ALAMOS GOLD INC.

Lynn Lake Gold Project Environment Act Proposal Report – Gordon Site

Response to Technical Advisory Committee Comments

Stantec

Prepared by:

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INTRODUCTION

Manitoba Conservation and Climate (MCC) Environmental Approvals Branch provided Technical Advisory Committee (TAC) comments received during environmental assessment and licensing review period for two separate Environment Act Proposal (EAP) Summary Reports for the MacLellan and Gordon sites, which together form the Lynn Lake Gold Project, submitted by submitted by Alamos Gold Inc. (Alamos) on August 24, 2020.

Alamos confirms that each of the comments provided have been fully addressed and answered as clearly and succinctly as possible. A fulsome response to each comment related to the Gordon site is provided in the following sections in reference to the original request. Where required to complete the response, attachments have been provided in Appendix A.

Alamos has considered the following while responding to the comments:

- The context and rationale for the required information for every question.
- Applied a precautionary approach, given that some studies and plans may not be complete at this time.
- Provided additional information (wherever possible) to assuage uncertainty and to provide clearly defined, detailed follow-up program measures, including proposed further mitigation measures.
- Presented complete or summarized information and discussion within the information request responses, rather than limited responses to references to applicable reports.

Alamos is committed to discussing and resolving any further information requests throughout the review process.

RESPONSE TO TAC-GOR-01

ID:	TAC-GOR-01
Department:	Agriculture and Resource Development - Water Quality Management Section
Background:	The Water Quality Management Section (WQMS) at Agriculture and Resource Development (ARD) has reviewed the Alamos Gold Inc. - Lynn Lake Gold Project – MacLellan Mine and Processing (File 6073) and Gordon Mine (File 6074) *Environment Act* Proposal. While the proponent/licencee (Alamos Gold Inc.) and their hired consultant, Stantec Consulting Ltd., have provided detailed *Environment Act* Proposals for both the MacLellan site and Gordon site, additional questions and concerns remain related to impacts to water quality and water resources. These concerns are discussed below.
Information Request:	The *Environment Act* Proposals (EAPs) acknowledge that historical mining activities have changed water quality, water quantity, and hydrological flows in the region. The EAPs acknowledge that construction, operation, and decommissioning of the Gordon and MacLellan sites are expected to: further degrade surface water and groundwater quality; alter water quantity, hydrological flow pathways and drainage patterns; and adversely impact fish and other aquatic life exposed to elevated concentrations of contaminants. For example, impacted surface waterbodies nearby the MacLellan site include the Keewatin River (owing to effluent discharge from the collection pond) and other nearby tributaries draining East Pond, Payne Lake, and Minton Lake (owing to groundwater seepage from the Tailings Management Facility [TMF] and Mine Rock Storage Area [MRSA]). At the Gordon site, impacted surface waterbodies include Gordon Lake, the Farley lakes (i.e., West, East), Swede Lake, and potentially other downstream waterbodies (owing to groundwater being pumped from the groundwater interceptor wells and effluent discharges). The proponent states that by implementing mitigation and environmental protection measures including a site-specific Surface Water Monitoring and Management Plan, Groundwater Monitoring Plan, and Erosion and Sediment Control Plan (among others), the residual environmental effects to water quality, water quantity, and aquatic life will be reduced. The MacLellan EAP reports that changes in water quality and quantity are not expected to be significant because changes in lake levels and streamflows are not predicted to exceed 30% relative change from existing conditions. The WQMS is concerned that a change in 30% from background conditions could be significant. Previous work characterizing and modeling baseline concentrations and impacts of mining activities at the MacLellan site on surface water indicates that the primary contaminants of concern affecting water quality are aluminum (Al), arsenic (As), copper (Cu), cadmium (Cd), and fluoride (F), with concentrations expected to exceed provincial and federal aquatic life guidelines. Note that the Government of Canada is in the process of developing a new aquatic life guideline for copper based on the Biotic Ligand Model, which is expected to be more scientifically accurate than current guidelines. The contaminants of concern at the Gordon site include fluoride (F) and phosphorus (P); albeit concentrations are not expected to exceed provincial and federal guidelines or cause eutrophication problems. Given the importance of the ecological health of waterbodies in the region of Lynn Lake (e.g., critical for spawning, rearing, and overwintering for several fish species), the elevated contaminant concentrations at various stages of mining activities at both the Gordon and MacLellan sites are

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	concerning. For many variables, the exceedances occur post-closure after the sites have been decommissioned. At both sites, the proponent plans to ask for a *Fisheries Act* Authorization from the Department of Fisheries and Oceans (DFO) for the "harmful alteration, disruption, or destruction" of fish habitat. Appendix A (Summary of Effects Assessment) highlights that the change in water quality and change in fish health, growth, and survival in the LAA are to be adversely affected and states these residual impacts are irreversible over the long-term upon decommissioning/closure. Both EAPs suggest effluent discharge will follow authorization of the MDMER (Schedule 4). In cases where the MDMER limits are not acceptable for discharge, the water will be treated as per the *Fisheries Act* and *The Water Protection Act* of Manitoba. Note that the MDMER regulations are not necessarily protective of the environment, but are baseline limits established across the country based on current technology. Based on the information above documenting contaminants of concern, it will be the responsibility of the Environmental Compliance and Enforcement Branch to determine if additional limits will be required for the Gordon and MacLellan site EAPs. It is important to note that recent changes to the MDMER occurred on June 1, 2020 and this should be reflected in any future *Environment Act* Licenses. As part of the MDMER, Environmental Impact Assessments (EIAs) will be required periodically throughout construction, operation, and following closure. There is no mention of the importance of EIAs within both the Gordon and MacLellan site EAPs. The WQMS would be interested in reviewing the EIA reports, when available, particularly as it relates to water quality and water resources. It is recommended that surface and ground water quality monitoring results from nearby both mine sites is continually compared to modeling projections, and that models be adjusted accordingly. While modeling is a useful tool, it is important to ensure that the model predictions are in line with observed concentrations of contaminants.
Response:	Thank you for your review of the Gordon and MacLellan site *Environment Act* Proposals and your comments. The complete EIS has been provided under separate cover to accompany these responses; Chapter 9 is the assessment of potential effects to surface water and includes assessments for both surface water quantity and quality. Below are responses to the concerns you have raised in your information request, in the order they are presented, with specific references to sections of the EIS. The 30% change from existing conditions threshold for determining a significant adverse effect is defined only for potential changes to lake levels and stream flows (i.e., surface water quantity) and not surface water quality. While such a threshold may seem high, potential changes in lake level or stream flow are of no actual relevance to the lake or stream itself. Instead, the significance of potential changes in lake levels or stream flows is relevant to users of the lakes and streams (e.g. for navigation, recreation) and the fish and aquatic resources that rely on these lakes and streams for all of their life stages (e.g., spawning, rearing, overwintering). Therefore, the predicted changes to lake levels and stream flows are carried forward to the assessment of potential effects on fish and fish habitat in Chapter 10 of the EIS. Here, the predicted changes in lake levels and stream flows during mine construction, operation, and closure (at both sites) are assessed quantitatively and qualitatively by comparing the amount and type of habitats, with and without the Project, that would be negatively affected for the different fish species that are present. The reviewer is referred to Section 10.4.1 of Chapter 10 for this analysis and results.

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	Alamos is aware of the new aquatic life guideline for copper introduced by Environment and Climate Change Canada (ECCC). Thank you for this comment. The surface water quality assessment was based on results from water balance and water quality models developed for the Gordon and MacLellan sites. Details of these models are provided in Appendices D and E of EIS Volume 5. These models incorporated baseline stream flow, water quality, groundwater quantity and quality, and local atmospheric data collected between 2015 and 2019. While potential changes in certain water quality parameters are predicted to occur at different locations, at different phases of the mines, including some changes that exceed Manitoba or Canadian water quality guidelines for the protection of aquatic life, the predicted concentrations are not expected to result in acute or chronic toxicological effects to fish or other aquatic biota in lakes or streams downstream of either site. Rationale for this conclusion is provided in Section 10.4.2 of Chapter 10 of the EIS. The reviewer is correct in regards to Alamos's intent to apply for a *Fisheries Act* Authorization for the unavoidable "harmful alteration, disruption, or destruction (HADD) of fish habitat" caused by the Project. However, this application is only for physical alteration or loss of fish habitat and not for adverse effects to fish or aquatic resources due to release of mine effluent. Fisheries and Oceans Canada (DFO) cannot authorize the release of deleterious substances to the receiving environment. However, the *Metal and Diamond Mine Effluent Regulations* (administered by Environment and Climate Change Canada on behalf of DFO) sets "end-of-pipe" effluent limits for certain water quality variables known to be potentially toxic to fish and other aquatic resources. Alamos has designed the Project to comply with conditions of Section 4 of the MDMER: 1) concentrations in mine effluent are not to exceed Schedule 4 effluent limits; 2) the pH of the effluent is >6 but <9.5; and 3) the effluent is not acutely lethal. During permitting, Alamos will work with federal and provincial regulators to define the "mixing zones" downstream of the final discharge locations at both sites. Alamos is committed to surface water monitoring for life-of-mine. Details of the surface water monitoring and managing contact water and end-of-pipe effluent will be developed as part of the Surface Water Monitoring and Management Plan (SWMMP; described in Chapter 23, Section 23.5.5), and the Environmental Effects Monitoring Plan (EEMP; described in Chapter 23, Section 23.5.19) during the permitting phase of the Project once the mine design has been finalized and as the terms and conditions of the permits, authorizations, and licences required to build and operate the Project are available. The EEMP will have the following objectives: 1) verify the accuracy of the effects assessment; 2) determine the effectiveness of measures implemented to mitigate the adverse effects of the Project on surface water quality; and 3) monitor compliance with regulatory approvals, permits and authorizations. These plans will include trigger thresholds for adaptive management if and when a threshold is exceeded at a monitoring site during construction, operation, or closure of the Project. The Adaptive Management Framework is described in Section 23.2 of EIS Chapter 23. Alamos looks forward to working with the Water Quality Management Section of Manitoba Agriculture and Resource Development to develop these plans.
Attachment:	No

RESPONSE TO TAC-GOR-02

ID:	TAC-GOR-02
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch
Background:	2.8 Project Phases 2.8.1 Construction Removal of overburden for the open pit will occur in preparation for mining activities. Suitable overburden and excavated soil will be used on-site during construction with excess stored on-site for future use in active closure activities.
Information Request:	Will overburden also be removed from the mine rock storage area prior to rock placement and stored for future use during reclamation of the mine rock storage area?
Response:	Stripping of overburden prior to placement of mine rock is not proposed as it has been determined by the Project engineers to not be required for geotechnical stability.
Attachment:	No

RESPONSE TO TAC-GOR-03

ID:	TAC-GOR-03
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch
Background:	3.1 Regulatory Engagement Table 3-1 Provincial Government
Information Request:	Manitoba Sustainable Development was separated in 2019 into two departments: 1) Conservation and Climate, and 2) Agriculture and Resource Development. Please include both departments as regulatory authorities in the table.
Response:	Completed. See replacement Table 3-11 of the EIS (Appendix A: under TAC-GOR-03).
Attachment:	Yes

RESPONSE TO TAC-GOR-04

ID:	TAC-GOR-04
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch
Background:	3.2 Stakeholder and Public Engagement
Information Request:	Please include local outfitters and registered trapline holders in the list of stakeholders to engage on the projects.
Response:	Registered trapline holders and local outfitters are also identified as stakeholders in the following excerpt from Chapter 3 of the EIS, which has been provided under separate cover to accompany these responses: "3.4.2 Identification of Potentially Affected and Interested Stakeholders The following is a preliminary list of the types of stakeholders that have been identified as potentially having an interest in or being affected by the Project: business/economic stakeholders (e.g., local businesses, business associations, and industry groups); development corporations; local community members (e.g., residents and property owners); local services (e.g., fire and police departments, hospitals); non-governmental organizations; research/academic organizations; towns/Municipalities; registered trapline holders; and local outfitters."
Attachment:	No

RESPONSE TO TAC-GOR-05

ID:	TAC-GOR-05
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch
Background:	6.6 Vegetation and Wetlands 6.6.2.2 Mitigation Measures Sensitive areas, such as wetlands, will be buffered by 30 m and clearly marked prior to clearing.
Information Request:	Please clarify what types/classes of wetlands will be buffered, and if this only applies to clearing associated with project infrastructure, not overburden stockpiles and mine rock storage areas? Given the size of the project area, disturbance to some wetlands will not be avoidable in the overburden stockpiles and mine rock storage areas.
Response:	Wetland types (e.g., bog, fen) and classes (e.g., treed, shrubby) in the Project Development Area will be identified and marked for avoidance where possible. Clearing will not be conducted within 30 m of identified wetlands where possible and Project infrastructure, overburden and stockpile sites requiring clearing will be sited to maintain a 30 m buffer where possible. Alamos will work with Manitoba Agriculture and Resource Development to determine if appropriate off-sets or financial compensation for unavoidable wetland effects from access roads and crossings are required.
Attachment:	No

RESPONSE TO TAC-GOR-06

ID:	TAC-GOR-06
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch
Background:	6.7 Wildlife and Wildlife Habitat 6.7.2.1 Change to the Environment The increase in traffic due to ore hauling to stockpile sites and the ore processing plant at the MacLellan site during operation will result in a greater potential for wildlife/vehicle collisions and mortality along the access roads and PR 391. 6.7.2.2 Mitigation Measures Implement road safety measures such as speed limits and signage to reduce the chance for wildlife collisions both on-site and between sites.
Information Request:	We appreciate the inclusion of these statements. The Branch is also concerned about increased wildlife mortality resulting from vehicle collisions, specifically within local moose populations. We suggest that vegetation along access roads is cleared and maintained to ensure good line of sight to reduce wildlife collisions. Please further describe mitigation that will be applied from the onset, collision monitoring, and triggers the will require further action. The Wildlife Monitoring and Management Plan should include details on how and when all mortality observations will be reported to the Regional Wildlife Manager.
Response:	The access roads from Provincial Road 391 to both the Gordon and MacLellan sites are expected to be upgraded to safely accommodate Project-related traffic and will continue to be under Alamos' care and control during operation (Chapter 2, Section 2.3). The existing side ditches will be cleared or reconstructed based on a suitable design. Alamos will own and maintain the access roads; maintenance will include vegetation clearing to reduce risks to both road users and wildlife. During the preparation of the EIS, a general level of detail was provided to outline expected Management Plans, including the Wildlife Monitoring and Management Plan (WMMP; EIS Chapter 23, Section 23.5.15). The purpose of the WMMP is to outline the wildlife monitoring program for construction, operation and decommissioning/closure phases to confirm the effectiveness of proposed mitigation measures and verify the EIS conclusions as they relate to wildlife. The WMMP will include a traffic-related wildlife mortality monitoring program that will describe decision triggers, thresholds for action, and reporting process. The WMMP, will be substantively developed based on the final design details and the conditions of Project approval and permitting. Alamos will work with Indigenous communities in the design and implementation of Project follow-up and monitoring programs, including evaluation of program results and subsequent updates to the program. Development of the WMMP will also include liaison with relevant provincial regulators as noted in TAC-GOR-12.
Attachment:	No

RESPONSE TO TAC-GOR-07

ID:	TAC-GOR-07
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch
Background:	6.7.2.2 Mitigation Measures Bird deterrents, if required, to keep migratory birds from using collection pond during construction and operation and/or the open pit during closure. Bird deterrents, if required, to keep migratory birds from using the TMF and contact ponds during construction and operation and/or the open pit during closure.
Information Request:	Please elaborate on the potential negative interactions between the Project collection ponds, contact ponds, and tailings management facility, and Migratory Birds, amphibians and mammals.
Response:	The complete EIS has been provided under separate cover to accompany these responses. The tailings management facility (TMF) and collection ponds that hold mine contact water may interact with wildlife where ingestion and/or absorption of water with elevated concentrations of cyanide or other chemicals of potential concern occurs (EIS Chapter 12, Section 12.4). However, cyanide levels in the TMF will be maintained below guidelines and in adherence to the standard of practice to protect the environment including wildlife (e.g., migratory birds) (International Cyanide Management Code; ICMI 2018). Additionally, contact water will be treated to meet applicable federal and provincial regulatory requirements prior to discharge to the environment, if necessary (Chapter 2, Section 2.8.2.1). As such, wildlife morality risk is not expected to change as a result of Project-related surface water management and health risks to wildlife ecological receptors resulting from exposure to the chemicals of potential concern, including those in on-site surface water, are expected to be negligible to low (Chapter 12, Section 12.4.4). Project activities involving the control and management of surface water will be guided by the Surface Water Monitoring and Management Plan (Chapter 23, Section 23.5.5). Mitigation measures to reduce potential adverse effects to wildlife and wildlife habitat resulting from the TMF and water management ponds include: • Using a closed circuit for cyanide use and cyanide destruction in the processing plant (via Air/SO2 oxidation and precipitation of metals) to reduce cyanide concentrations in tailings slurry prior to release of the slurry for storage in the TMF (EIS Chapter 2, Section 2.3.2.1). • Designing water management facilities to collect and treat (as required) surplus contact water and design for cyanide detoxification (EIS Chapter 9, Section 9.4.2.3). • Maintaining cyanide concentrations below guidelines in the TMF. Project activities will be aligned with the standards of practice set out in the International Cyanide Management Code (EIS Chapter 2, Section 2.2.1). • Managing vegetation around collection ponds and the TMF to deter wildlife and consider additional mitigation measures (e.g., fencing, netting, bird/bat deterrents) if monitoring identifies concerns regarding wildlife use of these areas as per the Wildlife and Tailings Management Facility sub-Plan to the Wildlife Monitoring and Management Plan (EIS Chapter 23, Section 23.5.14).

ID:	TAC-GOR-07
	References ICMI (International Cyanide Management Institute) 2018. International Cyanide Management Code for the Gold Mining Industry. Available at: https://www.cyanidecode.org/about-cyanide-code/cyanide-code. Accessed December 2020.
Attachment:	No

RESPONSE TO TAC-GOR-08

ID:	TAC-GOR-08
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch
Background:	Flag environmentally sensitive areas prior to clearing and construction, and evaluation of the features for additional mitigation measures.
Information Request:	Please further describe mitigation that will be applied to the various sensitive areas when located. The Wildlife Monitoring and Management Plan should include details on surveys to locate sensitive areas prior to clearing and construction, and how and when sensitive areas will be reported to the Regional Wildlife Manager.
Response:	During the preparation of the EIS, a general level of detail was provided to outline expected Management Plans, including the Wildlife Monitoring and Management Plan (WMMP; EIS Chapter 23, Section 23.5.15). The purpose of the WMMP is to outline the wildlife monitoring program for construction, operation and decommissioning/closure phases to confirm the effectiveness of proposed mitigation measures and verify EIS conclusions as they relate to wildlife. This will include detailed information about pre-construction surveys for sensitive wildlife areas or features and procedures for reporting to the Regional Wildlife Manager. The WMMP, will be substantively developed based on the final design details and the conditions of Project approval and permitting. Alamos will work with Indigenous communities in the design and implementation of Project follow-up and monitoring programs, including evaluation of program results and subsequent updates to monitoring programs. Development of the WMMP will also include liaison with relevant provincial and federal regulators. Alamos has committed to adhering to the provincial recommended development setback and timing restriction guidelines for birds (MB CDC 2015). In additional, the WMMP will contain a suite of Project-specific activity restrictions for sensitive wildlife areas or features where provincial guidelines are unavailable. A draft of these restrictions is provided in Table TAC-GOR-08-01 (Appendix A). Other mitigation measures that will be used to reduce Project-related effects to wildlife and wildlife habitat as it relates to sensitive areas or features (Chapter 12, Section 12.4.2.3), include: • Flagging environmentally sensitive areas (e.g., amphibian breeding ponds, dens, roosts, stick nests, hibernacula) prior to clearing and construction, and evaluating the features for additional mitigation measures (e.g., setbacks). • Design for scheduling vegetation clearing and site preparation activities outside the breeding period for migratory birds (Zone C7; May 7 to August 7; ECCC 2019a). If activities that could result in risk of harm cannot be avoided, Alamos will develop and implement a Project-specific Avian Monitoring Plan as a sub-plan within the Wildlife Monitoring and Management Plan (WMMP) that outlines how risk of harm will be managed in accordance with Environment and Climate Change Canada guidance (ECCC 2019b; Chapter 23, Section 23.5.14). This plan would be developed in consultation with Environment and Climate Change Canada. • Scheduling vegetation clearing and site preparation activities to occur outside the boreal caribou calving and calf-rearing period from May 1 to June 30 if boreal caribou are detected within the LAA surrounding the sites (i.e., within 1 km of the Project; see TAC-GOR-09). Retaining actual or potential habitat trees where safe and technically feasible to do so. If removal is required, removal activities will be scheduled, to the extent practical, outside the core maternity roosting season for bats (May 1 to August 31; Fenton and

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	Barclay 1980; Barclay 1982, 1984) and breeding season for birds (Zone C7; May 7 to August 7; ECCC 2019a). If habitat tree removal or general tree clearing is required during the bat maternity roosting period, a qualified biologist will review the trees to make a determination on occupancy before removal. This measure will also reduce the risk to other species that use trees for denning or shelter (e.g., American marten). Reporting the discovery of nests or other animal dwellings (e.g., lodges, dens) to Alamos, with appropriate action or follow-up guided by the Wildlife Monitoring and Management Plan and/or it's sub-plans (Chapter 23, Section 23.5.14). Report to the Wildlife and Fisheries Branch of Agriculture and Resource Development for direction on follow-up actions if necessary. Reducing potential migratory bird mortality by avoiding power distribution line routing near high-risk collision areas (e.g., wetlands), where feasible, and enhancing line visibility, where appropriate (e.g., bird diverters). **References** Barclay, R.M. 1982. Night roosting behavior of the little brown mat, Myotis lucifugus. Journal of Mammalogy 63(3): 464-474. Barclay, R.M. 1984. Observations on the migration, ecology and reproductive behavior of bats at Delta Marsh, Manitoba. Canadian Field-Naturalist 98(3): 331-336. Fenton, M.B., and R.M.R. Barclay. 1980. Myotis lucifugus. 142 Mammalian Species, pp. 1-8. ECCC (Environment and Climate Change Canada). 2019a. General nesting periods of migratory birds. Available at: https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html. Accessed December 2020. ECCC. 2019b. Guidelines to reduce risk to migratory birds. Available at: https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html. Accessed December 2020. MB CDC (Manitoba Conservation Data Centre). 2015. Recommended Development Setback Distances from Birds. Available at: https://www.gov.mb.ca/sd/pubs/conservation-data-centre/mbcdc_bird_setbacks.pdf. Accessed December 2020.
Attachment:	Yes

RESPONSE TO TAC-GOR-09

ID:	TAC-GOR-09
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch
Background:	Design for scheduling vegetation clearing and site preparation activities outside the breeding period for migratory birds.
Information Request:	Vegetation clearing and site preparation activities should also be scheduled outside the boreal caribou calving and calf-rearing period from May 1 to June 30.
Response:	Alamos has committed to mitigation measures that will be used to reduce Project-related effects to wildlife and wildlife habitat, as it relates to sensitive periods for birds and bats, between May 1 and August 31 (Chapter 12, Section,12.4.2.3; see TAC-GOR-08). In addition, Alamos will schedule vegetation clearing and site preparation activities to occur outside the boreal caribou calving and calf-rearing period from May 1 to June 30 if boreal caribou are detected within the LAA surrounding the sites (i.e., within 1 km of the Project).
Attachment:	No

RESPONSE TO TAC-GOR-10

ID:	TAC-GOR-10
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch
Background:	List of Maps
Information Request:	The EAP(s) speak to a Regional Assessment Area. This is not described/illustrated on any of the maps. Please include a map with this area identified.
Response:	Maps showing the Regional Assessment Areas (RAAs) are included in the EIS that was prepared for the Project. The complete EIS has been provided under separate cover to accompany these responses; please refer to the EIS for the requested maps at the end of each VC Chapter (Chapters 6 to 19). The spatial boundaries of the assessment, including Regional Assessment Areas, are specific to each VC and are described in Section X.1.4 of each VC Chapter. A complete list of maps is provided in Volume 1 page xxxii of the EIS.
Attachment:	No

RESPONSE TO TAC-GOR-11

ID:	TAC-GOR-11
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch
Background:	General Comment 1
Information Request:	The Wildlife and Fisheries Branch remains concerned about impacts to regional boreal woodland caribou populations. Surveys conducted by the proponent and Manitoba Agriculture and Resource Development, Wildlife and Fisheries Branch, do not identify the mine sites as currently used by boreal caribou in the winter. Spring calving, summer of fall/rut areas for local boreal caribou are currently unknown. The mine sites are suitable habitat for boreal caribou and on the periphery of known critical winter habitat areas. The proponent to should continue to keep caribou as a species of interest when assessing the potential impacts of all exploration, extraction, and hauling programs in the region.
Response:	As outlined in Chapter 12, Section 12.5.2.2, Alamos has committed to mitigation measures and regional initiatives applicable to limiting cumulative environmental effects on wildlife (including boreal caribou) habitat within the RAA, including: Continuation of the remote camera study in the RAA to monitor large mammal distributions, including boreal caribou. Contribute to the identification and protection of critical habitat as part of existing and future federal and provincial species at risk recovery strategies (i.e., boreal caribou).
Attachment:	No

RESPONSE TO TAC-GOR-12

ID:	TAC-GOR-12
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch
Background:	General Comment 2
Information Request:	The Wildlife and Fisheries Branch looks forward to reviewing the Wildlife Monitoring and Management Plan and Environmental Effects Monitoring Plan, including the Wildlife and Tailings Management Facility sub-plan that is mentioned in Chapter 23 of the Federal EIS submission. These documents should be submitted, reviewed by the Wildlife and Fisheries Branch, and approved by Environmental Approvals Branch prior to commencing project construction.
Response:	Thank you for your comment; these documents will be provided to the Wildlife and Fisheries Branch and Environmental Approvals Branch for review and approval prior to commencing Project construction.
Attachment:	No

RESPONSE TO TAC-GOR-13

ID:	TAC-GOR-13
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch
Background:	General Comment 3
Information Request:	The fisheries assessment touches on the dewatering at the Gordon site, however more information should be provided on potential impacts to wildlife currently using the East and Wendy Pits during the dewatering process. How will any negative impacts be mitigated?
Response:	Dewatering activities will occur in the first year of construction at the Gordon site, with water in East and Wendy pits pumped to Farley Lake over a period of approximately 20 months. As with fish, dewatering of the existing East and Wendy Pits has the potential to increase mortality risk to amphibian species by stranding or by intake into dewatering pumps. However, habitat for amphibians is limited due to the lack of shallow wetland habitat and vegetated wetland margins (i.e., the pits are deep, relatively unproductive waterbodies). These effects are expected to be negligible following implementation of mitigation measures that will be used to reduce Project-related effects to wildlife and wildlife habitat as it relates to the dewatering, including: Using standard management practices for open pit dewatering outlined in the Surface Water Monitoring and Management Plan (Chapter 23, Section 23.5.5). Completing an amphibian rescue(s) and relocation prior to dewatering. Installing screens on dewatering pumps to reduce the risk of amphibian intake. Additionally, once the operation phase has been completed, the new pit will be allowed to gradually fill with water, which will provide habitat opportunities similar to what currently exists at the Gordon site.
Attachment:	No

RESPONSE TO TAC-GOR-14

ID:	TAC-GOR-14
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch
Background:	General Comment 4
Information Request:	The Branch remains concerned about all increases in linear corridors on the landscape within this region. Preference is for any future power infrastructure (transmission and distribution lines) to follow existing roads or RoWs.
Response:	The new 8-km-long 34.5 kV overhead distribution line is required to accommodate the Project; this distribution line will convey electricity from the Copper Street Station in Lynn Lake to the MacLellan site (Chapter 2, Section 2.3.2.3). The distribution line is anticipated to be a combination of standard single pole lines centered on a 20-m right-of-way, and standard H frames with guy wires on a 40-m right-of-way. The alignment of the distribution line has not yet been finalized but it is anticipated that the majority of the line length will be preferentially routed along existing linear disturbances such as existing powerline right-of-ways, trails, cut lines, and the existing MacLellan access road.
Attachment:	No

RESPONSE TO TAC-GOR-15

ID:	TAC-GOR-15
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch
Background:	General Comment 5
Information Request:	It appears that a 30 m buffer will be applied between the open pit area and the Keewatin River. We suggest that this should be increased to limit disturbance within the 99 ft (one and one-half chains) public reserve designated within *The Crown Lands Act*.
Response:	At the closest point, the proposed open pit at the MacLellan site is approximately 53 metres (173 ft) from the Keewatin River. This is expected to provide a sufficient buffer to limit disturbance within the 99 ft (30 m) public reserve designated for a waterbody under *The Crown Lands Act*.
Attachment:	No

RESPONSE TO TAC-GOR-16

ID:	TAC-GOR-16
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch
Background:	General Comment 6
Information Request:	Noise levels related to blasting and haul traffic are not listed. Can these levels be estimated, and if so please include details on levels and potential effects to wildlife.
Response:	The predicted noise level related to haul traffic are presented in EIS Volume 1, Chapter 7, Section 7.4.1.4. The predicted effects (i.e., vibration and overpressure) related to blasting are presented in EIS Volume 1, Chapter 7, Section 7.4.2.4. Further details for the noise and vibration assessment are summarized in the Noise and Vibration Technical Modelling Report in EIS Volume 5, Appendix C. The potential noise and vibration effects to wildlife and wildlife habitat is presented in EIS Volume 2, Chapter 12.4. The complete EIS has been provided under separate cover to accompany these responses.
Attachment:	No

RESPONSE TO TAC-GOR-17

ID:	TAC-GOR-17
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch (Fisheries Section)
Background:	-
Information Request:	Fisheries section (regional and head office) of Wildlife and Fisheries Branch has reviewed this EAP for the Gordon Mine. Many aspects of this operation, be it changes to groundwater and surface water quantity and quality, discharges to the receiving environment, direct alteration to fish bearing waters (e.g. new diversion channel between Gordon and Farley Lakes) will have direct and/or indirect effects on fish and fish habitat during the construction and operation of this facility and potentially in perpetuity following mine closure. As noted in the proposal many of the water bodies within the PDA and certainly LAA provide seasonal and/or year round habitat for small and large bodied fish. From provincial fisheries role as managers of the fish and provincial crown role of "owning" the habitat we would not want to see project effects to water bodies within the PDA which provide direct or indirect habitat for bodies of water downstream from the mine site (e.g. Hughes River, Simpson, Swede, Ellystan, etc.) altered or impacted to the extent in which these water bodies are no longer able to provide for current and historical fishing uses (i.e. recreational, commercial and domestic fisheries). Furthermore as noted in the EAP Lake Sturgeon have been caught in Hughes River. They have also been caught in Hughes Lake. These fish are part of the western Hudson Bay population and are classified as "endangered" by the Committee on the Status of Endangered Wildlife in Canada. Provincial fisheries supports this designation for this population and would want to ensure that Lake Sturgeon are considered when determining mine effects. While in general the description of potential mine effects was quite thorough, the EIS was referenced throughout as providing much of the detail of the assessment effort and results. This document was not available on either the provincial or federal websites. For the review of the EAP, we have attached a Table that highlights areas where we had comments/concerns or further clarification is required. Overall though it does not seem that there is a lot of detail on fish utilization, fish populations within the water bodies within the PDA/LAA nor the degree to which these water bodies / fishes support downstream fish populations to support the proponent's conclusion of "the residual environmental effects on fish and fish habitat are predicted to be not significant". There are changes during the operation of this project which are longer in duration (approximately 6 years), that while reversed upon completion, the original function/role may have been lost/changed during this time, without understanding the implications this may have. Which speaks to the concern that there does not appear to be a fish monitoring plan included during the operation or post closure of the mine to confirm or refute modelling and/or predictions made. While the consultant has worked with Department of Fisheries and Oceans and has indicated a Fish Habitat Offsetting Plan has been submitted, we have not had any discussions with DFO on these projects. As part of DFO's process, should an Authorization be required, DFO will need to consider provincial Fisheries Management Objectives. While we currently do not have anything specific for this region, one of our objectives would be to ensure ongoing fisheries uses are sustained and Lake Sturgeon populations are enhanced where feasible to do so.
Response:	Thank you for your review of the *Environmental Act* Proposal Reports for the Gordon and MacLellan sites and for the comments that you provided in your cover letter. The

ID:	TAC-GOR-17
	complete EIS has been provided under separate cover to accompany these responses; the assessment of potential effects to fish and fish habitat can be found in Chapter 10 of the EIS. Chapter 10 of the EIS includes an analysis of potential changes in lake levels, stream flows, and water quality on fish within the PDAs and LAAs. While loss of fish habitat within the PDAs cannot be completely avoided, the assessment concludes that no significant adverse effects to fish or fish habitat will occur in streams or lakes immediately downstream of the PDA and that no measurable effect on fish living in those waterbodies would occur during any mine phase. These fish and waterbodies include: walleye and lake whitefish in Swede Lake and Ellystan Lake (Gordon site); lake sturgeon in the Hughes River (Gordon site). This assessment was based on results of water balance models that predicted changes in lake levels and stream flows, water quality models that predicted changes in metals, nutrient, and anion concentrations in the downstream receiving environment, and at least two years of baseline data collection in each potentially affected watercourse or waterbody at both sites. These models predicted no measurable change in stream flows or water quality in the Hughes River or in Hughes Lake where a lake sturgeon population is known to exist. Details of the Aquatic Effects Monitoring Plan (AEMP) will be finalized in the permitting phase of the Project. Alamos will engage with Fisheries and Oceans Canada (DFO), Manitoba Wildlife and Fisheries Branch, and local Indigenous groups during development of the AEMP. Alamos anticipates that this plan will include monitoring of stream flows, lake levels, surface water quality, sediment quality, benthic invertebrates, fish tissues, and fish population metrics in a manner consistent with requirements of the *Metal and Diamond Mine Effluent Regulations* (MDMER) and will be statistically robust to allow detection of short-term and long-term project-related effects. Alamos has been in discussions with DFO over the past two years regarding the need for a fish habitat offset plan and paragraph 35(2)(b) *Fisheries Act* Authorization for the Project. These conversations began prior to the 2019 amendments to the *Fisheries Act*, when it was prohibited to cause "serious harm to fish that are part of, or that support, commercial, recreational, or Aboriginal fisheries". Now that this prohibition has been repealed and replaced with the prohibition of causing "the death of fish by means other than fishing" and "harmful alteration, disruption, or destruction (HADD) of fish habitat", DFO has determined that Alamos will require a Fisheries Act authorization before it can construct and operate the Project. To support the environmental assessment process, Alamos has prepared a conceptual offset plan to counterbalance the unavoidable HADD of fish habitat due to construction, operation, and closure of the Project. Offsets in this plan were developed by engaging with members of the Marcel Colomb First Nation and with Don MacDonald (retired fish biologist in Thompson, Manitoba). It is from this engagement that funding of research into the spawning success and juvenile recruitment of lake sturgeon in the Hughes River was included as a complementary measures in the offset plan, a measure that is consistent with Manitoba's Lake Sturgeon Management Strategy of 2012.
Attachment:	No

RESPONSE TO TAC-GOR-18

ID:	TAC-GOR-18
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.4.1.2 (Page 21/116): Preliminary sampling results indicate that mine rock (618,100 m^2) from the Gordon site contains potentially acid generating (PAG) materials and shows a leaching potential for arsenic and other trace elements (see EIS Chapter 5, Section 5.2.6). Blending of PAG and non-PAG material and/or dry and/or wet covers will be used to control ARD/ML from mine rock. By contrast, ore stockpiles (33,800 m^2) are not expected to generate ARD and have moderate leaching potentials for aluminum, fluoride, sliver, and copper. Seepage/runoff collection ditches will be constructed around the perimeter of each stockpile/ storage area and directed to a series of sumps and/or small ponds at topographic lows. Water collected in the sumps and/or small ponds will be pumped to a site water management pond for management and/or treatment (if required) prior to discharge (see Map 2-1).
Information Request:	The MacLellan proposal provides a percentage of PAG. Will that be determined for this site?
Response:	As stated in Section 4.6.2 of Geochemistry Baseline Technical Data Report / Validation Report (Appendix F of EIS Volume 4), mine rock from Gordon pit will consist of approximately 78% non-PAG, 14% PAG, and 9% Uncertain material. Compared to mine rock, ore will contain lower percentages of non-PAG (66%), and more Uncertain (15%) and PAG (19%) materials. The complete EIS has been provided under separate cover to accompany these responses.
Attachment:	No

RESPONSE TO TAC-GOR-19

ID:	TAC-GOR-19
Department:	Agriculture and Resource Development – Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.4.2.1 (Page 22/116): Raw water at the Gordon site is required for dust and fire suppression, safety showers, and for the truck shop and truck wash. Normal freshwater requirements are expected to be 10 m^3/hour. Freshwater will be pumped from Farley Lake to a pumphouse located on the south shore of Farley Lake, and then to a freshwater tank located at the Gordon site. The suction pipe will be buried and heat-traced to prevent freezing (Ausenco 2019).
Information Request:	Can the pipe to Farley Lake not be directional drilled?
Response:	The construction methodology for the freshwater pipe to Farley Lake will be determined during detailed design. While not planned at this time, it may technically feasible to install this pipe using Horizontal Directional Drilling (HDD). However, this method is not typically used for pipeline intakes/outfalls to waterbodies, as there is potential for a release of drilling fluid at the exit point of the drill within the waterbody. The final construction methodology will be determined based on technical and economic feasibility, schedule and equipment requirements, and in consideration of the effectiveness of mitigation measures to reduce potential effects to the surrounding environment, including Farley Lake.
Attachment:	No

RESPONSE TO TAC-GOR-20

ID:	TAC-GOR-20
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.4.2.8 (Page 23/116): As part of the proposed development at the Gordon site, the existing, previously constructed diversion channel flowing from Gordon Lake to Farley Lake will require adjustment to the north (see Map 2-1). The channel will be designed to safely pass a 1 in 100-year return period storm and will take long-term fish passage and habitat between Gordon and Farley lakes through a tributary into consideration.
Information Request:	The existing man-made channel provides fish passage. Is the ability for passage a consideration or an intended outcome for this new channel?
Response:	Yes. The new diversion channel has been designed to allow fish passage between Gordon and Farley lakes during and after mining at the Gordon site. The conceptual design includes a "low flow channel" in the middle of the channel to consolidate flow and promote fish passage during low flow periods. Unlike the existing channel, the conceptual design for the new channel also includes fish habitat enhancement features to increase the suitability of the channel for the fish species present in Gordon and Farley lakes (e.g., brook stickleback, northern pike, white sucker). Refer to the "Diversion Channel Isolation and Dewatering" subsection under Section 10.4.1.4 of the EIS for a description of the conceptual design of the new diversion channel between Gordon and Farley lakes. The complete EIS has been provided under separate cover to accompany these responses.
Attachment:	No

RESPONSE TO TAC-GOR-21

ID:	TAC-GOR-21
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.4.2.8 (Page 23/116): A series of groundwater interceptor wells located between the ultimate footprint of the open pit and Gordon and Farley lakes will be used to mitigate a reduction in groundwater discharge to Gordon and Farley lakes as a result of open pit dewatering during mine operations and pit filling during mine closure. At this time, the interceptor wells are anticipated to be sited approximately 40 m from the boundary of the ultimate open pit limit. Groundwater extracted from the interceptor wells (originating from the adjacent lakes) will be pumped to a water management pond prior to being recirculated to Gordon and/or Farley lakes.
Information Request:	Where will the heat exchangers referenced later in the proposal be installed?
Response:	The need for and location of heat exchangers will be determined during detailed design of the Project.
Attachment:	No

RESPONSE TO TAC-GOR-22

ID:	TAC-GOR-22
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.4.2.8 (Page 23/116): Alamos will request a paragraph 34.4(2)(b) and 35(2)(b) *Fisheries Act* authorization from Fisheries and Oceans Canada (DFO) for the HADD of fish habitat that may occur as a result of Project activities, including in the existing diversion channel at the Gordon site. Any *Fisheries Act* authorization will not be issued by DFO until after the Impact Assessment Agency of Canada (formerly Canadian Environmental Assessment Agency) decision on the Project.
Information Request:	DFO will need to consider provincial Fisheries Management Objectives.
Response:	Subsection 34.1(1) of the *Fisheries Act* sets out the factors that the Minister of Fisheries and Oceans Canada (DFO) must consider when exercising his or her authority under the fish and fish habitat protection provisions of the *Fisheries Act*. One of these factors is consideration of Fisheries Management Objectives. For this reason, Alamos assumes that DFO will take provincial Fisheries Management Objectives into account when reviewing Alamos's fish habitat offset plan and its *Fisheries Act* Authorization application. To date, DFO has supported the inclusion of funding of lake sturgeon research and assessment on the Hughes River as a complementary measure in Alamos's conceptual fish habitat offset plan. This offset opportunity was identified during conversations with Mr. Don MacDonald (Manitoba Fisheries Branch retired, Thompson, Manitoba) and is consistent with one of the objectives of the *Manitoba Lake Sturgeon Management Strategy* (CWSFB 2012) to restore the lake sturgeon population in the Upper Churchill River. Alamos also considered provincial Fisheries Management Objectives while preparing the EIS; refer to Section 10.1.2.4 of the EIS. The overarching mandate of the Manitoba Fisheries Branch is to "ensure sustainable use of the fisheries resource" (MSD 2019), with specific goals including "No Net Loss" of fish habitat quality and maintenance of an adequate supply of fish for Indigenous peoples to fish for food (MSD 2017). However, no specific Fisheries Management Objectives were identified for the Lynn Lake area. The *Manitoba Lake Sturgeon Management Strategy--2012* (CWSFB 2012) includes discussion of lake sturgeon populations in the Lynn Lake area and was considered during preparation of the EIS; refer to Section 10.1.1.2 of the EIS. The complete EIS has been provided under separate cover to accompany these responses. **References** CWSFB (Conservation and Water Stewardship Fisheries Branch). 2012. Lake Sturgeon Management Strategy 2012.Cooper, G.P. and G.N. Washburn. 1949. Relation of dissolved oxygen to winter mortality of fish in Michigan lakes. Transactions of the American Fisheries Society. 76:23-33. MSD (Manitoba Sustainable Development). 2017. Waterhen Lake Fisheries Management Plan. Wildlife & Fisheries Branch Report 2017-01 by Geoff Klein & William Galbraith, Conservation & Water Stewardship. MSD. 2019. Website accessed October 29, 2019 at https://www.manitoba.ca/sd/fish_and_wildlife/fish/index.html.
Attachment:	No

Response to TAC-GOR-23

ID:	TAC-GOR-23
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.4.3.1 (Page 24/116): Sewage will be conveyed by gravity to two septic tanks at the truck shop and administration building. It will then be trucked to MacLellan for processing at a 60 m^3/day sewage treatment plant.
Information Request:	Was this effluent accounted for in the MacLellan proposal?
Response:	Thank you for your review of the Gordon and MacLellan site *Environment Act* Proposals and your comments. The complete Environmental Impact Statement (EIS) document is provided with these responses; Chapter 9 is the assessment of potential effects to surface water and includes assessments for both surface water quantity and quality. As described in EIS Chapter 9, Section 9.4.2.2, the water quality model for the MacLellan site did not incorporate discharges from the sewage treatment plant. This is because design details had not been finalized at the time of model development. Consequently, discharges from the MacLellan sewage treatment plant were not quantitatively assessed for the characterization of residual or cumulative effects in the surface water assessment. Instead, the assessment assumed that the sewage treatment plant will be designed to treat effluent such that it meets federal and provincial effluent quality criteria. As described in the mitigation section in EIS Chapter 9, Section 9.4.2.3, sewage treatment will include treating domestic waste in an average 60,000 L/day sewage treatment plant so that it meets the *Wastewater Systems Effluent Regulations* under the *Fisheries Act* prior to discharge to the Keewatin River via a pipeline and diffuser.
Attachment:	No

RESPONSE TO TAC-GOR-24

ID:	TAC-GOR-24
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.7 (Page 26/116): Decommissioning/active closure is scheduled to begin in Year 6 at the Gordon site, and is expected to take approximately five to six years to complete. Active closure can be described as the anticipated rehabilitation efforts that will be completed at the Gordon site. Active closure will be followed by approximately 10 years of post-closure, which is the time period during which active reclamation measures are complete, but monitoring is still required. Pit filling is expected to take 11 years at the Gordon site under average conditions. Permanent closure will occur when the site is stable, and monitoring is no longer required.
Information Request:	How long is the proponent responsible for monitoring? Until permanent closure?
Response:	The complete EIS has been provided under separate cover to accompany these responses. As described in the Conceptual Closure Plan (EIS Chapter 23, Appendix 23B), monitoring will continue through Active Closure and Post-Closure while water quality is not of sufficient quality to allow unabated discharge to the environment. Permanent Closure will be considered to be complete when surface water quality is within the pertinent guidelines and discharge will be allowed. Monitoring will cease at this point. A detailed Closure Plan will be developed that conforms with the *Mine Closure Regulation* under the *Mines and Minerals Act* and will describe specific closure criteria. The detailed Closure Plan will be developed once the detailed design process progresses and will be submitted prior to the commencement of advanced exploration and mining operations.
Attachment:	No

RESPONSE TO TAC-GOR-25

ID:	TAC-GOR-25
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.8.1 (Page 26/116): Any watercourse re-alignment works that may be required at the Gordon site will be initiated early.
Information Request:	Is this referring to the new channel being built between Gordon and Farley, and potentially upgrades to the water course crossing, or are there others?
Response:	The reference to any watercourse realignment work is to the construction of a new diversion channel between Gordon and Farley lakes. No realignment work is required at the watercourse crossing along the Gordon site access road.
Attachment:	No

RESPONSE TO TAC-GOR-26

ID:	TAC-GOR-26
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.8.2 (Page 26/116): The amount and frequency of blasting and drilling required during the operation phase of the Project will be determined during detailed mine engineering. Blasting is anticipated to occur approximately two to three times per week, or approximately every third day, on average. Blasting is anticipated to be scheduled to coincide with shift change (i.e., approximately 7:00 pm).
Information Request:	Comment on blasting/drilling provided further down.
Response:	Thank you for this comment. Response to this comment is provided where it appears further down.
Attachment:	No

RESPONSE TO TAC-GOR-27

ID:	TAC-GOR-27
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.8.3 (Page 26/116): A Conceptual Closure Plan has been developed
Information Request:	This was submitted through the federal EIS but not to MB? Does it differ in the amount of detail provided in this summary?
Response:	The complete Conceptual Closure Plan was submitted as part of the Federal Environmental Impact Statement (EIS Chapter 23, Appendix 23B). The complete EIS has been provided under separate cover to accompany these responses.
Attachment:	No

RESPONSE TO TAC-GOR-28

ID:	TAC-GOR-28
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.8.3 (Page 26/116): Reclamation of MRSAs with suitable covers as needed, revegetation, and establishment of stable drainage conditions.
Information Request:	Any consideration to dump the PAG rock into the open pit at closure?
Response:	The placement of PAG rock in the open pit under water cover is a known method to reduce sulfide oxidation and risk of acid rock drainage / metal leaching (ARD/ML). This option was considered, but currently found less attractive because it would require rehandling of potentially acid-generating (PAG) rock and additional storage for PAG rock during operation, which will increase the environmental footprint of the mine. The proposed reclamation approach (dry covers) was previously applied to historical waste rock dumps at the Gordon site. After 20 years since the reclamation, no ARD signs were observed in runoff and seepage from the dumps indicating for successful management of PAG rock during historical operation and closure.
Attachment:	No

RESPONSE TO TAC-GOR-29

ID:	TAC-GOR-29
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.9.2. (Page 30/116): Re: contact water, collected water will be pumped to the water management pond. The water management pond has been sized in consideration of the retention time for the settling of suspended solids. Identification of the discharge locations for the Gordon site will be confirmed during detailed engineering. Discharge from the site water management pond is anticipated to be to Farley Lake at the Gordon site.
Information Request:	Will there be multiple discharge locations or just the one from the water management pond?
Response:	Contact water will be routed to the water management pond and discharged into Farley Lake from there. Water from the interceptor wells will either be discharged directly to Gordon and Farley lakes or to the water management pond.
Attachment:	No

RESPONSE TO TAC-GOR-30

ID:	TAC-GOR-30
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 2.9.2. (Page 30/116): Re: non-contact water, where practical, collection ditches will be constructed to divert non-contact water around Project facilities to natural drainages. Consideration will be given to designing the channels to support fish habitat, where appropriate and practical. It will be determined during development of the Closure Plan whether the channels will remain or be re-configured following decommissioning/closure of the mine.
Information Request:	When in the process is this consideration made?
Response:	Golder has provided design sizes and peak flows for the following non-contact water diversions: • Realignment of the existing diversion channel from Gordon Lake to Farley Lake (Gordon site) • Temporary diversion channels at the MacLellan site mine rock storage area to reduce the amount of contact water during construction. There are other opportunities to consider non-contact water diversion trenches around infrastructure at both sites. These opportunities will be considered during detailed design. It is currently proposed to divert contact water to the pits at Closure at both sites, as outlined in the Conceptual Closure Plan. Trenches to divert non-contact water from mixing with this contact water will be considered as the final Closure Plan is developed.
Attachment:	No

RESPONSE TO TAC-GOR-31

ID:	TAC-GOR-31
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.3.2.3 (Page 44/116): The residual effects from the initial dewatering of the historical Wendy and East pits will be most notable during the construction and operation phases. The predicted change in the groundwater table and resulting drawdown at the end of the construction period in the area of the Wendy and East pits, is a reduction of approximately 1.0 m or more within 800 m of the pits. With respect to groundwater discharge to surface water, discharge to Marie Lake is predicted to be 227 m^3/day less at the end of construction compared to baseline conditions. Farley and Gordon lakes are also predicted to change from receiving groundwater to become groundwater recharge features at the end of construction. The loss of groundwater discharge to Farley and Gordon lakes will be mitigated by the return of pumped water from the groundwater interceptor wells. Changes to the groundwater discharge rates for remaining lakes and watercourses are expected to be relatively small (generally less than 86 m^3/d) compared to baseline conditions.
Information Request:	Although the loss of groundwater discharge is going to be mitigated by returning pumped water from the gw interceptor wells, what is the loss of groundwater discharge to Farley and Gordon Lakes predicted to be? What are the implications of the decrease in groundwater discharge to surface water at Marie lake to fish? The ability of small bodied fish to overwinter?
Response:	The complete EIS has been provided under separate cover to accompany these responses. Table 8-6 and Table 8-7 of the EIS provide a comparison of estimated groundwater discharge to watercourses and lakes near the open pit under dewatered and baseline conditions for the Gordon site. At the end of construction, Gordon and Farley lakes are predicted to be groundwater recharge features with groundwater recharge at rates of 463 m^3/day and 636 m^3/day, respectively. Gordon and Farley lakes are predicted to continue to be groundwater recharge features into operation, with groundwater recharge at rates of 906 m^3/day and 1,248 m^3/day, respectively. This is in contrast to baseline conditions where groundwater is predicted to flow into Gordon and Farley lakes (groundwater discharge) at rates of 50 m^3/day and 208 m^3/day, respectively. The reduction in groundwater discharge to Gordon and Farley lakes will be mitigated by returning at least a portion of the water pumped from the interceptor wells to the lakes. Once the pit lake has formed at the end of closure, groundwater is predicted to again flow into Gordon and Farley lakes for perpetuity at near baseline flow rates of 37 m^3/day and 238 m^3/day, respectively (see Table 8-8). The predicted decrease in groundwater flow to Marie Lake during construction and operation phases of the Project are not predicted to result in adverse effects on fish or fish habitat in Marie Lake. This assessment is based on the following evidence. First, surface water inflows to Marie Lake will not be affected by the Project; there will be no Project infrastructure located in the Marie Lake watershed that would alter run-off volumes reporting to the lake or altering watershed permeability. Although it is currently not possible to determine the relative contribution of groundwater inflow compared to surface water inflow in Marie Lake, based on data from Gordon Lake and Farley Lake, it is likely that surface water inflows to Marie Lake are much larger than groundwater inflows. This uncertainty will be managed by monitoring groundwater and surface water in and around Marie Lake prior to construction. This monitoring will continue through

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	operations and closure phases of the Project. Thresholds will be developed for groundwater and surface water metrics (e.g., lake level, outlet flow) that will trigger adaptive management, including implementation of additional mitigation, if necessary, should these thresholds be exceeded. As a result, potential changes in lake levels in Marie Lake are expected to be small with monitoring and adaptive management available to maintain lake levels within the range of natural variability. Second, Marie Lake is the deepest (maximum depth of 14 m and average depth of 4.5 m) naturally-occurring lake in the Gordon site LAA with the smallest littoral habitat area (39% of total surface area) of any lake in the LAA. This means that Marie Lake has the steepest shoreline and, as a result, potential changes in water levels in Marie Lake due to reduced groundwater inflows will have a smaller effect on littoral habitat quantity and depths than in other lakes potentially affected by changes in groundwater inflows in the Gordon LAA. Third, groundwater is generally low in dissolved oxygen. Therefore, a reduction in groundwater inflow, even in winter, is unlikely to affect the volume of oxygenated water in Marie Lake under the ice. Finally, Marie Lake is known to support populations of northern pike and brook sticklebacks. Both species are tolerant of low dissolved oxygen concentrations and, therefore, it is expected that fish in both populations will be able to continue to find suitable overwintering habitat in Marie Lake.
Attachment:	No

RESPONSE TO TAC-GOR-32

ID:	TAC-GOR-32
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.3.2.3 (Page 44/116): During operation, dewatering of the open pit will lower the water table by up to 1 m that extends approximately 1,200 m from the open pit, increasing to more than 10 m within 600 m of the open pit. Groundwater drawdown of greater than 10 m are predicted to occur beneath a small portion of wetlands located north to northwest of the open pit and PDA at the Gordon site. Changes in groundwater flow and discharge to surface water features due to dewatering are predicted for Gordon, Farley, and Marie lakes where the lakes will shift from receiving groundwater under baseline conditions to become groundwater recharge features at the end of the operation phase. For Marie Lake, a reduction in groundwater levels of up to 1 m to the north of the lake compared to baseline condition is predicted, resulting in a reduction in groundwater discharge to the lake by 246 m^3/d compared to baseline conditions.
Information Request:	Do the wetlands where gw drawdown of more than 10 m is predicted to occur provide seasonal habitat for small and large bodied fish? During the operation phase how much more of a decrease is predicted in the gw discharge to Farley and Gordon Lakes.
Response:	The complete EIS has been provided under separate cover to accompany these responses. The 10-m groundwater drawdown area intersects with the pit-side margins of Gordon and Farley lakes and with the existing diversion channel (Maps 8-17 and 8-18 in Chapter 8 of the EIS). Within this area, three types of wetlands are present (Map 11-3a in Chapter 11 of the EIS): 1) shrubby fen wetland borders parts of the diversion channel, including areas outside of the new diversion channel, and part of the western margin of Farley Lake; 2) treed swamp wetland borders the north side of the existing diversion channel near its confluence with Farley Lake; and 3) shrubby swamp wetland borders the downstream end of the existing diversion channel. No wetland habitat exists along the margins of Gordon Lake within the 10-m groundwater drawdown area. These wetlands are not expected to be fish-bearing, particularly the fen wetlands which do not contain open-water. These wetlands would contain little water in mid-summer and would be frozen to the bottom in winter. At the end of construction, after the existing open pits are dewatered, groundwater discharge to Gordon and Farley lakes are predicted to switch from "groundwater receiving" waterbodies to "groundwater contributing" waterbodies. Flow from Gordon Lake to groundwater is predicted to be 463 m^3/day at the end of construction, increasing to 906 m^3/day at the end of operation (Section 8.4.2.3 of Chapter 8 of the EIS). Flow from Farley Lake to groundwater is predicted to be 636 m^3/day at the end of construction, increasing to 1,248 m^3/day at the end of operation.
Attachment:	No

RESPONSE TO TAC-GOR-33

ID:	TAC-GOR-33
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.3.2.3 (Page 45/116): During dewatering of the historical pits and open pit, treatment will be implemented, if required, to meet regulatory discharge criteria prior to discharge to the environment. During construction, recharge originating from the historical MRSAs are predicted to be redirected from surface water receivers to the open pit. During operation and closure, groundwater recharge from the MRSA is predicted to be elevated above the drinking water guidelines for nitrate+nitrite, total cyanide, sulphate, aluminum, antimony, arsenic, manganese, sodium, and/or uranium. The predicted groundwater flow pathway of seepage from the MRSA is mainly confined to the PDA with a small portion extending into the LAA until the seepage originating from the MRSA discharges to surface water. The main surface water receivers of seepage from the MRSA at the Gordon site are Gordon Lake, Farley Lake, and Susan Lake. With mitigation and environmental protection measures, the residual environmental effects on groundwater quantity and quality are predicted to be not significant.
Information Request:	Given surface waters will receive seepage, are these predicted elevations seen when looking at Manitoba's SWQO's for Aquatic Life?
Response:	The complete EIS has been provided under separate cover to accompany these responses; Chapter 9 is the assessment of potential effects to surface water and includes assessments for both surface water quantity and quality. Chapter 9 of the EIS describes predicted water quality in the aquatic receiving environment at the Gordon and MacLellan sites. Water quality predictions in the EIS were screened against the federal CCME water quality guidelines for the protection of aquatic life as well as the most stringent of the Tier I, II, and III *Manitoba Water Quality Standards, Objectives, and Guidelines* for the protection of freshwater aquatic life (MWQSOG-FAL; MWS 2011). This was done to identify parameters of potential concern (POPCs). Each POPC was then assessed for its potential to adversely affect fish and other aquatic biota in Section 10.4.2 of Chapter 10 (Assessment of Potential Effects on Fish and Fish Habitat). In addition, water quality predictions were also compared to the MWQSOG drinking water quality guidelines. **Reference** Manitoba Water Stewardship (MWS) 2011. *Manitoba Water Quality Standards, Objectives, and Guidelines*. Report 2011-01, 72 pp. Water Science and Management Branch, Manitoba Water Stewardship, Winnipeg, MB.
Attachment:	No

RESPONSE TO TAC-GOR-34

ID:	TAC-GOR-34
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.4.1. (Page 45/116): Surface Water_Water in the Wendy Pit and East Pit have elevated concentrations of some general parameters relative to background levels, are deep (>70 m), and chemically stratify year-round, suggesting that metal leaching from the exposed pit walls has affected water quality in the pits.
Information Request:	What parameters are elevated?
Response:	The complete EIS has been provided under separate cover to accompany these responses. As described in the baseline Technical Date Report (EIS Volume 4, Appendix I), surface water in the Wendy Pit (AQF4) and East Pit (AQF6) had elevated concentrations of sulphate, alkalinity, total arsenic, and total copper when compared to the surface waters of lakes and streams in the LAA. Baseline water quality samples collected between May 2017 and October 2018 were compared with the *Canadian Water Quality Guidelines* (CWQG-FAL) for the protection of aquatic life (short- and long-term; CCME 2019) and the *Manitoba Standards, Objectives, and Guidelines* (MWQSOG-FAL) for the protection of freshwater aquatic life (MWS 2011). Water quality parameters that exceeded these federal and provincial WQGs in Wendy and East Pits included total aluminum, total arsenic, total copper (East Pit only), dissolved manganese, and fluoride. Total arsenic concentrations exceeded the WQGs at depths below 10 m in Wendy Pit (AQF4) and at depths below 20 m in East Pit (AQF6).
Attachment:	No

RESPONSE TO TAC-GOR-35

ID:	TAC-GOR-35
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.4.1. (Page 46/116): General flow direction in the Gordon LAA is north to south from Gordon Lake towards Ellystan Lake. Within the LAA, water flows from Gordon Lake to Farley Lake through a constructed diversion channel, from Farley Lake to Swede Lake through an approximately 4 km long, beaver dam impounded stream, and from Swede Lake to Ellystan Lake. Baseline water quality guideline exceedances in the Gordon site LAA include nitrite, fluoride, total phosphorus, total aluminum, total arsenic, total hexavalent chromium, total copper, total iron, and total zinc. At the Gordon site, flows from the interceptor wells will affect downstream surface water flows in hydraulically connected water bodies by changing historical discharge patterns. Contact water at the site will be gravity-drained towards collection sumps and pumped to the collection pond, changing local drainage patterns, and affecting the quantity and timing of flows in downstream waterbodies. During operation, changes to water quality at the Gordon site may result from discharge of groundwater pumped from the groundwater interceptor wells to Gordon and West Farley Lakes and discharge of contact water from the collection pond to West Farley Lake.
Information Request:	In what way is the quantity and timing of flows in downstream water bodies affected by the discharge of the contact water? On maps provided only Farley Lake is identified. Is West Farley referencing the larger area of the lake closest to the mine?
Response:	The discharge of contact water can result in an increase in streamflow or lake levels in the downstream waterbodies. For the most part this increased discharge will typically follow seasonal streamflow patterns as the monthly distribution of streamflow is controlled by climate driven processes. The pumping of groundwater may result in some unseasonal increase in flows during shoulder seasons. Yes, as indicated in Map 2-2, the portion of Farley Lake located nearest to the proposed Project is referred to as West Farley Lake. The portion of the lake further to the east and separated from West Farley Lake by a narrow portion of the lake is referred to as East Farley Lake.
Attachment:	No

RESPONSE TO TAC-GOR-36

ID:	TAC-GOR-36
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.4.2.2 (Page 47/116): Designing contact water collection ditches to convey the 1:25-year storm event and with positive gradients to limit standing water and maintain positive flow. Designing contact-water collection ponds with active water storage that considers ice thickness during winter.
Information Request:	Is 1:25 year storm event enough given unprecedented storm events. What are the collection ponds being designed to?
Response:	Ditches have been sized based on two criteria: 1. For the 25 year storm event – This is a high intensity event. Runoff from higher than average precipitation periods may have higher volumes, but the critical criteria here is the peak flow rate. In the event that a high intensity event larger than the 25-year storm event occurs, the design includes a minimum freeboard of 0.3 m. 2. Seepage capture requirements – Based on seepage modelling, certain flow directions had seepage from facilities at deeper depths than the required to contain the design storm event. To promote seepage capture over the entire site, the ditch depths range from 1 m to 2 m. Due to the freeboard and seepage capture requirements, the ditches are able to handle larger events without overtopping. Based on this additional capacity, the ditches can contain flows in excess of the 100yr storm event. The higher velocities of runoff from storm events above the design storm could result in some erosion; remediation of ditches could be required in those cases. The sumps are similarly sized. Final designs for the collection ponds will be provided during detailed engineering but are anticipated to be sized based on standard engineering criteria and take into account the potential for extreme weather events.
Attachment:	No

RESPONSE TO TAC-GOR-37

ID:	TAC-GOR-37
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.4.2.2 (Page 47/116): Aerating East and Wendy pits to encourage precipitation of elements that form oxides (e.g., iron oxide) and to break down thermal stratification prior to dewatering. Aerating groundwater from groundwater interceptor wells to encourage precipitation of elements that form oxides (e.g., iron oxide) and to increase dissolved oxygen concentrations prior to discharge to Gordon and Farley lakes.
Information Request:	Mentioned elsewhere but again what type of water quality monitoring is proposed of the pit water and gw from interceptor wells.
Response:	The final type and frequency of water quality monitoring will be determined by implementation of a Surface Water Quality Monitoring and Management Plan (SWMMP; outlined in Section 23.5.5 of the EIS) and Environmental Effects Monitoring Plan (EEMP; outlined in Section 23.5.19 of the EIS). The final EEMP will identify the sampling locations, the frequency and duration of sampling, the sampling methods, and the list of parameters to be analyzed in the field and in the laboratory. The complete EIS has been provided under separate cover to accompany these responses.
Attachment:	No

RESPONSE TO TAC-GOR-38

ID:	TAC-GOR-38
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.4.2.3 (Page 48/116): At the Gordon site, the mean annual flows at inlets to Gordon Lake and Farley Lake are predicted to decrease by 29% and 27%, respectively, due to changes in catchment areas and runoff due to the Project infrastructure. These changes persist throughout future mine phases into post-closure.
Information Request:	Are the decreases in MAF at the inlets to Gordon and Farley lakes going to have implications for fish that access the outlet for spawning/nursery habitat? Will the outlet still be accessible with these predicted decreases and under low flow years?
Response:	The predicted 29% decrease in mean annual flow (MAF) is for the southern tributary (QF01) of Gordon Lake, one of three headwater tributaries to Gordon Lake. This tributary is small with a MAF of 0.007 m^3/sec under pre-mine baseline conditions. Therefore, the predicted 29% reduction in MAF in this tributary amounts to only 0.002 m^3/sec. This tributary represents only 35% of the Gordon Lake watershed. Reduced flow in this tributary, combined with alteration of the groundwater table during pit development, is predicted to decrease water levels in Gordon Lake <4 cm in all months during post-closure. This is small enough to be within the error of the model and the natural variability of water levels in the lake, particularly given the temporary nature of the beaver dams in the Gordon Lake outlet that currently control Gordon Lake water levels. The new diversion channel at the Gordon Lake outlet has been designed to convey the 1:100 year wet flood event around the open pit and to account for the predicted water levels in Gordon Lake in average and low-flow years during operation, closure, and post-closure phases. The new channel also includes a low flow channel to concentrate flow and promote fish passage between Gordon and Farley lakes during summer and fall. However, it is expected that beavers will recolonize the new diversion channel once mining is concluded and that the dams they build will again become the greatest impediment to fish passage between the two lakes. The predicted 27% decrease in MAF is for the southwestern tributary (QF02) of Farley Lake, one of the five headwater tributaries to Farley Lake. This tributary is small with a MAF of 0.007 m^3/sec under pre-mine baseline conditions. Therefore, the predicted 27% reduction in MAF in this tributary amounts to only 0.002 m^3/sec. This tributary represents only 8% of the Farley Lake watershed. Reduced flow in this tributary, combined with alteration of the groundwater table during pit development, is predicted to decrease water levels in Farley Lake <2 cm during closure when the pit is refilling with water. During post-closure when the open pit drains to Farley Lake, water levels will increase or decrease seasonally by no more 3 cm. Again, this predicted change is within the error of the model and the natural variability of water levels in the lake. An approximately 1 m high beaver dam at the outlet currently control water levels in Farley Lake. This dam represents an impediment, but not a barrier to upstream and downstream fish passage into and out of Farley Lake. It is likely that beavers will re-establish this dam at the outlet of Farley Lake at the conclusion of mining.
Attachment:	No

RESPONSE TO TAC-GOR-39

ID:	TAC-GOR-39
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.4.2.3 (Page 48/116): During construction at the Gordon site, the mean annual flow at the outlet of Gordon Lake (QF03) is predicted to increase by 7% and is primarily due to the addition of pumped flows from the interceptor wells. Farley Creek (QF05) is anticipated to experience an increase in mean annual flows of 66% due to the addition of dewatering flows from the pits. Conditions downstream of Farley Lake are anticipated to experience similar monthly patterns, but reduced or attenuated effects due to the larger waterbodies with higher flows. During operation, mean annual flow in Farley Creek is anticipated to increase 43%, with similar reduced/attenuated flows downstream of the PDA. During decommissioning and active closure, mean annual flow is anticipated to decrease by 6% and during post-closure by 8%.
Information Request:	Can Farley Creek channel accommodate a 66% increase in MAF? Will the increased flow be conducive for supporting the fish species (along with their associated life stages) that utilize this creek now?
Response:	Based on the geomorphology of the channel, which includes multiple beaver dams, the predicted increase in flows is anticipated to be accommodated by the existing channel. A 1-D HEC-RAS hydraulic model of a representative reach of Farley Creek is currently being developed to predict potential changes to typical water depths and velocities due to the predicted changes in flow in Farley Creek in the different mine phases. The predicted changes in channel hydraulics will be used to assess potential changes in habitat suitability for resident fish species in the modelled reach of Farley Creek. A stand-alone technical report will be available in January 2021 that describes the methods, inputs, and assumptions of the model, summarizes model results, and provides an assessment of the predicted changes in channel hydraulics on fish and fish habitat in Farley Creek.
Attachment:	No

RESPONSE TO TAC-GOR-40

ID:	TAC-GOR-40
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.4.2.3 (Page 48/116): Ice regime at the Gordon site is likely to be affected within (and downstream of) Farley Lake due to the additional flows from the dewatering of the pits and the interceptor wells during the construction phase. These additional flows are anticipated to have temperatures that vary from the historical baseline surface water temperatures. At the Gordon site, fluoride and phosphorus were identified as POPCs because concentrations are predicted to exceed modelled baseline by more than 20% and applicable long- term water quality guidelines in modelled waterbodies. For the Gordon site, Project residual effects associated with the identification POPCs are predicted to be limited to the LAA and in West Farley Lake (for phosphorus) and Gordon Lake, West Farley Lake, East Farley Lake, and Swede Lake (for fluoride).
Information Request:	The values/evaluation seems to differ from the residual effects comments provided in the fish and fish habitat section re: fluoride and phosphorus. Why?
Response:	The predicted concentrations (including maximum values) of water quality parameters provided in Section 6.4.2.3 of the *Environmental Act* Proposal Report are the same as those used to assess potential lethal or sub-lethal effects to fish and other aquatic resources provided in Section 6.5.2.3 of the *Environment Act* Proposal Report. A more detailed assessment of potential effects to surface water quality is provided in Chapter 9 of the EIS. A more detailed assessment of potential effects to fish and other aquatic resources, including potential effects of changes in surface water quality, is provided in Chapter 10 of the EIS. The complete EIS has been provided under separate cover to accompany these responses.
Attachment:	No

RESPONSE TO TAC-GOR-41

ID:	TAC-GOR-41
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.4.2.3 (Page 48/116): With mitigation and environmental protection measures, the residual environmental effects on surface water quantity and quality are predicted to be not significant and the predicted changes are not expected to result in community (i.e., species composition and relative abundance) or population-level effects (i.e., survival, growth, or reproduction) to fish and aquatic life.
Information Request:	What is in place to evaluate this prediction and particularly the prediction of no changes in community or population level effects?
Response:	During the permitting phase of the Project, Alamos will develop an Aquatic Effects Monitoring Plan (AEMP) that is expected to include monitoring of groundwater, surface water quantity, surface water quality, sediment quality, benthic invertebrates, and fish health and fish population and community metrics. These metrics will be developed in consultation with DFO, Manitoba Wildlife and Fisheries Branch and local Indigenous groups. This monitoring will evaluate the predictions made in the EIS, and identify adaptive management measures to be taken if required. Alamos will also conduct monitoring that is consistent with Environment Effects Monitoring (EEM) requirements in Schedule 5 of the *Metal and Diamond Mine Effluent Regulations* (MDMER) and technical guidance for EEM monitoring provided by Environment and Climate Change Canada (ECCC). While details of the AEMP have not yet been finalized, it is expected that monitoring sites will include "potential impact" sites, unaffected "control" sites, and near-field and far-field sites as described in EIS Sections 23.5.4 and 23.5.5. Section 23.5.17 of the EIS also provides greater detail on the AEMP. During the permitting phase of the Project, Alamos will liaise with ECCC, Fisheries and Oceans Canada, Manitoba Conservation and Climate, and local Indigenous groups to develop and finalize the AEMP.
Attachment:	No

RESPONSE TO TAC-GOR-42

ID:	TAC-GOR-42
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.1 (Page 50/116): One aquatic species at risk, the western Hudson Bay populations of lake sturgeon (Acipenser fulvescens), is present in the Hughes River. No other species at risk are expected within the LAA. Lake sturgeon is classified as “endangered” by the Committee on the Status of Endangered Wildlife in Canada.
Information Request:	Lake Sturgeon have also been captured in Hughes Lake. There is also a lake upstream of Hughes Lake thought to provide Lake Sturgeon spawning habitat.
Response:	Thank you for this comment. Alamos has received similar information about Hughes Lake lake sturgeon anecdotally from field assistants from the Marcel Colomb First Nation working with the fisheries field crews (Chapter 10, Section 10.1.2.3 of the EIS). Alamos has included funding an assessment of juvenile lake sturgeon recruitment in the Hughes River as a complementary measure in its fish habitat offset plan. This plan will be submitted with the *Fisheries Act* Authorization application that Alamos will submit to Fisheries and Oceans Canada (DFO) during the permitting phase of the Project.
Attachment:	No

RESPONSE TO TAC-GOR-43

ID:	TAC-GOR-43
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.1 (Page 50/116): Measured levels of metals in fish tissue were generally low and below guideline concentrations for protection of aquatic life and human consumption. Sediments at the sample sites in the LAA at the Gordon site were composed largely of silt and clay with metal concentrations generally below guidelines. Some exceedances were observed at Marnie Lake, Farley Lake/Creek and Susan Lake.
Information Request:	Exceedances were seen in which metals?
Response:	The complete EIS has been provided under separate cover to accompany these responses. As described in the Sediment Quality and Lower Trophic Community Baseline Technical Data Report/Validation Report (EIS Volume 4, Appendix K), exceedances of the Canadian Council of Ministers of the Environment (CCME) and Manitoba sediment quality guidelines were observed for arsenic, cadmium, chromium, and zinc in samples collected in 2015 and 2016 from the following locations: • Arsenic: exceedances of the CCME ISQG/Manitoba ISQG (5.9 mg/kg) in Marie Lake (7.7 mg/kg), Farley Lake at AQF8 (7.0 mg/kg), and Farley Lake at AQF33 (8.2 mg/kg). • Cadmium: exceedance of the CCME ISQG/Manitoba ISQG (0.6 mg/kg) in Marie Lake (0.86 mg/kg). • Chromium: exceedances of the CCME ISQG/Manitoba ISQG (37.3 mg/kg) in Susan Lake (48.8 mg/kg), Farley Lake at AQF8 (70.0 mg/kg), and Farley Creek at AQG41 (41.0 mg/kg). • Zinc: exceedance of the CCME ISQG/Manitoba ISQG (123 mg/kg) in Marie Lake (186.2 mg/kg). Average metal concentrations were below the CCME and Manitoba PELs at all sites in 2016. However, two individual replicates had metal concentrations above the probably effect levels (PELs): • Marie Lake: one of three replicates had zinc concentrations above the CCME and Manitoba PEL (315 mg/kg) at 321 mg/kg. • Farley Lake: one of three replicates had chromium concentrations above the CCME and Manitoba PEL (90 mg/kg) at 126 mg/kg. In 2015, there were two exceedances of CCME ISQG/Manitoba ISQGs based on the bulk samples: 1) arsenic concentrations exceeded the CCME ISQG/Manitoba ISQG (5.9 mg/kg) in Farley Lake (6.9 mg/kg); and 2) chromium concentrations exceeded the CCME ISQG/Manitoba ISQG (37.3 mg/kg) in Gordon Lake (42.2 mg/kg).
Attachment:	No

RESPONSE TO TAC-GOR-44

ID:	TAC-GOR-44
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.1 (Page 51/116): During the construction phase, effects on fish and fish habitat include alteration of surface flows from changes to watershed boundaries and from dewatering, and changes in physical habitat due to Project infrastructure (i.e., diversion channel realignment between Gordon and Farley lakes). During the operation phase, changes in fish habitat will result from changes to groundwater, water withdrawals and discharges. During decommissioning/closure, changes to fish habitat will result from alterations in surface flows when groundwater fills the open pits, and changes in habitat area. At the Gordon site, changes to fish health, growth, and survival will result from releases of sediment, from dewatering of the East Pit and Wendy Pit during the construction phase, from discharge of groundwater pumped from the groundwater interceptor wells, from discharge of contact water during the construction and operation phase, and from overflow from the open pit to Farley Lake during the post-closure phase.
Information Request:	When will overflow to Farley Lake be likely? Is it predicted to be continuous or intermittent in nature? Current East and Wendy Pits do not have good water quality; how is it proposed that the water from this pit will be any better?
Response:	The flows from the future pit lake will be intermittent as the surface of the pit lake will be frozen in winter, which is consistent with observations of Wendy and East pit lakes. The Wendy and East Pit lakes are permanently stratified (meromictic). This is because they are deep (60 m and 85 m deep, respectively) with fetches that are too short (i.e., <300 m wide) to create the wind-generated currents necessary to turn over the water column during the open water season. This has resulted in water >10 m deep (monimolimnion) being permanently separated from the upper layer (mixolimnion) by a chemocline year-round and a thermocline in summer. Water quality in the upper 10 m of the water column in both pits meets federal and provincial water quality guideliens for the protection of aquatic life with the exception of total aluminum. However, the total aluminum concentrations exceed water quality guidelines in most unaffected lakes in the LAA, which is attributed to the local geochemistry of the watershed. Anoxic conditions persist below 10 m depth in Wendy and East pits throughout the year. This has resulted in concentrations of arsenic, iron and selenium exceeding long-term federal and provincial water qualty guidelines, the chemistry of which depends on redox potential. To mitigate release of poorer quality water from depths below 10 m in Wendy and East pits, both pits will be artificially mixed and aerated prior to dewatering. Based on batch laboratory tests conducted by Alamos, aeration will result in oxidation of iron and precipitation of iron hydroxides. Iron hydroxides are then expected to co-precipitate arsenic and selenium, thereby reducing the concentration of these parameters below long-term federal and provincial guidelines. The water quality model predicts that the parameters will not exceed MDMER discharge limits and acute/short-term federal and provincial guidelines in both the Expected and Upper Cases. These discharges include the existing Wendy and East pit lakes during dewatering, as well as the discharge from the future pit lake. Predicted water quality in discharges from these pit lakes are shown in Table 5-1, Table 5-2, and Table 5-6 of the Technical Modeling Report titled Hydrology Water Balance and Water

ID:	TAC-GOR-44
	Quality Impact Assessment: Gordon Site (EIS Volume 5, Appendix D). The complete EIS has been provided under separate cover to accompany these responses.
Attachment:	No

RESPONSE TO TAC-GOR-45

ID:	TAC-GOR-45
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 51/116): Constructing contact water collection ditches around the MRSAs, overburden stockpiles, and ore stockpiles to convey the 1:25-year storm event to collection ponds.
Information Request:	Is 1:25 year storm event enough?
Response:	Ditches have been sized based on two criteria: 1. For the 25 year storm event – This is a high intensity event. Runoff from higher than average precipitation periods may have higher volumes, but the critical criteria here is the peak flow rate. In the event that a high intensity event larger than the 25-year storm event occurs, the design includes a minimum freeboard of 0.3 m. 2. Seepage capture requirements – Based on seepage modelling, certain flow directions had seepage from facilities at deeper depths than the required to contain the design storm event. To promote seepage capture over the entire site, the ditch depths range from 1 m to 2 m. Due to the freeboard and seepage capture requirements, the ditches are able to handle larger events without overtopping. Based on this additional capacity, the ditches can contain flows in excess of the 100yr storm event. The higher velocities of runoff from storm events above the design storm could result in some erosion; remediation of ditches could be required in those cases. The sumps are similarly sized. Final designs for the collection ponds will be provided during detailed engineering but are anticipated to be sized based on standard engineering criteria and take into account the potential for extreme weather events.
Attachment:	No

RESPONSE TO TAC-GOR-46

ID:	TAC-GOR-46
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 52/116): Directing contact water from the collection ditches around the MRSA, overburden stockpile, and mine infrastructure to the open pit during closure to reduce the filling period. Continuing to operate the groundwater interceptor wells during closure while the open pit fills with water and progressively reducing their pumping rates until the water level in the open pit reaches the elevation of the surrounding groundwater table.
Information Request:	How much is directing the contact water going to reduce the filling period of the pit? After the pit is filled where is the contact water from the collection ditches around the MRSA, overburden stockpile and mine infrastructure going? Would removing the interceptor wells facilitate the pit to fill quicker is this a better offset from a WQ perspective then lower water in Gordon and Farley lakes?
Response:	The contribution of contact water compared to other inputs to filling rates of the pit, is relatively minor. After the pit is filled, contact water will be directed to the pit lake. The interceptor wells are required to maintain lake levels in Gordon and Farley lakes. Removal of the wells will only occur once pit lake levels are such that the pit lake can act as a groundwater source (not sink).
Attachment:	No

RESPONSE TO TAC-GOR-47

ID:	TAC-GOR-47
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 53/116): Implementing Project-specific environmental management and monitoring programs including: Filling the open pits at closure with contact water to reduce the duration of pit wall exposure and to return groundwater levels to baseline conditions.
Information Request:	No mention of a Fish Monitoring Plan or more broadly an Aquatic Effects Monitoring Plan.
Response:	The complete EIS has been provided under separate cover to accompany these responses. An Environmental Effects Monitoring Plan (EEMP) is described in Section 23.5.17 of the EIS. This plan will include monitoring of mine effluent discharge in compliance with federal and provincial regulatory requirements including the requirements in Schedule 5 of the *Metal and Diamond Mines Effluent Regulations*. The EEMP will be approved by Environment and Climate Change Canada (ECCC) prior to mine discharge from the Project. An Aquatic Effects Monitoring Plan (AEMP) will also be developed during the permitting phase of the Project. This AEMP is expected to include monitoring of groundwater, surface water quantity, surface water quality, sediment quality, benthic invertebrates, fish tissues, and fish population metrics, and will be consistent with the EEMP. The AEMP is expected to include thresholds for various metrics that, if exceeded, would trigger adaptive management if the exceedance is found to be a result of Project-related activities. Alamos expects that the AEMP will be developed in consultation with ECCC, Fisheries and Oceans Canada (DFO), Manitoba Conservation and Climate, and local Indigenous groups.
Attachment:	No

RESPONSE TO TAC-GOR-48

ID:	TAC-GOR-48
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 53/116): Constructing a new diversion channel prior to the decommissioning of the existing diversion channel between Gordon and Farley lakes to maintain water levels.
Information Request:	What habitat features will be incorporated into the design of this new channel?
Response:	The new diversion channel will incorporate habitat features designed to promote fish passage and to increase its use by fish species known to inhabit Gordon and Farley lakes; refer to the Diversion Channel Isolation and Dewatering subsection under Section 10.4.1.4 of the EIS, which has been provided under separate cover to accompany these responses. These features include: • A low flow channel to provide fish passage in summer. • Aquatic vegetation planting beds on the seasonally wetted channel margin benches to provide spawning and rearing habitat for pike and brook stickleback. • Pools to provide refugia for juvenile fish in summer and winter. • Cobbles and boulders to provide cover for fish. • Riparian vegetation plantings to provide cover, bank stability, leaf litter, and invertebrate inputs to the channel.
Attachment:	No

RESPONSE TO TAC-GOR-49

ID:	TAC-GOR-49
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 53/116): Aerating groundwater from the interceptor wells in collection ponds to encourage iron precipitation and increase dissolved oxygen concentrations prior to discharge to Gordon Lake and Farley Lake.
Information Request:	What water quality monitoring of the well water and Gordon and Farley lakes is planned?
Response:	Follow-up and monitoring with respect to groundwater is presented in Section 8.9 of Chapter 8 and in Chapter 23 of the EIS. The complete EIS has been provided under separate cover to accompany these responses. A detailed groundwater monitoring program will be implemented, building on the baseline monitoring program, to confirm potential changes in groundwater associated with mine construction, operation, and closure and to determine effectiveness of mitigation measures. Monitoring wells upgradient, cross gradient, and downgradient of the Mine Rock Storage Area (MRSA) and around the open pit will be established to measure groundwater levels, groundwater interceptor well and pit dewatering rates, and water quality during construction, operation, and closure. Groundwater samples will be collected for analysis of general chemistry and dissolved metals. The monitoring program will include an adaptive management component with trigger thresholds to alert to changing conditions, to initiate an investigation of reasons for the threshold exceedance, and to initiate potential additional mitigation or contingency measures to reduce or eliminate the threshold exceedance. Details of the groundwater monitoring and adaptive management plan will be finalized during the permitting phase of the Project in consultation with Natural Resources Canada (NRCan), Environment and Climate Change Canada (ECCC), Manitoba Agriculture and Resource Development, and local Indigenous groups. Follow-up and monitoring with respect to surface water quality is presented in Section 9.9 of the EIS. A detailed surface water quality monitoring program will be implemented, building on the baseline surface water quality monitoring program, to confirm predictions made in the EIS, and to determine the effectiveness of various mitigation measures included in the Project design to reduce or eliminate changes to surface water quality. The program is expected to include near-field and far-field monitoring sites downstream of the Project, including Gordon and Farley lakes, as well as reference sites that will be used to determine whether changes in surface water quality at near-field and far-field sites are Project-related, a single anomalous event, or a regional phenomenon. Sampling methods, laboratory analyses, and frequency and duration of sampling will be consistent with federal Environmental Effect Monitoring (EEM) requirements for metal mines in Canada. It is expected that general chemistry as well as various anions, nutrients and total and dissolved metals will be analyzed from the collected samples. Similar to the groundwater monitoring program, the surface water quality monitoring program will include an adaptative management plan with trigger thresholds to alert to changing conditions, to initiate an investigation of reasons for the threshold exceedance, and to initiate potential additional mitigation or contingency measures to reduce or eliminate the threshold exceedance. Details of the surface water quality monitoring and adaptive management plan will be finalized during the permitting phase of the Project in consultation with ECCC, Manitoba Agriculture and Resource Development, and local Indigenous groups.

ID:	TAC-GOR-49
Attachment:	No

RESPONSE TO TAC-GOR-50

ID:	TAC-GOR-50
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 53/116): Limiting in-water works to outside of the northern *Manitoba Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat* (DFO 2020b) as practical.
Information Request:	Not sure what "as practical means" and are there any in-water works other than the new channel between Gordon and Farley and the water intake at MacLellan planned?
Response:	The new diversion channel will be built "in-the-dry" and will only be connected to Gordon Lake and Farley Lake once finished, At this time, water flowing into the existing diversion channel will be blocked and allowed to flow into the new diversion channel. In-water components at the Gordon site are: a freshwater intake in Farley Lake; groundwater interceptor well effluent diffusers in Gordon and Farley lakes; a contact water effluent diffuser in Farley Lake, and upgrades to the culverts along the mine access road. In-water components at the MacLellan site are: a freshwater intake in the Keewatin River; a stilling basin and rip-rap apron for contact water effluent discharge in the Keewatin River; and upgrades to culverts on the mine access road. A detailed construction schedule will be developed during the Project permitting phase. This schedule will consider the duration and scheduling dependencies of required in-water works as well as the sensitive timing periods for fish, flow levels, ice conditions, and other site considerations that may affect construction efficiency and cause effects to fish and fish habitat. Alamos will schedule in-water works outside of the restricted activity timing windows if practicable, balancing the scheduling requirements of the Project against additional mitigation measures and/or offsetting requirements for working within the sensitive timing periods.
Attachment:	No

RESPONSE TO TAC-GOR-51

ID:	TAC-GOR-51
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 53/116): Isolating in-water work areas and conducting fish rescues, including Wendy and East pits, the Diversion Channel, and other locations where instream construction will be required.
Information Request:	Live Fish Handling Permit required
Response:	It is understood that Live Fish Handling Permits will be required for fish rescues, including at Wendy and East pits, the Diversion Channel, and other locations where instream construction is required. Alamos will obtain these permits.
Attachment:	No

RESPONSE TO TAC-GOR-52

ID:	TAC-GOR-52
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 53/116): Using a heat exchanger, where required, to heat or cool water from the East and Wendy pits prior to discharge to Farley Lake during construction and water from the groundwater interceptor wells prior to discharge to Gordon and Farley lakes to maintain the temperature regime in both lakes so as not to negatively affect primary and secondary production rates and alter important behavioral cues for fish (i.e., spawning and overwintering cues).
Information Request:	How continuous is the monitoring of the water coming out of those pits to ensure temperature regimes in the receiving lakes are maintained? Are there lower and upper temperature limits in place and if so what are they?
Response:	Details of frequency, duration and timing of water temperature monitoring in the existing open pits, Farley Lake, and Farley Creek downstream of the existing open pits will be determined during the permitting phase of the Project. The lower and upper temperature limits of the pit water discharged to Farley Lake will also be determined during permitting but it is expected that these temperature bounds will be determined using a simple mass balance model that predicts the minimum and maximum water temperatures necessary to maintain lake temperatures suitable for the different fish species present in Farley Lake (i.e., northern pike, yellow perch, white sucker, brook stickleback) at different times of year based on the volume and temperature of water discharged from the pits and the volume and temperature of Farley Lake when the pumping would occur. The potential effects of water temperature will be included in the application for a *Fisheries Act* section 35(2)(b) and 34.4(2)(b) authorization. Water temperature is a parameter of interest for Environmental Effects Monitoring programs (ECCC 2014), and will be a component of the Environmental Effects Monitoring Program for the Project. **Reference** Environment and Climate Change Canada (ECCC). 2014. Metal Mining Technical Guidance for Environmental Effects Monitoring. Accessed at http://www.ec.gc.ca/esee-eem/default.asp?lang=En&n=AEC7C481-1.
Attachment:	No

RESPONSE TO TAC-GOR-53

ID:	TAC-GOR-53
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 53/116): Installing screens on the water intakes that are sized using DFO's "Interim Code of Practice: End of Pipe Fish Protection Screens for Small Water Intakes in Freshwater" (DFO 2020a). The screens will be sized based on the weakest swimming fish species in the Keewatin River (burbot, an anguilliform swimming species) and Farley Lake (white sucker and yellow perch, two subcarangiform swimming fish species).
Information Request:	As with MacLellan comments, DFO's End of Pipe Fish Protection does not prevent entrainment of eggs and larval fish.
Response:	Entrainment of larval fish and fish eggs cannot be completely prevented with fish screens, even those sized to limit entrainment of the weakest swimming juvenile fish known to inhabit the waterbody. However, in addition to the fish screens, other mitigation measures to reduce the likelihood of entrainment of larval fish and fish eggs are anticipated to be included in the final location and design of the freshwater intake in Farley Lake. These measures are anticipated to include those identified in DFO's Freshwater Intake End-of-Pipe Fish Screen Guideline: 1) intakes positioned off of bottom to avoid entrainment of sediment and aquatic organisms (including fish eggs); 2) intakes located in areas and depths with low concentrations of fish throughout the year; 3) intakes located away from natural or man-made structures that may attract fish that are migrating, spawning, or rearing; 4) openings in the guides and seals less than the opening criteria of the screen to make "fish tight".
Attachment:	No

RESPONSE TO TAC-GOR-54

ID:	TAC-GOR-54
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 53/116): Limiting the size, timing, and setback distances of blasting charges to avoid percussive injuries to fish or damage to incubating eggs. Blasting protocols tailored to the site and its fish species assemblages will be developed during Project permitting, using guidance outlined in the “Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters” (Wright and Hopky 1998).
Information Request:	Is there any monitoring proposed for water bodies in close proximity just to ensure blasting is not having a detrimental impact to fish or damaging eggs.
Response:	The details of an Aquatic Effects Monitoring Plan (AEMP) will be developed during the permitting phase of the Project. The need for, the number and location of, and the frequency and duration of use of underwater hydrophones to detect sound overpressures associated with blasting will be considered during development of the AEMP. The need for underwater noise monitoring will be guided by the final blast sizes selected for mining, rock competency in the pit, and required and actual set-back distances between the blast and fish-bearing waterbodies as described in Fisheries and Oceans Canada's "Guidelines for the Use of Explosives in or near Canadian fisheries waters" (Wright and Hopky 1998). **Reference** Wright, D.G., and G.E. Hopky. 1998. Guidelines for the use of explosives in or near Canadian fisheries waters. Can. Tech. Rep. Fish. Aquat. Sci. 2107: iv + 34p
Attachment:	No

RESPONSE TO TAC-GOR-55

ID:	TAC-GOR-55
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.2 (Page 55/116): Establishing and enforcing a worker code-of-conduct for employees brought into work at the LLGP that would limit potential over-fishing of lakes, stream, and rivers in the Project area (e.g., restricting fishing in lakes of streams of a specific size, those used by local Indigenous communities for subsistence or traditional purposes, or determined to contain already depressed populations by MCC).
Information Request:	Per MacLellan comment please contact Ian Kitch Regional Fisheries Manager to discuss. Wildlife and Fisheries Branch is now situated under Agriculture and Resource Development.
Response:	Thank you for this comment. Alamos intends to engage with Manitoba Wildlife and Fisheries Branch (recognized as under Agriculture and Resource Development) during the permitting phase as it progresses towards finalizing management and monitoring plans and prepares permit applications necessary for constructing, operating, and closing the Gordon and MacLellan sites.
Attachment:	No

RESPONSE TO TAC-GOR-56

ID:	TAC-GOR-56
Department:	Agriculture and Resource Development– Wildlife and Fisheries Branch (Fisheries Section)
Background:	Section 6.5.2.3 (Page 55/116): The main adverse residual environmental effect on fish habitat is direct losses of fish habitat and changes to water quality affecting fish health and survival. For effects to fish habitat, with the development of the Fish Habitat Offsetting Plan, as described in the federal EI (Chapter 23, Section 23.5.15), no net loss to habitat is expected. The re-alignment of the existing diversion channel at the Gordon site will result in the harmful alteration, disruption, or destruction of fish habitat. Alamos will include a new habitat enhanced diversion channel as part of its application for a paragraph 34.4(2)(b) and 35(2)(b) *Fisheries Act* Authorization from DFO. Dewatering of East and Wendy pits at the Gordon site may result in a harmful alteration, disruption, or destruction of fish habitat due to the presence of fish. However, the pits are artificial habitats and the fish are isolated from other populations. Alamos will continue to discuss the pits with DFO and will include offsetting for the pits in its application for a paragraph 34.4(2)(b) and 35(2)(b) *Fisheries Act* Authorization, if required. For effects to fish health and survival, modelling was used to predict water quality at various nodes in lakes and streams at the Gordon site. Two parameters of potential concerns (POPCs) were predicted for the “expected case”, fluoride and phosphorus. Water quality modelling results indicated that the short-term (three month) increase in total phosphorus concentrations during construction and two-fold increase in inorganic nitrogen during operation would not be expected to result in eutrophication of West Farley Lake. For fluoride, the maximum predicted concentrations at the Gordon site were more than 2.5 times lower than the proposed toxicity benchmark of 0.5 mg/L for fish and aquatic biota; therefore, adverse effects on fish health, growth, or survival are not expected.
Information Request:	In reviewing DFO's comments back to the proponent it looks like East and Wendy Pits are considered fish habitat despite being artificial habitats. Regarding the POPCs the statements here seem to differ from what was provided in the surface water quality section. Why?
Response:	The reviewer is correct; Fisheries and Oceans Canada (DFO) has informed Alamos that, under the recently amended *Fisheries Act*, dewatering of the fish-bearing Wendy Pit and East Pit at the Gordon site will result in an unavoidable harmful alteration, disruption, or destruction (HADD) of fish habitat that will require offsetting and a paragraph 35(2)(b) *Fisheries Act* Authorization from DFO prior to construction of the Project. For the second part of this information request, regarding parameters of potential concern, please see the response provided for TAC-GOR-40.
Attachment:	No

RESPONSE TO TAC-GOR-57

ID:	TAC-GOR-57
Department:	Manitoba Conservation and Climate – Drainage and Water Rights Licensing Branch
Background:	The Water Use Licensing Section of the Drainage and Water Rights Licensing Branch has the following comment for this proposal:
Information Request:	As per the *Environment Act* proposal for Alamos Gold Inc. for the 'Gordon' site (Farley Lake), a Water Rights Application will need to be submitted for surface water use since the proposed water requirement will exceed 25,000L/day. In addition, a Water Rights Application will need to be submitted for groundwater use since the project will require aquifer dewatering.
Response:	Thank you for your comment. Alamos will submit a Water Rights Application for surface and groundwater uses at the Gordon site during the permitting phase for the Project.
Attachment:	No

RESPONSE TO TAC-GOR-58

ID:	TAC-GOR-58
Department:	Manitoba Sport Culture and Heritage – Heritage Resources Branch
Background:	
Information Request:	No concerns at this time as a heritage resource impact assessment was conducted for this project/proposal in 2015. If at any time, however, heritage resources are encountered in association with these lands during testing and development, the Historic Resources Branch may require that an acceptable heritage resource management strategy be implemented by the developer to mitigate the effects of development on the heritage resources.
Response:	As described in Chapter 16, Section 16.4.2.2 of the EIS, Alamos has developed and is committed to a robust Heritage and Cultural Resources Protection Plan (HCRPP). The HCRPP will allow Alamos to safeguard heritage and cultural resources discovered or disturbed during Project construction and operation. This will be accomplished through training key contractors and personnel involved with ground disturbing activities during construction and operation of the Gordon site, regarding the recognition of heritage objects, cultural awareness, and protocols to follow if these are exposed by mine-related activities. The HCRPP will also incorporate TLRU information and outline engagement protocols with the Indigenous communities if heritage or cultural resources are found during construction or operation. A ten-step intervention protocol, required upon the inadvertent exposure of heritage resources, is provided in Table 16-6 of the EIS. Key elements of this protocol are: Education facilitated by Alamos for construction contractors regarding the appropriate protocols if heritage or cultural resources, or objects thought to be heritage or cultural resources, are discovered. Implementation of the HCRPP when heritage or cultural resources, or objects thought to be heritage or cultural objects, are exposed. Protective barriers placed around heritage resource sites that are inadvertently exposed during construction so that the area can be protected while work proceeds. Contractors/personnel will notify Alamos who will in turn notify the Historic Resources Branch, affected Indigenous communities, and contract a professional archaeological consultant holding a valid permit to evaluate the discovery and make mitigatory recommendations. Alamos will also contract a professional archaeologist to evaluate PDA/LAA changes or added development components.
Attachment:	No

RESPONSE TO TAC-GOR-59

ID:	TAC-GOR-59
Department:	Agriculture and Resource Development - Forestry Branch
Background:	6.8.2.2 Mitigation Measures
Information Request:	Forestry Branch staff will work with the project proponent to ensure that the timber is removed in accordance with *The Forest Act.* If possible it would be beneficial to hire a local logging contractor and get the timber delivered to an end use destination such as local firewood markets or the CKPI mill in The Pas. It is assumed that the former Mines & Minerals Branch (now Manitoba Agriculture and Resource Development) will need to lead the Consultation process for this project and one of the components of that process is the removal of the forest cover. Forestry can provide program area specific information during the consultation process with local communities.
Response:	Alamos will work with Forestry Branch staff so that the timber is removed in accordance with *The Forest Act*, including the selection of beneficial end-users (e.g., local firewood markets or the mill at The Pas). Alamos will seek to use local logging contractors, where available and practicable. It is acknowledged that the Mineral Resources Branch will lead the consultation process with local communities for the removal of forest cover.
Attachment:	No

RESPONSE TO TAC-GOR-60

ID:	TAC-GOR-60
Department:	Agriculture and Resource Development - Forestry Branch
Background:	6.10.2.2 Mitigation Measures
Information Request:	Forestry Branch staff will work with the project proponent to ensure that the timber is removed in accordance with *The Forest Act.* If possible it would be beneficial to hire a local logging contractor and get the timber delivered to an end use destination such as local firewood markets or the CKPI mill in The Pas. it is assumed that the former Mines & Minerals Branch (now Manitoba Agriculture and Resource Development) will need to lead the Consultation process for this project and one of the components of that process is the removal of the forest cover. Forestry can provide program area specific information during the consultation process with local communities.
Response:	See response to TAC-GOR-59.
Attachment:	No

RESPONSE TO TAC-GOR-61

ID:	TAC-GOR-61
Department:	Agriculture and Resource Development - Forestry Branch
Background:	9.0 Effects of the Environment on the Project
Information Request:	– applying FireSmart principles around the mine site infrastructure could help in reducing the impacts of forest fire as noted in this section – additional info on FireSmart is available if the proponent wants to pursue this topic
Response:	Alamos will consider the inclusion of Fire Smart principles into the Project as part of detailed design. As described in EIS Chapter 21, Section 21.4.3.3, Alamos will adhere to the *National Fire Code of Canada* and the *Manitoba Fires Prevention and Emergency Response Act*. Regular maintenance and safety inspections will be conducted on Project infrastructure and equipment, onsite fire prevention and response equipment will be provided and maintained, and employees will be trained in safe fire response. Additional fire prevention provisions are described in Chapter 22, Section 22.4.9, including the implementation of a cleared buffer which will be maintained around critical mine infrastructure to impede the spread of fire from a facility fire to the surrounding woodlands and to protect the facilities from a wildfire. The complete EIS has been provided under separate cover to accompany these responses.
Attachment:	No

RESPONSE TO TAC-GOR-62

ID:	TAC-GOR-62
Department:	Agriculture and Resource Development - Forestry Branch
Background:	Table A-1 summarizes the impacts to productive forest resources with respect to impacts to wood supply and merchantable timber resources
Information Request:	The proponent needs to provide shapefiles for analyzing the impact to timber planned for removal/clearing in the exploration and development phases of the proposed operation. Impacts to forest resources will be analyzed and a timber damage appraisal invoice will be assessed for payment by the proponent. These shapefiles need to be submitted to Forestry Branch or Crown Lands Branch staff in the Northeast Region. Shapes can be submitted in .shp, .gpx, .kml or .kmz file formats prior to commencing operations.
Response:	Alamos will provide shapefiles for analyzing the impact to timber planned for removal/clearing in the exploration and development phases of the proposed operation and for the assessment of a timber damage appraisal at the Gordon site. The shapefiles will be submitted to Forestry Branch or Crown Lands Branch staff in the Northeast Region in .shp, .gpx, .kml or .kmz file formats prior to commencement of construction.
Attachment:	No

RESPONSE TO TAC-GOR-63

ID:	TAC-GOR-63
Department:	Agriculture and Resource Development - Forestry Branch
Background:	-
Information Request:	It would sure be nice if all of the proposals started to include wildfire protection measures and/or risks as part of their package. This would include Fire Smarting their proposed development or how they plan to mitigate risk.
Response:	Alamos will consider the inclusion of Fire Smart principles into the Project as part of detailed design. As described in EIS Chapter 21, Section 21.4.3.3, Alamos will adhere to the *National Fire Code of Canada* and the *Manitoba Fires Prevention and Emergency Response Act*. Regular maintenance and safety inspections will be conducted on Project infrastructure and equipment, onsite fire prevention and response equipment will be provided and maintained, and employees will be trained in safe fire response. Additional fire prevention provisions are described in Chapter 22, Section 22.4.9, including the implementation of a cleared buffer which will be maintained around critical mine infrastructure to impede the spread of fire from a facility fire to the surrounding woodlands and to protect the facilities from a wildfire. The complete EIS has been provided under separate cover to accompany these responses.
Attachment:	No

RESPONSE TO TAC-GOR-64

ID:	TAC-GOR-64
Department:	Manitoba Infrastructure Roadside Development Section
Background:	The following comments from MI's Roadside Development Section apply to both MacLellan Mine (File No. 6073.00) and Gordon Mine (6074.00): We have had a look at these two and have no concerns. Both proposals state that Alamos is in contact with MI regarding any updates needed to the accesses. Both the accesses to MacLellan and to Gordon Mines received permits when they were constructed. Also, it is stated that bussing will be provided for workers to cut down on the amount of passenger vehicles in and out of the mines.
Information Request:	Please note the following statutory requirements affecting PR 391: Under the *Transportation Infrastructure Act*, a permit is required from Manitoba Infrastructure to construct, modify, relocate, remove or intensify the use of an access. A permit is also required from Manitoba Infrastructure to construct, modify or relocate a structure or sign, or to change or intensify the use of an existing structure (including the alteration of existing buildings) within the 38.1 m (125 ft) controlled area from the edge of the highway rightof-way. In addition, a permit is required from Manitoba Infrastructure for any planting placed within 15 m (50 ft) from the edge of the right-of-way of this highway.
Response:	Alamos will adhere to the statutory requirements affecting PR 391 (i.e., *The Transportation Infrastructure Act*), including obtaining required permits to: construct, modify, relocate, remove or intensify the use of an access; to construct, modify or relocate a structure or sign, or to change or intensify the use of an existing structure (including the alteration of existing buildings) within the 38.1 m (125 ft) controlled area from the edge of the highway right-of-way; and for any planting placed within 15 m (50 ft) from the edge of the right-of-way of PR 391.
Attachment:	No

RESPONSE TO TAC-GOR-65

ID:	TAC-GOR-65
Department:	Manitoba Conservation and Climate – Office of Drinking Water
Background:	-
Information Request:	No comments
Response:	Acknowledged.
Attachment:	No

RESPONSE TO TAC-GOR-66

ID:	TAC-GOR-66
Department:	Manitoba Conservation and Climate – Parks and Protected Spaces Branch
Background:	-
Information Request:	Parks and Protected Spaces Branch has reviewed *Environment Act* Proposal for TAC Review - AlamosGold Inc. - Gordon Mine - File No. 6074.00 submitted pursuant to the *Environment Act*. The Branch has no comments or concerns to offer as it does not affect any provincial parks, park reserves or ecological reserves.
Response:	Acknowledged.
Attachment:	No

RESPONSE TO TAC-GOR-67

ID:	TAC-GOR-67
Department:	Agriculture and Resource Development - Peatlands
Background:	-
Information Request:	2.3.3 Environmental Protection, Mitigation and Management – Planning and financing activities to offset or compensate for unavoidable adverse effects on environmental resources such as aquatic habitats. Although the majority of project (at both the Gordon and MacLellan sites) will use the existing access roads, if there is development of new resource or access roads or crossings in or around boreal wetlands (bogs, fens, marshes, swamps, or shallow open water), then the proponent must follow the mitigation sequence described in the Boreal Wetlands Conservation Codes of Practice; which is to avoid, minimize, and offset for permanent impacts to Crown wetlands that result from resource road development. The Codes of Practice can be found here: https://gov.mb.ca/sd/pubs/forestry_peatlands/boreal_codes_practice.pdf
Response:	PR 391 will be used to move personnel, equipment and material between the Gordon and MacLellan sites. No new wetland disturbance from the use of PR 391 will occur from the Project. Complete wetland avoidance from upgrading of the 15-km site access road from PR 391 to the Gordon site will not be possible as the road currently exists and intersects wetlands. Although road upgrades will result in effects to wetlands, including loss of wetland area, upgrading the road will result in less effect to wetlands than developing a new road and therefore aligns with the Manitoba Boreal Wetlands Conservation Codes of Practice (i.e., minimizing wetland effects when avoidance is not possible). Existing drainage patterns and wetland surface hydrological connections will be maintained. To reduce effects to wetlands, new internal site resource roads will be located, where possible, in areas of existing disturbance or where other clearing and site activities are planned. Alamos will work with Manitoba Agriculture and Resource Development to determine if appropriate off-sets or financial compensation for unavoidable wetland effects from access roads and crossings are required.
Attachment:	No

RESPONSE TO TAC-GOR-68

ID:	TAC-GOR-68
Department:	Agriculture and Resource Development - Peatlands
Background:	-
Information Request:	The proponent needs to provide shapefiles for analyzing the impact to timber planned for removal/clearing in the exploration and development phases of the proposed operation. Impacts to forest resources will be analyzed and a timber damage appraisal invoice will be assessed for payment by the proponent. These shapefiles need to be submitted to Forestry Branch or Crown Lands Branch staff in the Northeast Region. Shapes can be submitted in .shp, .gpx, .kml or .kmz file formats prior to commencing operations.
Response:	See response to TAC-GOR-62.
Attachment:	No

APPENDIX A ATTACHMENTS

ATTACHMENT TAC-GOR-03

Table TAC-GOR-03-1 Relevant Regulatory Authorities and Jurisdictions

Federal Government	Provincial Government	Municipal Government
• Canadian Environmental Assessment Agency (now IAAC) • Environment and Climate Change Canada • Fisheries and Oceans Canada • Health Canada • Natural Resources Canada • Indigenous Services Canada	• Manitoba Growth, Enterprise, and Trade (now Manitoba Agriculture and Resource Development) • Manitoba Indigenous and Northern Relations • Historic Resources Branch of Manitoba Sport, Culture, and Heritage • Manitoba Sustainable Development (now Manitoba Conservation and Climate and Manitoba Agriculture and Resource Development) • Workplace Safety and Health of Manitoba Finance	• Town of Lynn Lake

ATTACHMENT TAC-GOR-08

Table TAC-GOR-08 Recommended Setback Distances and Restricted Activity Periods for the Lynn Lake Gold Project

Species or Feature[1]		Key Wildlife Feature	Restricted Activity Period	Recommended Setback Distance by Disturbance Category (meters)[2]		
Common Name	Scientific Name			Low	Medium	High
Mammals						
Black bear[a]	*Ursus americanus*	Active den	Year round	150	150	150
Little brown myotis[b,c]	*Myotis lucifugus*	Roost	May 1 – August 31	100	500	500
Northern myotis[b,c]	*Myotis septentrionalis*	Roost	May 1 – August 31	100	500	500
Bat cave[d]	-	Cave	Year round	200	200	200
Wolverine[e]	*Gulo gulo*	Den	Year round	100	250	500
Mineral lick[a]	-	Mineral lick	Year round	120	120	120
Denning species (e.g., red fox, gray wolf, American marten, fisher, least weasel)[c]	-	Active den	Year round	50	50	50
Birds						
American white pelican	*Pelecanus erythrorhynchos*	Nesting colony	April 1 - August 31	500	750	100
Bald eagle	*Haliaeetus leucocephalus*	Active or traditional nest site	March 15 - July 15	250	500	1000
Bank swallow	*Riparia riparia*	Nesting colony	May 15 - July 31	50	150	300
Barn swallow	*Hirundo rustica*	Nest site	May 15 - Sept. 30	50	100	100
Boreal Owl	*Aegolius funereus*	Nest Site	March 1 - July 15	250	500	1000
Canada warbler	*Cardellina canadensis*	Nest site	May 1 - July 31	200	300	450
Common nighthawk	*Chordeiles minor*	Nest site	May 1 - August 31	100	200	300
Double-crested cormorant	*Phalacrocorax auritus*	Nesting colony	April 1 - August 31	400	500	750
Great gray owl	*Strix nebulosa*	Active or traditional nest site	Feb. 15 - July 15	250	500	1000
Grebes	-	Nesting colony	May 15 - July 15	100	200	400
Gulls/terns	-	Nesting colony	May 1 - July 15	400	500	750

Table TAC-GOR-08 Recommended Setback Distances and Restricted Activity Periods for the Lynn Lake Gold Project

Species or Feature[1]		Key Wildlife Feature	Restricted Activity Period	Recommended Setback Distance by Disturbance Category (meters)[2]		
Common Name	**Scientific Name**			**Low**	**Medium**	**High**
Herons	-	Nesting colony	April 1 - August 31	400	500	750
Horned grebe	*Podiceps auratus*	Nest site	May 1 - Sept. 15	100	200	400
Northern hawk owl	*Surnia ulula*	Nest site	Feb. 15 - July 15	250	500	1000
Osprey	*Pandion haliaetus*	Nest site	August 1 to March 31	100	100	100
Olive-sided flycatcher	*Contopus cooperi*	Nest site	May 1 - August 31	50	150	300
Rusty blackbird	*Euphagus carolinus*	Nest site	May 1 - July 31	50	150	300
Sharp-tailed grouse[3]	*Tympanuchus phasianellus*	Lek	Mar 15 - May 15	200	500	100
Short-eared owl	*Asio flammeus*	Nest site	April 15 - Sept. 15	200	300	500
Trumpeter swan	*Cygnus buccinator*	Nest site	April 1 - July 31	500	750	1000
Yellow rail	*Coturnicops noveboracensis*	Nest site	May 1 - July 15	100	150	300
Amphibians and Reptiles						
Northern leopard frog[b]	*Lithobates pipiens*	Hibernaculum and breeding habitat	Year round	10	200	500

[1] - Recommended setback distances and restricted activity periods are derived from Manitoba Conservation Data Centre's Recommended Development Setback Distances from Birds document (MB CDC 2015) unless otherwise specified (see a to e below)

[a] - Manitoba Hydro's Manitoba-Minnesota Transmission Project Construction Environmental Protection Plan

[b] - Saskatchewan Ministry of Environment's Saskatchewan Activity Restriction Guidelines for Sensitive Species (SK MOE 2017)

[c] - Core maternity roost period for bats as defined by Fenton and Barclay (1980) and Barclay (1982 and 1984)

[d] - Manitoba's Forest Management Guidelines for Terrestrial Buffers (Government of Manitoba 2017)

[e] - Environment Canada's Petroleum Industry Activity Guidelines for Wildlife Species at Risk in the Prairie and Northern Region (Environment Canada 2009)

[2] - Low: foot traffic, occasional/infrequent/short-term small vehicle (<1 ton) or ATV use; medium: trucks>1 ton, regular/frequent/long-term small vehicle (<1 ton) or ATV use; High: road, distribution line, or outlet channel construction, forest harvest, rock crushing, asphalt batching, quarry or gravel pit operation

[3] - low disturbance category considered as foot traffic only, all other activities (i.e., occasional/infrequent/short-term small vehicle (<1 ton) or ATV use considered medium disturbance).