

Lynn Lake Gold Project: MacLellan Mine Plan Amendment Notice of Alteration / Notice of Change

Federal Information Request Responses – Round 3

October 21, 2025

Prepared for:



Prepared by:
Stantec Consulting Ltd.



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Introduction

The MacLellan Gold Mine is regulated under the federal Decision Statement issued under Section 54 of the *Canadian Environmental Assessment Act*, 2012 (issued March 5, 2023, and amended July 28, 2024) and the conditions stipulated therein.

The Impact Assessment Agency of Canada (IAAC) provided a first round of information requests (IRs) on July 11, 2025, for the Lynn Lake Gold Project (LLGP) Notice of Change (NOC) – MacLellan Mine Plan Amendment, submitted by Alamos Gold Inc. (Alamos) on June 25, 2025. Alamos provided responses to the first round of IRs on August 5, 2025. IAAC then provided a second round of IRs, between August 13, 2025 and September 5, 2025. Responses were also provided to these additional IRs in later September 2025.

This document relates to the additional follow up question (Round 3 IR) received from IAAC on October 14, 2025 regarding NOC-IR-14 and a fulsome response to the IR is provided in the following section. Attachments to the response are provided in **Appendix A**.



Response to IAAC NOC IR-14-3

ID:	NOC IR-14-3
Topic	Water quality Mitigation Measures, Fish and Fish Habitat
Expert Department or Group:	ECCC IAAC
NOA/NOC reference:	Section 4.0 – Conclusions Appendix G – Surface Water Quality Figures Lynn Lake Gold Project: MacLellan Mine Plan Amendment, Notice of Alteration / Notice of Change, Response to IAAC NOC IR-14-2, September 19, 2025
Justification/ Elaboration:	<p>In response to the Information Request, the Proponent has provided additional mitigation measures that were not previously included in the NOA/NOC. These measures are intended to prevent seepage from the tailings management facility and mine rock storage area from causing impacts to surface water quality and aquatic life. The additional mitigation measures include increasing the depth of the seepage collection ditches and/or the installation of pump-back wells. Grout curtains are also proposed to be installed around the tailings management facility from the top of the bedrock to a depth of 10-15 m through the upper fractured bedrock. The response states that the addition of grout was simulated with a 2D seepage model and shows that the addition of grout curtains halves the seepage towards the water bodies. However, ECCC notes that no supporting information has been provided to substantiate the statement that seepage would be reduced by half. While it would be expected that additional mitigation would likely reduce the amount of seepage reporting to surface waters, the extent to which that may be possible should be supported by evidence.</p> <p>The efficacy of grout as a mitigation measure is somewhat uncertain. The long-term integrity of the proposed grout and existing structures, in terms of permeability and effectiveness as a primary mitigation to reduce groundwater flow and solute transport, should be adequately assessed and understood. A refined understanding of the durability of the grout curtains would be useful for estimating the timing and magnitude of fluxes of contaminants from the tailings structure. Water quality guideline exceedances in seepage and in the receiving environment are already predicted to occur through all mine phases and into post-closure of the mine and therefore it is necessary to adequately characterize the stability and durability of the grout curtains into the future.</p> <p>The successful implementation of these additional mitigation measures outlined in the response would be considered key measures to mitigate potential effects to water quality and prevent impacts to aquatic life associated with the project change. Given the importance that these measures work as intended, installation of sentinel groundwater</p>



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	monitoring wells should also be considered to monitor groundwater and confirm that the grout curtains are working as intended and that seepage is not reaching water bodies.
Information Request:	<p>ECCC recommends the Proponent:</p> <ul style="list-style-type: none"> a) Provide evidence to support the conclusion that inclusion of a grout curtain will reduce seepage reporting to surface waters by half. b) Discuss the long-term behavior and durability of the grout curtain and the overall ability to prevent seepage through closure and post-closure of the project. c) Include sentinel groundwater monitoring wells to confirm that the grout curtain is working as intended and propose additional adaptive management strategies if monitoring results indicate reduced effectiveness.
Response:	<ul style="list-style-type: none"> a) Table NOC IR 14-3 presents a summary table showing the reduction in seepage rates for no bedrock grout curtain, a 10 m deep grout curtain, and a 20 m deep grout curtain, where seepage is predicted to flow, via groundwater, to Payne Lake, Minton Lake, and the Plant Site area. See Figure NOC IR-14-3 for the grout curtain location. It is noted that the previous extents of the grout curtain provided in the prior September 19 IR response (NOC IR-14-2) were based on the draft construction drawings, but were then revised during detailed design in relation to discussions regarding mine seepage flows. The detailed design of the grout curtain is still underway and will only be finalized after an upcoming round of Tailings Management Facility (TMF) borehole drilling where engineers will be collecting some additional hydraulic conductivity information of the shallow bedrock. b) Grout curtain long-term behaviour and durability depends on how well the grout curtain is constructed and on various environmental conditions. Grout curtain detailed design is still underway but will consist of a cement – bentonite mix. From a constructability standpoint, stringent QA/QC procedures will be applied for each of the grout mixes to limit bleed water and shrinkage during set as well as to meet flowability and injection pressure criteria so the grout can penetrate into the finer fractures in the bedrock. High hydraulic gradients may cause some erosion over time, changing the pore structure and mechanical properties of the grout curtain. Research data on constructed grout curtains is still being collected and performance monitored, but ultimately, the serviceable life of a grout curtain, when constructed properly, can range from as low as 10 to 15 years in aggressive environments to potentially hundreds of years in hydraulic lower gradient, stable conditions. This timeline aligns well to the MacLellan site operation and closure timeline. c) As presented in the Groundwater Management and Monitoring Plan (GMMP), monitoring wells are located downgradient of the TMF to monitor for quality of groundwater and validate the predictions from the EIS. Figure NOC-IR-14-3 presents the location of the wells monitored for groundwater quality relative to the TMF and the grout curtain. The groundwater monitoring wells are located adjacent to the TMF and Mine Rock Storage Area to allow early detection for potential changes in groundwater quality trends. The GMMP also includes an adaptive



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	<p>management component with trigger thresholds to alert to changing conditions prior to a significant environmental effect. The trigger thresholds are staged to allow an early indicator system so that minor changes in data could be appropriately followed, monitored, and acted upon, as necessary. Alamos has committed to implementing technically and economically feasible mitigation measures if monitoring indicates that specified levels of environmental change have been reached or exceeded. Feasibility and implementation decisions will be made based on the circumstances and considerations at the time but may include installation of larger seepage collection sumps, modifications to the ditch system to increase seepage collection efficiency, installation of groundwater pump back wells, installation of an additional flow barrier wall (i.e., additional grout curtains), passive treatment options (i.e. permeable reactive barrier to passively treat groundwater), or other options deemed appropriate and feasible based on the results of the trigger threshold exceedance investigation.</p>
Attachment	Yes – see Appendix A



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Appendix A Attachments to NOC-IR-14-3



Table NOC IR-14-3
MacLellan TMF Grout Curtain Sensitivity Analysis
Seepage Analysis Results
Lynn Lake Gold Project

Seepage Flow Location	Grout Curtain Length (m)	Grout Curtain Depth (m)	Seepage Rates (m ³ /day)	
			Starter Dam (End of Stage 1)	Ultimate Dam
Payne Lake	1000	0	7	85
		10	5	58
		20	4	52
Minton Lake	1500	0	12	135
		10	8	93
		20	7	83
Plant Site	1300	0	27	95
		10	18	65
		20	16	58

G:_GS_Projects\Folder\11473084_ILGP_EA\ADMIN\data_m\WSP_20251016_Grout_Curtain\GroundwaterWells_with_GroutCurtain_20251016.mxd Revised: 2025-10-17 By: ACampigotto



- Sample Locations**
- Monitoring Well
 - Monitoring Well (Decommissioned)
 - Drive-Point Piezometer
 - Groundwater Quality Sampling Location
 - Groundwater Quality Trigger Monitoring Location

- Project Infrastructure**
- Communication Tower
 - Grout Curtain
 - Fresh Water Intake
 - Effluent Diffuser
 - Mine Rock Storage Area
 - Overburden Stockpile
 - Tailings Management Facility
 - Open Pit
 - Satellite Pit
 - Collection Pond/Sumps
 - Other Infrastructure
 - Construction Laydown Area
 - Project Development Area (PDA)

- Landbase**
- Highway
 - Existing Access Road
 - Watercourse
 - Waterbody
- N
-
- 0 0.5 1 Kilometres
(At original document size of 11x17)
1:30,000

Notes

- Coordinate System: NAD 1983 UTM Zone 14N
- Base Data Sources: Government of Manitoba and Government of Canada.
- Grout Curtain georeferenced from Bedrock Grouting Plan, Profile; WSP; 2025-09-09.

Project Location
Lynn Lake, Manitoba
Prepared by ACampigotto on 2025-10-16
Technical Review by MFraser on 2025-10-16

Client/Project
ALAMOS GOLD INC.
Lynn Lake Gold Project
111473084

Map No.
NOC IR-14-3

Title
Bedrock Grouting Plan with Groundwater Sampling and Monitoring Locations - MacLellan site

