



Lynn Lake Gold Project: Country Foods Plan

Version 0

January 30, 2025

**LYNN LAKE GOLD PROJECT:
COUNTRY FOODS PLAN**

Document History

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Revision History

Effective Date:	Date of Last Revision:
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Revision #	Date	Summary of Changes	Author

Approvals

This document requires the following approvals:

Name	Company Title	Date	Signature

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Acronyms and Abbreviations

Alamos	Alamos Gold Inc.
CCME	Canadian Council of Ministers of the Environment
CEAA 2012	<i>Canadian Environmental Assessment Act, 2012</i>
CFP	Country Foods Plan
COPC	Chemical of Potential Concern
DQRA	Detailed Quantitative Risk Assessment
EIS	Environmental Impact Statement
EMMP	Environmental Management and Monitoring Program
EPC	Exposure Point Concentration
FNFNES	First Nations Food, Nutrition & Environment Study
HHERA	Human Health and Ecological Risk Assessment
HHRA	Human Health Risk Assessment
LAA	Local Assessment Area
MECC	Manitoba Environment and Climate Change (formerly Manitoba Environment, Climate and Parks, and formerly Manitoba Conservation and Climate)
MRSA	Mine Rock Storage Area
PDA	Project Development Area
PPE	Personal Protective Equipment
PQRA	Preliminary Quantitative Risk Assessment
QA/QC	Quality Assurance / Quality Control
RAA	Regional Assessment Area
RGMP	Responsible Gold Mining Principles
Stantec	Stantec Consulting Ltd.

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TMF	Tailings Management Facility
TRV	Toxicological Reference Values
VC	Valued Component

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1.0 INTRODUCTION

The following presents the Country Foods Plan ('CFP' or 'the Plan'), which considers the pre-construction, construction, operation, and decommissioning/closure phases of the Lynn Lake Gold Project ('LLGP' or 'the Project') and the mitigation, management, and monitoring of Project-related changes on country foods. It is one component of the overall Environmental Management and Monitoring Program ('EEMP') for the Project. This document has been developed and prepared using currently available information, including Indigenous Knowledge. This monitoring program will require updates based on further details regarding Project design, sequencing, and methods as they become available.

For clarity, the term "follow-up programs" as stated in the federal Decision Statement refers to "management and monitoring programs" as outlined in the provincial Licences. Both terms are used interchangeably but refer to the same monitoring activities that extend over the life of mine through all phases.

1.1 PURPOSE

The purpose of this CFP is to outline the monitoring (follow-up) activities that will be undertaken to verify predictions and commitments made in Chapter 18 (Assessment of Potential Effects on Human Health) of the Environmental Impact Statement (EIS) and the Human Health and Ecological Risk Assessment (HHERA; Stantec 2020a) for the Project. Country foods include terrestrial (plants, birds, small and large mammals) and aquatic (fish, birds, mammals) country foods that may be harvested from the Local Assessment Area (LAA).

1.2 OBJECTIVES

The objectives of the CFP are to monitor the quality of country foods harvested from within the LAA on an on-going basis to confirm that predictions of changes to country foods are accurate and to address Indigenous or public concerns.

1.3 RELATIONSHIP TO OTHER MANAGEMENT AND MONITORING PLANS

The CFP is intended as a general guide to country foods during the lifetime of the Project. The CFP relies on information from relevant plans within the EMMP that may provide additional context, directly or indirectly relating to country foods. Although other plans were consulted, specific considerations were given to the following management and monitoring plans:

- Air Quality Management and Monitoring Plan
- Aquatic Effects Monitoring Plan
- Emergency Response and Spill Prevention and Contingency Plan
- Soil Management and Rehabilitation Plan

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- Surface Water Monitoring and Management Plan
- Vegetation and Weed Management Plan
- Wildlife Monitoring and Management Plan.

1.4 REGULATORY CONTEXT

The Project EIS was submitted to the Impact Assessment Agency of Canada (formerly the Canadian Environmental Assessment Agency) pursuant to *Canadian Environmental Assessment Act* (CEAA) 2012, and to Manitoba Environment and Climate Change (MECC; formerly Manitoba Environment, Climate and Parks and formerly Manitoba Conservation and Climate) as an Environment Act Proposal pursuant to *The Environment Act* of Manitoba. The relevant federal and provincial regulatory requirements related to country foods management and monitoring are outlined below.

1.4.1 Federal Regulatory Requirements

Under CEAA 2012, monitoring and follow-up is required to verify the accuracy of the conclusions of the environmental assessment and the effectiveness of the mitigation measures. In addition to CEAA 2012, the following primary regulatory requirements and policies of the federal and provincial authorities were relevant to Human Health Risk Assessment (HHRA):

- Guidance for Evaluating Human Health Effects in Environmental Impact: Human Health Risk Assessment (Health Canada 2023a).
- Guidance for Evaluating Human Health Effects in Environmental Impact: Human Health Risk Assessment: Air Quality (Health Canada 2023b).
- Guidance for Evaluating Human Health Effects in Environmental Impact: Human Health Risk Assessment: Country Foods (Health Canada 2023c).
- Guidance for Evaluating Human Health Effects in Environmental Impact: Human Health Risk Assessment: Drinking and Recreational Water Quality (Health Canada 2023d).

The HHRA guidance applicable to federal contaminated sites in Canada was also considered where applicable, including:

- Federal Contaminated Sites Risk Assessment in Canada: Guidance on Human Health Risk Preliminary Quantitative Risk Assessment (PQRA), version 3.0 (Health Canada 2021a).
- Federal Contaminated Sites Risk Assessment in Canada: Health Canada Toxicological Reference Values (TRVs), version 3.0 (Health Canada 2021b).
- Guidance Manual for the Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment, Volumes 1 to 4 (CCME 2016).

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- Federal Contaminated Sites Risk Assessment in Canada, Part V: Guidance on Complex Human Health Detailed Quantitative Risk Assessment for Chemicals (DQRA_{CHEM}) (Health Canada 2010a).
- Federal Contaminated Site Risk Assessment in Canada: Supplemental Guidance on Human Health Risk Assessment for Country Foods (HHRA_{FOODS}) (Health Canada 2010b).

1.4.2 Provincial Regulatory Requirements

In Manitoba, public health is the responsibility of the Manitoba Minister of Health in accordance with The *Public Health Act* (April 1, 2009). *The Public Health Act* includes provisions to address environmental health hazards from pollutants and contamination, and protection of water sources.

1.4.3 Corporate or Other Policies

As a member of the World Gold Council, Alamos Gold Inc. (Alamos) is a proud supporter of the Responsible Gold Mining Principles (the RGMPs). The ten RGMPs provide a framework that sets expectations for consumers, investors, and the downstream gold supply chain as to what constitutes responsible gold mining, addressing key environmental, social and governance issues for the gold mining sector. They are designed to provide confidence to governments, investors, employees and contractors, communities, supply chain partners and civil society that gold has been produced responsibly. Following the release of the RGMPs in September 2019, Alamos has implemented and aligned to the framework, and obtained external assurance to provide further confidence that the gold produced by Alamos is responsibly mined. In 2023, Alamos communicated its progress on implementing the RGMPs through Alamos' 2022 RGMP Progress Report which received independent audit/assurance from EEM EHS Management Inc. (Alamos 2023). The 2022 RGMP Progress Report reflects Alamos' third year reporting under the RGMP. Alamos will continue to implement the RGMPs through 2024 and beyond. The RGMPs are only applicable to operating mines. The Lynn Lake Gold Project will be incorporated as it transitions through construction into operation.

Working with its members, the World Gold Council has set out RGMPs to address key environmental, social and governance issues for the gold mining sector. One of the key principles is Water, Energy and Climate Change.

Alamos has a series of guiding corporate sustainability standards (Table 1-1), including:

- Environmental Monitoring
- Hazard Identification & Risk Management
- Incident Classification, Investigation & Reporting

Alamos' standards are regularly updated to reflect the latest developments. For the most current and up-to-date standards, please refer to the online version.

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Table 1-1 Corporate Sustainability Standards

Corporate Standard	Requirement
Environmental Monitoring (CSS-ENV-10.1)	Sites shall develop and implement an environmental monitoring program. The site's environmental monitoring program will be documented as to: list of points monitored, coordinates of points monitored, description of points (including the reason for monitoring (e.g., regulatory compliance, baseline, trend analysis, etc.), frequency of monitoring, anticipated duration of monitoring (e.g., the life of the mine), and parameters monitored. The monitoring program will be of sufficient scope to allow for the timely identification of potential environmental impacts prior to their migration offsite. Sites will regularly review their monitoring programs and update for and changes at the mine site as required. At a minimum, the program will meet all environmental regulatory requirements.
Environmental Monitoring (CSS-ENV-10.2)	Compliance monitoring data will be subject to Quality Assurance/Quality Control (QA/QC) verification. Sample results that do not meet QA/QC guidelines will be disregarded and sample collection repeated. Sites must use reliable and accredited labs.
Environmental Monitoring (CSS-ENV-10.3)	Monitoring data will be stored in an electronic database.
Environmental Monitoring (CSS-ENV-10.4)	When compliance monitoring results indicate exceedances from permit or regulatory requirements, or significant deviation from previous results, the results will be reconfirmed with the person or company that did the analysis, and a confirmatory monitoring or sample will be taken immediately if the result is reconfirmed. Sites will also follow any permit-specific or jurisdictional requirements.
Environmental Monitoring (CSS-ENV-10.5)	Monitoring data will be reviewed at least quarterly by the responsible manager to identify trends that may indicate potential for future exceedances from permit conditions or applicable standards, and potential risk. The site General Manager will be formally notified of any exceedances and emerging compliance issues. Refer to CSS-GOV-08 Incident Reporting Standard for any moderate, major, or catastrophic incidents.
Environmental Monitoring (CSS-ENV-10.6)	Sites will assess the need for a monitoring program involving external stakeholders.
Hazard Identification & Risk Management (CSS-GOV-2.1)	All Alamos locations shall maintain systems to identify, prevent and/or manage sustainability risks that face its operations and those which its activities may pose to others. This includes but is not limited to hazards and risks related to the: <ul style="list-style-type: none"> • Health and Safety of our workforce and communities, • Environmental impacts of our activities (local and downstream), • Societal and community impacts, and • Security and protection of people and property.
Hazard Identification & Risk Management (CSS-GOV-2.2)	Site Managers are responsible to ensure that appropriate resources, both internal and external, are available to identify, quantify, manage, and report sustainability hazards and risks. Assessments shall consider all site activities including: <ul style="list-style-type: none"> • Contractor works, • Regulatory requirements • Permit or license requirements, • Alamos Sustainability Standards requirements, and • Other site-specific requirements.

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Corporate Standard	Requirement
Hazard Identification & Risk Management (CSS-GOV-2.3)	Sites shall maintain a risk registry of all site risks. The risk registry will be updated at least quarterly or when major changes/incidents occur. Clear responsibility and authority for implementing, managing, reporting, and coordinating updates to the risk registry shall be designated to a specific employee(s).
Hazard Identification & Risk Management (CSS-GOV-2.4)	All corporate, site and task-level risks shall be assessed against the Alamos Risk Matrix, including likelihood and consequence assessments.
Hazard Identification & Risk Management (CSS-GOV-2.5)	Sites shall apply the hierarchy of controls considering (in order of priority): <ol style="list-style-type: none"> 1. Elimination – Remove the hazard 2. Substitution – Replace the hazard 3. Engineering control – physically control or isolate the hazard (e.g., dikes, guarding, interlocks) 4. Administrative control – control response/avoidance of hazard (e.g., training, procedures, reducing employee exposure to hazards, signage) 5. PPE or Mitigation – Protect people (personal protective equipment) or the environment (spill kits) from the hazard. This is the last line of defense. Extreme and high risks that exist after controls have been applied should go through a formal review with the Site Manager.
Hazard Identification & Risk Management (CSS-GOV-2.6)	Sites shall ensure effective communication of risks and controls to the workforce based on the nature of the activity and related risk. The nature of communication may change based on the risk frequency and consequence. For example, communication may include induction training, refresher training, policies, procedures and/or signage.
Hazard Identification & Risk Management (CSS-GOV-2.7)	For each identified risk, management shall assess and manage the risk appropriately with consideration to the risk rating. In considering risk mitigation, management must evaluate the cost of controls versus the benefit derived and ensure the resultant control framework is effective.
Hazard Identification & Risk Management (CSS-GOV-2.9)	The Alamos Executive and Internal Audit Director shall review and verify enterprise risks on a quarterly basis.
Incident Classification, Investigation & Reporting (CSS-GOV-8.3)	The Corporate Sustainability Team shall maintain an Incident Alert email group user list comprised of, at a minimum: <ul style="list-style-type: none"> • Alamos Executive and Management, • Country Managers, • General Managers; and • Project Managers.
Incident Classification, Investigation & Reporting (CSS-GOV-8.6)	The Corporate Sustainability Team shall provide a report on significant incidents on a quarterly basis to senior management and the Technical & Sustainability Committee of the Board.
Incident Classification, Investigation & Reporting (CSS-GOV-8.7)	Corporate Sustainability and Risk Management teams shall annually review and revise the Alamos Risk Assessment Consequence Table to ensure thresholds are consistent with the Alamos Enterprise Risk Management system.

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1.4.4 Approval Related Requirements

The conditions relating to country foods laid out in the federal Decision Statement issued under the *Canadian Environmental Assessment Act, 2012*, provincial Environment Act Licence No. 3390 (Gordon), and provincial Environment Act Licence No. 3391 (MacLellan) are outlined in Table 1-2.

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Table 1-2 Approval Related Requirements

Licence	Condition	Corresponding CFP Section
CEAA, 2012	2.5 The Proponent shall, where a follow-up program is a requirement of a condition set out in this Decision Statement, determine, as part of the development of each follow-up program and in consultation with Indigenous groups and any other parties being consulted during the development, the following information, unless otherwise specified in the condition: 2.5.1 the methodology, location, frequency, timing and duration of monitoring associated with the follow-up program;	4.0
CEAA, 2012	2.5.2 the scope, content and frequency of reporting of the results of the follow-up program to the parties consulted for the development of the follow-up program;	6.0
CEAA, 2012	2.5.3 the minimum frequency at which the follow-up program must be reviewed and, if necessary, updated;	5.0
CEAA, 2012	2.5.4 the levels of environmental change relative to baseline that would require the Proponent to implement modified or additional mitigation measure(s), including instances where the Proponent may require Designated Project activities causing the environmental change to be stopped;	5.0
CEAA, 2012	2.5.5 the technically and economically feasible mitigation measures to be implemented by the Proponent if monitoring conducted as part of the follow-up program shows that the levels of environmental change referred to in condition 2.5.4 have been reached or exceeded; and	5.0
CEAA, 2012	2.5.6 the specific and measurable end points that must be achieved before the follow-up program can end. Those end points should indicate that the accuracy of the environmental assessment has been verified and/or that the mitigation measures are effective.	4.0
CEAA, 2012	6.3 The Proponent shall develop, prior to construction and in consultation with Indigenous groups, Health Canada, Environment and Climate Change Canada and any other relevant authorities, a follow-up program to verify the accuracy of the environmental assessment as it pertains to adverse environmental effects from the Designated Project on air quality and country foods as it relates to the health of Indigenous peoples, taking into account available Indigenous knowledge provided by Indigenous groups related to current use of lands and resources for traditional purposes. The Proponent shall implement the follow-up program during all phases of the Designated Project. As part of the implementation of the follow-up program, the Proponent shall:	2.0
CEAA, 2012	6.3.1 identify, in consultation with Indigenous groups, the species of fish, vegetation and wildlife consumed as country foods that may be adversely affected by the Designated Project and the locations where these species shall be monitored;	4.0
CEAA, 2012	6.3.2 monitor, beginning prior to construction and continuing through post-closure, contaminants of potential concern, including arsenic, copper, mercury, methylmercury and selenium, in the species and at the locations identified pursuant to condition 6.3.1;	4.3.2

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Table 1-2 Approval Related Requirements

Licence	Condition	Corresponding CFP Section
CEAA, 2012	6.3.7 if the monitoring results referred to in conditions 6.3.2 to 6.3.5 exceed predicted levels in the atmospheric dispersion model in Volume 1 Chapter 6 of the Environmental Impact Statement, taking into account the results of monitoring meteorological conditions pursuant to condition 6.3.6, the human health and ecological risk assessment in Volume 5 of the Environmental Impact Statement, or thresholds of the Canadian Council of Ministers of the Environment's Canadian Ambient Air Quality Standards, modify or implement additional mitigation measures pursuant to condition 2.8, and update the human health and ecological risk assessment in Volume 5 of the Environmental Impact Statement. The Proponent shall submit any updates to the human health and ecological risk assessment to the Agency and relevant authorities.	4.0, 5.0
Environment Act Licence No. 3390 (Gordon)	None identified	Not applicable
Environment Act Licence No. 3391 (MacLellan)	None identified	Not applicable

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2.0 ENVIRONMENTAL SETTING

The Project is located in northern Manitoba, near the Town of Lynn Lake. The landscape is dominated by vegetation communities typical of the boreal forest. Within and immediately surrounding the Project are forested areas, wetlands, and lakes. Existing land uses around the Project include residential, traditional, and recreational uses. Residential uses are concentrated in the communities of Lynn Lake and Marcel Colomb First Nation's Black Sturgeon Reserve lands. The lands surrounding these communities are used for traditional land uses and recreational activities.

The following spatial boundaries were used to assess Project effects, including residual environmental effects, on human health risk in areas surrounding the mine site and access road (Appendix A, Map A-1).

Project Development Area (PDA): The PDA encompasses the Project footprint and a 30-meter buffer around its perimeter. The Project footprint includes the areas where Project activities would take place, the anticipated area of direct physical disturbance associated with construction and operation activities. The PDA includes the access roads, the open pits, MRSAs, overburden stockpiles, and ore stockpiles at the Gordon and MacLellan sites; and the TMF and ore milling and processing plant at the MacLellan site. The PDA does not include Provincial Road 391 that connects the Gordon and MacLellan sites.

Local Assessment Area (LAA): The LAA is defined as a 50 kilometre (km) by 28 km area centered on the Project and includes both the Gordon and MacLellan sites as shown in Map A-1 (Appendix A). The LAA encompasses the area in which Project-related environmental effects (direct or indirect) can be predicted or measured with a level of confidence that allows for assessment; and in which there is a reasonable expectation that those potential environmental effects in the LAA could be of potential concern to human health.

Regional Assessment Area (RAA): The RAA represents the area where environmental effects from past, present, or reasonably foreseeable future projects may have cumulative effects to human health. Consistent with the Atmospheric Valued Component (VC), the LAA for the Project is the same area as the RAA, therefore reference to the LAA in the HHERA report includes both the LAA and the RAA. The LAA for the HHERA is the combined spatial boundaries of the Atmospheric Environment VC and the Surface Water VC, because the future environmental conditions used to predict effects to human and ecological health are based on modelled future conditions from these other VCs. The HHERA LAA was further divided into the Gordon region and MacLellan region to characterize the potential effects to human health separately for each region. The boundaries of each region are identified on Map A-1 (Appendix A).

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2.1 BASELINE CONDITIONS

The Gordon site was a former open pit gold mine between 1996 and 1999. The Gordon site went through reclamation after closure, and the site currently consists of a 15 km gravel access road, a bridge across the Hughes River, two capped mine rock storage areas, two capped overburden storage areas, and two waterfilled open pits. The buildings and infrastructure from historical operations have been removed. The Gordon site is in the headwaters of a tributary to the Hughes River watershed, and no large rivers flow through the area. Farley Creek, the outlet of Farley Lake, is the largest stream potentially affected by the Project. Short cascades and a proliferation of beaver dams present barriers to fish passage during most flow conditions in several of the streams near the Gordon site.

The MacLellan site was a former underground gold and silver mine that operated between 1986 and 1989. Since closure, the site has been in a care and maintenance phase, with very little reclamation completed. The site currently consists of a 4.6-km gravel access road, power transmission line (abandoned pole line), and infrastructure from the former underground mine, such as head frame, hoist house and shaft, access ramp, maintenance and other storage buildings, core shack and core racks, vent raise, and mine water settling ponds. The Keewatin, Cockeram, and Lynn rivers and their tributaries connect the lakes near the MacLellan site. The Keewatin River is the largest river in the LAA/RAA, connecting Goldsand and Burge lakes upstream of the MacLellan site to Cockeram Lake downstream of the mine site. The Lynn River is a tributary to the Keewatin River downstream of the MacLellan site and upstream of Cockeram Lake.

To evaluate the potential health risks associated with chemicals of potential concern (COPCs) from the Project, the concentrations of COPC in each of the environmental media to which human and ecological receptors may be exposed, was determined for each of the assessed scenarios (i.e., Baseline Case, Project Alone Case (carcinogenic exposures only), and Future Case). These concentrations are called exposure point concentrations (EPCs) and were used to calculate exposures for human and ecological receptors.

Baseline metal concentrations in country foods were established as part of the baseline sampling program reported as part of the Human Health and Ecological Risk Assessment (HHERA; Stantec 2020a). Baseline samples were collected from areas where Project-related effects would be most likely to occur and where country foods harvesting activities were identified as a current use of land and resources for traditional purposes in the EIS. The data from this program were used to establish baseline metal concentrations in terrestrial (plant tissue) and aquatic (fish tissue) country foods. Measured baseline data were not available for wild meat tissues, as such, baseline concentrations were estimated using standard modelling approaches including the use of uptake factors. The methods used to collect these samples, as well as the analytical results and statistical analyses used to establish the EPCs for each metal in each tissue type are described in the HHERA (Stantec 2020a). The baseline metal concentrations in terrestrial and aquatic country foods identified in the HHERA are summarized in Table 2-1 and Table 2-2 for the Gordon and MacLellan regions, respectively.

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Table 2-1 Baseline Exposure Point Concentrations for Metals in Country Foods – Gordon Region

Chemical Parameter	Concentration (mg/kg wet weight) ¹								
	Measured				Predicted				
	Berries ²	Labrador Tea	Garden Produce ³	Fish ⁴	Moose	Snowshoe Hare	Beaver	Spruce Grouse	Mallard Duck
Antimony	9.60E-03	3.36E-02	8.35E-03	2.30E-02	5.76E-04	7.13E-06	4.83E-06	5.14E-06	1.16E-06
Arsenic	9.60E-03	1.38E-02	8.35E-03	5.69E-02	1.21E-03	1.31E-05	4.78E-05	7.46E-06	2.78E-04
Barium	2.91E+00	3.79E+01	3.49E+00	5.63E-01	6.96E-02	8.25E-04	5.87E-04	5.83E-04	3.56E-04
Beryllium	9.60E-03	1.38E-02	8.35E-03	5.00E-03	8.55E-04	5.51E-06	1.45E-05	3.60E-06	2.13E-05
Cadmium	3.07E-02	1.56E-01	1.43E-02	2.88E-02	3.23E-04	3.55E-06	2.88E-06	3.17E-06	7.26E-06
Chromium	9.60E-02	1.38E-01	8.35E-02	1.70E-01	3.10E-02	3.14E-04	1.15E-03	1.92E-04	3.22E-03
Cobalt	3.78E-02	4.01E-02	1.67E-02	5.13E-02	5.85E-02	7.75E-04	1.17E-03	4.90E-04	4.34E-04
Copper	7.62E-01	1.71E+00	1.67E+00	5.55E+00	4.11E-01	5.01E-03	4.73E-03	3.33E-03	2.59E-02
Lead	3.84E-02	5.52E-02	3.34E-02	5.80E-02	1.39E-03	1.82E-05	2.46E-05	1.20E-05	3.47E-05
Manganese	4.53E+01	3.22E+02	1.86E+00	2.43E+00	2.34E+00	2.83E-02	1.72E-02	2.02E-02	5.78E-03
Mercury	9.60E-03	1.38E-02	8.35E-03	3.98E-01	2.05E-03	2.09E-05	2.15E-05	1.57E-05	1.89E-05
Molybdenum	6.85E-02	8.61E-02	2.43E-01	7.53E-02	6.82E-02	7.96E-04	8.14E-04	5.82E-04	2.28E-03
Nickel	1.71E-01	3.89E-01	3.69E-01	7.33E-02	6.89E-02	7.78E-04	1.20E-03	5.69E-04	2.33E-03
Selenium	9.60E-02	1.38E-01	8.35E-02	4.67E-01	7.71E-03	8.56E-05	6.83E-05	6.15E-05	1.10E-04
Silver	1.92E-02	2.76E-02	1.67E-02	6.57E-02	1.87E-03	2.35E-05	1.44E-05	1.78E-05	5.40E-06
Strontium	1.04E+00	5.82E+00	1.76E+00	2.31E+00	3.84E-02	4.38E-04	3.64E-04	3.06E-04	1.65E-04

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Table 2-1 Baseline Exposure Point Concentrations for Metals in Country Foods – Gordon Region

Chemical Parameter	Concentration (mg/kg wet weight) ¹								
	Measured				Predicted				
	Berries ²	Labrador Tea	Garden Produce ³	Fish ⁴	Moose	Snowshoe Hare	Beaver	Spruce Grouse	Mallard Duck
Thallium	5.76E-03	3.71E-02	5.01E-03	9.30E-03	1.96E-02	2.50E-04	1.77E-04	1.71E-04	1.70E-04
Uranium	1.92E-03	2.76E-03	2.79E-03	3.20E-03	3.01E-05	3.82E-07	2.46E-06	1.67E-07	1.87E-06
Vanadium	9.60E-02	1.38E-01	8.35E-02	1.34E-01	1.15E-02	1.71E-04	4.91E-04	8.71E-05	3.41E-04
Zinc	3.35E+00	1.00E+01	4.58E+00	1.46E+02	3.78E-02	4.08E-04	3.55E-04	3.29E-04	1.33E-03

Notes:

¹ As presented and discussed in the HHERA report (Stantec 2020a).

² Berries included blueberries (*Vaccinium corymbosum*), bog cranberries (*Vaccinium oxycoccos*), and cloud berries (*Rubus chamaemorus*).

³ No backyard gardens were identified in the Gordon region. Concentrations in garden produce from the MacLellan region were used to evaluate risk for receptors in the Gordon region. Garden produce included carrots, potatoes, and beets.

⁴ Fish baseline concentrations were determined using concentrations in liver, carcass, and muscle tissue of large-bodied fish including walleye (*Sander vitreus*), lake whitefish (*Coregonus clupeaformis*), and northern pike (*Esox lucius*).

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Table 2-2 Baseline Exposure Point Concentrations for Metals in Country Foods – MacLellan Region

Chemical Parameter	Concentration (mg/kg wet weight) ¹								
	Measured				Predicted				
	Berries ²	Labrador Tea	Garden Produce ³	Fish ⁴	Moose	Snowshoe Hare	Beaver	Spruce Grouse	Mallard Duck
Antimony	5.90E-03	3.34E-02	8.35E-03	2.20E-02	5.76E-04	7.21E-06	4.68E-06	5.21E-06	1.09E-06
Arsenic	5.90E-03	1.50E-02	8.35E-03	1.83E-02	9.97E-04	1.49E-05	3.17E-05	7.75E-06	1.74E-04
Barium	2.30E+00	3.56E+01	3.49E+00	5.38E-01	6.59E-02	7.89E-04	5.26E-04	5.59E-04	2.54E-04
Beryllium	5.90E-03	1.50E-02	8.35E-03	5.00E-03	7.20E-04	5.79E-06	9.72E-06	4.00E-06	1.17E-05
Cadmium	4.03E-02	2.88E-02	1.43E-02	7.16E-02	2.22E-04	2.28E-06	2.25E-06	2.25E-06	7.74E-06
Chromium	5.90E-02	1.50E-01	8.35E-02	8.00E-02	4.33E-02	2.52E-04	2.32E-03	1.60E-04	4.87E-03
Cobalt	1.82E-02	5.30E-02	1.67E-02	8.74E-02	6.52E-02	6.77E-04	3.08E-03	4.41E-04	1.48E-03
Copper	7.74E-01	1.72E+00	1.67E+00	7.33E+00	4.88E-01	5.78E-03	1.02E-02	3.43E-03	5.19E-02
Lead	2.36E-02	6.01E-02	3.34E-02	2.00E-02	7.70E-04	1.08E-05	1.87E-05	6.80E-06	3.05E-05
Manganese	4.28E+01	3.69E+02	1.86E+00	3.26E+00	2.25E+00	2.71E-02	1.63E-02	1.94E-02	5.19E-03
Mercury	5.90E-03	1.50E-02	8.35E-03	3.61E-01	1.60E-03	1.69E-05	1.83E-05	1.36E-05	1.81E-05
Molybdenum	2.51E-02	3.02E-02	2.43E-01	5.87E-02	6.28E-03	7.24E-05	7.65E-05	5.29E-05	2.20E-04
Nickel	5.74E-01	2.37E+00	3.69E-01	2.96E-01	4.09E-01	4.51E-03	1.00E-02	3.31E-03	1.82E-02
Selenium	5.90E-02	1.50E-01	8.35E-02	6.77E-01	6.87E-03	8.09E-05	6.10E-05	5.86E-05	8.51E-05
Silver	1.18E-02	3.01E-02	1.67E-02	3.04E-02	1.71E-03	2.16E-05	1.49E-05	1.67E-05	9.16E-06
Strontium	3.70E-01	7.61E+00	1.76E+00	3.53E+00	8.36E-02	9.82E-04	6.57E-04	6.99E-04	2.10E-04

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Table 2-2 Baseline Exposure Point Concentrations for Metals in Country Foods – MacLellan Region

Chemical Parameter	Concentration (mg/kg wet weight) ¹								
	Measured				Predicted				
	Berries ²	Labrador Tea	Garden Produce ³	Fish ⁴	Moose	Snowshoe Hare	Beaver	Spruce Grouse	Mallard Duck
Thallium	3.54E-03	5.19E-02	5.01E-03	1.08E-02	2.39E-02	2.99E-04	1.96E-04	2.08E-04	1.39E-04
Uranium	1.18E-03	3.01E-03	2.79E-03	1.57E-03	2.31E-05	3.40E-07	1.44E-06	1.49E-07	9.83E-07
Vanadium	5.90E-02	1.50E-01	8.35E-02	1.06E-01	8.89E-03	1.19E-04	2.98E-04	6.90E-05	2.02E-04
Zinc	3.47E+00	9.73E+00	4.58E+00	2.80E+01	4.87E-02	5.32E-04	4.61E-04	4.23E-04	1.47E-03

Notes:

¹ As presented and discussed in the HHERA report (Stantec 2020a).

² Berries included blueberries (*Vaccinium corymbosum*), bog cranberries (*Vaccinium oxycoccos*), and cloud berries (*Rubus chamaemorus*).

³ Garden produce included carrots, potatoes, and beets.

⁴ Fish baseline concentrations were determined using concentrations in liver, carcass, and muscle tissue of large-bodied fish including walleye (*Sander vitreus*), lake whitefish (*Coregonus clupeaformis*), and northern pike (*Esox lucius*).

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As noted in Health Canada (2007), analysis of fish tissues typically involves measurement of total mercury (i.e., the sum of all chemical forms of mercury present), while from a human health perspective it is the amount of methylmercury that is of most interest since methylmercury is much more readily absorbed into the human blood stream. The portion of total mercury that is present in fish tissues is variable, even among fish of the same species (Health Canada 2007). For walleye, the First Nations Food, Nutrition and Environment Study (FNFNES; Chan et al. 2021) reported that the mean concentration of methylmercury was 0.30 milligrams per kilogram (mg/kg) while the mean total mercury concentration was 0.38 mg/kg (i.e., approximately 80% of total mercury present as methylmercury). The FNFNES (Chan et al. 2021) reported relatively lower proportions of methylmercury for lake whitefish (0.06 mg/kg compared to 0.11 mg/kg total mercury) and northern pike (0.27 mg/kg compared to 0.44 mg/kg total mercury). In the absence of detailed mercury speciation, it is simply assumed that 100% of total mercury in fish tissues is methylmercury for the purposes of health risk assessments (Health Canada 2007).

2.2 POTENTIAL PROJECT EFFECTS

For Project Alone and/or Future Case, the EPCs used in the HHERA were based on the results of the predictive air dispersion and deposition modelling (Stantec 2020b) and the predictive water quality modelling (Stantec 2020c; 2020d). Future concentrations of metal COPC in terrestrial vegetation and soil invertebrates were estimated based upon Future Case concentrations of metal COPC in soil as predicted by the air dispersion and deposition modelling. Future concentrations of metal COPC in aquatic plants, benthic invertebrates, fish, and sediment were estimated using the predictive concentrations from surface water modelling. The metal COPC concentrations in surface water were based on treated effluent released from the Project as well as groundwater seepage from tailings, deposition, and baseline surface water concentrations. Future Case concentrations in wild meat were estimated using Future Case concentrations in soil, surface water, and food (e.g., vegetation, invertebrates). The Future Case metal concentrations in terrestrial and aquatic country foods identified in the HHERA are summarized in Table 2-3 and Table 2-4 for the Gordon and MacLellan regions, respectively.

The Future Case EPCs, as well as the Baseline Case EPCs presented in Section 2.1, were used to assess potential health risks associated with COPCs from the Project, in each of the environmental media to which human receptors may be exposed (Stantec 2020a). Results of the HHRA (Stantec 2020a) indicated that the predicted changes in ingestion-related exposures to carcinogenic and non-carcinogenic COPC between Baseline Case and Future Case conditions represents a negligible change in human health risk for the Indigenous and Residential receptors both in the Gordon region and in the MacLellan region.

Project-related changes in the concentrations of the parameters of concern in soil will govern the Project-related changes in the quality of terrestrial country foods. Changes in country food quality could result in changes in human health risk associated with the consumption of country foods. Data collected from monitoring of country foods will be used to validate the country food quality and human health risk predictions presented in the HHRA and to address potential Indigenous or public concerns.

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Table 2-3 Future Exposure Point Concentrations for Metals in Country Foods – Gordon Region

Chemical Parameter	Concentration (mg/kg wet weight) ¹								
	Predicted								
	Berries	Labrador Tea	Garden Produce	Fish	Moose	Snowshoe Hare	Beaver	Spruce Grouse	Mallard Duck
Antimony	9.60E-03	3.36E-02	8.35E-03	4.76E-02	5.89E-04	7.15E-06	5.26E-06	5.15E-06	1.61E-06
Arsenic	1.01E-02	1.46E-02	8.83E-03	1.40E-01	1.28E-03	1.39E-05	5.12E-05	7.89E-06	2.91E-04
Barium	2.91E+00	3.79E+01	3.49E+00	9.22E-01	6.99E-02	8.25E-04	5.94E-04	5.83E-04	3.83E-04
Beryllium	9.60E-03	1.38E-02	8.36E-03	5.32E-03	8.62E-04	5.51E-06	1.47E-05	3.60E-06	2.16E-05
Cadmium	3.07E-02	1.56E-01	1.43E-02	3.00E-02	3.23E-04	3.55E-06	2.89E-06	3.17E-06	7.26E-06
Chromium	9.65E-02	1.39E-01	8.39E-02	1.74E-01	3.11E-02	3.15E-04	1.15E-03	1.93E-04	3.22E-03
Cobalt	3.79E-02	4.02E-02	1.67E-02	5.30E-02	5.87E-02	7.78E-04	1.18E-03	4.91E-04	4.36E-04
Copper	7.63E-01	1.71E+00	1.67E+00	5.60E+00	4.11E-01	5.01E-03	4.74E-03	3.33E-03	2.60E-02
Lead	3.85E-02	5.53E-02	3.34E-02	5.80E-02	1.39E-03	1.82E-05	2.46E-05	1.20E-05	3.47E-05
Manganese	4.53E+01	3.22E+02	1.86E+00	3.30E+00	2.34E+00	2.83E-02	1.72E-02	2.02E-02	5.97E-03
Mercury	9.60E-03	1.38E-02	8.35E-03	3.98E-01	2.05E-03	2.09E-05	2.15E-05	1.57E-05	1.89E-05
Molybdenum	6.85E-02	8.61E-02	2.43E-01	1.05E-01	6.84E-02	7.96E-04	8.24E-04	5.82E-04	2.33E-03
Nickel	1.72E-01	3.91E-01	3.71E-01	7.87E-02	6.93E-02	7.82E-04	1.21E-03	5.73E-04	2.34E-03
Selenium	9.61E-02	1.38E-01	8.36E-02	7.62E-01	7.72E-03	8.58E-05	6.84E-05	6.16E-05	1.10E-04
Silver	1.92E-02	2.77E-02	1.67E-02	6.71E-02	1.87E-03	2.36E-05	1.44E-05	1.78E-05	5.41E-06
Strontium	1.04E+00	5.82E+00	1.76E+00	4.59E+00	4.41E-02	4.39E-04	5.36E-04	3.07E-04	3.97E-04
Thallium	5.77E-03	3.71E-02	5.02E-03	9.89E-03	1.96E-02	2.50E-04	1.80E-04	1.71E-04	1.86E-04
Uranium	1.92E-03	2.76E-03	2.79E-03	1.70E-02	3.31E-05	3.85E-07	3.03E-06	1.68E-07	2.32E-06
Vanadium	9.63E-02	1.38E-01	8.38E-02	1.45E-01	1.16E-02	1.72E-04	4.93E-04	8.74E-05	3.41E-04
Zinc	3.36E+00	1.00E+01	4.59E+00	1.46E+02	3.79E-02	4.08E-04	3.56E-04	3.29E-04	1.33E-03

Note:
¹ As presented and discussed in the HHERA report (Stantec 2020a).

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Table 2-4 Future Exposure Point Concentrations for Metals in Country Foods – MacLellan Region

Chemical Parameter	Concentration (mg/kg wet weight) ¹								
	Predicted								
	Berries	Labrador Tea	Garden Produce	Fish	Moose	Snowshoe Hare	Beaver	Spruce Grouse	Mallard Duck
Antimony	5.90E-03	3.34E-02	8.35E-03	2.79E-02	5.79E-04	7.22E-06	4.97E-06	5.21E-06	1.25E-06
Arsenic	7.65E-03	1.95E-02	1.08E-02	2.58E-02	1.25E-03	1.93E-05	3.70E-05	9.97E-06	1.85E-04
Barium	2.30E+00	3.56E+01	3.49E+00	5.60E-01	6.60E-02	7.89E-04	5.27E-04	5.59E-04	2.56E-04
Beryllium	5.90E-03	1.51E-02	8.37E-03	5.04E-03	7.24E-04	5.81E-06	9.80E-06	4.01E-06	1.19E-05
Cadmium	4.03E-02	2.91E-02	1.45E-02	7.83E-02	2.23E-04	2.30E-06	2.27E-06	2.27E-06	7.80E-06
Chromium	6.21E-02	1.58E-01	8.79E-02	8.62E-02	4.42E-02	2.65E-04	2.33E-03	1.69E-04	4.87E-03
Cobalt	1.86E-02	5.41E-02	1.70E-02	9.86E-02	6.66E-02	6.91E-04	3.15E-03	4.51E-04	1.52E-03
Copper	7.76E-01	1.72E+00	1.67E+00	7.36E+00	4.89E-01	5.79E-03	1.02E-02	3.43E-03	5.19E-02
Lead	2.41E-02	6.08E-02	3.38E-02	2.18E-02	7.79E-04	1.10E-05	1.90E-05	6.90E-06	3.07E-05
Manganese	4.28E+01	3.69E+02	1.86E+00	3.50E+00	2.25E+00	2.71E-02	1.64E-02	1.94E-02	5.26E-03
Mercury	5.90E-03	1.50E-02	8.35E-03	3.72E-01	1.60E-03	1.69E-05	1.83E-05	1.36E-05	1.81E-05
Molybdenum	2.51E-02	3.02E-02	2.44E-01	8.53E-02	6.34E-03	7.26E-05	7.85E-05	5.30E-05	2.29E-04
Nickel	5.79E-01	2.38E+00	3.72E-01	2.97E-01	4.12E-01	4.54E-03	1.01E-02	3.33E-03	1.84E-02
Selenium	5.92E-02	1.51E-01	8.38E-02	7.15E-01	6.89E-03	8.12E-05	6.12E-05	5.88E-05	8.51E-05
Silver	1.28E-02	3.26E-02	1.81E-02	3.13E-02	1.73E-03	2.19E-05	1.51E-05	1.69E-05	9.23E-06
Strontium	3.70E-01	7.61E+00	1.76E+00	3.92E+00	8.40E-02	9.83E-04	6.68E-04	6.99E-04	2.24E-04
Thallium	3.61E-03	5.29E-02	5.11E-03	1.09E-02	2.44E-02	3.05E-04	2.00E-04	2.12E-04	1.41E-04
Uranium	1.19E-03	3.01E-03	2.80E-03	1.95E-03	2.36E-05	3.42E-07	1.45E-06	1.50E-07	1.04E-06
Vanadium	6.01E-02	1.53E-01	8.51E-02	1.11E-01	9.04E-03	1.21E-04	3.00E-04	7.03E-05	2.02E-04
Zinc	3.51E+00	9.80E+00	4.61E+00	2.80E+01	4.90E-02	5.36E-04	4.63E-04	4.25E-04	1.47E-03

Note:
¹ As presented and discussed in the HHERA report (Stantec 2020a).

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Mitigation and Management Measures
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3.0 MITIGATION AND MANAGEMENT MEASURES

The conclusions of the HHRA are based on the EIS, which assessed potential changes in air, soil, and surface water quality as described in Chapter 6 (Atmospheric Environment) and Chapter 9 (Surface Water). The predictions provided in these sections incorporate consideration of mitigation measures to reduce the environmental effects of the Project. These mitigation measures, which are described in the corresponding management and monitoring plans within the EMMP, also serve to address potential Project-related changes on terrestrial and aquatic country foods. As a result, additional mitigation measures specific to the protection of country food quality are not required.

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4.0 MONITORING ACTIVITIES

Monitoring is the continuation of observation, measurement, or assessment of environmental conditions at and surrounding the Project, its components, or activities. Two types of monitoring are typically undertaken for environmental assessments: environmental monitoring to verify the accuracy of predictions and implemented mitigation measures; and compliance monitoring for verification of practices or procedures to meet legislated requirements. Components to be monitored have been determined based on regulatory instrument requirements as per legislation, environmental importance, sensitivity and vulnerability, and license requirements.

The CFP provides details on the approach and methods for monitoring (follow-up) activities. Commitments were made in the EIS to conduct follow-up activities and monitoring (Volume 2, Chapter 12; Stantec 2020e). Additional commitments were made to address requests from regulators, Indigenous Nations, and stakeholders brought forth during the review of the EIS. These additional commitments are also included in the CFP.

Engagement for the Project has been an ongoing process that will continue with directly impacted Indigenous Nations, government agencies, the public, and stakeholders for the life of the Project. Alamos invited and has set up an Environmental Advisory Committee for the LLGP which meets regularly and discusses the Project as it progresses. This will include discussions regarding this CFP. The Environmental Advisory Committee will also provide advice and facilitate the participation of interested Indigenous Nations in environmental aspects of ongoing Project activities, including development and implementation of the follow-up and monitoring plans and the Closure Plan, as well as selection of monitoring locations.

Monitoring (follow-up) activities during the construction, operation, and decommissioning/closure phases will be used to verify EIS predictions and evaluate the effectiveness of mitigation strategies for the key environmental effects. Management activities provide guidance for addressing specific issues that arise during the construction, operation, and decommissioning/closure phases of the Project. The specific and measurable end points for concluding the monitoring program will be set to ensure the accuracy of the environmental assessment and the effectiveness of mitigation measures. These end points will be achieved either at permanent closure or earlier if it can be demonstrated that there are no further impacts warranting continued monitoring.

A detailed description for each of the monitoring activities is provided in the following sub-sections. The monitoring programs will be the same for both the Gordon and MacLellan regions, except for garden produce which will occur only in the MacLellan region since no backyard gardens were identified in the Gordon region.

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4.1 MONITORING OBJECTIVES

The objective of monitoring is to evaluate metal concentrations in terrestrial (plants, birds, small and large mammals) and aquatic (fish, birds, mammals) country foods over the construction, operation, decommissioning, and post-closure phases of the Project. Data from the CFP will be used to validate the country food quality and human health risk predictions presented in the HHRA and to address potential Indigenous or public concerns.

4.2 APPROACHES

The CFP will focus on metals, including total mercury and contaminants of potential concern (e.g., thallium and manganese) in the same country foods and environmental media considered in the baseline assessment. The first sampling event (during construction) will also include analysis of methylmercury in fish tissue to establish the reasonableness of assuming 100% of total mercury in fish tissue occurs as methylmercury. Similarly, although methylmercury is estimated to constitute only 1% of the total mercury content of water (Health Canada 1986), the first surface water sampling event (during construction) will include analysis of methylmercury in surface water samples. The country foods and environmental media of interest and the rationale for inclusion in the country foods sampling program are as follows:

- Berries (blueberries, bog cranberries, and cloud berries): Ingestion of berries is an exposure pathway for Indigenous and non-Indigenous people who may harvest berries from within the LAA.
- Labrador tea (*Rhododendron* sp.): Ingestion of plants is a direct pathway for Indigenous and non-Indigenous people who may harvest these plants from within the LAA.
- Soil: Soil is one of the most important of the media considered. Indigenous and non-Indigenous people are exposed directly to soil, and the models used in the HHRA rely heavily on the soil concentrations to predict concentrations in various other media. In addition, existing soil concentrations represent the current conditions associated with historical deposition.
- Garden produce: Ingestion of garden produce is an exposure pathway for Indigenous and non-Indigenous people who may harvest vegetables from backyard gardens. No backyard gardens were identified in the Gordon region, as such, concentrations in garden produce from the MacLellan region will also be used for the Gordon region. Garden produce included carrots, potatoes, and beets.
- Small mammals (snowshoe hare): Small mammals are exposed directly to soil and forage/browse as well as form an exposure pathway for Indigenous and non-Indigenous people who may harvest wild meat from within the LAA.
- Large mammals (moose): Large mammals are exposed directly to soil and forage/browse as well as form an exposure pathway for Indigenous and non-Indigenous people who may harvest wild meat from within the LAA.
- Aquatic mammals (beaver): Aquatic mammals are exposed directly to soil, sediment, and aquatic plants as well as form an exposure pathway for Indigenous and non-Indigenous people who may harvest wild meat from within the LAA.

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- Terrestrial birds (grouse, ptarmigan): Terrestrial birds are exposed directly to soil and forage/browse as well as form an exposure pathway for Indigenous and non-Indigenous people who may harvest wild meat from within the LAA.
- Aquatic birds (mallard duck): Aquatic birds are exposed directly to soil, forage/browse, sediment, aquatic plants, and benthic invertebrates as well as form an exposure pathway for Indigenous and non-Indigenous people who may harvest wild meat from within the LAA.
- Fish (walleye, lake whitefish, and northern pike): Fish ingestion is an exposure pathway for Indigenous and non-Indigenous people who may harvest fish from within the LAA.

As noted in the HHERA, both people and animals within the LAA would be expected to move throughout the LAA (and possibly beyond the LAA) and thus, experience a range of metal concentrations. However, the HHERA conservatively assumed that 100% of exposures for both people and animals occur within the LAA; this results in overstating rather than understating the risk, as actual exposures would be lower for people and animals that spend time outside the LAA. Consistent with this approach and Health Canada guidance, the CFP focuses on the exposure media that represent pathways for both people and animals at locations within the LAA most likely to be affected by Project activities and where harvesting could occur.

4.3 METHODS

4.3.1 General Plan Considerations

The methods applied to the CFP will be consistent with the recommendations for characterization of biological site conditions recommended by CCME (CCME 2016). These include:

- Monitoring Schedule: Country food quality monitoring has been considered during each Project phase including:
 - Construction Phase: A minimum of 1 monitoring event during the typical harvest periods for terrestrial country foods (and soil) during construction. Typical harvest periods are generally expected to occur mid to late summer; these should be confirmed prior to sampling with local knowledge and consideration of weather patterns. Aquatic country foods monitoring will occur in accordance with the Aquatic Effects Monitoring Plan.
 - Operations Phase: Project-related changes in country food quality depend on changes in soil and water quality in the LAA. If Project-related changes in soil quality occur, the changes will occur gradually over the operational life of the Project. Monitoring terrestrial country food quality on a 5-year cycle over the operational life of the Project would be sufficient to identify potential changes in the quality of terrestrial country foods harvested from within the LAA. Therefore, sampling for terrestrial country foods (and soil) should be sampled a minimum of once every 5 years. Details on the fish tissue sampling program can be found in the Aquatic Effects Monitoring Plan. As with other Project phases, monitoring should be conducted during the typical harvest periods for terrestrial and aquatic country foods. Typical harvest periods are generally expected to occur mid to late summer; these should be confirmed prior to sampling with local knowledge and consideration of weather patterns.

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- Decommissioning & Closure Phase: A minimum of 1 monitoring event during the typical harvest periods for terrestrial and aquatic country foods during decommissioning and closure. Typical harvest periods are generally expected to occur mid to late summer; these should be confirmed prior to sampling with local knowledge and consideration of weather patterns.
- Post Closure: Project-related changes in terrestrial country food quality are dependent on Project-related changes in soil quality. Project-related changes in soil quality result from the deposition of metal containing dust onto surface soils. In the post-closure phase of the Project, Project-related dust deposition is not expected to occur, thus, two rounds of post-closure monitoring of terrestrial country food quality, conducted within the first ten years post-closure, should be sufficient to confirm terrestrial country food quality. Project-related changes in aquatic country food quality depend on changes on Project-related changes in water quality. Monitoring of fish tissue should be aligned with post-closure water quality monitoring and post-closure fish and fish habitat monitoring. Details on the fish tissue monitoring program can be found in the Aquatic Effects Monitoring Plan.
- Data Quality Objectives: Data quality objectives for the terrestrial and aquatic country foods monitoring should be consistent with the CCME guidance (CCME 2016).
- Quality Assurance/Quality Control: Quality assurance/quality control procedures for the CFP will follow CCME 2016 guidance and, where appropriate, include consideration of reference standards, duplicate samples, replicate samples, and split samples.

4.3.2 Specific Sampling Requirements

To address potential Indigenous or public concerns, country food samples will be collected, where possible, from the same locations used in the baseline assessment. Samples will be submitted for metals analysis, including arsenic, copper, mercury, methylmercury (in relevant media), and selenium, consistent with the baseline assessment.

- Terrestrial sampling: For each terrestrial species, a minimum of one sample will be collected from each location used in the baseline assessment (Appendix A, Map A-2) as follows:
 - Berries: Berry samples will be collected from the same locations as the baseline program. If blueberries are no longer in season at the time of sampling, bog cranberries or cloud berries may be collected as alternatives. A field duplicate will also be collected.
 - Labrador tea leaves: Similar to berry sampling, Labrador tea leaves will be collected from the same locations as the baseline program, one sample per location. If local custom uses only the new growth parts of the plant, then sample collection will need to focus on this part of the plant. A field duplicate will also be collected.
 - Soil: A soil sample will be collected from each vegetation (berries and Labrador tea leaves) sampling location and submitted for metals analysis. The soil samples will be representative of the rooting zone of the sampled plants. Two field duplicates will also be collected.
 - Garden produce: Garden produce samples will be collected from the same locations as the baseline program. The same vegetables as that of the baseline program (carrots, potatoes, and beets) will be targeted.

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Monitoring Activities
January 30, 2025

- Small mammals (snowshoe hare): The baseline program did not include harvesting of small mammals for human ingestion. The same locations as for other terrestrial sampling will be targeted for snowshoe hare. Multiple snares will be placed at target locations, and muscle tissue and internal organs (including heart, liver, and kidney) samples from up to two animals per location will be submitted for analysis.
- Large mammals (moose), aquatic mammals (beaver), terrestrial birds (spruce grouse), and aquatic birds (mallard duck): The baseline program did not include harvesting of large mammals, aquatic mammals, terrestrial birds, and aquatic birds. The large home ranges of these animals means that they are less likely to be affected by the localized changes in environmental quality that could result from dust fall or water quality. However, these are species of importance to Indigenous and non-Indigenous people. Therefore, if tissue samples can be provided by local hunters, incorporating this data into the CFP would be beneficial.
- Aquatic Sampling: Aquatic sampling will be completed by other on-going monitoring programs in the same waterbodies as the baseline assessment as noted below.
 - Surface Water: Sampling for surface water will be completed as outlined in the Surface Water Management and Monitoring Plan and include multiple locations within the assessment area.
 - Fish Tissue Sampling: Sampling for fish tissues will be completed as outlined in the Aquatic Effects Monitoring Plan and will include fish species of local importance collected from multiple locations within the assessment area. Because the sampling is being done to support an assessment of human health, the muscle fillet portions of the fish will be submitted for analysis. Muscle fillet tissue samples will then be analyzed for contaminant concentrations by an accredited laboratory. Additional details on the fish tissue sampling program can be found in the Aquatic Effects Monitoring Plan.

5.0 ADAPTIVE MANAGEMENT

Adaptive management is a planned process for responding to uncertainty or to an unanticipated or underestimated project effect. Information learned from monitoring actual project effects is applied and compared to predicted effects. Where a variance between the actual and predicted effects occurs, a determination is made as to whether modifications or other actions are necessary to revise the existing mitigation measures. As part of this commitment, we will implement technically and economically feasible mitigation measures if monitoring indicates that specified levels of environmental change have been reached or exceeded. Feasibility and implementation decisions will be made based on the circumstances and considerations at the time.

Results from monitoring will be used through an adaptive management process to adjust mitigation measures and to modify plans on an ongoing basis, if required.

5.1 THRESHOLDS FOR ADAPTIVE MANAGEMENT

To confirm that predictions and assumptions used in the HHRA and relied upon in the EIS are accurate, and address potential Indigenous or public concerns, adaptive management with respect to country foods would be initiated in the event of the following trigger thresholds:

- The 95% upper confidence limits of the mean concentrations of metals in soil are higher than the future predicted EPCs identified in the HHRA (Stantec 2020a). EPCs in soil identified in the HHRA have been provided in Appendix B.
- The 95% upper confidence limits of the mean Concentrations of metals in surface water samples are not consistent with the future predicted EPCs identified in the HHRA (Stantec 2020a). EPCs in surface water identified in the HHRA have been provided in Appendix B.
- The 95% upper confidence limits of the mean Concentrations of metals in tissue of country foods are not consistent with future predicted EPCs identified in the HHRA (Stantec 2020a). EPCs in country foods identified in the HHRA have been provided in Appendix B.

If one of these trigger thresholds is identified, then the following actions will be completed:

1. Confirm the results – review field notes and discuss results with the laboratory to identify possible sources of error.
2. Resample - Complete an additional sampling event at the time of the next available harvesting event for the medium identified rather than the next scheduled monitoring event.

LYNN LAKE GOLD PROJECT: COUNTRY FOODS PLAN

Adaptive Management
January 30, 2025

3. Evaluate the dataset - Compare the range of metal concentrations in source media (soil, water) and country foods tissues to determine if the trigger exceedance reflects the potential for a Project related effect.
 - a. If resampling indicates concentrations are below the trigger threshold, or not related to a Project-related effect, then no action is required and continue with the scheduled monitoring plan.
 - b. If exceedance of trigger level is validated, then evaluate the change in human health risk.

Evaluate the change in human health risk – characterize the human health risk related to the consumption of country foods (i.e., hazard quotients and incremental lifetime cancer risks, as appropriate) for both Baseline conditions and Current conditions consistent with most recent guidance from Health Canada to determine the potential for unacceptable risk. Discuss findings with relevant health agencies. More rigorous monitoring or more detailed assessment may be recommended. Notify relevant authorities if new mitigation is required and document in annual report (Section 6.0).

**LYNN LAKE GOLD PROJECT:
COUNTRY FOODS PLAN**

Reporting
January 30, 2025

6.0 REPORTING

A report detailing the monitoring results for terrestrial and aquatic country foods will be submitted annually to regulatory authorities and shared with interested Indigenous Nations (through the Environmental Advisory Committee) and stakeholders. Sampling of some media for country foods will be completed by other on-going monitoring programs, including the surface water and aquatic effects monitoring programs, in which case summaries of the findings for those programs will be included in the country foods report. The information included in the report will contribute to adaptive management strategies to address the effectiveness of mitigation to reduce potential Project-related changes in country food quality and the associated human health risks.

LYNN LAKE GOLD PROJECT: COUNTRY FOODS PLAN

References
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LYNN LAKE GOLD PROJECT: COUNTRY FOODS PLAN

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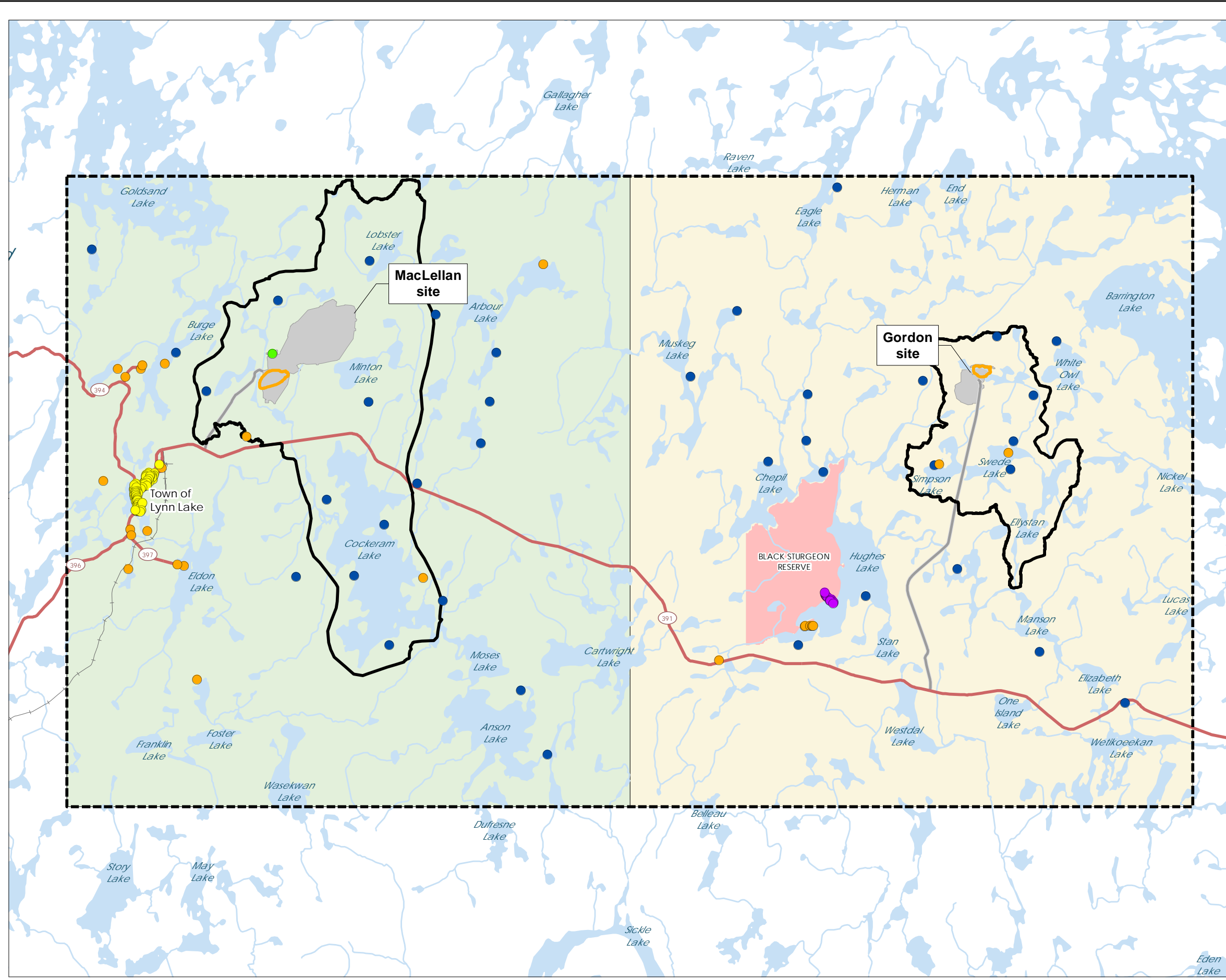
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Appendix A Maps



Project Infrastructure

- Proposed Open Pit
- Project Development Area

Study Area

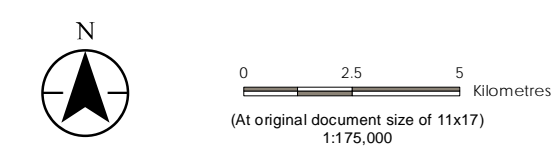
- HhRA Local Assessment Area/Regional Assessment Area (LAA/RAA)
- Surface Water Local Assessment Area (LAA)
- Gordon region
- MacLellan region

Human Receptors

- Lynn Lake Receptors
- Black Sturgeon Reserve Receptors
- Remote Cabins and Recreational Sites
- Potential Indigenous Receptors
- Worker Camp

Landbase

- Highway
- Access Road
- Rail
- Watercourse
- Waterbody
- First Nation Reserve



Notes
 1. Coordinate System: NAD 1983 UTM Zone 14N
 2. Base Data Sources: Government of Manitoba and Government of Canada

Project Location
 Lynn Lake, Manitoba
 Prepared by A.Campigotto on 2020-05-05
 Technical Review by TMcknight-Whitford on 2020-05-05

Client/Project
 ALAMOS GOLD INC.
 Lynn Lake Gold Project
 111473008

Map No.
A-1

Title
Spatial Boundaries for the Human Health and Ecological Risk Assessment

\\C:\0005\p0001\005_GIS\Project_Folder\111473003_ALAMOS\Figures\HhRA\Map\Map1_HUMANHEALTH_SpatialBoundaries_20200214.mxd, Revised: 2020-05-05 By: ACampigotto

Project Infrastructure

- Proposed Open Pit
- Project Development Area

Study Area

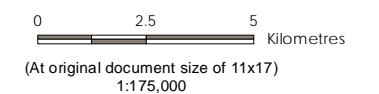
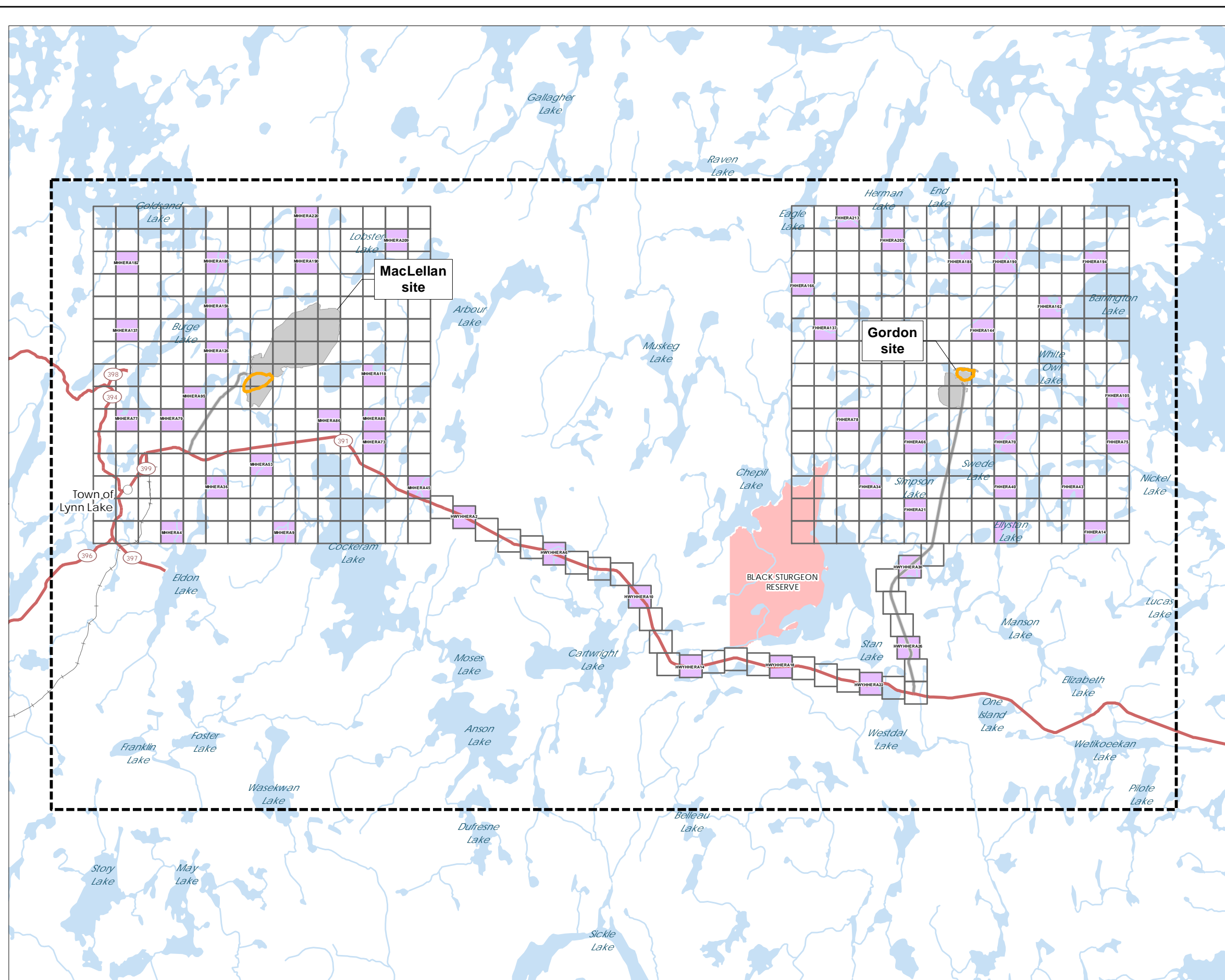
- Air Quality Local Assessment Area

Air Quality Monitoring Locations

- Human Health & Ecological Risk Assessment (HHERA) 1km Grids
- Sample Locations

Landbase

- Highway
- Access Road
- Rail
- Watercourse
- Waterbody
- First Nation Reserve



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 14N
 2. Base Data Sources: Government of Manitoba and Government of Canada

Project Location Lynn Lake, Manitoba
 Prepared by A Campigotto on 2020-04-24
 Technical Review by TMcKnight-Whitford on 2020-04-24

Client/Project ALAMOS GOLD INC.
 Lynn Lake Gold Project
 111473008

Map No.

A-2

Title

**HHERA Soil and Vegetation
 Sampling Locations**

Appendix B Baseline Exposure Point Concentrations

**LYNN LAKE GOLD PROJECT:
COUNTRY FOODS PLAN**

Appendix B Baseline Exposure Point Concentrations
January 30, 2025

Table B-1 Exposure Point Concentrations in Soil – Metals

COPC	Gordon Region		MacLellan Region	
	Baseline Case (mg/kg)	Future Case (mg/kg)	Baseline Case (mg/kg)	Future Case (mg/kg)
Antimony	1.21E-01	1.21E-01	1.50E-01	1.50E-01
Arsenic	1.09E+00	1.15E+00	1.58E+00	2.05E+00
Barium	4.85E+01	4.85E+01	3.72E+01	3.72E+01
Beryllium	2.99E-01	2.99E-01	1.28E-01	1.28E-01
Cadmium	3.59E-01	3.60E-01	3.51E-01	3.56E-01
Chromium	7.71E+00	7.75E+00	4.88E+00	5.14E+00
Cobalt	3.11E+00	3.12E+00	2.08E+00	2.12E+00
Copper	3.81E+01	3.81E+01	7.85E+01	7.87E+01
Lead	8.16E+00	8.17E+00	7.98E+00	8.14E+00
Manganese	7.97E+01	7.97E+01	5.13E+01	5.13E+01
Mercury	1.10E-01	1.10E-01	2.03E-01	2.03E-01
Molybdenum	8.20E+00	8.20E+00	7.29E-01	7.30E-01
Nickel	5.21E+00	5.25E+00	3.45E+01	3.48E+01
Selenium	2.50E-01	2.50E-01	9.50E-01	9.53E-01
Silver	1.58E-01	1.58E-01	2.25E-01	2.28E-01
Strontium	2.06E+01	2.06E+01	1.49E+01	1.49E+01
Thallium	1.82E-01	1.82E-01	1.30E-01	1.33E-01
Uranium	4.51E-01	4.52E-01	4.00E-01	4.03E-01
Vanadium	1.22E+01	1.22E+01	5.57E+00	5.67E+00
Zinc	4.67E+01	4.68E+01	8.30E+01	8.40E+01

**LYNN LAKE GOLD PROJECT:
COUNTRY FOODS PLAN**

Appendix B Baseline Exposure Point Concentrations
January 30, 2025

Table B-2 Exposure Point Concentrations in Surface Water – Metals-Swede Lake and Cockeram Lake

COPC	Swede Lake (Gordon Region)		Cockeram Lake (MacLellan Region)	
	Baseline Case (mg/L)	Future Case (mg/L)	Baseline Case (mg/L)	Future Case (mg/L)
Antimony	1.1E-04	2.2E-04	8.1E-05	1.0E-04
Arsenic	2.9E-04	7.1E-04	2.1E-04	2.9E-04
Barium	1.0E-02	1.7E-02	7.4E-03	7.7E-03
Beryllium	8.7E-05	9.3E-05	8.2E-05	8.2E-05
Cadmium	4.7E-06	4.9E-06	6.9E-06	7.6E-06
Chromium	1.6E-04	1.7E-04	1.7E-04	1.8E-04
Cobalt	8.5E-05	8.8E-05	2.6E-04	3.0E-04
Copper	5.7E-04	5.8E-04	2.4E-03	2.4E-03
Lead	6.1E-05	6.1E-05	4.5E-05	4.9E-05
Manganese	2.4E-02	3.3E-02	2.4E-02	2.5E-02
Mercury	9.9E-07	9.9E-07	1.1E-06	1.2E-06
Molybdenum	8.5E-04	1.2E-03	9.0E-05	1.3E-04
Nickel	2.5E-04	2.7E-04	2.8E-02	2.8E-02
Selenium	4.4E-05	7.2E-05	4.7E-05	5.0E-05
Silver	6.1E-06	6.2E-06	5.0E-06	5.1E-06
Strontium	3.7E-02	7.3E-02	1.6E-02	1.8E-02
Thallium	3.7E-05	3.9E-05	2.9E-05	3.0E-05
Uranium	3.7E-05	1.9E-04	4.2E-05	5.2E-05
Vanadium	2.3E-04	2.4E-04	1.4E-04	1.5E-04
Zinc	3.4E-03	3.5E-03	6.8E-03	6.9E-03

**LYNN LAKE GOLD PROJECT:
COUNTRY FOODS PLAN**

Appendix B Baseline Exposure Point Concentrations
January 30, 2025

Table B-3 Exposure Point Concentrations in Traditional Plants – Metals

COPC	Gordon Region				MacLellan Region			
	Berries		Other (Labrador Tea)		Berries		Other (Labrador Tea)	
	Baseline Case (mg/kg wet weight)	Future Case (mg/kg wet weight)	Baseline Case (mg/kg wet weight)	Future Case (mg/kg wet weight)	Baseline Case (mg/kg wet weight)	Future Case (mg/kg wet weight)	Baseline Case (mg/kg wet weight)	Future Case (mg/kg wet weight)
Antimony	9.60E-03	9.60E-03	3.36E-02	3.36E-02	5.90E-03	5.90E-03	3.34E-02	3.34E-02
Arsenic	9.60E-03	1.01E-02	1.38E-02	1.46E-02	5.90E-03	7.65E-03	1.50E-02	1.95E-02
Barium	2.91E+00	2.91E+00	3.79E+01	3.79E+01	2.30E+00	2.30E+00	3.56E+01	3.56E+01
Beryllium	9.60E-03	9.60E-03	1.38E-02	1.38E-02	5.90E-03	5.90E-03	1.50E-02	1.51E-02
Cadmium	3.07E-02	3.07E-02	1.56E-01	1.56E-01	4.03E-02	4.03E-02	2.88E-02	2.91E-02
Chromium	9.60E-02	9.65E-02	1.38E-01	1.39E-01	5.90E-02	6.21E-02	1.50E-01	1.58E-01
Cobalt	3.78E-02	3.79E-02	4.01E-02	4.02E-02	1.82E-02	1.86E-02	5.30E-02	5.41E-02
Copper	7.62E-01	7.63E-01	1.71E+00	1.71E+00	7.74E-01	7.76E-01	1.72E+00	1.72E+00
Lead	3.84E-02	3.85E-02	5.52E-02	5.53E-02	2.36E-02	2.41E-02	6.01E-02	6.08E-02
Manganese	4.53E+01	4.53E+01	3.22E+02	3.22E+02	4.28E+01	4.28E+01	3.69E+02	3.69E+02
Mercury	9.60E-03	9.60E-03	1.38E-02	1.38E-02	5.90E-03	5.90E-03	1.50E-02	1.50E-02
Molybdenum	6.85E-02	6.85E-02	8.61E-02	8.61E-02	2.51E-02	2.51E-02	3.02E-02	3.02E-02
Nickel	1.71E-01	1.72E-01	3.89E-01	3.91E-01	5.74E-01	5.79E-01	2.37E+00	2.38E+00
Selenium	9.60E-02	9.61E-02	1.38E-01	1.38E-01	5.90E-02	5.92E-02	1.50E-01	1.51E-01
Silver	1.92E-02	1.92E-02	2.76E-02	2.77E-02	1.18E-02	1.28E-02	3.01E-02	3.26E-02
Strontium	1.04E+00	1.04E+00	5.82E+00	5.82E+00	3.70E-01	3.70E-01	7.61E+00	7.61E+00
Thallium	5.76E-03	5.77E-03	3.71E-02	3.71E-02	3.54E-03	3.61E-03	5.19E-02	5.29E-02
Uranium	1.92E-03	1.92E-03	2.76E-03	2.76E-03	1.18E-03	1.19E-03	3.01E-03	3.01E-03
Vanadium	9.60E-02	9.63E-02	1.38E-01	1.38E-01	5.90E-02	6.01E-02	1.50E-01	1.53E-01
Zinc	3.35E+00	3.36E+00	1.00E+01	1.00E+01	3.47E+00	3.51E+00	9.73E+00	9.80E+00

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Appendix B Baseline Exposure Point Concentrations
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Table B-4 Exposure Point Concentrations in Large Bodied Fish for Human Consumption – Metals

COPC	Surface Water LAA for the Gordon Site		Surface Water LAA for the MacLellan Site	
	Baseline Case (mg/kg wet weight)	Future Case (mg/kg wet weight)	Baseline Case (mg/kg wet weight)	Future Case (mg/kg wet weight)
Antimony	2.30E-02	4.76E-02	2.20E-02	2.79E-02
Arsenic	5.69E-02	1.40E-01	1.83E-02	2.58E-02
Barium	5.63E-01	9.22E-01	5.38E-01	5.60E-01
Beryllium	5.00E-03	5.32E-03	5.00E-03	5.04E-03
Cadmium	2.88E-02	3.00E-02	7.16E-02	7.83E-02
Chromium	1.70E-01	1.74E-01	8.00E-02	8.62E-02
Cobalt	5.13E-02	5.30E-02	8.74E-02	9.86E-02
Copper	5.55E+00	5.60E+00	7.33E+00	7.36E+00
Lead	5.80E-02	5.80E-02	2.00E-02	2.18E-02
Manganese	2.43E+00	3.30E+00	3.26E+00	3.50E+00
Mercury	3.98E-01	3.98E-01	3.61E-01	3.72E-01
Molybdenum	7.53E-02	1.05E-01	5.87E-02	8.53E-02
Nickel	7.33E-02	7.87E-02	2.96E-01	2.97E-01
Selenium	4.67E-01	7.62E-01	6.77E-01	7.15E-01
Silver	6.57E-02	6.71E-02	3.04E-02	3.13E-02
Strontium	2.31E+00	4.59E+00	3.53E+00	3.92E+00
Thallium	9.30E-03	9.89E-03	1.08E-02	1.09E-02
Uranium	3.20E-03	1.70E-02	1.57E-03	1.95E-03
Vanadium	1.34E-01	1.45E-01	1.06E-01	1.11E-01
Zinc	1.46E+02	1.46E+02	2.80E+01	2.80E+01

**LYNN LAKE GOLD PROJECT:
COUNTRY FOODS PLAN**

Appendix B Baseline Exposure Point Concentrations
January 30, 2025

Table B-5 Future Exposure Point Concentrations in Wild Meat from the Gordon Region– Metals

COPC	Gordon Region				
	Future Case				
	Large Mammal (mg/kg wet weight tissue)	Small Mammal (mg/kg wet weight tissue)	Aquatic Mammal (mg/kg wet weight tissue)	Terrestrial Bird (mg/kg wet weight tissue)	Aquatic Bird (mg/kg wet weight tissue)
Antimony	5.89E-04	7.15E-06	5.26E-06	5.15E-06	1.61E-06
Arsenic	1.28E-03	1.39E-05	5.12E-05	7.89E-06	2.91E-04
Barium	6.99E-02	8.25E-04	5.94E-04	5.83E-04	3.83E-04
Beryllium	8.62E-04	5.51E-06	1.47E-05	3.60E-06	2.16E-05
Cadmium	3.23E-04	3.55E-06	2.89E-06	3.17E-06	7.26E-06
Chromium	3.11E-02	3.15E-04	1.15E-03	1.93E-04	3.22E-03
Cobalt	5.87E-02	7.78E-04	1.18E-03	4.91E-04	4.36E-04
Copper	4.11E-01	5.01E-03	4.74E-03	3.33E-03	2.60E-02
Lead	1.39E-03	1.82E-05	2.46E-05	1.20E-05	3.47E-05
Manganese	2.34E+00	2.83E-02	1.72E-02	2.02E-02	5.97E-03
Mercury	2.05E-03	2.09E-05	2.15E-05	1.57E-05	1.89E-05
Molybdenum	6.84E-02	7.96E-04	8.24E-04	5.82E-04	2.33E-03
Nickel	6.93E-02	7.82E-04	1.21E-03	5.73E-04	2.34E-03
Selenium	7.72E-03	8.58E-05	6.84E-05	6.16E-05	1.10E-04
Silver	1.87E-03	2.36E-05	1.44E-05	1.78E-05	5.41E-06
Strontium	4.41E-02	4.39E-04	5.36E-04	3.07E-04	3.97E-04
Thallium	1.96E-02	2.50E-04	1.80E-04	1.71E-04	1.86E-04
Uranium	3.31E-05	3.85E-07	3.03E-06	1.68E-07	2.32E-06
Vanadium	1.16E-02	1.72E-04	4.93E-04	8.74E-05	3.41E-04
Zinc	3.79E-02	4.08E-04	3.56E-04	3.29E-04	1.33E-03

**LYNN LAKE GOLD PROJECT:
COUNTRY FOODS PLAN**

Appendix B Baseline Exposure Point Concentrations
January 30, 2025

Table B-6 Future Exposure Point Concentrations in Wild Meat from the MacLellan Region – Metals

COPC	MacLellan Region				
	Future Case				
	Large Mammal (mg/kg wet weight tissue)	Small Mammal (mg/kg wet weight tissue)	Aquatic Mammal (mg/kg wet weight tissue)	Terrestrial Bird (mg/kg wet weight tissue)	Aquatic Bird (mg/kg wet weight tissue)
Antimony	5.79E-04	7.22E-06	4.97E-06	5.21E-06	1.25E-06
Arsenic	1.25E-03	1.93E-05	3.70E-05	9.97E-06	1.85E-04
Barium	6.60E-02	7.89E-04	5.27E-04	5.59E-04	2.56E-04
Beryllium	7.24E-04	5.81E-06	9.80E-06	4.01E-06	1.19E-05
Cadmium	2.23E-04	2.30E-06	2.27E-06	2.27E-06	7.80E-06
Chromium	4.42E-02	2.65E-04	2.33E-03	1.69E-04	4.87E-03
Cobalt	6.66E-02	6.91E-04	3.15E-03	4.51E-04	1.52E-03
Copper	4.89E-01	5.79E-03	1.02E-02	3.43E-03	5.19E-02
Lead	7.79E-04	1.10E-05	1.90E-05	6.90E-06	3.07E-05
Manganese	2.25E+00	2.71E-02	1.64E-02	1.94E-02	5.26E-03
Mercury	1.60E-03	1.69E-05	1.83E-05	1.36E-05	1.81E-05
Molybdenum	6.34E-03	7.26E-05	7.85E-05	5.30E-05	2.29E-04
Nickel	4.12E-01	4.54E-03	1.01E-02	3.33E-03	1.84E-02
Selenium	6.89E-03	8.12E-05	6.12E-05	5.88E-05	8.51E-05
Silver	1.73E-03	2.19E-05	1.51E-05	1.69E-05	9.23E-06
Strontium	8.40E-02	9.83E-04	6.68E-04	6.99E-04	2.24E-04
Thallium	2.44E-02	3.05E-04	2.00E-04	2.12E-04	1.41E-04
Uranium	2.36E-05	3.42E-07	1.45E-06	1.50E-07	1.04E-06
Vanadium	9.04E-03	1.21E-04	3.00E-04	7.03E-05	2.02E-04
Zinc	4.90E-02	5.36E-04	4.63E-04	4.25E-04	1.47E-03