.24E-03	4.67E-03	4.79E-03	4.89E-03	2.12E-01	2.12E-01	No	No
formaldehyde	2	7.31E-03	5.59E-03	5.37E-03	5.80E-03	6.94E-03	8.32E-03	4.14E-02	1.36E-02	1.22E-02	1.25E-02	1.27E-02	5.53E-01	5.53E-01	No	No
ketone	0.4	4.13E-03	3.16E-03	3.04E-03	3.28E-03	3.92E-03	4.70E-03	2.34E-02	7.71E-03	6.88E-03	7.05E-03	7.20E-03	3.12E-01	3.12E-01	No	No
toluene	52	1.30E-03	9.97E-04	9.59E-04	1.03E-03	1.24E-03	1.49E-03	7.39E-03	2.44E-03	2.17E-03	2.23E-03	2.27E-03	9.86E-02	9.86E-02	No	No
trimethylbenzene	83	3.73E-04	2.86E-04	2.75E-04	2.96E-04	3.55E-04	4.25E-04	2.12E-03	6.98E-04	6.23E-04	6.38E-04	6.51E-04	2.82E-02	2.82E-02	No	No
xylenes	44	1.04E-03	7.92E-04	7.61E-04	8.22E-04	9.83E-04	1.18E-03	5.86E-03	1.93E-03	1.73E-03	1.77E-03	1.80E-03	7.83E-02	7.83E-02	No	No

all air concentrations are in units of µg/m³.
carbon monoxide results are based on 8-h averaging times.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

3.20E+01

 = greater than annual air threshold.
* using an unadjusted threshold, these chemicals are not retained as COPCs. See Section 10.2.6.3.1.2.



APPENDIX 10.2-C

Air Quality – Particulate Matter

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User - Infant																
Diesel Particulate Matter	2E-08	6E-09	6E-09	6E-09	7E-09	9E-09	1E-08	—	—	—	—	—	9E-09	1E-08	1E-08	—
Recreational User - Child																
Diesel Particulate Matter	4E-07	9E-08	1E-07	1E-07	1E-07	2E-07	2E-07	—	—	—	—	—	2E-07	2E-07	2E-07	—
Recreational User - Toddler																
Diesel Particulate Matter	5E-07	1E-07	1E-07	1E-07	2E-07	2E-07	3E-07	—	—	—	—	—	2E-07	3E-07	2E-07	—
Recreational User - Teen																
Diesel Particulate Matter	3E-07	7E-08	7E-08	7E-08	8E-08	1E-07	2E-07	—	—	—	—	—	1E-07	1E-07	1E-07	—
Recreational User - Adult																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	3E-05
Recreational User - Infant											
Diesel Particulate Matter	—	—	—	—	—	2E-08	8E-09	6E-09	7E-09	7E-09	—
Recreational User - Child											
Diesel Particulate Matter	—	—	—	—	—	3E-07	1E-07	1E-07	1E-07	1E-07	—
Recreational User - Toddler											
Diesel Particulate Matter	—	—	—	—	—	4E-07	2E-07	1E-07	2E-07	2E-07	—
Recreational User - Teen											
Diesel Particulate Matter	—	—	—	—	—	2E-07	1E-07	7E-08	8E-08	8E-08	—
Recreational User - Adult											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User - Infant																
Diesel Particulate Matter	2E-08	5E-09	5E-09	5E-09	5E-09	7E-09	1E-08	—	—	—	—	—	1E-08	1E-08	1E-08	—
Recreational User - Toddler																
Diesel Particulate Matter	3E-07	8E-08	9E-08	9E-08	9E-08	1E-07	2E-07	—	—	—	—	—	2E-07	2E-07	2E-07	—
Recreational User - Child																
Diesel Particulate Matter	4E-07	1E-07	1E-07	1E-07	1E-07	2E-07	2E-07	—	—	—	—	—	2E-07	3E-07	3E-07	—
Recreational User - Teen																
Diesel Particulate Matter	2E-07	6E-08	6E-08	6E-08	6E-08	9E-08	1E-07	—	—	—	—	—	1E-07	2E-07	1E-07	—
Recreational User - Adult																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	5E-05
Recreational User - Infant											
Diesel Particulate Matter	—	—	—	—	4E-09	3E-08	8E-09	7E-09	7E-09	7E-09	—
Recreational User - Toddler											
Diesel Particulate Matter	—	—	—	—	7E-08	5E-07	1E-07	1E-07	1E-07	1E-07	—
Recreational User - Child											
Diesel Particulate Matter	—	—	—	—	1E-07	7E-07	2E-07	2E-07	2E-07	2E-07	—
Recreational User - Teen											
Diesel Particulate Matter	—	—	—	—	5E-08	3E-07	9E-08	8E-08	8E-08	8E-08	—
Recreational User - Adult											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User - Infant																
Diesel Particulate Matter	2E-08	5E-09	6E-09	6E-09	7E-09	9E-09	1E-08	—	—	—	—	—	8E-09	1E-08	1E-08	—
Recreational User - Toddler																
Diesel Particulate Matter	4E-07	9E-08	1E-07	1E-07	1E-07	2E-07	2E-07	—	—	—	—	—	1E-07	2E-07	2E-07	—
Recreational User - Child																
Diesel Particulate Matter	5E-07	1E-07	1E-07	1E-07	2E-07	2E-07	3E-07	—	—	—	—	—	2E-07	3E-07	2E-07	—
Recreational User - Teen																
Diesel Particulate Matter	3E-07	6E-08	7E-08	7E-08	8E-08	1E-07	2E-07	—	—	—	—	—	1E-07	1E-07	1E-07	—
Recreational User - Adult																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	5E-05
Recreational User - Infant											
Diesel Particulate Matter	—	—	—	—	—	2E-08	9E-09	7E-09	7E-09	7E-09	—
Recreational User - Toddler											
Diesel Particulate Matter	—	—	—	—	—	3E-07	2E-07	1E-07	1E-07	1E-07	—
Recreational User - Child											
Diesel Particulate Matter	—	—	—	—	—	5E-07	2E-07	2E-07	2E-07	2E-07	—
Recreational User - Teen											
Diesel Particulate Matter	—	—	—	—	—	2E-07	1E-07	8E-08	8E-08	8E-08	—
Recreational User - Adult											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User - Infant																
Diesel Particulate Matter	1E-08	—	4E-09	4E-09	—	6E-09	8E-09	—	—	—	—	—	7E-09	1E-08	1E-08	9E-09
Recreational User - Toddler																
Diesel Particulate Matter	2E-07	—	7E-08	7E-08	—	1E-07	1E-07	—	—	—	—	—	1E-07	2E-07	2E-07	1E-07
Recreational User - Child																
Diesel Particulate Matter	3E-07	—	1E-07	1E-07	—	1E-07	2E-07	—	—	—	—	—	2E-07	3E-07	3E-07	2E-07
Recreational User - Teen																
Diesel Particulate Matter	2E-07	—	5E-08	5E-08	—	7E-08	9E-08	—	—	—	—	—	8E-08	2E-07	2E-07	1E-07
Recreational User - Adult																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	5E-05
Recreational User - Infant											
Diesel Particulate Matter	5E-09	4E-09	4E-09	6E-09	9E-09	2E-08	7E-09	6E-09	6E-09	6E-09	—
Recreational User - Toddler											
Diesel Particulate Matter	8E-08	7E-08	7E-08	1E-07	2E-07	3E-07	1E-07	1E-07	1E-07	1E-07	—
Recreational User - Child											
Diesel Particulate Matter	1E-07	1E-07	1E-07	1E-07	2E-07	4E-07	2E-07	1E-07	1E-07	1E-07	—
Recreational User - Teen											
Diesel Particulate Matter	5E-08	5E-08	5E-08	7E-08	1E-07	2E-07	8E-08	7E-08	7E-08	7E-08	—
Recreational User - Adult											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User - Infant																
Diesel Particulate Matter	2E-08	5E-09	5E-09	5E-09	6E-09	8E-09	1E-08	—	—	—	—	—	9E-09	1E-08	1E-08	—
Recreational User - Toddler																
Diesel Particulate Matter	3E-07	8E-08	9E-08	9E-08	1E-07	1E-07	2E-07	—	—	—	—	—	1E-07	2E-07	2E-07	—
Recreational User - Child																
Diesel Particulate Matter	5E-07	1E-07	1E-07	1E-07	1E-07	2E-07	3E-07	—	—	—	—	—	2E-07	2E-07	2E-07	—
Recreational User - Teen																
Diesel Particulate Matter	2E-07	6E-08	6E-08	6E-08	7E-08	9E-08	1E-07	—	—	—	—	—	1E-07	1E-07	1E-07	—
Recreational User - Adult																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Exposure Doses (mg/kg-day)										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	6E-05
Recreational User - Infant											
Diesel Particulate Matter	—	—	—	—	—	2E-08	8E-09	6E-09	6E-09	6E-09	—
Recreational User - Toddler											
Diesel Particulate Matter	—	—	—	—	—	3E-07	1E-07	1E-07	1E-07	1E-07	—
Recreational User - Child											
Diesel Particulate Matter	—	—	—	—	—	4E-07	2E-07	1E-07	1E-07	1E-07	—
Recreational User - Teen											
Diesel Particulate Matter	—	—	—	—	—	2E-07	9E-08	7E-08	7E-08	8E-08	—
Recreational User - Adult											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User - Infant																
Diesel Particulate Matter	1E-08	—	—	—	—	5E-09	6E-09	—	—	—	—	—	—	8E-09	7E-09	—
Recreational User - Toddler																
Diesel Particulate Matter	2E-07	—	—	—	—	8E-08	1E-07	—	—	—	—	—	—	1E-07	1E-07	—
Recreational User - Child																
Diesel Particulate Matter	3E-07	—	—	—	—	1E-07	1E-07	—	—	—	—	—	—	2E-07	2E-07	—
Recreational User - Teen																
Diesel Particulate Matter	1E-07	—	—	—	—	5E-08	7E-08	—	—	—	—	—	—	1E-07	8E-08	—
Recreational User - Adult																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	5E-05
Recreational User - Infant											
Diesel Particulate Matter	—	—	—	—	—	1E-08	5E-09	4E-09	4E-09	4E-09	—
Recreational User - Toddler											
Diesel Particulate Matter	—	—	—	—	—	2E-07	8E-08	7E-08	7E-08	8E-08	—
Recreational User - Child											
Diesel Particulate Matter	—	—	—	—	—	3E-07	1E-07	1E-07	1E-07	1E-07	—
Recreational User - Teen											
Diesel Particulate Matter	—	—	—	—	—	2E-07	6E-08	5E-08	5E-08	5E-08	—
Recreational User - Adult											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User																
Diesel Particulate Matter	9E-07	2E-07	2E-07	2E-07	3E-07	4E-07	5E-07	—	—	—	—	—	4E-07	4E-07	4E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	4E-05
Recreational User											
Diesel Particulate Matter	—	—	—	—	—	8E-07	3E-07	3E-07	3E-07	3E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User																
Diesel Particulate Matter	7E-07	2E-07	2E-07	2E-07	2E-07	3E-07	4E-07	—	—	—	—	—	4E-07	5E-07	5E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	7E-05
Recreational User											
Diesel Particulate Matter	—	—	—	—	2E-07	1E-06	3E-07	3E-07	3E-07	3E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User																
Diesel Particulate Matter	9E-07	2E-07	3E-07	3E-07	3E-07	4E-07	6E-07	—	—	—	—	—	3E-07	4E-07	4E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	7E-05
Recreational User											
Diesel Particulate Matter	—	—	—	—	—	8E-07	4E-07	3E-07	3E-07	3E-07	9E-06

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User																
Diesel Particulate Matter	6E-07	—	2E-07	2E-07	—	2E-07	3E-07	—	—	—	—	—	3E-07	5E-07	6E-07	3E-07

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	6E-05
Recreational User											
Diesel Particulate Matter	2E-07	2E-07	2E-07	2E-07	4E-07	8E-07	3E-07	2E-07	3E-07	3E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User																
Diesel Particulate Matter	8E-07	2E-07	2E-07	2E-07	2E-07	3E-07	5E-07	—	—	—	—	—	4E-07	4E-07	4E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	7E-05
Recreational User											
Diesel Particulate Matter	—	—	—	—	—	8E-07	3E-07	2E-07	3E-07	3E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks															
	Receptor Location 1	Receptor Location 2	Receptor Location 3	Receptor Location 4	Receptor Location 5	Receptor Location 6	Receptor Location 7	Receptor Location 8	Receptor Location 9	Receptor Location 10	Receptor Location 11	Receptor Location 12	Receptor Location 13	Receptor Location 14	Receptor Location 15	Receptor Location 16
Mine Worker																
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Recreational User																
Diesel Particulate Matter	5E-07	—	—	—	—	2E-07	2E-07	—	—	—	—	—	—	3E-07	3E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05

Contaminant of Potential Concern	Incremental Lifetime Cancer Risks										
	Receptor Location 17	Receptor Location 18	Receptor Location 19	Receptor Location 20	Receptor Location 21	Receptor Location 22	Park	Rankin 1	Rankin 2	Rankin 3	Worker Camp
Mine Worker											
Diesel Particulate Matter	—	—	—	—	—	—	—	—	—	—	6E-05
Recreational User											
Diesel Particulate Matter	—	—	—	—	—	6E-07	2E-07	2E-07	2E-07	2E-07	—

Notes:
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3
— = not calculated
1.0E-03 = exceeds target ILCR of 1E-05



APPENDIX 10.2-D

Soil Quality

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.62E-03	2.60E-07	7.38E-06	2.60E-05	4.84E-08	1.33E-08	1.23E-05	2.63E-03	1.31E-05	1.78E-06	4.71E-06
Receptor 2	1.31E-03	7.38E-08	2.09E-06	7.37E-06	1.37E-08	3.77E-09	2.41E-06	7.45E-04	3.53E-06	5.05E-07	1.34E-06
Receptor 3	2.24E-03	1.26E-07	3.59E-06	1.26E-05	2.35E-08	6.46E-09	4.33E-06	1.28E-03	6.09E-06	8.65E-07	2.29E-06
Receptor 4	2.39E-03	1.35E-07	3.82E-06	1.35E-05	2.51E-08	6.89E-09	4.51E-06	1.36E-03	6.48E-06	9.23E-07	2.44E-06
Receptor 5	2.71E-03	1.53E-07	4.33E-06	1.53E-05	2.84E-08	7.81E-09	4.84E-06	1.54E-03	7.30E-06	1.05E-06	2.77E-06
Receptor 6	3.69E-03	2.08E-07	5.90E-06	2.08E-05	3.87E-08	1.06E-08	6.22E-06	2.10E-03	9.87E-06	1.42E-06	3.76E-06
Receptor 7	4.75E-03	2.68E-07	7.60E-06	2.68E-05	4.98E-08	1.37E-08	7.50E-06	2.71E-03	1.26E-05	1.83E-06	4.85E-06
Receptor 8	3.73E-04	2.11E-08	5.97E-07	2.10E-06	3.92E-09	1.08E-09	6.76E-07	2.13E-04	1.01E-06	1.44E-07	3.81E-07
Receptor 9	4.52E-04	2.55E-08	7.24E-07	2.55E-06	4.74E-09	1.30E-09	9.19E-07	2.58E-04	1.24E-06	1.75E-07	4.62E-07
Receptor 10	3.74E-04	2.11E-08	5.97E-07	2.10E-06	3.92E-09	1.08E-09	8.48E-07	2.13E-04	1.04E-06	1.44E-07	3.81E-07
Receptor 11	3.73E-04	2.11E-08	5.97E-07	2.10E-06	3.92E-09	1.08E-09	6.77E-07	2.13E-04	1.01E-06	1.44E-07	3.81E-07
Receptor 12	4.44E-04	2.50E-08	7.10E-07	2.50E-06	4.66E-09	1.28E-09	8.55E-07	2.53E-04	1.21E-06	1.71E-07	4.53E-07
Receptor 13	4.41E-04	2.49E-08	7.06E-07	2.49E-06	4.63E-09	1.27E-09	8.94E-07	2.51E-04	1.21E-06	1.70E-07	4.51E-07
Receptor 14	7.16E-04	4.04E-08	1.15E-06	4.03E-06	7.51E-09	2.06E-09	1.51E-06	4.08E-04	1.97E-06	2.76E-07	7.31E-07
Receptor 15	6.44E-04	3.63E-08	1.03E-06	3.63E-06	6.75E-09	1.86E-09	1.33E-06	3.67E-04	1.76E-06	2.49E-07	6.58E-07
Receptor 16	2.42E-04	1.37E-08	3.88E-07	1.37E-06	2.54E-09	6.98E-10	4.86E-07	1.38E-04	6.62E-07	9.36E-08	2.47E-07
Receptor 17	1.75E-04	9.87E-09	2.80E-07	9.86E-07	1.84E-09	5.04E-10	3.50E-07	9.97E-05	4.78E-07	6.76E-08	1.79E-07
Receptor 18	1.60E-04	9.03E-09	2.56E-07	9.02E-07	1.68E-09	4.61E-10	3.18E-07	9.12E-05	4.36E-07	6.18E-08	1.63E-07
Receptor 19	1.53E-04	8.63E-09	2.45E-07	8.62E-07	1.60E-09	4.41E-10	2.99E-07	8.71E-05	4.16E-07	5.91E-08	1.56E-07
Receptor 20	2.02E-04	1.14E-08	3.23E-07	1.14E-06	2.12E-09	5.82E-10	3.93E-07	1.15E-04	5.49E-07	7.79E-08	2.06E-07
Receptor 21	2.38E-04	1.35E-08	3.81E-07	1.34E-06	2.50E-09	6.87E-10	4.55E-07	1.36E-04	6.47E-07	9.20E-08	2.43E-07
Receptor 22	1.06E-03	5.98E-08	1.70E-06	5.97E-06	1.11E-08	3.06E-09	2.41E-06	6.04E-04	2.94E-06	4.09E-07	1.08E-06
Park	1.06E-03	5.97E-08	1.69E-06	5.97E-06	1.11E-08	3.05E-09	1.82E-06	6.03E-04	2.84E-06	4.09E-07	1.08E-06
Rankin 1	3.53E-04	1.99E-08	5.65E-07	1.99E-06	3.71E-09	1.02E-09	6.73E-07	2.01E-04	9.59E-07	1.36E-07	3.61E-07
Rankin 2	4.03E-04	2.28E-08	6.45E-07	2.27E-06	4.23E-09	1.16E-09	7.65E-07	2.30E-04	1.09E-06	1.56E-07	4.12E-07
Rankin 3	4.32E-04	2.44E-08	6.91E-07	2.43E-06	4.53E-09	1.24E-09	8.20E-07	2.46E-04	1.17E-06	1.67E-07	4.41E-07
Camp	2.37E-02	1.33E-06	3.78E-05	1.33E-04	2.48E-07	6.81E-08	1.28E-04	1.35E-02	7.79E-05	9.12E-06	2.41E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	5.15E-09	5.05E-03	2.84E-06	2.15E-06	1.39E-03	5.24E-05	7.97E-08	4.62E-06	8.82E-04	7.95E-08	1.96E-08
Receptor 2	1.46E-09	1.43E-03	6.26E-07	6.09E-07	3.95E-04	1.49E-05	2.26E-08	1.31E-06	2.50E-04	2.26E-08	5.55E-09
Receptor 3	2.50E-09	2.45E-03	1.11E-06	1.04E-06	6.77E-04	2.54E-05	3.87E-08	2.24E-06	4.28E-04	3.86E-08	9.51E-09
Receptor 4	2.67E-09	2.62E-03	1.16E-06	1.11E-06	7.22E-04	2.71E-05	4.13E-08	2.39E-06	4.57E-04	4.12E-08	1.01E-08
Receptor 5	3.02E-09	2.97E-03	1.27E-06	1.26E-06	8.18E-04	3.08E-05	4.68E-08	2.71E-06	5.18E-04	4.67E-08	1.15E-08
Receptor 6	4.11E-09	4.04E-03	1.67E-06	1.72E-06	1.11E-03	4.19E-05	6.37E-08	3.69E-06	7.05E-04	6.36E-08	1.56E-08
Receptor 7	5.30E-09	5.20E-03	2.06E-06	2.21E-06	1.44E-03	5.39E-05	8.21E-08	4.76E-06	9.08E-04	8.19E-08	2.02E-08
Receptor 8	4.17E-10	4.09E-04	1.77E-07	1.74E-07	1.13E-04	4.24E-06	6.46E-09	3.74E-07	7.14E-05	6.44E-09	1.58E-09
Receptor 9	5.05E-10	4.95E-04	2.31E-07	2.11E-07	1.37E-04	5.14E-06	7.82E-09	4.53E-07	8.65E-05	7.80E-09	1.92E-09
Receptor 10	4.17E-10	4.09E-04	2.05E-07	1.74E-07	1.13E-04	4.24E-06	6.45E-09	3.74E-07	7.14E-05	6.44E-09	1.58E-09
Receptor 11	4.17E-10	4.09E-04	1.77E-07	1.74E-07	1.13E-04	4.24E-06	6.46E-09	3.74E-07	7.14E-05	6.44E-09	1.58E-09
Receptor 12	4.95E-10	4.86E-04	2.19E-07	2.07E-07	1.34E-04	5.04E-06	7.67E-09	4.45E-07	8.48E-05	7.65E-09	1.88E-09
Receptor 13	4.92E-10	4.83E-04	2.25E-07	2.06E-07	1.33E-04	5.01E-06	7.63E-09	4.42E-07	8.44E-05	7.61E-09	1.87E-09
Receptor 14	7.98E-10	7.84E-04	3.74E-07	3.33E-07	2.16E-04	8.13E-06	1.24E-08	7.17E-07	1.37E-04	1.23E-08	3.04E-09
Receptor 15	7.18E-10	7.05E-04	3.31E-07	3.00E-07	1.94E-04	7.31E-06	1.11E-08	6.45E-07	1.23E-04	1.11E-08	2.73E-09
Receptor 16	2.70E-10	2.65E-04	1.23E-07	1.13E-07	7.32E-05	2.75E-06	4.19E-09	2.43E-07	4.63E-05	4.18E-09	1.03E-09
Receptor 17	1.95E-10	1.92E-04	8.84E-08	8.15E-08	5.29E-05	1.99E-06	3.03E-09	1.75E-07	3.35E-05	3.02E-09	7.43E-10
Receptor 18	1.79E-10	1.75E-04	8.04E-08	7.46E-08	4.84E-05	1.82E-06	2.77E-09	1.60E-07	3.06E-05	2.76E-09	6.79E-10
Receptor 19	1.71E-10	1.68E-04	7.60E-08	7.13E-08	4.62E-05	1.74E-06	2.65E-09	1.53E-07	2.92E-05	2.64E-09	6.49E-10
Receptor 20	2.25E-10	2.21E-04	1.00E-07	9.40E-08	6.10E-05	2.29E-06	3.49E-09	2.02E-07	3.86E-05	3.48E-09	8.57E-10
Receptor 21	2.66E-10	2.61E-04	1.17E-07	1.11E-07	7.20E-05	2.71E-06	4.12E-09	2.39E-07	4.56E-05	4.11E-09	1.01E-09
Receptor 22	1.18E-09	1.16E-03	5.83E-07	4.94E-07	3.20E-04	1.20E-05	1.83E-08	1.06E-06	2.03E-04	1.83E-08	4.50E-09
Park	1.18E-09	1.16E-03	4.85E-07	4.93E-07	3.20E-04	1.20E-05	1.83E-08	1.06E-06	2.02E-04	1.83E-08	4.49E-09
Rankin 1	3.94E-10	3.87E-04	1.73E-07	1.65E-07	1.07E-04	4.01E-06	6.11E-09	3.54E-07	6.75E-05	6.09E-09	1.50E-09
Rankin 2	4.50E-10	4.42E-04	1.97E-07	1.88E-07	1.22E-04	4.58E-06	6.97E-09	4.04E-07	7.71E-05	6.95E-09	1.71E-09
Rankin 3	4.82E-10	4.73E-04	2.11E-07	2.01E-07	1.30E-04	4.90E-06	7.46E-09	4.32E-07	8.25E-05	7.45E-09	1.83E-09
Camp	2.64E-08	2.59E-02	2.53E-05	1.10E-05	7.14E-03	2.68E-04	4.09E-07	2.37E-05	4.52E-03	4.08E-07	1.00E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.05E-03	1.41E-05	2.03E-08	7.16E-08	2.32E-04	6.46E-08	8.52E-06	6.29E-07	2.10E-05	2.25E-08	0.00E+00
Receptor 2	2.99E-04	3.99E-06	5.76E-09	2.03E-08	6.57E-05	1.83E-08	2.42E-06	1.78E-07	4.69E-06	4.41E-09	0.00E+00
Receptor 3	5.12E-04	6.84E-06	9.87E-09	3.48E-08	1.13E-04	3.14E-08	4.14E-06	3.06E-07	8.28E-06	7.93E-09	0.00E+00
Receptor 4	5.46E-04	7.29E-06	1.05E-08	3.71E-08	1.20E-04	3.35E-08	4.42E-06	3.26E-07	8.70E-06	8.26E-09	0.00E+00
Receptor 5	6.18E-04	8.26E-06	1.19E-08	4.21E-08	1.36E-04	3.80E-08	5.00E-06	3.69E-07	9.54E-06	8.85E-09	0.00E+00
Receptor 6	8.42E-04	1.12E-05	1.62E-08	5.73E-08	1.85E-04	5.17E-08	6.81E-06	5.03E-07	1.26E-05	1.14E-08	0.00E+00
Receptor 7	1.08E-03	1.45E-05	2.09E-08	7.38E-08	2.39E-04	6.66E-08	8.77E-06	6.48E-07	1.56E-05	1.37E-08	0.00E+00
Receptor 8	8.52E-05	1.14E-06	1.65E-09	5.80E-09	1.88E-05	5.23E-09	6.90E-07	5.09E-08	1.33E-06	1.24E-09	0.00E+00
Receptor 9	1.03E-04	1.38E-06	1.99E-09	7.03E-09	2.27E-05	6.34E-09	8.35E-07	6.17E-08	1.72E-06	1.68E-09	0.00E+00
Receptor 10	8.52E-05	1.14E-06	1.64E-09	5.80E-09	1.88E-05	5.23E-09	6.90E-07	5.09E-08	1.53E-06	1.55E-09	0.00E+00
Receptor 11	8.52E-05	1.14E-06	1.65E-09	5.80E-09	1.88E-05	5.23E-09	6.90E-07	5.09E-08	1.33E-06	1.24E-09	0.00E+00
Receptor 12	1.01E-04	1.35E-06	1.96E-09	6.89E-09	2.23E-05	6.22E-09	8.20E-07	6.05E-08	1.64E-06	1.57E-09	0.00E+00
Receptor 13	1.01E-04	1.35E-06	1.94E-09	6.85E-09	2.22E-05	6.19E-09	8.15E-07	6.02E-08	1.68E-06	1.64E-09	0.00E+00
Receptor 14	1.63E-04	2.18E-06	3.15E-09	1.11E-08	3.59E-05	1.00E-08	1.32E-06	9.76E-08	2.79E-06	2.76E-09	0.00E+00
Receptor 15	1.47E-04	1.96E-06	2.84E-09	1.00E-08	3.23E-05	9.02E-09	1.19E-06	8.78E-08	2.47E-06	2.43E-09	0.00E+00
Receptor 16	5.53E-05	7.39E-07	1.07E-09	3.76E-09	1.22E-05	3.40E-09	4.48E-07	3.30E-08	9.16E-07	8.90E-10	0.00E+00
Receptor 17	4.00E-05	5.34E-07	7.71E-10	2.72E-09	8.79E-06	2.45E-09	3.23E-07	2.39E-08	6.60E-07	6.41E-10	0.00E+00
Receptor 18	3.65E-05	4.88E-07	7.05E-10	2.49E-09	8.04E-06	2.24E-09	2.96E-07	2.18E-08	6.01E-07	5.82E-10	0.00E+00
Receptor 19	3.49E-05	4.67E-07	6.74E-10	2.38E-09	7.68E-06	2.14E-09	2.83E-07	2.09E-08	5.69E-07	5.47E-10	0.00E+00
Receptor 20	4.61E-05	6.16E-07	8.89E-10	3.14E-09	1.01E-05	2.83E-09	3.73E-07	2.75E-08	7.49E-07	7.20E-10	0.00E+00
Receptor 21	5.44E-05	7.27E-07	1.05E-09	3.70E-09	1.20E-05	3.34E-09	4.40E-07	3.25E-08	8.74E-07	8.34E-10	0.00E+00
Receptor 22	2.42E-04	3.23E-06	4.67E-09	1.65E-08	5.32E-05	1.49E-08	1.96E-06	1.45E-07	4.33E-06	4.41E-09	0.00E+00
Park	2.42E-04	3.23E-06	4.66E-09	1.64E-08	5.32E-05	1.48E-08	1.96E-06	1.44E-07	3.65E-06	3.34E-09	0.00E+00
Rankin 1	8.07E-05	1.08E-06	1.56E-09	5.49E-09	1.77E-05	4.95E-09	6.53E-07	4.82E-08	1.29E-06	1.23E-09	0.00E+00
Rankin 2	9.21E-05	1.23E-06	1.78E-09	6.26E-09	2.03E-05	5.65E-09	7.45E-07	5.50E-08	1.47E-06	1.40E-09	0.00E+00
Rankin 3	9.86E-05	1.32E-06	1.90E-09	6.71E-09	2.17E-05	6.05E-09	7.98E-07	5.89E-08	1.58E-06	1.50E-09	0.00E+00
Camp	5.40E-03	7.21E-05	1.04E-07	3.67E-07	1.19E-03	3.31E-07	4.37E-05	3.22E-06	1.83E-04	2.34E-07	0.00E+00

g/m²/y = grams per cubic metre per year
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	8.92E-06	7.37E-07	8.22E-08	3.59E-07	2.69E-07	4.67E-09	1.07E-08	6.93E-08	2.52E-07	2.68E-07
Receptor 2	1.75E-06	1.44E-07	1.61E-08	7.03E-08	5.27E-08	9.14E-10	2.09E-09	1.36E-08	4.92E-08	5.24E-08
Receptor 3	3.14E-06	2.59E-07	2.89E-08	1.26E-07	9.47E-08	1.64E-09	3.76E-09	2.44E-08	8.85E-08	9.42E-08
Receptor 4	3.27E-06	2.70E-07	3.01E-08	1.32E-07	9.87E-08	1.71E-09	3.92E-09	2.54E-08	9.22E-08	9.81E-08
Receptor 5	3.50E-06	2.89E-07	3.23E-08	1.41E-07	1.06E-07	1.83E-09	4.20E-09	2.72E-08	9.88E-08	1.05E-07
Receptor 6	4.50E-06	3.72E-07	4.15E-08	1.82E-07	1.36E-07	2.36E-09	5.40E-09	3.50E-08	1.27E-07	1.35E-07
Receptor 7	5.43E-06	4.49E-07	5.00E-08	2.19E-07	1.64E-07	2.84E-09	6.51E-09	4.22E-08	1.53E-07	1.63E-07
Receptor 8	4.90E-07	4.05E-08	4.51E-09	1.97E-08	1.48E-08	2.56E-10	5.87E-10	3.80E-09	1.38E-08	1.47E-08
Receptor 9	6.66E-07	5.50E-08	6.14E-09	2.68E-08	2.01E-08	3.49E-10	7.99E-10	5.17E-09	1.88E-08	2.00E-08
Receptor 10	6.14E-07	5.07E-08	5.66E-09	2.48E-08	1.85E-08	3.22E-10	7.37E-10	4.77E-09	1.73E-08	1.84E-08
Receptor 11	4.90E-07	4.05E-08	4.52E-09	1.97E-08	1.48E-08	2.57E-10	5.88E-10	3.81E-09	1.38E-08	1.47E-08
Receptor 12	6.20E-07	5.12E-08	5.71E-09	2.50E-08	1.87E-08	3.24E-10	7.43E-10	4.81E-09	1.75E-08	1.86E-08
Receptor 13	6.48E-07	5.35E-08	5.97E-09	2.61E-08	1.96E-08	3.39E-10	7.77E-10	5.03E-09	1.83E-08	1.94E-08
Receptor 14	1.09E-06	9.03E-08	1.01E-08	4.40E-08	3.30E-08	5.72E-10	1.31E-09	8.49E-09	3.08E-08	3.28E-08
Receptor 15	9.60E-07	7.93E-08	8.85E-09	3.87E-08	2.90E-08	5.03E-10	1.15E-09	7.46E-09	2.71E-08	2.88E-08
Receptor 16	3.52E-07	2.91E-08	3.25E-09	1.42E-08	1.06E-08	1.84E-10	4.22E-10	2.74E-09	9.94E-09	1.06E-08
Receptor 17	2.54E-07	2.10E-08	2.34E-09	1.02E-08	7.66E-09	1.33E-10	3.04E-10	1.97E-09	7.16E-09	7.62E-09
Receptor 18	2.30E-07	1.90E-08	2.12E-09	9.28E-09	6.95E-09	1.21E-10	2.76E-10	1.79E-09	6.49E-09	6.91E-09
Receptor 19	2.16E-07	1.79E-08	1.99E-09	8.72E-09	6.53E-09	1.13E-10	2.60E-10	1.68E-09	6.10E-09	6.50E-09
Receptor 20	2.85E-07	2.35E-08	2.62E-09	1.15E-08	8.59E-09	1.49E-10	3.41E-10	2.21E-09	8.03E-09	8.55E-09
Receptor 21	3.30E-07	2.72E-08	3.04E-09	1.33E-08	9.96E-09	1.73E-10	3.96E-10	2.56E-09	9.30E-09	9.90E-09
Receptor 22	1.75E-06	1.44E-07	1.61E-08	7.03E-08	5.27E-08	9.14E-10	2.09E-09	1.36E-08	4.92E-08	5.24E-08
Park	1.32E-06	1.09E-07	1.22E-08	5.32E-08	3.98E-08	6.91E-10	1.58E-09	1.03E-08	3.72E-08	3.96E-08
Rankin 1	4.88E-07	4.03E-08	4.49E-09	1.97E-08	1.47E-08	2.55E-10	5.85E-10	3.79E-09	1.38E-08	1.46E-08
Rankin 2	5.54E-07	4.58E-08	5.11E-09	2.23E-08	1.67E-08	2.90E-10	6.65E-10	4.30E-09	1.56E-08	1.66E-08
Rankin 3	5.94E-07	4.91E-08	5.47E-09	2.39E-08	1.79E-08	3.11E-10	7.12E-10	4.61E-09	1.68E-08	1.78E-08
Camp	9.25E-05	7.64E-06	8.52E-07	3.73E-06	2.79E-06	4.84E-08	1.11E-07	7.18E-07	2.61E-06	2.78E-06

g/m²/y = grams per cubic metre per year
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.97E-08	9.44E-10	5.65E-09	0.00E+00	1.20E-08	1.56E-08	9.95E-09
Receptor 2	9.72E-09	1.85E-10	1.11E-09	0.00E+00	2.35E-09	3.06E-09	1.95E-09
Receptor 3	1.75E-08	3.32E-10	1.99E-09	0.00E+00	4.23E-09	5.50E-09	3.50E-09
Receptor 4	1.82E-08	3.46E-10	2.07E-09	0.00E+00	4.41E-09	5.74E-09	3.65E-09
Receptor 5	1.95E-08	3.71E-10	2.22E-09	0.00E+00	4.72E-09	6.15E-09	3.91E-09
Receptor 6	2.51E-08	4.77E-10	2.85E-09	0.00E+00	6.07E-09	7.90E-09	5.02E-09
Receptor 7	3.03E-08	5.75E-10	3.44E-09	0.00E+00	7.32E-09	9.52E-09	6.06E-09
Receptor 8	2.73E-09	5.19E-11	3.10E-10	0.00E+00	6.60E-10	8.59E-10	5.46E-10
Receptor 9	3.71E-09	7.05E-11	4.22E-10	0.00E+00	8.98E-10	1.17E-09	7.43E-10
Receptor 10	3.42E-09	6.50E-11	3.89E-10	0.00E+00	8.28E-10	1.08E-09	6.85E-10
Receptor 11	2.73E-09	5.19E-11	3.11E-10	0.00E+00	6.61E-10	8.59E-10	5.46E-10
Receptor 12	3.45E-09	6.56E-11	3.93E-10	0.00E+00	8.35E-10	1.09E-09	6.91E-10
Receptor 13	3.61E-09	6.86E-11	4.11E-10	0.00E+00	8.73E-10	1.14E-09	7.22E-10
Receptor 14	6.09E-09	1.16E-10	6.93E-10	0.00E+00	1.47E-09	1.92E-09	1.22E-09
Receptor 15	5.35E-09	1.02E-10	6.09E-10	0.00E+00	1.29E-09	1.68E-09	1.07E-09
Receptor 16	1.96E-09	3.73E-11	2.23E-10	0.00E+00	4.75E-10	6.18E-10	3.93E-10
Receptor 17	1.41E-09	2.69E-11	1.61E-10	0.00E+00	3.42E-10	4.45E-10	2.83E-10
Receptor 18	1.28E-09	2.44E-11	1.46E-10	0.00E+00	3.10E-10	4.04E-10	2.57E-10
Receptor 19	1.21E-09	2.29E-11	1.37E-10	0.00E+00	2.92E-10	3.80E-10	2.41E-10
Receptor 20	1.59E-09	3.01E-11	1.80E-10	0.00E+00	3.84E-10	4.99E-10	3.17E-10
Receptor 21	1.84E-09	3.49E-11	2.09E-10	0.00E+00	4.45E-10	5.79E-10	3.68E-10
Receptor 22	9.73E-09	1.85E-10	1.11E-09	0.00E+00	2.35E-09	3.06E-09	1.95E-09
Park	7.36E-09	1.40E-10	8.37E-10	0.00E+00	1.78E-09	2.32E-09	1.47E-09
Rankin 1	2.72E-09	5.16E-11	3.09E-10	0.00E+00	6.57E-10	8.55E-10	5.44E-10
Rankin 2	3.09E-09	5.87E-11	3.51E-10	0.00E+00	7.47E-10	9.72E-10	6.18E-10
Rankin 3	3.31E-09	6.29E-11	3.76E-10	0.00E+00	8.01E-10	1.04E-09	6.62E-10
Camp	5.15E-07	9.79E-09	5.86E-08	0.00E+00	1.25E-07	1.62E-07	1.03E-07

g/m²/y = grams per cubic metre per year
Cabins = Receptor Locations 1 to 22
Rankin Cabins = Rankin 1 to 3

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	5.19E-03	2.92E-07	8.29E-06	2.92E-05	5.44E-08	1.49E-08	1.20E-05	2.95E-03	1.44E-05	2.00E-06	5.29E-06
Receptor 2	1.26E-03	7.09E-08	2.01E-06	7.08E-06	1.32E-08	3.62E-09	2.28E-06	7.15E-04	3.39E-06	4.85E-07	1.28E-06
Receptor 3	1.96E-03	1.11E-07	3.14E-06	1.11E-05	2.06E-08	5.65E-09	3.85E-06	1.12E-03	5.34E-06	7.57E-07	2.00E-06
Receptor 4	2.11E-03	1.19E-07	3.37E-06	1.19E-05	2.21E-08	6.07E-09	4.06E-06	1.20E-03	5.72E-06	8.13E-07	2.15E-06
Receptor 5	2.37E-03	1.34E-07	3.79E-06	1.33E-05	2.48E-08	6.82E-09	4.39E-06	1.35E-03	6.40E-06	9.14E-07	2.42E-06
Receptor 6	3.14E-03	1.77E-07	5.02E-06	1.77E-05	3.29E-08	9.05E-09	5.66E-06	1.79E-03	8.46E-06	1.21E-06	3.21E-06
Receptor 7	3.94E-03	2.22E-07	6.31E-06	2.22E-05	4.13E-08	1.14E-08	6.78E-06	2.25E-03	1.06E-05	1.52E-06	4.03E-06
Receptor 8	3.89E-04	2.20E-08	6.23E-07	2.19E-06	4.08E-09	1.12E-09	6.43E-07	2.22E-04	1.04E-06	1.50E-07	3.97E-07
Receptor 9	4.72E-04	2.67E-08	7.56E-07	2.66E-06	4.95E-09	1.36E-09	8.78E-07	2.69E-04	1.28E-06	1.82E-07	4.82E-07
Receptor 10	4.23E-04	2.39E-08	6.77E-07	2.38E-06	4.44E-09	1.22E-09	8.28E-07	2.41E-04	1.15E-06	1.63E-07	4.32E-07
Receptor 11	3.89E-04	2.20E-08	6.23E-07	2.19E-06	4.08E-09	1.12E-09	6.43E-07	2.22E-04	1.04E-06	1.50E-07	3.98E-07
Receptor 12	4.53E-04	2.56E-08	7.25E-07	2.55E-06	4.75E-09	1.31E-09	7.94E-07	2.58E-04	1.22E-06	1.75E-07	4.63E-07
Receptor 13	7.37E-04	4.16E-08	1.18E-06	4.15E-06	7.73E-09	2.12E-09	9.56E-07	4.20E-04	1.93E-06	2.85E-07	7.53E-07
Receptor 14	1.28E-03	7.25E-08	2.06E-06	7.24E-06	1.35E-08	3.70E-09	1.68E-06	7.32E-04	3.36E-06	4.96E-07	1.31E-06
Receptor 15	1.19E-03	6.74E-08	1.91E-06	6.74E-06	1.25E-08	3.44E-09	1.49E-06	6.81E-04	3.11E-06	4.62E-07	1.22E-06
Receptor 16	3.68E-04	2.08E-08	5.89E-07	2.07E-06	3.86E-09	1.06E-09	5.13E-07	2.10E-04	9.67E-07	1.42E-07	3.76E-07
Receptor 17	2.64E-04	1.49E-08	4.22E-07	1.49E-06	2.77E-09	7.61E-10	3.69E-07	1.50E-04	6.94E-07	1.02E-07	2.70E-07
Receptor 18	2.43E-04	1.37E-08	3.89E-07	1.37E-06	2.55E-09	7.01E-10	3.36E-07	1.39E-04	6.39E-07	9.40E-08	2.49E-07
Receptor 19	2.33E-04	1.32E-08	3.73E-07	1.32E-06	2.45E-09	6.73E-10	3.17E-07	1.33E-04	6.12E-07	9.01E-08	2.38E-07
Receptor 20	3.09E-04	1.74E-08	4.95E-07	1.74E-06	3.24E-09	8.91E-10	4.17E-07	1.76E-04	8.10E-07	1.19E-07	3.16E-07
Receptor 21	3.68E-04	2.08E-08	5.90E-07	2.08E-06	3.86E-09	1.06E-09	4.85E-07	2.10E-04	9.64E-07	1.42E-07	3.76E-07
Receptor 22	2.22E-03	1.25E-07	3.55E-06	1.25E-05	2.33E-08	6.39E-09	2.73E-06	1.26E-03	5.77E-06	8.56E-07	2.27E-06
Park	1.42E-03	8.01E-08	2.27E-06	8.00E-06	1.49E-08	4.09E-09	1.88E-06	8.08E-04	3.71E-06	5.48E-07	1.45E-06
Rankin 1	6.87E-04	3.88E-08	1.10E-06	3.87E-06	7.21E-09	1.98E-09	7.80E-07	3.91E-04	1.78E-06	2.65E-07	7.02E-07
Rankin 2	8.06E-04	4.55E-08	1.29E-06	4.54E-06	8.46E-09	2.32E-09	8.96E-07	4.59E-04	2.08E-06	3.11E-07	8.24E-07
Rankin 3	8.70E-04	4.91E-08	1.39E-06	4.91E-06	9.13E-09	2.51E-09	9.63E-07	4.96E-04	2.25E-06	3.36E-07	8.89E-07
Camp	2.48E-02	1.39E-06	3.94E-05	1.39E-04	2.58E-07	7.10E-08	1.27E-04	1.40E-02	8.02E-05	9.52E-06	2.52E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	5.78E-09	5.68E-03	2.88E-06	2.41E-06	1.57E-03	5.89E-05	8.96E-08	5.19E-06	9.91E-04	8.94E-08	2.20E-08
Receptor 2	1.40E-09	1.38E-03	5.96E-07	5.85E-07	3.79E-04	1.43E-05	2.17E-08	1.26E-06	2.40E-04	2.17E-08	5.33E-09
Receptor 3	2.19E-09	2.15E-03	9.78E-07	9.14E-07	5.92E-04	2.23E-05	3.39E-08	1.96E-06	3.75E-04	3.38E-08	8.32E-09
Receptor 4	2.35E-09	2.31E-03	1.04E-06	9.81E-07	6.36E-04	2.39E-05	3.64E-08	2.11E-06	4.03E-04	3.63E-08	8.94E-09
Receptor 5	2.64E-09	2.59E-03	1.14E-06	1.10E-06	7.15E-04	2.69E-05	4.09E-08	2.37E-06	4.53E-04	4.08E-08	1.00E-08
Receptor 6	3.50E-09	3.44E-03	1.48E-06	1.46E-06	9.48E-04	3.56E-05	5.43E-08	3.14E-06	6.00E-04	5.41E-08	1.33E-08
Receptor 7	4.40E-09	4.32E-03	1.81E-06	1.84E-06	1.19E-03	4.48E-05	6.82E-08	3.95E-06	7.54E-04	6.80E-08	1.67E-08
Receptor 8	4.34E-10	4.26E-04	1.74E-07	1.81E-07	1.18E-04	4.42E-06	6.73E-09	3.90E-07	7.44E-05	6.71E-09	1.65E-09
Receptor 9	5.27E-10	5.17E-04	2.27E-07	2.20E-07	1.43E-04	5.36E-06	8.17E-09	4.73E-07	9.03E-05	8.15E-09	2.00E-09
Receptor 10	4.72E-10	4.64E-04	2.11E-07	1.97E-07	1.28E-04	4.81E-06	7.32E-09	4.24E-07	8.09E-05	7.30E-09	1.80E-09
Receptor 11	4.34E-10	4.26E-04	1.74E-07	1.81E-07	1.18E-04	4.42E-06	6.73E-09	3.90E-07	7.44E-05	6.71E-09	1.65E-09
Receptor 12	5.06E-10	4.96E-04	2.10E-07	2.11E-07	1.37E-04	5.15E-06	7.83E-09	4.54E-07	8.66E-05	7.81E-09	1.92E-09
Receptor 13	8.22E-10	8.07E-04	2.86E-07	3.43E-07	2.23E-04	8.37E-06	1.27E-08	7.38E-07	1.41E-04	1.27E-08	3.13E-09
Receptor 14	1.43E-09	1.41E-03	5.00E-07	5.98E-07	3.88E-04	1.46E-05	2.22E-08	1.29E-06	2.46E-04	2.22E-08	5.45E-09
Receptor 15	1.33E-09	1.31E-03	4.54E-07	5.57E-07	3.61E-04	1.36E-05	2.07E-08	1.20E-06	2.28E-04	2.06E-08	5.07E-09
Receptor 16	4.11E-10	4.03E-04	1.49E-07	1.71E-07	1.11E-04	4.18E-06	6.36E-09	3.69E-07	7.03E-05	6.35E-09	1.56E-09
Receptor 17	2.94E-10	2.89E-04	1.07E-07	1.23E-07	7.97E-05	3.00E-06	4.56E-09	2.64E-07	5.05E-05	4.55E-09	1.12E-09
Receptor 18	2.72E-10	2.67E-04	9.77E-08	1.13E-07	7.35E-05	2.76E-06	4.21E-09	2.44E-07	4.65E-05	4.20E-09	1.03E-09
Receptor 19	2.60E-10	2.56E-04	9.28E-08	1.09E-07	7.05E-05	2.65E-06	4.04E-09	2.34E-07	4.46E-05	4.02E-09	9.90E-10
Receptor 20	3.45E-10	3.39E-04	1.22E-07	1.44E-07	9.34E-05	3.51E-06	5.35E-09	3.10E-07	5.91E-05	5.33E-09	1.31E-09
Receptor 21	4.11E-10	4.04E-04	1.44E-07	1.72E-07	1.11E-04	4.18E-06	6.37E-09	3.69E-07	7.04E-05	6.35E-09	1.56E-09
Receptor 22	2.47E-09	2.43E-03	8.36E-07	1.03E-06	6.70E-04	2.52E-05	3.83E-08	2.22E-06	4.24E-04	3.83E-08	9.41E-09
Park	1.58E-09	1.55E-03	5.57E-07	6.61E-07	4.29E-04	1.61E-05	2.45E-08	1.42E-06	2.71E-04	2.45E-08	6.02E-09
Rankin 1	7.67E-10	7.53E-04	2.48E-07	3.20E-07	2.08E-04	7.80E-06	1.19E-08	6.88E-07	1.31E-04	1.19E-08	2.92E-09
Rankin 2	9.00E-10	8.83E-04	2.88E-07	3.76E-07	2.44E-04	9.16E-06	1.39E-08	8.08E-07	1.54E-04	1.39E-08	3.42E-09
Rankin 3	9.72E-10	9.54E-04	3.10E-07	4.06E-07	2.63E-04	9.89E-06	1.51E-08	8.72E-07	1.66E-04	1.50E-08	3.70E-09
Camp	2.75E-08	2.70E-02	2.54E-05	1.15E-05	7.45E-03	2.80E-04	4.26E-07	2.47E-05	4.71E-03	4.25E-07	1.05E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.18E-03	1.58E-05	2.28E-08	8.05E-08	2.60E-04	7.27E-08	9.58E-06	7.07E-07	2.14E-05	2.19E-08	0.00E+00
Receptor 2	2.87E-04	3.83E-06	5.53E-09	1.95E-08	6.31E-05	1.76E-08	2.32E-06	1.71E-07	4.47E-06	4.18E-09	0.00E+00
Receptor 3	4.48E-04	5.98E-06	8.64E-09	3.05E-08	9.85E-05	2.75E-08	3.62E-06	2.67E-07	7.31E-06	7.05E-09	0.00E+00
Receptor 4	4.81E-04	6.43E-06	9.28E-09	3.27E-08	1.06E-04	2.95E-08	3.89E-06	2.87E-07	7.77E-06	7.44E-09	0.00E+00
Receptor 5	5.40E-04	7.22E-06	1.04E-08	3.68E-08	1.19E-04	3.32E-08	4.37E-06	3.23E-07	8.52E-06	8.03E-09	0.00E+00
Receptor 6	7.17E-04	9.58E-06	1.38E-08	4.88E-08	1.58E-04	4.40E-08	5.80E-06	4.28E-07	1.11E-05	1.04E-08	0.00E+00
Receptor 7	9.00E-04	1.20E-05	1.74E-08	6.12E-08	1.98E-04	5.53E-08	7.28E-06	5.38E-07	1.36E-05	1.24E-08	0.00E+00
Receptor 8	8.88E-05	1.19E-06	1.71E-09	6.04E-09	1.95E-05	5.45E-09	7.19E-07	5.30E-08	1.31E-06	1.18E-09	0.00E+00
Receptor 9	1.08E-04	1.44E-06	2.08E-09	7.34E-09	2.37E-05	6.62E-09	8.73E-07	6.44E-08	1.70E-06	1.61E-09	0.00E+00
Receptor 10	9.66E-05	1.29E-06	1.86E-09	6.57E-09	2.13E-05	5.93E-09	7.82E-07	5.77E-08	1.57E-06	1.52E-09	0.00E+00
Receptor 11	8.89E-05	1.19E-06	1.71E-09	6.05E-09	1.96E-05	5.46E-09	7.19E-07	5.31E-08	1.31E-06	1.18E-09	0.00E+00
Receptor 12	1.03E-04	1.38E-06	2.00E-09	7.04E-09	2.28E-05	6.35E-09	8.37E-07	6.18E-08	1.58E-06	1.45E-09	0.00E+00
Receptor 13	1.68E-04	2.25E-06	3.25E-09	1.14E-08	3.70E-05	1.03E-08	1.36E-06	1.00E-07	2.17E-06	1.75E-09	0.00E+00
Receptor 14	2.93E-04	3.92E-06	5.66E-09	2.00E-08	6.45E-05	1.80E-08	2.37E-06	1.75E-07	3.81E-06	3.07E-09	0.00E+00
Receptor 15	2.73E-04	3.65E-06	5.27E-09	1.86E-08	6.00E-05	1.68E-08	2.21E-06	1.63E-07	3.46E-06	2.73E-09	0.00E+00
Receptor 16	8.40E-05	1.12E-06	1.62E-09	5.72E-09	1.85E-05	5.16E-09	6.80E-07	5.02E-08	1.13E-06	9.38E-10	0.00E+00
Receptor 17	6.03E-05	8.05E-07	1.16E-09	4.10E-09	1.33E-05	3.70E-09	4.88E-07	3.60E-08	8.10E-07	6.74E-10	0.00E+00
Receptor 18	5.56E-05	7.43E-07	1.07E-09	3.78E-09	1.22E-05	3.41E-09	4.50E-07	3.32E-08	7.42E-07	6.14E-10	0.00E+00
Receptor 19	5.33E-05	7.12E-07	1.03E-09	3.63E-09	1.17E-05	3.27E-09	4.31E-07	3.18E-08	7.05E-07	5.79E-10	0.00E+00
Receptor 20	7.06E-05	9.43E-07	1.36E-09	4.80E-09	1.55E-05	4.33E-09	5.71E-07	4.22E-08	9.31E-07	7.62E-10	0.00E+00
Receptor 21	8.41E-05	1.12E-06	1.62E-09	5.72E-09	1.85E-05	5.16E-09	6.81E-07	5.02E-08	1.10E-06	8.87E-10	0.00E+00
Receptor 22	5.06E-04	6.77E-06	9.77E-09	3.45E-08	1.11E-04	3.11E-08	4.10E-06	3.02E-07	6.38E-06	4.99E-09	0.00E+00
Park	3.24E-04	4.33E-06	6.25E-09	2.20E-08	7.13E-05	1.99E-08	2.62E-06	1.94E-07	4.24E-06	3.44E-09	0.00E+00
Rankin 1	1.57E-04	2.10E-06	3.03E-09	1.07E-08	3.45E-05	9.63E-09	1.27E-06	9.37E-08	1.90E-06	1.43E-09	0.00E+00
Rankin 2	1.84E-04	2.46E-06	3.55E-09	1.25E-08	4.05E-05	1.13E-08	1.49E-06	1.10E-07	2.21E-06	1.64E-09	0.00E+00
Rankin 3	1.99E-04	2.66E-06	3.84E-09	1.35E-08	4.37E-05	1.22E-08	1.61E-06	1.19E-07	2.38E-06	1.76E-09	0.00E+00
Camp	5.63E-03	7.52E-05	1.09E-07	3.83E-07	1.24E-03	3.45E-07	4.55E-05	3.36E-06	1.84E-04	2.33E-07	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	8.67E-06	7.16E-07	7.99E-08	3.49E-07	2.62E-07	4.54E-09	1.04E-08	6.73E-08	2.45E-07	2.60E-07
Receptor 2	1.65E-06	1.37E-07	1.52E-08	6.66E-08	4.99E-08	8.65E-10	1.98E-09	1.28E-08	4.66E-08	4.96E-08
Receptor 3	2.79E-06	2.30E-07	2.57E-08	1.12E-07	8.42E-08	1.46E-09	3.34E-09	2.17E-08	7.86E-08	8.37E-08
Receptor 4	2.94E-06	2.43E-07	2.71E-08	1.19E-07	8.88E-08	1.54E-09	3.53E-09	2.28E-08	8.30E-08	8.83E-08
Receptor 5	3.18E-06	2.63E-07	2.93E-08	1.28E-07	9.59E-08	1.66E-09	3.81E-09	2.47E-08	8.97E-08	9.54E-08
Receptor 6	4.10E-06	3.39E-07	3.78E-08	1.65E-07	1.24E-07	2.15E-09	4.92E-09	3.18E-08	1.16E-07	1.23E-07
Receptor 7	4.91E-06	4.05E-07	4.52E-08	1.98E-07	1.48E-07	2.57E-09	5.88E-09	3.81E-08	1.38E-07	1.47E-07
Receptor 8	4.66E-07	3.85E-08	4.29E-09	1.88E-08	1.41E-08	2.44E-10	5.58E-10	3.62E-09	1.31E-08	1.40E-08
Receptor 9	6.36E-07	5.25E-08	5.86E-09	2.56E-08	1.92E-08	3.33E-10	7.63E-10	4.94E-09	1.79E-08	1.91E-08
Receptor 10	6.00E-07	4.96E-08	5.53E-09	2.42E-08	1.81E-08	3.14E-10	7.20E-10	4.66E-09	1.69E-08	1.80E-08
Receptor 11	4.65E-07	3.84E-08	4.29E-09	1.87E-08	1.40E-08	2.44E-10	5.58E-10	3.61E-09	1.31E-08	1.40E-08
Receptor 12	5.75E-07	4.75E-08	5.30E-09	2.32E-08	1.73E-08	3.01E-10	6.89E-10	4.46E-09	1.62E-08	1.73E-08
Receptor 13	6.92E-07	5.71E-08	6.37E-09	2.79E-08	2.09E-08	3.62E-10	8.29E-10	5.37E-09	1.95E-08	2.08E-08
Receptor 14	1.22E-06	1.00E-07	1.12E-08	4.90E-08	3.67E-08	6.36E-10	1.46E-09	9.44E-09	3.43E-08	3.65E-08
Receptor 15	1.08E-06	8.92E-08	9.95E-09	4.35E-08	3.26E-08	5.65E-10	1.29E-09	8.38E-09	3.04E-08	3.24E-08
Receptor 16	3.71E-07	3.07E-08	3.42E-09	1.50E-08	1.12E-08	1.94E-10	4.45E-10	2.88E-09	1.05E-08	1.11E-08
Receptor 17	2.67E-07	2.20E-08	2.46E-09	1.08E-08	8.05E-09	1.40E-10	3.20E-10	2.07E-09	7.53E-09	8.01E-09
Receptor 18	2.43E-07	2.01E-08	2.24E-09	9.79E-09	7.33E-09	1.27E-10	2.91E-10	1.89E-09	6.85E-09	7.29E-09
Receptor 19	2.29E-07	1.89E-08	2.11E-09	9.24E-09	6.92E-09	1.20E-10	2.75E-10	1.78E-09	6.46E-09	6.88E-09
Receptor 20	3.02E-07	2.49E-08	2.78E-09	1.22E-08	9.11E-09	1.58E-10	3.62E-10	2.34E-09	8.51E-09	9.05E-09
Receptor 21	3.51E-07	2.90E-08	3.23E-09	1.41E-08	1.06E-08	1.84E-10	4.21E-10	2.73E-09	9.90E-09	1.05E-08
Receptor 22	1.98E-06	1.63E-07	1.82E-08	7.96E-08	5.96E-08	1.03E-09	2.37E-09	1.53E-08	5.57E-08	5.93E-08
Park	1.36E-06	1.12E-07	1.25E-08	5.49E-08	4.11E-08	7.13E-10	1.63E-09	1.06E-08	3.84E-08	4.09E-08
Rankin 1	5.64E-07	4.66E-08	5.20E-09	2.27E-08	1.70E-08	2.95E-10	6.76E-10	4.38E-09	1.59E-08	1.69E-08
Rankin 2	6.48E-07	5.36E-08	5.97E-09	2.61E-08	1.96E-08	3.39E-10	7.77E-10	5.04E-09	1.83E-08	1.95E-08
Rankin 3	6.97E-07	5.75E-08	6.42E-09	2.81E-08	2.10E-08	3.65E-10	8.35E-10	5.41E-09	1.96E-08	2.09E-08
Camp	9.21E-05	7.61E-06	8.49E-07	3.71E-06	2.78E-06	4.82E-08	1.10E-07	7.15E-07	2.60E-06	2.77E-06

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.83E-08	9.18E-10	5.50E-09	0.00E+00	1.17E-08	1.52E-08	9.67E-09
Receptor 2	9.21E-09	1.75E-10	1.05E-09	0.00E+00	2.23E-09	2.90E-09	1.84E-09
Receptor 3	1.55E-08	2.95E-10	1.77E-09	0.00E+00	3.76E-09	4.89E-09	3.11E-09
Receptor 4	1.64E-08	3.11E-10	1.86E-09	0.00E+00	3.97E-09	5.16E-09	3.28E-09
Receptor 5	1.77E-08	3.37E-10	2.01E-09	0.00E+00	4.28E-09	5.57E-09	3.54E-09
Receptor 6	2.28E-08	4.34E-10	2.60E-09	0.00E+00	5.53E-09	7.19E-09	4.57E-09
Receptor 7	2.73E-08	5.20E-10	3.11E-09	0.00E+00	6.62E-09	8.61E-09	5.47E-09
Receptor 8	2.59E-09	4.93E-11	2.95E-10	0.00E+00	6.28E-10	8.16E-10	5.19E-10
Receptor 9	3.54E-09	6.73E-11	4.03E-10	0.00E+00	8.57E-10	1.12E-09	7.09E-10
Receptor 10	3.34E-09	6.35E-11	3.80E-10	0.00E+00	8.09E-10	1.05E-09	6.69E-10
Receptor 11	2.59E-09	4.93E-11	2.95E-10	0.00E+00	6.27E-10	8.16E-10	5.19E-10
Receptor 12	3.20E-09	6.09E-11	3.64E-10	0.00E+00	7.75E-10	1.01E-09	6.41E-10
Receptor 13	3.85E-09	7.32E-11	4.38E-10	0.00E+00	9.32E-10	1.21E-09	7.71E-10
Receptor 14	6.77E-09	1.29E-10	7.70E-10	0.00E+00	1.64E-09	2.13E-09	1.36E-09
Receptor 15	6.01E-09	1.14E-10	6.84E-10	0.00E+00	1.45E-09	1.89E-09	1.20E-09
Receptor 16	2.07E-09	3.93E-11	2.35E-10	0.00E+00	5.00E-10	6.51E-10	4.14E-10
Receptor 17	1.49E-09	2.82E-11	1.69E-10	0.00E+00	3.60E-10	4.68E-10	2.97E-10
Receptor 18	1.35E-09	2.57E-11	1.54E-10	0.00E+00	3.27E-10	4.26E-10	2.71E-10
Receptor 19	1.28E-09	2.43E-11	1.45E-10	0.00E+00	3.09E-10	4.02E-10	2.56E-10
Receptor 20	1.68E-09	3.19E-11	1.91E-10	0.00E+00	4.07E-10	5.29E-10	3.36E-10
Receptor 21	1.96E-09	3.72E-11	2.22E-10	0.00E+00	4.73E-10	6.16E-10	3.91E-10
Receptor 22	1.10E-08	2.09E-10	1.25E-09	0.00E+00	2.66E-09	3.47E-09	2.20E-09
Park	7.59E-09	1.44E-10	8.63E-10	0.00E+00	1.83E-09	2.39E-09	1.52E-09
Rankin 1	3.14E-09	5.97E-11	3.57E-10	0.00E+00	7.60E-10	9.89E-10	6.29E-10
Rankin 2	3.61E-09	6.86E-11	4.11E-10	0.00E+00	8.74E-10	1.14E-09	7.23E-10
Rankin 3	3.88E-09	7.37E-11	4.41E-10	0.00E+00	9.39E-10	1.22E-09	7.77E-10
Camp	5.13E-07	9.75E-09	5.84E-08	0.00E+00	1.24E-07	1.62E-07	1.03E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.54E-03	2.56E-07	7.26E-06	2.56E-05	4.76E-08	1.31E-08	1.16E-05	2.59E-03	1.28E-05	1.75E-06	4.64E-06
Receptor 2	1.59E-03	8.95E-08	2.54E-06	8.94E-06	1.66E-08	4.57E-09	2.33E-06	9.03E-04	4.19E-06	6.12E-07	1.62E-06
Receptor 3	2.31E-03	1.30E-07	3.70E-06	1.30E-05	2.42E-08	6.66E-09	3.99E-06	1.32E-03	6.20E-06	8.92E-07	2.36E-06
Receptor 4	2.61E-03	1.47E-07	4.18E-06	1.47E-05	2.74E-08	7.53E-09	4.26E-06	1.49E-03	6.97E-06	1.01E-06	2.67E-06
Receptor 5	3.19E-03	1.80E-07	5.10E-06	1.80E-05	3.34E-08	9.19E-09	4.70E-06	1.82E-03	8.42E-06	1.23E-06	3.26E-06
Receptor 6	4.80E-03	2.71E-07	7.69E-06	2.71E-05	5.04E-08	1.38E-08	6.36E-06	2.74E-03	1.26E-05	1.85E-06	4.91E-06
Receptor 7	6.55E-03	3.70E-07	1.05E-05	3.70E-05	6.88E-08	1.89E-08	8.01E-06	3.74E-03	1.70E-05	2.53E-06	6.70E-06
Receptor 8	4.67E-04	2.63E-08	7.47E-07	2.63E-06	4.90E-09	1.35E-09	6.90E-07	2.66E-04	1.23E-06	1.80E-07	4.77E-07
Receptor 9	5.37E-04	3.03E-08	8.60E-07	3.03E-06	5.64E-09	1.55E-09	9.20E-07	3.06E-04	1.44E-06	2.07E-07	5.49E-07
Receptor 10	4.00E-04	2.26E-08	6.40E-07	2.25E-06	4.20E-09	1.15E-09	8.11E-07	2.28E-04	1.09E-06	1.54E-07	4.09E-07
Receptor 11	4.67E-04	2.63E-08	7.47E-07	2.63E-06	4.90E-09	1.35E-09	6.90E-07	2.66E-04	1.23E-06	1.80E-07	4.77E-07
Receptor 12	5.17E-04	2.92E-08	8.28E-07	2.92E-06	5.43E-09	1.49E-09	8.43E-07	2.95E-04	1.38E-06	2.00E-07	5.29E-07
Receptor 13	5.27E-04	2.97E-08	8.43E-07	2.97E-06	5.52E-09	1.52E-09	9.12E-07	3.00E-04	1.41E-06	2.03E-07	5.38E-07
Receptor 14	7.60E-04	4.29E-08	1.22E-06	4.28E-06	7.97E-09	2.19E-09	1.47E-06	4.33E-04	2.06E-06	2.93E-07	7.76E-07
Receptor 15	6.94E-04	3.92E-08	1.11E-06	3.91E-06	7.28E-09	2.00E-09	1.29E-06	3.95E-04	1.88E-06	2.68E-07	7.09E-07
Receptor 16	2.75E-04	1.55E-08	4.40E-07	1.55E-06	2.89E-09	7.93E-10	4.80E-07	1.57E-04	7.40E-07	1.06E-07	2.81E-07
Receptor 17	2.01E-04	1.13E-08	3.21E-07	1.13E-06	2.10E-09	5.78E-10	3.47E-07	1.14E-04	5.38E-07	7.74E-08	2.05E-07
Receptor 18	1.86E-04	1.05E-08	2.98E-07	1.05E-06	1.95E-09	5.36E-10	3.17E-07	1.06E-04	4.99E-07	7.19E-08	1.90E-07
Receptor 19	1.83E-04	1.03E-08	2.93E-07	1.03E-06	1.92E-09	5.28E-10	3.02E-07	1.04E-04	4.89E-07	7.08E-08	1.87E-07
Receptor 20	2.39E-04	1.35E-08	3.83E-07	1.35E-06	2.51E-09	6.90E-10	3.95E-07	1.36E-04	6.39E-07	9.24E-08	2.44E-07
Receptor 21	2.87E-04	1.62E-08	4.59E-07	1.62E-06	3.01E-09	8.27E-10	4.60E-07	1.63E-04	7.64E-07	1.11E-07	2.93E-07
Receptor 22	1.07E-03	6.03E-08	1.71E-06	6.02E-06	1.12E-08	3.08E-09	2.28E-06	6.09E-04	2.94E-06	4.13E-07	1.09E-06
Park	1.39E-03	7.87E-08	2.23E-06	7.86E-06	1.46E-08	4.02E-09	1.91E-06	7.94E-04	3.66E-06	5.38E-07	1.42E-06
Rankin 1	4.31E-04	2.43E-08	6.90E-07	2.43E-06	4.52E-09	1.24E-09	6.90E-07	2.45E-04	1.15E-06	1.66E-07	4.40E-07
Rankin 2	4.93E-04	2.78E-08	7.89E-07	2.78E-06	5.17E-09	1.42E-09	7.86E-07	2.81E-04	1.31E-06	1.90E-07	5.03E-07
Rankin 3	5.28E-04	2.98E-08	8.45E-07	2.98E-06	5.54E-09	1.52E-09	8.43E-07	3.01E-04	1.41E-06	2.04E-07	5.40E-07
Camp	2.21E-02	1.24E-06	3.52E-05	1.24E-04	2.31E-07	6.34E-08	1.26E-04	1.25E-02	7.36E-05	8.49E-06	2.25E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	5.07E-09	4.97E-03	2.71E-06	2.11E-06	1.37E-03	5.16E-05	7.85E-08	4.55E-06	8.68E-04	7.83E-08	1.93E-08
Receptor 2	1.77E-09	1.74E-03	6.61E-07	7.39E-07	4.79E-04	1.80E-05	2.74E-08	1.59E-06	3.03E-04	2.74E-08	6.73E-09
Receptor 3	2.58E-09	2.53E-03	1.06E-06	1.08E-06	6.98E-04	2.62E-05	4.00E-08	2.31E-06	4.42E-04	3.99E-08	9.81E-09
Receptor 4	2.92E-09	2.86E-03	1.16E-06	1.22E-06	7.90E-04	2.97E-05	4.52E-08	2.62E-06	5.00E-04	4.51E-08	1.11E-08
Receptor 5	3.56E-09	3.49E-03	1.33E-06	1.48E-06	9.63E-04	3.62E-05	5.51E-08	3.19E-06	6.09E-04	5.50E-08	1.35E-08
Receptor 6	5.36E-09	5.26E-03	1.88E-06	2.24E-06	1.45E-03	5.45E-05	8.31E-08	4.81E-06	9.18E-04	8.28E-08	2.04E-08
Receptor 7	7.32E-09	7.18E-03	2.46E-06	3.06E-06	1.98E-03	7.45E-05	1.13E-07	6.57E-06	1.25E-03	1.13E-07	2.78E-08
Receptor 8	5.21E-10	5.11E-04	1.95E-07	2.17E-07	1.41E-04	5.30E-06	8.07E-09	4.68E-07	8.92E-05	8.05E-09	1.98E-09
Receptor 9	6.00E-10	5.88E-04	2.45E-07	2.50E-07	1.62E-04	6.10E-06	9.29E-09	5.38E-07	1.03E-04	9.27E-09	2.28E-09
Receptor 10	4.46E-10	4.38E-04	2.04E-07	1.86E-07	1.21E-04	4.54E-06	6.92E-09	4.01E-07	7.65E-05	6.90E-09	1.70E-09
Receptor 11	5.21E-10	5.11E-04	1.95E-07	2.17E-07	1.41E-04	5.30E-06	8.07E-09	4.68E-07	8.92E-05	8.05E-09	1.98E-09
Receptor 12	5.78E-10	5.67E-04	2.29E-07	2.41E-07	1.56E-04	5.88E-06	8.95E-09	5.18E-07	9.89E-05	8.93E-09	2.20E-09
Receptor 13	5.88E-10	5.77E-04	2.42E-07	2.45E-07	1.59E-04	5.98E-06	9.11E-09	5.28E-07	1.01E-04	9.08E-09	2.24E-09
Receptor 14	8.48E-10	8.32E-04	3.75E-07	3.54E-07	2.30E-04	8.63E-06	1.31E-08	7.61E-07	1.45E-04	1.31E-08	3.22E-09
Receptor 15	7.74E-10	7.60E-04	3.34E-07	3.23E-07	2.10E-04	7.88E-06	1.20E-08	6.95E-07	1.33E-04	1.20E-08	2.95E-09
Receptor 16	3.07E-10	3.01E-04	1.27E-07	1.28E-07	8.32E-05	3.13E-06	4.76E-09	2.76E-07	5.26E-05	4.75E-09	1.17E-09
Receptor 17	2.24E-10	2.20E-04	9.22E-08	9.34E-08	6.06E-05	2.28E-06	3.47E-09	2.01E-07	3.83E-05	3.46E-09	8.51E-10
Receptor 18	2.08E-10	2.04E-04	8.47E-08	8.67E-08	5.62E-05	2.11E-06	3.22E-09	1.86E-07	3.56E-05	3.21E-09	7.90E-10
Receptor 19	2.05E-10	2.01E-04	8.17E-08	8.54E-08	5.54E-05	2.08E-06	3.17E-09	1.84E-07	3.50E-05	3.16E-09	7.78E-10
Receptor 20	2.67E-10	2.62E-04	1.07E-07	1.12E-07	7.23E-05	2.72E-06	4.14E-09	2.40E-07	4.58E-05	4.13E-09	1.02E-09
Receptor 21	3.20E-10	3.14E-04	1.26E-07	1.34E-07	8.67E-05	3.26E-06	4.96E-09	2.87E-07	5.49E-05	4.95E-09	1.22E-09
Receptor 22	1.19E-09	1.17E-03	5.63E-07	4.98E-07	3.23E-04	1.21E-05	1.85E-08	1.07E-06	2.04E-04	1.84E-08	4.53E-09
Park	1.56E-09	1.53E-03	5.57E-07	6.50E-07	4.21E-04	1.58E-05	2.41E-08	1.40E-06	2.67E-04	2.41E-08	5.92E-09
Rankin 1	4.81E-10	4.72E-04	1.89E-07	2.01E-07	1.30E-04	4.89E-06	7.45E-09	4.32E-07	8.24E-05	7.43E-09	1.83E-09
Rankin 2	5.50E-10	5.40E-04	2.15E-07	2.30E-07	1.49E-04	5.60E-06	8.52E-09	4.94E-07	9.42E-05	8.50E-09	2.09E-09
Rankin 3	5.90E-10	5.79E-04	2.31E-07	2.46E-07	1.60E-04	6.00E-06	9.13E-09	5.29E-07	1.01E-04	9.11E-09	2.24E-09
Camp	2.45E-08	2.41E-02	2.47E-05	1.02E-05	6.64E-03	2.50E-04	3.80E-07	2.20E-05	4.20E-03	3.79E-07	9.33E-08

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.04E-03	1.39E-05	2.00E-08	7.05E-08	2.28E-04	6.36E-08	8.39E-06	6.19E-07	2.01E-05	2.13E-08	0.00E+00
Receptor 2	3.62E-04	4.84E-06	6.99E-09	2.46E-08	7.97E-05	2.22E-08	2.93E-06	2.16E-07	5.00E-06	4.27E-09	0.00E+00
Receptor 3	5.28E-04	7.05E-06	1.02E-08	3.59E-08	1.16E-04	3.24E-08	4.27E-06	3.15E-07	7.98E-06	7.30E-09	0.00E+00
Receptor 4	5.97E-04	7.98E-06	1.15E-08	4.06E-08	1.31E-04	3.66E-08	4.83E-06	3.56E-07	8.73E-06	7.79E-09	0.00E+00
Receptor 5	7.28E-04	9.72E-06	1.40E-08	4.95E-08	1.60E-04	4.47E-08	5.89E-06	4.35E-07	1.01E-05	8.60E-09	0.00E+00
Receptor 6	1.10E-03	1.47E-05	2.12E-08	7.46E-08	2.41E-04	6.73E-08	8.87E-06	6.55E-07	1.43E-05	1.16E-08	0.00E+00
Receptor 7	1.50E-03	2.00E-05	2.89E-08	1.02E-07	3.29E-04	9.19E-08	1.21E-05	8.94E-07	1.88E-05	1.46E-08	0.00E+00
Receptor 8	1.07E-04	1.42E-06	2.06E-09	7.25E-09	2.35E-05	6.54E-09	8.62E-07	6.37E-08	1.48E-06	1.26E-09	0.00E+00
Receptor 9	1.23E-04	1.64E-06	2.37E-09	8.35E-09	2.70E-05	7.53E-09	9.93E-07	7.33E-08	1.85E-06	1.68E-09	0.00E+00
Receptor 10	9.13E-05	1.22E-06	1.76E-09	6.21E-09	2.01E-05	5.61E-09	7.39E-07	5.45E-08	1.52E-06	1.48E-09	0.00E+00
Receptor 11	1.07E-04	1.42E-06	2.06E-09	7.25E-09	2.34E-05	6.54E-09	8.62E-07	6.36E-08	1.48E-06	1.26E-09	0.00E+00
Receptor 12	1.18E-04	1.58E-06	2.28E-09	8.04E-09	2.60E-05	7.25E-09	9.56E-07	7.06E-08	1.73E-06	1.54E-09	0.00E+00
Receptor 13	1.20E-04	1.61E-06	2.32E-09	8.18E-09	2.65E-05	7.38E-09	9.73E-07	7.18E-08	1.82E-06	1.67E-09	0.00E+00
Receptor 14	1.73E-04	2.32E-06	3.35E-09	1.18E-08	3.82E-05	1.06E-08	1.40E-06	1.04E-07	2.80E-06	2.68E-09	0.00E+00
Receptor 15	1.58E-04	2.12E-06	3.06E-09	1.08E-08	3.49E-05	9.73E-09	1.28E-06	9.46E-08	2.50E-06	2.36E-09	0.00E+00
Receptor 16	6.28E-05	8.40E-07	1.21E-09	4.28E-09	1.38E-05	3.86E-09	5.08E-07	3.75E-08	9.56E-07	8.79E-10	0.00E+00
Receptor 17	4.58E-05	6.12E-07	8.84E-10	3.12E-09	1.01E-05	2.81E-09	3.71E-07	2.73E-08	6.93E-07	6.35E-10	0.00E+00
Receptor 18	4.25E-05	5.68E-07	8.20E-10	2.89E-09	9.35E-06	2.61E-09	3.44E-07	2.54E-08	6.37E-07	5.80E-10	0.00E+00
Receptor 19	4.18E-05	5.59E-07	8.08E-10	2.85E-09	9.21E-06	2.57E-09	3.39E-07	2.50E-08	6.15E-07	5.52E-10	0.00E+00
Receptor 20	5.46E-05	7.30E-07	1.05E-09	3.72E-09	1.20E-05	3.36E-09	4.42E-07	3.26E-08	8.05E-07	7.22E-10	0.00E+00
Receptor 21	6.55E-05	8.76E-07	1.26E-09	4.46E-09	1.44E-05	4.02E-09	5.30E-07	3.91E-08	9.49E-07	8.42E-10	0.00E+00
Receptor 22	2.44E-04	3.26E-06	4.71E-09	1.66E-08	5.37E-05	1.50E-08	1.97E-06	1.46E-07	4.19E-06	4.17E-09	0.00E+00
Park	3.18E-04	4.26E-06	6.15E-09	2.17E-08	7.01E-05	1.95E-08	2.58E-06	1.90E-07	4.23E-06	3.49E-09	0.00E+00
Rankin 1	9.84E-05	1.32E-06	1.90E-09	6.69E-09	2.17E-05	6.04E-09	7.96E-07	5.88E-08	1.43E-06	1.26E-09	0.00E+00
Rankin 2	1.13E-04	1.50E-06	2.17E-09	7.66E-09	2.48E-05	6.91E-09	9.11E-07	6.72E-08	1.63E-06	1.44E-09	0.00E+00
Rankin 3	1.21E-04	1.61E-06	2.33E-09	8.21E-09	2.65E-05	7.41E-09	9.76E-07	7.20E-08	1.74E-06	1.54E-09	0.00E+00
Camp	5.02E-03	6.71E-05	9.69E-08	3.42E-07	1.10E-03	3.08E-07	4.06E-05	3.00E-06	1.78E-04	2.30E-07	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	8.41E-06	6.95E-07	7.75E-08	3.39E-07	2.54E-07	4.40E-09	1.01E-08	6.53E-08	2.37E-07	2.52E-07
Receptor 2	1.69E-06	1.39E-07	1.56E-08	6.80E-08	5.09E-08	8.84E-10	2.02E-09	1.31E-08	4.76E-08	5.07E-08
Receptor 3	2.89E-06	2.39E-07	2.66E-08	1.16E-07	8.72E-08	1.51E-09	3.47E-09	2.24E-08	8.15E-08	8.67E-08
Receptor 4	3.08E-06	2.55E-07	2.84E-08	1.24E-07	9.31E-08	1.61E-09	3.70E-09	2.40E-08	8.70E-08	9.26E-08
Receptor 5	3.40E-06	2.81E-07	3.14E-08	1.37E-07	1.03E-07	1.78E-09	4.08E-09	2.64E-08	9.60E-08	1.02E-07
Receptor 6	4.60E-06	3.80E-07	4.24E-08	1.86E-07	1.39E-07	2.41E-09	5.52E-09	3.58E-08	1.30E-07	1.38E-07
Receptor 7	5.80E-06	4.79E-07	5.34E-08	2.34E-07	1.75E-07	3.03E-09	6.95E-09	4.50E-08	1.63E-07	1.74E-07
Receptor 8	4.99E-07	4.12E-08	4.60E-09	2.01E-08	1.51E-08	2.61E-10	5.99E-10	3.88E-09	1.41E-08	1.50E-08
Receptor 9	6.66E-07	5.50E-08	6.14E-09	2.68E-08	2.01E-08	3.49E-10	7.99E-10	5.17E-09	1.88E-08	2.00E-08
Receptor 10	5.87E-07	4.85E-08	5.41E-09	2.37E-08	1.77E-08	3.08E-10	7.04E-10	4.56E-09	1.66E-08	1.76E-08
Receptor 11	4.99E-07	4.12E-08	4.60E-09	2.01E-08	1.51E-08	2.61E-10	5.99E-10	3.88E-09	1.41E-08	1.50E-08
Receptor 12	6.10E-07	5.04E-08	5.62E-09	2.46E-08	1.84E-08	3.20E-10	7.32E-10	4.74E-09	1.72E-08	1.83E-08
Receptor 13	6.60E-07	5.45E-08	6.08E-09	2.66E-08	1.99E-08	3.46E-10	7.92E-10	5.13E-09	1.86E-08	1.98E-08
Receptor 14	1.06E-06	8.78E-08	9.79E-09	4.28E-08	3.21E-08	5.56E-10	1.27E-09	8.25E-09	3.00E-08	3.19E-08
Receptor 15	9.35E-07	7.72E-08	8.61E-09	3.77E-08	2.82E-08	4.89E-10	1.12E-09	7.26E-09	2.64E-08	2.81E-08
Receptor 16	3.48E-07	2.87E-08	3.20E-09	1.40E-08	1.05E-08	1.82E-10	4.17E-10	2.70E-09	9.81E-09	1.04E-08
Receptor 17	2.51E-07	2.08E-08	2.32E-09	1.01E-08	7.59E-09	1.32E-10	3.01E-10	1.95E-09	7.09E-09	7.54E-09
Receptor 18	2.29E-07	1.89E-08	2.11E-09	9.24E-09	6.92E-09	1.20E-10	2.75E-10	1.78E-09	6.47E-09	6.88E-09
Receptor 19	2.18E-07	1.80E-08	2.01E-09	8.80E-09	6.59E-09	1.14E-10	2.62E-10	1.70E-09	6.16E-09	6.55E-09
Receptor 20	2.86E-07	2.36E-08	2.63E-09	1.15E-08	8.63E-09	1.50E-10	3.43E-10	2.22E-09	8.06E-09	8.58E-09
Receptor 21	3.33E-07	2.75E-08	3.07E-09	1.34E-08	1.01E-08	1.74E-10	4.00E-10	2.59E-09	9.40E-09	1.00E-08
Receptor 22	1.65E-06	1.36E-07	1.52E-08	6.65E-08	4.98E-08	8.64E-10	1.98E-09	1.28E-08	4.66E-08	4.95E-08
Park	1.38E-06	1.14E-07	1.27E-08	5.57E-08	4.17E-08	7.23E-10	1.66E-09	1.07E-08	3.90E-08	4.15E-08
Rankin 1	5.00E-07	4.13E-08	4.61E-09	2.01E-08	1.51E-08	2.62E-10	5.99E-10	3.88E-09	1.41E-08	1.50E-08
Rankin 2	5.69E-07	4.70E-08	5.24E-09	2.29E-08	1.72E-08	2.98E-10	6.82E-10	4.42E-09	1.60E-08	1.71E-08
Rankin 3	6.10E-07	5.04E-08	5.62E-09	2.46E-08	1.84E-08	3.20E-10	7.32E-10	4.74E-09	1.72E-08	1.83E-08
Camp	9.11E-05	7.53E-06	8.40E-07	3.67E-06	2.75E-06	4.77E-08	1.09E-07	7.08E-07	2.57E-06	2.73E-06

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.69E-08	8.90E-10	5.33E-09	0.00E+00	1.13E-08	1.47E-08	9.38E-09
Receptor 2	9.41E-09	1.79E-10	1.07E-09	0.00E+00	2.28E-09	2.96E-09	1.88E-09
Receptor 3	1.61E-08	3.06E-10	1.83E-09	0.00E+00	3.90E-09	5.07E-09	3.22E-09
Receptor 4	1.72E-08	3.27E-10	1.95E-09	0.00E+00	4.16E-09	5.41E-09	3.44E-09
Receptor 5	1.90E-08	3.60E-10	2.16E-09	0.00E+00	4.59E-09	5.97E-09	3.80E-09
Receptor 6	2.57E-08	4.87E-10	2.92E-09	0.00E+00	6.21E-09	8.08E-09	5.13E-09
Receptor 7	3.23E-08	6.14E-10	3.67E-09	0.00E+00	7.81E-09	1.02E-08	6.46E-09
Receptor 8	2.78E-09	5.29E-11	3.16E-10	0.00E+00	6.73E-10	8.76E-10	5.57E-10
Receptor 9	3.71E-09	7.05E-11	4.22E-10	0.00E+00	8.98E-10	1.17E-09	7.43E-10
Receptor 10	3.27E-09	6.22E-11	3.72E-10	0.00E+00	7.92E-10	1.03E-09	6.55E-10
Receptor 11	2.78E-09	5.29E-11	3.16E-10	0.00E+00	6.73E-10	8.76E-10	5.57E-10
Receptor 12	3.40E-09	6.46E-11	3.87E-10	0.00E+00	8.23E-10	1.07E-09	6.81E-10
Receptor 13	3.68E-09	6.99E-11	4.18E-10	0.00E+00	8.90E-10	1.16E-09	7.36E-10
Receptor 14	5.92E-09	1.12E-10	6.73E-10	0.00E+00	1.43E-09	1.86E-09	1.18E-09
Receptor 15	5.21E-09	9.89E-11	5.92E-10	0.00E+00	1.26E-09	1.64E-09	1.04E-09
Receptor 16	1.94E-09	3.68E-11	2.20E-10	0.00E+00	4.69E-10	6.10E-10	3.88E-10
Receptor 17	1.40E-09	2.66E-11	1.59E-10	0.00E+00	3.39E-10	4.41E-10	2.80E-10
Receptor 18	1.28E-09	2.43E-11	1.45E-10	0.00E+00	3.09E-10	4.02E-10	2.56E-10
Receptor 19	1.22E-09	2.31E-11	1.38E-10	0.00E+00	2.94E-10	3.83E-10	2.43E-10
Receptor 20	1.59E-09	3.03E-11	1.81E-10	0.00E+00	3.85E-10	5.01E-10	3.19E-10
Receptor 21	1.86E-09	3.53E-11	2.11E-10	0.00E+00	4.49E-10	5.84E-10	3.72E-10
Receptor 22	9.20E-09	1.75E-10	1.05E-09	0.00E+00	2.22E-09	2.90E-09	1.84E-09
Park	7.70E-09	1.46E-10	8.76E-10	0.00E+00	1.86E-09	2.42E-09	1.54E-09
Rankin 1	2.79E-09	5.29E-11	3.17E-10	0.00E+00	6.74E-10	8.77E-10	5.57E-10
Rankin 2	3.17E-09	6.02E-11	3.60E-10	0.00E+00	7.67E-10	9.98E-10	6.34E-10
Rankin 3	3.40E-09	6.46E-11	3.87E-10	0.00E+00	8.23E-10	1.07E-09	6.81E-10
Camp	5.08E-07	9.65E-09	5.77E-08	0.00E+00	1.23E-07	1.60E-07	1.02E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	3.82E-03	2.15E-07	6.10E-06	2.15E-05	4.00E-08	1.10E-08	1.10E-05	2.17E-03	1.10E-05	1.47E-06	3.89E-06
Receptor 2	9.99E-04	5.63E-08	1.60E-06	5.63E-06	1.05E-08	2.88E-09	2.16E-06	5.69E-04	2.75E-06	3.85E-07	1.02E-06
Receptor 3	1.46E-03	8.25E-08	2.34E-06	8.24E-06	1.53E-08	4.21E-09	3.44E-06	8.33E-04	4.08E-06	5.65E-07	1.49E-06
Receptor 4	1.53E-03	8.65E-08	2.45E-06	8.64E-06	1.61E-08	4.42E-09	3.60E-06	8.74E-04	4.28E-06	5.92E-07	1.57E-06
Receptor 5	1.67E-03	9.40E-08	2.67E-06	9.38E-06	1.75E-08	4.80E-09	3.84E-06	9.49E-04	4.63E-06	6.43E-07	1.70E-06
Receptor 6	2.15E-03	1.21E-07	3.44E-06	1.21E-05	2.26E-08	6.20E-09	4.94E-06	1.23E-03	5.98E-06	8.31E-07	2.20E-06
Receptor 7	2.93E-03	1.65E-07	4.69E-06	1.65E-05	3.07E-08	8.44E-09	5.96E-06	1.67E-03	8.01E-06	1.13E-06	2.99E-06
Receptor 8	3.63E-04	2.05E-08	5.82E-07	2.05E-06	3.81E-09	1.05E-09	6.11E-07	2.07E-04	9.73E-07	1.40E-07	3.71E-07
Receptor 9	4.11E-04	2.32E-08	6.57E-07	2.31E-06	4.31E-09	1.18E-09	8.00E-07	2.34E-04	1.12E-06	1.58E-07	4.19E-07
Receptor 10	3.93E-04	2.22E-08	6.28E-07	2.21E-06	4.12E-09	1.13E-09	7.85E-07	2.24E-04	1.07E-06	1.52E-07	4.01E-07
Receptor 11	3.63E-04	2.05E-08	5.81E-07	2.05E-06	3.81E-09	1.05E-09	6.11E-07	2.07E-04	9.72E-07	1.40E-07	3.71E-07
Receptor 12	4.17E-04	2.35E-08	6.67E-07	2.35E-06	4.37E-09	1.20E-09	7.27E-07	2.37E-04	1.12E-06	1.61E-07	4.26E-07
Receptor 13	1.11E-03	6.28E-08	1.78E-06	6.27E-06	1.17E-08	3.21E-09	9.93E-07	6.34E-04	2.83E-06	4.30E-07	1.14E-06
Receptor 14	2.63E-03	1.49E-07	4.22E-06	1.49E-05	2.77E-08	7.60E-09	1.97E-06	1.50E-03	6.65E-06	1.02E-06	2.69E-06
Receptor 15	3.39E-03	1.92E-07	5.43E-06	1.91E-05	3.56E-08	9.79E-09	2.03E-06	1.93E-03	8.47E-06	1.31E-06	3.47E-06
Receptor 16	1.14E-03	6.47E-08	1.83E-06	6.46E-06	1.20E-08	3.30E-09	7.70E-07	6.53E-04	2.87E-06	4.42E-07	1.17E-06
Receptor 17	5.75E-04	3.25E-08	9.21E-07	3.24E-06	6.04E-09	1.66E-09	4.92E-07	3.28E-04	1.46E-06	2.22E-07	5.88E-07
Receptor 18	4.99E-04	2.82E-08	7.99E-07	2.81E-06	5.24E-09	1.44E-09	4.30E-07	2.85E-04	1.27E-06	1.93E-07	5.10E-07
Receptor 19	4.62E-04	2.61E-08	7.40E-07	2.61E-06	4.85E-09	1.33E-09	3.93E-07	2.63E-04	1.17E-06	1.79E-07	4.72E-07
Receptor 20	6.59E-04	3.72E-08	1.06E-06	3.72E-06	6.92E-09	1.90E-09	5.44E-07	3.76E-04	1.67E-06	2.55E-07	6.74E-07
Receptor 21	8.68E-04	4.90E-08	1.39E-06	4.90E-06	9.11E-09	2.50E-09	6.87E-07	4.95E-04	2.20E-06	3.36E-07	8.88E-07
Receptor 22	2.53E-03	1.43E-07	4.05E-06	1.43E-05	2.65E-08	7.29E-09	2.72E-06	1.44E-03	6.51E-06	9.77E-07	2.58E-06
Park	1.89E-03	1.07E-07	3.02E-06	1.07E-05	1.98E-08	5.45E-09	1.78E-06	1.08E-03	4.83E-06	7.30E-07	1.93E-06
Rankin 1	1.05E-03	5.93E-08	1.68E-06	5.92E-06	1.10E-08	3.03E-09	8.44E-07	5.99E-04	2.66E-06	4.06E-07	1.07E-06
Rankin 2	1.09E-03	6.15E-08	1.74E-06	6.14E-06	1.14E-08	3.14E-09	9.19E-07	6.21E-04	2.76E-06	4.21E-07	1.11E-06
Rankin 3	1.19E-03	6.72E-08	1.91E-06	6.71E-06	1.25E-08	3.43E-09	9.94E-07	6.79E-04	3.02E-06	4.60E-07	1.22E-06
Camp	2.18E-02	1.23E-06	3.48E-05	1.22E-04	2.28E-07	6.26E-08	1.25E-04	1.24E-02	7.29E-05	8.39E-06	2.22E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.25E-09	4.18E-03	2.49E-06	1.78E-06	1.15E-03	4.33E-05	6.59E-08	3.82E-06	7.29E-04	6.57E-08	1.62E-08
Receptor 2	1.11E-09	1.09E-03	5.32E-07	4.65E-07	3.02E-04	1.13E-05	1.73E-08	1.00E-06	1.91E-04	1.72E-08	4.24E-09
Receptor 3	1.63E-09	1.60E-03	8.25E-07	6.81E-07	4.42E-04	1.66E-05	2.53E-08	1.46E-06	2.80E-04	2.52E-08	6.21E-09
Receptor 4	1.71E-09	1.68E-03	8.64E-07	7.15E-07	4.63E-04	1.74E-05	2.65E-08	1.54E-06	2.93E-04	2.65E-08	6.51E-09
Receptor 5	1.86E-09	1.82E-03	9.26E-07	7.76E-07	5.03E-04	1.89E-05	2.88E-08	1.67E-06	3.18E-04	2.87E-08	7.07E-09
Receptor 6	2.40E-09	2.36E-03	1.19E-06	1.00E-06	6.50E-04	2.44E-05	3.72E-08	2.15E-06	4.11E-04	3.71E-08	9.13E-09
Receptor 7	3.27E-09	3.21E-03	1.50E-06	1.36E-06	8.85E-04	3.33E-05	5.06E-08	2.93E-06	5.60E-04	5.05E-08	1.24E-08
Receptor 8	4.06E-10	3.98E-04	1.64E-07	1.69E-07	1.10E-04	4.13E-06	6.28E-09	3.64E-07	6.95E-05	6.27E-09	1.54E-09
Receptor 9	4.58E-10	4.50E-04	2.04E-07	1.91E-07	1.24E-04	4.66E-06	7.10E-09	4.11E-07	7.85E-05	7.08E-09	1.74E-09
Receptor 10	4.38E-10	4.30E-04	1.98E-07	1.83E-07	1.19E-04	4.46E-06	6.79E-09	3.93E-07	7.51E-05	6.77E-09	1.67E-09
Receptor 11	4.05E-10	3.98E-04	1.64E-07	1.69E-07	1.10E-04	4.13E-06	6.28E-09	3.64E-07	6.94E-05	6.26E-09	1.54E-09
Receptor 12	4.65E-10	4.57E-04	1.93E-07	1.94E-07	1.26E-04	4.73E-06	7.21E-09	4.18E-07	7.97E-05	7.19E-09	1.77E-09
Receptor 13	1.24E-09	1.22E-03	3.56E-07	5.19E-07	3.36E-04	1.26E-05	1.93E-08	1.12E-06	2.13E-04	1.92E-08	4.73E-09
Receptor 14	2.94E-09	2.89E-03	7.80E-07	1.23E-06	7.97E-04	3.00E-05	4.56E-08	2.64E-06	5.04E-04	4.55E-08	1.12E-08
Receptor 15	3.79E-09	3.72E-03	9.20E-07	1.58E-06	1.03E-03	3.86E-05	5.87E-08	3.40E-06	6.49E-04	5.86E-08	1.44E-08
Receptor 16	1.28E-09	1.26E-03	3.25E-07	5.34E-07	3.46E-04	1.30E-05	1.98E-08	1.15E-06	2.19E-04	1.98E-08	4.86E-09
Receptor 17	6.42E-10	6.30E-04	1.81E-07	2.68E-07	1.74E-04	6.54E-06	9.95E-09	5.76E-07	1.10E-04	9.93E-09	2.44E-09
Receptor 18	5.57E-10	5.47E-04	1.57E-07	2.33E-07	1.51E-04	5.67E-06	8.64E-09	5.00E-07	9.55E-05	8.62E-09	2.12E-09
Receptor 19	5.16E-10	5.06E-04	1.45E-07	2.15E-07	1.40E-04	5.25E-06	7.99E-09	4.63E-07	8.84E-05	7.97E-09	1.96E-09
Receptor 20	7.36E-10	7.23E-04	2.04E-07	3.07E-07	1.99E-04	7.49E-06	1.14E-08	6.61E-07	1.26E-04	1.14E-08	2.80E-09
Receptor 21	9.70E-10	9.52E-04	2.63E-07	4.05E-07	2.63E-04	9.87E-06	1.50E-08	8.71E-07	1.66E-04	1.50E-08	3.69E-09
Receptor 22	2.82E-09	2.77E-03	8.88E-07	1.18E-06	7.64E-04	2.87E-05	4.37E-08	2.53E-06	4.84E-04	4.36E-08	1.07E-08
Park	2.11E-09	2.07E-03	6.21E-07	8.81E-07	5.71E-04	2.15E-05	3.27E-08	1.89E-06	3.61E-04	3.26E-08	8.02E-09
Rankin 1	1.17E-09	1.15E-03	3.21E-07	4.90E-07	3.18E-04	1.19E-05	1.82E-08	1.05E-06	2.01E-04	1.81E-08	4.46E-09
Rankin 2	1.22E-09	1.19E-03	3.40E-07	5.08E-07	3.29E-04	1.24E-05	1.88E-08	1.09E-06	2.08E-04	1.88E-08	4.63E-09
Rankin 3	1.33E-09	1.31E-03	3.70E-07	5.55E-07	3.60E-04	1.35E-05	2.06E-08	1.19E-06	2.28E-04	2.06E-08	5.06E-09
Camp	2.42E-08	2.38E-02	2.46E-05	1.01E-05	6.56E-03	2.47E-04	3.76E-07	2.18E-05	4.15E-03	3.75E-07	9.22E-08

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	8.70E-04	1.16E-05	1.68E-08	5.92E-08	1.91E-04	5.34E-08	7.04E-06	5.20E-07	1.83E-05	2.02E-08	0.00E+00
Receptor 2	2.28E-04	3.05E-06	4.40E-09	1.55E-08	5.02E-05	1.40E-08	1.84E-06	1.36E-07	3.96E-06	3.96E-09	0.00E+00
Receptor 3	3.34E-04	4.46E-06	6.44E-09	2.27E-08	7.35E-05	2.05E-08	2.70E-06	1.99E-07	6.12E-06	6.31E-09	0.00E+00
Receptor 4	3.50E-04	4.68E-06	6.76E-09	2.38E-08	7.70E-05	2.15E-08	2.83E-06	2.09E-07	6.41E-06	6.60E-09	0.00E+00
Receptor 5	3.80E-04	5.08E-06	7.34E-09	2.59E-08	8.37E-05	2.33E-08	3.08E-06	2.27E-07	6.88E-06	7.04E-09	0.00E+00
Receptor 6	4.91E-04	6.56E-06	9.48E-09	3.34E-08	1.08E-04	3.02E-08	3.97E-06	2.93E-07	8.86E-06	9.05E-09	0.00E+00
Receptor 7	6.69E-04	8.93E-06	1.29E-08	4.55E-08	1.47E-04	4.10E-08	5.41E-06	3.99E-07	1.12E-05	1.09E-08	0.00E+00
Receptor 8	8.30E-05	1.11E-06	1.60E-09	5.65E-09	1.83E-05	5.09E-09	6.71E-07	4.96E-08	1.24E-06	1.12E-09	0.00E+00
Receptor 9	9.37E-05	1.25E-06	1.81E-09	6.38E-09	2.06E-05	5.75E-09	7.58E-07	5.60E-08	1.52E-06	1.47E-09	0.00E+00
Receptor 10	8.97E-05	1.20E-06	1.73E-09	6.10E-09	1.97E-05	5.50E-09	7.25E-07	5.35E-08	1.48E-06	1.44E-09	0.00E+00
Receptor 11	8.29E-05	1.11E-06	1.60E-09	5.64E-09	1.82E-05	5.09E-09	6.71E-07	4.95E-08	1.23E-06	1.12E-09	0.00E+00
Receptor 12	9.52E-05	1.27E-06	1.84E-09	6.48E-09	2.09E-05	5.84E-09	7.70E-07	5.68E-08	1.45E-06	1.33E-09	0.00E+00
Receptor 13	2.54E-04	3.40E-06	4.91E-09	1.73E-08	5.59E-05	1.56E-08	2.06E-06	1.52E-07	2.76E-06	1.81E-09	0.00E+00
Receptor 14	6.02E-04	8.05E-06	1.16E-08	4.10E-08	1.32E-04	3.70E-08	4.87E-06	3.60E-07	6.09E-06	3.59E-09	0.00E+00
Receptor 15	7.75E-04	1.04E-05	1.50E-08	5.27E-08	1.71E-04	4.76E-08	6.27E-06	4.63E-07	7.25E-06	3.70E-09	0.00E+00
Receptor 16	2.62E-04	3.50E-06	5.05E-09	1.78E-08	5.76E-05	1.61E-08	2.12E-06	1.56E-07	2.55E-06	1.40E-09	0.00E+00
Receptor 17	1.31E-04	1.76E-06	2.54E-09	8.94E-09	2.89E-05	8.07E-09	1.06E-06	7.85E-08	1.40E-06	8.98E-10	0.00E+00
Receptor 18	1.14E-04	1.52E-06	2.20E-09	7.76E-09	2.51E-05	7.00E-09	9.23E-07	6.81E-08	1.22E-06	7.86E-10	0.00E+00
Receptor 19	1.06E-04	1.41E-06	2.04E-09	7.18E-09	2.32E-05	6.48E-09	8.54E-07	6.30E-08	1.12E-06	7.18E-10	0.00E+00
Receptor 20	1.51E-04	2.01E-06	2.91E-09	1.02E-08	3.31E-05	9.25E-09	1.22E-06	9.00E-08	1.58E-06	9.93E-10	0.00E+00
Receptor 21	1.98E-04	2.65E-06	3.83E-09	1.35E-08	4.37E-05	1.22E-08	1.61E-06	1.18E-07	2.05E-06	1.25E-09	0.00E+00
Receptor 22	5.78E-04	7.72E-06	1.11E-08	3.93E-08	1.27E-04	3.55E-08	4.67E-06	3.45E-07	6.81E-06	4.98E-09	0.00E+00
Park	4.32E-04	5.77E-06	8.33E-09	2.94E-08	9.50E-05	2.65E-08	3.49E-06	2.58E-07	4.79E-06	3.25E-09	0.00E+00
Rankin 1	2.40E-04	3.21E-06	4.63E-09	1.63E-08	5.28E-05	1.47E-08	1.94E-06	1.43E-07	2.50E-06	1.54E-09	0.00E+00
Rankin 2	2.49E-04	3.33E-06	4.80E-09	1.69E-08	5.48E-05	1.53E-08	2.01E-06	1.49E-07	2.64E-06	1.68E-09	0.00E+00
Rankin 3	2.72E-04	3.64E-06	5.25E-09	1.85E-08	5.99E-05	1.67E-08	2.20E-06	1.62E-07	2.87E-06	1.82E-09	0.00E+00
Camp	4.96E-03	6.63E-05	9.57E-08	3.38E-07	1.09E-03	3.05E-07	4.01E-05	2.96E-06	1.77E-04	2.29E-07	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	7.98E-06	6.59E-07	7.35E-08	3.21E-07	2.41E-07	4.18E-09	9.56E-09	6.19E-08	2.25E-07	2.39E-07
Receptor 2	1.57E-06	1.29E-07	1.44E-08	6.31E-08	4.73E-08	8.20E-10	1.88E-09	1.22E-08	4.42E-08	4.70E-08
Receptor 3	2.50E-06	2.06E-07	2.30E-08	1.01E-07	7.53E-08	1.31E-09	2.99E-09	1.94E-08	7.04E-08	7.49E-08
Receptor 4	2.61E-06	2.16E-07	2.41E-08	1.05E-07	7.88E-08	1.37E-09	3.13E-09	2.03E-08	7.37E-08	7.84E-08
Receptor 5	2.79E-06	2.30E-07	2.57E-08	1.12E-07	8.41E-08	1.46E-09	3.34E-09	2.16E-08	7.86E-08	8.36E-08
Receptor 6	3.58E-06	2.96E-07	3.30E-08	1.44E-07	1.08E-07	1.87E-09	4.29E-09	2.78E-08	1.01E-07	1.07E-07
Receptor 7	4.32E-06	3.57E-07	3.98E-08	1.74E-07	1.30E-07	2.26E-09	5.18E-09	3.35E-08	1.22E-07	1.30E-07
Receptor 8	4.42E-07	3.66E-08	4.08E-09	1.78E-08	1.34E-08	2.32E-10	5.31E-10	3.44E-09	1.25E-08	1.33E-08
Receptor 9	5.80E-07	4.79E-08	5.34E-09	2.34E-08	1.75E-08	3.04E-10	6.95E-10	4.50E-09	1.64E-08	1.74E-08
Receptor 10	5.69E-07	4.70E-08	5.24E-09	2.29E-08	1.72E-08	2.98E-10	6.82E-10	4.42E-09	1.60E-08	1.71E-08
Receptor 11	4.42E-07	3.65E-08	4.07E-09	1.78E-08	1.33E-08	2.32E-10	5.30E-10	3.43E-09	1.25E-08	1.33E-08
Receptor 12	5.26E-07	4.35E-08	4.85E-09	2.12E-08	1.59E-08	2.75E-10	6.31E-10	4.09E-09	1.48E-08	1.58E-08
Receptor 13	7.17E-07	5.93E-08	6.61E-09	2.89E-08	2.17E-08	3.76E-10	8.60E-10	5.57E-09	2.02E-08	2.15E-08
Receptor 14	1.42E-06	1.17E-07	1.31E-08	5.72E-08	4.28E-08	7.43E-10	1.70E-09	1.10E-08	4.00E-08	4.26E-08
Receptor 15	1.46E-06	1.21E-07	1.35E-08	5.89E-08	4.41E-08	7.66E-10	1.75E-09	1.14E-08	4.13E-08	4.39E-08
Receptor 16	5.55E-07	4.59E-08	5.12E-09	2.24E-08	1.68E-08	2.91E-10	6.66E-10	4.31E-09	1.57E-08	1.67E-08
Receptor 17	3.55E-07	2.94E-08	3.27E-09	1.43E-08	1.07E-08	1.86E-10	4.26E-10	2.76E-09	1.00E-08	1.07E-08
Receptor 18	3.11E-07	2.57E-08	2.86E-09	1.25E-08	9.38E-09	1.63E-10	3.73E-10	2.41E-09	8.77E-09	9.33E-09
Receptor 19	2.84E-07	2.35E-08	2.62E-09	1.15E-08	8.58E-09	1.49E-10	3.41E-10	2.21E-09	8.02E-09	8.53E-09
Receptor 20	3.93E-07	3.25E-08	3.62E-09	1.58E-08	1.19E-08	2.06E-10	4.71E-10	3.05E-09	1.11E-08	1.18E-08
Receptor 21	4.96E-07	4.10E-08	4.57E-09	2.00E-08	1.50E-08	2.60E-10	5.95E-10	3.85E-09	1.40E-08	1.49E-08
Receptor 22	1.97E-06	1.63E-07	1.82E-08	7.94E-08	5.95E-08	1.03E-09	2.36E-09	1.53E-08	5.56E-08	5.91E-08
Park	1.29E-06	1.06E-07	1.19E-08	5.18E-08	3.88E-08	6.73E-10	1.54E-09	9.99E-09	3.63E-08	3.86E-08
Rankin 1	6.09E-07	5.03E-08	5.62E-09	2.46E-08	1.84E-08	3.19E-10	7.31E-10	4.73E-09	1.72E-08	1.83E-08
Rankin 2	6.64E-07	5.49E-08	6.12E-09	2.68E-08	2.00E-08	3.48E-10	7.96E-10	5.16E-09	1.87E-08	1.99E-08
Rankin 3	7.18E-07	5.93E-08	6.62E-09	2.89E-08	2.17E-08	3.76E-10	8.61E-10	5.58E-09	2.03E-08	2.16E-08
Camp	9.08E-05	7.50E-06	8.36E-07	3.66E-06	2.74E-06	4.75E-08	1.09E-07	7.05E-07	2.56E-06	2.72E-06

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.44E-08	8.44E-10	5.05E-09	0.00E+00	1.08E-08	1.40E-08	8.89E-09
Receptor 2	8.73E-09	1.66E-10	9.93E-10	0.00E+00	2.11E-09	2.75E-09	1.75E-09
Receptor 3	1.39E-08	2.64E-10	1.58E-09	0.00E+00	3.36E-09	4.38E-09	2.78E-09
Receptor 4	1.46E-08	2.77E-10	1.66E-09	0.00E+00	3.52E-09	4.58E-09	2.91E-09
Receptor 5	1.55E-08	2.95E-10	1.77E-09	0.00E+00	3.75E-09	4.89E-09	3.11E-09
Receptor 6	1.99E-08	3.79E-10	2.27E-09	0.00E+00	4.82E-09	6.28E-09	3.99E-09
Receptor 7	2.41E-08	4.57E-10	2.74E-09	0.00E+00	5.82E-09	7.57E-09	4.81E-09
Receptor 8	2.47E-09	4.68E-11	2.80E-10	0.00E+00	5.96E-10	7.76E-10	4.93E-10
Receptor 9	3.23E-09	6.14E-11	3.67E-10	0.00E+00	7.81E-10	1.02E-09	6.46E-10
Receptor 10	3.17E-09	6.02E-11	3.60E-10	0.00E+00	7.67E-10	9.97E-10	6.34E-10
Receptor 11	2.46E-09	4.68E-11	2.80E-10	0.00E+00	5.96E-10	7.76E-10	4.93E-10
Receptor 12	2.93E-09	5.57E-11	3.33E-10	0.00E+00	7.09E-10	9.23E-10	5.87E-10
Receptor 13	4.00E-09	7.60E-11	4.55E-10	0.00E+00	9.67E-10	1.26E-09	8.00E-10
Receptor 14	7.91E-09	1.50E-10	9.00E-10	0.00E+00	1.91E-09	2.49E-09	1.58E-09
Receptor 15	8.15E-09	1.55E-10	9.27E-10	0.00E+00	1.97E-09	2.57E-09	1.63E-09
Receptor 16	3.09E-09	5.88E-11	3.52E-10	0.00E+00	7.49E-10	9.74E-10	6.19E-10
Receptor 17	1.98E-09	3.76E-11	2.25E-10	0.00E+00	4.79E-10	6.23E-10	3.96E-10
Receptor 18	1.73E-09	3.29E-11	1.97E-10	0.00E+00	4.19E-10	5.45E-10	3.47E-10
Receptor 19	1.58E-09	3.01E-11	1.80E-10	0.00E+00	3.83E-10	4.98E-10	3.17E-10
Receptor 20	2.19E-09	4.16E-11	2.49E-10	0.00E+00	5.30E-10	6.89E-10	4.38E-10
Receptor 21	2.76E-09	5.25E-11	3.14E-10	0.00E+00	6.69E-10	8.70E-10	5.53E-10
Receptor 22	1.10E-08	2.09E-10	1.25E-09	0.00E+00	2.66E-09	3.46E-09	2.20E-09
Park	7.17E-09	1.36E-10	8.15E-10	0.00E+00	1.73E-09	2.26E-09	1.43E-09
Rankin 1	3.40E-09	6.45E-11	3.86E-10	0.00E+00	8.21E-10	1.07E-09	6.80E-10
Rankin 2	3.70E-09	7.03E-11	4.21E-10	0.00E+00	8.95E-10	1.16E-09	7.41E-10
Rankin 3	4.00E-09	7.61E-11	4.55E-10	0.00E+00	9.68E-10	1.26E-09	8.01E-10
Camp	5.06E-07	9.61E-09	5.75E-08	0.00E+00	1.22E-07	1.59E-07	1.01E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.30E-03	2.42E-07	6.87E-06	2.42E-05	4.50E-08	1.24E-08	1.18E-05	2.45E-03	1.23E-05	1.66E-06	4.39E-06
Receptor 2	1.35E-03	7.60E-08	2.16E-06	7.59E-06	1.41E-08	3.88E-09	2.31E-06	7.67E-04	3.61E-06	5.20E-07	1.38E-06
Receptor 3	2.25E-03	1.27E-07	3.61E-06	1.27E-05	2.36E-08	6.50E-09	4.11E-06	1.28E-03	6.09E-06	8.70E-07	2.30E-06
Receptor 4	2.45E-03	1.38E-07	3.92E-06	1.38E-05	2.57E-08	7.05E-09	4.31E-06	1.39E-03	6.58E-06	9.45E-07	2.50E-06
Receptor 5	2.80E-03	1.58E-07	4.47E-06	1.58E-05	2.93E-08	8.06E-09	4.59E-06	1.59E-03	7.46E-06	1.08E-06	2.86E-06
Receptor 6	3.85E-03	2.18E-07	6.17E-06	2.17E-05	4.04E-08	1.11E-08	5.87E-06	2.20E-03	1.02E-05	1.49E-06	3.94E-06
Receptor 7	5.05E-03	2.85E-07	8.09E-06	2.85E-05	5.30E-08	1.46E-08	7.12E-06	2.88E-03	1.33E-05	1.95E-06	5.16E-06
Receptor 8	3.86E-04	2.18E-08	6.17E-07	2.17E-06	4.04E-09	1.11E-09	6.44E-07	2.20E-04	1.03E-06	1.49E-07	3.94E-07
Receptor 9	4.54E-04	2.56E-08	7.27E-07	2.56E-06	4.76E-09	1.31E-09	8.75E-07	2.59E-04	1.23E-06	1.75E-07	4.64E-07
Receptor 10	3.68E-04	2.08E-08	5.88E-07	2.07E-06	3.86E-09	1.06E-09	8.12E-07	2.09E-04	1.02E-06	1.42E-07	3.76E-07
Receptor 11	3.85E-04	2.18E-08	6.17E-07	2.17E-06	4.04E-09	1.11E-09	6.44E-07	2.20E-04	1.03E-06	1.49E-07	3.94E-07
Receptor 12	4.48E-04	2.53E-08	7.17E-07	2.52E-06	4.70E-09	1.29E-09	8.11E-07	2.55E-04	1.21E-06	1.73E-07	4.57E-07
Receptor 13	4.48E-04	2.53E-08	7.16E-07	2.52E-06	4.69E-09	1.29E-09	8.71E-07	2.55E-04	1.22E-06	1.73E-07	4.57E-07
Receptor 14	7.03E-04	3.97E-08	1.13E-06	3.96E-06	7.38E-09	2.03E-09	1.46E-06	4.01E-04	1.93E-06	2.72E-07	7.18E-07
Receptor 15	6.43E-04	3.63E-08	1.03E-06	3.62E-06	6.74E-09	1.85E-09	1.29E-06	3.66E-04	1.75E-06	2.48E-07	6.57E-07
Receptor 16	2.45E-04	1.38E-08	3.92E-07	1.38E-06	2.57E-09	7.05E-10	4.70E-07	1.39E-04	6.65E-07	9.45E-08	2.50E-07
Receptor 17	1.77E-04	1.00E-08	2.83E-07	9.98E-07	1.86E-09	5.11E-10	3.38E-07	1.01E-04	4.81E-07	6.84E-08	1.81E-07
Receptor 18	1.63E-04	9.18E-09	2.60E-07	9.17E-07	1.71E-09	4.69E-10	3.07E-07	9.27E-05	4.41E-07	6.28E-08	1.66E-07
Receptor 19	1.57E-04	8.84E-09	2.51E-07	8.83E-07	1.64E-09	4.52E-10	2.89E-07	8.92E-05	4.24E-07	6.05E-08	1.60E-07
Receptor 20	2.06E-04	1.17E-08	3.30E-07	1.16E-06	2.17E-09	5.95E-10	3.80E-07	1.18E-04	5.58E-07	7.97E-08	2.11E-07
Receptor 21	2.45E-04	1.38E-08	3.92E-07	1.38E-06	2.57E-09	7.06E-10	4.41E-07	1.40E-04	6.60E-07	9.46E-08	2.50E-07
Receptor 22	1.03E-03	5.81E-08	1.65E-06	5.80E-06	1.08E-08	2.97E-09	2.34E-06	5.86E-04	2.85E-06	3.97E-07	1.05E-06
Park	1.11E-03	6.24E-08	1.77E-06	6.23E-06	1.16E-08	3.19E-09	1.74E-06	6.30E-04	2.94E-06	4.27E-07	1.13E-06
Rankin 1	3.64E-04	2.05E-08	5.82E-07	2.05E-06	3.81E-09	1.05E-09	6.55E-07	2.07E-04	9.80E-07	1.40E-07	3.71E-07
Rankin 2	4.15E-04	2.34E-08	6.65E-07	2.34E-06	4.36E-09	1.20E-09	7.46E-07	2.37E-04	1.12E-06	1.60E-07	4.24E-07
Rankin 3	4.45E-04	2.51E-08	7.12E-07	2.51E-06	4.67E-09	1.28E-09	8.00E-07	2.54E-04	1.20E-06	1.72E-07	4.55E-07
Camp	2.25E-02	1.26E-06	3.58E-05	1.26E-04	2.35E-07	6.46E-08	1.26E-04	1.28E-02	7.47E-05	8.65E-06	2.29E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.79E-09	4.70E-03	2.71E-06	2.00E-06	1.30E-03	4.88E-05	7.43E-08	4.30E-06	8.21E-04	7.41E-08	1.82E-08
Receptor 2	1.50E-09	1.48E-03	6.16E-07	6.28E-07	4.07E-04	1.53E-05	2.33E-08	1.35E-06	2.58E-04	2.32E-08	5.72E-09
Receptor 3	2.52E-09	2.47E-03	1.07E-06	1.05E-06	6.81E-04	2.56E-05	3.90E-08	2.26E-06	4.31E-04	3.89E-08	9.57E-09
Receptor 4	2.73E-09	2.68E-03	1.14E-06	1.14E-06	7.39E-04	2.78E-05	4.23E-08	2.45E-06	4.68E-04	4.22E-08	1.04E-08
Receptor 5	3.12E-09	3.06E-03	1.24E-06	1.30E-06	8.45E-04	3.18E-05	4.83E-08	2.80E-06	5.35E-04	4.82E-08	1.19E-08
Receptor 6	4.30E-09	4.22E-03	1.64E-06	1.80E-06	1.17E-03	4.38E-05	6.67E-08	3.86E-06	7.37E-04	6.65E-08	1.64E-08
Receptor 7	5.64E-09	5.54E-03	2.05E-06	2.35E-06	1.53E-03	5.74E-05	8.74E-08	5.06E-06	9.66E-04	8.72E-08	2.15E-08
Receptor 8	4.30E-10	4.22E-04	1.73E-07	1.80E-07	1.16E-04	4.38E-06	6.67E-09	3.86E-07	7.37E-05	6.65E-09	1.64E-09
Receptor 9	5.07E-10	4.97E-04	2.24E-07	2.12E-07	1.37E-04	5.16E-06	7.85E-09	4.55E-07	8.68E-05	7.83E-09	1.93E-09
Receptor 10	4.10E-10	4.03E-04	1.98E-07	1.71E-07	1.11E-04	4.18E-06	6.36E-09	3.68E-07	7.03E-05	6.34E-09	1.56E-09
Receptor 11	4.30E-10	4.22E-04	1.73E-07	1.80E-07	1.16E-04	4.38E-06	6.67E-09	3.86E-07	7.37E-05	6.65E-09	1.64E-09
Receptor 12	5.00E-10	4.91E-04	2.12E-07	2.09E-07	1.35E-04	5.09E-06	7.74E-09	4.49E-07	8.56E-05	7.72E-09	1.90E-09
Receptor 13	4.99E-10	4.90E-04	2.22E-07	2.09E-07	1.35E-04	5.08E-06	7.74E-09	4.48E-07	8.56E-05	7.72E-09	1.90E-09
Receptor 14	7.85E-10	7.70E-04	3.64E-07	3.28E-07	2.12E-04	7.99E-06	1.22E-08	7.04E-07	1.34E-04	1.21E-08	2.98E-09
Receptor 15	7.17E-10	7.04E-04	3.25E-07	2.99E-07	1.94E-04	7.30E-06	1.11E-08	6.44E-07	1.23E-04	1.11E-08	2.73E-09
Receptor 16	2.73E-10	2.68E-04	1.20E-07	1.14E-07	7.39E-05	2.78E-06	4.23E-09	2.45E-07	4.68E-05	4.22E-09	1.04E-09
Receptor 17	1.98E-10	1.94E-04	8.68E-08	8.25E-08	5.35E-05	2.01E-06	3.06E-09	1.77E-07	3.39E-05	3.06E-09	7.52E-10
Receptor 18	1.82E-10	1.78E-04	7.91E-08	7.58E-08	4.92E-05	1.85E-06	2.81E-09	1.63E-07	3.11E-05	2.81E-09	6.91E-10
Receptor 19	1.75E-10	1.72E-04	7.50E-08	7.30E-08	4.73E-05	1.78E-06	2.71E-09	1.57E-07	2.99E-05	2.70E-09	6.65E-10
Receptor 20	2.30E-10	2.26E-04	9.88E-08	9.62E-08	6.24E-05	2.34E-06	3.57E-09	2.07E-07	3.95E-05	3.56E-09	8.76E-10
Receptor 21	2.73E-10	2.68E-04	1.15E-07	1.14E-07	7.40E-05	2.78E-06	4.24E-09	2.45E-07	4.68E-05	4.23E-09	1.04E-09
Receptor 22	1.15E-09	1.13E-03	5.66E-07	4.79E-07	3.11E-04	1.17E-05	1.78E-08	1.03E-06	1.97E-04	1.77E-08	4.37E-09
Park	1.23E-09	1.21E-03	4.80E-07	5.15E-07	3.34E-04	1.26E-05	1.91E-08	1.11E-06	2.11E-04	1.91E-08	4.70E-09
Rankin 1	4.06E-10	3.98E-04	1.72E-07	1.69E-07	1.10E-04	4.13E-06	6.29E-09	3.64E-07	6.95E-05	6.27E-09	1.54E-09
Rankin 2	4.64E-10	4.55E-04	1.96E-07	1.94E-07	1.26E-04	4.72E-06	7.18E-09	4.16E-07	7.94E-05	7.17E-09	1.76E-09
Rankin 3	4.97E-10	4.88E-04	2.10E-07	2.07E-07	1.34E-04	5.05E-06	7.70E-09	4.46E-07	8.51E-05	7.68E-09	1.89E-09
Camp	2.50E-08	2.45E-02	2.49E-05	1.04E-05	6.77E-03	2.54E-04	3.87E-07	2.24E-05	4.28E-03	3.86E-07	9.51E-08

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	9.81E-04	1.31E-05	1.89E-08	6.67E-08	2.16E-04	6.02E-08	7.93E-06	5.86E-07	2.00E-05	2.17E-08	0.00E+00
Receptor 2	3.08E-04	4.11E-06	5.94E-09	2.09E-08	6.77E-05	1.89E-08	2.49E-06	1.84E-07	4.63E-06	4.22E-09	0.00E+00
Receptor 3	5.15E-04	6.88E-06	9.93E-09	3.50E-08	1.13E-04	3.16E-08	4.16E-06	3.07E-07	8.04E-06	7.53E-09	0.00E+00
Receptor 4	5.59E-04	7.47E-06	1.08E-08	3.80E-08	1.23E-04	3.43E-08	4.52E-06	3.34E-07	8.54E-06	7.88E-09	0.00E+00
Receptor 5	6.38E-04	8.53E-06	1.23E-08	4.34E-08	1.40E-04	3.92E-08	5.17E-06	3.81E-07	9.37E-06	8.40E-09	0.00E+00
Receptor 6	8.80E-04	1.18E-05	1.70E-08	5.99E-08	1.94E-04	5.41E-08	7.12E-06	5.26E-07	1.24E-05	1.07E-08	0.00E+00
Receptor 7	1.15E-03	1.54E-05	2.23E-08	7.85E-08	2.54E-04	7.09E-08	9.34E-06	6.89E-07	1.56E-05	1.30E-08	0.00E+00
Receptor 8	8.80E-05	1.18E-06	1.70E-09	5.99E-09	1.94E-05	5.40E-09	7.12E-07	5.26E-08	1.31E-06	1.18E-09	0.00E+00
Receptor 9	1.04E-04	1.39E-06	2.00E-09	7.06E-09	2.28E-05	6.37E-09	8.39E-07	6.19E-08	1.67E-06	1.60E-09	0.00E+00
Receptor 10	8.40E-05	1.12E-06	1.62E-09	5.71E-09	1.85E-05	5.15E-09	6.79E-07	5.01E-08	1.48E-06	1.49E-09	0.00E+00
Receptor 11	8.80E-05	1.18E-06	1.70E-09	5.99E-09	1.94E-05	5.40E-09	7.12E-07	5.26E-08	1.31E-06	1.18E-09	0.00E+00
Receptor 12	1.02E-04	1.37E-06	1.97E-09	6.96E-09	2.25E-05	6.28E-09	8.27E-07	6.11E-08	1.59E-06	1.49E-09	0.00E+00
Receptor 13	1.02E-04	1.37E-06	1.97E-09	6.95E-09	2.25E-05	6.27E-09	8.27E-07	6.10E-08	1.66E-06	1.59E-09	0.00E+00
Receptor 14	1.61E-04	2.15E-06	3.10E-09	1.09E-08	3.53E-05	9.86E-09	1.30E-06	9.59E-08	2.71E-06	2.67E-09	0.00E+00
Receptor 15	1.47E-04	1.96E-06	2.83E-09	9.99E-09	3.23E-05	9.01E-09	1.19E-06	8.77E-08	2.43E-06	2.36E-09	0.00E+00
Receptor 16	5.59E-05	7.47E-07	1.08E-09	3.80E-09	1.23E-05	3.43E-09	4.52E-07	3.34E-08	9.00E-07	8.60E-10	0.00E+00
Receptor 17	4.04E-05	5.40E-07	7.81E-10	2.75E-09	8.90E-06	2.48E-09	3.27E-07	2.42E-08	6.49E-07	6.19E-10	0.00E+00
Receptor 18	3.72E-05	4.97E-07	7.17E-10	2.53E-09	8.18E-06	2.28E-09	3.01E-07	2.22E-08	5.92E-07	5.62E-10	0.00E+00
Receptor 19	3.58E-05	4.78E-07	6.90E-10	2.43E-09	7.87E-06	2.20E-09	2.89E-07	2.14E-08	5.62E-07	5.29E-10	0.00E+00
Receptor 20	4.71E-05	6.30E-07	9.10E-10	3.21E-09	1.04E-05	2.89E-09	3.81E-07	2.82E-08	7.40E-07	6.96E-10	0.00E+00
Receptor 21	5.59E-05	7.48E-07	1.08E-09	3.81E-09	1.23E-05	3.43E-09	4.53E-07	3.34E-08	8.66E-07	8.06E-10	0.00E+00
Receptor 22	2.35E-04	3.14E-06	4.53E-09	1.60E-08	5.17E-05	1.44E-08	1.90E-06	1.40E-07	4.20E-06	4.28E-09	0.00E+00
Park	2.53E-04	3.38E-06	4.87E-09	1.72E-08	5.56E-05	1.55E-08	2.04E-06	1.51E-07	3.62E-06	3.19E-09	0.00E+00
Rankin 1	8.30E-05	1.11E-06	1.60E-09	5.65E-09	1.83E-05	5.10E-09	6.72E-07	4.96E-08	1.29E-06	1.20E-09	0.00E+00
Rankin 2	9.49E-05	1.27E-06	1.83E-09	6.45E-09	2.09E-05	5.82E-09	7.68E-07	5.67E-08	1.47E-06	1.36E-09	0.00E+00
Rankin 3	1.02E-04	1.36E-06	1.96E-09	6.91E-09	2.24E-05	6.24E-09	8.22E-07	6.07E-08	1.57E-06	1.46E-09	0.00E+00
Camp	5.11E-03	6.83E-05	9.87E-08	3.48E-07	1.13E-03	3.14E-07	4.14E-05	3.05E-06	1.79E-04	2.31E-07	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	8.57E-06	7.08E-07	7.89E-08	3.45E-07	2.59E-07	4.49E-09	1.03E-08	6.65E-08	2.42E-07	2.57E-07
Receptor 2	1.67E-06	1.38E-07	1.54E-08	6.74E-08	5.05E-08	8.75E-10	2.00E-09	1.30E-08	4.72E-08	5.02E-08
Receptor 3	2.98E-06	2.46E-07	2.75E-08	1.20E-07	8.99E-08	1.56E-09	3.57E-09	2.31E-08	8.40E-08	8.94E-08
Receptor 4	3.12E-06	2.58E-07	2.87E-08	1.26E-07	9.41E-08	1.63E-09	3.74E-09	2.42E-08	8.79E-08	9.36E-08
Receptor 5	3.32E-06	2.74E-07	3.06E-08	1.34E-07	1.00E-07	1.74E-09	3.98E-09	2.58E-08	9.37E-08	9.97E-08
Receptor 6	4.25E-06	3.51E-07	3.92E-08	1.71E-07	1.28E-07	2.22E-09	5.10E-09	3.30E-08	1.20E-07	1.28E-07
Receptor 7	5.16E-06	4.26E-07	4.75E-08	2.08E-07	1.56E-07	2.70E-09	6.18E-09	4.00E-08	1.45E-07	1.55E-07
Receptor 8	4.66E-07	3.85E-08	4.30E-09	1.88E-08	1.41E-08	2.44E-10	5.59E-10	3.62E-09	1.31E-08	1.40E-08
Receptor 9	6.33E-07	5.23E-08	5.84E-09	2.55E-08	1.91E-08	3.32E-10	7.60E-10	4.92E-09	1.79E-08	1.90E-08
Receptor 10	5.88E-07	4.86E-08	5.42E-09	2.37E-08	1.78E-08	3.08E-10	7.06E-10	4.57E-09	1.66E-08	1.77E-08
Receptor 11	4.66E-07	3.85E-08	4.30E-09	1.88E-08	1.41E-08	2.44E-10	5.59E-10	3.62E-09	1.32E-08	1.40E-08
Receptor 12	5.88E-07	4.85E-08	5.41E-09	2.37E-08	1.77E-08	3.08E-10	7.05E-10	4.56E-09	1.66E-08	1.76E-08
Receptor 13	6.31E-07	5.21E-08	5.81E-09	2.54E-08	1.90E-08	3.30E-10	7.56E-10	4.90E-09	1.78E-08	1.89E-08
Receptor 14	1.06E-06	8.73E-08	9.74E-09	4.26E-08	3.19E-08	5.53E-10	1.27E-09	8.21E-09	2.98E-08	3.17E-08
Receptor 15	9.32E-07	7.70E-08	8.59E-09	3.76E-08	2.81E-08	4.88E-10	1.12E-09	7.24E-09	2.63E-08	2.80E-08
Receptor 16	3.40E-07	2.81E-08	3.14E-09	1.37E-08	1.03E-08	1.78E-10	4.08E-10	2.64E-09	9.60E-09	1.02E-08
Receptor 17	2.45E-07	2.02E-08	2.26E-09	9.88E-09	7.40E-09	1.28E-10	2.94E-10	1.90E-09	6.91E-09	7.36E-09
Receptor 18	2.23E-07	1.84E-08	2.05E-09	8.97E-09	6.72E-09	1.16E-10	2.67E-10	1.73E-09	6.28E-09	6.68E-09
Receptor 19	2.09E-07	1.73E-08	1.93E-09	8.43E-09	6.32E-09	1.10E-10	2.51E-10	1.62E-09	5.90E-09	6.28E-09
Receptor 20	2.75E-07	2.27E-08	2.54E-09	1.11E-08	8.31E-09	1.44E-10	3.30E-10	2.14E-09	7.77E-09	8.26E-09
Receptor 21	3.19E-07	2.64E-08	2.94E-09	1.29E-08	9.63E-09	1.67E-10	3.83E-10	2.48E-09	9.00E-09	9.58E-09
Receptor 22	1.69E-06	1.40E-07	1.56E-08	6.82E-08	5.11E-08	8.86E-10	2.03E-09	1.31E-08	4.77E-08	5.08E-08
Park	1.26E-06	1.04E-07	1.16E-08	5.08E-08	3.81E-08	6.61E-10	1.51E-09	9.80E-09	3.56E-08	3.79E-08
Rankin 1	4.75E-07	3.92E-08	4.37E-09	1.91E-08	1.43E-08	2.49E-10	5.69E-10	3.69E-09	1.34E-08	1.42E-08
Rankin 2	5.40E-07	4.46E-08	4.98E-09	2.18E-08	1.63E-08	2.83E-10	6.47E-10	4.19E-09	1.52E-08	1.62E-08
Rankin 3	5.79E-07	4.78E-08	5.34E-09	2.33E-08	1.75E-08	3.03E-10	6.95E-10	4.50E-09	1.63E-08	1.74E-08
Camp	9.15E-05	7.56E-06	8.43E-07	3.69E-06	2.76E-06	4.79E-08	1.10E-07	7.11E-07	2.58E-06	2.75E-06

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.77E-08	9.07E-10	5.43E-09	0.00E+00	1.15E-08	1.50E-08	9.55E-09
Receptor 2	9.32E-09	1.77E-10	1.06E-09	0.00E+00	2.25E-09	2.93E-09	1.86E-09
Receptor 3	1.66E-08	3.15E-10	1.89E-09	0.00E+00	4.02E-09	5.23E-09	3.32E-09
Receptor 4	1.74E-08	3.30E-10	1.98E-09	0.00E+00	4.20E-09	5.47E-09	3.48E-09
Receptor 5	1.85E-08	3.52E-10	2.11E-09	0.00E+00	4.48E-09	5.83E-09	3.70E-09
Receptor 6	2.37E-08	4.50E-10	2.69E-09	0.00E+00	5.73E-09	7.45E-09	4.74E-09
Receptor 7	2.87E-08	5.46E-10	3.27E-09	0.00E+00	6.95E-09	9.04E-09	5.75E-09
Receptor 8	2.60E-09	4.94E-11	2.95E-10	0.00E+00	6.28E-10	8.18E-10	5.20E-10
Receptor 9	3.53E-09	6.71E-11	4.01E-10	0.00E+00	8.54E-10	1.11E-09	7.06E-10
Receptor 10	3.28E-09	6.23E-11	3.73E-10	0.00E+00	7.93E-10	1.03E-09	6.56E-10
Receptor 11	2.60E-09	4.94E-11	2.96E-10	0.00E+00	6.29E-10	8.18E-10	5.20E-10
Receptor 12	3.27E-09	6.22E-11	3.72E-10	0.00E+00	7.92E-10	1.03E-09	6.55E-10
Receptor 13	3.51E-09	6.68E-11	4.00E-10	0.00E+00	8.50E-10	1.11E-09	7.03E-10
Receptor 14	5.89E-09	1.12E-10	6.70E-10	0.00E+00	1.42E-09	1.85E-09	1.18E-09
Receptor 15	5.19E-09	9.87E-11	5.91E-10	0.00E+00	1.26E-09	1.64E-09	1.04E-09
Receptor 16	1.90E-09	3.60E-11	2.16E-10	0.00E+00	4.59E-10	5.97E-10	3.79E-10
Receptor 17	1.37E-09	2.59E-11	1.55E-10	0.00E+00	3.30E-10	4.30E-10	2.73E-10
Receptor 18	1.24E-09	2.36E-11	1.41E-10	0.00E+00	3.00E-10	3.90E-10	2.48E-10
Receptor 19	1.17E-09	2.22E-11	1.33E-10	0.00E+00	2.82E-10	3.67E-10	2.33E-10
Receptor 20	1.53E-09	2.91E-11	1.74E-10	0.00E+00	3.71E-10	4.83E-10	3.07E-10
Receptor 21	1.78E-09	3.38E-11	2.02E-10	0.00E+00	4.30E-10	5.60E-10	3.56E-10
Receptor 22	9.43E-09	1.79E-10	1.07E-09	0.00E+00	2.28E-09	2.97E-09	1.89E-09
Park	7.03E-09	1.34E-10	8.00E-10	0.00E+00	1.70E-09	2.21E-09	1.41E-09
Rankin 1	2.64E-09	5.03E-11	3.01E-10	0.00E+00	6.40E-10	8.32E-10	5.29E-10
Rankin 2	3.01E-09	5.72E-11	3.42E-10	0.00E+00	7.28E-10	9.47E-10	6.02E-10
Rankin 3	3.23E-09	6.13E-11	3.67E-10	0.00E+00	7.81E-10	1.02E-09	6.46E-10
Camp	5.10E-07	9.69E-09	5.80E-08	0.00E+00	1.23E-07	1.61E-07	1.02E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.42E-03	1.36E-07	3.85E-06	1.36E-05	2.52E-08	6.94E-09	1.06E-05	1.37E-03	7.53E-06	9.29E-07	2.46E-06
Receptor 2	4.03E-04	2.27E-08	6.43E-07	2.26E-06	4.21E-09	1.16E-09	1.95E-06	2.29E-04	1.29E-06	1.55E-07	4.10E-07
Receptor 3	7.08E-04	3.98E-08	1.13E-06	3.97E-06	7.39E-09	2.03E-09	3.20E-06	4.02E-04	2.22E-06	2.72E-07	7.20E-07
Receptor 4	7.40E-04	4.16E-08	1.18E-06	4.16E-06	7.73E-09	2.13E-09	3.35E-06	4.20E-04	2.32E-06	2.85E-07	7.53E-07
Receptor 5	7.91E-04	4.45E-08	1.26E-06	4.44E-06	8.27E-09	2.27E-09	3.56E-06	4.49E-04	2.48E-06	3.04E-07	8.05E-07
Receptor 6	1.02E-03	5.73E-08	1.62E-06	5.72E-06	1.06E-08	2.93E-09	4.57E-06	5.78E-04	3.19E-06	3.92E-07	1.04E-06
Receptor 7	1.23E-03	6.94E-08	1.97E-06	6.93E-06	1.29E-08	3.55E-09	5.42E-06	7.01E-04	3.85E-06	4.75E-07	1.26E-06
Receptor 8	1.07E-04	6.04E-09	1.71E-07	6.03E-07	1.12E-09	3.08E-10	5.15E-07	6.10E-05	3.42E-07	4.13E-08	1.09E-07
Receptor 9	1.52E-04	8.56E-09	2.43E-07	8.55E-07	1.59E-09	4.37E-10	7.13E-07	8.64E-05	4.82E-07	5.86E-08	1.55E-07
Receptor 10	1.45E-04	8.16E-09	2.31E-07	8.14E-07	1.52E-09	4.17E-10	6.90E-07	8.23E-05	4.61E-07	5.58E-08	1.48E-07
Receptor 11	1.07E-04	6.04E-09	1.71E-07	6.03E-07	1.12E-09	3.08E-10	5.15E-07	6.09E-05	3.42E-07	4.13E-08	1.09E-07
Receptor 12	1.38E-04	7.76E-09	2.20E-07	7.75E-07	1.44E-09	3.96E-10	6.30E-07	7.83E-05	4.34E-07	5.31E-08	1.40E-07
Receptor 13	1.49E-04	8.38E-09	2.38E-07	8.37E-07	1.56E-09	4.28E-10	6.92E-07	8.46E-05	4.71E-07	5.73E-08	1.52E-07
Receptor 14	2.55E-04	1.44E-08	4.07E-07	1.43E-06	2.67E-09	7.33E-10	1.19E-06	1.45E-04	8.07E-07	9.82E-08	2.60E-07
Receptor 15	2.21E-04	1.24E-08	3.52E-07	1.24E-06	2.31E-09	6.34E-10	1.03E-06	1.25E-04	6.98E-07	8.49E-08	2.25E-07
Receptor 16	8.00E-05	4.50E-09	1.28E-07	4.49E-07	8.36E-10	2.30E-10	3.71E-07	4.54E-05	2.53E-07	3.08E-08	8.14E-08
Receptor 17	5.73E-05	3.22E-09	9.13E-08	3.21E-07	5.98E-10	1.64E-10	2.67E-07	3.25E-05	1.81E-07	2.20E-08	5.83E-08
Receptor 18	5.16E-05	2.90E-09	8.23E-08	2.90E-07	5.40E-10	1.48E-10	2.41E-07	2.93E-05	1.63E-07	1.99E-08	5.25E-08
Receptor 19	4.79E-05	2.69E-09	7.64E-08	2.69E-07	5.01E-10	1.38E-10	2.25E-07	2.72E-05	1.52E-07	1.84E-08	4.88E-08
Receptor 20	6.34E-05	3.56E-09	1.01E-07	3.56E-07	6.62E-10	1.82E-10	2.96E-07	3.60E-05	2.01E-07	2.44E-08	6.45E-08
Receptor 21	7.30E-05	4.10E-09	1.16E-07	4.10E-07	7.63E-10	2.10E-10	3.40E-07	4.14E-05	2.31E-07	2.81E-08	7.43E-08
Receptor 22	4.03E-04	2.27E-08	6.42E-07	2.26E-06	4.21E-09	1.16E-09	1.96E-06	2.29E-04	1.29E-06	1.55E-07	4.10E-07
Park	2.87E-04	1.61E-08	4.58E-07	1.61E-06	3.00E-09	8.24E-10	1.33E-06	1.63E-04	9.06E-07	1.10E-07	2.92E-07
Rankin 1	1.06E-04	5.99E-09	1.70E-07	5.98E-07	1.11E-09	3.06E-10	5.03E-07	6.04E-05	3.38E-07	4.10E-08	1.08E-07
Rankin 2	1.21E-04	6.80E-09	1.93E-07	6.79E-07	1.26E-09	3.47E-10	5.71E-07	6.86E-05	3.84E-07	4.65E-08	1.23E-07
Rankin 3	1.30E-04	7.28E-09	2.07E-07	7.27E-07	1.35E-09	3.72E-10	6.12E-07	7.35E-05	4.11E-07	4.98E-08	1.32E-07
Camp	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.69E-09	2.64E-03	2.18E-06	1.12E-06	7.27E-04	2.73E-05	4.16E-08	2.41E-06	4.60E-04	4.15E-08	1.02E-08
Receptor 2	4.48E-10	4.40E-04	3.93E-07	1.87E-07	1.21E-04	4.56E-06	6.95E-09	4.02E-07	7.68E-05	6.93E-09	1.71E-09
Receptor 3	7.87E-10	7.72E-04	6.54E-07	3.28E-07	2.13E-04	8.01E-06	1.22E-08	7.06E-07	1.35E-04	1.22E-08	2.99E-09
Receptor 4	8.23E-10	8.08E-04	6.84E-07	3.44E-07	2.23E-04	8.37E-06	1.27E-08	7.39E-07	1.41E-04	1.27E-08	3.13E-09
Receptor 5	8.80E-10	8.64E-04	7.29E-07	3.67E-07	2.38E-04	8.95E-06	1.36E-08	7.90E-07	1.51E-04	1.36E-08	3.35E-09
Receptor 6	1.13E-09	1.11E-03	9.36E-07	4.73E-07	3.07E-04	1.15E-05	1.75E-08	1.02E-06	1.94E-04	1.75E-08	4.31E-09
Receptor 7	1.37E-09	1.35E-03	1.11E-06	5.73E-07	3.72E-04	1.40E-05	2.13E-08	1.23E-06	2.35E-04	2.12E-08	5.22E-09
Receptor 8	1.19E-10	1.17E-04	1.04E-07	4.99E-08	3.23E-05	1.22E-06	1.85E-09	1.07E-07	2.05E-05	1.85E-09	4.54E-10
Receptor 9	1.69E-10	1.66E-04	1.45E-07	7.07E-08	4.58E-05	1.72E-06	2.62E-09	1.52E-07	2.90E-05	2.62E-09	6.44E-10
Receptor 10	1.61E-10	1.58E-04	1.40E-07	6.73E-08	4.37E-05	1.64E-06	2.50E-09	1.45E-07	2.76E-05	2.49E-09	6.13E-10
Receptor 11	1.19E-10	1.17E-04	1.04E-07	4.98E-08	3.23E-05	1.21E-06	1.85E-09	1.07E-07	2.04E-05	1.84E-09	4.54E-10
Receptor 12	1.53E-10	1.51E-04	1.29E-07	6.41E-08	4.15E-05	1.56E-06	2.38E-09	1.38E-07	2.63E-05	2.37E-09	5.84E-10
Receptor 13	1.66E-10	1.63E-04	1.41E-07	6.92E-08	4.49E-05	1.69E-06	2.57E-09	1.49E-07	2.84E-05	2.56E-09	6.30E-10
Receptor 14	2.84E-10	2.79E-04	2.42E-07	1.18E-07	7.68E-05	2.89E-06	4.40E-09	2.55E-07	4.86E-05	4.39E-09	1.08E-09
Receptor 15	2.45E-10	2.41E-04	2.09E-07	1.02E-07	6.64E-05	2.50E-06	3.80E-09	2.20E-07	4.20E-05	3.79E-09	9.33E-10
Receptor 16	8.89E-11	8.73E-05	7.56E-08	3.71E-08	2.41E-05	9.05E-07	1.38E-09	7.98E-08	1.52E-05	1.37E-09	3.38E-10
Receptor 17	6.36E-11	6.25E-05	5.43E-08	2.66E-08	1.72E-05	6.48E-07	9.86E-10	5.71E-08	1.09E-05	9.84E-10	2.42E-10
Receptor 18	5.74E-11	5.64E-05	4.90E-08	2.40E-08	1.55E-05	5.84E-07	8.90E-10	5.15E-08	9.84E-06	8.87E-10	2.18E-10
Receptor 19	5.33E-11	5.23E-05	4.57E-08	2.22E-08	1.44E-05	5.42E-07	8.25E-10	4.78E-08	9.13E-06	8.23E-10	2.03E-10
Receptor 20	7.05E-11	6.92E-05	6.01E-08	2.94E-08	1.91E-05	7.17E-07	1.09E-09	6.32E-08	1.21E-05	1.09E-09	2.68E-10
Receptor 21	8.11E-11	7.96E-05	6.91E-08	3.39E-08	2.20E-05	8.26E-07	1.26E-09	7.28E-08	1.39E-05	1.25E-09	3.09E-10
Receptor 22	4.48E-10	4.40E-04	3.95E-07	1.87E-07	1.21E-04	4.56E-06	6.94E-09	4.02E-07	7.67E-05	6.92E-09	1.70E-09
Park	3.19E-10	3.13E-04	2.70E-07	1.33E-07	8.64E-05	3.25E-06	4.95E-09	2.87E-07	5.47E-05	4.93E-09	1.21E-09
Rankin 1	1.18E-10	1.16E-04	1.02E-07	4.94E-08	3.20E-05	1.20E-06	1.83E-09	1.06E-07	2.03E-05	1.83E-09	4.50E-10
Rankin 2	1.34E-10	1.32E-04	1.16E-07	5.61E-08	3.64E-05	1.37E-06	2.08E-09	1.21E-07	2.30E-05	2.08E-09	5.11E-10
Rankin 3	1.44E-10	1.41E-04	1.24E-07	6.01E-08	3.90E-05	1.47E-06	2.23E-09	1.29E-07	2.47E-05	2.23E-09	5.48E-10
Camp	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	5.50E-04	7.34E-06	1.06E-08	3.74E-08	1.21E-04	3.37E-08	4.45E-06	3.28E-07	1.58E-05	1.94E-08	0.00E+00
Receptor 2	9.17E-05	1.23E-06	1.77E-09	6.24E-09	2.02E-05	5.63E-09	7.42E-07	5.48E-08	2.85E-06	3.57E-09	0.00E+00
Receptor 3	1.61E-04	2.15E-06	3.11E-09	1.10E-08	3.54E-05	9.88E-09	1.30E-06	9.61E-08	4.75E-06	5.86E-09	0.00E+00
Receptor 4	1.68E-04	2.25E-06	3.25E-09	1.15E-08	3.70E-05	1.03E-08	1.36E-06	1.01E-07	4.96E-06	6.13E-09	0.00E+00
Receptor 5	1.80E-04	2.41E-06	3.47E-09	1.22E-08	3.96E-05	1.11E-08	1.46E-06	1.08E-07	5.29E-06	6.52E-09	0.00E+00
Receptor 6	2.32E-04	3.10E-06	4.47E-09	1.58E-08	5.10E-05	1.42E-08	1.88E-06	1.38E-07	6.80E-06	8.38E-09	0.00E+00
Receptor 7	2.81E-04	3.75E-06	5.42E-09	1.91E-08	6.18E-05	1.72E-08	2.27E-06	1.68E-07	8.09E-06	9.93E-09	0.00E+00
Receptor 8	2.44E-05	3.27E-07	4.72E-10	1.66E-09	5.38E-06	1.50E-09	1.98E-07	1.46E-08	7.55E-07	9.45E-10	0.00E+00
Receptor 9	3.46E-05	4.63E-07	6.68E-10	2.36E-09	7.62E-06	2.13E-09	2.80E-07	2.07E-08	1.05E-06	1.31E-09	0.00E+00
Receptor 10	3.30E-05	4.41E-07	6.37E-10	2.25E-09	7.26E-06	2.03E-09	2.67E-07	1.97E-08	1.01E-06	1.26E-09	0.00E+00
Receptor 11	2.44E-05	3.26E-07	4.71E-10	1.66E-09	5.37E-06	1.50E-09	1.98E-07	1.46E-08	7.55E-07	9.44E-10	0.00E+00
Receptor 12	3.14E-05	4.20E-07	6.06E-10	2.14E-09	6.91E-06	1.93E-09	2.54E-07	1.87E-08	9.32E-07	1.15E-09	0.00E+00
Receptor 13	3.39E-05	4.53E-07	6.54E-10	2.31E-09	7.46E-06	2.08E-09	2.74E-07	2.02E-08	1.02E-06	1.27E-09	0.00E+00
Receptor 14	5.81E-05	7.76E-07	1.12E-09	3.95E-09	1.28E-05	3.56E-09	4.70E-07	3.47E-08	1.75E-06	2.18E-09	0.00E+00
Receptor 15	5.02E-05	6.71E-07	9.69E-10	3.42E-09	1.10E-05	3.08E-09	4.06E-07	3.00E-08	1.51E-06	1.88E-09	0.00E+00
Receptor 16	1.82E-05	2.43E-07	3.51E-10	1.24E-09	4.00E-06	1.12E-09	1.47E-07	1.09E-08	5.48E-07	6.80E-10	0.00E+00
Receptor 17	1.30E-05	1.74E-07	2.51E-10	8.86E-10	2.87E-06	8.00E-10	1.05E-07	7.78E-09	3.93E-07	4.89E-10	0.00E+00
Receptor 18	1.17E-05	1.57E-07	2.27E-10	7.99E-10	2.58E-06	7.21E-10	9.50E-08	7.02E-09	3.55E-07	4.42E-10	0.00E+00
Receptor 19	1.09E-05	1.46E-07	2.10E-10	7.42E-10	2.40E-06	6.69E-10	8.82E-08	6.51E-09	3.31E-07	4.13E-10	0.00E+00
Receptor 20	1.44E-05	1.93E-07	2.78E-10	9.81E-10	3.17E-06	8.85E-10	1.17E-07	8.61E-09	4.36E-07	5.42E-10	0.00E+00
Receptor 21	1.66E-05	2.22E-07	3.20E-10	1.13E-09	3.65E-06	1.02E-09	1.34E-07	9.91E-09	5.01E-07	6.23E-10	0.00E+00
Receptor 22	9.17E-05	1.22E-06	1.77E-09	6.24E-09	2.02E-05	5.63E-09	7.42E-07	5.47E-08	2.86E-06	3.59E-09	0.00E+00
Park	6.53E-05	8.73E-07	1.26E-09	4.44E-09	1.44E-05	4.01E-09	5.28E-07	3.90E-08	1.96E-06	2.43E-09	0.00E+00
Rankin 1	2.42E-05	3.24E-07	4.67E-10	1.65E-09	5.33E-06	1.49E-09	1.96E-07	1.45E-08	7.39E-07	9.21E-10	0.00E+00
Rankin 2	2.75E-05	3.68E-07	5.31E-10	1.87E-09	6.05E-06	1.69E-09	2.23E-07	1.64E-08	8.39E-07	1.05E-09	0.00E+00
Rankin 3	2.95E-05	3.94E-07	5.69E-10	2.00E-09	6.48E-06	1.81E-09	2.38E-07	1.76E-08	8.99E-07	1.12E-09	0.00E+00
Camp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	7.67E-06	6.34E-07	7.07E-08	3.09E-07	2.32E-07	4.02E-09	9.20E-09	5.96E-08	2.16E-07	2.30E-07
Receptor 2	1.41E-06	1.17E-07	1.30E-08	5.69E-08	4.26E-08	7.39E-10	1.69E-09	1.10E-08	3.98E-08	4.24E-08
Receptor 3	2.32E-06	1.92E-07	2.14E-08	9.35E-08	7.00E-08	1.21E-09	2.78E-09	1.80E-08	6.54E-08	6.96E-08
Receptor 4	2.43E-06	2.00E-07	2.24E-08	9.78E-08	7.32E-08	1.27E-09	2.91E-09	1.88E-08	6.84E-08	7.28E-08
Receptor 5	2.58E-06	2.13E-07	2.38E-08	1.04E-07	7.79E-08	1.35E-09	3.10E-09	2.00E-08	7.28E-08	7.75E-08
Receptor 6	3.32E-06	2.74E-07	3.06E-08	1.34E-07	1.00E-07	1.74E-09	3.98E-09	2.58E-08	9.36E-08	9.96E-08
Receptor 7	3.93E-06	3.25E-07	3.62E-08	1.58E-07	1.19E-07	2.06E-09	4.71E-09	3.05E-08	1.11E-07	1.18E-07
Receptor 8	3.74E-07	3.09E-08	3.44E-09	1.51E-08	1.13E-08	1.96E-10	4.48E-10	2.90E-09	1.05E-08	1.12E-08
Receptor 9	5.17E-07	4.27E-08	4.77E-09	2.08E-08	1.56E-08	2.71E-10	6.20E-10	4.02E-09	1.46E-08	1.55E-08
Receptor 10	5.00E-07	4.13E-08	4.61E-09	2.02E-08	1.51E-08	2.62E-10	6.00E-10	3.88E-09	1.41E-08	1.50E-08
Receptor 11	3.74E-07	3.09E-08	3.44E-09	1.51E-08	1.13E-08	1.96E-10	4.48E-10	2.90E-09	1.05E-08	1.12E-08
Receptor 12	4.57E-07	3.77E-08	4.21E-09	1.84E-08	1.38E-08	2.39E-10	5.47E-10	3.55E-09	1.29E-08	1.37E-08
Receptor 13	5.02E-07	4.15E-08	4.63E-09	2.02E-08	1.52E-08	2.63E-10	6.02E-10	3.90E-09	1.42E-08	1.51E-08
Receptor 14	8.61E-07	7.11E-08	7.93E-09	3.47E-08	2.60E-08	4.51E-10	1.03E-09	6.69E-09	2.43E-08	2.58E-08
Receptor 15	7.45E-07	6.15E-08	6.86E-09	3.00E-08	2.25E-08	3.90E-10	8.93E-10	5.78E-09	2.10E-08	2.23E-08
Receptor 16	2.69E-07	2.22E-08	2.48E-09	1.09E-08	8.13E-09	1.41E-10	3.23E-10	2.09E-09	7.59E-09	8.08E-09
Receptor 17	1.94E-07	1.60E-08	1.78E-09	7.80E-09	5.84E-09	1.01E-10	2.32E-10	1.50E-09	5.46E-09	5.81E-09
Receptor 18	1.75E-07	1.45E-08	1.61E-09	7.05E-09	5.28E-09	9.16E-11	2.10E-10	1.36E-09	4.93E-09	5.25E-09
Receptor 19	1.63E-07	1.35E-08	1.50E-09	6.58E-09	4.93E-09	8.55E-11	1.96E-10	1.27E-09	4.61E-09	4.90E-09
Receptor 20	2.15E-07	1.77E-08	1.98E-09	8.65E-09	6.48E-09	1.12E-10	2.57E-10	1.67E-09	6.05E-09	6.44E-09
Receptor 21	2.46E-07	2.04E-08	2.27E-09	9.93E-09	7.44E-09	1.29E-10	2.95E-10	1.91E-09	6.95E-09	7.39E-09
Receptor 22	1.42E-06	1.17E-07	1.31E-08	5.72E-08	4.28E-08	7.43E-10	1.70E-09	1.10E-08	4.00E-08	4.26E-08
Park	9.62E-07	7.95E-08	8.87E-09	3.88E-08	2.90E-08	5.04E-10	1.15E-09	7.47E-09	2.71E-08	2.89E-08
Rankin 1	3.64E-07	3.01E-08	3.36E-09	1.47E-08	1.10E-08	1.91E-10	4.37E-10	2.83E-09	1.03E-08	1.09E-08
Rankin 2	4.14E-07	3.42E-08	3.81E-09	1.67E-08	1.25E-08	2.17E-10	4.96E-10	3.21E-09	1.17E-08	1.24E-08
Rankin 3	4.44E-07	3.66E-08	4.09E-09	1.79E-08	1.34E-08	2.32E-10	5.32E-10	3.45E-09	1.25E-08	1.33E-08
Camp	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.28E-08	8.13E-10	4.86E-09	0.00E+00	1.03E-08	1.35E-08	8.56E-09
Receptor 2	7.87E-09	1.49E-10	8.95E-10	0.00E+00	1.90E-09	2.48E-09	1.57E-09
Receptor 3	1.29E-08	2.46E-10	1.47E-09	0.00E+00	3.13E-09	4.07E-09	2.59E-09
Receptor 4	1.35E-08	2.57E-10	1.54E-09	0.00E+00	3.27E-09	4.26E-09	2.71E-09
Receptor 5	1.44E-08	2.73E-10	1.64E-09	0.00E+00	3.48E-09	4.53E-09	2.88E-09
Receptor 6	1.85E-08	3.51E-10	2.10E-09	0.00E+00	4.47E-09	5.82E-09	3.70E-09
Receptor 7	2.19E-08	4.16E-10	2.49E-09	0.00E+00	5.30E-09	6.89E-09	4.38E-09
Receptor 8	2.08E-09	3.96E-11	2.37E-10	0.00E+00	5.04E-10	6.56E-10	4.17E-10
Receptor 9	2.88E-09	5.48E-11	3.28E-10	0.00E+00	6.97E-10	9.07E-10	5.77E-10
Receptor 10	2.79E-09	5.29E-11	3.17E-10	0.00E+00	6.74E-10	8.77E-10	5.58E-10
Receptor 11	2.08E-09	3.96E-11	2.37E-10	0.00E+00	5.04E-10	6.55E-10	4.17E-10
Receptor 12	2.54E-09	4.83E-11	2.89E-10	0.00E+00	6.15E-10	8.01E-10	5.09E-10
Receptor 13	2.80E-09	5.32E-11	3.18E-10	0.00E+00	6.77E-10	8.81E-10	5.60E-10
Receptor 14	4.80E-09	9.12E-11	5.46E-10	0.00E+00	1.16E-09	1.51E-09	9.60E-10
Receptor 15	4.15E-09	7.88E-11	4.72E-10	0.00E+00	1.00E-09	1.31E-09	8.30E-10
Receptor 16	1.50E-09	2.85E-11	1.71E-10	0.00E+00	3.63E-10	4.72E-10	3.00E-10
Receptor 17	1.08E-09	2.05E-11	1.23E-10	0.00E+00	2.61E-10	3.39E-10	2.16E-10
Receptor 18	9.75E-10	1.85E-11	1.11E-10	0.00E+00	2.36E-10	3.07E-10	1.95E-10
Receptor 19	9.10E-10	1.73E-11	1.03E-10	0.00E+00	2.20E-10	2.86E-10	1.82E-10
Receptor 20	1.20E-09	2.27E-11	1.36E-10	0.00E+00	2.89E-10	3.76E-10	2.39E-10
Receptor 21	1.37E-09	2.61E-11	1.56E-10	0.00E+00	3.32E-10	4.32E-10	2.75E-10
Receptor 22	7.91E-09	1.50E-10	8.99E-10	0.00E+00	1.91E-09	2.49E-09	1.58E-09
Park	5.36E-09	1.02E-10	6.10E-10	0.00E+00	1.30E-09	1.69E-09	1.07E-09
Rankin 1	2.03E-09	3.86E-11	2.31E-10	0.00E+00	4.91E-10	6.39E-10	4.06E-10
Rankin 2	2.31E-09	4.38E-11	2.62E-10	0.00E+00	5.58E-10	7.26E-10	4.62E-10
Rankin 3	2.47E-09	4.70E-11	2.81E-10	0.00E+00	5.98E-10	7.78E-10	4.95E-10
Camp	0.00	0.00	0.00	0.00	0.00	0.00	0.00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.16E-03	1.22E-07	3.46E-06	1.22E-05	2.27E-08	6.23E-09	5.06E-07	1.23E-03	5.26E-06	8.35E-07	2.21E-06
Receptor 2	2.23E-04	1.26E-08	3.58E-07	1.26E-06	2.34E-09	6.44E-10	6.58E-08	1.27E-04	5.46E-07	8.63E-08	2.28E-07
Receptor 3	6.68E-04	3.78E-08	1.07E-06	3.77E-06	7.02E-09	1.93E-09	1.50E-07	3.81E-04	1.63E-06	2.59E-07	6.84E-07
Receptor 4	6.60E-04	3.73E-08	1.06E-06	3.73E-06	6.94E-09	1.91E-09	1.42E-07	3.77E-04	1.61E-06	2.55E-07	6.76E-07
Receptor 5	7.14E-04	4.04E-08	1.14E-06	4.03E-06	7.50E-09	2.06E-09	1.44E-07	4.07E-04	1.74E-06	2.76E-07	7.31E-07
Receptor 6	1.08E-03	6.09E-08	1.73E-06	6.08E-06	1.13E-08	3.11E-09	2.07E-07	6.15E-04	2.62E-06	4.17E-07	1.10E-06
Receptor 7	1.32E-03	7.44E-08	2.11E-06	7.43E-06	1.38E-08	3.80E-09	2.31E-07	7.51E-04	3.20E-06	5.09E-07	1.35E-06
Receptor 8	9.57E-05	5.41E-09	1.53E-07	5.40E-07	1.01E-09	2.76E-10	3.29E-08	5.46E-05	2.35E-07	3.70E-08	9.80E-08
Receptor 9	1.07E-04	6.04E-09	1.71E-07	6.03E-07	1.12E-09	3.09E-10	3.29E-08	6.10E-05	2.62E-07	4.13E-08	1.09E-07
Receptor 10	8.61E-05	4.87E-09	1.38E-07	4.86E-07	9.05E-10	2.49E-10	2.59E-08	4.91E-05	2.11E-07	3.33E-08	8.81E-08
Receptor 11	9.57E-05	5.41E-09	1.53E-07	5.41E-07	1.01E-09	2.76E-10	3.30E-08	5.46E-05	2.35E-07	3.70E-08	9.80E-08
Receptor 12	1.28E-04	7.25E-09	2.06E-07	7.24E-07	1.35E-09	3.70E-10	3.83E-08	7.32E-05	3.14E-07	4.96E-08	1.31E-07
Receptor 13	3.31E-04	1.87E-08	5.30E-07	1.87E-06	3.47E-09	9.55E-10	1.11E-07	1.89E-04	8.12E-07	1.28E-07	3.38E-07
Receptor 14	1.52E-03	8.61E-08	2.44E-06	8.60E-06	1.60E-08	4.40E-09	4.25E-07	8.69E-04	3.73E-06	5.89E-07	1.56E-06
Receptor 15	9.72E-04	5.50E-08	1.56E-06	5.49E-06	1.02E-08	2.81E-09	2.81E-07	5.55E-04	2.38E-06	3.76E-07	9.95E-07
Receptor 16	2.91E-04	1.64E-08	4.66E-07	1.64E-06	3.05E-09	8.39E-10	8.65E-08	1.66E-04	7.12E-07	1.12E-07	2.97E-07
Receptor 17	2.45E-04	1.38E-08	3.93E-07	1.38E-06	2.57E-09	7.07E-10	6.92E-08	1.40E-04	5.99E-07	9.47E-08	2.51E-07
Receptor 18	2.63E-04	1.48E-08	4.21E-07	1.48E-06	2.76E-09	7.58E-10	7.01E-08	1.50E-04	6.42E-07	1.02E-07	2.69E-07
Receptor 19	3.16E-04	1.79E-08	5.07E-07	1.79E-06	3.33E-09	9.14E-10	7.97E-08	1.81E-04	7.73E-07	1.22E-07	3.24E-07
Receptor 20	2.40E-04	1.35E-08	3.84E-07	1.35E-06	2.52E-09	6.92E-10	7.23E-08	1.37E-04	5.87E-07	9.27E-08	2.45E-07
Receptor 21	2.60E-04	1.47E-08	4.17E-07	1.47E-06	2.74E-09	7.52E-10	8.03E-08	1.49E-04	6.38E-07	1.01E-07	2.66E-07
Receptor 22	1.67E-03	9.44E-08	2.68E-06	9.43E-06	1.75E-08	4.82E-09	5.20E-07	9.53E-04	4.09E-06	6.46E-07	1.71E-06
Park	7.41E-04	4.19E-08	1.19E-06	4.19E-06	7.79E-09	2.14E-09	1.70E-07	4.23E-04	1.81E-06	2.87E-07	7.59E-07
Rankin 1	6.21E-04	3.51E-08	9.95E-07	3.51E-06	6.52E-09	1.79E-09	1.47E-07	3.54E-04	1.51E-06	2.40E-07	6.35E-07
Rankin 2	6.07E-04	3.43E-08	9.74E-07	3.43E-06	6.38E-09	1.75E-09	1.49E-07	3.47E-04	1.48E-06	2.35E-07	6.22E-07
Rankin 3	6.91E-04	3.91E-08	1.11E-06	3.90E-06	7.26E-09	2.00E-09	1.62E-07	3.94E-04	1.69E-06	2.67E-07	7.07E-07
Camp	2.21E-02	1.25E-06	3.55E-05	1.25E-04	2.33E-07	6.39E-08	8.71E-06	1.26E-02	5.46E-05	8.56E-06	2.27E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /yr]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.41E-09	2.37E-03	4.55E-07	1.01E-06	6.53E-04	2.45E-05	3.74E-08	2.17E-06	4.13E-04	3.73E-08	9.17E-09
Receptor 2	2.49E-10	2.45E-04	4.93E-08	1.04E-07	6.75E-05	2.54E-06	3.86E-09	2.24E-07	4.27E-05	3.85E-09	9.49E-10
Receptor 3	7.47E-10	7.33E-04	1.40E-07	3.12E-07	2.02E-04	7.60E-06	1.16E-08	6.71E-07	1.28E-04	1.15E-08	2.84E-09
Receptor 4	7.38E-10	7.25E-04	1.37E-07	3.08E-07	2.00E-04	7.51E-06	1.14E-08	6.63E-07	1.26E-04	1.14E-08	2.81E-09
Receptor 5	7.98E-10	7.83E-04	1.47E-07	3.33E-07	2.16E-04	8.12E-06	1.24E-08	7.17E-07	1.37E-04	1.23E-08	3.04E-09
Receptor 6	1.20E-09	1.18E-03	2.20E-07	5.03E-07	3.26E-04	1.23E-05	1.87E-08	1.08E-06	2.06E-04	1.86E-08	4.58E-09
Receptor 7	1.47E-09	1.44E-03	2.65E-07	6.14E-07	3.98E-04	1.50E-05	2.28E-08	1.32E-06	2.52E-04	2.27E-08	5.59E-09
Receptor 8	1.07E-10	1.05E-04	2.19E-08	4.47E-08	2.90E-05	1.09E-06	1.66E-09	9.61E-08	1.83E-05	1.65E-09	4.07E-10
Receptor 9	1.19E-10	1.17E-04	2.38E-08	4.99E-08	3.24E-05	1.22E-06	1.85E-09	1.07E-07	2.05E-05	1.85E-09	4.54E-10
Receptor 10	9.62E-11	9.45E-05	1.91E-08	4.02E-08	2.61E-05	9.79E-07	1.49E-09	8.64E-08	1.65E-05	1.49E-09	3.66E-10
Receptor 11	1.07E-10	1.05E-04	2.19E-08	4.47E-08	2.90E-05	1.09E-06	1.66E-09	9.61E-08	1.83E-05	1.65E-09	4.07E-10
Receptor 12	1.43E-10	1.41E-04	2.84E-08	5.99E-08	3.88E-05	1.46E-06	2.22E-09	1.29E-07	2.46E-05	2.22E-09	5.45E-10
Receptor 13	3.70E-10	3.63E-04	7.53E-08	1.54E-07	1.00E-04	3.76E-06	5.73E-09	3.32E-07	6.33E-05	5.71E-09	1.41E-09
Receptor 14	1.70E-09	1.67E-03	3.33E-07	7.11E-07	4.61E-04	1.73E-05	2.64E-08	1.53E-06	2.92E-04	2.63E-08	6.48E-09
Receptor 15	1.09E-09	1.07E-03	2.14E-07	4.54E-07	2.94E-04	1.11E-05	1.68E-08	9.76E-07	1.86E-04	1.68E-08	4.13E-09
Receptor 16	3.25E-10	3.19E-04	6.43E-08	1.36E-07	8.80E-05	3.31E-06	5.03E-09	2.92E-07	5.57E-05	5.02E-09	1.24E-09
Receptor 17	2.74E-10	2.69E-04	5.36E-08	1.14E-07	7.41E-05	2.79E-06	4.24E-09	2.46E-07	4.69E-05	4.23E-09	1.04E-09
Receptor 18	2.94E-10	2.88E-04	5.68E-08	1.23E-07	7.95E-05	2.99E-06	4.55E-09	2.64E-07	5.03E-05	4.54E-09	1.12E-09
Receptor 19	3.54E-10	3.47E-04	6.77E-08	1.48E-07	9.58E-05	3.60E-06	5.48E-09	3.18E-07	6.06E-05	5.47E-09	1.35E-09
Receptor 20	2.68E-10	2.63E-04	5.32E-08	1.12E-07	7.25E-05	2.73E-06	4.15E-09	2.40E-07	4.59E-05	4.14E-09	1.02E-09
Receptor 21	2.91E-10	2.86E-04	5.81E-08	1.22E-07	7.88E-05	2.96E-06	4.51E-09	2.61E-07	4.99E-05	4.50E-09	1.11E-09
Receptor 22	1.87E-09	1.83E-03	3.74E-07	7.79E-07	5.05E-04	1.90E-05	2.89E-08	1.68E-06	3.20E-04	2.88E-08	7.10E-09
Park	8.29E-10	8.14E-04	1.56E-07	3.46E-07	2.24E-04	8.44E-06	1.28E-08	7.44E-07	1.42E-04	1.28E-08	3.15E-09
Rankin 1	6.94E-10	6.81E-04	1.31E-07	2.90E-07	1.88E-04	7.06E-06	1.08E-08	6.23E-07	1.19E-04	1.07E-08	2.64E-09
Rankin 2	6.79E-10	6.67E-04	1.29E-07	2.84E-07	1.84E-04	6.91E-06	1.05E-08	6.10E-07	1.16E-04	1.05E-08	2.58E-09
Rankin 3	7.73E-10	7.58E-04	1.46E-07	3.23E-07	2.09E-04	7.86E-06	1.20E-08	6.94E-07	1.32E-04	1.19E-08	2.94E-09
Camp	2.47E-08	2.43E-02	5.25E-06	1.03E-05	6.70E-03	2.52E-04	3.83E-07	2.22E-05	4.24E-03	3.82E-07	9.41E-08

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.93E-04	6.59E-06	9.52E-09	3.36E-08	1.09E-04	3.03E-08	3.99E-06	2.95E-07	3.70E-06	9.13E-10	0.00E+00
Receptor 2	5.10E-05	6.82E-07	9.85E-10	3.47E-09	1.12E-05	3.13E-09	4.13E-07	3.05E-08	3.98E-07	1.19E-10	0.00E+00
Receptor 3	1.53E-04	2.04E-06	2.95E-09	1.04E-08	3.36E-05	9.39E-09	1.24E-06	9.13E-08	1.14E-06	2.70E-10	0.00E+00
Receptor 4	1.51E-04	2.02E-06	2.91E-09	1.03E-08	3.32E-05	9.27E-09	1.22E-06	9.02E-08	1.12E-06	2.56E-10	0.00E+00
Receptor 5	1.63E-04	2.18E-06	3.15E-09	1.11E-08	3.59E-05	1.00E-08	1.32E-06	9.75E-08	1.20E-06	2.60E-10	0.00E+00
Receptor 6	2.47E-04	3.29E-06	4.76E-09	1.68E-08	5.42E-05	1.51E-08	1.99E-06	1.47E-07	1.79E-06	3.71E-10	0.00E+00
Receptor 7	3.01E-04	4.02E-06	5.81E-09	2.05E-08	6.62E-05	1.85E-08	2.44E-06	1.80E-07	2.16E-06	4.14E-10	0.00E+00
Receptor 8	2.19E-05	2.93E-07	4.23E-10	1.49E-09	4.82E-06	1.34E-09	1.77E-07	1.31E-08	1.76E-07	5.97E-11	0.00E+00
Receptor 9	2.45E-05	3.27E-07	4.72E-10	1.66E-09	5.38E-06	1.50E-09	1.98E-07	1.46E-08	1.92E-07	5.95E-11	0.00E+00
Receptor 10	1.97E-05	2.63E-07	3.80E-10	1.34E-09	4.33E-06	1.21E-09	1.59E-07	1.18E-08	1.54E-07	4.70E-11	0.00E+00
Receptor 11	2.19E-05	2.93E-07	4.23E-10	1.49E-09	4.82E-06	1.34E-09	1.77E-07	1.31E-08	1.76E-07	5.98E-11	0.00E+00
Receptor 12	2.93E-05	3.92E-07	5.66E-10	2.00E-09	6.46E-06	1.80E-09	2.37E-07	1.75E-08	2.29E-07	6.93E-11	0.00E+00
Receptor 13	7.56E-05	1.01E-06	1.46E-09	5.14E-09	1.66E-05	4.64E-09	6.12E-07	4.52E-08	6.06E-07	2.01E-10	0.00E+00
Receptor 14	3.48E-04	4.66E-06	6.73E-09	2.37E-08	7.67E-05	2.14E-08	2.82E-06	2.08E-07	2.69E-06	7.69E-10	0.00E+00
Receptor 15	2.22E-04	2.97E-06	4.29E-09	1.51E-08	4.89E-05	1.37E-08	1.80E-06	1.33E-07	1.73E-06	5.08E-10	0.00E+00
Receptor 16	6.65E-05	8.88E-07	1.28E-09	4.52E-09	1.46E-05	4.08E-09	5.38E-07	3.97E-08	5.20E-07	1.57E-10	0.00E+00
Receptor 17	5.60E-05	7.49E-07	1.08E-09	3.81E-09	1.23E-05	3.44E-09	4.53E-07	3.35E-08	4.33E-07	1.25E-10	0.00E+00
Receptor 18	6.01E-05	8.03E-07	1.16E-09	4.09E-09	1.32E-05	3.69E-09	4.86E-07	3.59E-08	4.60E-07	1.27E-10	0.00E+00
Receptor 19	7.24E-05	9.67E-07	1.40E-09	4.93E-09	1.59E-05	4.44E-09	5.86E-07	4.32E-08	5.49E-07	1.44E-10	0.00E+00
Receptor 20	5.48E-05	7.32E-07	1.06E-09	3.73E-09	1.21E-05	3.36E-09	4.43E-07	3.27E-08	4.30E-07	1.31E-10	0.00E+00
Receptor 21	5.96E-05	7.96E-07	1.15E-09	4.05E-09	1.31E-05	3.66E-09	4.82E-07	3.56E-08	4.69E-07	1.45E-10	0.00E+00
Receptor 22	3.82E-04	5.10E-06	7.37E-09	2.60E-08	8.40E-05	2.34E-08	3.09E-06	2.28E-07	3.01E-06	9.42E-10	0.00E+00
Park	1.70E-04	2.27E-06	3.27E-09	1.15E-08	3.73E-05	1.04E-08	1.37E-06	1.01E-07	1.27E-06	3.07E-10	0.00E+00
Rankin 1	1.42E-04	1.90E-06	2.74E-09	9.66E-09	3.12E-05	8.72E-09	1.15E-06	8.48E-08	1.07E-06	2.65E-10	0.00E+00
Rankin 2	1.39E-04	1.86E-06	2.68E-09	9.45E-09	3.06E-05	8.53E-09	1.12E-06	8.30E-08	1.05E-06	2.70E-10	0.00E+00
Rankin 3	1.58E-04	2.11E-06	3.05E-09	1.08E-08	3.48E-05	9.70E-09	1.28E-06	9.44E-08	1.18E-06	2.93E-10	0.00E+00
Camp	5.06E-03	6.77E-05	9.77E-08	3.44E-07	1.11E-03	3.11E-07	4.10E-05	3.02E-06	4.20E-05	1.58E-08	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	3.61E-07	2.98E-08	3.33E-09	1.46E-08	1.09E-08	1.89E-10	4.33E-10	2.81E-09	1.02E-08	1.08E-08
Receptor 2	4.72E-08	3.90E-09	4.35E-10	1.90E-09	1.42E-09	2.47E-11	5.66E-11	3.66E-10	1.33E-09	1.42E-09
Receptor 3	1.07E-07	8.82E-09	9.84E-10	4.30E-09	3.22E-09	5.59E-11	1.28E-10	8.29E-10	3.01E-09	3.21E-09
Receptor 4	1.01E-07	8.38E-09	9.35E-10	4.09E-09	3.06E-09	5.31E-11	1.22E-10	7.88E-10	2.86E-09	3.04E-09
Receptor 5	1.03E-07	8.48E-09	9.46E-10	4.14E-09	3.10E-09	5.38E-11	1.23E-10	7.97E-10	2.90E-09	3.08E-09
Receptor 6	1.47E-07	1.21E-08	1.35E-09	5.92E-09	4.43E-09	7.69E-11	1.76E-10	1.14E-09	4.14E-09	4.41E-09
Receptor 7	1.64E-07	1.35E-08	1.51E-09	6.60E-09	4.94E-09	8.58E-11	1.96E-10	1.27E-09	4.62E-09	4.92E-09
Receptor 8	2.36E-08	1.95E-09	2.18E-10	9.53E-10	7.14E-10	1.24E-11	2.83E-11	1.84E-10	6.67E-10	7.10E-10
Receptor 9	2.36E-08	1.95E-09	2.17E-10	9.49E-10	7.11E-10	1.23E-11	2.82E-11	1.83E-10	6.64E-10	7.07E-10
Receptor 10	1.86E-08	1.54E-09	1.71E-10	7.49E-10	5.61E-10	9.73E-12	2.23E-11	1.44E-10	5.24E-10	5.58E-10
Receptor 11	2.37E-08	1.95E-09	2.18E-10	9.53E-10	7.14E-10	1.24E-11	2.84E-11	1.84E-10	6.67E-10	7.10E-10
Receptor 12	2.74E-08	2.26E-09	2.53E-10	1.10E-09	8.27E-10	1.43E-11	3.29E-11	2.13E-10	7.73E-10	8.23E-10
Receptor 13	7.96E-08	6.58E-09	7.34E-10	3.21E-09	2.40E-09	4.17E-11	9.55E-11	6.19E-10	2.25E-09	2.39E-09
Receptor 14	3.04E-07	2.51E-08	2.81E-09	1.23E-08	9.19E-09	1.59E-10	3.65E-10	2.36E-09	8.59E-09	9.14E-09
Receptor 15	2.01E-07	1.66E-08	1.85E-09	8.10E-09	6.06E-09	1.05E-10	2.41E-10	1.56E-09	5.67E-09	6.03E-09
Receptor 16	6.20E-08	5.12E-09	5.71E-10	2.50E-09	1.87E-09	3.25E-11	7.43E-11	4.81E-10	1.75E-09	1.86E-09
Receptor 17	4.95E-08	4.09E-09	4.56E-10	1.99E-09	1.49E-09	2.59E-11	5.94E-11	3.84E-10	1.40E-09	1.49E-09
Receptor 18	5.01E-08	4.14E-09	4.62E-10	2.02E-09	1.51E-09	2.63E-11	6.01E-11	3.89E-10	1.41E-09	1.50E-09
Receptor 19	5.70E-08	4.71E-09	5.25E-10	2.30E-09	1.72E-09	2.98E-11	6.83E-11	4.42E-10	1.61E-09	1.71E-09
Receptor 20	5.18E-08	4.28E-09	4.78E-10	2.09E-09	1.56E-09	2.71E-11	6.21E-11	4.02E-10	1.46E-09	1.56E-09
Receptor 21	5.76E-08	4.75E-09	5.30E-10	2.32E-09	1.74E-09	3.01E-11	6.90E-11	4.47E-10	1.62E-09	1.73E-09
Receptor 22	3.73E-07	3.08E-08	3.43E-09	1.50E-08	1.13E-08	1.95E-10	4.47E-10	2.89E-09	1.05E-08	1.12E-08
Park	1.22E-07	1.00E-08	1.12E-09	4.90E-09	3.67E-09	6.36E-11	1.46E-10	9.44E-10	3.43E-09	3.65E-09
Rankin 1	1.05E-07	8.66E-09	9.66E-10	4.22E-09	3.16E-09	5.49E-11	1.26E-10	8.14E-10	2.96E-09	3.15E-09
Rankin 2	1.07E-07	8.82E-09	9.84E-10	4.30E-09	3.22E-09	5.59E-11	1.28E-10	8.29E-10	3.01E-09	3.21E-09
Rankin 3	1.16E-07	9.56E-09	1.07E-09	4.66E-09	3.49E-09	6.06E-11	1.39E-10	8.99E-10	3.27E-09	3.47E-09
Camp	6.26E-06	5.17E-07	5.77E-08	2.52E-07	1.89E-07	3.28E-09	7.51E-09	4.86E-08	1.77E-07	1.88E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.01E-09	3.82E-11	2.29E-10	0.00E+00	4.87E-10	6.34E-10	4.03E-10
Receptor 2	2.63E-10	4.99E-12	2.99E-11	0.00E+00	6.36E-11	8.27E-11	5.26E-11
Receptor 3	5.95E-10	1.13E-11	6.77E-11	0.00E+00	1.44E-10	1.87E-10	1.19E-10
Receptor 4	5.65E-10	1.07E-11	6.43E-11	0.00E+00	1.37E-10	1.78E-10	1.13E-10
Receptor 5	5.72E-10	1.09E-11	6.51E-11	0.00E+00	1.38E-10	1.80E-10	1.15E-10
Receptor 6	8.19E-10	1.56E-11	9.31E-11	0.00E+00	1.98E-10	2.58E-10	1.64E-10
Receptor 7	9.13E-10	1.73E-11	1.04E-10	0.00E+00	2.21E-10	2.87E-10	1.83E-10
Receptor 8	1.32E-10	2.50E-12	1.50E-11	0.00E+00	3.19E-11	4.15E-11	2.64E-11
Receptor 9	1.31E-10	2.49E-12	1.49E-11	0.00E+00	3.17E-11	4.13E-11	2.63E-11
Receptor 10	1.04E-10	1.97E-12	1.18E-11	0.00E+00	2.51E-11	3.26E-11	2.07E-11
Receptor 11	1.32E-10	2.50E-12	1.50E-11	0.00E+00	3.19E-11	4.15E-11	2.64E-11
Receptor 12	1.53E-10	2.90E-12	1.74E-11	0.00E+00	3.69E-11	4.81E-11	3.06E-11
Receptor 13	4.44E-10	8.43E-12	5.05E-11	0.00E+00	1.07E-10	1.40E-10	8.88E-11
Receptor 14	1.70E-09	3.22E-11	1.93E-10	0.00E+00	4.10E-10	5.34E-10	3.39E-10
Receptor 15	1.12E-09	2.13E-11	1.27E-10	0.00E+00	2.71E-10	3.52E-10	2.24E-10
Receptor 16	3.45E-10	6.56E-12	3.93E-11	0.00E+00	8.36E-11	1.09E-10	6.91E-11
Receptor 17	2.76E-10	5.24E-12	3.14E-11	0.00E+00	6.67E-11	8.68E-11	5.52E-11
Receptor 18	2.79E-10	5.31E-12	3.18E-11	0.00E+00	6.76E-11	8.79E-11	5.59E-11
Receptor 19	3.17E-10	6.03E-12	3.61E-11	0.00E+00	7.68E-11	9.99E-11	6.35E-11
Receptor 20	2.89E-10	5.49E-12	3.28E-11	0.00E+00	6.99E-11	9.09E-11	5.78E-11
Receptor 21	3.21E-10	6.09E-12	3.65E-11	0.00E+00	7.76E-11	1.01E-10	6.42E-11
Receptor 22	2.08E-09	3.95E-11	2.36E-10	0.00E+00	5.02E-10	6.54E-10	4.16E-10
Park	6.77E-10	1.29E-11	7.70E-11	0.00E+00	1.64E-10	2.13E-10	1.35E-10
Rankin 1	5.84E-10	1.11E-11	6.64E-11	0.00E+00	1.41E-10	1.84E-10	1.17E-10
Rankin 2	5.95E-10	1.13E-11	6.77E-11	0.00E+00	1.44E-10	1.87E-10	1.19E-10
Rankin 3	6.45E-10	1.23E-11	7.34E-11	0.00E+00	1.56E-10	2.03E-10	1.29E-10
Camp	3.49E-08	6.63E-10	3.97E-09	0.00E+00	8.44E-09	1.10E-08	6.98E-09

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.55E-03	8.76E-08	2.48E-06	8.75E-06	1.63E-08	4.48E-09	4.07E-07	8.84E-04	3.79E-06	6.00E-07	1.59E-06
Receptor 2	2.25E-04	1.27E-08	3.61E-07	1.27E-06	2.36E-09	6.50E-10	6.07E-08	1.28E-04	5.50E-07	8.70E-08	2.30E-07
Receptor 3	5.98E-04	3.38E-08	9.59E-07	3.38E-06	6.29E-09	1.73E-09	1.33E-07	3.41E-04	1.46E-06	2.31E-07	6.12E-07
Receptor 4	5.99E-04	3.39E-08	9.61E-07	3.38E-06	6.30E-09	1.73E-09	1.26E-07	3.42E-04	1.46E-06	2.32E-07	6.13E-07
Receptor 5	6.35E-04	3.59E-08	1.02E-06	3.59E-06	6.67E-09	1.83E-09	1.26E-07	3.62E-04	1.55E-06	2.46E-07	6.50E-07
Receptor 6	8.88E-04	5.02E-08	1.42E-06	5.01E-06	9.33E-09	2.56E-09	1.78E-07	5.07E-04	2.16E-06	3.44E-07	9.09E-07
Receptor 7	1.03E-03	5.83E-08	1.65E-06	5.83E-06	1.08E-08	2.98E-09	1.87E-07	5.89E-04	2.51E-06	3.99E-07	1.06E-06
Receptor 8	1.07E-04	6.07E-09	1.72E-07	6.06E-07	1.13E-09	3.10E-10	3.16E-08	6.13E-05	2.63E-07	4.15E-08	1.10E-07
Receptor 9	1.22E-04	6.87E-09	1.95E-07	6.86E-07	1.28E-09	3.51E-10	3.12E-08	6.94E-05	2.97E-07	4.70E-08	1.24E-07
Receptor 10	9.77E-05	5.53E-09	1.57E-07	5.52E-07	1.03E-09	2.82E-10	2.50E-08	5.58E-05	2.39E-07	3.78E-08	1.00E-07
Receptor 11	1.07E-04	6.07E-09	1.72E-07	6.06E-07	1.13E-09	3.10E-10	3.16E-08	6.13E-05	2.63E-07	4.15E-08	1.10E-07
Receptor 12	1.35E-04	7.63E-09	2.16E-07	7.62E-07	1.42E-09	3.90E-10	3.63E-08	7.70E-05	3.30E-07	5.22E-08	1.38E-07
Receptor 13	6.77E-04	3.83E-08	1.09E-06	3.83E-06	7.12E-09	1.96E-09	1.37E-07	3.87E-04	1.65E-06	2.62E-07	6.93E-07
Receptor 14	2.60E-03	1.47E-07	4.16E-06	1.47E-05	2.73E-08	7.50E-09	4.72E-07	1.48E-03	6.31E-06	1.00E-06	2.66E-06
Receptor 15	1.67E-03	9.44E-08	2.68E-06	9.42E-06	1.75E-08	4.82E-09	3.12E-07	9.53E-04	4.06E-06	6.46E-07	1.71E-06
Receptor 16	4.46E-04	2.52E-08	7.16E-07	2.52E-06	4.69E-09	1.29E-09	9.15E-08	2.55E-04	1.09E-06	1.73E-07	4.57E-07
Receptor 17	3.69E-04	2.08E-08	5.91E-07	2.08E-06	3.88E-09	1.06E-09	7.28E-08	2.10E-04	8.97E-07	1.43E-07	3.77E-07
Receptor 18	3.99E-04	2.26E-08	6.40E-07	2.25E-06	4.19E-09	1.15E-09	7.43E-08	2.28E-04	9.70E-07	1.54E-07	4.08E-07
Receptor 19	4.85E-04	2.74E-08	7.78E-07	2.74E-06	5.10E-09	1.40E-09	8.51E-08	2.77E-04	1.18E-06	1.88E-07	4.97E-07
Receptor 20	3.52E-04	1.99E-08	5.65E-07	1.99E-06	3.70E-09	1.02E-09	7.65E-08	2.01E-04	8.59E-07	1.36E-07	3.61E-07
Receptor 21	3.88E-04	2.19E-08	6.22E-07	2.19E-06	4.08E-09	1.12E-09	8.56E-08	2.21E-04	9.45E-07	1.50E-07	3.97E-07
Receptor 22	3.23E-03	1.83E-07	5.18E-06	1.82E-05	3.40E-08	9.33E-09	6.10E-07	1.84E-03	7.86E-06	1.25E-06	3.31E-06
Park	8.01E-04	4.53E-08	1.28E-06	4.52E-06	8.42E-09	2.31E-09	1.65E-07	4.57E-04	1.95E-06	3.10E-07	8.20E-07
Rankin 1	7.78E-04	4.40E-08	1.25E-06	4.39E-06	8.17E-09	2.25E-09	1.51E-07	4.44E-04	1.89E-06	3.01E-07	7.96E-07
Rankin 2	7.74E-04	4.38E-08	1.24E-06	4.37E-06	8.14E-09	2.24E-09	1.54E-07	4.42E-04	1.88E-06	3.00E-07	7.92E-07
Rankin 3	8.69E-04	4.92E-08	1.39E-06	4.91E-06	9.14E-09	2.51E-09	1.68E-07	4.96E-04	2.12E-06	3.36E-07	8.90E-07
Camp	1.98E-02	1.12E-06	3.18E-05	1.12E-04	2.08E-07	5.73E-08	8.18E-06	1.13E-02	4.90E-05	7.67E-06	2.03E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.73E-09	1.70E-03	3.34E-07	7.23E-07	4.69E-04	1.76E-05	2.68E-08	1.56E-06	2.97E-04	2.68E-08	6.59E-09
Receptor 2	2.52E-10	2.47E-04	4.88E-08	1.05E-07	6.81E-05	2.56E-06	3.90E-09	2.26E-07	4.31E-05	3.89E-09	9.57E-10
Receptor 3	6.69E-10	6.57E-04	1.25E-07	2.79E-07	1.81E-04	6.81E-06	1.04E-08	6.01E-07	1.15E-04	1.03E-08	2.54E-09
Receptor 4	6.70E-10	6.57E-04	1.24E-07	2.80E-07	1.81E-04	6.82E-06	1.04E-08	6.01E-07	1.15E-04	1.04E-08	2.55E-09
Receptor 5	7.10E-10	6.97E-04	1.30E-07	2.96E-07	1.92E-04	7.23E-06	1.10E-08	6.37E-07	1.22E-04	1.10E-08	2.70E-09
Receptor 6	9.93E-10	9.75E-04	1.82E-07	4.14E-07	2.69E-04	1.01E-05	1.54E-08	8.91E-07	1.70E-04	1.53E-08	3.78E-09
Receptor 7	1.15E-09	1.13E-03	2.08E-07	4.82E-07	3.12E-04	1.17E-05	1.79E-08	1.04E-06	1.98E-04	1.78E-08	4.39E-09
Receptor 8	1.20E-10	1.18E-04	2.37E-08	5.01E-08	3.25E-05	1.22E-06	1.86E-09	1.08E-07	2.06E-05	1.86E-09	4.57E-10
Receptor 9	1.36E-10	1.33E-04	2.61E-08	5.67E-08	3.68E-05	1.38E-06	2.11E-09	1.22E-07	2.33E-05	2.10E-09	5.17E-10
Receptor 10	1.09E-10	1.07E-04	2.10E-08	4.56E-08	2.96E-05	1.11E-06	1.69E-09	9.81E-08	1.87E-05	1.69E-09	4.16E-10
Receptor 11	1.20E-10	1.18E-04	2.37E-08	5.01E-08	3.25E-05	1.22E-06	1.86E-09	1.08E-07	2.06E-05	1.86E-09	4.57E-10
Receptor 12	1.51E-10	1.48E-04	2.93E-08	6.30E-08	4.09E-05	1.54E-06	2.34E-09	1.36E-07	2.59E-05	2.33E-09	5.74E-10
Receptor 13	7.57E-10	7.44E-04	1.39E-07	3.16E-07	2.05E-04	7.71E-06	1.17E-08	6.80E-07	1.30E-04	1.17E-08	2.88E-09
Receptor 14	2.90E-09	2.85E-03	5.25E-07	1.21E-06	7.86E-04	2.96E-05	4.50E-08	2.61E-06	4.97E-04	4.49E-08	1.10E-08
Receptor 15	1.87E-09	1.83E-03	3.39E-07	7.79E-07	5.05E-04	1.90E-05	2.89E-08	1.68E-06	3.20E-04	2.88E-08	7.10E-09
Receptor 16	4.99E-10	4.90E-04	9.20E-08	2.08E-07	1.35E-04	5.08E-06	7.73E-09	4.48E-07	8.55E-05	7.71E-09	1.90E-09
Receptor 17	4.12E-10	4.05E-04	7.55E-08	1.72E-07	1.12E-04	4.20E-06	6.39E-09	3.70E-07	7.06E-05	6.37E-09	1.57E-09
Receptor 18	4.46E-10	4.38E-04	8.09E-08	1.86E-07	1.21E-04	4.54E-06	6.91E-09	4.00E-07	7.64E-05	6.89E-09	1.70E-09
Receptor 19	5.42E-10	5.32E-04	9.75E-08	2.26E-07	1.47E-04	5.52E-06	8.41E-09	4.87E-07	9.29E-05	8.38E-09	2.06E-09
Receptor 20	3.94E-10	3.87E-04	7.33E-08	1.64E-07	1.07E-04	4.01E-06	6.10E-09	3.54E-07	6.75E-05	6.09E-09	1.50E-09
Receptor 21	4.34E-10	4.26E-04	8.09E-08	1.81E-07	1.17E-04	4.41E-06	6.72E-09	3.89E-07	7.43E-05	6.70E-09	1.65E-09
Receptor 22	3.61E-09	3.55E-03	6.57E-07	1.51E-06	9.78E-04	3.68E-05	5.60E-08	3.24E-06	6.19E-04	5.58E-08	1.37E-08
Park	8.96E-10	8.79E-04	1.65E-07	3.74E-07	2.43E-04	9.12E-06	1.39E-08	8.04E-07	1.53E-04	1.38E-08	3.41E-09
Rankin 1	8.70E-10	8.54E-04	1.59E-07	3.63E-07	2.35E-04	8.85E-06	1.35E-08	7.81E-07	1.49E-04	1.34E-08	3.31E-09
Rankin 2	8.66E-10	8.50E-04	1.59E-07	3.61E-07	2.34E-04	8.81E-06	1.34E-08	7.77E-07	1.48E-04	1.34E-08	3.29E-09
Rankin 3	9.72E-10	9.54E-04	1.77E-07	4.06E-07	2.63E-04	9.89E-06	1.51E-08	8.73E-07	1.67E-04	1.50E-08	3.70E-09
Camp	2.22E-08	2.18E-02	4.77E-06	9.26E-06	6.00E-03	2.26E-04	3.44E-07	1.99E-05	3.80E-03	3.43E-07	8.43E-08

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	3.55E-04	4.74E-06	6.84E-09	2.41E-08	7.80E-05	2.18E-08	2.87E-06	2.12E-07	2.71E-06	7.36E-10	0.00E+00
Receptor 2	5.15E-05	6.88E-07	9.93E-10	3.50E-09	1.13E-05	3.16E-09	4.16E-07	3.07E-08	3.95E-07	1.10E-10	0.00E+00
Receptor 3	1.37E-04	1.83E-06	2.64E-09	9.31E-09	3.01E-05	8.40E-09	1.11E-06	8.17E-08	1.02E-06	2.40E-10	0.00E+00
Receptor 4	1.37E-04	1.83E-06	2.64E-09	9.32E-09	3.02E-05	8.41E-09	1.11E-06	8.18E-08	1.01E-06	2.27E-10	0.00E+00
Receptor 5	1.45E-04	1.94E-06	2.80E-09	9.88E-09	3.20E-05	8.92E-09	1.18E-06	8.68E-08	1.06E-06	2.27E-10	0.00E+00
Receptor 6	2.03E-04	2.71E-06	3.92E-09	1.38E-08	4.47E-05	1.25E-08	1.64E-06	1.21E-07	1.49E-06	3.20E-10	0.00E+00
Receptor 7	2.36E-04	3.15E-06	4.56E-09	1.61E-08	5.19E-05	1.45E-08	1.91E-06	1.41E-07	1.70E-06	3.36E-10	0.00E+00
Receptor 8	2.46E-05	3.28E-07	4.74E-10	1.67E-09	5.40E-06	1.51E-09	1.99E-07	1.47E-08	1.91E-07	5.71E-11	0.00E+00
Receptor 9	2.78E-05	3.72E-07	5.37E-10	1.89E-09	6.12E-06	1.71E-09	2.25E-07	1.66E-08	2.11E-07	5.63E-11	0.00E+00
Receptor 10	2.24E-05	2.99E-07	4.32E-10	1.52E-09	4.92E-06	1.37E-09	1.81E-07	1.34E-08	1.70E-07	4.52E-11	0.00E+00
Receptor 11	2.46E-05	3.28E-07	4.74E-10	1.67E-09	5.41E-06	1.51E-09	1.99E-07	1.47E-08	1.92E-07	5.72E-11	0.00E+00
Receptor 12	3.09E-05	4.13E-07	5.96E-10	2.10E-09	6.80E-06	1.90E-09	2.50E-07	1.84E-08	2.37E-07	6.57E-11	0.00E+00
Receptor 13	1.55E-04	2.07E-06	2.99E-09	1.05E-08	3.41E-05	9.52E-09	1.25E-06	9.26E-08	1.14E-06	2.46E-10	0.00E+00
Receptor 14	5.94E-04	7.94E-06	1.15E-08	4.04E-08	1.31E-04	3.65E-08	4.81E-06	3.55E-07	4.29E-06	8.48E-10	0.00E+00
Receptor 15	3.82E-04	5.10E-06	7.37E-09	2.60E-08	8.40E-05	2.34E-08	3.09E-06	2.28E-07	2.77E-06	5.60E-10	0.00E+00
Receptor 16	1.02E-04	1.36E-06	1.97E-09	6.95E-09	2.25E-05	6.27E-09	8.26E-07	6.10E-08	7.50E-07	1.65E-10	0.00E+00
Receptor 17	8.44E-05	1.13E-06	1.63E-09	5.74E-09	1.86E-05	5.18E-09	6.83E-07	5.04E-08	6.16E-07	1.31E-10	0.00E+00
Receptor 18	9.13E-05	1.22E-06	1.76E-09	6.21E-09	2.01E-05	5.60E-09	7.38E-07	5.45E-08	6.61E-07	1.33E-10	0.00E+00
Receptor 19	1.11E-04	1.48E-06	2.14E-09	7.55E-09	2.44E-05	6.81E-09	8.98E-07	6.63E-08	7.98E-07	1.53E-10	0.00E+00
Receptor 20	8.06E-05	1.08E-06	1.56E-09	5.48E-09	1.77E-05	4.95E-09	6.52E-07	4.81E-08	5.97E-07	1.38E-10	0.00E+00
Receptor 21	8.87E-05	1.19E-06	1.71E-09	6.04E-09	1.95E-05	5.45E-09	7.18E-07	5.30E-08	6.59E-07	1.54E-10	0.00E+00
Receptor 22	7.39E-04	9.88E-06	1.43E-08	5.03E-08	1.63E-04	4.54E-08	5.98E-06	4.42E-07	5.37E-06	1.10E-09	0.00E+00
Park	1.83E-04	2.45E-06	3.54E-09	1.25E-08	4.03E-05	1.13E-08	1.48E-06	1.09E-07	1.35E-06	2.97E-10	0.00E+00
Rankin 1	1.78E-04	2.38E-06	3.43E-09	1.21E-08	3.92E-05	1.09E-08	1.44E-06	1.06E-07	1.30E-06	2.71E-10	0.00E+00
Rankin 2	1.77E-04	2.37E-06	3.42E-09	1.21E-08	3.90E-05	1.09E-08	1.43E-06	1.06E-07	1.30E-06	2.77E-10	0.00E+00
Rankin 3	1.99E-04	2.66E-06	3.84E-09	1.35E-08	4.38E-05	1.22E-08	1.61E-06	1.19E-07	1.45E-06	3.02E-10	0.00E+00
Camp	4.54E-03	6.06E-05	8.76E-08	3.09E-07	9.98E-04	2.79E-07	3.67E-05	2.71E-06	3.81E-05	1.49E-08	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.91E-07	2.40E-08	2.68E-09	1.17E-08	8.79E-09	1.52E-10	3.49E-10	2.26E-09	8.21E-09	8.74E-09
Receptor 2	4.34E-08	3.59E-09	4.00E-10	1.75E-09	1.31E-09	2.27E-11	5.20E-11	3.37E-10	1.22E-09	1.30E-09
Receptor 3	9.52E-08	7.86E-09	8.77E-10	3.83E-09	2.87E-09	4.98E-11	1.14E-10	7.39E-10	2.68E-09	2.86E-09
Receptor 4	8.97E-08	7.41E-09	8.27E-10	3.62E-09	2.71E-09	4.70E-11	1.08E-10	6.97E-10	2.53E-09	2.69E-09
Receptor 5	8.99E-08	7.43E-09	8.29E-10	3.62E-09	2.71E-09	4.71E-11	1.08E-10	6.98E-10	2.54E-09	2.70E-09
Receptor 6	1.27E-07	1.05E-08	1.17E-09	5.10E-09	3.82E-09	6.63E-11	1.52E-10	9.83E-10	3.57E-09	3.80E-09
Receptor 7	1.33E-07	1.10E-08	1.22E-09	5.36E-09	4.01E-09	6.96E-11	1.59E-10	1.03E-09	3.75E-09	3.99E-09
Receptor 8	2.26E-08	1.87E-09	2.08E-10	9.11E-10	6.82E-10	1.18E-11	2.71E-11	1.76E-10	6.38E-10	6.78E-10
Receptor 9	2.23E-08	1.84E-09	2.05E-10	8.98E-10	6.72E-10	1.17E-11	2.67E-11	1.73E-10	6.28E-10	6.69E-10
Receptor 10	1.79E-08	1.48E-09	1.65E-10	7.21E-10	5.40E-10	9.37E-12	2.14E-11	1.39E-10	5.05E-10	5.37E-10
Receptor 11	2.26E-08	1.87E-09	2.08E-10	9.12E-10	6.83E-10	1.18E-11	2.71E-11	1.76E-10	6.38E-10	6.79E-10
Receptor 12	2.60E-08	2.15E-09	2.39E-10	1.05E-09	7.84E-10	1.36E-11	3.12E-11	2.02E-10	7.33E-10	7.80E-10
Receptor 13	9.75E-08	8.06E-09	8.99E-10	3.93E-09	2.94E-09	5.11E-11	1.17E-10	7.57E-10	2.75E-09	2.93E-09
Receptor 14	3.35E-07	2.77E-08	3.09E-09	1.35E-08	1.01E-08	1.76E-10	4.02E-10	2.60E-09	9.46E-09	1.01E-08
Receptor 15	2.21E-07	1.83E-08	2.04E-09	8.93E-09	6.69E-09	1.16E-10	2.66E-10	1.72E-09	6.25E-09	6.65E-09
Receptor 16	6.52E-08	5.39E-09	6.01E-10	2.63E-09	1.97E-09	3.41E-11	7.82E-11	5.06E-10	1.84E-09	1.96E-09
Receptor 17	5.18E-08	4.28E-09	4.78E-10	2.09E-09	1.56E-09	2.71E-11	6.21E-11	4.02E-10	1.46E-09	1.56E-09
Receptor 18	5.28E-08	4.36E-09	4.86E-10	2.13E-09	1.59E-09	2.76E-11	6.33E-11	4.10E-10	1.49E-09	1.58E-09
Receptor 19	6.04E-08	4.99E-09	5.56E-10	2.43E-09	1.82E-09	3.16E-11	7.24E-11	4.69E-10	1.70E-09	1.81E-09
Receptor 20	5.45E-08	4.50E-09	5.02E-10	2.20E-09	1.65E-09	2.85E-11	6.54E-11	4.23E-10	1.54E-09	1.64E-09
Receptor 21	6.10E-08	5.04E-09	5.62E-10	2.46E-09	1.84E-09	3.19E-11	7.32E-11	4.74E-10	1.72E-09	1.83E-09
Receptor 22	4.34E-07	3.58E-08	3.99E-09	1.75E-08	1.31E-08	2.27E-10	5.20E-10	3.37E-09	1.22E-08	1.30E-08
Park	1.18E-07	9.71E-09	1.08E-09	4.74E-09	3.55E-09	6.15E-11	1.41E-10	9.13E-10	3.32E-09	3.53E-09
Rankin 1	1.07E-07	8.87E-09	9.90E-10	4.33E-09	3.24E-09	5.62E-11	1.29E-10	8.34E-10	3.03E-09	3.22E-09
Rankin 2	1.10E-07	9.06E-09	1.01E-09	4.42E-09	3.31E-09	5.74E-11	1.32E-10	8.52E-10	3.09E-09	3.29E-09
Rankin 3	1.19E-07	9.86E-09	1.10E-09	4.81E-09	3.60E-09	6.25E-11	1.43E-10	9.27E-10	3.37E-09	3.58E-09
Camp	5.88E-06	4.86E-07	5.42E-08	2.37E-07	1.77E-07	3.08E-09	7.05E-09	4.57E-08	1.66E-07	1.76E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.62E-09	3.08E-11	1.85E-10	0.00E+00	3.92E-10	5.11E-10	3.25E-10
Receptor 2	2.42E-10	4.60E-12	2.75E-11	0.00E+00	5.85E-11	7.61E-11	4.84E-11
Receptor 3	5.30E-10	1.01E-11	6.03E-11	0.00E+00	1.28E-10	1.67E-10	1.06E-10
Receptor 4	5.00E-10	9.50E-12	5.69E-11	0.00E+00	1.21E-10	1.57E-10	1.00E-10
Receptor 5	5.01E-10	9.52E-12	5.70E-11	0.00E+00	1.21E-10	1.58E-10	1.00E-10
Receptor 6	7.05E-10	1.34E-11	8.02E-11	0.00E+00	1.71E-10	2.22E-10	1.41E-10
Receptor 7	7.41E-10	1.41E-11	8.42E-11	0.00E+00	1.79E-10	2.33E-10	1.48E-10
Receptor 8	1.26E-10	2.39E-12	1.43E-11	0.00E+00	3.05E-11	3.96E-11	2.52E-11
Receptor 9	1.24E-10	2.36E-12	1.41E-11	0.00E+00	3.00E-11	3.91E-11	2.48E-11
Receptor 10	9.97E-11	1.89E-12	1.13E-11	0.00E+00	2.41E-11	3.14E-11	1.99E-11
Receptor 11	1.26E-10	2.39E-12	1.43E-11	0.00E+00	3.05E-11	3.97E-11	2.52E-11
Receptor 12	1.45E-10	2.75E-12	1.65E-11	0.00E+00	3.50E-11	4.56E-11	2.90E-11
Receptor 13	5.43E-10	1.03E-11	6.18E-11	0.00E+00	1.31E-10	1.71E-10	1.09E-10
Receptor 14	1.87E-09	3.55E-11	2.13E-10	0.00E+00	4.52E-10	5.88E-10	3.74E-10
Receptor 15	1.23E-09	2.35E-11	1.40E-10	0.00E+00	2.99E-10	3.88E-10	2.47E-10
Receptor 16	3.63E-10	6.90E-12	4.13E-11	0.00E+00	8.79E-11	1.14E-10	7.27E-11
Receptor 17	2.89E-10	5.49E-12	3.28E-11	0.00E+00	6.99E-11	9.09E-11	5.78E-11
Receptor 18	2.94E-10	5.59E-12	3.35E-11	0.00E+00	7.11E-11	9.26E-11	5.89E-11
Receptor 19	3.36E-10	6.39E-12	3.83E-11	0.00E+00	8.14E-11	1.06E-10	6.73E-11
Receptor 20	3.04E-10	5.77E-12	3.46E-11	0.00E+00	7.35E-11	9.56E-11	6.08E-11
Receptor 21	3.40E-10	6.46E-12	3.87E-11	0.00E+00	8.23E-11	1.07E-10	6.80E-11
Receptor 22	2.42E-09	4.59E-11	2.75E-10	0.00E+00	5.84E-10	7.60E-10	4.83E-10
Park	6.55E-10	1.24E-11	7.45E-11	0.00E+00	1.58E-10	2.06E-10	1.31E-10
Rankin 1	5.99E-10	1.14E-11	6.81E-11	0.00E+00	1.45E-10	1.88E-10	1.20E-10
Rankin 2	6.11E-10	1.16E-11	6.95E-11	0.00E+00	1.48E-10	1.92E-10	1.22E-10
Rankin 3	6.65E-10	1.26E-11	7.56E-11	0.00E+00	1.61E-10	2.09E-10	1.33E-10
Camp	3.28E-08	6.23E-10	3.73E-09	0.00E+00	7.93E-09	1.03E-08	6.56E-09

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.27E-03	1.28E-07	3.64E-06	1.28E-05	2.39E-08	6.56E-09	4.73E-07	1.30E-03	5.53E-06	8.79E-07	2.32E-06
Receptor 2	2.85E-04	1.61E-08	4.58E-07	1.61E-06	3.00E-09	8.24E-10	6.12E-08	1.63E-04	6.95E-07	1.10E-07	2.92E-07
Receptor 3	7.27E-04	4.11E-08	1.17E-06	4.11E-06	7.64E-09	2.10E-09	1.40E-07	4.15E-04	1.77E-06	2.81E-07	7.44E-07
Receptor 4	7.66E-04	4.33E-08	1.23E-06	4.33E-06	8.05E-09	2.21E-09	1.34E-07	4.37E-04	1.86E-06	2.97E-07	7.84E-07
Receptor 5	8.61E-04	4.87E-08	1.38E-06	4.86E-06	9.05E-09	2.49E-09	1.40E-07	4.92E-04	2.09E-06	3.33E-07	8.82E-07
Receptor 6	1.28E-03	7.26E-08	2.06E-06	7.25E-06	1.35E-08	3.71E-09	2.03E-07	7.33E-04	3.12E-06	4.97E-07	1.31E-06
Receptor 7	2.08E-03	1.17E-07	3.33E-06	1.17E-05	2.18E-08	6.00E-09	2.28E-07	1.18E-03	5.02E-06	8.03E-07	2.12E-06
Receptor 8	1.17E-04	6.64E-09	1.88E-07	6.63E-07	1.23E-09	3.39E-10	3.20E-08	6.70E-05	2.87E-07	4.55E-08	1.20E-07
Receptor 9	1.29E-04	7.29E-09	2.07E-07	7.28E-07	1.35E-09	3.72E-10	3.23E-08	7.36E-05	3.15E-07	4.99E-08	1.32E-07
Receptor 10	9.89E-05	5.59E-09	1.59E-07	5.58E-07	1.04E-09	2.86E-10	2.59E-08	5.65E-05	2.42E-07	3.83E-08	1.01E-07
Receptor 11	1.17E-04	6.64E-09	1.88E-07	6.63E-07	1.23E-09	3.39E-10	3.21E-08	6.71E-05	2.87E-07	4.55E-08	1.20E-07
Receptor 12	1.60E-04	9.04E-09	2.56E-07	9.02E-07	1.68E-09	4.62E-10	3.76E-08	9.12E-05	3.90E-07	6.18E-08	1.64E-07
Receptor 13	3.80E-04	2.15E-08	6.09E-07	2.14E-06	3.99E-09	1.10E-09	1.10E-07	2.17E-04	9.30E-07	1.47E-07	3.89E-07
Receptor 14	1.33E-03	7.51E-08	2.13E-06	7.50E-06	1.40E-08	3.83E-09	4.01E-07	7.58E-04	3.25E-06	5.14E-07	1.36E-06
Receptor 15	8.43E-04	4.77E-08	1.35E-06	4.76E-06	8.86E-09	2.44E-09	2.60E-07	4.81E-04	2.07E-06	3.26E-07	8.63E-07
Receptor 16	2.82E-04	1.59E-08	4.52E-07	1.59E-06	2.96E-09	8.15E-10	8.27E-08	1.61E-04	6.91E-07	1.09E-07	2.89E-07
Receptor 17	2.49E-04	1.41E-08	3.99E-07	1.40E-06	2.61E-09	7.18E-10	6.67E-08	1.42E-04	6.08E-07	9.62E-08	2.54E-07
Receptor 18	2.80E-04	1.59E-08	4.50E-07	1.58E-06	2.95E-09	8.10E-10	6.83E-08	1.60E-04	6.85E-07	1.09E-07	2.87E-07
Receptor 19	3.57E-04	2.02E-08	5.72E-07	2.02E-06	3.75E-09	1.03E-09	7.91E-08	2.04E-04	8.70E-07	1.38E-07	3.65E-07
Receptor 20	2.62E-04	1.48E-08	4.20E-07	1.48E-06	2.75E-09	7.56E-10	7.08E-08	1.49E-04	6.41E-07	1.01E-07	2.68E-07
Receptor 21	2.92E-04	1.65E-08	4.68E-07	1.65E-06	3.07E-09	8.44E-10	7.92E-08	1.67E-04	7.14E-07	1.13E-07	2.99E-07
Receptor 22	1.35E-03	7.65E-08	2.17E-06	7.64E-06	1.42E-08	3.91E-09	4.88E-07	7.72E-04	3.33E-06	5.23E-07	1.38E-06
Park	9.94E-04	5.62E-08	1.59E-06	5.61E-06	1.04E-08	2.87E-09	1.81E-07	5.67E-04	2.42E-06	3.85E-07	1.02E-06
Rankin 1	8.13E-04	4.60E-08	1.30E-06	4.59E-06	8.54E-09	2.35E-09	1.54E-07	4.64E-04	1.98E-06	3.14E-07	8.32E-07
Rankin 2	7.93E-04	4.49E-08	1.27E-06	4.48E-06	8.34E-09	2.29E-09	1.56E-07	4.53E-04	1.93E-06	3.07E-07	8.12E-07
Rankin 3	9.08E-04	5.14E-08	1.46E-06	5.13E-06	9.55E-09	2.62E-09	1.70E-07	5.19E-04	2.21E-06	3.52E-07	9.30E-07
Camp	2.05E-02	1.16E-06	3.29E-05	1.16E-04	2.16E-07	5.93E-08	8.31E-06	1.17E-02	5.07E-05	7.95E-06	2.10E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.54E-09	2.49E-03	4.69E-07	1.06E-06	6.88E-04	2.58E-05	3.94E-08	2.28E-06	4.35E-04	3.93E-08	9.66E-09
Receptor 2	3.19E-10	3.13E-04	5.92E-08	1.33E-07	8.64E-05	3.25E-06	4.94E-09	2.86E-07	5.47E-05	4.93E-09	1.21E-09
Receptor 3	8.13E-10	7.98E-04	1.48E-07	3.40E-07	2.20E-04	8.28E-06	1.26E-08	7.30E-07	1.39E-04	1.26E-08	3.09E-09
Receptor 4	8.57E-10	8.41E-04	1.54E-07	3.58E-07	2.32E-04	8.72E-06	1.33E-08	7.69E-07	1.47E-04	1.32E-08	3.26E-09
Receptor 5	9.63E-10	9.45E-04	1.71E-07	4.02E-07	2.61E-04	9.80E-06	1.49E-08	8.65E-07	1.65E-04	1.49E-08	3.66E-09
Receptor 6	1.44E-09	1.41E-03	2.54E-07	5.99E-07	3.89E-04	1.46E-05	2.22E-08	1.29E-06	2.46E-04	2.22E-08	5.46E-09
Receptor 7	2.32E-09	2.28E-03	3.95E-07	9.69E-07	6.29E-04	2.36E-05	3.60E-08	2.08E-06	3.98E-04	3.59E-08	8.83E-09
Receptor 8	1.31E-10	1.29E-04	2.55E-08	5.48E-08	3.56E-05	1.34E-06	2.04E-09	1.18E-07	2.25E-05	2.03E-09	5.00E-10
Receptor 9	1.44E-10	1.41E-04	2.75E-08	6.02E-08	3.90E-05	1.47E-06	2.23E-09	1.29E-07	2.47E-05	2.23E-09	5.48E-10
Receptor 10	1.11E-10	1.09E-04	2.13E-08	4.62E-08	2.99E-05	1.13E-06	1.71E-09	9.93E-08	1.89E-05	1.71E-09	4.21E-10
Receptor 11	1.31E-10	1.29E-04	2.55E-08	5.48E-08	3.56E-05	1.34E-06	2.04E-09	1.18E-07	2.25E-05	2.03E-09	5.00E-10
Receptor 12	1.79E-10	1.75E-04	3.37E-08	7.46E-08	4.84E-05	1.82E-06	2.77E-09	1.60E-07	3.06E-05	2.76E-09	6.80E-10
Receptor 13	4.25E-10	4.17E-04	8.36E-08	1.77E-07	1.15E-04	4.32E-06	6.58E-09	3.81E-07	7.28E-05	6.56E-09	1.62E-09
Receptor 14	1.48E-09	1.46E-03	2.95E-07	6.20E-07	4.02E-04	1.51E-05	2.30E-08	1.33E-06	2.54E-04	2.29E-08	5.65E-09
Receptor 15	9.43E-10	9.25E-04	1.88E-07	3.94E-07	2.55E-04	9.60E-06	1.46E-08	8.46E-07	1.62E-04	1.46E-08	3.59E-09
Receptor 16	3.15E-10	3.10E-04	6.22E-08	1.32E-07	8.54E-05	3.21E-06	4.89E-09	2.83E-07	5.40E-05	4.87E-09	1.20E-09
Receptor 17	2.78E-10	2.73E-04	5.38E-08	1.16E-07	7.53E-05	2.83E-06	4.31E-09	2.50E-07	4.76E-05	4.30E-09	1.06E-09
Receptor 18	3.14E-10	3.08E-04	5.96E-08	1.31E-07	8.49E-05	3.19E-06	4.86E-09	2.82E-07	5.37E-05	4.85E-09	1.19E-09
Receptor 19	3.99E-10	3.92E-04	7.45E-08	1.67E-07	1.08E-04	4.06E-06	6.18E-09	3.58E-07	6.84E-05	6.17E-09	1.52E-09
Receptor 20	2.93E-10	2.87E-04	5.68E-08	1.22E-07	7.93E-05	2.98E-06	4.54E-09	2.63E-07	5.02E-05	4.53E-09	1.11E-09
Receptor 21	3.27E-10	3.21E-04	6.34E-08	1.36E-07	8.84E-05	3.32E-06	5.06E-09	2.93E-07	5.60E-05	5.05E-09	1.24E-09
Receptor 22	1.51E-09	1.49E-03	3.14E-07	6.32E-07	4.10E-04	1.54E-05	2.34E-08	1.36E-06	2.59E-04	2.34E-08	5.75E-09
Park	1.11E-09	1.09E-03	2.01E-07	4.64E-07	3.01E-04	1.13E-05	1.72E-08	9.98E-07	1.90E-04	1.72E-08	4.23E-09
Rankin 1	9.09E-10	8.92E-04	1.65E-07	3.79E-07	2.46E-04	9.25E-06	1.41E-08	8.16E-07	1.56E-04	1.40E-08	3.46E-09
Rankin 2	8.87E-10	8.71E-04	1.62E-07	3.70E-07	2.40E-04	9.03E-06	1.37E-08	7.96E-07	1.52E-04	1.37E-08	3.37E-09
Rankin 3	1.02E-09	9.97E-04	1.84E-07	4.24E-07	2.75E-04	1.03E-05	1.57E-08	9.12E-07	1.74E-04	1.57E-08	3.86E-09
Camp	2.30E-08	2.25E-02	4.92E-06	9.59E-06	6.22E-03	2.34E-04	3.56E-07	2.06E-05	3.94E-03	3.55E-07	8.74E-08

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	5.20E-04	6.94E-06	1.00E-08	3.54E-08	1.14E-04	3.19E-08	4.20E-06	3.10E-07	3.82E-06	8.51E-10	0.00E+00
Receptor 2	6.53E-05	8.72E-07	1.26E-09	4.44E-09	1.44E-05	4.01E-09	5.28E-07	3.90E-08	4.83E-07	1.10E-10	0.00E+00
Receptor 3	1.66E-04	2.22E-06	3.21E-09	1.13E-08	3.66E-05	1.02E-08	1.35E-06	9.94E-08	1.21E-06	2.52E-10	0.00E+00
Receptor 4	1.75E-04	2.34E-06	3.38E-09	1.19E-08	3.86E-05	1.08E-08	1.42E-06	1.05E-07	1.26E-06	2.40E-10	0.00E+00
Receptor 5	1.97E-04	2.63E-06	3.80E-09	1.34E-08	4.34E-05	1.21E-08	1.59E-06	1.18E-07	1.40E-06	2.52E-10	0.00E+00
Receptor 6	2.94E-04	3.92E-06	5.67E-09	2.00E-08	6.46E-05	1.80E-08	2.38E-06	1.75E-07	2.09E-06	3.64E-10	0.00E+00
Receptor 7	4.75E-04	6.35E-06	9.17E-09	3.23E-08	1.05E-04	2.92E-08	3.84E-06	2.84E-07	3.26E-06	4.04E-10	0.00E+00
Receptor 8	2.69E-05	3.59E-07	5.19E-10	1.83E-09	5.91E-06	1.65E-09	2.17E-07	1.60E-08	2.07E-07	5.79E-11	0.00E+00
Receptor 9	2.95E-05	3.94E-07	5.69E-10	2.01E-09	6.49E-06	1.81E-09	2.39E-07	1.76E-08	2.23E-07	5.84E-11	0.00E+00
Receptor 10	2.26E-05	3.02E-07	4.37E-10	1.54E-09	4.98E-06	1.39E-09	1.83E-07	1.35E-08	1.73E-07	4.68E-11	0.00E+00
Receptor 11	2.69E-05	3.59E-07	5.19E-10	1.83E-09	5.91E-06	1.65E-09	2.17E-07	1.61E-08	2.07E-07	5.80E-11	0.00E+00
Receptor 12	3.66E-05	4.89E-07	7.06E-10	2.49E-09	8.04E-06	2.24E-09	2.96E-07	2.18E-08	2.74E-07	6.78E-11	0.00E+00
Receptor 13	8.69E-05	1.16E-06	1.68E-09	5.91E-09	1.91E-05	5.34E-09	7.03E-07	5.19E-08	6.75E-07	1.99E-10	0.00E+00
Receptor 14	3.04E-04	4.06E-06	5.86E-09	2.07E-08	6.68E-05	1.86E-08	2.46E-06	1.81E-07	2.38E-06	7.26E-10	0.00E+00
Receptor 15	1.93E-04	2.58E-06	3.72E-09	1.31E-08	4.24E-05	1.18E-08	1.56E-06	1.15E-07	1.52E-06	4.70E-10	0.00E+00
Receptor 16	6.45E-05	8.62E-07	1.25E-09	4.39E-09	1.42E-05	3.96E-09	5.22E-07	3.85E-08	5.03E-07	1.50E-10	0.00E+00
Receptor 17	5.69E-05	7.60E-07	1.10E-09	3.87E-09	1.25E-05	3.49E-09	4.60E-07	3.40E-08	4.36E-07	1.21E-10	0.00E+00
Receptor 18	6.42E-05	8.58E-07	1.24E-09	4.37E-09	1.41E-05	3.94E-09	5.19E-07	3.83E-08	4.84E-07	1.23E-10	0.00E+00
Receptor 19	8.17E-05	1.09E-06	1.58E-09	5.56E-09	1.80E-05	5.01E-09	6.61E-07	4.88E-08	6.07E-07	1.43E-10	0.00E+00
Receptor 20	5.99E-05	8.01E-07	1.16E-09	4.08E-09	1.32E-05	3.68E-09	4.85E-07	3.58E-08	4.60E-07	1.28E-10	0.00E+00
Receptor 21	6.68E-05	8.93E-07	1.29E-09	4.55E-09	1.47E-05	4.10E-09	5.41E-07	3.99E-08	5.13E-07	1.43E-10	0.00E+00
Receptor 22	3.10E-04	4.14E-06	5.97E-09	2.11E-08	6.81E-05	1.90E-08	2.50E-06	1.85E-07	2.52E-06	8.86E-10	0.00E+00
Park	2.27E-04	3.04E-06	4.39E-09	1.55E-08	5.00E-05	1.40E-08	1.84E-06	1.36E-07	1.64E-06	3.25E-10	0.00E+00
Rankin 1	1.86E-04	2.48E-06	3.59E-09	1.27E-08	4.09E-05	1.14E-08	1.50E-06	1.11E-07	1.35E-06	2.77E-10	0.00E+00
Rankin 2	1.82E-04	2.43E-06	3.50E-09	1.23E-08	3.99E-05	1.11E-08	1.47E-06	1.08E-07	1.33E-06	2.81E-10	0.00E+00
Rankin 3	2.08E-04	2.78E-06	4.01E-09	1.41E-08	4.57E-05	1.28E-08	1.68E-06	1.24E-07	1.51E-06	3.05E-10	0.00E+00
Camp	4.70E-03	6.28E-05	9.07E-08	3.20E-07	1.03E-03	2.89E-07	3.80E-05	2.81E-06	3.93E-05	1.51E-08	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	3.37E-07	2.78E-08	3.10E-09	1.36E-08	1.02E-08	1.76E-10	4.04E-10	2.62E-09	9.50E-09	1.01E-08
Receptor 2	4.36E-08	3.60E-09	4.02E-10	1.76E-09	1.32E-09	2.28E-11	5.23E-11	3.39E-10	1.23E-09	1.31E-09
Receptor 3	9.96E-08	8.23E-09	9.18E-10	4.02E-09	3.01E-09	5.22E-11	1.19E-10	7.74E-10	2.81E-09	2.99E-09
Receptor 4	9.51E-08	7.86E-09	8.76E-10	3.83E-09	2.87E-09	4.98E-11	1.14E-10	7.39E-10	2.68E-09	2.85E-09
Receptor 5	9.96E-08	8.22E-09	9.17E-10	4.01E-09	3.00E-09	5.21E-11	1.19E-10	7.73E-10	2.81E-09	2.99E-09
Receptor 6	1.44E-07	1.19E-08	1.33E-09	5.81E-09	4.35E-09	7.54E-11	1.73E-10	1.12E-09	4.06E-09	4.33E-09
Receptor 7	1.60E-07	1.32E-08	1.47E-09	6.45E-09	4.83E-09	8.37E-11	1.92E-10	1.24E-09	4.51E-09	4.80E-09
Receptor 8	2.29E-08	1.89E-09	2.11E-10	9.24E-10	6.92E-10	1.20E-11	2.75E-11	1.78E-10	6.47E-10	6.88E-10
Receptor 9	2.31E-08	1.91E-09	2.13E-10	9.31E-10	6.97E-10	1.21E-11	2.77E-11	1.79E-10	6.51E-10	6.93E-10
Receptor 10	1.85E-08	1.53E-09	1.71E-10	7.47E-10	5.60E-10	9.71E-12	2.22E-11	1.44E-10	5.23E-10	5.56E-10
Receptor 11	2.29E-08	1.90E-09	2.11E-10	9.25E-10	6.93E-10	1.20E-11	2.75E-11	1.78E-10	6.47E-10	6.89E-10
Receptor 12	2.68E-08	2.22E-09	2.47E-10	1.08E-09	8.10E-10	1.40E-11	3.22E-11	2.08E-10	7.57E-10	8.05E-10
Receptor 13	7.87E-08	6.50E-09	7.25E-10	3.17E-09	2.37E-09	4.12E-11	9.43E-11	6.11E-10	2.22E-09	2.36E-09
Receptor 14	2.87E-07	2.37E-08	2.65E-09	1.16E-08	8.68E-09	1.50E-10	3.45E-10	2.23E-09	8.11E-09	8.63E-09
Receptor 15	1.86E-07	1.54E-08	1.71E-09	7.50E-09	5.62E-09	9.74E-11	2.23E-10	1.44E-09	5.25E-09	5.58E-09
Receptor 16	5.92E-08	4.89E-09	5.46E-10	2.39E-09	1.79E-09	3.10E-11	7.10E-11	4.60E-10	1.67E-09	1.78E-09
Receptor 17	4.77E-08	3.94E-09	4.39E-10	1.92E-09	1.44E-09	2.50E-11	5.72E-11	3.70E-10	1.35E-09	1.43E-09
Receptor 18	4.88E-08	4.03E-09	4.50E-10	1.97E-09	1.47E-09	2.56E-11	5.85E-11	3.79E-10	1.38E-09	1.47E-09
Receptor 19	5.64E-08	4.66E-09	5.20E-10	2.27E-09	1.70E-09	2.95E-11	6.76E-11	4.38E-10	1.59E-09	1.69E-09
Receptor 20	5.07E-08	4.19E-09	4.67E-10	2.04E-09	1.53E-09	2.65E-11	6.08E-11	3.94E-10	1.43E-09	1.52E-09
Receptor 21	5.67E-08	4.68E-09	5.22E-10	2.28E-09	1.71E-09	2.97E-11	6.79E-11	4.40E-10	1.60E-09	1.70E-09
Receptor 22	3.51E-07	2.90E-08	3.23E-09	1.41E-08	1.06E-08	1.84E-10	4.20E-10	2.72E-09	9.89E-09	1.05E-08
Park	1.29E-07	1.06E-08	1.19E-09	5.19E-09	3.88E-09	6.74E-11	1.54E-10	1.00E-09	3.63E-09	3.86E-09
Rankin 1	1.09E-07	9.04E-09	1.01E-09	4.41E-09	3.30E-09	5.73E-11	1.31E-10	8.50E-10	3.09E-09	3.29E-09
Rankin 2	1.11E-07	9.19E-09	1.02E-09	4.48E-09	3.36E-09	5.82E-11	1.33E-10	8.64E-10	3.14E-09	3.34E-09
Rankin 3	1.21E-07	9.98E-09	1.11E-09	4.87E-09	3.65E-09	6.33E-11	1.45E-10	9.39E-10	3.41E-09	3.63E-09
Camp	5.97E-06	4.93E-07	5.50E-08	2.41E-07	1.80E-07	3.13E-09	7.16E-09	4.64E-08	1.68E-07	1.79E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.88E-09	3.57E-11	2.13E-10	0.00E+00	4.54E-10	5.91E-10	3.76E-10
Receptor 2	2.43E-10	4.62E-12	2.76E-11	0.00E+00	5.88E-11	7.65E-11	4.86E-11
Receptor 3	5.55E-10	1.05E-11	6.31E-11	0.00E+00	1.34E-10	1.75E-10	1.11E-10
Receptor 4	5.30E-10	1.01E-11	6.03E-11	0.00E+00	1.28E-10	1.67E-10	1.06E-10
Receptor 5	5.55E-10	1.05E-11	6.31E-11	0.00E+00	1.34E-10	1.75E-10	1.11E-10
Receptor 6	8.03E-10	1.53E-11	9.13E-11	0.00E+00	1.94E-10	2.53E-10	1.61E-10
Receptor 7	8.91E-10	1.69E-11	1.01E-10	0.00E+00	2.16E-10	2.81E-10	1.78E-10
Receptor 8	1.28E-10	2.43E-12	1.45E-11	0.00E+00	3.09E-11	4.02E-11	2.56E-11
Receptor 9	1.29E-10	2.45E-12	1.46E-11	0.00E+00	3.11E-11	4.05E-11	2.58E-11
Receptor 10	1.03E-10	1.96E-12	1.17E-11	0.00E+00	2.50E-11	3.25E-11	2.07E-11
Receptor 11	1.28E-10	2.43E-12	1.45E-11	0.00E+00	3.09E-11	4.02E-11	2.56E-11
Receptor 12	1.49E-10	2.84E-12	1.70E-11	0.00E+00	3.62E-11	4.70E-11	2.99E-11
Receptor 13	4.38E-10	8.33E-12	4.99E-11	0.00E+00	1.06E-10	1.38E-10	8.77E-11
Receptor 14	1.60E-09	3.04E-11	1.82E-10	0.00E+00	3.87E-10	5.04E-10	3.20E-10
Receptor 15	1.04E-09	1.97E-11	1.18E-10	0.00E+00	2.51E-10	3.26E-10	2.07E-10
Receptor 16	3.30E-10	6.27E-12	3.75E-11	0.00E+00	7.98E-11	1.04E-10	6.60E-11
Receptor 17	2.66E-10	5.05E-12	3.02E-11	0.00E+00	6.43E-11	8.36E-11	5.32E-11
Receptor 18	2.72E-10	5.17E-12	3.09E-11	0.00E+00	6.58E-11	8.56E-11	5.44E-11
Receptor 19	3.14E-10	5.97E-12	3.57E-11	0.00E+00	7.60E-11	9.89E-11	6.29E-11
Receptor 20	2.82E-10	5.36E-12	3.21E-11	0.00E+00	6.83E-11	8.89E-11	5.65E-11
Receptor 21	3.16E-10	6.00E-12	3.59E-11	0.00E+00	7.64E-11	9.94E-11	6.32E-11
Receptor 22	1.95E-09	3.71E-11	2.22E-10	0.00E+00	4.73E-10	6.15E-10	3.91E-10
Park	7.17E-10	1.36E-11	8.16E-11	0.00E+00	1.73E-10	2.26E-10	1.44E-10
Rankin 1	6.10E-10	1.16E-11	6.94E-11	0.00E+00	1.48E-10	1.92E-10	1.22E-10
Rankin 2	6.20E-10	1.18E-11	7.05E-11	0.00E+00	1.50E-10	1.95E-10	1.24E-10
Rankin 3	6.73E-10	1.28E-11	7.66E-11	0.00E+00	1.63E-10	2.12E-10	1.35E-10
Camp	3.33E-08	6.32E-10	3.79E-09	0.00E+00	8.05E-09	1.05E-08	6.66E-09

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.26E-03	7.11E-08	2.02E-06	7.10E-06	1.32E-08	3.63E-09	3.68E-07	7.18E-04	3.08E-06	4.87E-07	1.29E-06
Receptor 2	1.84E-04	1.04E-08	2.94E-07	1.04E-06	1.93E-09	5.30E-10	5.13E-08	1.05E-04	4.49E-07	7.10E-08	1.88E-07
Receptor 3	4.37E-04	2.47E-08	7.00E-07	2.47E-06	4.59E-09	1.26E-09	1.16E-07	2.49E-04	1.07E-06	1.69E-07	4.47E-07
Receptor 4	4.52E-04	2.55E-08	7.24E-07	2.55E-06	4.75E-09	1.30E-09	1.07E-07	2.58E-04	1.10E-06	1.75E-07	4.62E-07
Receptor 5	5.04E-04	2.85E-08	8.09E-07	2.85E-06	5.30E-09	1.46E-09	1.08E-07	2.88E-04	1.23E-06	1.95E-07	5.16E-07
Receptor 6	6.76E-04	3.82E-08	1.08E-06	3.82E-06	7.11E-09	1.95E-09	1.51E-07	3.86E-04	1.65E-06	2.62E-07	6.92E-07
Receptor 7	7.26E-04	4.11E-08	1.16E-06	4.10E-06	7.63E-09	2.10E-09	1.60E-07	4.15E-04	1.77E-06	2.81E-07	7.43E-07
Receptor 8	9.95E-05	5.63E-09	1.60E-07	5.62E-07	1.05E-09	2.87E-10	2.86E-08	5.68E-05	2.44E-07	3.85E-08	1.02E-07
Receptor 9	1.03E-04	5.84E-09	1.66E-07	5.84E-07	1.09E-09	2.99E-10	2.73E-08	5.90E-05	2.53E-07	4.00E-08	1.06E-07
Receptor 10	9.09E-05	5.14E-09	1.46E-07	5.13E-07	9.55E-10	2.62E-10	2.25E-08	5.19E-05	2.22E-07	3.52E-08	9.30E-08
Receptor 11	9.95E-05	5.63E-09	1.60E-07	5.62E-07	1.05E-09	2.87E-10	2.86E-08	5.68E-05	2.44E-07	3.85E-08	1.02E-07
Receptor 12	1.22E-04	6.91E-09	1.96E-07	6.90E-07	1.28E-09	3.53E-10	3.23E-08	6.97E-05	2.99E-07	4.73E-08	1.25E-07
Receptor 13	7.17E-04	4.06E-08	1.15E-06	4.05E-06	7.54E-09	2.07E-09	1.11E-07	4.09E-04	1.74E-06	2.77E-07	7.34E-07
Receptor 14	2.26E-03	1.28E-07	3.63E-06	1.28E-05	2.38E-08	6.53E-09	4.41E-07	1.29E-03	5.50E-06	8.75E-07	2.31E-06
Receptor 15	2.06E-03	1.17E-07	3.31E-06	1.17E-05	2.17E-08	5.96E-09	3.21E-07	1.18E-03	5.01E-06	7.99E-07	2.11E-06
Receptor 16	2.74E-03	1.55E-07	4.39E-06	1.55E-05	2.88E-08	7.91E-09	2.18E-07	1.56E-03	6.61E-06	1.06E-06	2.80E-06
Receptor 17	1.12E-03	6.32E-08	1.79E-06	6.31E-06	1.17E-08	3.23E-09	1.19E-07	6.37E-04	2.70E-06	4.32E-07	1.14E-06
Receptor 18	1.06E-03	6.02E-08	1.71E-06	6.01E-06	1.12E-08	3.07E-09	1.13E-07	6.07E-04	2.57E-06	4.12E-07	1.09E-06
Receptor 19	1.27E-03	7.20E-08	2.04E-06	7.19E-06	1.34E-08	3.68E-09	1.23E-07	7.27E-04	3.08E-06	4.93E-07	1.30E-06
Receptor 20	7.60E-04	4.30E-08	1.22E-06	4.29E-06	7.99E-09	2.20E-09	1.09E-07	4.34E-04	1.84E-06	2.94E-07	7.78E-07
Receptor 21	1.00E-03	5.67E-08	1.61E-06	5.66E-06	1.05E-08	2.90E-09	1.45E-07	5.72E-04	2.43E-06	3.88E-07	1.03E-06
Receptor 22	1.89E-03	1.07E-07	3.03E-06	1.07E-05	1.98E-08	5.45E-09	4.92E-07	1.08E-03	4.62E-06	7.31E-07	1.93E-06
Park	6.28E-04	3.55E-08	1.01E-06	3.55E-06	6.60E-09	1.81E-09	1.40E-07	3.58E-04	1.53E-06	2.43E-07	6.43E-07
Rankin 1	7.83E-04	4.43E-08	1.26E-06	4.42E-06	8.23E-09	2.26E-09	1.36E-07	4.47E-04	1.90E-06	3.03E-07	8.02E-07
Rankin 2	7.72E-04	4.37E-08	1.24E-06	4.36E-06	8.12E-09	2.23E-09	1.39E-07	4.41E-04	1.88E-06	2.99E-07	7.90E-07
Rankin 3	8.61E-04	4.87E-08	1.38E-06	4.86E-06	9.05E-09	2.49E-09	1.50E-07	4.91E-04	2.09E-06	3.33E-07	8.81E-07
Camp	1.87E-02	1.06E-06	3.00E-05	1.06E-04	1.96E-07	5.40E-08	8.06E-06	1.07E-02	4.62E-05	7.23E-06	1.91E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.41E-09	1.38E-03	2.78E-07	5.87E-07	3.81E-04	1.43E-05	2.18E-08	1.26E-06	2.41E-04	2.17E-08	5.35E-09
Receptor 2	2.05E-10	2.01E-04	4.01E-08	8.57E-08	5.56E-05	2.09E-06	3.18E-09	1.84E-07	3.52E-05	3.17E-09	7.81E-10
Receptor 3	4.88E-10	4.79E-04	9.44E-08	2.04E-07	1.32E-04	4.97E-06	7.57E-09	4.38E-07	8.36E-05	7.55E-09	1.86E-09
Receptor 4	5.05E-10	4.96E-04	9.55E-08	2.11E-07	1.37E-04	5.14E-06	7.82E-09	4.53E-07	8.65E-05	7.81E-09	1.92E-09
Receptor 5	5.64E-10	5.54E-04	1.05E-07	2.35E-07	1.53E-04	5.74E-06	8.74E-09	5.06E-07	9.66E-05	8.72E-09	2.14E-09
Receptor 6	7.56E-10	7.42E-04	1.41E-07	3.16E-07	2.05E-04	7.70E-06	1.17E-08	6.79E-07	1.30E-04	1.17E-08	2.88E-09
Receptor 7	8.12E-10	7.97E-04	1.52E-07	3.39E-07	2.20E-04	8.27E-06	1.26E-08	7.29E-07	1.39E-04	1.26E-08	3.09E-09
Receptor 8	1.11E-10	1.09E-04	2.19E-08	4.64E-08	3.01E-05	1.13E-06	1.72E-09	9.99E-08	1.91E-05	1.72E-09	4.23E-10
Receptor 9	1.16E-10	1.13E-04	2.23E-08	4.83E-08	3.13E-05	1.18E-06	1.79E-09	1.04E-07	1.98E-05	1.79E-09	4.40E-10
Receptor 10	1.02E-10	9.97E-05	1.94E-08	4.24E-08	2.75E-05	1.03E-06	1.57E-09	9.12E-08	1.74E-05	1.57E-09	3.86E-10
Receptor 11	1.11E-10	1.09E-04	2.19E-08	4.65E-08	3.01E-05	1.13E-06	1.72E-09	9.99E-08	1.91E-05	1.72E-09	4.23E-10
Receptor 12	1.37E-10	1.34E-04	2.64E-08	5.70E-08	3.70E-05	1.39E-06	2.12E-09	1.23E-07	2.34E-05	2.11E-09	5.20E-10
Receptor 13	8.02E-10	7.87E-04	1.42E-07	3.35E-07	2.17E-04	8.16E-06	1.24E-08	7.20E-07	1.37E-04	1.24E-08	3.05E-09
Receptor 14	2.53E-09	2.48E-03	4.62E-07	1.06E-06	6.85E-04	2.57E-05	3.92E-08	2.27E-06	4.33E-04	3.91E-08	9.62E-09
Receptor 15	2.31E-09	2.27E-03	4.08E-07	9.64E-07	6.25E-04	2.35E-05	3.58E-08	2.07E-06	3.96E-04	3.57E-08	8.78E-09
Receptor 16	3.06E-09	3.00E-03	5.07E-07	1.28E-06	8.29E-04	3.12E-05	4.74E-08	2.75E-06	5.24E-04	4.73E-08	1.16E-08
Receptor 17	1.25E-09	1.23E-03	2.12E-07	5.21E-07	3.38E-04	1.27E-05	1.94E-08	1.12E-06	2.14E-04	1.93E-08	4.75E-09
Receptor 18	1.19E-09	1.17E-03	2.02E-07	4.97E-07	3.22E-04	1.21E-05	1.84E-08	1.07E-06	2.04E-04	1.84E-08	4.53E-09
Receptor 19	1.42E-09	1.40E-03	2.39E-07	5.95E-07	3.86E-04	1.45E-05	2.21E-08	1.28E-06	2.44E-04	2.20E-08	5.42E-09
Receptor 20	8.50E-10	8.34E-04	1.49E-07	3.55E-07	2.30E-04	8.65E-06	1.32E-08	7.63E-07	1.46E-04	1.31E-08	3.23E-09
Receptor 21	1.12E-09	1.10E-03	1.96E-07	4.68E-07	3.04E-04	1.14E-05	1.74E-08	1.01E-06	1.92E-04	1.73E-08	4.26E-09
Receptor 22	2.11E-09	2.07E-03	4.07E-07	8.82E-07	5.72E-04	2.15E-05	3.27E-08	1.90E-06	3.62E-04	3.26E-08	8.03E-09
Park	7.02E-10	6.89E-04	1.31E-07	2.93E-07	1.90E-04	7.15E-06	1.09E-08	6.30E-07	1.20E-04	1.09E-08	2.67E-09
Rankin 1	8.76E-10	8.60E-04	1.57E-07	3.66E-07	2.37E-04	8.92E-06	1.36E-08	7.86E-07	1.50E-04	1.35E-08	3.33E-09
Rankin 2	8.64E-10	8.48E-04	1.56E-07	3.61E-07	2.34E-04	8.79E-06	1.34E-08	7.75E-07	1.48E-04	1.33E-08	3.28E-09
Rankin 3	9.63E-10	9.45E-04	1.73E-07	4.02E-07	2.61E-04	9.80E-06	1.49E-08	8.64E-07	1.65E-04	1.49E-08	3.66E-09
Camp	2.09E-08	2.05E-02	4.55E-06	8.72E-06	5.66E-03	2.13E-04	3.24E-07	1.88E-05	3.58E-03	3.23E-07	7.95E-08

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.88E-04	3.85E-06	5.56E-09	1.96E-08	6.33E-05	1.77E-08	2.33E-06	1.72E-07	2.24E-06	6.66E-10	0.00E+00
Receptor 2	4.20E-05	5.61E-07	8.10E-10	2.86E-09	9.24E-06	2.58E-09	3.40E-07	2.51E-08	3.24E-07	9.27E-11	0.00E+00
Receptor 3	9.99E-05	1.34E-06	1.93E-09	6.80E-09	2.20E-05	6.13E-09	8.08E-07	5.97E-08	7.65E-07	2.10E-10	0.00E+00
Receptor 4	1.03E-04	1.38E-06	1.99E-09	7.03E-09	2.27E-05	6.34E-09	8.36E-07	6.17E-08	7.76E-07	1.94E-10	0.00E+00
Receptor 5	1.15E-04	1.54E-06	2.23E-09	7.85E-09	2.54E-05	7.08E-09	9.34E-07	6.89E-08	8.52E-07	1.94E-10	0.00E+00
Receptor 6	1.55E-04	2.07E-06	2.99E-09	1.05E-08	3.40E-05	9.50E-09	1.25E-06	9.24E-08	1.15E-06	2.72E-10	0.00E+00
Receptor 7	1.66E-04	2.22E-06	3.21E-09	1.13E-08	3.66E-05	1.02E-08	1.34E-06	9.92E-08	1.23E-06	2.89E-10	0.00E+00
Receptor 8	2.28E-05	3.04E-07	4.39E-10	1.55E-09	5.01E-06	1.40E-09	1.84E-07	1.36E-08	1.77E-07	5.18E-11	0.00E+00
Receptor 9	2.37E-05	3.16E-07	4.56E-10	1.61E-09	5.20E-06	1.45E-09	1.91E-07	1.41E-08	1.81E-07	4.94E-11	0.00E+00
Receptor 10	2.08E-05	2.78E-07	4.01E-10	1.41E-09	4.57E-06	1.28E-09	1.68E-07	1.24E-08	1.57E-07	4.06E-11	0.00E+00
Receptor 11	2.28E-05	3.04E-07	4.39E-10	1.55E-09	5.01E-06	1.40E-09	1.84E-07	1.36E-08	1.77E-07	5.18E-11	0.00E+00
Receptor 12	2.80E-05	3.74E-07	5.40E-10	1.90E-09	6.15E-06	1.72E-09	2.26E-07	1.67E-08	2.14E-07	5.84E-11	0.00E+00
Receptor 13	1.64E-04	2.19E-06	3.17E-09	1.12E-08	3.61E-05	1.01E-08	1.33E-06	9.80E-08	1.16E-06	1.99E-10	0.00E+00
Receptor 14	5.17E-04	6.91E-06	9.98E-09	3.52E-08	1.14E-04	3.18E-08	4.19E-06	3.09E-07	3.77E-06	7.93E-10	0.00E+00
Receptor 15	4.73E-04	6.31E-06	9.12E-09	3.21E-08	1.04E-04	2.90E-08	3.82E-06	2.82E-07	3.35E-06	5.75E-10	0.00E+00
Receptor 16	6.26E-04	8.37E-06	1.21E-08	4.26E-08	1.38E-04	3.85E-08	5.07E-06	3.74E-07	4.20E-06	3.81E-10	0.00E+00
Receptor 17	2.56E-04	3.41E-06	4.93E-09	1.74E-08	5.62E-05	1.57E-08	2.07E-06	1.53E-07	1.75E-06	2.10E-10	0.00E+00
Receptor 18	2.43E-04	3.25E-06	4.70E-09	1.66E-08	5.36E-05	1.49E-08	1.97E-06	1.45E-07	1.66E-06	2.00E-10	0.00E+00
Receptor 19	2.91E-04	3.89E-06	5.62E-09	1.98E-08	6.41E-05	1.79E-08	2.36E-06	1.74E-07	1.98E-06	2.17E-10	0.00E+00
Receptor 20	1.74E-04	2.32E-06	3.36E-09	1.18E-08	3.83E-05	1.07E-08	1.41E-06	1.04E-07	1.22E-06	1.95E-10	0.00E+00
Receptor 21	2.29E-04	3.07E-06	4.43E-09	1.56E-08	5.05E-05	1.41E-08	1.86E-06	1.37E-07	1.61E-06	2.58E-10	0.00E+00
Receptor 22	4.32E-04	5.77E-06	8.34E-09	2.94E-08	9.51E-05	2.65E-08	3.50E-06	2.58E-07	3.30E-06	8.90E-10	0.00E+00
Park	1.44E-04	1.92E-06	2.77E-09	9.78E-09	3.16E-05	8.82E-09	1.16E-06	8.58E-08	1.07E-06	2.52E-10	0.00E+00
Rankin 1	1.79E-04	2.40E-06	3.46E-09	1.22E-08	3.94E-05	1.10E-08	1.45E-06	1.07E-07	1.29E-06	2.44E-10	0.00E+00
Rankin 2	1.77E-04	2.36E-06	3.41E-09	1.20E-08	3.89E-05	1.08E-08	1.43E-06	1.06E-07	1.27E-06	2.49E-10	0.00E+00
Rankin 3	1.97E-04	2.63E-06	3.80E-09	1.34E-08	4.33E-05	1.21E-08	1.59E-06	1.18E-07	1.42E-06	2.69E-10	0.00E+00
Camp	4.27E-03	5.71E-05	8.25E-08	2.91E-07	9.41E-04	2.62E-07	3.46E-05	2.55E-06	3.63E-05	1.47E-08	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.64E-07	2.18E-08	2.43E-09	1.06E-08	7.95E-09	1.38E-10	3.16E-10	2.05E-09	7.43E-09	7.91E-09
Receptor 2	3.67E-08	3.03E-09	3.38E-10	1.48E-09	1.11E-09	1.92E-11	4.40E-11	2.85E-10	1.03E-09	1.10E-09
Receptor 3	8.32E-08	6.87E-09	7.67E-10	3.35E-09	2.51E-09	4.36E-11	9.98E-11	6.46E-10	2.35E-09	2.50E-09
Receptor 4	7.68E-08	6.34E-09	7.07E-10	3.09E-09	2.32E-09	4.02E-11	9.20E-11	5.96E-10	2.16E-09	2.30E-09
Receptor 5	7.68E-08	6.35E-09	7.08E-10	3.10E-09	2.32E-09	4.02E-11	9.21E-11	5.97E-10	2.17E-09	2.31E-09
Receptor 6	1.08E-07	8.91E-09	9.93E-10	4.34E-09	3.25E-09	5.64E-11	1.29E-10	8.37E-10	3.04E-09	3.24E-09
Receptor 7	1.14E-07	9.44E-09	1.05E-09	4.60E-09	3.45E-09	5.98E-11	1.37E-10	8.87E-10	3.22E-09	3.43E-09
Receptor 8	2.05E-08	1.69E-09	1.89E-10	8.25E-10	6.18E-10	1.07E-11	2.46E-11	1.59E-10	5.78E-10	6.15E-10
Receptor 9	1.95E-08	1.61E-09	1.80E-10	7.87E-10	5.89E-10	1.02E-11	2.34E-11	1.52E-10	5.51E-10	5.86E-10
Receptor 10	1.61E-08	1.33E-09	1.48E-10	6.48E-10	4.85E-10	8.42E-12	1.93E-11	1.25E-10	4.54E-10	4.83E-10
Receptor 11	2.05E-08	1.69E-09	1.89E-10	8.26E-10	6.19E-10	1.07E-11	2.46E-11	1.59E-10	5.78E-10	6.15E-10
Receptor 12	2.31E-08	1.91E-09	2.13E-10	9.32E-10	6.98E-10	1.21E-11	2.77E-11	1.80E-10	6.52E-10	6.94E-10
Receptor 13	7.89E-08	6.52E-09	7.27E-10	3.18E-09	2.38E-09	4.13E-11	9.46E-11	6.12E-10	2.22E-09	2.37E-09
Receptor 14	3.14E-07	2.59E-08	2.89E-09	1.26E-08	9.47E-09	1.64E-10	3.76E-10	2.44E-09	8.85E-09	9.41E-09
Receptor 15	2.27E-07	1.88E-08	2.10E-09	9.16E-09	6.86E-09	1.19E-10	2.73E-10	1.77E-09	6.41E-09	6.82E-09
Receptor 16	1.51E-07	1.24E-08	1.39E-09	6.07E-09	4.55E-09	7.88E-11	1.81E-10	1.17E-09	4.25E-09	4.52E-09
Receptor 17	8.30E-08	6.85E-09	7.64E-10	3.34E-09	2.50E-09	4.34E-11	9.95E-11	6.44E-10	2.34E-09	2.49E-09
Receptor 18	7.90E-08	6.52E-09	7.28E-10	3.18E-09	2.38E-09	4.14E-11	9.47E-11	6.13E-10	2.23E-09	2.37E-09
Receptor 19	8.60E-08	7.10E-09	7.92E-10	3.46E-09	2.60E-09	4.50E-11	1.03E-10	6.68E-10	2.43E-09	2.58E-09
Receptor 20	7.70E-08	6.36E-09	7.09E-10	3.10E-09	2.32E-09	4.03E-11	9.23E-11	5.98E-10	2.17E-09	2.31E-09
Receptor 21	1.02E-07	8.45E-09	9.42E-10	4.12E-09	3.09E-09	5.35E-11	1.23E-10	7.94E-10	2.88E-09	3.07E-09
Receptor 22	3.52E-07	2.91E-08	3.24E-09	1.42E-08	1.06E-08	1.84E-10	4.22E-10	2.73E-09	9.93E-09	1.06E-08
Park	9.96E-08	8.23E-09	9.18E-10	4.02E-09	3.01E-09	5.22E-11	1.19E-10	7.74E-10	2.81E-09	2.99E-09
Rankin 1	9.66E-08	7.98E-09	8.90E-10	3.89E-09	2.91E-09	5.06E-11	1.16E-10	7.50E-10	2.72E-09	2.90E-09
Rankin 2	9.87E-08	8.15E-09	9.09E-10	3.98E-09	2.98E-09	5.17E-11	1.18E-10	7.66E-10	2.78E-09	2.96E-09
Rankin 3	1.07E-07	8.81E-09	9.82E-10	4.30E-09	3.22E-09	5.58E-11	1.28E-10	8.28E-10	3.01E-09	3.20E-09
Camp	5.80E-06	4.79E-07	5.34E-08	2.34E-07	1.75E-07	3.04E-09	6.95E-09	4.50E-08	1.64E-07	1.74E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.47E-09	2.79E-11	1.67E-10	0.00E+00	3.55E-10	4.62E-10	2.94E-10
Receptor 2	2.04E-10	3.88E-12	2.33E-11	0.00E+00	4.95E-11	6.43E-11	4.09E-11
Receptor 3	4.64E-10	8.81E-12	5.27E-11	0.00E+00	1.12E-10	1.46E-10	9.28E-11
Receptor 4	4.28E-10	8.13E-12	4.86E-11	0.00E+00	1.03E-10	1.35E-10	8.56E-11
Receptor 5	4.28E-10	8.13E-12	4.87E-11	0.00E+00	1.04E-10	1.35E-10	8.57E-11
Receptor 6	6.01E-10	1.14E-11	6.83E-11	0.00E+00	1.45E-10	1.89E-10	1.20E-10
Receptor 7	6.37E-10	1.21E-11	7.24E-11	0.00E+00	1.54E-10	2.00E-10	1.27E-10
Receptor 8	1.14E-10	2.17E-12	1.30E-11	0.00E+00	2.76E-11	3.59E-11	2.28E-11
Receptor 9	1.09E-10	2.07E-12	1.24E-11	0.00E+00	2.63E-11	3.42E-11	2.18E-11
Receptor 10	8.96E-11	1.70E-12	1.02E-11	0.00E+00	2.17E-11	2.82E-11	1.79E-11
Receptor 11	1.14E-10	2.17E-12	1.30E-11	0.00E+00	2.76E-11	3.59E-11	2.29E-11
Receptor 12	1.29E-10	2.45E-12	1.47E-11	0.00E+00	3.12E-11	4.05E-11	2.58E-11
Receptor 13	4.39E-10	8.35E-12	5.00E-11	0.00E+00	1.06E-10	1.38E-10	8.79E-11
Receptor 14	1.75E-09	3.32E-11	1.99E-10	0.00E+00	4.23E-10	5.50E-10	3.50E-10
Receptor 15	1.27E-09	2.41E-11	1.44E-10	0.00E+00	3.06E-10	3.99E-10	2.54E-10
Receptor 16	8.39E-10	1.59E-11	9.54E-11	0.00E+00	2.03E-10	2.64E-10	1.68E-10
Receptor 17	4.62E-10	8.78E-12	5.26E-11	0.00E+00	1.12E-10	1.46E-10	9.25E-11
Receptor 18	4.40E-10	8.36E-12	5.01E-11	0.00E+00	1.06E-10	1.39E-10	8.81E-11
Receptor 19	4.79E-10	9.10E-12	5.45E-11	0.00E+00	1.16E-10	1.51E-10	9.59E-11
Receptor 20	4.29E-10	8.15E-12	4.88E-11	0.00E+00	1.04E-10	1.35E-10	8.58E-11
Receptor 21	5.70E-10	1.08E-11	6.48E-11	0.00E+00	1.38E-10	1.79E-10	1.14E-10
Receptor 22	1.96E-09	3.73E-11	2.23E-10	0.00E+00	4.75E-10	6.18E-10	3.93E-10
Park	5.55E-10	1.05E-11	6.31E-11	0.00E+00	1.34E-10	1.75E-10	1.11E-10
Rankin 1	5.38E-10	1.02E-11	6.12E-11	0.00E+00	1.30E-10	1.69E-10	1.08E-10
Rankin 2	5.50E-10	1.04E-11	6.25E-11	0.00E+00	1.33E-10	1.73E-10	1.10E-10
Rankin 3	5.94E-10	1.13E-11	6.76E-11	0.00E+00	1.44E-10	1.87E-10	1.19E-10
Camp	3.23E-08	6.14E-10	3.67E-09	0.00E+00	7.82E-09	1.02E-08	6.47E-09

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.06E-03	1.16E-07	3.30E-06	1.16E-05	2.16E-08	5.94E-09	4.52E-07	1.17E-03	5.02E-06	7.96E-07	2.11E-06
Receptor 2	2.27E-04	1.28E-08	3.63E-07	1.28E-06	2.38E-09	6.54E-10	6.02E-08	1.29E-04	5.54E-07	8.77E-08	2.32E-07
Receptor 3	6.69E-04	3.78E-08	1.07E-06	3.78E-06	7.03E-09	1.93E-09	1.39E-07	3.82E-04	1.63E-06	2.59E-07	6.85E-07
Receptor 4	6.75E-04	3.81E-08	1.08E-06	3.81E-06	7.09E-09	1.95E-09	1.31E-07	3.85E-04	1.64E-06	2.61E-07	6.90E-07
Receptor 5	7.19E-04	4.07E-08	1.15E-06	4.06E-06	7.56E-09	2.08E-09	1.33E-07	4.10E-04	1.75E-06	2.78E-07	7.36E-07
Receptor 6	1.09E-03	6.14E-08	1.74E-06	6.13E-06	1.14E-08	3.14E-09	1.91E-07	6.20E-04	2.64E-06	4.20E-07	1.11E-06
Receptor 7	1.53E-03	8.65E-08	2.45E-06	8.64E-06	1.61E-08	4.42E-09	2.11E-07	8.73E-04	3.71E-06	5.92E-07	1.57E-06
Receptor 8	9.66E-05	5.46E-09	1.55E-07	5.45E-07	1.01E-09	2.79E-10	3.11E-08	5.51E-05	2.37E-07	3.74E-08	9.88E-08
Receptor 9	1.08E-04	6.12E-09	1.74E-07	6.11E-07	1.14E-09	3.13E-10	3.08E-08	6.18E-05	2.65E-07	4.19E-08	1.11E-07
Receptor 10	8.64E-05	4.89E-09	1.39E-07	4.88E-07	9.08E-10	2.50E-10	2.45E-08	4.93E-05	2.12E-07	3.34E-08	8.85E-08
Receptor 11	9.66E-05	5.46E-09	1.55E-07	5.45E-07	1.02E-09	2.79E-10	3.11E-08	5.51E-05	2.37E-07	3.74E-08	9.89E-08
Receptor 12	1.30E-04	7.37E-09	2.09E-07	7.36E-07	1.37E-09	3.76E-10	3.61E-08	7.44E-05	3.19E-07	5.04E-08	1.33E-07
Receptor 13	3.40E-04	1.92E-08	5.45E-07	1.92E-06	3.57E-09	9.82E-10	1.06E-07	1.94E-04	8.34E-07	1.32E-07	3.48E-07
Receptor 14	1.44E-03	8.16E-08	2.31E-06	8.15E-06	1.52E-08	4.17E-09	4.16E-07	8.24E-04	3.53E-06	5.58E-07	1.48E-06
Receptor 15	9.30E-04	5.26E-08	1.49E-06	5.25E-06	9.77E-09	2.68E-09	2.72E-07	5.31E-04	2.28E-06	3.60E-07	9.51E-07
Receptor 16	2.82E-04	1.59E-08	4.52E-07	1.59E-06	2.96E-09	8.14E-10	8.34E-08	1.61E-04	6.90E-07	1.09E-07	2.88E-07
Receptor 17	2.40E-04	1.36E-08	3.85E-07	1.36E-06	2.53E-09	6.94E-10	6.67E-08	1.37E-04	5.88E-07	9.30E-08	2.46E-07
Receptor 18	2.61E-04	1.48E-08	4.19E-07	1.48E-06	2.75E-09	7.55E-10	6.78E-08	1.49E-04	6.39E-07	1.01E-07	2.67E-07
Receptor 19	3.19E-04	1.81E-08	5.12E-07	1.80E-06	3.36E-09	9.22E-10	7.72E-08	1.82E-04	7.79E-07	1.24E-07	3.27E-07
Receptor 20	2.39E-04	1.35E-08	3.84E-07	1.35E-06	2.51E-09	6.91E-10	6.97E-08	1.37E-04	5.86E-07	9.25E-08	2.45E-07
Receptor 21	2.62E-04	1.48E-08	4.20E-07	1.48E-06	2.75E-09	7.56E-10	7.74E-08	1.49E-04	6.41E-07	1.01E-07	2.68E-07
Receptor 22	1.49E-03	8.43E-08	2.39E-06	8.42E-06	1.57E-08	4.30E-09	4.99E-07	8.51E-04	3.66E-06	5.77E-07	1.53E-06
Park	7.84E-04	4.43E-08	1.26E-06	4.43E-06	8.24E-09	2.26E-09	1.61E-07	4.47E-04	1.91E-06	3.03E-07	8.02E-07
Rankin 1	6.48E-04	3.67E-08	1.04E-06	3.66E-06	6.81E-09	1.87E-09	1.41E-07	3.70E-04	1.58E-06	2.51E-07	6.64E-07
Rankin 2	6.36E-04	3.60E-08	1.02E-06	3.59E-06	6.68E-09	1.84E-09	1.44E-07	3.63E-04	1.55E-06	2.46E-07	6.51E-07
Rankin 3	7.24E-04	4.09E-08	1.16E-06	4.09E-06	7.61E-09	2.09E-09	1.56E-07	4.13E-04	1.76E-06	2.80E-07	7.41E-07
Camp	2.14E-02	1.21E-06	3.44E-05	1.21E-04	2.25E-07	6.19E-08	8.49E-06	1.22E-02	5.29E-05	8.29E-06	2.19E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.30E-09	2.26E-03	4.29E-07	9.61E-07	6.23E-04	2.34E-05	3.56E-08	2.07E-06	3.94E-04	3.56E-08	8.75E-09
Receptor 2	2.53E-10	2.49E-04	4.90E-08	1.06E-07	6.86E-05	2.58E-06	3.93E-09	2.27E-07	4.34E-05	3.92E-09	9.64E-10
Receptor 3	7.48E-10	7.34E-04	1.38E-07	3.12E-07	2.03E-04	7.61E-06	1.16E-08	6.72E-07	1.28E-04	1.16E-08	2.85E-09
Receptor 4	7.54E-10	7.40E-04	1.38E-07	3.15E-07	2.04E-04	7.68E-06	1.17E-08	6.77E-07	1.29E-04	1.17E-08	2.87E-09
Receptor 5	8.04E-10	7.89E-04	1.46E-07	3.36E-07	2.18E-04	8.18E-06	1.25E-08	7.22E-07	1.38E-04	1.24E-08	3.06E-09
Receptor 6	1.21E-09	1.19E-03	2.18E-07	5.07E-07	3.29E-04	1.24E-05	1.88E-08	1.09E-06	2.08E-04	1.88E-08	4.62E-09
Receptor 7	1.71E-09	1.68E-03	2.98E-07	7.14E-07	4.63E-04	1.74E-05	2.65E-08	1.54E-06	2.93E-04	2.64E-08	6.50E-09
Receptor 8	1.08E-10	1.06E-04	2.18E-08	4.51E-08	2.92E-05	1.10E-06	1.67E-09	9.69E-08	1.85E-05	1.67E-09	4.11E-10
Receptor 9	1.21E-10	1.19E-04	2.37E-08	5.05E-08	3.28E-05	1.23E-06	1.88E-09	1.09E-07	2.07E-05	1.87E-09	4.60E-10
Receptor 10	9.67E-11	9.49E-05	1.89E-08	4.04E-08	2.62E-05	9.84E-07	1.50E-09	8.68E-08	1.66E-05	1.49E-09	3.68E-10
Receptor 11	1.08E-10	1.06E-04	2.18E-08	4.51E-08	2.92E-05	1.10E-06	1.67E-09	9.70E-08	1.85E-05	1.67E-09	4.11E-10
Receptor 12	1.46E-10	1.43E-04	2.84E-08	6.08E-08	3.94E-05	1.48E-06	2.26E-09	1.31E-07	2.50E-05	2.25E-09	5.54E-10
Receptor 13	3.80E-10	3.73E-04	7.61E-08	1.59E-07	1.03E-04	3.87E-06	5.89E-09	3.41E-07	6.51E-05	5.88E-09	1.45E-09
Receptor 14	1.61E-09	1.58E-03	3.17E-07	6.74E-07	4.37E-04	1.64E-05	2.50E-08	1.45E-06	2.76E-04	2.49E-08	6.14E-09
Receptor 15	1.04E-09	1.02E-03	2.05E-07	4.34E-07	2.81E-04	1.06E-05	1.61E-08	9.33E-07	1.78E-04	1.61E-08	3.95E-09
Receptor 16	3.15E-10	3.09E-04	6.23E-08	1.32E-07	8.53E-05	3.21E-06	4.88E-09	2.83E-07	5.40E-05	4.87E-09	1.20E-09
Receptor 17	2.69E-10	2.64E-04	5.24E-08	1.12E-07	7.28E-05	2.74E-06	4.16E-09	2.41E-07	4.60E-05	4.15E-09	1.02E-09
Receptor 18	2.92E-10	2.87E-04	5.62E-08	1.22E-07	7.91E-05	2.97E-06	4.53E-09	2.62E-07	5.01E-05	4.52E-09	1.11E-09
Receptor 19	3.57E-10	3.50E-04	6.77E-08	1.49E-07	9.67E-05	3.63E-06	5.53E-09	3.20E-07	6.12E-05	5.52E-09	1.36E-09
Receptor 20	2.67E-10	2.63E-04	5.27E-08	1.12E-07	7.24E-05	2.72E-06	4.14E-09	2.40E-07	4.58E-05	4.13E-09	1.02E-09
Receptor 21	2.93E-10	2.87E-04	5.78E-08	1.22E-07	7.92E-05	2.98E-06	4.53E-09	2.63E-07	5.01E-05	4.52E-09	1.11E-09
Receptor 22	1.67E-09	1.64E-03	3.39E-07	6.96E-07	4.51E-04	1.70E-05	2.58E-08	1.50E-06	2.86E-04	2.58E-08	6.34E-09
Park	8.76E-10	8.60E-04	1.62E-07	3.66E-07	2.37E-04	8.92E-06	1.36E-08	7.87E-07	1.50E-04	1.35E-08	3.33E-09
Rankin 1	7.25E-10	7.12E-04	1.35E-07	3.03E-07	1.96E-04	7.38E-06	1.12E-08	6.51E-07	1.24E-04	1.12E-08	2.76E-09
Rankin 2	7.11E-10	6.98E-04	1.33E-07	2.97E-07	1.93E-04	7.24E-06	1.10E-08	6.38E-07	1.22E-04	1.10E-08	2.70E-09
Rankin 3	8.09E-10	7.95E-04	1.50E-07	3.38E-07	2.19E-04	8.24E-06	1.25E-08	7.27E-07	1.39E-04	1.25E-08	3.08E-09
Camp	2.40E-08	2.35E-02	5.10E-06	1.00E-05	6.49E-03	2.44E-04	3.71E-07	2.15E-05	4.11E-03	3.70E-07	9.11E-08

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	4.71E-04	6.29E-06	9.09E-09	3.20E-08	1.04E-04	2.89E-08	3.81E-06	2.81E-07	3.49E-06	8.15E-10	0.00E+00
Receptor 2	5.18E-05	6.93E-07	1.00E-09	3.53E-09	1.14E-05	3.18E-09	4.19E-07	3.10E-08	3.97E-07	1.09E-10	0.00E+00
Receptor 3	1.53E-04	2.05E-06	2.95E-09	1.04E-08	3.37E-05	9.40E-09	1.24E-06	9.14E-08	1.13E-06	2.51E-10	0.00E+00
Receptor 4	1.54E-04	2.06E-06	2.98E-09	1.05E-08	3.40E-05	9.48E-09	1.25E-06	9.22E-08	1.13E-06	2.36E-10	0.00E+00
Receptor 5	1.65E-04	2.20E-06	3.18E-09	1.12E-08	3.62E-05	1.01E-08	1.33E-06	9.82E-08	1.19E-06	2.39E-10	0.00E+00
Receptor 6	2.48E-04	3.32E-06	4.79E-09	1.69E-08	5.47E-05	1.52E-08	2.01E-06	1.48E-07	1.79E-06	3.42E-10	0.00E+00
Receptor 7	3.50E-04	4.68E-06	6.75E-09	2.38E-08	7.70E-05	2.15E-08	2.83E-06	2.09E-07	2.45E-06	3.76E-10	0.00E+00
Receptor 8	2.21E-05	2.95E-07	4.26E-10	1.50E-09	4.86E-06	1.36E-09	1.79E-07	1.32E-08	1.75E-07	5.63E-11	0.00E+00
Receptor 9	2.48E-05	3.31E-07	4.78E-10	1.68E-09	5.45E-06	1.52E-09	2.00E-07	1.48E-08	1.92E-07	5.58E-11	0.00E+00
Receptor 10	1.98E-05	2.64E-07	3.82E-10	1.35E-09	4.35E-06	1.21E-09	1.60E-07	1.18E-08	1.53E-07	4.43E-11	0.00E+00
Receptor 11	2.21E-05	2.95E-07	4.27E-10	1.50E-09	4.86E-06	1.36E-09	1.79E-07	1.32E-08	1.75E-07	5.64E-11	0.00E+00
Receptor 12	2.98E-05	3.98E-07	5.75E-10	2.03E-09	6.56E-06	1.83E-09	2.41E-07	1.78E-08	2.30E-07	6.53E-11	0.00E+00
Receptor 13	7.78E-05	1.04E-06	1.50E-09	5.29E-09	1.71E-05	4.78E-09	6.30E-07	4.65E-08	6.14E-07	1.92E-10	0.00E+00
Receptor 14	3.30E-04	4.41E-06	6.37E-09	2.25E-08	7.27E-05	2.03E-08	2.67E-06	1.97E-07	2.56E-06	7.53E-10	0.00E+00
Receptor 15	2.13E-04	2.84E-06	4.10E-09	1.45E-08	4.68E-05	1.31E-08	1.72E-06	1.27E-07	1.66E-06	4.93E-10	0.00E+00
Receptor 16	6.45E-05	8.61E-07	1.24E-09	4.39E-09	1.42E-05	3.96E-09	5.22E-07	3.85E-08	5.03E-07	1.51E-10	0.00E+00
Receptor 17	5.50E-05	7.35E-07	1.06E-09	3.74E-09	1.21E-05	3.38E-09	4.45E-07	3.28E-08	4.24E-07	1.21E-10	0.00E+00
Receptor 18	5.98E-05	7.99E-07	1.15E-09	4.07E-09	1.32E-05	3.67E-09	4.84E-07	3.57E-08	4.56E-07	1.22E-10	0.00E+00
Receptor 19	7.30E-05	9.76E-07	1.41E-09	4.97E-09	1.61E-05	4.48E-09	5.91E-07	4.36E-08	5.50E-07	1.39E-10	0.00E+00
Receptor 20	5.47E-05	7.31E-07	1.06E-09	3.72E-09	1.20E-05	3.36E-09	4.43E-07	3.27E-08	4.26E-07	1.26E-10	0.00E+00
Receptor 21	5.99E-05	8.00E-07	1.16E-09	4.07E-09	1.32E-05	3.67E-09	4.84E-07	3.57E-08	4.67E-07	1.40E-10	0.00E+00
Receptor 22	3.41E-04	4.56E-06	6.58E-09	2.32E-08	7.50E-05	2.09E-08	2.76E-06	2.04E-07	2.73E-06	9.05E-10	0.00E+00
Park	1.79E-04	2.40E-06	3.46E-09	1.22E-08	3.95E-05	1.10E-08	1.45E-06	1.07E-07	1.32E-06	2.90E-10	0.00E+00
Rankin 1	1.48E-04	1.98E-06	2.86E-09	1.01E-08	3.26E-05	9.11E-09	1.20E-06	8.86E-08	1.10E-06	2.54E-10	0.00E+00
Rankin 2	1.46E-04	1.94E-06	2.81E-09	9.90E-09	3.20E-05	8.93E-09	1.18E-06	8.69E-08	1.08E-06	2.59E-10	0.00E+00
Rankin 3	1.66E-04	2.21E-06	3.20E-09	1.13E-08	3.64E-05	1.02E-08	1.34E-06	9.89E-08	1.23E-06	2.81E-10	0.00E+00
Camp	4.90E-03	6.55E-05	9.46E-08	3.34E-07	1.08E-03	3.01E-07	3.97E-05	2.93E-06	4.08E-05	1.54E-08	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	3.22E-07	2.66E-08	2.97E-09	1.30E-08	9.73E-09	1.69E-10	3.87E-10	2.50E-09	9.09E-09	9.68E-09
Receptor 2	4.31E-08	3.56E-09	3.97E-10	1.74E-09	1.30E-09	2.26E-11	5.17E-11	3.35E-10	1.22E-09	1.29E-09
Receptor 3	9.94E-08	8.21E-09	9.15E-10	4.00E-09	3.00E-09	5.20E-11	1.19E-10	7.72E-10	2.80E-09	2.98E-09
Receptor 4	9.34E-08	7.71E-09	8.60E-10	3.76E-09	2.82E-09	4.89E-11	1.12E-10	7.25E-10	2.63E-09	2.80E-09
Receptor 5	9.46E-08	7.81E-09	8.71E-10	3.81E-09	2.85E-09	4.95E-11	1.13E-10	7.34E-10	2.67E-09	2.84E-09
Receptor 6	1.35E-07	1.12E-08	1.25E-09	5.46E-09	4.09E-09	7.09E-11	1.62E-10	1.05E-09	3.82E-09	4.07E-09
Receptor 7	1.49E-07	1.23E-08	1.37E-09	6.00E-09	4.49E-09	7.79E-11	1.79E-10	1.16E-09	4.20E-09	4.47E-09
Receptor 8	2.23E-08	1.84E-09	2.05E-10	8.98E-10	6.73E-10	1.17E-11	2.67E-11	1.73E-10	6.29E-10	6.69E-10
Receptor 9	2.21E-08	1.82E-09	2.03E-10	8.90E-10	6.66E-10	1.16E-11	2.65E-11	1.71E-10	6.23E-10	6.63E-10
Receptor 10	1.75E-08	1.45E-09	1.62E-10	7.07E-10	5.30E-10	9.19E-12	2.10E-11	1.36E-10	4.95E-10	5.27E-10
Receptor 11	2.23E-08	1.84E-09	2.06E-10	8.99E-10	6.73E-10	1.17E-11	2.67E-11	1.73E-10	6.29E-10	6.70E-10
Receptor 12	2.58E-08	2.13E-09	2.38E-10	1.04E-09	7.80E-10	1.35E-11	3.10E-11	2.01E-10	7.29E-10	7.75E-10
Receptor 13	7.61E-08	6.29E-09	7.02E-10	3.07E-09	2.30E-09	3.99E-11	9.13E-11	5.91E-10	2.15E-09	2.29E-09
Receptor 14	2.98E-07	2.46E-08	2.74E-09	1.20E-08	8.99E-09	1.56E-10	3.57E-10	2.31E-09	8.40E-09	8.94E-09
Receptor 15	1.95E-07	1.61E-08	1.80E-09	7.86E-09	5.88E-09	1.02E-10	2.34E-10	1.51E-09	5.50E-09	5.85E-09
Receptor 16	5.98E-08	4.94E-09	5.51E-10	2.41E-09	1.80E-09	3.13E-11	7.17E-11	4.64E-10	1.69E-09	1.79E-09
Receptor 17	4.78E-08	3.94E-09	4.40E-10	1.92E-09	1.44E-09	2.50E-11	5.73E-11	3.71E-10	1.35E-09	1.43E-09
Receptor 18	4.85E-08	4.00E-09	4.46E-10	1.95E-09	1.46E-09	2.54E-11	5.81E-11	3.76E-10	1.37E-09	1.45E-09
Receptor 19	5.51E-08	4.55E-09	5.08E-10	2.22E-09	1.66E-09	2.89E-11	6.61E-11	4.28E-10	1.55E-09	1.65E-09
Receptor 20	4.99E-08	4.12E-09	4.60E-10	2.01E-09	1.51E-09	2.61E-11	5.99E-11	3.88E-10	1.41E-09	1.50E-09
Receptor 21	5.54E-08	4.58E-09	5.11E-10	2.23E-09	1.67E-09	2.90E-11	6.64E-11	4.30E-10	1.56E-09	1.66E-09
Receptor 22	3.58E-07	2.96E-08	3.30E-09	1.44E-08	1.08E-08	1.88E-10	4.29E-10	2.78E-09	1.01E-08	1.07E-08
Park	1.15E-07	9.49E-09	1.06E-09	4.63E-09	3.47E-09	6.01E-11	1.38E-10	8.92E-10	3.24E-09	3.45E-09
Rankin 1	1.00E-07	8.30E-09	9.26E-10	4.05E-09	3.03E-09	5.26E-11	1.20E-10	7.80E-10	2.83E-09	3.02E-09
Rankin 2	1.03E-07	8.47E-09	9.45E-10	4.13E-09	3.10E-09	5.37E-11	1.23E-10	7.97E-10	2.89E-09	3.08E-09
Rankin 3	1.11E-07	9.19E-09	1.03E-09	4.48E-09	3.36E-09	5.83E-11	1.33E-10	8.64E-10	3.14E-09	3.34E-09
Camp	6.10E-06	5.04E-07	5.62E-08	2.46E-07	1.84E-07	3.20E-09	7.32E-09	4.74E-08	1.72E-07	1.83E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.80E-09	3.41E-11	2.04E-10	0.00E+00	4.35E-10	5.65E-10	3.59E-10
Receptor 2	2.40E-10	4.56E-12	2.73E-11	0.00E+00	5.81E-11	7.56E-11	4.81E-11
Receptor 3	5.54E-10	1.05E-11	6.30E-11	0.00E+00	1.34E-10	1.74E-10	1.11E-10
Receptor 4	5.20E-10	9.89E-12	5.92E-11	0.00E+00	1.26E-10	1.64E-10	1.04E-10
Receptor 5	5.27E-10	1.00E-11	5.99E-11	0.00E+00	1.27E-10	1.66E-10	1.05E-10
Receptor 6	7.55E-10	1.43E-11	8.58E-11	0.00E+00	1.83E-10	2.38E-10	1.51E-10
Receptor 7	8.30E-10	1.58E-11	9.44E-11	0.00E+00	2.01E-10	2.61E-10	1.66E-10
Receptor 8	1.24E-10	2.36E-12	1.41E-11	0.00E+00	3.00E-11	3.91E-11	2.49E-11
Receptor 9	1.23E-10	2.34E-12	1.40E-11	0.00E+00	2.98E-11	3.87E-11	2.46E-11
Receptor 10	9.78E-11	1.86E-12	1.11E-11	0.00E+00	2.37E-11	3.08E-11	1.96E-11
Receptor 11	1.24E-10	2.36E-12	1.41E-11	0.00E+00	3.01E-11	3.91E-11	2.49E-11
Receptor 12	1.44E-10	2.73E-12	1.64E-11	0.00E+00	3.48E-11	4.53E-11	2.88E-11
Receptor 13	4.24E-10	8.06E-12	4.83E-11	0.00E+00	1.03E-10	1.34E-10	8.49E-11
Receptor 14	1.66E-09	3.15E-11	1.89E-10	0.00E+00	4.02E-10	5.22E-10	3.32E-10
Receptor 15	1.09E-09	2.06E-11	1.24E-10	0.00E+00	2.63E-10	3.42E-10	2.17E-10
Receptor 16	3.33E-10	6.33E-12	3.79E-11	0.00E+00	8.05E-11	1.05E-10	6.66E-11
Receptor 17	2.66E-10	5.06E-12	3.03E-11	0.00E+00	6.44E-11	8.38E-11	5.32E-11
Receptor 18	2.70E-10	5.13E-12	3.07E-11	0.00E+00	6.53E-11	8.50E-11	5.40E-11
Receptor 19	3.07E-10	5.83E-12	3.49E-11	0.00E+00	7.43E-11	9.67E-11	6.15E-11
Receptor 20	2.78E-10	5.29E-12	3.16E-11	0.00E+00	6.73E-11	8.76E-11	5.57E-11
Receptor 21	3.09E-10	5.87E-12	3.51E-11	0.00E+00	7.47E-11	9.72E-11	6.18E-11
Receptor 22	2.00E-09	3.79E-11	2.27E-10	0.00E+00	4.83E-10	6.28E-10	3.99E-10
Park	6.40E-10	1.22E-11	7.28E-11	0.00E+00	1.55E-10	2.01E-10	1.28E-10
Rankin 1	5.60E-10	1.06E-11	6.37E-11	0.00E+00	1.35E-10	1.76E-10	1.12E-10
Rankin 2	5.72E-10	1.09E-11	6.50E-11	0.00E+00	1.38E-10	1.80E-10	1.14E-10
Rankin 3	6.20E-10	1.18E-11	7.05E-11	0.00E+00	1.50E-10	1.95E-10	1.24E-10
Camp	3.40E-08	6.46E-10	3.87E-09	0.00E+00	8.23E-09	1.07E-08	6.81E-09

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	aluminum	antimony	arsenic	barium	beryllium	bismuth	cadmium	calcium	chromium	cobalt	copper
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	7.27E-04	4.11E-08	1.17E-06	4.10E-06	7.64E-09	2.10E-09	3.41E-07	4.15E-04	1.80E-06	2.81E-07	7.44E-07
Receptor 2	4.85E-05	2.74E-09	7.77E-08	2.74E-07	5.10E-10	1.40E-10	4.05E-08	2.77E-05	1.23E-07	1.88E-08	4.96E-08
Receptor 3	1.74E-04	9.85E-09	2.79E-07	9.84E-07	1.83E-09	5.03E-10	1.06E-07	9.94E-05	4.36E-07	6.74E-08	1.78E-07
Receptor 4	1.72E-04	9.73E-09	2.76E-07	9.71E-07	1.81E-09	4.97E-10	9.62E-08	9.82E-05	4.29E-07	6.66E-08	1.76E-07
Receptor 5	2.05E-04	1.16E-08	3.29E-07	1.16E-06	2.16E-09	5.93E-10	9.17E-08	1.17E-04	5.08E-07	7.95E-08	2.10E-07
Receptor 6	2.70E-04	1.52E-08	4.32E-07	1.52E-06	2.83E-09	7.79E-10	1.31E-07	1.54E-04	6.69E-07	1.04E-07	2.76E-07
Receptor 7	2.23E-04	1.26E-08	3.58E-07	1.26E-06	2.35E-09	6.45E-10	1.35E-07	1.27E-04	5.59E-07	8.64E-08	2.29E-07
Receptor 8	2.80E-05	1.58E-09	4.49E-08	1.58E-07	2.95E-10	8.09E-11	2.35E-08	1.60E-05	7.12E-08	1.08E-08	2.87E-08
Receptor 9	3.51E-05	1.99E-09	5.63E-08	1.98E-07	3.69E-10	1.01E-10	2.24E-08	2.00E-05	8.80E-08	1.36E-08	3.59E-08
Receptor 10	2.69E-05	1.52E-09	4.31E-08	1.52E-07	2.83E-10	7.77E-11	1.80E-08	1.53E-05	6.76E-08	1.04E-08	2.75E-08
Receptor 11	2.81E-05	1.59E-09	4.50E-08	1.58E-07	2.95E-10	8.10E-11	2.35E-08	1.60E-05	7.12E-08	1.08E-08	2.87E-08
Receptor 12	3.84E-05	2.17E-09	6.16E-08	2.17E-07	4.04E-10	1.11E-10	2.70E-08	2.19E-05	9.67E-08	1.49E-08	3.93E-08
Receptor 13	9.74E-05	5.50E-09	1.56E-07	5.50E-07	1.02E-09	2.81E-10	7.38E-08	5.55E-05	2.46E-07	3.77E-08	9.96E-08
Receptor 14	7.12E-04	4.02E-08	1.14E-06	4.02E-06	7.48E-09	2.05E-09	3.54E-07	4.06E-04	1.77E-06	2.75E-07	7.28E-07
Receptor 15	3.98E-04	2.25E-08	6.38E-07	2.25E-06	4.19E-09	1.15E-09	2.21E-07	2.27E-04	9.93E-07	1.54E-07	4.08E-07
Receptor 16	1.15E-04	6.51E-09	1.85E-07	6.50E-07	1.21E-09	3.33E-10	6.74E-08	6.57E-05	2.88E-07	4.46E-08	1.18E-07
Receptor 17	9.20E-05	5.20E-09	1.47E-07	5.19E-07	9.66E-10	2.66E-10	5.36E-08	5.25E-05	2.30E-07	3.56E-08	9.41E-08
Receptor 18	9.48E-05	5.36E-09	1.52E-07	5.35E-07	9.96E-10	2.74E-10	5.40E-08	5.41E-05	2.37E-07	3.67E-08	9.70E-08
Receptor 19	1.09E-04	6.16E-09	1.75E-07	6.15E-07	1.14E-09	3.14E-10	6.09E-08	6.21E-05	2.72E-07	4.21E-08	1.11E-07
Receptor 20	8.16E-05	4.61E-09	1.31E-07	4.61E-07	8.57E-10	2.36E-10	5.43E-08	4.65E-05	2.05E-07	3.16E-08	8.35E-08
Receptor 21	8.45E-05	4.78E-09	1.35E-07	4.77E-07	8.88E-10	2.44E-10	5.91E-08	4.82E-05	2.13E-07	3.27E-08	8.64E-08
Receptor 22	7.53E-04	4.26E-08	1.21E-06	4.25E-06	7.91E-09	2.17E-09	4.25E-07	4.30E-04	1.88E-06	2.91E-07	7.70E-07
Park	1.77E-04	9.98E-09	2.83E-07	9.97E-07	1.86E-09	5.10E-10	1.12E-07	1.01E-04	4.42E-07	6.83E-08	1.81E-07
Rankin 1	1.72E-04	9.75E-09	2.76E-07	9.73E-07	1.81E-09	4.98E-10	1.02E-07	9.84E-05	4.31E-07	6.67E-08	1.76E-07
Rankin 2	1.64E-04	9.28E-09	2.63E-07	9.27E-07	1.72E-09	4.74E-10	1.05E-07	9.37E-05	4.11E-07	6.35E-08	1.68E-07
Rankin 3	1.87E-04	1.06E-08	3.00E-07	1.06E-06	1.97E-09	5.40E-10	1.13E-07	1.07E-04	4.68E-07	7.24E-08	1.91E-07
Camp	1.72E-02	9.73E-07	2.76E-05	9.72E-05	1.81E-07	4.97E-08	8.00E-06	9.82E-03	4.27E-05	6.66E-06	1.76E-05

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	gold	iron	lead	lithium	magnesium	manganese	molybdenum	nickel	potassium	selenium	silver
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	8.13E-10	7.98E-04	1.82E-07	3.39E-07	2.20E-04	8.27E-06	1.26E-08	7.30E-07	1.39E-04	1.26E-08	3.09E-09
Receptor 2	5.42E-11	5.32E-05	1.51E-08	2.26E-08	1.47E-05	5.52E-07	8.40E-10	4.87E-08	9.29E-06	8.38E-10	2.06E-10
Receptor 3	1.95E-10	1.91E-04	4.75E-08	8.13E-08	5.27E-05	1.98E-06	3.02E-09	1.75E-07	3.34E-05	3.01E-09	7.41E-10
Receptor 4	1.92E-10	1.89E-04	4.56E-08	8.03E-08	5.21E-05	1.96E-06	2.98E-09	1.73E-07	3.30E-05	2.97E-09	7.32E-10
Receptor 5	2.30E-10	2.25E-04	5.06E-08	9.59E-08	6.22E-05	2.34E-06	3.56E-09	2.06E-07	3.94E-05	3.55E-09	8.74E-10
Receptor 6	3.02E-10	2.96E-04	6.81E-08	1.26E-07	8.16E-05	3.07E-06	4.67E-09	2.71E-07	5.17E-05	4.66E-09	1.15E-09
Receptor 7	2.50E-10	2.45E-04	6.09E-08	1.04E-07	6.76E-05	2.54E-06	3.87E-09	2.24E-07	4.28E-05	3.86E-09	9.50E-10
Receptor 8	3.13E-11	3.08E-05	8.73E-09	1.31E-08	8.48E-06	3.19E-07	4.86E-10	2.81E-08	5.37E-06	4.84E-10	1.19E-10
Receptor 9	3.93E-11	3.85E-05	9.77E-09	1.64E-08	1.06E-05	4.00E-07	6.08E-10	3.52E-08	6.73E-06	6.07E-10	1.49E-10
Receptor 10	3.01E-11	2.95E-05	7.62E-09	1.26E-08	8.14E-06	3.06E-07	4.66E-10	2.70E-08	5.15E-06	4.65E-10	1.14E-10
Receptor 11	3.14E-11	3.08E-05	8.74E-09	1.31E-08	8.49E-06	3.19E-07	4.86E-10	2.81E-08	5.37E-06	4.85E-10	1.19E-10
Receptor 12	4.29E-11	4.22E-05	1.11E-08	1.79E-08	1.16E-05	4.37E-07	6.65E-10	3.85E-08	7.36E-06	6.64E-10	1.63E-10
Receptor 13	1.09E-10	1.07E-04	2.90E-08	4.54E-08	2.95E-05	1.11E-06	1.69E-09	9.77E-08	1.86E-05	1.68E-09	4.14E-10
Receptor 14	7.95E-10	7.81E-04	1.81E-07	3.32E-07	2.15E-04	8.10E-06	1.23E-08	7.14E-07	1.36E-04	1.23E-08	3.03E-09
Receptor 15	4.45E-10	4.37E-04	1.05E-07	1.86E-07	1.21E-04	4.53E-06	6.90E-09	4.00E-07	7.63E-05	6.88E-09	1.69E-09
Receptor 16	1.29E-10	1.26E-04	3.10E-08	5.38E-08	3.49E-05	1.31E-06	2.00E-09	1.16E-07	2.21E-05	1.99E-09	4.90E-10
Receptor 17	1.03E-10	1.01E-04	2.47E-08	4.29E-08	2.78E-05	1.05E-06	1.59E-09	9.23E-08	1.76E-05	1.59E-09	3.91E-10
Receptor 18	1.06E-10	1.04E-04	2.53E-08	4.42E-08	2.87E-05	1.08E-06	1.64E-09	9.51E-08	1.82E-05	1.64E-09	4.03E-10
Receptor 19	1.22E-10	1.20E-04	2.89E-08	5.08E-08	3.30E-05	1.24E-06	1.89E-09	1.09E-07	2.09E-05	1.88E-09	4.63E-10
Receptor 20	9.12E-11	8.95E-05	2.31E-08	3.81E-08	2.47E-05	9.28E-07	1.41E-09	8.19E-08	1.56E-05	1.41E-09	3.47E-10
Receptor 21	9.44E-11	9.27E-05	2.44E-08	3.94E-08	2.56E-05	9.61E-07	1.46E-09	8.48E-08	1.62E-05	1.46E-09	3.59E-10
Receptor 22	8.42E-10	8.26E-04	2.00E-07	3.51E-07	2.28E-04	8.57E-06	1.30E-08	7.56E-07	1.44E-04	1.30E-08	3.20E-09
Park	1.97E-10	1.94E-04	4.89E-08	8.24E-08	5.34E-05	2.01E-06	3.06E-09	1.77E-07	3.38E-05	3.05E-09	7.51E-10
Rankin 1	1.93E-10	1.89E-04	4.65E-08	8.05E-08	5.22E-05	1.96E-06	2.99E-09	1.73E-07	3.30E-05	2.98E-09	7.33E-10
Rankin 2	1.83E-10	1.80E-04	4.57E-08	7.66E-08	4.97E-05	1.87E-06	2.84E-09	1.65E-07	3.14E-05	2.84E-09	6.98E-10
Rankin 3	2.09E-10	2.05E-04	5.10E-08	8.73E-08	5.66E-05	2.13E-06	3.24E-09	1.88E-07	3.58E-05	3.23E-09	7.95E-10
Camp	1.92E-08	1.89E-02	4.29E-06	8.04E-06	5.21E-03	1.96E-04	2.98E-07	1.73E-05	3.30E-03	2.97E-07	7.32E-08

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	sodium	strontium	thallium	tin	titanium	uranium	vanadium	yttrium	zinc	benzo[a]pyrene	chlorobenzene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.66E-04	2.22E-06	3.21E-09	1.13E-08	3.66E-05	1.02E-08	1.35E-06	9.93E-08	1.45E-06	6.20E-10	0.00E+00
Receptor 2	1.11E-05	1.48E-07	2.14E-10	7.55E-10	2.44E-06	6.81E-10	8.98E-08	6.62E-09	1.17E-07	7.39E-11	0.00E+00
Receptor 3	3.99E-05	5.33E-07	7.69E-10	2.71E-09	8.77E-06	2.45E-09	3.22E-07	2.38E-08	3.74E-07	1.92E-10	0.00E+00
Receptor 4	3.94E-05	5.26E-07	7.60E-10	2.68E-09	8.66E-06	2.42E-09	3.18E-07	2.35E-08	3.60E-07	1.75E-10	0.00E+00
Receptor 5	4.70E-05	6.28E-07	9.07E-10	3.20E-09	1.03E-05	2.89E-09	3.80E-07	2.81E-08	4.03E-07	1.67E-10	0.00E+00
Receptor 6	6.17E-05	8.25E-07	1.19E-09	4.20E-09	1.36E-05	3.79E-09	4.99E-07	3.68E-08	5.41E-07	2.38E-10	0.00E+00
Receptor 7	5.11E-05	6.83E-07	9.86E-10	3.48E-09	1.12E-05	3.14E-09	4.13E-07	3.05E-08	4.79E-07	2.46E-10	0.00E+00
Receptor 8	6.41E-06	8.57E-08	1.24E-10	4.36E-10	1.41E-06	3.94E-10	5.19E-08	3.83E-09	6.78E-08	4.29E-11	0.00E+00
Receptor 9	8.03E-06	1.07E-07	1.55E-10	5.47E-10	1.77E-06	4.93E-10	6.50E-08	4.80E-09	7.68E-08	4.09E-11	0.00E+00
Receptor 10	6.15E-06	8.22E-08	1.19E-10	4.19E-10	1.35E-06	3.78E-10	4.98E-08	3.67E-09	5.97E-08	3.28E-11	0.00E+00
Receptor 11	6.42E-06	8.57E-08	1.24E-10	4.36E-10	1.41E-06	3.94E-10	5.19E-08	3.83E-09	6.78E-08	4.29E-11	0.00E+00
Receptor 12	8.79E-06	1.17E-07	1.70E-10	5.98E-10	1.93E-06	5.39E-10	7.11E-08	5.25E-09	8.68E-08	4.92E-11	0.00E+00
Receptor 13	2.23E-05	2.98E-07	4.30E-10	1.51E-09	4.90E-06	1.37E-09	1.80E-07	1.33E-08	2.26E-07	1.35E-10	0.00E+00
Receptor 14	1.63E-04	2.18E-06	3.14E-09	1.11E-08	3.58E-05	9.99E-09	1.32E-06	9.72E-08	1.44E-06	6.45E-10	0.00E+00
Receptor 15	9.11E-05	1.22E-06	1.76E-09	6.20E-09	2.00E-05	5.59E-09	7.37E-07	5.44E-08	8.32E-07	4.03E-10	0.00E+00
Receptor 16	2.64E-05	3.52E-07	5.09E-10	1.79E-09	5.80E-06	1.62E-09	2.13E-07	1.57E-08	2.45E-07	1.23E-10	0.00E+00
Receptor 17	2.10E-05	2.81E-07	4.06E-10	1.43E-09	4.63E-06	1.29E-09	1.70E-07	1.26E-08	1.95E-07	9.77E-11	0.00E+00
Receptor 18	2.17E-05	2.90E-07	4.18E-10	1.48E-09	4.77E-06	1.33E-09	1.75E-07	1.29E-08	2.00E-07	9.84E-11	0.00E+00
Receptor 19	2.49E-05	3.33E-07	4.81E-10	1.69E-09	5.48E-06	1.53E-09	2.02E-07	1.49E-08	2.28E-07	1.11E-10	0.00E+00
Receptor 20	1.87E-05	2.49E-07	3.60E-10	1.27E-09	4.11E-06	1.15E-09	1.51E-07	1.11E-08	1.81E-07	9.90E-11	0.00E+00
Receptor 21	1.93E-05	2.58E-07	3.73E-10	1.31E-09	4.25E-06	1.19E-09	1.56E-07	1.15E-08	1.91E-07	1.08E-10	0.00E+00
Receptor 22	1.72E-04	2.30E-06	3.32E-09	1.17E-08	3.79E-05	1.06E-08	1.39E-06	1.03E-07	1.58E-06	7.74E-10	0.00E+00
Park	4.04E-05	5.40E-07	7.79E-10	2.75E-09	8.88E-06	2.48E-09	3.27E-07	2.41E-08	3.84E-07	2.03E-10	0.00E+00
Rankin 1	3.94E-05	5.27E-07	7.61E-10	2.68E-09	8.68E-06	2.42E-09	3.19E-07	2.36E-08	3.67E-07	1.85E-10	0.00E+00
Rankin 2	3.75E-05	5.02E-07	7.25E-10	2.55E-09	8.26E-06	2.31E-09	3.04E-07	2.24E-08	3.59E-07	1.91E-10	0.00E+00
Rankin 3	4.28E-05	5.72E-07	8.26E-10	2.91E-09	9.42E-06	2.63E-09	3.46E-07	2.56E-08	4.02E-07	2.06E-10	0.00E+00
Camp	3.94E-03	5.26E-05	7.60E-08	2.68E-07	8.67E-04	2.42E-07	3.19E-05	2.35E-06	3.41E-05	1.45E-08	0.00E+00

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	naphthalene	phenanthrene	anthracene	fluorene	pyrene	thiophenes	benzo[a]anthracene	acenaphthene	acenaphthylene	fluoranthene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	2.46E-07	2.03E-08	2.26E-09	9.89E-09	7.41E-09	1.29E-10	2.94E-10	1.91E-09	6.92E-09	7.37E-09
Receptor 2	2.93E-08	2.42E-09	2.70E-10	1.18E-09	8.83E-10	1.53E-11	3.51E-11	2.27E-10	8.25E-10	8.78E-10
Receptor 3	7.61E-08	6.29E-09	7.01E-10	3.07E-09	2.30E-09	3.99E-11	9.13E-11	5.91E-10	2.15E-09	2.28E-09
Receptor 4	6.93E-08	5.73E-09	6.39E-10	2.79E-09	2.09E-09	3.63E-11	8.31E-11	5.38E-10	1.96E-09	2.08E-09
Receptor 5	6.60E-08	5.45E-09	6.08E-10	2.66E-09	1.99E-09	3.45E-11	7.91E-11	5.12E-10	1.86E-09	1.98E-09
Receptor 6	9.42E-08	7.78E-09	8.68E-10	3.80E-09	2.84E-09	4.93E-11	1.13E-10	7.31E-10	2.66E-09	2.83E-09
Receptor 7	9.74E-08	8.05E-09	8.98E-10	3.93E-09	2.94E-09	5.10E-11	1.17E-10	7.57E-10	2.75E-09	2.92E-09
Receptor 8	1.70E-08	1.40E-09	1.56E-10	6.84E-10	5.12E-10	8.89E-12	2.04E-11	1.32E-10	4.79E-10	5.10E-10
Receptor 9	1.62E-08	1.34E-09	1.49E-10	6.52E-10	4.89E-10	8.48E-12	1.94E-11	1.26E-10	4.57E-10	4.86E-10
Receptor 10	1.30E-08	1.07E-09	1.20E-10	5.23E-10	3.92E-10	6.79E-12	1.56E-11	1.01E-10	3.66E-10	3.89E-10
Receptor 11	1.70E-08	1.40E-09	1.57E-10	6.85E-10	5.13E-10	8.90E-12	2.04E-11	1.32E-10	4.79E-10	5.10E-10
Receptor 12	1.95E-08	1.61E-09	1.80E-10	7.85E-10	5.88E-10	1.02E-11	2.34E-11	1.51E-10	5.50E-10	5.85E-10
Receptor 13	5.33E-08	4.40E-09	4.91E-10	2.15E-09	1.61E-09	2.79E-11	6.39E-11	4.14E-10	1.50E-09	1.60E-09
Receptor 14	2.55E-07	2.11E-08	2.35E-09	1.03E-08	7.70E-09	1.34E-10	3.06E-10	1.98E-09	7.20E-09	7.66E-09
Receptor 15	1.59E-07	1.32E-08	1.47E-09	6.42E-09	4.81E-09	8.34E-11	1.91E-10	1.24E-09	4.49E-09	4.78E-09
Receptor 16	4.86E-08	4.02E-09	4.48E-10	1.96E-09	1.47E-09	2.55E-11	5.83E-11	3.78E-10	1.37E-09	1.46E-09
Receptor 17	3.87E-08	3.19E-09	3.56E-10	1.56E-09	1.17E-09	2.02E-11	4.64E-11	3.00E-10	1.09E-09	1.16E-09
Receptor 18	3.89E-08	3.22E-09	3.59E-10	1.57E-09	1.17E-09	2.04E-11	4.67E-11	3.02E-10	1.10E-09	1.17E-09
Receptor 19	4.39E-08	3.62E-09	4.04E-10	1.77E-09	1.32E-09	2.30E-11	5.26E-11	3.41E-10	1.24E-09	1.32E-09
Receptor 20	3.92E-08	3.23E-09	3.61E-10	1.58E-09	1.18E-09	2.05E-11	4.70E-11	3.04E-10	1.10E-09	1.18E-09
Receptor 21	4.27E-08	3.52E-09	3.93E-10	1.72E-09	1.29E-09	2.23E-11	5.12E-11	3.31E-10	1.20E-09	1.28E-09
Receptor 22	3.06E-07	2.53E-08	2.82E-09	1.23E-08	9.25E-09	1.60E-10	3.67E-10	2.38E-09	8.64E-09	9.20E-09
Park	8.04E-08	6.64E-09	7.41E-10	3.24E-09	2.43E-09	4.21E-11	9.65E-11	6.25E-10	2.27E-09	2.41E-09
Rankin 1	7.32E-08	6.05E-09	6.75E-10	2.95E-09	2.21E-09	3.83E-11	8.78E-11	5.69E-10	2.07E-09	2.20E-09
Rankin 2	7.56E-08	6.25E-09	6.97E-10	3.05E-09	2.28E-09	3.96E-11	9.07E-11	5.87E-10	2.13E-09	2.27E-09
Rankin 3	8.17E-08	6.75E-09	7.53E-10	3.29E-09	2.47E-09	4.28E-11	9.79E-11	6.34E-10	2.30E-09	2.45E-09
Camp	5.76E-06	4.75E-07	5.30E-08	2.32E-07	1.74E-07	3.01E-09	6.90E-09	4.47E-08	1.62E-07	1.73E-07

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Project	benzo[b]fluoranthene	benzo[ghi]perylene	benzo[k]fluoranthene	biphenyl	chrysene	dibenzo[a h]anthracene	indeno[1 2 3-cd]pyrene
Receptors	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]	[g/m ² /y]
Receptor 1	1.37E-09	2.60E-11	1.56E-10	0.00E+00	3.31E-10	4.31E-10	2.74E-10
Receptor 2	1.63E-10	3.10E-12	1.85E-11	0.00E+00	3.94E-11	5.13E-11	3.26E-11
Receptor 3	4.24E-10	8.06E-12	4.82E-11	0.00E+00	1.03E-10	1.33E-10	8.49E-11
Receptor 4	3.86E-10	7.34E-12	4.39E-11	0.00E+00	9.35E-11	1.22E-10	7.73E-11
Receptor 5	3.68E-10	6.98E-12	4.18E-11	0.00E+00	8.89E-11	1.16E-10	7.35E-11
Receptor 6	5.25E-10	9.97E-12	5.97E-11	0.00E+00	1.27E-10	1.65E-10	1.05E-10
Receptor 7	5.43E-10	1.03E-11	6.17E-11	0.00E+00	1.31E-10	1.71E-10	1.09E-10
Receptor 8	9.46E-11	1.80E-12	1.08E-11	0.00E+00	2.29E-11	2.98E-11	1.89E-11
Receptor 9	9.02E-11	1.71E-12	1.03E-11	0.00E+00	2.18E-11	2.84E-11	1.81E-11
Receptor 10	7.23E-11	1.37E-12	8.22E-12	0.00E+00	1.75E-11	2.28E-11	1.45E-11
Receptor 11	9.47E-11	1.80E-12	1.08E-11	0.00E+00	2.29E-11	2.98E-11	1.89E-11
Receptor 12	1.09E-10	2.06E-12	1.23E-11	0.00E+00	2.63E-11	3.42E-11	2.17E-11
Receptor 13	2.97E-10	5.64E-12	3.38E-11	0.00E+00	7.19E-11	9.35E-11	5.94E-11
Receptor 14	1.42E-09	2.70E-11	1.62E-10	0.00E+00	3.44E-10	4.48E-10	2.85E-10
Receptor 15	8.88E-10	1.69E-11	1.01E-10	0.00E+00	2.15E-10	2.79E-10	1.78E-10
Receptor 16	2.71E-10	5.15E-12	3.08E-11	0.00E+00	6.55E-11	8.53E-11	5.42E-11
Receptor 17	2.15E-10	4.09E-12	2.45E-11	0.00E+00	5.21E-11	6.78E-11	4.31E-11
Receptor 18	2.17E-10	4.12E-12	2.47E-11	0.00E+00	5.25E-11	6.83E-11	4.34E-11
Receptor 19	2.44E-10	4.64E-12	2.78E-11	0.00E+00	5.91E-11	7.69E-11	4.89E-11
Receptor 20	2.18E-10	4.15E-12	2.48E-11	0.00E+00	5.28E-11	6.87E-11	4.37E-11
Receptor 21	2.38E-10	4.52E-12	2.70E-11	0.00E+00	5.75E-11	7.48E-11	4.76E-11
Receptor 22	1.71E-09	3.24E-11	1.94E-10	0.00E+00	4.13E-10	5.37E-10	3.42E-10
Park	4.48E-10	8.52E-12	5.10E-11	0.00E+00	1.08E-10	1.41E-10	8.97E-11
Rankin 1	4.08E-10	7.75E-12	4.64E-11	0.00E+00	9.87E-11	1.28E-10	8.17E-11
Rankin 2	4.21E-10	8.00E-12	4.79E-11	0.00E+00	1.02E-10	1.33E-10	8.43E-11
Rankin 3	4.55E-10	8.65E-12	5.18E-11	0.00E+00	1.10E-10	1.43E-10	9.11E-11
Camp	3.21E-08	6.09E-10	3.65E-09	0.00E+00	7.76E-09	1.01E-08	6.42E-09

g/m²/y = grams per cubic metre per year.
Cabins = Receptor Locations 1 to 22.
Rankin Cabins = Rankin 1 to 3.

Table 10.2-D-3a: Screening of Predicted Soil Deposition Concentrations - Scenario 1

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.06E-01	8.01E-01	8.02E-01	8.02E-01	8.02E-01	8.03E-01	8.03E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	3.27E-06	7.40E-07	1.41E-06	1.48E-06	1.66E-06	2.30E-06	2.93E-06	2.27E-07	2.70E-07	2.22E-07	2.27E-07	2.77E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.21E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.21E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	4.00E-04	9.05E-05	1.72E-04	1.80E-04	2.02E-04	2.82E-04	3.59E-04	2.77E-05	3.30E-05	2.72E-05	2.77E-05	3.38E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.63E-06	3.14E-07	5.68E-07	5.91E-07	6.32E-07	8.15E-07	9.80E-07	9.00E-08	1.21E-07	1.11E-07	9.00E-08	1.13E-07
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	5.87E-05	1.13E-05	2.05E-05	2.13E-05	2.28E-05	2.94E-05	3.54E-05	3.25E-06	4.36E-06	4.00E-06	3.25E-06	4.09E-06
Phenanthrene*	NV	NV	NV	2.03E-05	3.92E-06	7.09E-06	7.37E-06	7.88E-06	1.02E-05	1.22E-05	1.12E-06	1.51E-06	1.38E-06	1.12E-06	1.41E-06
Anthracene*	NV	3400	NV	5.18E-06	1.00E-06	1.81E-06	1.88E-06	2.01E-06	2.60E-06	3.12E-06	2.87E-07	3.85E-07	3.53E-07	2.87E-07	3.61E-07
Fluorene*	NV	460	NV	2.95E-06	5.70E-07	1.03E-06	1.07E-06	1.15E-06	1.48E-06	1.78E-06	1.63E-07	2.19E-07	2.01E-07	1.64E-07	2.06E-07
Pyrene*	NV	340	NV	5.86E-05	1.13E-05	2.05E-05	2.13E-05	2.28E-05	2.94E-05	3.53E-05	3.24E-06	4.35E-06	3.99E-06	3.24E-06	4.08E-06
Thiophene*	NV	NV	NV	2.11E-06	4.07E-07	7.36E-07	7.65E-07	8.18E-07	1.06E-06	1.27E-06	1.17E-07	1.56E-07	1.44E-07	1.17E-07	1.47E-07
Benzo(a)anthracene*	NV	1.5	NV	9.94E-07	1.92E-07	3.48E-07	3.61E-07	3.86E-07	4.98E-07	5.99E-07	5.50E-08	7.39E-08	6.78E-08	5.50E-08	6.93E-08
Acenaphthene*	NV	680	NV	9.69E-07	1.87E-07	3.39E-07	3.52E-07	3.76E-07	4.86E-07	5.84E-07	5.36E-08	7.20E-08	6.61E-08	5.36E-08	6.75E-08
Acenaphthylene*	NV	NV	NV	1.13E-04	2.19E-05	3.97E-05	4.12E-05	4.41E-05	5.69E-05	6.84E-05	6.28E-06	8.43E-06	7.74E-06	6.28E-06	7.91E-06
Fluoranthene*	NV	460	NV	1.63E-05	3.14E-06	5.69E-06	5.91E-06	6.33E-06	8.16E-06	9.81E-06	9.01E-07	1.21E-06	1.11E-06	9.01E-07	1.14E-06
Benzo(b)fluoranthene*	NV	1.5	NV	4.18E-06	8.08E-07	1.46E-06	1.52E-06	1.63E-06	2.10E-06	2.52E-06	2.32E-07	3.11E-07	2.85E-07	2.32E-07	2.92E-07
Benzo(g,h,i)perylene*	NV	NV	NV	4.26E-07	8.22E-08	1.49E-07	1.55E-07	1.65E-07	2.13E-07	2.57E-07	2.36E-08	3.16E-08	2.90E-08	2.36E-08	2.97E-08
Benzo(k)fluoranthene*	NV	15	NV	1.29E-06	2.49E-07	4.51E-07	4.69E-07	5.02E-07	6.47E-07	7.78E-07	7.14E-08	9.59E-08	8.80E-08	7.14E-08	9.00E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.60E-06	3.10E-07	5.61E-07	5.82E-07	6.23E-07	8.04E-07	9.66E-07	8.87E-08	1.19E-07	1.09E-07	8.87E-08	1.12E-07
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.95E-06	3.76E-07	6.82E-07	7.08E-07	7.58E-07	9.77E-07	1.18E-06	1.08E-07	1.45E-07	1.33E-07	1.08E-07	1.36E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	9.75E-07	1.88E-07	3.41E-07	3.54E-07	3.79E-07	4.89E-07	5.88E-07	5.40E-08	7.25E-08	6.65E-08	5.40E-08	6.80E-08

Table 10.2-D-3a: Screening of Predicted Soil Deposition Concentrations - Scenario 1

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 13	Receptor 14	Receptor 15	Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.00E-01	8.01E-01	8.01E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.01E-01	8.01E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	3.74E-07	1.08E-06	7.82E-07	2.58E-07	2.03E-07	2.05E-07	2.27E-07	2.14E-07	2.41E-07	1.32E-06	8.71E-07	4.72E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	4.56E-05	1.32E-04	9.56E-05	3.15E-05	2.48E-05	2.50E-05	2.78E-05	2.61E-05	2.95E-05	1.61E-04	1.06E-04	5.76E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.27E-07	2.45E-07	2.03E-07	7.26E-08	5.31E-08	4.91E-08	4.79E-08	5.89E-08	6.79E-08	3.71E-07	2.52E-07	1.04E-07
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	4.60E-06	8.84E-06	7.34E-06	2.62E-06	1.92E-06	1.77E-06	1.73E-06	2.13E-06	2.45E-06	1.34E-05	9.12E-06	3.75E-06
Phenanthrene*	NV	NV	NV	1.59E-06	3.05E-06	2.54E-06	9.05E-07	6.63E-07	6.13E-07	5.97E-07	7.35E-07	8.47E-07	4.63E-06	3.15E-06	1.29E-06
Anthracene*	NV	3400	NV	4.06E-07	7.80E-07	6.48E-07	2.31E-07	1.69E-07	1.56E-07	1.53E-07	1.88E-07	2.16E-07	1.18E-06	8.04E-07	3.31E-07
Fluorene*	NV	460	NV	2.32E-07	4.45E-07	3.70E-07	1.32E-07	9.65E-08	8.92E-08	8.70E-08	1.07E-07	1.23E-07	6.74E-07	4.59E-07	1.89E-07
Pyrene*	NV	340	NV	4.59E-06	8.82E-06	7.33E-06	2.61E-06	1.91E-06	1.77E-06	1.73E-06	2.12E-06	2.45E-06	1.34E-05	9.10E-06	3.74E-06
Thiophene*	NV	NV	NV	1.65E-07	3.17E-07	2.63E-07	9.40E-08	6.88E-08	6.36E-08	6.20E-08	7.64E-08	8.79E-08	4.81E-07	3.27E-07	1.34E-07
Benzo(a)anthracene*	NV	1.5	NV	7.80E-08	1.50E-07	1.24E-07	4.44E-08	3.25E-08	3.00E-08	2.93E-08	3.61E-08	4.15E-08	2.27E-07	1.54E-07	6.35E-08
Acenaphthene*	NV	680	NV	7.59E-08	1.46E-07	1.21E-07	4.32E-08	3.17E-08	2.93E-08	2.85E-08	3.51E-08	4.04E-08	2.21E-07	1.50E-07	6.18E-08
Acenaphthylene*	NV	NV	NV	8.89E-06	1.71E-05	1.42E-05	5.06E-06	3.71E-06	3.43E-06	3.34E-06	4.11E-06	4.74E-06	2.59E-05	1.76E-05	7.24E-06
Fluoranthene*	NV	460	NV	1.28E-06	2.45E-06	2.04E-06	7.27E-07	5.32E-07	4.92E-07	4.80E-07	5.90E-07	6.80E-07	3.72E-06	2.53E-06	1.04E-06
Benzo(b)fluoranthene*	NV	1.5	NV	3.28E-07	6.30E-07	5.23E-07	1.87E-07	1.37E-07	1.26E-07	1.23E-07	1.52E-07	1.75E-07	9.55E-07	6.50E-07	2.67E-07
Benzo(g,h,i)perylene*	NV	NV	NV	3.34E-08	6.41E-08	5.33E-08	1.90E-08	1.39E-08	1.29E-08	1.25E-08	1.54E-08	1.78E-08	9.72E-08	6.61E-08	2.72E-08
Benzo(k)fluoranthene*	NV	15	NV	1.01E-07	1.94E-07	1.61E-07	5.76E-08	4.22E-08	3.90E-08	3.80E-08	4.68E-08	5.39E-08	2.95E-07	2.00E-07	8.24E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.26E-07	2.41E-07	2.01E-07	7.16E-08	5.24E-08	4.84E-08	4.72E-08	5.81E-08	6.69E-08	3.66E-07	2.49E-07	1.02E-07
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.53E-07	2.94E-07	2.44E-07	8.70E-08	6.37E-08	5.89E-08	5.74E-08	7.07E-08	8.14E-08	4.45E-07	3.03E-07	1.24E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	7.64E-08	1.47E-07	1.22E-07	4.35E-08	3.19E-08	2.95E-08	2.87E-08	3.54E-08	4.07E-08	2.23E-07	1.51E-07	6.23E-08

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Rankin 2	Rankin 3	Camp	Chemical of Concern?
Total Metals							
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.69E+03	No
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.14E-01	No
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	No
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	No
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	No
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	No
Cadmium (Cd)	10	14	0.88	8.00E-01	8.00E-01	8.59E-01	No
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	No
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.14E+01	No
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	No
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	No
Gold*	NV	NV	NV	4.89E-07	5.44E-07	2.22E-05	No
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	No
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	No
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	No
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.09E+03	No
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	No
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	No
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	No
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	No
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	No
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	No
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.25E+02	No
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	No
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	No
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	No
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.46E+02	No
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	No
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	No
Yttrium (Y)*	NV	NV	NV	5.98E-05	6.64E-05	2.71E-03	No
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.01E+01	No
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene*	NV	0.15	NV	1.16E-07	1.24E-07	1.73E-05	No
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	No
Naphthalene*	NV	36	NV	4.18E-06	4.49E-06	6.25E-04	No
Phenanthrene*	NV	NV	NV	1.44E-06	1.55E-06	2.16E-04	No
Anthracene*	NV	3400	NV	3.69E-07	3.96E-07	5.51E-05	No
Fluorene*	NV	460	NV	2.10E-07	2.26E-07	3.14E-05	No
Pyrene*	NV	340	NV	4.17E-06	4.48E-06	6.23E-04	No
Thiophene*	NV	NV	NV	1.50E-07	1.61E-07	2.24E-05	No
Benzo(a)anthracene*	NV	1.5	NV	7.08E-08	7.61E-08	1.06E-05	No
Acenapthene*	NV	680	NV	6.90E-08	7.41E-08	1.03E-05	No
Acenapthylene*	NV	NV	NV	8.08E-06	8.68E-06	1.21E-03	No
Fluoranthene*	NV	460	NV	1.16E-06	1.25E-06	1.73E-04	No
Benzo(b)fluoranthene*	NV	1.5	NV	2.98E-07	3.20E-07	4.45E-05	No
Benzo(g,h,i)perylene*	NV	NV	NV	3.03E-08	3.26E-08	4.53E-06	No
Benzo(k)fluoranthene*	NV	15	NV	9.19E-08	9.87E-08	1.37E-05	No
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	No
Chrysene*	NV	150	NV	1.14E-07	1.23E-07	1.71E-05	No
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.39E-07	1.49E-07	2.07E-05	No
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	6.95E-08	7.46E-08	1.04E-05	No

Table 10.2-D-3b: Screening of Predicted Soil Deposition Concentrations - Scenario 2

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.05E-01	8.01E-01	8.02E-01	8.02E-01	8.02E-01	8.03E-01	8.03E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	3.26E-06	7.16E-07	1.24E-06	1.31E-06	1.45E-06	1.95E-06	2.41E-06	2.40E-07	2.87E-07	2.52E-07	2.40E-07	2.84E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.21E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	3.98E-04	8.75E-05	1.51E-04	1.60E-04	1.77E-04	2.38E-04	2.94E-04	2.93E-05	3.51E-05	3.08E-05	2.94E-05	3.48E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.57E-06	2.97E-07	5.05E-07	5.31E-07	5.72E-07	7.40E-07	8.83E-07	8.55E-08	1.15E-07	1.08E-07	8.55E-08	1.05E-07
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	5.67E-05	1.07E-05	1.82E-05	1.92E-05	2.07E-05	2.67E-05	3.19E-05	3.09E-06	4.16E-06	3.91E-06	3.09E-06	3.80E-06
Phenanthrene*	NV	NV	NV	1.96E-05	3.71E-06	6.30E-06	6.63E-06	7.14E-06	9.24E-06	1.10E-05	1.07E-06	1.44E-06	1.35E-06	1.07E-06	1.31E-06
Anthracene*	NV	3400	NV	5.00E-06	9.47E-07	1.61E-06	1.69E-06	1.82E-06	2.36E-06	2.81E-06	2.72E-07	3.67E-07	3.45E-07	2.72E-07	3.35E-07
Fluorene*	NV	460	NV	2.85E-06	5.40E-07	9.18E-07	9.65E-07	1.04E-06	1.35E-06	1.60E-06	1.55E-07	2.10E-07	1.97E-07	1.55E-07	1.91E-07
Pyrene*	NV	340	NV	5.66E-05	1.07E-05	1.82E-05	1.91E-05	2.06E-05	2.67E-05	3.18E-05	3.08E-06	4.15E-06	3.90E-06	3.08E-06	3.79E-06
Thiophene*	NV	NV	NV	2.03E-06	3.85E-07	6.54E-07	6.88E-07	7.42E-07	9.59E-07	1.14E-06	1.11E-07	1.49E-07	1.40E-07	1.11E-07	1.36E-07
Benzo(a)anthracene*	NV	1.5	NV	9.60E-07	1.82E-07	3.09E-07	3.25E-07	3.50E-07	4.53E-07	5.40E-07	5.23E-08	7.05E-08	6.62E-08	5.23E-08	6.44E-08
Acenaphthene*	NV	680	NV	9.35E-07	1.77E-07	3.01E-07	3.16E-07	3.41E-07	4.41E-07	5.26E-07	5.10E-08	6.87E-08	6.45E-08	5.09E-08	6.27E-08
Acenaphthylene*	NV	NV	NV	1.10E-04	2.07E-05	3.52E-05	3.71E-05	3.99E-05	5.17E-05	6.16E-05	5.97E-06	8.05E-06	7.55E-06	5.96E-06	7.34E-06
Fluoranthene*	NV	460	NV	1.57E-05	2.98E-06	5.06E-06	5.32E-06	5.73E-06	7.41E-06	8.84E-06	8.56E-07	1.15E-06	1.08E-06	8.56E-07	1.05E-06
Benzo(b)fluoranthene*	NV	1.5	NV	4.04E-06	7.65E-07	1.30E-06	1.37E-06	1.47E-06	1.91E-06	2.27E-06	2.20E-07	2.97E-07	2.79E-07	2.20E-07	2.71E-07
Benzo(g,h,i)perylene*	NV	NV	NV	4.11E-07	7.78E-08	1.32E-07	1.39E-07	1.50E-07	1.94E-07	2.31E-07	2.24E-08	3.02E-08	2.84E-08	2.24E-08	2.76E-08
Benzo(k)fluoranthene*	NV	15	NV	1.25E-06	2.36E-07	4.01E-07	4.22E-07	4.54E-07	5.88E-07	7.01E-07	6.79E-08	9.15E-08	8.59E-08	6.78E-08	8.35E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.55E-06	2.93E-07	4.98E-07	5.24E-07	5.65E-07	7.30E-07	8.71E-07	8.43E-08	1.14E-07	1.07E-07	8.43E-08	1.04E-07
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.88E-06	3.56E-07	6.06E-07	6.37E-07	6.87E-07	8.88E-07	1.06E-06	1.03E-07	1.38E-07	1.30E-07	1.02E-07	1.26E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	9.42E-07	1.78E-07	3.03E-07	3.19E-07	3.43E-07	4.44E-07	5.30E-07	5.13E-08	6.92E-08	6.49E-08	5.13E-08	6.31E-08

Table 10.2-D-3b: Screening of Predicted Soil Deposition Concentrations - Scenario 2

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 13	Receptor 14	Receptor 15	Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.00E-01	8.01E-01	8.01E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.01E-01	8.01E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	6.85E-07	1.88E-06	1.39E-06	3.94E-07	3.06E-07	3.11E-07	3.48E-07	3.20E-07	3.66E-07	2.64E-06	1.07E-06	7.09E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.21E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	8.37E-05	2.30E-04	1.69E-04	4.82E-05	3.74E-05	3.80E-05	4.25E-05	3.91E-05	4.47E-05	3.22E-04	1.31E-04	8.66E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.38E-07	2.72E-07	2.28E-07	7.64E-08	5.58E-08	5.18E-08	5.07E-08	6.24E-08	7.22E-08	4.22E-07	2.59E-07	1.18E-07
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	4.99E-06	9.81E-06	8.23E-06	2.76E-06	2.02E-06	1.87E-06	1.83E-06	2.25E-06	2.61E-06	1.52E-05	9.35E-06	4.25E-06
Phenanthrene*	NV	NV	NV	1.72E-06	3.39E-06	2.84E-06	9.53E-07	6.96E-07	6.46E-07	6.33E-07	7.78E-07	9.00E-07	5.27E-06	3.23E-06	1.47E-06
Anthracene*	NV	3400	NV	4.40E-07	8.65E-07	7.26E-07	2.43E-07	1.78E-07	1.65E-07	1.62E-07	1.99E-07	2.30E-07	1.34E-06	8.25E-07	3.75E-07
Fluorene*	NV	460	NV	2.51E-07	4.94E-07	4.14E-07	1.39E-07	1.01E-07	9.41E-08	9.22E-08	1.13E-07	1.31E-07	7.67E-07	4.71E-07	2.14E-07
Pyrene*	NV	340	NV	4.98E-06	9.79E-06	8.21E-06	2.75E-06	2.01E-06	1.87E-06	1.83E-06	2.25E-06	2.60E-06	1.52E-05	9.33E-06	4.24E-06
Thiophene*	NV	NV	NV	1.79E-07	3.52E-07	2.95E-07	9.90E-08	7.23E-08	6.71E-08	6.57E-08	8.08E-08	9.35E-08	5.47E-07	3.35E-07	1.52E-07
Benzo(a)anthracene*	NV	1.5	NV	8.46E-08	1.66E-07	1.39E-07	4.67E-08	3.41E-08	3.17E-08	3.10E-08	3.82E-08	4.41E-08	2.58E-07	1.58E-07	7.19E-08
Acenaphthene*	NV	680	NV	8.24E-08	1.62E-07	1.36E-07	4.55E-08	3.33E-08	3.09E-08	3.02E-08	3.72E-08	4.30E-08	2.52E-07	1.54E-07	7.01E-08
Acenaphthylene*	NV	NV	NV	9.65E-06	1.90E-05	1.59E-05	5.33E-06	3.89E-06	3.61E-06	3.54E-06	4.35E-06	5.04E-06	2.95E-05	1.81E-05	8.21E-06
Fluoranthene*	NV	460	NV	1.38E-06	2.72E-06	2.28E-06	7.65E-07	5.59E-07	5.19E-07	5.08E-07	6.25E-07	7.23E-07	4.23E-06	2.59E-06	1.18E-06
Benzo(b)fluoranthene*	NV	1.5	NV	3.56E-07	6.99E-07	5.86E-07	1.97E-07	1.44E-07	1.33E-07	1.31E-07	1.61E-07	1.86E-07	1.09E-06	6.67E-07	3.03E-07
Benzo(g,h,i)perylene*	NV	NV	NV	3.62E-08	7.11E-08	5.97E-08	2.00E-08	1.46E-08	1.36E-08	1.33E-08	1.63E-08	1.89E-08	1.11E-07	6.78E-08	3.08E-08
Benzo(k)fluoranthene*	NV	15	NV	1.10E-07	2.16E-07	1.81E-07	6.07E-08	4.43E-08	4.11E-08	4.03E-08	4.95E-08	5.73E-08	3.35E-07	2.06E-07	9.34E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.36E-07	2.68E-07	2.25E-07	7.54E-08	5.50E-08	5.11E-08	5.00E-08	6.15E-08	7.12E-08	4.16E-07	2.55E-07	1.16E-07
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.66E-07	3.26E-07	2.73E-07	9.16E-08	6.69E-08	6.21E-08	6.08E-08	7.48E-08	8.65E-08	5.06E-07	3.11E-07	1.41E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	8.29E-08	1.63E-07	1.37E-07	4.58E-08	3.35E-08	3.11E-08	3.04E-08	3.74E-08	4.33E-08	2.53E-07	1.55E-07	7.05E-08

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Rankin 2	Rankin 3	Camp	Chemical of Concern?
Total Metals							
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.69E+03	No
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.14E-01	No
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	No
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	No
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	No
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	No
Cadmium (Cd)	10	14	0.88	8.00E-01	8.00E-01	8.59E-01	No
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	No
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.14E+01	No
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	No
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	No
Gold*	NV	NV	NV	7.65E-07	8.42E-07	2.15E-05	No
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	No
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	No
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	No
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.09E+03	No
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	No
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	No
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	No
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	No
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	No
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	No
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.24E+02	No
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	No
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	No
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	No
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.46E+02	No
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	No
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	No
Yttrium (Y)*	NV	NV	NV	9.35E-05	1.03E-04	2.63E-03	No
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.01E+01	No
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene*	NV	0.15	NV	1.33E-07	1.43E-07	1.72E-05	No
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	No
Naphthalene*	NV	36	NV	4.80E-06	5.16E-06	6.20E-04	No
Phenanthrene*	NV	NV	NV	1.66E-06	1.78E-06	2.14E-04	No
Anthracene*	NV	3400	NV	4.23E-07	4.55E-07	5.47E-05	No
Fluorene*	NV	460	NV	2.41E-07	2.60E-07	3.12E-05	No
Pyrene*	NV	340	NV	4.78E-06	5.15E-06	6.19E-04	No
Thiophene*	NV	NV	NV	1.72E-07	1.85E-07	2.22E-05	No
Benzo(a)anthracene*	NV	1.5	NV	8.12E-08	8.74E-08	1.05E-05	No
Acenapthene*	NV	680	NV	7.91E-08	8.52E-08	1.02E-05	No
Acenapthylene*	NV	NV	NV	9.27E-06	9.97E-06	1.20E-03	No
Fluoranthene*	NV	460	NV	1.33E-06	1.43E-06	1.72E-04	No
Benzo(b)fluoranthene*	NV	1.5	NV	3.42E-07	3.68E-07	4.42E-05	No
Benzo(g,h,i)perylene*	NV	NV	NV	3.48E-08	3.74E-08	4.50E-06	No
Benzo(k)fluoranthene*	NV	15	NV	1.05E-07	1.13E-07	1.36E-05	No
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	No
Chrysene*	NV	150	NV	1.31E-07	1.41E-07	1.69E-05	No
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.59E-07	1.71E-07	2.06E-05	No
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	7.97E-08	8.57E-08	1.03E-05	No

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.05E-01	8.01E-01	8.02E-01	8.02E-01	8.02E-01	8.03E-01	8.04E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	3.30E-06	9.05E-07	1.47E-06	1.64E-06	1.96E-06	2.94E-06	4.18E-06	2.83E-07	3.22E-07	2.41E-07	2.83E-07	3.28E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.21E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.21E+02	3.21E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	4.03E-04	1.11E-04	1.80E-04	2.00E-04	2.39E-04	3.60E-04	5.10E-04	3.45E-05	3.94E-05	2.95E-05	3.45E-05	4.00E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.53E-06	3.03E-07	5.24E-07	5.57E-07	6.14E-07	8.32E-07	1.04E-06	9.15E-08	1.21E-07	1.06E-07	9.15E-08	1.12E-07
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	5.53E-05	1.10E-05	1.89E-05	2.01E-05	2.22E-05	3.00E-05	3.77E-05	3.30E-06	4.36E-06	3.83E-06	3.30E-06	4.03E-06
Phenanthrene*	NV	NV	NV	1.91E-05	3.78E-06	6.53E-06	6.95E-06	7.66E-06	1.04E-05	1.30E-05	1.14E-06	1.51E-06	1.32E-06	1.14E-06	1.39E-06
Anthracene*	NV	3400	NV	4.88E-06	9.66E-07	1.67E-06	1.77E-06	1.95E-06	2.65E-06	3.32E-06	2.91E-07	3.85E-07	3.38E-07	2.91E-07	3.56E-07
Fluorene*	NV	460	NV	2.78E-06	5.51E-07	9.52E-07	1.01E-06	1.12E-06	1.51E-06	1.90E-06	1.66E-07	2.19E-07	1.93E-07	1.66E-07	2.03E-07
Pyrene*	NV	340	NV	5.52E-05	1.09E-05	1.89E-05	2.01E-05	2.21E-05	3.00E-05	3.76E-05	3.30E-06	4.35E-06	3.82E-06	3.30E-06	4.02E-06
Thiophene*	NV	NV	NV	1.98E-06	3.93E-07	6.78E-07	7.21E-07	7.95E-07	1.08E-06	1.35E-06	1.18E-07	1.56E-07	1.37E-07	1.18E-07	1.45E-07
Benzo(a)anthracene*	NV	1.5	NV	9.37E-07	1.86E-07	3.20E-07	3.41E-07	3.75E-07	5.09E-07	6.38E-07	5.59E-08	7.39E-08	6.49E-08	5.60E-08	6.83E-08
Acenaphthene*	NV	680	NV	9.13E-07	1.81E-07	3.12E-07	3.32E-07	3.66E-07	4.96E-07	6.22E-07	5.45E-08	7.20E-08	6.32E-08	5.45E-08	6.65E-08
Acenaphthylene*	NV	NV	NV	1.07E-04	2.12E-05	3.65E-05	3.89E-05	4.28E-05	5.80E-05	7.28E-05	6.38E-06	8.43E-06	7.41E-06	6.38E-06	7.79E-06
Fluoranthene*	NV	460	NV	1.53E-05	3.04E-06	5.24E-06	5.58E-06	6.15E-06	8.33E-06	1.04E-05	9.16E-07	1.21E-06	1.06E-06	9.16E-07	1.12E-06
Benzo(b)fluoranthene*	NV	1.5	NV	3.94E-06	7.81E-07	1.35E-06	1.43E-06	1.58E-06	2.14E-06	2.68E-06	2.35E-07	3.11E-07	2.73E-07	2.35E-07	2.87E-07
Benzo(g,h,i)perylene*	NV	NV	NV	4.01E-07	7.94E-08	1.37E-07	1.46E-07	1.61E-07	2.18E-07	2.73E-07	2.40E-08	3.16E-08	2.78E-08	2.40E-08	2.92E-08
Benzo(k)fluoranthene*	NV	15	NV	1.22E-06	2.41E-07	4.16E-07	4.42E-07	4.87E-07	6.60E-07	8.28E-07	7.26E-08	9.59E-08	8.43E-08	7.26E-08	8.86E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.51E-06	2.99E-07	5.16E-07	5.49E-07	6.05E-07	8.20E-07	1.03E-06	9.02E-08	1.19E-07	1.05E-07	9.02E-08	1.10E-07
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.84E-06	3.64E-07	6.28E-07	6.68E-07	7.36E-07	9.97E-07	1.25E-06	1.10E-07	1.45E-07	1.27E-07	1.10E-07	1.34E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	9.19E-07	1.82E-07	3.14E-07	3.34E-07	3.68E-07	4.99E-07	6.26E-07	5.49E-08	7.24E-08	6.37E-08	5.49E-08	6.70E-08

Table 10.2-D-3c: Screening of Predicted Soil Deposition Concentrations - Scenario 3

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 13	Receptor 14	Receptor 15	Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.00E-01	8.01E-01	8.01E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.01E-01	8.01E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	4.39E-07	1.01E-06	7.44E-07	2.70E-07	2.17E-07	2.26E-07	2.62E-07	2.43E-07	2.80E-07	1.17E-06	1.16E-06	6.02E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	5.36E-05	1.23E-04	9.09E-05	3.30E-05	2.66E-05	2.76E-05	3.20E-05	2.96E-05	3.42E-05	1.43E-04	1.41E-04	7.36E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.29E-07	2.36E-07	1.96E-07	7.13E-08	5.24E-08	4.87E-08	4.81E-08	5.89E-08	6.83E-08	3.51E-07	2.65E-07	1.07E-07
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	4.67E-06	8.54E-06	7.09E-06	2.57E-06	1.89E-06	1.76E-06	1.74E-06	2.13E-06	2.47E-06	1.27E-05	9.55E-06	3.85E-06
Phenanthrene*	NV	NV	NV	1.61E-06	2.95E-06	2.45E-06	8.90E-07	6.54E-07	6.08E-07	6.00E-07	7.35E-07	8.52E-07	4.37E-06	3.30E-06	1.33E-06
Anthracene*	NV	3400	NV	4.12E-07	7.53E-07	6.25E-07	2.27E-07	1.67E-07	1.55E-07	1.53E-07	1.88E-07	2.18E-07	1.12E-06	8.43E-07	3.40E-07
Fluorene*	NV	460	NV	2.35E-07	4.30E-07	3.57E-07	1.30E-07	9.52E-08	8.86E-08	8.74E-08	1.07E-07	1.24E-07	6.37E-07	4.81E-07	1.94E-07
Pyrene*	NV	340	NV	4.66E-06	8.52E-06	7.07E-06	2.57E-06	1.89E-06	1.76E-06	1.73E-06	2.12E-06	2.46E-06	1.26E-05	9.53E-06	3.85E-06
Thiophene*	NV	NV	NV	1.68E-07	3.06E-07	2.54E-07	9.23E-08	6.78E-08	6.31E-08	6.23E-08	7.63E-08	8.84E-08	4.54E-07	3.43E-07	1.38E-07
Benzo(a)anthracene*	NV	1.5	NV	7.92E-08	1.45E-07	1.20E-07	4.36E-08	3.20E-08	2.98E-08	2.94E-08	3.61E-08	4.18E-08	2.14E-07	1.62E-07	6.53E-08
Acenaphthene*	NV	680	NV	7.71E-08	1.41E-07	1.17E-07	4.25E-08	3.12E-08	2.90E-08	2.87E-08	3.51E-08	4.07E-08	2.09E-07	1.58E-07	6.36E-08
Acenaphthylene*	NV	NV	NV	9.03E-06	1.65E-05	1.37E-05	4.97E-06	3.66E-06	3.40E-06	3.36E-06	4.11E-06	4.76E-06	2.45E-05	1.85E-05	7.45E-06
Fluoranthene*	NV	460	NV	1.30E-06	2.37E-06	1.97E-06	7.14E-07	5.25E-07	4.88E-07	4.82E-07	5.90E-07	6.84E-07	3.51E-06	2.65E-06	1.07E-06
Benzo(b)fluoranthene*	NV	1.5	NV	3.33E-07	6.09E-07	5.05E-07	1.84E-07	1.35E-07	1.25E-07	1.24E-07	1.52E-07	1.76E-07	9.02E-07	6.81E-07	2.75E-07
Benzo(g,h,i)perylene*	NV	NV	NV	3.39E-08	6.19E-08	5.14E-08	1.87E-08	1.37E-08	1.28E-08	1.26E-08	1.54E-08	1.79E-08	9.18E-08	6.93E-08	2.80E-08
Benzo(k)fluoranthene*	NV	15	NV	1.03E-07	1.88E-07	1.56E-07	5.66E-08	4.16E-08	3.87E-08	3.82E-08	4.68E-08	5.42E-08	2.78E-07	2.10E-07	8.47E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.28E-07	2.33E-07	1.94E-07	7.03E-08	5.17E-08	4.81E-08	4.75E-08	5.81E-08	6.73E-08	3.46E-07	2.61E-07	1.05E-07
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.55E-07	2.84E-07	2.35E-07	8.55E-08	6.28E-08	5.84E-08	5.77E-08	7.07E-08	8.19E-08	4.20E-07	3.17E-07	1.28E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	7.76E-08	1.42E-07	1.18E-07	4.28E-08	3.14E-08	2.92E-08	2.89E-08	3.54E-08	4.10E-08	2.10E-07	1.59E-07	6.40E-08

Table 10.2-D-3c: Screening of Predicted Soil Deposition Concentrations - Scenario 3

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Rankin 2	Rankin 3	Camp	Chemical of Concern?
Total Metals							
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.69E+03	No
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.14E-01	No
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	No
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	No
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	No
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	No
Cadmium (Cd)	10	14	0.88	8.00E-01	8.00E-01	8.58E-01	No
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	No
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.14E+01	No
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	No
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	No
Gold*	NV	NV	NV	6.23E-07	6.96E-07	2.06E-05	No
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	No
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	No
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	No
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.09E+03	No
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	No
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	No
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	No
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	No
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	No
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	No
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.24E+02	No
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	No
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	No
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	No
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.46E+02	No
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	No
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	No
Yttrium (Y)*	NV	NV	NV	7.61E-05	8.50E-05	2.52E-03	No
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.01E+01	No
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene*	NV	0.15	NV	1.19E-07	1.28E-07	1.70E-05	No
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	No
Naphthalene*	NV	36	NV	4.30E-06	4.63E-06	6.14E-04	No
Phenanthrene*	NV	NV	NV	1.49E-06	1.60E-06	2.12E-04	No
Anthracene*	NV	3400	NV	3.79E-07	4.08E-07	5.42E-05	No
Fluorene*	NV	460	NV	2.16E-07	2.33E-07	3.09E-05	No
Pyrene*	NV	340	NV	4.29E-06	4.61E-06	6.13E-04	No
Thiophene*	NV	NV	NV	1.54E-07	1.66E-07	2.20E-05	No
Benzo(a)anthracene*	NV	1.5	NV	7.29E-08	7.83E-08	1.04E-05	No
Acenaphthene*	NV	680	NV	7.10E-08	7.63E-08	1.01E-05	No
Acenaphthylene*	NV	NV	NV	8.31E-06	8.94E-06	1.19E-03	No
Fluoranthene*	NV	460	NV	1.19E-06	1.28E-06	1.70E-04	No
Benzo(b)fluoranthene*	NV	1.5	NV	3.07E-07	3.30E-07	4.38E-05	No
Benzo(g,h,i)perylene*	NV	NV	NV	3.12E-08	3.35E-08	4.45E-06	No
Benzo(k)fluoranthene*	NV	15	NV	9.45E-08	1.02E-07	1.35E-05	No
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	No
Chrysene*	NV	150	NV	1.17E-07	1.26E-07	1.68E-05	No
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.43E-07	1.54E-07	2.04E-05	No
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	7.14E-08	7.68E-08	1.02E-05	No

Table 10.2-D-3d: Screening of Predicted Soil Deposition Concentrations - Scenario 4

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.05E-01	8.01E-01	8.02E-01	8.02E-01	8.02E-01	8.02E-01	8.03E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	2.45E-06	5.72E-07	9.19E-07	9.60E-07	1.05E-06	1.37E-06	1.77E-06	2.24E-07	2.49E-07	2.34E-07	2.24E-07	2.61E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.21E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	3.00E-04	6.99E-05	1.12E-04	1.17E-04	1.28E-04	1.67E-04	2.16E-04	2.74E-05	3.04E-05	2.86E-05	2.74E-05	3.19E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.44E-06	2.81E-07	4.52E-07	4.71E-07	5.01E-07	6.46E-07	7.76E-07	8.11E-08	1.05E-07	1.02E-07	8.10E-08	9.62E-08
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	5.21E-05	1.01E-05	1.63E-05	1.70E-05	1.81E-05	2.33E-05	2.80E-05	2.93E-06	3.79E-06	3.70E-06	2.93E-06	3.47E-06
Phenanthrene*	NV	NV	NV	1.80E-05	3.50E-06	5.63E-06	5.88E-06	6.26E-06	8.06E-06	9.68E-06	1.01E-06	1.31E-06	1.28E-06	1.01E-06	1.20E-06
Anthracene*	NV	3400	NV	4.60E-06	8.95E-07	1.44E-06	1.50E-06	1.60E-06	2.06E-06	2.47E-06	2.58E-07	3.34E-07	3.26E-07	2.58E-07	3.07E-07
Fluorene*	NV	460	NV	2.62E-06	5.10E-07	8.21E-07	8.56E-07	9.11E-07	1.17E-06	1.41E-06	1.47E-07	1.91E-07	1.86E-07	1.47E-07	1.75E-07
Pyrene*	NV	340	NV	5.20E-05	1.01E-05	1.63E-05	1.70E-05	1.81E-05	2.33E-05	2.80E-05	2.92E-06	3.78E-06	3.69E-06	2.92E-06	3.47E-06
Thiophene*	NV	NV	NV	1.87E-06	3.64E-07	5.85E-07	6.10E-07	6.49E-07	8.37E-07	1.01E-06	1.05E-07	1.36E-07	1.33E-07	1.05E-07	1.25E-07
Benzo(a)anthracene*	NV	1.5	NV	8.83E-07	1.72E-07	2.76E-07	2.88E-07	3.07E-07	3.95E-07	4.75E-07	4.96E-08	6.42E-08	6.27E-08	4.96E-08	5.89E-08
Acenaphthene*	NV	680	NV	8.60E-07	1.67E-07	2.69E-07	2.81E-07	2.99E-07	3.85E-07	4.62E-07	4.83E-08	6.26E-08	6.10E-08	4.83E-08	5.73E-08
Acenaphthylene*	NV	NV	NV	1.01E-04	1.96E-05	3.15E-05	3.29E-05	3.50E-05	4.51E-05	5.42E-05	5.66E-06	7.32E-06	7.15E-06	5.66E-06	6.71E-06
Fluoranthene*	NV	460	NV	1.45E-05	2.81E-06	4.52E-06	4.72E-06	5.02E-06	6.47E-06	7.77E-06	8.12E-07	1.05E-06	1.03E-06	8.12E-07	9.64E-07
Benzo(b)fluoranthene*	NV	1.5	NV	3.71E-06	7.23E-07	1.16E-06	1.21E-06	1.29E-06	1.66E-06	2.00E-06	2.09E-07	2.70E-07	2.64E-07	2.09E-07	2.48E-07
Benzo(g,h,i)perylene*	NV	NV	NV	3.78E-07	7.36E-08	1.18E-07	1.23E-07	1.31E-07	1.69E-07	2.03E-07	2.12E-08	2.75E-08	2.68E-08	2.12E-08	2.52E-08
Benzo(k)fluoranthene*	NV	15	NV	1.15E-06	2.23E-07	3.59E-07	3.74E-07	3.98E-07	5.13E-07	6.16E-07	6.44E-08	8.33E-08	8.13E-08	6.43E-08	7.64E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.42E-06	2.77E-07	4.45E-07	4.64E-07	4.94E-07	6.37E-07	7.65E-07	8.00E-08	1.04E-07	1.01E-07	7.99E-08	9.49E-08
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.73E-06	3.37E-07	5.42E-07	5.65E-07	6.01E-07	7.75E-07	9.31E-07	9.72E-08	1.26E-07	1.23E-07	9.72E-08	1.15E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	8.66E-07	1.68E-07	2.71E-07	2.82E-07	3.01E-07	3.87E-07	4.66E-07	4.86E-08	6.30E-08	6.14E-08	4.86E-08	5.77E-08

Table 10.2-D-3d: Screening of Predicted Soil Deposition Concentrations - Scenario 4

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 13	Receptor 14	Receptor 15	Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.00E-01	8.01E-01	8.01E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.01E-01	8.01E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	8.86E-07	2.37E-06	2.64E-06	1.88E-06	8.19E-07	7.57E-07	8.41E-07	6.87E-07	9.06E-07	2.14E-06	1.22E-06	8.88E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.21E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	1.08E-04	2.90E-04	3.23E-04	2.30E-04	1.00E-04	9.25E-05	1.03E-04	8.40E-05	1.11E-04	2.61E-04	1.49E-04	1.08E-04
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.39E-07	3.04E-07	2.96E-07	1.24E-07	7.68E-08	6.83E-08	6.48E-08	8.23E-08	1.05E-07	4.07E-07	2.43E-07	1.24E-07
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	5.04E-06	1.10E-05	1.07E-05	4.47E-06	2.77E-06	2.47E-06	2.34E-06	2.97E-06	3.78E-06	1.47E-05	8.77E-06	4.47E-06
Phenanthrene*	NV	NV	NV	1.74E-06	3.79E-06	3.69E-06	1.54E-06	9.58E-07	8.52E-07	8.09E-07	1.03E-06	1.31E-06	5.07E-06	3.03E-06	1.54E-06
Anthracene*	NV	3400	NV	4.44E-07	9.67E-07	9.43E-07	3.94E-07	2.45E-07	2.18E-07	2.07E-07	2.62E-07	3.34E-07	1.30E-06	7.73E-07	3.94E-07
Fluorene*	NV	460	NV	2.53E-07	5.52E-07	5.38E-07	2.25E-07	1.40E-07	1.24E-07	1.18E-07	1.50E-07	1.90E-07	7.39E-07	4.41E-07	2.25E-07
Pyrene*	NV	340	NV	5.03E-06	1.09E-05	1.07E-05	4.46E-06	2.77E-06	2.46E-06	2.34E-06	2.97E-06	3.78E-06	1.47E-05	8.75E-06	4.46E-06
Thiophene*	NV	NV	NV	1.81E-07	3.93E-07	3.83E-07	1.60E-07	9.94E-08	8.84E-08	8.40E-08	1.07E-07	1.36E-07	5.27E-07	3.14E-07	1.60E-07
Benzo(a)anthracene*	NV	1.5	NV	8.53E-08	1.86E-07	1.81E-07	7.56E-08	4.70E-08	4.18E-08	3.97E-08	5.03E-08	6.41E-08	2.49E-07	1.48E-07	7.56E-08
Acenaphthene*	NV	680	NV	8.31E-08	1.81E-07	1.76E-07	7.37E-08	4.58E-08	4.07E-08	3.86E-08	4.90E-08	6.24E-08	2.42E-07	1.45E-07	7.37E-08
Acenaphthylene*	NV	NV	NV	9.73E-06	2.12E-05	2.07E-05	8.63E-06	5.36E-06	4.76E-06	4.52E-06	5.74E-06	7.31E-06	2.84E-05	1.69E-05	8.63E-06
Fluoranthene*	NV	460	NV	1.40E-06	3.04E-06	2.96E-06	1.24E-06	7.69E-07	6.84E-07	6.49E-07	8.24E-07	1.05E-06	4.07E-06	2.43E-06	1.24E-06
Benzo(b)fluoranthene*	NV	1.5	NV	3.59E-07	7.81E-07	7.62E-07	3.18E-07	1.98E-07	1.76E-07	1.67E-07	2.12E-07	2.70E-07	1.05E-06	6.25E-07	3.18E-07
Benzo(g,h,i)perylene*	NV	NV	NV	3.65E-08	7.95E-08	7.75E-08	3.24E-08	2.01E-08	1.79E-08	1.70E-08	2.16E-08	2.74E-08	1.07E-07	6.36E-08	3.24E-08
Benzo(k)fluoranthene*	NV	15	NV	1.11E-07	2.41E-07	2.35E-07	9.82E-08	6.09E-08	5.42E-08	5.15E-08	6.53E-08	8.32E-08	3.23E-07	1.93E-07	9.82E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.38E-07	2.99E-07	2.92E-07	1.22E-07	7.57E-08	6.73E-08	6.39E-08	8.12E-08	1.03E-07	4.01E-07	2.39E-07	1.22E-07
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.67E-07	3.64E-07	3.55E-07	1.48E-07	9.21E-08	8.19E-08	7.78E-08	9.87E-08	1.26E-07	4.88E-07	2.91E-07	1.48E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	8.37E-08	1.82E-07	1.78E-07	7.42E-08	4.61E-08	4.10E-08	3.89E-08	4.94E-08	6.29E-08	2.44E-07	1.46E-07	7.42E-08

Table 10.2-D-3d: Screening of Predicted Soil Deposition Concentrations - Scenario 4

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Rankin 2	Rankin 3	Camp	Chemical of Concern?
Total Metals							
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.69E+03	No
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.14E-01	No
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	No
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	No
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	No
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	No
Cadmium (Cd)	10	14	0.88	8.00E-01	8.00E-01	8.58E-01	No
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	No
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.14E+01	No
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	No
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	No
Gold*	NV	NV	NV	9.01E-07	9.93E-07	1.96E-05	No
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	No
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	No
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	No
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.09E+03	No
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	No
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	No
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	No
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	No
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	No
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	No
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.24E+02	No
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	No
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	No
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	No
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.46E+02	No
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	No
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	No
Yttrium (Y)*	NV	NV	NV	1.10E-04	1.21E-04	2.39E-03	No
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.01E+01	No
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene*	NV	0.15	NV	1.34E-07	1.44E-07	1.69E-05	No
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	No
Naphthalene*	NV	36	NV	4.83E-06	5.22E-06	6.11E-04	No
Phenanthrene*	NV	NV	NV	1.67E-06	1.80E-06	2.11E-04	No
Anthracene*	NV	3400	NV	4.26E-07	4.60E-07	5.39E-05	No
Fluorene*	NV	460	NV	2.43E-07	2.63E-07	3.07E-05	No
Pyrene*	NV	340	NV	4.81E-06	5.21E-06	6.09E-04	No
Thiophene*	NV	NV	NV	1.73E-07	1.87E-07	2.19E-05	No
Benzo(a)anthracene*	NV	1.5	NV	8.17E-08	8.84E-08	1.03E-05	No
Acenapthene*	NV	680	NV	7.96E-08	8.61E-08	1.01E-05	No
Acenapthylene*	NV	NV	NV	9.32E-06	1.01E-05	1.18E-03	No
Fluoranthene*	NV	460	NV	1.34E-06	1.45E-06	1.69E-04	No
Benzo(b)fluoranthene*	NV	1.5	NV	3.44E-07	3.72E-07	4.35E-05	No
Benzo(g,h,i)perylene*	NV	NV	NV	3.50E-08	3.78E-08	4.43E-06	No
Benzo(k)fluoranthene*	NV	15	NV	1.06E-07	1.15E-07	1.34E-05	No
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	No
Chrysene*	NV	150	NV	1.32E-07	1.43E-07	1.67E-05	No
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.60E-07	1.73E-07	2.03E-05	No
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	8.02E-08	8.67E-08	1.01E-05	No

Table 10.2-D-3e: Screening of Predicted Soil Deposition Concentrations - Scenario 5

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.05E-01	8.01E-01	8.02E-01	8.02E-01	8.02E-01	8.03E-01	8.03E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	3.07E-06	7.61E-07	1.41E-06	1.51E-06	1.70E-06	2.39E-06	3.19E-06	2.33E-07	2.72E-07	2.20E-07	2.33E-07	2.80E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.21E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.21E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	3.76E-04	9.30E-05	1.73E-04	1.85E-04	2.08E-04	2.92E-04	3.89E-04	2.85E-05	3.32E-05	2.68E-05	2.85E-05	3.42E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.56E-06	3.00E-07	5.39E-07	5.62E-07	5.98E-07	7.68E-07	9.29E-07	8.56E-08	1.15E-07	1.06E-07	8.56E-08	1.07E-07
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	5.62E-05	1.08E-05	1.95E-05	2.03E-05	2.16E-05	2.77E-05	3.36E-05	3.09E-06	4.15E-06	3.83E-06	3.09E-06	3.88E-06
Phenanthrene*	NV	NV	NV	1.94E-05	3.75E-06	6.73E-06	7.02E-06	7.47E-06	9.58E-06	1.16E-05	1.07E-06	1.43E-06	1.32E-06	1.07E-06	1.34E-06
Anthracene*	NV	3400	NV	4.96E-06	9.57E-07	1.72E-06	1.79E-06	1.91E-06	2.45E-06	2.96E-06	2.73E-07	3.66E-07	3.38E-07	2.73E-07	3.42E-07
Fluorene*	NV	460	NV	2.83E-06	5.46E-07	9.80E-07	1.02E-06	1.09E-06	1.40E-06	1.69E-06	1.55E-07	2.09E-07	1.93E-07	1.56E-07	1.95E-07
Pyrene*	NV	340	NV	5.61E-05	1.08E-05	1.94E-05	2.03E-05	2.16E-05	2.77E-05	3.35E-05	3.08E-06	4.14E-06	3.82E-06	3.08E-06	3.87E-06
Thiophene*	NV	NV	NV	2.02E-06	3.89E-07	6.99E-07	7.29E-07	7.75E-07	9.95E-07	1.20E-06	1.11E-07	1.49E-07	1.37E-07	1.11E-07	1.39E-07
Benzo(a)anthracene*	NV	1.5	NV	9.52E-07	1.84E-07	3.30E-07	3.44E-07	3.66E-07	4.70E-07	5.68E-07	5.23E-08	7.02E-08	6.49E-08	5.24E-08	6.57E-08
Acenaphthene*	NV	680	NV	9.28E-07	1.79E-07	3.21E-07	3.35E-07	3.57E-07	4.58E-07	5.54E-07	5.10E-08	6.84E-08	6.33E-08	5.10E-08	6.40E-08
Acenaphthylene*	NV	NV	NV	1.09E-04	2.10E-05	3.76E-05	3.93E-05	4.18E-05	5.36E-05	6.48E-05	5.97E-06	8.01E-06	7.41E-06	5.97E-06	7.50E-06
Fluoranthene*	NV	460	NV	1.56E-05	3.01E-06	5.40E-06	5.63E-06	5.99E-06	7.69E-06	9.31E-06	8.57E-07	1.15E-06	1.06E-06	8.57E-07	1.08E-06
Benzo(b)fluoranthene*	NV	1.5	NV	4.01E-06	7.73E-07	1.39E-06	1.45E-06	1.54E-06	1.98E-06	2.39E-06	2.20E-07	2.96E-07	2.73E-07	2.20E-07	2.77E-07
Benzo(g,h,i)perylene*	NV	NV	NV	4.08E-07	7.87E-08	1.41E-07	1.47E-07	1.57E-07	2.01E-07	2.43E-07	2.24E-08	3.01E-08	2.78E-08	2.24E-08	2.81E-08
Benzo(k)fluoranthene*	NV	15	NV	1.24E-06	2.38E-07	4.28E-07	4.47E-07	4.75E-07	6.10E-07	7.38E-07	6.79E-08	9.12E-08	8.43E-08	6.79E-08	8.53E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.54E-06	2.96E-07	5.32E-07	5.55E-07	5.90E-07	7.58E-07	9.16E-07	8.44E-08	1.13E-07	1.05E-07	8.44E-08	1.06E-07
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.87E-06	3.60E-07	6.47E-07	6.75E-07	7.18E-07	9.21E-07	1.11E-06	1.03E-07	1.38E-07	1.27E-07	1.03E-07	1.29E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	9.34E-07	1.80E-07	3.24E-07	3.37E-07	3.59E-07	4.61E-07	5.57E-07	5.13E-08	6.89E-08	6.37E-08	5.13E-08	6.45E-08

Table 10.2-D-3e: Screening of Predicted Soil Deposition Concentrations - Scenario 5

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 13	Receptor 14	Receptor 15	Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.00E-01	8.01E-01	8.01E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.01E-01	8.01E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	3.81E-07	1.04E-06	7.61E-07	2.55E-07	2.02E-07	2.05E-07	2.30E-07	2.16E-07	2.45E-07	1.22E-06	9.15E-07	4.90E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	4.66E-05	1.27E-04	9.30E-05	3.11E-05	2.47E-05	2.51E-05	2.82E-05	2.64E-05	3.00E-05	1.49E-04	1.12E-04	5.99E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.24E-07	2.37E-07	1.97E-07	7.01E-08	5.13E-08	4.75E-08	4.63E-08	5.70E-08	6.56E-08	3.59E-07	2.41E-07	1.01E-07
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	4.47E-06	8.57E-06	7.13E-06	2.53E-06	1.85E-06	1.71E-06	1.67E-06	2.06E-06	2.37E-06	1.30E-05	8.71E-06	3.64E-06
Phenanthrene*	NV	NV	NV	1.54E-06	2.96E-06	2.46E-06	8.74E-07	6.40E-07	5.92E-07	5.78E-07	7.11E-07	8.18E-07	4.48E-06	3.01E-06	1.26E-06
Anthracene*	NV	3400	NV	3.94E-07	7.56E-07	6.29E-07	2.23E-07	1.63E-07	1.51E-07	1.48E-07	1.81E-07	2.09E-07	1.14E-06	7.68E-07	3.21E-07
Fluorene*	NV	460	NV	2.25E-07	4.31E-07	3.59E-07	1.27E-07	9.32E-08	8.62E-08	8.41E-08	1.04E-07	1.19E-07	6.53E-07	4.38E-07	1.83E-07
Pyrene*	NV	340	NV	4.46E-06	8.55E-06	7.11E-06	2.52E-06	1.85E-06	1.71E-06	1.67E-06	2.05E-06	2.36E-06	1.29E-05	8.69E-06	3.63E-06
Thiophene*	NV	NV	NV	1.60E-07	3.07E-07	2.56E-07	9.08E-08	6.64E-08	6.15E-08	6.00E-08	7.38E-08	8.50E-08	4.65E-07	3.12E-07	1.30E-07
Benzo(a)anthracene*	NV	1.5	NV	7.57E-08	1.45E-07	1.21E-07	4.29E-08	3.14E-08	2.90E-08	2.83E-08	3.48E-08	4.01E-08	2.20E-07	1.47E-07	6.16E-08
Acenaphthene*	NV	680	NV	7.38E-08	1.41E-07	1.18E-07	4.18E-08	3.06E-08	2.83E-08	2.76E-08	3.39E-08	3.91E-08	2.14E-07	1.44E-07	6.00E-08
Acenaphthylene*	NV	NV	NV	8.64E-06	1.66E-05	1.38E-05	4.89E-06	3.58E-06	3.31E-06	3.23E-06	3.98E-06	4.58E-06	2.51E-05	1.68E-05	7.03E-06
Fluoranthene*	NV	460	NV	1.24E-06	2.38E-06	1.98E-06	7.02E-07	5.14E-07	4.75E-07	4.64E-07	5.71E-07	6.57E-07	3.60E-06	2.41E-06	1.01E-06
Benzo(b)fluoranthene*	NV	1.5	NV	3.19E-07	6.11E-07	5.08E-07	1.80E-07	1.32E-07	1.22E-07	1.19E-07	1.47E-07	1.69E-07	9.24E-07	6.21E-07	2.59E-07
Benzo(g,h,i)perylene*	NV	NV	NV	3.24E-08	6.22E-08	5.17E-08	1.84E-08	1.34E-08	1.24E-08	1.21E-08	1.49E-08	1.72E-08	9.41E-08	6.32E-08	2.64E-08
Benzo(k)fluoranthene*	NV	15	NV	9.83E-08	1.88E-07	1.57E-07	5.56E-08	4.07E-08	3.77E-08	3.68E-08	4.52E-08	5.21E-08	2.85E-07	1.91E-07	8.00E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.22E-07	2.34E-07	1.95E-07	6.91E-08	5.06E-08	4.68E-08	4.57E-08	5.62E-08	6.47E-08	3.54E-07	2.38E-07	9.94E-08
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.48E-07	2.85E-07	2.37E-07	8.40E-08	6.15E-08	5.69E-08	5.55E-08	6.83E-08	7.87E-08	4.31E-07	2.89E-07	1.21E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	7.43E-08	1.42E-07	1.18E-07	4.20E-08	3.08E-08	2.85E-08	2.78E-08	3.42E-08	3.93E-08	2.15E-07	1.45E-07	6.04E-08

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Rankin 2	Rankin 3	Camp	Chemical of Concern?
Total Metals							
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.69E+03	No
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.14E-01	No
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	No
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	No
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	No
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	No
Cadmium (Cd)	10	14	0.88	8.00E-01	8.00E-01	8.58E-01	No
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	No
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.14E+01	No
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	No
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	No
Gold*	NV	NV	NV	5.09E-07	5.66E-07	2.12E-05	No
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	No
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	No
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	No
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.09E+03	No
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	No
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	No
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	No
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	No
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	No
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	No
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.24E+02	No
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	No
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	No
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	No
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.46E+02	No
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	No
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	No
Yttrium (Y)*	NV	NV	NV	6.22E-05	6.92E-05	2.59E-03	No
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.01E+01	No
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene*	NV	0.15	NV	1.13E-07	1.21E-07	1.71E-05	No
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	No
Naphthalene*	NV	36	NV	4.06E-06	4.37E-06	6.18E-04	No
Phenanthrene*	NV	NV	NV	1.40E-06	1.51E-06	2.13E-04	No
Anthracene*	NV	3400	NV	3.59E-07	3.85E-07	5.45E-05	No
Fluorene*	NV	460	NV	2.05E-07	2.20E-07	3.11E-05	No
Pyrene*	NV	340	NV	4.06E-06	4.36E-06	6.16E-04	No
Thiophene*	NV	NV	NV	1.46E-07	1.57E-07	2.22E-05	No
Benzo(a)anthracene*	NV	1.5	NV	6.88E-08	7.40E-08	1.05E-05	No
Acenapthene*	NV	680	NV	6.71E-08	7.21E-08	1.02E-05	No
Acenapthylene*	NV	NV	NV	7.85E-06	8.44E-06	1.19E-03	No
Fluoranthene*	NV	460	NV	1.13E-06	1.21E-06	1.71E-04	No
Benzo(b)fluoranthene*	NV	1.5	NV	2.90E-07	3.11E-07	4.40E-05	No
Benzo(g,h,i)perylene*	NV	NV	NV	2.95E-08	3.17E-08	4.48E-06	No
Benzo(k)fluoranthene*	NV	15	NV	8.93E-08	9.60E-08	1.36E-05	No
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	No
Chrysene*	NV	150	NV	1.11E-07	1.19E-07	1.69E-05	No
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.35E-07	1.45E-07	2.05E-05	No
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	6.75E-08	7.26E-08	1.03E-05	No

Table 10.2-D-3f: Screening of Predicted Soil Deposition Concentrations - Scenario 6

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 1	Receptor 2	Receptor 3	Receptor 4	Receptor 5	Receptor 6	Receptor 7	Receptor 8	Receptor 9	Receptor 10	Receptor 11	Receptor 12
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.05E-01	8.01E-01	8.01E-01	8.01E-01	8.02E-01	8.02E-01	8.02E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	1.52E-06	2.18E-07	4.25E-07	4.40E-07	4.81E-07	6.21E-07	7.03E-07	6.53E-08	9.04E-08	8.29E-08	6.53E-08	8.51E-08
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	1.85E-04	2.66E-05	5.20E-05	5.38E-05	5.87E-05	7.59E-05	8.59E-05	7.98E-06	1.10E-05	1.01E-05	7.98E-06	1.04E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	1.39E-06	2.52E-07	4.20E-07	4.37E-07	4.64E-07	5.98E-07	7.05E-07	6.85E-08	9.35E-08	8.99E-08	6.84E-08	8.34E-08
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	5.01E-05	9.11E-06	1.52E-05	1.58E-05	1.67E-05	2.16E-05	2.55E-05	2.47E-06	3.37E-06	3.25E-06	2.47E-06	3.01E-06
Phenanthrene*	NV	NV	NV	1.73E-05	3.15E-06	5.23E-06	5.45E-06	5.79E-06	7.46E-06	8.80E-06	8.54E-07	1.17E-06	1.12E-06	8.54E-07	1.04E-06
Anthracene*	NV	3400	NV	4.42E-06	8.04E-07	1.34E-06	1.39E-06	1.48E-06	1.90E-06	2.25E-06	2.18E-07	2.98E-07	2.86E-07	2.18E-07	2.66E-07
Fluorene*	NV	460	NV	2.52E-06	4.59E-07	7.62E-07	7.94E-07	8.43E-07	1.09E-06	1.28E-06	1.24E-07	1.70E-07	1.63E-07	1.24E-07	1.52E-07
Pyrene*	NV	340	NV	5.00E-05	9.09E-06	1.51E-05	1.58E-05	1.67E-05	2.15E-05	2.54E-05	2.47E-06	3.37E-06	3.24E-06	2.47E-06	3.00E-06
Thiophene*	NV	NV	NV	1.80E-06	3.27E-07	5.43E-07	5.66E-07	6.01E-07	7.74E-07	9.13E-07	8.87E-08	1.21E-07	1.16E-07	8.86E-08	1.08E-07
Benzo(a)anthracene*	NV	1.5	NV	8.49E-07	1.54E-07	2.57E-07	2.67E-07	2.84E-07	3.66E-07	4.31E-07	4.19E-08	5.72E-08	5.50E-08	4.18E-08	5.10E-08
Acenaphthene*	NV	680	NV	8.27E-07	1.50E-07	2.50E-07	2.61E-07	2.76E-07	3.56E-07	4.20E-07	4.08E-08	5.57E-08	5.35E-08	4.08E-08	4.97E-08
Acenaphthylene*	NV	NV	NV	9.68E-05	1.76E-05	2.93E-05	3.05E-05	3.24E-05	4.17E-05	4.92E-05	4.78E-06	6.52E-06	6.27E-06	4.77E-06	5.82E-06
Fluoranthene*	NV	460	NV	1.39E-05	2.53E-06	4.20E-06	4.38E-06	4.64E-06	5.98E-06	7.06E-06	6.86E-07	9.36E-07	9.00E-07	6.85E-07	8.35E-07
Benzo(b)fluoranthene*	NV	1.5	NV	3.57E-06	6.50E-07	1.08E-06	1.13E-06	1.19E-06	1.54E-06	1.82E-06	1.76E-07	2.41E-07	2.31E-07	1.76E-07	2.15E-07
Benzo(g,h,i)perylene*	NV	NV	NV	3.63E-07	6.61E-08	1.10E-07	1.15E-07	1.21E-07	1.57E-07	1.85E-07	1.79E-08	2.45E-08	2.35E-08	1.79E-08	2.18E-08
Benzo(k)fluoranthene*	NV	15	NV	1.10E-06	2.00E-07	3.33E-07	3.47E-07	3.68E-07	4.74E-07	5.60E-07	5.43E-08	7.42E-08	7.13E-08	5.43E-08	6.62E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	1.37E-06	2.49E-07	4.14E-07	4.31E-07	4.57E-07	5.89E-07	6.96E-07	6.75E-08	9.22E-08	8.86E-08	6.75E-08	8.22E-08
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.66E-06	3.03E-07	5.03E-07	5.24E-07	5.56E-07	7.17E-07	8.46E-07	8.21E-08	1.12E-07	1.08E-07	8.20E-08	1.00E-07
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	8.32E-07	1.51E-07	2.52E-07	2.62E-07	2.78E-07	3.58E-07	4.23E-07	4.11E-08	5.61E-08	5.39E-08	4.10E-08	5.00E-08

Table 10.2-D-3f: Screening of Predicted Soil Deposition Concentrations - Scenario 6

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Receptor 13	Receptor 14	Receptor 15	Receptor 16	Receptor 17	Receptor 18	Receptor 19	Receptor 20	Receptor 21	Receptor 22	Park	Rankin 1
Total Metals															
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03	9.67E+03
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01	1.13E-01
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01	5.99E+01
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00	3.71E+00
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Cadmium (Cd)	10	14	0.88	8.00E-01	8.01E-01	8.01E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.01E-01	8.01E-01	8.00E-01
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04	2.67E+04
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01	5.13E+01
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01	4.50E+01
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01	7.20E+01
Gold*	NV	NV	NV	1.19E-07	4.68E-07	2.99E-07	9.44E-08	7.21E-08	7.08E-08	7.58E-08	7.00E-08	7.61E-08	5.59E-07	2.24E-07	1.35E-07
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04	2.13E+04
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01	1.00E+01
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01	1.31E+01
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03	7.08E+03
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02	4.25E+02
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00	7.00E+00
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01	4.80E+01
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03	2.67E+03
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02	3.20E+02
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02	1.95E+02
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00	2.50E+00
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02	9.45E+02
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00	1.97E+00
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01	3.90E+01
Yttrium (Y)*	NV	NV	NV	1.45E-05	5.71E-05	3.66E-05	1.15E-05	8.81E-06	8.65E-06	9.27E-06	8.56E-06	9.30E-06	6.83E-05	2.73E-05	1.65E-05
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Polycyclic Aromatic Hydrocarbons															
Benzo(a)pyrene*	NV	0.15	NV	9.73E-08	1.96E-07	1.58E-07	5.57E-08	4.07E-08	3.75E-08	3.63E-08	4.44E-08	5.06E-08	3.02E-07	1.83E-07	7.67E-08
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene*	NV	36	NV	3.51E-06	7.06E-06	5.72E-06	2.01E-06	1.47E-06	1.35E-06	1.31E-06	1.60E-06	1.83E-06	1.09E-05	6.60E-06	2.77E-06
Phenanthrene*	NV	NV	NV	1.21E-06	2.44E-06	1.98E-06	6.95E-07	5.07E-07	4.67E-07	4.53E-07	5.54E-07	6.32E-07	3.77E-06	2.28E-06	9.57E-07
Anthracene*	NV	3400	NV	3.10E-07	6.23E-07	5.04E-07	1.77E-07	1.30E-07	1.19E-07	1.16E-07	1.42E-07	1.61E-07	9.63E-07	5.82E-07	2.44E-07
Fluorene*	NV	460	NV	1.77E-07	3.55E-07	2.88E-07	1.01E-07	7.39E-08	6.81E-08	6.59E-08	8.08E-08	9.20E-08	5.49E-07	3.32E-07	1.39E-07
Pyrene*	NV	340	NV	3.51E-06	7.05E-06	5.70E-06	2.01E-06	1.47E-06	1.35E-06	1.31E-06	1.60E-06	1.82E-06	1.09E-05	6.58E-06	2.76E-06
Thiophene*	NV	NV	NV	1.26E-07	2.53E-07	2.05E-07	7.21E-08	5.27E-08	4.85E-08	4.70E-08	5.76E-08	6.56E-08	3.91E-07	2.37E-07	9.93E-08
Benzo(a)anthracene*	NV	1.5	NV	5.95E-08	1.20E-07	9.68E-08	3.41E-08	2.49E-08	2.29E-08	2.22E-08	2.72E-08	3.10E-08	1.85E-07	1.12E-07	4.69E-08
Acenaphthene*	NV	680	NV	5.80E-08	1.17E-07	9.43E-08	3.32E-08	2.42E-08	2.23E-08	2.16E-08	2.65E-08	3.02E-08	1.80E-07	1.09E-07	4.57E-08
Acenaphthylene*	NV	NV	NV	6.79E-06	1.36E-05	1.10E-05	3.89E-06	2.84E-06	2.61E-06	2.53E-06	3.10E-06	3.53E-06	2.11E-05	1.27E-05	5.35E-06
Fluoranthene*	NV	460	NV	9.74E-07	1.96E-06	1.59E-06	5.58E-07	4.07E-07	3.75E-07	3.63E-07	4.45E-07	5.07E-07	3.03E-06	1.83E-06	7.68E-07
Benzo(b)fluoranthene*	NV	1.5	NV	2.50E-07	5.03E-07	4.08E-07	1.43E-07	1.05E-07	9.64E-08	9.34E-08	1.14E-07	1.30E-07	7.78E-07	4.70E-07	1.97E-07
Benzo(g,h,i)perylene*	NV	NV	NV	2.55E-08	5.12E-08	4.15E-08	1.46E-08	1.07E-08	9.81E-09	9.50E-09	1.16E-08	1.33E-08	7.92E-08	4.78E-08	2.01E-08
Benzo(k)fluoranthene*	NV	15	NV	7.72E-08	1.55E-07	1.26E-07	4.42E-08	3.23E-08	2.97E-08	2.88E-08	3.53E-08	4.02E-08	2.40E-07	1.45E-07	6.09E-08
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Chrysene*	NV	150	NV	9.60E-08	1.93E-07	1.56E-07	5.49E-08	4.01E-08	3.69E-08	3.58E-08	4.38E-08	4.99E-08	2.98E-07	1.80E-07	7.56E-08
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.17E-07	2.34E-07	1.90E-07	6.68E-08	4.88E-08	4.49E-08	4.35E-08	5.33E-08	6.07E-08	3.62E-07	2.19E-07	9.19E-08
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	5.84E-08	1.17E-07	9.50E-08	3.34E-08	2.44E-08	2.25E-08	2.18E-08	2.67E-08	3.04E-08	1.81E-07	1.10E-07	4.60E-08

Table 10.2-D-3f: Screening of Predicted Soil Deposition Concentrations - Scenario 6

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA-Regional Screening Levels ^(b) (mg/kg)	Background + 10%	Rankin 2	Rankin 3	Camp	Chemical of Concern?
Total Metals							
Aluminum (Al)	NV	15400	10637	9.67E+03	9.67E+03	9.69E+03	No
Antimony (Sb)	20	6.2	0.12	1.13E-01	1.13E-01	1.14E-01	No
Arsenic (As)	12	3.9	65.89	5.99E+01	5.99E+01	5.99E+01	No
Barium (Ba)	500	3000	130.90	1.19E+02	1.19E+02	1.19E+02	No
Beryllium (Be)	4	32	4.08	3.71E+00	3.71E+00	3.71E+00	No
Bismuth (Bi)	NV	NV	0.17	1.50E-01	1.50E-01	1.50E-01	No
Cadmium (Cd)	10	14	0.88	8.00E-01	8.00E-01	8.57E-01	No
Calcium (Ca)	NV	NV	29370	2.67E+04	2.67E+04	2.67E+04	No
Chromium (Cr)	64	NV	56.43	5.13E+01	5.13E+01	5.13E+01	No
Cobalt (Co)	50	4.6	49.50	4.50E+01	4.50E+01	4.50E+01	No
Copper (Cu)	63	620	79.20	7.20E+01	7.20E+01	7.20E+01	No
Gold*	NV	NV	NV	1.38E-07	1.53E-07	1.76E-05	No
Iron (Fe)	NV	11000	23430.00	2.13E+04	2.13E+04	2.13E+04	No
Lead (Pb)	140	80	11.00	1.00E+01	1.00E+01	1.00E+01	No
Lithium (Li)	NV	32	14.41	1.31E+01	1.31E+01	1.31E+01	No
Magnesium (Mg)	NV	NV	7788.00	7.08E+03	7.08E+03	7.08E+03	No
Manganese (Mn)	NV	360	467.50	4.25E+02	4.25E+02	4.25E+02	No
Molybdenum (Mo)	10	78	7.70	7.00E+00	7.00E+00	7.00E+00	No
Nickel (Ni) ^(c)	50	740	52.80	4.80E+01	4.80E+01	4.80E+01	No
Potassium (K)	NV	NV	2937.00	2.67E+03	2.67E+03	2.67E+03	No
Selenium (Se)	1	78	1.32	1.20E+00	1.20E+00	1.20E+00	No
Silver (Ag)	20	78	0.55	5.00E-01	5.00E-01	5.00E-01	No
Sodium (Na)	NV	NV	352.00	3.20E+02	3.20E+02	3.24E+02	No
Strontium (Sr)	NV	9400	214.50	1.95E+02	1.95E+02	1.95E+02	No
Thallium (Tl)	1	0.156	0.55	5.00E-01	5.00E-01	5.00E-01	No
Tin (Sn)	50	9400	2.75	2.50E+00	2.50E+00	2.50E+00	No
Titanium (Ti)	NV	NV	1039.50	9.45E+02	9.45E+02	9.46E+02	No
Uranium (U)	23	46	2.17	1.97E+00	1.97E+00	1.97E+00	No
Vanadium (V) ^(c)	130	78	42.90	3.90E+01	3.90E+01	3.90E+01	No
Yttrium (Y)*	NV	NV	NV	1.68E-05	1.87E-05	2.15E-03	No
Zinc (Zn) ^(c)	200	4600	77.00	7.00E+01	7.00E+01	7.01E+01	No
Polycyclic Aromatic Hydrocarbons							
Benzo(a)pyrene*	NV	0.15	NV	8.57E-08	9.20E-08	1.68E-05	No
Chlorobenzene*	NV	58	NV	0.00E+00	0.00E+00	0.00E+00	No
Naphthalene*	NV	36	NV	3.10E-06	3.32E-06	6.07E-04	No
Phenanthrene*	NV	NV	NV	1.07E-06	1.15E-06	2.10E-04	No
Anthracene*	NV	3400	NV	2.73E-07	2.93E-07	5.36E-05	No
Fluorene*	NV	460	NV	1.56E-07	1.67E-07	3.06E-05	No
Pyrene*	NV	340	NV	3.09E-06	3.32E-06	6.06E-04	No
Thiophene*	NV	NV	NV	1.11E-07	1.19E-07	2.18E-05	No
Benzo(a)anthracene*	NV	1.5	NV	5.24E-08	5.63E-08	1.03E-05	No
Acenaphthene*	NV	680	NV	5.11E-08	5.48E-08	1.00E-05	No
Acenaphthylene*	NV	NV	NV	5.98E-06	6.42E-06	1.17E-03	No
Fluoranthene*	NV	460	NV	8.59E-07	9.21E-07	1.68E-04	No
Benzo(b)fluoranthene*	NV	1.5	NV	2.21E-07	2.37E-07	4.33E-05	No
Benzo(g,h,i)perylene*	NV	NV	NV	2.25E-08	2.41E-08	4.40E-06	No
Benzo(k)fluoranthene*	NV	15	NV	6.81E-08	7.30E-08	1.33E-05	No
Biphenyl*	NV	10.2	NV	0.00E+00	0.00E+00	0.00E+00	No
Chrysene*	NV	150	NV	8.46E-08	9.08E-08	1.66E-05	No
Dibenzo(a,h)anthracene*	NV	0.15	NV	1.03E-07	1.10E-07	2.02E-05	No
Indeno(1,2,3-c,d)pyrene*	NV	1.5	NV	5.14E-08	5.52E-08	1.01E-05	No



APPENDIX 10.2-E

Water Quality

Table 10.2-E-1: Water Quality for Meliadine Lake - End of Pipe

Chemical	Unit	Canadian Drinking Water Quality Guidelines ^a	Baseline Concentration ^d	Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	91	68	No	< G, < B
Total Suspended Solids	mg/L	NV	8	3.1	No	NV, < B
Chloride	mg/L	250 ^b	25.2	14	No	< G, < B
Fluoride	mg/L	1.5	0.03	0.0084	No	< G, < B
Sodium	mg/L	200 ^b	7.51	5.3	No	< G, < B
Sulphate	mg/L	500 ^b	8.91	38	No	< G, > B
Total Ammonia as Nitrogen	mg/L	NV	0.052	0.54	Yes	NV, > B
Nitrate as Nitrogen	mg/L	10	0.011	0.25	No	< G, > B
Nitrite as Nitrogen	mg/L	3.2	0.025	0.051	No	< G, > B
Phosphorus (total)	mg/L	NV	0.033	0.0049	No	NV, < B
Total cyanide	µg/L	200	3	9.0	No	< G, > B
Free cyanide	µg/L	200 ^g	ND	0.35	No	< G, > B
Aluminum	µg/L	100 ^b	11.1	9.1	No	< G, < B
Antimony	µg/L	6	0.3	0.51	No	< G, > B
Arsenic	µg/L	10	0.88	3.8	No	< G, > B
Barium	µg/L	1000	17.7	77	No	< G, > B
Boron	µg/L	5000	9	23	No	< G, > B
Cadmium	µg/L	5	4.75	0.050	No	< G, < B
Chromium	µg/L	50	2.15	0.53	No	< G, < B
Copper	µg/L	1000 ^b	3.1	2.0	No	< G, < B
Iron	µg/L	300 ^b	85	42	No	< G, < B
Lead	µg/L	10 ^b	0.71	0.15	No	< G, < B
Manganese	µg/L	50 ^b	7.69	5.5	No	< G, < B
Mercury	µg/L	1	0.025	0.020	No	< G, < B
Molybdenum	µg/L	78 ^c	0.22	5.2	No	< G, > B
Nickel	µg/L	300 ^c	5.4	2.7	No	< G, < B
Selenium	µg/L	10	0.1	0.16	No	< G, > B
Silver	µg/L	71 ^c	0.05	0.10	No	< G, > B
Thallium	µg/L	0.16 ^c	0.1	0.102	No	< G, > B
Tin	µg/L	9300 ^c	1.74	1.5	No	< G, < B
Uranium	µg/L	20	0.033	1.1	No	< G, > B
Zinc	µg/L	5000 ^b	37.2	6.7	No	< G, < B

^a Canadian Water Quality Guidelines (Health Canada 2010).^b operational or aesthetic guideline.^c USEPA Regional Screening Levels (RSL) (2012d).^d maximum measured baseline surface water concentration.^e predicted maximum surface water concentration.^f yes = the predicted surface water concentration is greater than the guideline and the maximum measured baseline surface water concentration, and, therefore, the chemical was identified as a COPC; No = the predicted surface water concentration is less than the guideline and/or maximum measured baseline surface water concentration, and, therefore, the chemical was not identified as a COPC.^g guideline for total cyanide.

NV = no value; ND = no data; COPC = chemical of potential concern; mg/L = milligram per litre; µg/L = microgram per litre; < = less than; B = maximum measured baseline surface water concentration; G = guideline.

Prepared by: MM

Checked by: SW

Table 10.2-E-2a: Water Quality for Small Waterbodies - Lake A8

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	271	246	No	< G, < B
Total Alkalinity	mg/L	NV	75	68	No	NG, < B
Total Suspended Solids	mg/L	NV	3.9	3.6	No	NG, < B
Calcium	mg/L	NV	92	84	No	NG, < B
Chloride	mg/L	250 ^b	209	190	No	< G, < B
Fluoride	mg/L	1.5	0.06	0.05	No	< G, < B
Magnesium	mg/L	NV	11	9.8	No	NG, < B
Potassium	mg/L	NV	3.7	3.4	No	NG, < B
Sodium	mg/L	200 ^b	16	14	No	< G, < B
Sulphate	mg/L	500 ^b	23	21	No	< G, < B
Ammonia (as N)	mg/L	NV	0.23	0.21	No	NG, < B
Nitrate (as N)	mg/L	10	0.39	0.36	No	< G, < B
Total Kjeldahl Nitrogen	mg/L	NV	0.79	0.72	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.008	No	NG, < B
Orthophosphate	mg/L	NV	0.004	0.003	No	NG, < B
Cyanide	µg/L	200	2.3	2.1	No	< G, < B
Total Aluminum	µg/L	100 ^b	8.6	7.8	No	< G, < B
Total Antimony	µg/L	6	0.28	0.25	No	< G, < B
Total Arsenic	µg/L	10	2.5	2.3	No	< G, < B
Total Barium	µg/L	1000	37	33	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.66	0.60	No	< G, < B
Total Bismuth	µg/L	NV	0.11	0.10	No	NG, < B
Total Boron	µg/L	5000	41	37	No	< G, < B
Total Cadmium	µg/L	5	0.17	0.15	No	< G, < B
Total Chromium	µg/L	50	3.8	3.4	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.38	0.34	No	< G, < B
Total Copper	µg/L	1000 ^b	4.1	3.7	No	< G, < B
Total Iron	µg/L	300 ^b	150	136	No	< G, < B
Total Lead	µg/L	10	3.8	3.4	No	< G, < B
Total Lithium	µg/L	31 ^c	11	10	No	< G, < B
Total Manganese	µg/L	50 ^b	70	64	No	> G, < B
Total Mercury	µg/L	1	0.08	0.07	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.81	0.73	No	< G, < B
Total Nickel	µg/L	300 ^c	3.8	3.4	No	< G, < B
Total Selenium	µg/L	10	0.35	0.32	No	< G, < B
Total Silver	µg/L	71 ^c	0.11	0.10	No	< G, < B
Total Strontium	µg/L	9300 ^c	203	184	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.07	0.06	No	< G, < B
Total Tin	µg/L	9300 ^c	0.40	0.36	No	< G, < B
Total Titanium	µg/L	NV	2.0	1.9	No	NG, < B
Total Tungsten	µg/L	NV	41	38	No	NG, < B
Total Uranium	µg/L	20	0.08	0.08	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.53	0.48	No	< G, < B
Total Zinc	µg/L	5000 ^b	8.4	7.6	No	< G, < B

Table 10.2-E-2b: Water Quality for Small Waterbodies - Lake A6

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	195	177	No	< G, < B
Total Alkalinity	mg/L	NV	69	63	No	NG, < B
Total Suspended Solids	mg/L	NV	3.5	3.2	No	NG, < B
Calcium	mg/L	NV	71	65	No	NG, < B
Chloride	mg/L	250 ^b	114	112	No	< G, < B
Fluoride	mg/L	1.5	0.06	0.06	No	< G, < B
Magnesium	mg/L	NV	7.2	6.5	No	NG, < B
Potassium	mg/L	NV	2.9	2.6	No	NG, < B
Sodium	mg/L	200 ^b	12	11	No	< G, < B
Sulphate	mg/L	500 ^b	17	15	No	< G, < B
Ammonia (as N)	mg/L	NV	0.14	0.13	No	NG, < B
Nitrate (as N)	mg/L	10	0.24	0.21	No	< G, < B
Total Kjeldahl Nitrogen	mg/L	NV	0.74	0.67	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.009	0.009	No	NG, < B
Orthophosphate	mg/L	NV	0.003	0.002	No	NG, < B
Cyanide	µg/L	200	2.2	2.0	No	< G, < B
Total Aluminum	µg/L	100 ^b	7.2	6.6	No	< G, < B
Total Antimony	µg/L	6	0.28	0.26	No	< G, < B
Total Arsenic	µg/L	10	2.8	2.5	No	< G, < B
Total Barium	µg/L	1000	31	28	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.48	0.44	No	< G, < B
Total Bismuth	µg/L	NV	0.08	0.07	No	NG, < B
Total Boron	µg/L	5000	44	40	No	< G, < B
Total Cadmium	µg/L	5	0.14	0.13	No	< G, < B
Total Chromium	µg/L	50	3.1	2.9	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.26	0.23	No	< G, < B
Total Copper	µg/L	1000 ^b	3.4	3.1	No	< G, < B
Total Iron	µg/L	300 ^b	141	128	No	< G, < B
Total Lead	µg/L	10	2.0	1.8	No	< G, < B
Total Lithium	µg/L	31 ^c	7.7	7.0	No	< G, < B
Total Manganese	µg/L	50 ^b	43	39	No	< G, < B
Total Mercury	µg/L	1	0.05	0.05	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.61	0.56	No	< G, < B
Total Nickel	µg/L	300 ^c	3.0	2.7	No	< G, < B
Total Selenium	µg/L	10	0.35	0.32	No	< G, < B
Total Silver	µg/L	71 ^c	0.11	0.10	No	< G, < B
Total Strontium	µg/L	9300 ^c	163	149	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.06	0.05	No	< G, < B
Total Tin	µg/L	9300 ^c	0.40	0.36	No	< G, < B
Total Titanium	µg/L	NV	1.3	1.2	No	NG, < B
Total Tungsten	µg/L	NV	34	31	No	NG, < B
Total Uranium	µg/L	20	0.09	0.08	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.50	0.46	No	< G, < B
Total Zinc	µg/L	5000 ^b	6.6	6.0	No	< G, < B

Table 10.2-E-2c: Water Quality for Small Waterbodies - Lake A1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	177	209	No	< G, > B
Total Alkalinity	mg/L	NV	67	79	No	No direct impact on human health
Total Suspended Solids	mg/L	NV	3.5	4.1	No	No direct impact on human health
Calcium	mg/L	NV	63	75	No	Essential nutrient/non-toxic
Chloride	mg/L	250 ^b	98	116	No	< G, > B
Fluoride	mg/L	1.5	0.07	0.08	No	< G, > B
Magnesium	mg/L	NV	7.2	8.5	No	Essential nutrient/non-toxic
Potassium	mg/L	NV	3.2	3.7	No	Essential nutrient/non-toxic
Sodium	mg/L	200 ^b	11	13	No	< G, > B
Sulphate	mg/L	500 ^b	14	17	No	< G, > B
Ammonia (as N)	mg/L	NV	0.14	0.17	Yes	NG, > B
Nitrate (as N)	mg/L	10	0.18	1.8	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.80	0.95	No	No direct impact on human health
Dissolved Phosphorus	mg/L	NV	0.009	0.01	No	No direct impact on human health
Orthophosphate	mg/L	NV	0.003	0.003	No	NG, < B
Cyanide	µg/L	200	3.1	3.6	No	< G, > B
Total Aluminum	µg/L	100 ^b	7.5	43	No	< G, > B
Total Antimony	µg/L	6	0.32	0.37	No	< G, > B
Total Arsenic	µg/L	10	2.7	3.2	No	< G, > B
Total Barium	µg/L	1000	37	44	No	< G, > B
Total Beryllium	µg/L	16 ^c	0.37	0.44	No	< G, > B
Total Bismuth	µg/L	NV	0.07	0.08	No	Lack of toxicity data/non-toxic
Total Boron	µg/L	5000	43	51	No	< G, > B
Total Cadmium	µg/L	5	0.19	0.23	No	< G, > B
Total Chromium	µg/L	50	3.4	8.6	No	< G, > B
Total Cobalt	µg/L	4.7 ^c	0.21	0.81	No	< G, > B
Total Copper	µg/L	1000 ^b	3.0	3.6	No	< G, > B
Total Iron	µg/L	300 ^b	149	274	No	< G, > B
Total Lead	µg/L	10	1.4	1.7	No	< G, > B
Total Lithium	µg/L	31 ^c	7.8	9.2	No	< G, > B
Total Manganese	µg/L	50 ^b	41	49	No	< G, > B

Table 10.2-E-2c: Water Quality for Small Waterbodies - Lake A1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Mercury	µg/L	1	0.04	0.05	No	< G, > B
Total Molybdenum	µg/L	78 ^c	0.50	0.59	No	< G, > B
Total Nickel	µg/L	300 ^c	2.8	3.3	No	< G, > B
Total Selenium	µg/L	10	0.35	0.41	No	< G, > B
Total Silver	µg/L	71 ^c	0.12	0.15	No	< G, > B
Total Strontium	µg/L	9300 ^c	184	218	No	< G, > B
Total Thallium	µg/L	0.16 ^c	0.06	0.07	No	< G, > B
Total Tin	µg/L	9300 ^c	0.40	0.47	No	< G, > B
Total Titanium	µg/L	NV	1.0	24	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	25	29	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	20	0.09	0.10	No	< G, > B
Total Vanadium	µg/L	78 ^c	0.6	2.4	No	< G, > B
Total Zinc	µg/L	5000 ^b	8.7	10	No	< G, > B

Table 10.2-E-2d: Water Quality for Small Waterbodies - Lake B6

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	207	222	No	< G, > B
Total Alkalinity	mg/L	NV	108	116	No	No direct impact on human health
Total Suspended Solids	mg/L	NV	4.5	4.8	No	No direct impact on human health
Calcium	mg/L	NV	38	41	No	Essential nutrient/non-toxic
Chloride	mg/L	250 ^b	33	35	No	< G, > B
Fluoride	mg/L	1.5	0.05	0.06	No	< G, > B
Magnesium	mg/L	NV	5.3	5.7	No	Essential nutrient/non-toxic
Potassium	mg/L	NV	2.4	2.6	No	Essential nutrient/non-toxic
Sodium	mg/L	200 ^b	7.7	8.2	No	< G, > B
Sulphate	mg/L	500 ^b	10	11	No	< G, > B
Ammonia (as N)	mg/L	NV	0.09	0.09	No	NG, < B
Nitrate (as N)	mg/L	10	0.03	1.6	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.94	1.0	No	No direct impact on human health
Dissolved Phosphorus	mg/L	NV	0.009	0.01	No	No direct impact on human health
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	2.9	3.1	No	< G, > B
Total Aluminum	µg/L	100 ^b	5.7	92	No	< G, > B
Total Antimony	µg/L	6	0.32	0.34	No	< G, > B
Total Arsenic	µg/L	10	2.3	2.5	No	< G, > B
Total Barium	µg/L	1000	70	75	No	< G, > B
Total Beryllium	µg/L	16 ^c	0.28	0.30	No	< G, > B
Total Bismuth	µg/L	NV	0.11	0.11	No	NG, < B
Total Boron	µg/L	5000	27	29	No	< G, > B
Total Cadmium	µg/L	5	0.79	0.85	No	< G, > B
Total Chromium	µg/L	50	2.6	2.8	No	< G, > B
Total Cobalt	µg/L	4.7 ^c	0.24	0.25	No	< G, > B
Total Copper	µg/L	1000 ^b	2.7	2.9	No	< G, > B
Total Iron	µg/L	300 ^b	175	229	No	< G, > B
Total Lead	µg/L	10	0.32	0.34	No	< G, > B
Total Lithium	µg/L	31 ^c	13	14	No	< G, > B
Total Manganese	µg/L	50 ^b	133	143	No	< G, > B

Table 10.2-E-2d: Water Quality for Small Waterbodies - Lake B6

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Mercury	µg/L	1	0.03	0.03	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.43	0.46	No	< G, > B
Total Nickel	µg/L	300 ^c	2.9	3.1	No	< G, > B
Total Selenium	µg/L	10	0.26	0.28	No	< G, > B
Total Silver	µg/L	71 ^c	0.06	0.07	No	< G, > B
Total Strontium	µg/L	9300 ^c	292	313	No	< G, > B
Total Thallium	µg/L	0.16 ^c	0.07	0.07	No	< G, < B
Total Tin	µg/L	9300 ^c	0.40	0.43	No	< G, > B
Total Titanium	µg/L	NV	1.3	8.8	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	85	91	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	20	0.12	0.13	No	< G, > B
Total Vanadium	µg/L	78 ^c	0.62	0.67	No	< G, > B
Total Zinc	µg/L	5000 ^b	9.8	10	No	< G, > B

Table 10.2-E-2e: Water Quality for Small Waterbodies - Lake B5

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	172	136	No	< G, < B
Total Alkalinity	mg/L	NV	89	69	No	NG, < B
Total Suspended Solids	mg/L	NV	3.9	3.2	No	NG, < B
Calcium	mg/L	NV	31	31	No	NG, < B
Chloride	mg/L	250 ^b	25	23	No	< G, < B
Fluoride	mg/L	1.5	0.05	0.04	No	< G, < B
Magnesium	mg/L	NV	4.4	3.8	No	NG, < B
Potassium	mg/L	NV	2.1	1.8	No	NG, < B
Sodium	mg/L	200 ^b	6.5	5.4	No	< G, < B
Sulphate	mg/L	500 ^b	8.1	6.8	No	< G, < B
Ammonia (as N)	mg/L	NV	0.07	0.07	No	NG, < B
Nitrate (as N)	mg/L	10	0.02	1.6	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.80	0.66	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.008	0.007	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	2.1	1.8	No	< G, < B
Total Aluminum	µg/L	100 ^b	5.7	92	No	< G, > B
Total Antimony	µg/L	6	0.23	0.19	No	< G, < B
Total Arsenic	µg/L	10	1.9	1.8	No	< G, < B
Total Barium	µg/L	1000	70	64	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.24	0.20	No	< G, < B
Total Bismuth	µg/L	NV	0.08	0.07	No	NG, < B
Total Boron	µg/L	5000	19	16	No	< G, < B
Total Cadmium	µg/L	5	0.46	0.42	No	< G, < B
Total Chromium	µg/L	50	2.0	1.8	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.20	0.18	No	< G, < B
Total Copper	µg/L	1000 ^b	2.2	2.1	No	< G, < B
Total Iron	µg/L	300 ^b	175	229	No	< G, > B
Total Lead	µg/L	10	0.23	0.22	No	< G, < B
Total Lithium	µg/L	31 ^c	12	11	No	< G, < B
Total Manganese	µg/L	50 ^b	97	89	No	> G, < B
Total Mercury	µg/L	1	0.03	0.03	No	< G, < B

Table 10.2-E-2e: Water Quality for Small Waterbodies - Lake B5

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Molybdenum	µg/L	78 ^c	0.36	0.36	No	< G, > B
Total Nickel	µg/L	300 ^c	2.3	2.3	No	< G, < B
Total Selenium	µg/L	10	0.21	0.19	No	< G, < B
Total Silver	µg/L	71 ^c	0.06	0.05	No	< G, < B
Total Strontium	µg/L	9300 ^c	254	216	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.06	0.05	No	< G, < B
Total Tin	µg/L	9300 ^c	0.33	0.30	No	< G, < B
Total Titanium	µg/L	NV	1.0	5.0	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	50	49	No	NG, < B
Total Uranium	µg/L	20	0.10	0.07	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.54	0.43	No	< G, < B
Total Zinc	µg/L	5000 ^b	7.3	6.8	No	< G, < B

Table 10.2-E-2f: Water Quality for Small Waterbodies - Lake B46

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	201	186	No	< G, < B
Total Alkalinity	mg/L	NV	84	79	No	NG, < B
Total Suspended Solids	mg/L	NV	3.9	3.7	No	NG, < B
Calcium	mg/L	NV	35	34	No	NG, < B
Chloride	mg/L	250 ^b	21	20	No	< G, < B
Fluoride	mg/L	1.5	0.05	0.05	No	< G, < B
Magnesium	mg/L	NV	4.5	4.3	No	NG, < B
Potassium	mg/L	NV	2.3	2.3	No	NG, < B
Sodium	mg/L	200 ^b	7.1	6.7	No	< G, < B
Sulphate	mg/L	500 ^b	8.0	7.4	No	< G, < B
Ammonia (as N)	mg/L	NV	0.07	0.07	No	NG, < B
Nitrate (as N)	mg/L	10	0.03	1.6	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.87	0.83	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.008	0.008	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	2.4	2.2	No	< G, < B
Total Aluminum	µg/L	100 ^b	5.5	92	No	< G, > B
Total Antimony	µg/L	6	0.21	0.21	No	< G, < B
Total Arsenic	µg/L	10	1.9	1.9	No	< G, < B
Total Barium	µg/L	1000	70	64	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.24	0.23	No	< G, < B
Total Bismuth	µg/L	NV	0.08	0.08	No	NG, < B
Total Boron	µg/L	5000	19	18	No	< G, < B
Total Cadmium	µg/L	5	0.10	0.09	No	< G, < B
Total Chromium	µg/L	50	2.7	2.6	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.19	0.22	No	< G, > B
Total Copper	µg/L	1000 ^b	2.3	2.2	No	< G, < B
Total Iron	µg/L	300 ^b	189	260	No	< G, > B
Total Lead	µg/L	10	0.18	0.17	No	< G, < B
Total Lithium	µg/L	31 ^c	17	15	No	< G, < B
Total Manganese	µg/L	50 ^b	112	102	No	> G, < B
Total Mercury	µg/L	1	0.03	0.03	No	< G, < B

Table 10.2-E-2f: Water Quality for Small Waterbodies - Lake B46

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Molybdenum	µg/L	78 ^c	0.42	0.38	No	< G, < B
Total Nickel	µg/L	300 ^c	2.4	2.3	No	< G, < B
Total Selenium	µg/L	10	0.25	0.23	No	< G, < B
Total Silver	µg/L	71 ^c	0.06	0.06	No	< G, < B
Total Strontium	µg/L	9300 ^c	274	273	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.07	0.06	No	< G, < B
Total Tin	µg/L	9300 ^c	0.37	0.34	No	< G, < B
Total Titanium	µg/L	NV	1.1	8.5	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	38	36	No	NG, < B
Total Uranium	µg/L	20	0.10	0.09	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.55	0.75	No	< G, > B
Total Zinc	µg/L	5000 ^b	7.0	6.7	No	< G, < B

Table 10.2-E-2g: Water Quality for Small Waterbodies - Lake B45

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	201	186	No	< G, < B
Total Alkalinity	mg/L	NV	84	79	No	NG, < B
Total Suspended Solids	mg/L	NV	3.9	3.7	No	NG, < B
Calcium	mg/L	NV	35	34	No	NG, < B
Chloride	mg/L	250 ^b	21	20	No	< G, < B
Fluoride	mg/L	1.5	0.05	0.05	No	< G, < B
Magnesium	mg/L	NV	4.5	4.3	No	NG, < B
Potassium	mg/L	NV	2.3	2.3	No	NG, < B
Sodium	mg/L	200 ^b	7.1	6.7	No	< G, < B
Sulphate	mg/L	500 ^b	8.0	7.4	No	< G, < B
Ammonia (as N)	mg/L	NV	0.07	0.07	No	NG, < B
Nitrate (as N)	mg/L	10.0	0.03	1.6	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.87	0.83	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.008	0.008	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	2.4	2.2	No	< G, < B
Total Aluminum	µg/L	100 ^b	5.5	92	No	< G, > B
Total Antimony	µg/L	6	0.21	0.21	No	< G, < B
Total Arsenic	µg/L	10	1.9	1.9	No	< G, < B
Total Barium	µg/L	1000	70	64	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.24	0.23	No	< G, < B
Total Bismuth	µg/L	NV	0.08	0.08	No	NG, < B
Total Boron	µg/L	5000	19	18	No	< G, < B
Total Cadmium	µg/L	5	0.10	0.09	No	< G, < B
Total Chromium	µg/L	50	2.7	2.6	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.19	0.22	No	< G, > B
Total Copper	µg/L	1000 ^b	2.3	2.2	No	< G, < B
Total Iron	µg/L	300 ^b	189	260	No	< G, > B
Total Lead	µg/L	10	0.18	0.17	No	< G, < B
Total Lithium	µg/L	31 ^c	17	15	No	< G, < B
Total Manganese	µg/L	50 ^b	112	102	No	> G, < B
Total Mercury	µg/L	1	0.03	0.03	No	< G, < B

Table 10.2-E-2g: Water Quality for Small Waterbodies - Lake B45

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Molybdenum	µg/L	78 ^c	0.42	0.38	No	< G, < B
Total Nickel	µg/L	300 ^c	2.4	2.3	No	< G, < B
Total Selenium	µg/L	10	0.25	0.23	No	< G, < B
Total Silver	µg/L	71 ^c	0.06	0.06	No	< G, < B
Total Strontium	µg/L	9300 ^c	274	273	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.07	0.06	No	< G, < B
Total Tin	µg/L	9300 ^c	0.37	0.34	No	< G, < B
Total Titanium	µg/L	NV	1.1	8.5	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	38	36	No	NG, < B
Total Uranium	µg/L	20	0.10	0.09	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.55	0.75	No	< G, > B
Total Zinc	µg/L	5000 ^b	7.0	6.7	No	< G, < B

Table 10.2-E-2h: Water Quality for Small Waterbodies - Lake P2

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	220	200	No	< G, < B
Total Alkalinity	mg/L	NV	84	77	No	NG, < B
Total Suspended Solids	mg/L	NV	4.0	3.6	No	NG, < B
Calcium	mg/L	NV	39	35	No	NG, < B
Chloride	mg/L	250 ^b	21	19	No	< G, < B
Fluoride	mg/L	1.5	0.06	0.05	No	< G, < B
Magnesium	mg/L	NV	5.2	4.7	No	NG, < B
Potassium	mg/L	NV	2.5	2.2	No	NG, < B
Sodium	mg/L	200 ^b	7.9	7.2	No	< G, < B
Sulphate	mg/L	500 ^b	8.4	7.6	No	< G, < B
Ammonia (as N)	mg/L	NV	0.08	0.07	No	NG, < B
Nitrate (as N)	mg/L	10.0	0.03	1.6	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.92	0.84	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.009	0.008	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	3.0	2.8	No	< G, < B
Total Aluminum	µg/L	100 ^b	5.4	94	No	< G, > B
Total Antimony	µg/L	6	0.22	0.20	No	< G, < B
Total Arsenic	µg/L	10	2.0	1.8	No	< G, < B
Total Barium	µg/L	1000	70	64	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.25	0.23	No	< G, < B
Total Bismuth	µg/L	NV	0.11	0.10	No	NG, < B
Total Boron	µg/L	5000	27	24	No	< G, < B
Total Cadmium	µg/L	5	0.10	0.09	No	< G, < B
Total Chromium	µg/L	50	2.5	2.3	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.20	0.21	No	< G, > B
Total Copper	µg/L	1000 ^b	2.3	2.1	No	< G, < B
Total Iron	µg/L	300 ^b	201	276	No	< G, > B
Total Lead	µg/L	10	0.16	0.15	No	< G, < B
Total Lithium	µg/L	31 ^c	16	14	No	< G, < B
Total Manganese	µg/L	50 ^b	94	85	No	> G, < B
Total Mercury	µg/L	1	0.03	0.03	No	< G, < B

Table 10.2-E-2h: Water Quality for Small Waterbodies - Lake P2

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Molybdenum	µg/L	78 ^c	0.43	0.39	No	< G, < B
Total Nickel	µg/L	300 ^c	2.4	2.2	No	< G, < B
Total Selenium	µg/L	10	0.28	0.25	No	< G, < B
Total Silver	µg/L	71 ^c	0.06	0.06	No	< G, < B
Total Strontium	µg/L	9300 ^c	298	271	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.07	0.07	No	< G, < B
Total Tin	µg/L	9300 ^c	0.42	0.38	No	< G, < B
Total Titanium	µg/L	NV	1.5	7.2	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	85	77	No	NG, < B
Total Uranium	µg/L	20	0.10	0.09	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.55	0.68	No	< G, > B
Total Zinc	µg/L	5000 ^b	6.7	6.1	No	< G, < B

Table 10.2-E-2i: Water Quality for Small Waterbodies - Lake B2

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	220	203	No	< G, < B
Total Alkalinity	mg/L	NV	79	74	No	NG, < B
Total Suspended Solids	mg/L	NV	3.9	3.5	No	NG, < B
Calcium	mg/L	NV	39	35	No	NG, < B
Chloride	mg/L	250 ^b	21	20	No	< G, < B
Fluoride	mg/L	1.5	0.06	0.05	No	< G, < B
Magnesium	mg/L	NV	5.1	4.7	No	NG, < B
Potassium	mg/L	NV	2.4	2.4	No	NG, < B
Sodium	mg/L	200 ^b	8.1	7.4	No	< G, < B
Sulphate	mg/L	500 ^b	8.4	7.6	No	< G, < B
Ammonia (as N)	mg/L	NV	0.08	0.07	No	NG, < B
Nitrate (as N)	mg/L	10	0.03	1.6	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.91	0.84	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.009	0.008	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	3.1	2.8	No	< G, < B
Total Aluminum	µg/L	100 ^b	5.9	94	No	< G, > B
Total Antimony	µg/L	6	0.22	0.21	No	< G, < B
Total Arsenic	µg/L	10	2.0	2.0	No	< G, < B
Total Barium	µg/L	1000	70	64	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.25	0.23	No	< G, < B
Total Bismuth	µg/L	NV	0.11	0.10	No	NG, < B
Total Boron	µg/L	5000	25	23	No	< G, < B
Total Cadmium	µg/L	5	0.10	0.09	No	< G, < B
Total Chromium	µg/L	50	2.8	3.0	No	< G, > B
Total Cobalt	µg/L	4.7 ^c	0.20	0.22	No	< G, > B
Total Copper	µg/L	1000 ^b	2.3	2.3	No	< G, < B
Total Iron	µg/L	300 ^b	220	271	No	< G, > B
Total Lead	µg/L	10	0.17	0.15	No	< G, < B
Total Lithium	µg/L	31 ^c	19	18	No	< G, < B
Total Manganese	µg/L	50 ^b	108	98	No	> G, < B

Table 10.2-E-2i: Water Quality for Small Waterbodies - Lake B2

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Mercury	µg/L	1	0.03	0.03	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.47	0.43	No	< G, < B
Total Nickel	µg/L	300 ^c	2.4	2.4	No	< G, < B
Total Selenium	µg/L	10	0.29	0.27	No	< G, < B
Total Silver	µg/L	71 ^c	0.06	0.06	No	< G, < B
Total Strontium	µg/L	9300 ^c	284	265	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.07	0.06	No	< G, < B
Total Tin	µg/L	9300 ^c	0.42	0.38	No	< G, < B
Total Titanium	µg/L	NV	1.4	9.0	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	84	76	No	NG, < B
Total Uranium	µg/L	20	0.10	0.09	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.55	0.74	No	< G, > B
Total Zinc	µg/L	5000 ^b	6.8	6.5	No	< G, < B

Table 10.2-E-2j: Water Quality for Small Waterbodies - Lake D7

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	308	279	No	< G, < B
Total Alkalinity	mg/L	NV	179	164	No	NG, < B
Total Suspended Solids	mg/L	NV	13	12	No	NG, < B
Calcium	mg/L	NV	79	72	No	NG, < B
Chloride	mg/L	250 ^b	34	31	No	< G, < B
Fluoride	mg/L	1.5	0.06	0.05	No	< G, < B
Magnesium	mg/L	NV	12	11	No	NG, < B
Potassium	mg/L	NV	4.8	4.3	No	NG, < B
Sodium	mg/L	200 ^b	20	18	No	< G, < B
Sulphate	mg/L	500 ^b	11	10	No	< G, < B
Ammonia (as N)	mg/L	NV	0.30	0.28	No	NG, < B
Nitrate (as N)	mg/L	10	0.04	2.0	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	1.9	1.8	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	1.5	1.3	No	< G, < B
Total Aluminum	µg/L	100 ^b	8.5	61	No	< G, > B
Total Antimony	µg/L	6	0.27	0.25	No	< G, < B
Total Arsenic	µg/L	10	2.0	1.9	No	< G, < B
Total Barium	µg/L	1000	75	69	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.71	0.65	No	< G, < B
Total Bismuth	µg/L	NV	0.06	0.05	No	NG, < B
Total Boron	µg/L	5000	18	16	No	< G, < B
Total Cadmium	µg/L	5	0.12	0.11	No	< G, < B
Total Chromium	µg/L	50	5.5	5.2	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	1.2	1.1	No	< G, < B
Total Copper	µg/L	1000 ^b	4.7	4.2	No	< G, < B
Total Iron	µg/L	300 ^b	254	266	No	< G, > B
Total Lead	µg/L	10	0.28	0.26	No	< G, < B
Total Lithium	µg/L	31 ^c	7.2	6.5	No	< G, < B
Total Manganese	µg/L	50 ^b	197	179	No	> G, < B
Total Mercury	µg/L	1	0.02	0.02	No	< G, < B

Table 10.2-E-2j: Water Quality for Small Waterbodies - Lake D7

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Molybdenum	µg/L	78 ^c	1.5	1.4	No	< G, < B
Total Nickel	µg/L	300 ^c	6.2	6.0	No	< G, < B
Total Selenium	µg/L	10	1.4	1.3	No	< G, < B
Total Silver	µg/L	71 ^c	0.04	0.03	No	< G, < B
Total Strontium	µg/L	9300 ^c	417	380	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.06	0.06	No	< G, < B
Total Tin	µg/L	9300 ^c	0.32	0.29	No	< G, < B
Total Titanium	µg/L	NV	1.8	3.9	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	25	23	No	NG, < B
Total Uranium	µg/L	20	0.31	0.28	No	< G, < B
Total Vanadium	µg/L	78 ^c	2.8	2.6	No	< G, < B
Total Zinc	µg/L	5000 ^b	13	12	No	< G, < B

Table 10.2-E-2k: Water Quality for Small Waterbodies - Lake D4

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	264	239	No	< G, < B
Total Alkalinity	mg/L	NV	145	132	No	NG, < B
Total Suspended Solids	mg/L	NV	10	9.1	No	NG, < B
Calcium	mg/L	NV	67	61	No	NG, < B
Chloride	mg/L	250 ^b	30	27	No	< G, < B
Fluoride	mg/L	1.5	0.06	0.05	No	< G, < B
Magnesium	mg/L	NV	9.7	8.8	No	NG, < B
Potassium	mg/L	NV	3.8	3.5	No	NG, < B
Sodium	mg/L	200 ^b	16	15	No	< G, < B
Sulphate	mg/L	500 ^b	10	9.4	No	< G, < B
Ammonia (as N)	mg/L	NV	0.24	0.22	No	NG, < B
Nitrate (as N)	mg/L	10	0.04	2.0	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	1.6	1.4	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	2.4	2.1	No	< G, < B
Total Aluminum	µg/L	100 ^b	7.1	64	No	< G, > B
Total Antimony	µg/L	6	0.24	0.22	No	< G, < B
Total Arsenic	µg/L	10	2.0	1.9	No	< G, < B
Total Barium	µg/L	1000	63	58	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.55	0.52	No	< G, < B
Total Bismuth	µg/L	NV	0.04	0.04	No	NG, < B
Total Boron	µg/L	5000	22	20	No	< G, < B
Total Cadmium	µg/L	5	0.15	0.14	No	< G, < B
Total Chromium	µg/L	50	4.9	4.5	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.91	0.83	No	< G, < B
Total Copper	µg/L	1000 ^b	3.8	3.5	No	< G, < B
Total Iron	µg/L	300 ^b	257	268	No	< G, > B
Total Lead	µg/L	10	0.26	0.24	No	< G, < B
Total Lithium	µg/L	31 ^c	7.4	7.2	No	< G, < B
Total Manganese	µg/L	50 ^b	151	139	No	> G, < B

Table 10.2-E-2k: Water Quality for Small Waterbodies - Lake D4

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Mercury	µg/L	1	0.02	0.02	No	< G, < B
Total Molybdenum	µg/L	78 ^c	1.1	1.0	No	< G, < B
Total Nickel	µg/L	300 ^c	6.0	5.4	No	< G, < B
Total Selenium	µg/L	10	1.1	1.0	No	< G, < B
Total Silver	µg/L	71 ^c	0.04	0.03	No	< G, < B
Total Strontium	µg/L	9300 ^c	377	343	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.05	0.04	No	< G, < B
Total Tin	µg/L	9300 ^c	0.25	0.22	No	< G, < B
Total Titanium	µg/L	NV	1.6	4.0	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	29	26	No	NG, < B
Total Uranium	µg/L	20	0.26	0.24	No	< G, < B
Total Vanadium	µg/L	78 ^c	2.0	1.9	No	< G, < B
Total Zinc	µg/L	5000 ^b	10	9.5	No	< G, < B

Table 10.2-E-2I: Water Quality for Small Waterbodies - Lake D3

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	265	240	No	< G, < B
Total Alkalinity	mg/L	NV	142	130	No	NG, < B
Total Suspended Solids	mg/L	NV	9.2	8.4	No	NG, < B
Calcium	mg/L	NV	67	61	No	NG, < B
Chloride	mg/L	250 ^b	30	28	No	< G, < B
Fluoride	mg/L	1.5	0.06	0.05	No	< G, < B
Magnesium	mg/L	NV	9.7	8.8	No	NG, < B
Potassium	mg/L	NV	3.8	3.5	No	NG, < B
Sodium	mg/L	200 ^b	16	14	No	< G, < B
Sulphate	mg/L	500 ^b	10	9.5	No	< G, < B
Ammonia (as N)	mg/L	NV	0.23	0.21	No	NG, < B
Nitrate (as N)	mg/L	10	0.04	2.0	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	1.6	1.4	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	2.4	2.2	No	NG, < B
Total Aluminum	µg/L	100 ^b	7.0	64	No	< G, > B
Total Antimony	µg/L	6	0.24	0.23	No	< G, < B
Total Arsenic	µg/L	10	2.0	1.9	No	< G, < B
Total Barium	µg/L	1000	61	56	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.52	0.48	No	< G, < B
Total Bismuth	µg/L	NV	0.04	0.03	No	NG, < B
Total Boron	µg/L	5000	24	22	No	< G, < B
Total Cadmium	µg/L	5	0.13	0.12	No	< G, < B
Total Chromium	µg/L	50	4.9	4.5	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.86	0.79	No	< G, < B
Total Copper	µg/L	1000 ^b	3.7	3.4	No	< G, < B
Total Iron	µg/L	300 ^b	268	279	No	< G, > B
Total Lead	µg/L	10	0.26	0.24	No	< G, < B
Total Lithium	µg/L	31 ^c	7.2	7.1	No	< G, < B
Total Manganese	µg/L	50 ^b	143	132	No	> G, < B
Total Mercury	µg/L	1	0.02	0.02	No	< G, < B

Table 10.2-E-2I: Water Quality for Small Waterbodies - Lake D3

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Molybdenum	µg/L	78 ^c	1.1	1.0	No	< G, < B
Total Nickel	µg/L	300 ^c	6.0	5.4	No	< G, < B
Total Selenium	µg/L	10	1.0	0.94	No	< G, < B
Total Silver	µg/L	71 ^c	0.04	0.03	No	< G, < B
Total Strontium	µg/L	9300 ^c	372	338	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.05	0.04	No	< G, < B
Total Tin	µg/L	9300 ^c	0.24	0.21	No	< G, < B
Total Titanium	µg/L	NV	1.5	4.1	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	28	25	No	NG, < B
Total Uranium	µg/L	20	0.26	0.24	No	< G, < B
Total Vanadium	µg/L	78 ^c	1.9	1.8	No	< G, < B
Total Zinc	µg/L	5000 ^b	9.5	8.8	No	< G, < B

Table 10.2-E-2m: Water Quality for Small Waterbodies - Lake D1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	263	243	No	< G, < B
Total Alkalinity	mg/L	NV	159	142	No	NG, < B
Total Suspended Solids	mg/L	NV	10	8.8	No	NG, < B
Calcium	mg/L	NV	74	66	No	NG, < B
Chloride	mg/L	250 ^b	31	29	No	< G, < B
Fluoride	mg/L	1.5	0.06	0.05	No	< G, < B
Magnesium	mg/L	NV	10	9.3	No	NG, < B
Potassium	mg/L	NV	4.2	3.8	No	NG, < B
Sodium	mg/L	200 ^b	16	14	No	< G, < B
Sulphate	mg/L	500 ^b	12	10	No	< G, < B
Ammonia (as N)	mg/L	NV	0.24	0.22	No	NG, < B
Nitrate (as N)	mg/L	10	0.04	1.8	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	1.8	1.6	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	2.4	2.2	No	< G, < B
Total Aluminum	µg/L	100 ^b	7.6	58	No	< G, > B
Total Antimony	µg/L	6	0.25	0.24	No	< G, < B
Total Arsenic	µg/L	10	2.1	2.0	No	< G, < B
Total Barium	µg/L	1000	62	57	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.64	0.58	No	< G, < B
Total Bismuth	µg/L	NV	0.04	0.04	No	NG, < B
Total Boron	µg/L	5000	24	21	No	< G, < B
Total Cadmium	µg/L	5	0.13	0.12	No	< G, < B
Total Chromium	µg/L	50	4.9	4.5	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.92	0.87	No	< G, < B
Total Copper	µg/L	1000 ^b	3.9	3.5	No	< G, < B
Total Iron	µg/L	300 ^b	287	289	No	< G, > B
Total Lead	µg/L	10	0.26	0.24	No	< G, < B
Total Lithium	µg/L	31 ^c	7.9	7.3	No	< G, < B
Total Manganese	µg/L	50 ^b	177	141	No	> G, < B
Total Mercury	µg/L	1	0.02	0.02	No	< G, < B

Table 10.2-E-2m: Water Quality for Small Waterbodies - Lake D1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Molybdenum	µg/L	78 ^c	1.3	1.2	No	< G, < B
Total Nickel	µg/L	300 ^c	6.4	6.0	No	< G, < B
Total Selenium	µg/L	10	1.2	1.1	No	< G, < B
Total Silver	µg/L	71 ^c	0.04	0.04	No	< G, < B
Total Strontium	µg/L	9300 ^c	380	350	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.06	0.05	No	< G, < B
Total Tin	µg/L	9300 ^c	0.28	0.27	No	< G, < B
Total Titanium	µg/L	NV	1.5	3.8	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	35	33	No	NG, < B
Total Uranium	µg/L	20	0.26	0.24	No	< G, < B
Total Vanadium	µg/L	78 ^c	2.5	2.2	No	< G, < B
Total Zinc	µg/L	5000 ^b	10	9.5	No	< G, < B

Table 10.2-E-2n: Water Quality for Small Waterbodies - Lake H17

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	233	211	No	< G, < B
Total Alkalinity	mg/L	NV	73	67	No	NG, < B
Total Suspended Solids	mg/L	NV	14	13	No	NG, < B
Calcium	mg/L	NV	269	245	No	NG, < B
Chloride	mg/L	250 ^b	174	164	No	< G, < B
Fluoride	mg/L	1.5	0.08	0.07	No	< G, < B
Magnesium	mg/L	NV	7.2	6.5	No	NG, < B
Potassium	mg/L	NV	12	11	No	NG, < B
Sodium	mg/L	200 ^b	25	22	No	< G, < B
Sulphate	mg/L	500 ^b	20	19	No	< G, < B
Ammonia (as N)	mg/L	NV	2.0	1.9	No	NG, < B
Nitrate (as N)	mg/L	10	0.15	0.13	No	< G, < B
Total Kjeldahl Nitrogen	mg/L	NV	1.2	1.1	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.02	0.02	No	NG, < B
Orthophosphate	mg/L	NV	0.01	0.01	No	NG, < B
Cyanide	µg/L	200	3.7	3.4	No	< G, < B
Total Aluminum	µg/L	100 ^b	20	18	No	< G, < B
Total Antimony	µg/L	6	0.41	0.37	No	< G, < B
Total Arsenic	µg/L	10	3.5	3.2	No	< G, < B
Total Barium	µg/L	1000	57	52	No	< G, < B
Total Beryllium	µg/L	16 ^c	82	74	No	> G, < B
Total Bismuth	µg/L	NV	0.28	0.25	No	NG, < B
Total Boron	µg/L	5000	143	129	No	< G, < B
Total Cadmium	µg/L	5	0.34	0.31	No	< G, < B
Total Chromium	µg/L	50	6.1	5.4	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.19	0.17	No	< G, < B
Total Copper	µg/L	1000 ^b	3.8	3.5	No	< G, < B
Total Iron	µg/L	300 ^b	215	196	No	< G, < B
Total Lead	µg/L	10	0.50	0.47	No	< G, < B
Total Lithium	µg/L	31 ^c	15	14	No	< G, < B
Total Manganese	µg/L	50 ^b	154	140	No	> G, < B
Total Mercury	µg/L	1	0.12	0.11	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.38	0.34	No	< G, < B
Total Nickel	µg/L	300 ^c	3.1	2.8	No	< G, < B
Total Selenium	µg/L	10	0.54	0.48	No	< G, < B
Total Silver	µg/L	71 ^c	1.1	1.0	No	< G, < B
Total Strontium	µg/L	9300 ^c	269	253	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.11	0.10	No	< G, < B
Total Tin	µg/L	9300 ^c	0.43	0.39	No	< G, < B
Total Titanium	µg/L	NV	0.41	0.38	No	NG, < B
Total Tungsten	µg/L	NV	1.0	0.87	No	NG, < B
Total Uranium	µg/L	20	0.10	0.09	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.60	0.54	No	< G, < B
Total Zinc	µg/L	5000 ^b	9.4	8.5	No	< G, < B

Table 10.2-E-2o: Water Quality for Small Waterbodies - Lake H1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	328	298	No	< G, < B
Total Alkalinity	mg/L	NV	95	86	No	NG, < B
Total Suspended Solids	mg/L	NV	6.5	5.9	No	NG, < B
Calcium	mg/L	NV	131	120	No	NG, < B
Chloride	mg/L	250 ^b	201	182	No	< G, < B
Fluoride	mg/L	1.5	0.07	0.07	No	< G, < B
Magnesium	mg/L	NV	15	14	No	NG, < B
Potassium	mg/L	NV	6.2	5.7	No	NG, < B
Sodium	mg/L	200 ^b	24	22	No	< G, < B
Sulphate	mg/L	500 ^b	26	24	No	< G, < B
Ammonia (as N)	mg/L	NV	0.53	0.48	No	NG, < B
Nitrate (as N)	mg/L	10	0.38	0.34	No	< G, < B
Total Kjeldahl Nitrogen	mg/L	NV	1.2	1.1	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.006	0.005	No	NG, < B
Cyanide	µg/L	200	2.2	2.0	No	< G, < B
Total Aluminum	µg/L	100 ^b	13	12	No	< G, < B
Total Antimony	µg/L	6	0.37	0.34	No	< G, < B
Total Arsenic	µg/L	10	3.3	3.0	No	< G, < B
Total Barium	µg/L	1000	55	50	No	< G, < B
Total Beryllium	µg/L	16 ^c	19	17	No	> G, < B
Total Bismuth	µg/L	NV	0.14	0.13	No	NG, < B
Total Boron	µg/L	5000	57	52	No	< G, < B
Total Cadmium	µg/L	5	0.28	0.26	No	< G, < B
Total Chromium	µg/L	50	6.6	6.0	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.41	0.37	No	< G, < B
Total Copper	µg/L	1000 ^b	4.9	4.5	No	< G, < B
Total Iron	µg/L	300 ^b	193	175	No	< G, < B
Total Lead	µg/L	10	2.5	2.3	No	< G, < B
Total Lithium	µg/L	31 ^c	17	15	No	< G, < B
Total Manganese	µg/L	50 ^b	101	92	No	> G, < B
Total Mercury	µg/L	1	0.10	0.09	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.75	0.68	No	< G, < B
Total Nickel	µg/L	300 ^c	5.0	4.5	No	< G, < B
Total Selenium	µg/L	10	0.94	0.85	No	< G, < B
Total Silver	µg/L	71 ^c	0.28	0.25	No	< G, < B
Total Strontium	µg/L	9300 ^c	326	296	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.09	0.08	No	< G, < B
Total Tin	µg/L	9300 ^c	0.43	0.39	No	< G, < B
Total Titanium	µg/L	NV	1.4	1.3	No	NG, < B
Total Tungsten	µg/L	NV	23	21	No	NG, < B
Total Uranium	µg/L	20	0.11	0.10	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.75	0.68	No	< G, < B
Total Zinc	µg/L	5000 ^b	15	13	No	< G, < B

Table 10.2-E-2p: Water Quality for Small Waterbodies - Lake I1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	337	307	No	< G, < B
Total Alkalinity	mg/L	NV	93	86	No	NG, < B
Total Suspended Solids	mg/L	NV	4.8	4.4	No	NG, < B
Calcium	mg/L	NV	114	108	No	NG, < B
Chloride	mg/L	250 ^b	326	308	No	> G, < B
Fluoride	mg/L	1.5	0.07	0.06	No	< G, < B
Magnesium	mg/L	NV	15	13	No	NG, < B
Potassium	mg/L	NV	5.4	4.9	No	NG, < B
Sodium	mg/L	200 ^b	22	20	No	< G, < B
Sulphate	mg/L	500 ^b	26	24	No	< G, < B
Ammonia (as N)	mg/L	NV	0.31	0.29	No	NG, < B
Nitrate (as N)	mg/L	10	0.48	2.8	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	1.0	0.91	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.004	0.004	No	NG, < B
Cyanide	µg/L	200	1.9	1.7	No	< G, < B
Total Aluminum	µg/L	100 ^b	13	43	No	< G, > B
Total Antimony	µg/L	6	0.32	0.31	No	< G, < B
Total Arsenic	µg/L	10	2.9	2.7	No	< G, < B
Total Barium	µg/L	1000	44	41	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.78	0.71	No	< G, < B
Total Bismuth	µg/L	NV	0.13	0.12	No	NG, < B
Total Boron	µg/L	5000	49	45	No	< G, < B
Total Cadmium	µg/L	5	0.22	0.20	No	< G, < B
Total Chromium	µg/L	50	5.1	5.1	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.49	0.51	No	< G, > B
Total Copper	µg/L	1000 ^b	5.1	5.0	No	< G, < B
Total Iron	µg/L	300 ^b	185	274	No	< G, > B
Total Lead	µg/L	10	5.2	5.0	No	< G, < B
Total Lithium	µg/L	31 ^c	16	15	No	< G, < B
Total Manganese	µg/L	50 ^b	92	86	No	> G, < B

Table 10.2-E-2p: Water Quality for Small Waterbodies - Lake I1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Mercury	µg/L	1	0.10	0.09	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.92	0.86	No	< G, < B
Total Nickel	µg/L	300 ^c	5.2	4.9	No	< G, < B
Total Selenium	µg/L	10	1.1	1.0	No	< G, < B
Total Silver	µg/L	71 ^c	0.15	0.14	No	< G, < B
Total Strontium	µg/L	9300 ^c	317	304	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.09	0.08	No	< G, < B
Total Tin	µg/L	9300 ^c	0.23	0.21	No	< G, < B
Total Titanium	µg/L	NV	2.4	13	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	49	45	No	NG, < B
Total Uranium	µg/L	20	0.10	0.10	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.65	0.62	No	< G, < B
Total Zinc	µg/L	5000 ^b	11	11	No	< G, < B

Table 10.2-E-2q: Water Quality for Small Waterbodies - Lake J8

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	148	134	No	< G, < B
Total Alkalinity	mg/L	NV	53	48	No	NG, < B
Total Suspended Solids	mg/L	NV	3.0	2.7	No	NG, < B
Calcium	mg/L	NV	48	43	No	NG, < B
Chloride	mg/L	250 ^b	234	213	No	< G, < B
Fluoride	mg/L	1.5	0.05	0.05	No	< G, < B
Magnesium	mg/L	NV	7.1	6.5	No	NG, < B
Potassium	mg/L	NV	2.3	2.1	No	NG, < B
Sodium	mg/L	200 ^b	8.1	7.3	No	< G, < B
Sulphate	mg/L	500 ^b	17	15	No	< G, < B
Ammonia (as N)	mg/L	NV	0.10	0.09	No	NG, < B
Nitrate (as N)	mg/L	10	0.10	0.09	No	< G, < B
Total Kjeldahl Nitrogen	mg/L	NV	0.59	0.53	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.006	No	NG, < B
Orthophosphate	mg/L	NV	0.004	0.003	No	NG, < B
Cyanide	µg/L	200	4.2	3.8	No	< G, < B
Total Aluminum	µg/L	100 ^b	4.8	4.3	No	< G, < B
Total Antimony	µg/L	6	0.25	0.23	No	< G, < B
Total Arsenic	µg/L	10	3.3	3.0	No	< G, < B
Total Barium	µg/L	1000	31	28	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.17	0.16	No	< G, < B
Total Bismuth	µg/L	NV	0.03	0.03	No	NG, < B
Total Boron	µg/L	5000	85	78	No	< G, < B
Total Cadmium	µg/L	5	0.11	0.10	No	< G, < B
Total Chromium	µg/L	50	3.1	2.9	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.10	0.09	No	< G, < B
Total Copper	µg/L	1000 ^b	2.1	1.9	No	< G, < B
Total Iron	µg/L	300 ^b	122	111	No	< G, < B
Total Lead	µg/L	10	0.26	0.24	No	< G, < B
Total Lithium	µg/L	31 ^c	37	34	No	> G, < B
Total Manganese	µg/L	50 ^b	29	26	No	< G, < B
Total Mercury	µg/L	1	0.04	0.04	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.25	0.23	No	< G, < B
Total Nickel	µg/L	300 ^c	1.5	1.3	No	< G, < B
Total Selenium	µg/L	10	0.35	0.32	No	< G, < B
Total Silver	µg/L	71 ^c	0.08	0.07	No	< G, < B
Total Strontium	µg/L	9300 ^c	206	187	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.05	0.04	No	< G, < B
Total Tin	µg/L	9300 ^c	0.23	0.21	No	< G, < B
Total Titanium	µg/L	NV	0.38	0.34	No	NG, < B
Total Tungsten	µg/L	NV	17	15	No	NG, < B
Total Uranium	µg/L	20	0.06	0.06	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.41	0.38	No	< G, < B
Total Zinc	µg/L	5000 ^b	7.4	6.8	No	< G, < B

Table 10.2-E-2r: Water Quality for Small Waterbodies - Lake J7

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	341	309	No	< G, < B
Total Alkalinity	mg/L	NV	96	87	No	NG, < B
Total Suspended Solids	mg/L	NV	4.8	4.4	No	NG, < B
Calcium	mg/L	NV	114	105	No	NG, < B
Chloride	mg/L	250 ^b	358	325	No	> G, < B
Fluoride	mg/L	1.5	0.07	0.06	No	< G, < B
Magnesium	mg/L	NV	15	13	No	NG, < B
Potassium	mg/L	NV	5.5	5.0	No	NG, < B
Sodium	mg/L	200 ^b	23	21	No	< G, < B
Sulphate	mg/L	500 ^b	27	24	No	< G, < B
Ammonia (as N)	mg/L	NV	0.33	0.29	No	NG, < B
Nitrate (as N)	mg/L	10	0.51	0.45	No	< G, < B
Total Kjeldahl Nitrogen	mg/L	NV	1.0	0.92	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.004	0.004	No	NG, < B
Cyanide	µg/L	200	1.9	1.7	No	< G, < B
Total Aluminum	µg/L	100 ^b	14	13	No	< G, < B
Total Antimony	µg/L	6	0.33	0.31	No	< G, < B
Total Arsenic	µg/L	10	2.9	2.6	No	< G, < B
Total Barium	µg/L	1000	45	41	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.78	0.71	No	< G, < B
Total Bismuth	µg/L	NV	0.14	0.12	No	NG, < B
Total Boron	µg/L	5000	49	44	No	< G, < B
Total Cadmium	µg/L	5	0.23	0.21	No	< G, < B
Total Chromium	µg/L	50	5.5	5.0	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.50	0.45	No	< G, < B
Total Copper	µg/L	1000 ^b	5.1	4.6	No	< G, < B
Total Iron	µg/L	300 ^b	192	175	No	< G, < B
Total Lead	µg/L	10	5.4	4.9	No	< G, < B
Total Lithium	µg/L	31 ^c	18	16	No	< G, < B
Total Manganese	µg/L	50 ^b	95	87	No	> G, < B
Total Mercury	µg/L	1	0.10	0.09	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.92	0.84	No	< G, < B
Total Nickel	µg/L	300 ^c	5.3	4.9	No	< G, < B
Total Selenium	µg/L	10	1.1	1.1	No	< G, < B
Total Silver	µg/L	71 ^c	0.16	0.14	No	< G, < B
Total Strontium	µg/L	9300 ^c	328	300	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.09	0.08	No	< G, < B
Total Tin	µg/L	9300 ^c	0.23	0.21	No	< G, < B
Total Titanium	µg/L	NV	2.5	2.2	No	NG, < B
Total Tungsten	µg/L	NV	50	45	No	NG, < B
Total Uranium	µg/L	20	0.10	0.09	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.65	0.65	No	< G, < B
Total Zinc	µg/L	5000 ^b	11	11	No	< G, < B

Table 10.2-E-2s: Water Quality for Small Waterbodies - Lake J6

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	278	253	No	< G, < B
Total Alkalinity	mg/L	NV	77	70	No	NG, < B
Total Suspended Solids	mg/L	NV	4.3	3.9	No	NG, < B
Calcium	mg/L	NV	96	87	No	NG, < B
Chloride	mg/L	250 ^b	299	271	No	> G, < B
Fluoride	mg/L	1.5	0.06	0.06	No	< G, < B
Magnesium	mg/L	NV	13	11	No	NG, < B
Potassium	mg/L	NV	4.2	3.8	No	NG, < B
Sodium	mg/L	200 ^b	18	16	No	< G, < B
Sulphate	mg/L	500 ^b	25	22	No	< G, < B
Ammonia (as N)	mg/L	NV	0.26	0.24	No	NG, < B
Nitrate (as N)	mg/L	10	0.44	0.40	No	< G, < B
Total Kjeldahl Nitrogen	mg/L	NV	0.87	0.79	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.009	0.008	No	NG, < B
Orthophosphate	mg/L	NV	0.004	0.004	No	NG, < B
Cyanide	µg/L	200	1.5	1.4	No	< G, < B
Total Aluminum	µg/L	100 ^b	11	10	No	< G, < B
Total Antimony	µg/L	6	0.34	0.31	No	< G, < B
Total Arsenic	µg/L	10	2.6	2.3	No	< G, < B
Total Barium	µg/L	1000	44	40	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.65	0.59	No	< G, < B
Total Bismuth	µg/L	NV	0.10	0.09	No	NG, < B
Total Boron	µg/L	5000	43	39	No	< G, < B
Total Cadmium	µg/L	5	0.20	0.18	No	< G, < B
Total Chromium	µg/L	50	5.5	5.0	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.35	0.32	No	< G, < B
Total Copper	µg/L	1000 ^b	4.1	3.7	No	< G, < B
Total Iron	µg/L	300 ^b	177	161	No	< G, < B
Total Lead	µg/L	10	3.1	2.8	No	< G, < B
Total Lithium	µg/L	31 ^c	14	13	No	< G, < B
Total Manganese	µg/L	50 ^b	88	80	No	> G, < B
Total Mercury	µg/L	1	0.09	0.08	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.76	0.69	No	< G, < B
Total Nickel	µg/L	300 ^c	3.7	3.3	No	< G, < B
Total Selenium	µg/L	10	1.0	0.88	No	< G, < B
Total Silver	µg/L	71 ^c	0.12	0.11	No	< G, < B
Total Strontium	µg/L	9300 ^c	245	223	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.07	0.07	No	< G, < B
Total Tin	µg/L	9300 ^c	0.23	0.21	No	< G, < B
Total Titanium	µg/L	NV	2.0	1.8	No	NG, < B
Total Tungsten	µg/L	NV	27	24	No	NG, < B
Total Uranium	µg/L	20	0.09	0.08	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.63	0.57	No	< G, < B
Total Zinc	µg/L	5000 ^b	9.9	9.0	No	< G, < B

Table 10.2-E-2t: Water Quality for Small Waterbodies - Lake J3

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	354	322	No	< G, < B
Total Alkalinity	mg/L	NV	96	87	No	NG, < B
Total Suspended Solids	mg/L	NV	6.0	5.5	No	NG, < B
Calcium	mg/L	NV	110	100	No	NG, < B
Chloride	mg/L	250 ^b	351	319	No	> G, < B
Fluoride	mg/L	1.5	0.07	0.07	No	< G, < B
Magnesium	mg/L	NV	17	16	No	NG, < B
Potassium	mg/L	NV	6.1	5.5	No	NG, < B
Sodium	mg/L	200 ^b	26	24	No	< G, < B
Sulphate	mg/L	500 ^b	44	40	No	< G, < B
Ammonia (as N)	mg/L	NV	0.38	0.34	No	NG, < B
Nitrate (as N)	mg/L	10	0.55	0.50	No	< G, < B
Total Kjeldahl Nitrogen	mg/L	NV	1.2	1.1	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.006	0.005	No	NG, < B
Cyanide	µg/L	200	2.0	1.8	No	< G, < B
Total Aluminum	µg/L	100 ^b	14	12	No	< G, < B
Total Antimony	µg/L	6	0.38	0.35	No	< G, < B
Total Arsenic	µg/L	10	3.8	3.5	No	< G, < B
Total Barium	µg/L	1000	63	57	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.76	0.69	No	< G, < B
Total Bismuth	µg/L	NV	0.12	0.11	No	NG, < B
Total Boron	µg/L	5000	54	49	No	< G, < B
Total Cadmium	µg/L	5	0.28	0.26	No	< G, < B
Total Chromium	µg/L	50	5.8	5.3	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.48	0.43	No	< G, < B
Total Copper	µg/L	1000 ^b	5.0	4.6	No	< G, < B
Total Iron	µg/L	300 ^b	196	178	No	< G, < B
Total Lead	µg/L	10	3.8	3.4	No	< G, < B
Total Lithium	µg/L	31 ^c	22	20	No	< G, < B
Total Manganese	µg/L	50 ^b	138	126	No	> G, < B
Total Mercury	µg/L	1	0.11	0.10	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.87	0.79	No	< G, < B
Total Nickel	µg/L	300 ^c	5.5	5.0	No	< G, < B
Total Selenium	µg/L	10	1.1	1.0	No	< G, < B
Total Silver	µg/L	71 ^c	0.18	0.16	No	< G, < B
Total Strontium	µg/L	9300 ^c	364	331	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.09	0.08	No	< G, < B
Total Tin	µg/L	9300 ^c	0.23	0.21	No	< G, < B
Total Titanium	µg/L	NV	2.3	2.1	No	NG, < B
Total Tungsten	µg/L	NV	27	25	No	NG, < B
Total Uranium	µg/L	20	0.12	0.11	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.73	0.67	No	< G, < B
Total Zinc	µg/L	5000 ^b	15	13	No	< G, < B

Table 10.2-E-2u: Water Quality for Small Waterbodies - Lake J2

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	354	322	No	< G, < B
Total Alkalinity	mg/L	NV	96	87	No	NG, < B
Total Suspended Solids	mg/L	NV	6.0	5.5	No	NG, < B
Calcium	mg/L	NV	110	100	No	NG, < B
Chloride	mg/L	250 ^b	351	319	No	> G, < B
Fluoride	mg/L	1.5	0.07	0.07	No	< G, < B
Magnesium	mg/L	NV	17	16	No	NG, < B
Potassium	mg/L	NV	6.1	5.5	No	NG, < B
Sodium	mg/L	200 ^b	26	24	No	< G, < B
Sulphate	mg/L	500 ^b	44	40	No	< G, < B
Ammonia (as N)	mg/L	NV	0.38	0.34	No	NG, < B
Nitrate (as N)	mg/L	10	0.55	0.50	No	< G, < B
Total Kjeldahl Nitrogen	mg/L	NV	1.2	1.1	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.006	0.005	No	NG, < B
Cyanide	µg/L	200	2.0	1.8	No	< G, < B
Total Aluminum	µg/L	100 ^b	14	12	No	< G, < B
Total Antimony	µg/L	6	0.38	0.35	No	< G, < B
Total Arsenic	µg/L	10	3.8	3.5	No	< G, < B
Total Barium	µg/L	1000	63	57	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.76	0.69	No	< G, < B
Total Bismuth	µg/L	NV	0.12	0.11	No	NG, < B
Total Boron	µg/L	5000	54	49	No	< G, < B
Total Cadmium	µg/L	5	0.28	0.26	No	< G, < B
Total Chromium	µg/L	50	5.8	5.3	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.48	0.43	No	< G, < B
Total Copper	µg/L	1000 ^b	5.0	4.6	No	< G, < B
Total Iron	µg/L	300 ^b	196	178	No	< G, < B
Total Lead	µg/L	10	3.8	3.4	No	< G, < B
Total Lithium	µg/L	31 ^c	22	20	No	< G, < B
Total Manganese	µg/L	50 ^b	138	126	No	> G, < B
Total Mercury	µg/L	1	0.11	0.10	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.87	0.79	No	< G, < B
Total Nickel	µg/L	300 ^c	5.5	5.0	No	< G, < B
Total Selenium	µg/L	10	1.1	1.0	No	< G, < B
Total Silver	µg/L	71 ^c	0.18	0.16	No	< G, < B
Total Strontium	µg/L	9300 ^c	364	331	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.09	0.08	No	< G, < B
Total Tin	µg/L	9300 ^c	0.23	0.21	No	< G, < B
Total Titanium	µg/L	NV	2.3	2.1	No	NG, < B
Total Tungsten	µg/L	NV	27	25	No	NG, < B
Total Uranium	µg/L	20	0.12	0.11	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.73	0.67	No	< G, < B
Total Zinc	µg/L	5000 ^b	15	13	No	< G, < B

Table 10.2-E-2v: Water Quality for Small Waterbodies - Lake J1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	332	307	No	< G, < B
Total Alkalinity	mg/L	NV	92	84	No	NG, < B
Total Suspended Solids	mg/L	NV	4.6	4.2	No	NG, < B
Calcium	mg/L	NV	109	102	No	NG, < B
Chloride	mg/L	250 ^b	343	317	No	> G, < B
Fluoride	mg/L	1.5	0.07	0.06	No	< G, < B
Magnesium	mg/L	NV	15	14	No	NG, < B
Potassium	mg/L	NV	5.5	5.0	No	NG, < B
Sodium	mg/L	200 ^b	22	20	No	< G, < B
Sulphate	mg/L	500 ^b	26	24	No	< G, < B
Ammonia (as N)	mg/L	NV	0.32	0.29	No	NG, < B
Nitrate (as N)	mg/L	10	0.49	2.8	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	1.0	0.91	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.01	0.01	No	NG, < B
Orthophosphate	mg/L	NV	0.004	0.004	No	NG, < B
Cyanide	µg/L	200	2.0	1.8	No	< G, < B
Total Aluminum	µg/L	100 ^b	14	43	No	< G, > B
Total Antimony	µg/L	6	0.32	0.30	No	< G, < B
Total Arsenic	µg/L	10	2.9	2.6	No	< G, < B
Total Barium	µg/L	1000	45	41	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.75	0.69	No	< G, < B
Total Bismuth	µg/L	NV	0.13	0.12	No	NG, < B
Total Boron	µg/L	5000	50	46	No	< G, < B
Total Cadmium	µg/L	5	0.23	0.21	No	< G, < B
Total Chromium	µg/L	50	5.3	5.2	No	< G, < B
Total Cobalt	µg/L	4.7 ^c	0.49	0.45	No	< G, < B
Total Copper	µg/L	1000 ^b	4.9	4.5	No	< G, < B
Total Iron	µg/L	300 ^b	190	172	No	< G, < B
Total Lead	µg/L	10	5.5	5.0	No	< G, < B
Total Lithium	µg/L	31 ^c	16	14	No	< G, < B
Total Manganese	µg/L	50 ^b	93	88	No	> G, < B
Total Mercury	µg/L	1	0.11	0.10	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.89	0.83	No	< G, < B
Total Nickel	µg/L	300 ^c	5.2	4.8	No	< G, < B
Total Selenium	µg/L	10	1.1	1.0	No	< G, < B
Total Silver	µg/L	71 ^c	0.15	0.14	No	< G, < B
Total Strontium	µg/L	9300 ^c	325	303	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.09	0.08	No	< G, < B
Total Tin	µg/L	9300 ^c	0.23	0.21	No	< G, < B
Total Titanium	µg/L	NV	2.5	2.3	No	NG, < B
Total Tungsten	µg/L	NV	56	51	No	NG, < B
Total Uranium	µg/L	20	0.10	0.09	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.62	0.62	No	< G, < B
Total Zinc	µg/L	5000 ^b	11	11	No	< G, < B

Table 10.2-E-2w: Water Quality for Small Waterbodies - Lake CH

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	103	103	No	< G, < B
Total Alkalinity	mg/L	NV	44	47	No	No direct impact on human health
Total Suspended Solids	mg/L	NV	3.5	3.6	No	No direct impact on human health
Calcium	mg/L	NV	15	16	No	Essential nutrient/non-toxic
Chloride	mg/L	250 ^b	15	16	No	< G, > B
Fluoride	mg/L	1.5	0.10	0.10	No	< G, < B
Magnesium	mg/L	NV	2.3	2.4	No	Essential nutrient/non-toxic
Potassium	mg/L	NV	2.9	3.1	No	Essential nutrient/non-toxic
Sodium	mg/L	200 ^b	12	12	No	< G, < B
Sulphate	mg/L	500 ^b	7.6	7.9	No	< G, > B
Ammonia (as N)	mg/L	NV	0.06	0.06	No	NG, < B
Nitrate (as N)	mg/L	10	0.05	0.59	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.46	0.45	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.008	0.008	No	NG, < B
Orthophosphate	mg/L	NV	0.002	0.002	No	NG, < B
Cyanide	µg/L	200	2.7	2.7	No	< G, < B
Total Aluminum	µg/L	100 ^b	9.1	16	No	< G, > B
Total Antimony	µg/L	6	0.39	0.40	No	< G, > B
Total Arsenic	µg/L	10	1.1	1.2	No	< G, > B
Total Barium	µg/L	1000	21	22	No	< G, > B
Total Beryllium	µg/L	16 ^c	0.42	0.44	No	< G, > B
Total Bismuth	µg/L	NV	0.08	0.08	No	NG, < B
Total Boron	µg/L	5000	124	131	No	< G, > B
Total Cadmium	µg/L	5	0.18	0.19	No	< G, > B
Total Chromium	µg/L	50	0.05	0.07	No	< G, > B
Total Cobalt	µg/L	4.7 ^c	0.33	0.34	No	< G, > B
Total Copper	µg/L	1000 ^b	9.7	9.9	No	< G, > B
Total Iron	µg/L	300 ^b	139	156	No	< G, > B
Total Lead	µg/L	10	17	15	No	> G, < B
Total Lithium	µg/L	31 ^c	35	32	No	> G, < B
Total Manganese	µg/L	50 ^b	8.6	8.9	No	< G, > B

Table 10.2-E-2w: Water Quality for Small Waterbodies - Lake CH

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Mercury	µg/L	1	0.09	0.09	No	< G, < B
Total Molybdenum	µg/L	78 ^c	0.78	0.74	No	< G, < B
Total Nickel	µg/L	300 ^c	2.9	2.9	No	< G, < B
Total Selenium	µg/L	10	0.38	0.38	No	< G, < B
Total Silver	µg/L	71 ^c	0.10	0.10	No	< G, < B
Total Strontium	µg/L	9300 ^c	108	116	No	< G, > B
Total Thallium	µg/L	0.16 ^c	0.10	0.11	No	< G, > B
Total Tin	µg/L	9300 ^c	0.56	0.57	No	< G, > B
Total Titanium	µg/L	NV	1.0	1.3	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	1.3	1.4	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	20	0.18	0.18	No	< G, < B
Total Vanadium	µg/L	78 ^c	1.1	1.2	No	< G, > B
Total Zinc	µg/L	5000 ^b	6.6	6.8	No	< G, > B

Table 10.2-E-2x: Water Quality for Small Waterbodies - Lake DS1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	100	97	No	< G, < B
Total Alkalinity	mg/L	NV	43	44	No	No direct impact on human health
Total Suspended Solids	mg/L	NV	3.6	3.6	No	NG, < B
Calcium	mg/L	NV	16	16	No	NG, < B
Chloride	mg/L	250 ^b	15	15	No	< G, < B
Fluoride	mg/L	1.5	0.10	0.10	No	< G, < B
Magnesium	mg/L	NV	2.3	2.3	No	NG, < B
Potassium	mg/L	NV	2.9	3.0	No	Essential nutrient/non-toxic
Sodium	mg/L	200 ^b	12	12	No	< G, > B
Sulphate	mg/L	500 ^b	7.6	7.6	No	< G, < B
Ammonia (as N)	mg/L	NV	0.06	0.06	No	NG, < B
Nitrate (as N)	mg/L	10	0.06	0.61	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.39	0.38	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.007	0.007	No	NG, < B
Orthophosphate	mg/L	NV	0.002	0.002	No	NG, < B
Cyanide	µg/L	200	2.9	2.8	No	< G, < B
Total Aluminum	µg/L	100 ^b	9.3	16	No	< G, > B
Total Antimony	µg/L	6	0.42	0.43	No	< G, > B
Total Arsenic	µg/L	10	1.1	1.1	No	< G, < B
Total Barium	µg/L	1000	20	20	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.51	0.50	No	< G, < B
Total Bismuth	µg/L	NV	0.15	0.15	No	NG, < B
Total Boron	µg/L	5000	129	132	No	< G, > B
Total Cadmium	µg/L	5	0.19	0.17	No	< G, < B
Total Chromium	µg/L	50	0.09	0.11	No	< G, > B
Total Cobalt	µg/L	4.7 ^c	0.63	0.68	No	< G, > B
Total Copper	µg/L	1000 ^b	9.9	9.3	No	< G, < B
Total Iron	µg/L	300 ^b	141	152	No	< G, > B
Total Lead	µg/L	10	17	15	No	> G, < B
Total Lithium	µg/L	31 ^c	25	24	No	< G, < B
Total Manganese	µg/L	50 ^b	8.1	8.1	No	< G, < B
Total Mercury	µg/L	1	0.09	0.08	No	< G, < B

Table 10.2-E-2x: Water Quality for Small Waterbodies - Lake DS1

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Molybdenum	µg/L	78 ^c	1.7	1.7	No	< G, < B
Total Nickel	µg/L	300 ^c	4.3	4.2	No	< G, < B
Total Selenium	µg/L	10	0.31	0.30	No	< G, < B
Total Silver	µg/L	71 ^c	0.11	0.10	No	< G, < B
Total Strontium	µg/L	9300 ^c	107	111	No	< G, > B
Total Thallium	µg/L	0.16 ^c	0.10	0.10	No	< G, < B
Total Tin	µg/L	9300 ^c	0.46	0.46	No	< G, < B
Total Titanium	µg/L	NV	1.1	1.4	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	1.4	1.5	No	Lack of toxicity data/non-toxic
Total Uranium	µg/L	20	0.17	0.18	No	< G, > B
Total Vanadium	µg/L	78 ^c	1.1	1.1	No	< G, < B
Total Zinc	µg/L	5000 ^b	6.4	6.5	No	< G, > B

Table 10.2-E-2y: Water Quality for Small Waterbodies - Lake DS1A

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	60	55	No	< G, < B
Total Alkalinity	mg/L	NV	25	23	No	< G, < B
Total Suspended Solids	mg/L	NV	2.7	2.4	No	< G, < B
Calcium	mg/L	NV	9.1	8.3	No	< G, < B
Chloride	mg/L	250 ^b	10	9.2	No	< G, < B
Fluoride	mg/L	1.5	0.07	0.06	No	< G, < B
Magnesium	mg/L	NV	1.4	1.3	No	NG, < B
Potassium	mg/L	NV	1.8	1.7	No	NG, < B
Sodium	mg/L	200 ^b	7.6	6.9	No	< G, < B
Sulphate	mg/L	500 ^b	5.0	4.5	No	< G, < B
Ammonia (as N)	mg/L	NV	0.05	0.04	No	< G, < B
Nitrate (as N)	mg/L	10	0.09	0.78	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.18	0.17	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.003	0.003	No	NG, < B
Orthophosphate	mg/L	NV	0.001	0.001	No	NG, < B
Cyanide	µg/L	200	4.1	3.7	No	< G, < B
Total Aluminum	µg/L	100 ^b	7.1	15	No	< G, > B
Total Antimony	µg/L	6	0.38	0.35	No	< G, < B
Total Arsenic	µg/L	10	0.48	0.47	No	< G, < B
Total Barium	µg/L	1000	11	10	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.89	0.82	No	< G, < B
Total Bismuth	µg/L	NV	9.2	8.3	No	NG, < B
Total Boron	µg/L	5000	99	91	No	< G, < B
Total Cadmium	µg/L	5	0.19	0.17	No	< G, < B
Total Chromium	µg/L	50	1.3	1.4	No	< G, > B
Total Cobalt	µg/L	4.7 ^c	1.5	1.6	No	< G, > B
Total Copper	µg/L	1000 ^b	6.6	6.0	No	< G, < B
Total Iron	µg/L	300 ^b	83	84	No	< G, > B
Total Lead	µg/L	10	17	15	No	> G, < B
Total Lithium	µg/L	31 ^c	15	13	No	< G, < B
Total Manganese	µg/L	50 ^b	4.3	4.0	No	< G, < B

Table 10.2-E-2y: Water Quality for Small Waterbodies - Lake DS1A

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Mercury	µg/L	1	0.05	0.04	No	< G, < B
Total Molybdenum	µg/L	78 ^c	26	24	No	< G, < B
Total Nickel	µg/L	300 ^c	18	16	No	< G, < B
Total Selenium	µg/L	10	0.14	0.13	No	< G, < B
Total Silver	µg/L	71 ^c	0.09	0.08	No	< G, < B
Total Strontium	µg/L	9300 ^c	64	58	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.05	0.04	No	< G, < B
Total Tin	µg/L	9300 ^c	0.23	0.21	No	< G, < B
Total Titanium	µg/L	NV	1.0	1.3	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	89	81	No	NG, < B
Total Uranium	µg/L	20	0.10	0.09	No	< G, < B
Total Vanadium	µg/L	78 ^c	0.86	0.80	No	< G, < B
Total Zinc	µg/L	5000 ^b	4.2	3.8	No	< G, < B

Table 10.2-E-2z: Water Quality for Small Waterbodies - Lake DS2

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Dissolved Solids	mg/L	500 ^b	82	76	No	< G, < B
Total Alkalinity	mg/L	NV	36	34	No	NG, < B
Total Suspended Solids	mg/L	NV	3.0	2.8	No	NG, < B
Calcium	mg/L	NV	13	12	No	NG, < B
Chloride	mg/L	250 ^b	14	14	No	< G, < B
Fluoride	mg/L	1.5	0.10	0.10	No	< G, < B
Magnesium	mg/L	NV	1.9	1.8	No	NG, < B
Potassium	mg/L	NV	2.7	2.6	No	NG, < B
Sodium	mg/L	200 ^b	11	10	No	< G, < B
Sulphate	mg/L	500 ^b	7.1	6.8	No	< G, < B
Ammonia (as N)	mg/L	NV	0.05	0.05	No	NG, < B
Nitrate (as N)	mg/L	10.0	0.07	0.66	No	< G, > B
Total Kjeldahl Nitrogen	mg/L	NV	0.30	0.29	No	NG, < B
Dissolved Phosphorus	mg/L	NV	0.006	0.006	No	NG, < B
Orthophosphate	mg/L	NV	0.002	0.002	No	NG, < B
Cyanide	µg/L	200	3.1	3.1	No	< G, < B
Total Aluminum	µg/L	100 ^b	9.3	16	No	< G, > B
Total Antimony	µg/L	6	0.44	0.44	No	< G, < B
Total Arsenic	µg/L	10	0.93	0.90	No	< G, < B
Total Barium	µg/L	1000	17	16	No	< G, < B
Total Beryllium	µg/L	16 ^c	0.62	0.58	No	< G, < B
Total Bismuth	µg/L	NV	0.92	0.86	No	NG, < B
Total Boron	µg/L	5000	140	138	No	< G, < B
Total Cadmium	µg/L	5	0.21	0.19	No	< G, < B
Total Chromium	µg/L	50	1.3	1.4	No	< G, > B
Total Cobalt	µg/L	4.7 ^c	1.5	1.6	No	< G, > B
Total Copper	µg/L	1000 ^b	9.9	9.3	No	< G, < B
Total Iron	µg/L	300 ^b	129	130	No	< G, > B
Total Lead	µg/L	10	17	15	No	> G, < B
Total Lithium	µg/L	31 ^c	25	23	No	< G, < B
Total Manganese	µg/L	50 ^b	6.0	5.7	No	< G, < B

Table 10.2-E-2z: Water Quality for Small Waterbodies - Lake DS2

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Modelled Baseline + 10% ^d	Maximum Predicted Concentration		
				Predicted Concentration ^e	COPC ^f	Rationale
Total Mercury	µg/L	1	0.08	0.08	No	< G, < B
Total Molybdenum	µg/L	78 ^c	5.0	4.7	No	< G, < B
Total Nickel	µg/L	300 ^c	5.1	4.8	No	< G, < B
Total Selenium	µg/L	10	0.22	0.20	No	< G, < B
Total Silver	µg/L	71 ^c	0.09	0.09	No	< G, < B
Total Strontium	µg/L	9300 ^c	93	91	No	< G, < B
Total Thallium	µg/L	0.16 ^c	0.08	0.07	No	< G, < B
Total Tin	µg/L	9300 ^c	0.34	0.31	No	< G, < B
Total Titanium	µg/L	NV	1.1	1.3	No	Lack of toxicity data/non-toxic
Total Tungsten	µg/L	NV	12	11	No	NG, < B
Total Uranium	µg/L	20	0.15	0.14	No	< G, < B
Total Vanadium	µg/L	78 ^c	1.0	1.0	No	< G, < B
Total Zinc	µg/L	5000 ^b	5.6	5.4	No	< G, < B

Table 10.2-E-3a: Water Quality for Tiriganiaq Open Pit Lake

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Predicted Concentration ^d	COPC ^e	Rationale
Total Dissolved Solids	mg/L	500 ^b	32	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	16	No	No direct impact on human health
Chloride	mg/L	250 ^b	5.7	No	< G
Fluoride	mg/L	1.5	0.0006	No	< G
Sulphate	mg/L	500 ^b	3.0	No	< G
Ammonium (as N)	mg N/L	NV	1.0	No	No direct impact on human health
Nitrate	mg/L	45	0.77	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.18	No	No direct impact on human health
Dissolved Phosphorus	mg/L	NV	0.003	No	No direct impact on human health
Phosphate	mg/L	NV	0.001	No	No direct impact on human health
Aluminum	µg/L	100 ^b	5.5	No	< G
Antimony	µg/L	6	0.11	No	< G
Arsenic	µg/L	10	2.9	No	< G
Barium	µg/L	1000	5.4	No	< G
Beryllium	µg/L	16 ^c	0.0000003	No	< G
Bismuth	µg/L	NV	0.00005	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	3.0	No	< G
Cadmium	µg/L	5	0.0002	No	< G
Calcium	µg/L	NV	2416	No	Essential nutrient/non-toxic
Chromium	µg/L	50	0.54	No	< G
Cobalt	µg/L	4.7 ^c	0.03	No	< G
Copper	µg/L	1000 ^b	2.8	No	< G
Iron	µg/L	300 ^b	6.4	No	< G
Lead	µg/L	10	0.14	No	< G
Lithium	µg/L	31 ^c	0.03	No	< G
Magnesium	µg/L	NV	504	No	Essential nutrient/non-toxic
Manganese	µg/L	50 ^b	1.8	No	< G
Mercury	µg/L	1	0.000001	No	< G
Molybdenum	µg/L	78 ^c	0.28	No	< G
Nickel	µg/L	300 ^c	0.45	No	< G
Potassium	µg/L	NV	443	No	Essential nutrient/non-toxic
Selenium	µg/L	10	0.03	No	< G
Sodium	µg/L	200 ^b	1477	No	No direct impact on human health
Strontium	µg/L	9300 ^c	24	No	< G

Table 10.2-E-3a: Water Quality for Tiriganiaq Open Pit Lake

Chemical	Units	Canadian Drinking Water Quality Guidelines^a	Predicted Concentration^d	COPC^e	Rationale
Thallium	µg/L	0.16 ^c	0.0000003	No	< G
Tin	µg/L	9300 ^c	0.02	No	< G
Titanium	µg/L	NV	0.008	No	Lack of toxicity data/non-toxic
Tungsten	µg/L	NV	0.003	No	Lack of toxicity data/non-toxic
Uranium	µg/L	20	0.08	No	< G
Vanadium	µg/L	78 ^c	0.25	No	< G
Zinc	µg/L	5000 ^b	1.3	No	< G

Table 10.2-E-3b: Water Quality for Wesmeg Open Pit Lake

Chemical	Units	Canadian Drinking Water Quality Guidelines ^a	Predicted Concentration ^b	COPC ^c	Rationale
Total Dissolved Solids	mg/L	500 ^b	20	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	9.3	No	No direct impact on human health
Chloride	mg/L	250 ^b	3.6	No	< G
Fluoride	mg/L	1.5	0.00001	No	< G
Sulphate	mg/L	500 ^b	2.1	No	< G
Ammonium (as N)	mg N/L	NV	0.67	No	No direct impact on human health
Nitrate	mg/L	45	0.74	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.12	No	No direct impact on human health
Dissolved Phosphorus	mg/L	NV	0.002	No	No direct impact on human health
Phosphate	mg/L	NV	0.001	No	No direct impact on human health
Aluminum	µg/L	100 ^b	2.2	No	< G
Antimony	µg/L	6	0.02	No	< G
Arsenic	µg/L	10	0.48	No	< G
Barium	µg/L	1000	3.3	No	< G
Beryllium	µg/L	16 ^c	0.0000012	No	< G
Bismuth	µg/L	NV	0.0000006	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	1.7	No	< G
Cadmium	µg/L	5	0.00001	No	< G
Calcium	µg/L	NV	1105	No	Essential nutrient/non-toxic
Chromium	µg/L	50	0.35	No	< G
Cobalt	µg/L	4.7 ^c	0.003	No	< G
Copper	µg/L	1000 ^b	0.63	No	< G
Iron	µg/L	300 ^b	3.8	No	< G
Lead	µg/L	10	0.09	No	< G
Lithium	µg/L	31 ^c	0.0005	No	< G
Magnesium	µg/L	NV	251	No	Essential nutrient/non-toxic
Manganese	µg/L	50 ^b	1.0	No	< G
Mercury	µg/L	1	0.000006	No	< G
Molybdenum	µg/L	78 ^c	0.15	No	< G
Nickel	µg/L	300 ^c	0.28	No	< G
Potassium	µg/L	NV	204	No	Essential nutrient/non-toxic
Selenium	µg/L	10	0.003	No	< G
Sodium	µg/L	200 ^b	931	No	No direct impact on human health
Strontium	µg/L	9300 ^c	13	No	< G

Table 10.2-E-3b: Water Quality for Wesmeg Open Pit Lake

Chemical	Units	Canadian Drinking Water Quality Guidelines^a	Predicted Concentration^b	COPC^c	Rationale
Thallium	µg/L	0.16 ^c	0.0000002	No	< G
Tin	µg/L	9300 ^c	0.006	No	< G
Titanium	µg/L	NV	0.0006	No	Lack of toxicity data/non-toxic
Tungsten	µg/L	NV	0.0009	No	Lack of toxicity data/non-toxic
Uranium	µg/L	20	0.04	No	< G
Vanadium	µg/L	78 ^c	0.16	No	< G
Zinc	µg/L	5000 ^b	0.80	No	< G

Table 10.2-E-3c: Water Quality for FZone Open Pit Lake

Chemical	Units	Canadian Drinking Water Quality Guidelines^a	Predicted Concentration^b	COPC^c	Rationale
Total Dissolved Solids	mg/L	500 ^b	36	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	16	No	No direct impact on human health
Chloride	mg/L	250 ^b	6.7	No	< G
Fluoride	mg/L	1.5	0.0000005	No	< G
Sulphate	mg/L	500 ^b	2.7	No	< G
Ammonium (as N)	mg N/L	NV	1.3	No	No direct impact on human health
Nitrate	mg/L	45	1.4	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.21	No	No direct impact on human health
Dissolved Phosphorus	mg/L	NV	0.004	No	No direct impact on human health
Phosphate	mg/L	NV	0.001	No	No direct impact on human health
Aluminum	µg/L	100 ^b	2.2	No	< G
Antimony	µg/L	6	0.003	No	< G
Arsenic	µg/L	10	0.28	No	< G
Barium	µg/L	1000	6.0	No	< G
Beryllium	µg/L	16 ^c	0.00000003	No	< G
Bismuth	µg/L	NV	0.00000002	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	3.0	No	< G
Cadmium	µg/L	5	0.000002	No	< G
Calcium	µg/L	NV	1990	No	Essential nutrient/non-toxic
Chromium	µg/L	50	0.65	No	< G
Cobalt	µg/L	4.7 ^c	0.0003	No	< G
Copper	µg/L	1000 ^b	1.2	No	< G
Iron	µg/L	300 ^b	6.9	No	< G
Lead	µg/L	10	0.17	No	< G
Lithium	µg/L	31 ^c	0.002	No	< G
Magnesium	µg/L	NV	436	No	Essential nutrient/non-toxic
Manganese	µg/L	50 ^b	1.4	No	< G
Mercury	µg/L	1	0.0000002	No	< G
Molybdenum	µg/L	78 ^c	0.27	No	< G
Nickel	µg/L	300 ^c	0.51	No	< G
Potassium	µg/L	NV	365	No	Essential nutrient/non-toxic
Selenium	µg/L	10	0.001	No	< G
Sodium	µg/L	200 ^b	1722	No	No direct impact on human health
Strontium	µg/L	9300 ^c	24	No	< G

Table 10.2-E-3c: Water Quality for FZone Open Pit Lake

Chemical	Units	Canadian Drinking Water Quality Guidelines^a	Predicted Concentration^b	COPC^c	Rationale
Thallium	µg/L	0.16 ^c	0.00000000004	No	< G
Tin	µg/L	9300 ^c	0.0004	No	< G
Titanium	µg/L	NV	0.0001	No	Lack of toxicity data/non-toxic
Tungsten	µg/L	NV	0.0001	No	Lack of toxicity data/non-toxic
Uranium	µg/L	20	0.06	No	< G
Vanadium	µg/L	78 ^c	0.29	No	< G
Zinc	µg/L	5000 ^b	1.5	No	< G

Table 10.2-E-3d: Water Quality for Pump Open Pit Lake

Chemical	Units	Canadian Drinking Water Quality Guidelines^a	Predicted Concentration^b	COPC^c	Rationale
Total Dissolved Solids	mg/L	500 ^b	37	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	19	No	No direct impact on human health
Chloride	mg/L	250 ^b	6.4	No	< G
Fluoride	mg/L	1.5	0.00001	No	< G
Sulphate	mg/L	500 ^b	3.9	No	< G
Ammonium (as N)	mg N/L	NV	0.68	No	No direct impact on human health
Nitrate	mg/L	45	0.75	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.25	No	No direct impact on human health
Dissolved Phosphorus	mg/L	NV	0.004	No	No direct impact on human health
Phosphate	mg/L	NV	0.001	No	No direct impact on human health
Aluminum	µg/L	100 ^b	2.7	No	< G
Antimony	µg/L	6	0.01	No	< G
Arsenic	µg/L	10	0.44	No	< G
Barium	µg/L	1000	5.7	No	< G
Beryllium	µg/L	16 ^c	0.000002	No	< G
Bismuth	µg/L	NV	0.000001	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	6.3	No	< G
Cadmium	µg/L	5	0.000004	No	< G
Calcium	µg/L	NV	2390	No	Essential nutrient/non-toxic
Chromium	µg/L	50	0.53	No	< G
Cobalt	µg/L	4.7 ^c	0.001	No	< G
Copper	µg/L	1000 ^b	1.0	No	< G
Iron	µg/L	300 ^b	8.6	No	< G
Lead	µg/L	10	0.15	No	< G
Lithium	µg/L	31 ^c	0.0004	No	< G
Magnesium	µg/L	NV	444	No	Essential nutrient/non-toxic
Manganese	µg/L	50 ^b	1.8	No	< G
Mercury	µg/L	1	0.00001	No	< G
Molybdenum	µg/L	78 ^c	0.26	No	< G
Nickel	µg/L	300 ^c	0.45	No	< G
Potassium	µg/L	NV	347	No	Essential nutrient/non-toxic
Selenium	µg/L	10	0.10	No	< G
Sodium	µg/L	200 ^b	1486	No	No direct impact on human health
Strontium	µg/L	9300 ^c	20	No	< G

Table 10.2-E-3d: Water Quality for Pump Open Pit Lake

Chemical	Units	Canadian Drinking Water Quality Guidelines^a	Predicted Concentration^b	COPC^c	Rationale
Thallium	µg/L	0.16 ^c	0.0000005	No	< G
Tin	µg/L	9300 ^c	0.004	No	< G
Titanium	µg/L	NV	0.0003	No	Lack of toxicity data/non-toxic
Tungsten	µg/L	NV	0.0003	No	Lack of toxicity data/non-toxic
Uranium	µg/L	20	0.05	No	< G
Vanadium	µg/L	78 ^c	0.28	No	< G
Zinc	µg/L	5000 ^b	1.4	No	< G

Table 10.2-E-3e: Water Quality for Discovery Open Pit lake

Chemical	Units	Canadian Drinking Water Quality Guidelines^a	Predicted Concentration^b	COPC^c	Rationale
Total Dissolved Solids	mg/L	500 ^b	36	No	< G
Total Alkalinity	mg/L as CaCO ₃	NV	17	No	No direct impact on human health
Chloride	mg/L	250 ^b	6.9	No	< G
Fluoride	mg/L	1.5	0.0004	No	< G
Sulphate	mg/L	500 ^b	2.8	No	< G
Ammonium (as N)	mg N/L	NV	0.68	No	No direct impact on human health
Nitrate	mg/L	45	0.75	No	< G
Total Kjeldahl Nitrogen	mg/L	NV	0.22	No	No direct impact on human health
Dissolved Phosphorus	mg/L	NV	0.004	No	No direct impact on human health
Phosphate	mg/L	NV	0.001	No	No direct impact on human health
Aluminum	µg/L	100 ^b	2.4	No	< G
Antimony	µg/L	6	0.002	No	< G
Arsenic	µg/L	10	0.54	No	< G
Barium	µg/L	1000	6.2	No	< G
Beryllium	µg/L	16 ^c	0.0000004	No	< G
Bismuth	µg/L	NV	0.0000002	No	Lack of toxicity data/non-toxic
Boron	µg/L	5000	3.2	No	< G
Cadmium	µg/L	5	0.0004	No	< G
Calcium	µg/L	NV	2086	No	Essential nutrient/non-toxic
Chromium	µg/L	50	0.66	No	< G
Cobalt	µg/L	4.7 ^c	0.002	No	< G
Copper	µg/L	1000 ^b	1.2	No	< G
Iron	µg/L	300 ^b	7.2	No	< G
Lead	µg/L	10	0.17	No	< G
Lithium	µg/L	31 ^c	0.01	No	< G
Magnesium	µg/L	NV	446	No	Essential nutrient/non-toxic
Manganese	µg/L	50 ^b	1.3	No	< G
Mercury	µg/L	1	0.000002	No	< G
Molybdenum	µg/L	78 ^c	0.29	No	< G
Nickel	µg/L	300 ^c	0.52	No	< G
Potassium	µg/L	NV	385	No	Essential nutrient/non-toxic
Selenium	µg/L	10	0.01	No	< G
Sodium	µg/L	200 ^b	1759	No	No direct impact on human health
Strontium	µg/L	9300 ^c	25	No	< G

Table 10.2-E-3e: Water Quality for Discovery Open Pit lake

Chemical	Units	Canadian Drinking Water Quality Guidelines^a	Predicted Concentration^b	COPC^c	Rationale
Thallium	µg/L	0.16 ^c	0.0000004	No	< G
Tin	µg/L	9300 ^c	0.001	No	< G
Titanium	µg/L	NV	0.001	No	Lack of toxicity data/non-toxic
Tungsten	µg/L	NV	0.0007	No	Lack of toxicity data/non-toxic
Uranium	µg/L	20	0.07	No	< G
Vanadium	µg/L	78 ^c	0.30	No	< G
Zinc	µg/L	5000 ^b	1.5	No	< G



APPENDIX 10.2-F

Sediment Quality

Table 10.2-F-1: Sediment Quality in Meliadine Lake

Parameter	CCME Soil Guidelines (mg/kg) ^(a)	EPA- Regional Screening Levels ^(b) (mg/kg)	Background + 10% ^(c)	Maximum (mg/kg)	Chemical of Potential Concern?
Total Metals					
Aluminum (Al)	NV	15 400	13 090	11 900	No
Antimony (Sb)	20	6.2	<25	<25	No
Arsenic (As)	12	3.9	74.58	67.8	No
Barium (Ba)	500	3000	155.1	141	No
Beryllium (Be)	4	32	<1	<1	No
Bismuth (Bi)	NV	NV	<10	<10	No
Boron	NV	NV	12.1	11	No
Cadmium (Cd)	10	14	<2	<2	No
Calcium (Ca)	NV	NV	7106	6460	No
Chromium (Cr)	64	NV	58.7	53.4	No
Cobalt (Co)	50	4.6	23.1	21	No
Copper (Cu)	63	620	101.2	92	No
Cyanide	29	NV	7.7	7	No
Iron (Fe)	NV	11 000	44 880	40 800	No
Lead (Pb)	140	80	15.4	14	No
Lithium (Li)	NV	32	6.93	6.3	No
Magnesium (Mg)	NV	NV	8723	7930	No
Manganese (Mn)	NV	360	676.5	615	No
Mercury (Hg)	6.6	2	0.154	0.14	No
Molybdenum (Mo)	10	78	7.7	7	No
Nickel (Ni) ^(d)	50	740	80.3	73	No
Phosphorus	NV	0.32	1309	1190	No
Potassium (K)	NV	NV	2948	2680	No
Selenium (Se)	1	78	1.43	1.3	No
Silver (Ag)	20	78	<2	<2	No
Sodium (Na)	NV	NV	530.2	482	No
Strontium (Sr)	NV	9400	46.2	42	No
Thallium (Tl)	1	0.156	<1	<1	No
Tin (Sn)	50	9400	<30	<30	No
Titanium (Ti)	NV	NV	1353	1230	No
Uranium (U)	23	46	<40	<40	No
Vanadium (V) ^(c)	130	78	67.1	61	No
Zinc (Zn) ^(c)	200	4600	110	100	No

Notes:

(a) CCME Soil Quality Guidelines for the Protection of Environmental and Human Health - Residential/Parkland.

(b) USEPA Screening Values for Residential Soil adjusted to HQ=0.2 (non-carcinogen) and 1×10^{-5} (carcinogen).

(c) values provided are the maximum measured baseline concentrations of chemicals in sediment; 10% has been added to those that are greater than method detection limits.

(d) SQG_{ECO} residential/parkland.

NV - No Value.



APPENDIX 10.2-G

Noise Predictions

Table 10.2-G-1: Summary of Noise Levels and % Highly Annoyed at Human Health Receptors

Noise Receptor	Human Health Receptor	Minimum Baseline (dBA)		Predicted Noise level (dBA)	Rural Predicted Noise Level ^a (dBA)	Cumulative Noise Level ^b (dBA)		%HA Baseline	%HA (predicted only) ^c	%HA (predicted + baseline) ^d	Change in %HA	HCII (dBA)
		Ln	Leq24			Ln	Leq24					
Hunter/Trapper Cabins												
POR001	Receptor 1	35	35	35.6	45.6	48.3	48.3	0.7	2.8	4.0	3.3	54.7
POR002	Receptor 2	35	35	21.8	31.8	45.2	45.2	0.7	0.5	2.7	2.0	51.6
POR003	Receptor 3	35	35	24.6	34.6	45.4	45.4	0.7	0.7	2.8	2.0	51.8
POR004	Receptor 4	35	35	24.7	34.7	45.4	45.4	0.7	0.7	2.8	2.0	51.8
POR005	Receptor 5	35	35	25.8	35.8	45.5	45.5	0.7	0.8	2.8	2.1	51.9
POR006	Receptor 6	35	35	29.1	39.1	46.0	46.0	0.7	1.2	3.0	2.3	52.4
POR007	Receptor 7	35	35	32.9	42.9	47.1	47.1	0.7	2.0	3.4	2.7	53.5
POR008	Receptor 8	35	35	2.4	12.4	45.0	45.0	0.7	0.0	2.6	1.9	51.4
POR009	Receptor 9	35	35	10.1	20.1	45.0	45.0	0.7	0.1	2.6	1.9	51.4
POR010	Receptor 10	35	35	0.0	10.0	45.0	45.0	0.7	0.0	2.6	1.9	51.4
POR011	Receptor 11	35	35	2.4	12.4	45.0	45.0	0.7	0.0	2.6	1.9	51.4
POR012	Receptor 12	35	35	10.4	20.4	45.0	45.0	0.7	0.1	2.6	1.9	51.4
POR013	Receptor 13	35	35	25.1	35.1	45.4	45.4	0.7	0.7	2.8	2.1	51.8
POR014	Receptor 14	35	35	27.5	37.5	45.7	45.7	0.7	1.0	2.9	2.2	52.1
POR015	Receptor 15	35	35	33.9	43.9	47.5	47.5	0.7	2.3	3.6	2.9	53.9
POR016	Receptor 16	35	35	26.5	36.5	45.6	45.6	0.7	0.9	2.8	2.1	52.0
POR017	Receptor 17	35	35	16.6	26.6	45.1	45.1	0.7	0.2	2.6	1.9	51.5
POR018	Receptor 18	35	35	13.3	23.3	45.0	45.0	0.7	0.2	2.6	1.9	51.4
POR019	Receptor 19	35	35	11.0	21.0	45.0	45.0	0.7	0.1	2.6	1.9	51.4
POR020	Receptor 20	35	35	18.2	28.2	45.1	45.1	0.7	0.3	2.7	1.9	51.5
POR021	Receptor 21	35	35	22.6	32.6	45.2	45.2	0.7	0.5	2.7	2.0	51.7
POR033	Receptor 22	35	35	30.0	40.0	46.2	46.2	0.7	1.4	3.1	2.3	52.6
Worker Camp Receptors												
POR022	Worker camp	35	35	44.7	54.7	55.1	55.1	NA	NA	NA	NA	61.6
POR023	Worker camp	35	35	45.4	55.4	55.8	55.8	NA	NA	NA	NA	62.2
POR024	Worker camp	35	35	45.4	55.4	55.8	55.8	NA	NA	NA	NA	62.2
POR025	Worker camp	35	35	43.8	53.8	54.3	54.3	NA	NA	NA	NA	60.7
POR026	Worker camp	35	35	44.6	54.6	55.1	55.1	NA	NA	NA	NA	61.5
POR027	Worker camp	35	35	43.2	53.2	53.8	53.8	NA	NA	NA	NA	60.2
POR028	Worker camp	35	35	43.6	53.6	54.2	54.2	NA	NA	NA	NA	60.6
POR029	Worker camp	35	35	44.8	54.8	55.2	55.2	NA	NA	NA	NA	61.6
POR030	Worker camp	35	35	44.2	54.2	54.7	54.7	NA	NA	NA	NA	61.1

Table 10.2-G-1: Summary of Noise Levels and % Highly Annoyed at Human Health Receptors

Noise Receptor	Human Health Receptor	Minimum Baseline (dBA)		Predicted Noise level (dBA)	Rural Predicted Noise Level ^a (dBA)	Cumulative Noise Level ^b (dBA)		%HA Baseline	%HA (predicted only) ^c	%HA (predicted + baseline) ^d	Change in %HA	HCII (dBA)
		Ln	Leq24			Ln	Leq24					
POR031	Worker camp	35	35	44.8	54.8	55.2	55.2	NA	NA	NA	NA	61.6
POR032	Worker camp	35	35	37.1	47.1	49.2	49.2	NA	NA	NA	NA	55.6
Rankin Inlet Receptors												
POR034	Port	35	35	39.6	49.6	50.9	50.9	0.7	4.7	5.5	4.8	57.3
POR035	Near airport	35	35	32.4	42.4	46.9	46.9	0.7	1.9	3.3	2.6	53.3
POR036	Furthest from airport	35	35	20.0	30.0	45.1	45.1	0.7	0.4	2.7	2.0	51.5
POR037	Hotel	35	35	27.1	37.1	45.7	45.7	0.7	0.9	2.9	2.1	52.1
nPOR121.0	Rankin 1	35	35	23.3	33.3	45.3	45.3	0.7	0.6	2.7	2.0	51.7
nPOR122.0	Rankin 2	35	35	25.3	35.3	45.4	45.4	0.7	0.7	2.8	2.1	51.9
nPOR123.0	Rankin 3	35	35	42.7	52.7	53.4	53.4	0.7	6.9	7.5	6.8	59.8
National Park Receptors												
POR038	Park 1	35	35	31.5	41.5	46.6	46.6	0.7	1.7	3.2	2.5	53.0
POR039	Park 2	35	35	25.3	35.3	45.4	45.4	0.7	0.7	2.8	2.1	51.9

Notes:

%HA = percent highly annoyed.

HCII = specific critical noise level.

Ln = nighttime equivalent noise level.

L24 = whole day (24-h) equivalent noise level.

dBA = A-weighted decibels.

NA = not applicable for this receptor.

^a values include a 10 dBA penalty required for receptors in rural environments.^b calculated based on the predicted levels added to baseline levels (including 10 dB penalty adjustment).^c calculated based on the predicted levels alone.^d calculated based on the rural predicted levels combined with background.**5.5** = %HA greater than 6.5%.

At Golder Associates we strive to be the most respected global company providing consulting, design, and construction services in earth, environment, and related areas of energy. Employee owned since our formation in 1960, our focus, unique culture and operating environment offer opportunities and the freedom to excel, which attracts the leading specialists in our fields. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees who operate from offices located throughout Africa, Asia, Australasia, Europe, North America, and South America.

Africa	+ 27 11 254 4800
Asia	+ 86 21 6258 5522
Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

solutions@golder.com
www.golder.com

Golder Associates Ltd.
500 - 4260 Still Creek Drive
Burnaby, British Columbia, V5C 6C6
Canada
T: +1 (604) 296 4200

