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April 15, 2021

File: MV2020C0017
MV2020L8-0012

Mark Cliffe-Phillips
Mackenzie Valley Review Board
200 Scotia Centre
Box 938, 5102-50th Avenue
Yellowknife NT X1A 2N7

Sent by email

Dear Mark Cliffe-Phillips,

Re: Pine Point Confirmation and Exploration Program – Notice of Preliminary Screening Determination – Applications for Land Use Permit and Water Licence – Pine Point, NT

The Mackenzie Valley Land and Water Board (Board) met on April 13, 2021 and considered the Applications from Pine Point Mining Limited (PPML) for Land Use Permit (Permit) MV2020C0017 and Water Licence (Licence) MV2020L8-0012 for the Pine Point Confirmation and Exploration Program (Project) in accordance with the *Mackenzie Valley Resource Management Act* (MVRMA).

The Board conducted a preliminary screening based on the public record for the proceeding. Based on the evidence provided, the Board is satisfied the screening has been completed according to section 125 of the MVRMA and has decided **not to refer** the project to environmental assessment. The Board's reasons for decision, as required by section 121 of the MVRMA, are attached.

If the Board does not receive notice of referral to environmental assessment, it will continue with the regulatory proceeding on Friday, April 23, 2021.

The Board and staff look forward to continued communications throughout the pause period. Please contact Shelagh Montgomery at (867) 766-7457 with any questions or concerns regarding this letter.

Yours sincerely,



Mavis Cli-Michaud

Mackenzie Valley Land and Water Board, Chair

Copied to: Distribution List
Andrew Williams, PPML

Attached: Preliminary Screening and Reasons for Decision



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Preliminary Screening Determination and Reasons for Decision

File Number	Type A Licence MV2020L8-0012 and Type A Permit MV2020C0017
Company	Pine Point Mining Limited
Project	Confirmation and Exploration Program
Location	Pine Point, NT
Activity	Miscellaneous – Mineral Exploration
Date of Decision	April 13, 2021

1.0 Decision

In accordance with subsection 124(1) of the *Mackenzie Valley Resource Management Act* (MVRMA), the Mackenzie Valley Land and Water Board met on April 13, 2021 to make a preliminary screening determination on the Applications from Pine Point Mining Limited (PPML) (Applicant) for Land Use Permit MV2020C0017 (Permit)¹ and Water Licence MV2020L8-0012 (Licence)² for the Confirmation and Exploration Program at Pine Point Mine (Project).

The Board has determined that some Project activities and/or areas are exempt from preliminary screening, because they were previously screened. The Applicant has proposed new Project activities and areas, however, and the Board has decided not to refer the proposed changes to the Project to the Mackenzie Valley Environmental Impact Review Board (Review Board) for Environmental Assessment (EA) because, based on the evidence, it is the Board's opinion that the proposed changes to the Project will not have a significant adverse impact on the environment or be a cause of public concern.

The Board's determinations, including reasons for its decisions, are detailed in the sections 3 and 4.

¹See MVLWB Online Registry www.mvlwb.com for [MV2020C0017 - PPML – Permit Application Form – Nov27-20](#).

² See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 – PPML – Licence Application Form – Nov27 20](#).

2.0 List of Defined Terms and Acronyms

ATDFN	Akaiicho Territory Dene First Nations
AN	Ammonium nitrate
ANFO	Ammonium nitrate fuel oil
Applicant	Pine Point Mining Limited
Applications	The complete application package submitted by the Applicant for Water Licence MV2020L8-0012 and Land Use Permit MV2020C0017.
Board	Mackenzie Valley Land and Water Board
DFO	Fisheries and Oceans Canada
DFN	Dehcho First Nations
DKFN	Denínu Kúé First Nation
DGGFN	Deh Gáh Got'ie First Nation
EA	Environmental Assessment
GNWT	Government of the Northwest Territories
GNWT-ENR	Government of the Northwest Territories – Environment and Natural Resources
GNWT-Lands	Government of the Northwest Territories – Lands
KFN	Kát'odeeche First Nation
LDNF	Łutsek'e Dene First Nation
MVLWB	Mackenzie Valley Land and Water Board
MVRMA	<i>Mackenzie Valley Resource Management Act</i>
NRCan	Natural Resources Canada
NWTMN	Northwest Territory Métis Nation
ORS	Online Review System (www.onlinereviewsystem.ca)
Party	As per the MVLWB Rules of Procedures , an applicant, a person, or an organization participating in the regulatory proceeding for the Applications.
Project	Confirmation and Exploration Program at Pine Point Mine, which is the proposed development (as defined in Part 5 of the MVRMA). ³
Review Board	Mackenzie Valley Environmental Impact Review Board
SARA	<i>Species at Risk Act</i>
SLFN	Smith Landing First Nation
Standard Licence Conditions	MVLWB Standard Water Licence Conditions Template
Standard Permit Conditions	MVLWB Standard Land Use Permit Conditions Template
SRFN	Salt River First Nation

³ “development” is defined in Part 5 of the MVRMA as:

“any undertaking, or any part or extension of an undertaking, that is carried out on land or water and includes an acquisition of lands pursuant to the *Historic Sites and Monuments Act* and measures carried out by a department or agency of government leading to the establishment of a park subject to the *Canada National Parks Act* or the establishment of a park under a territorial law.”

3.0 Background and Scope of Screening

Background:

There is a long history of exploration and mining activities associated with Pine Point, NT, which is located approximately 65 km east of Hay River and west of Fort Resolution, respectively. Cominco Ltd. mined 52 zinc and lead deposits from 1964 to 1988. Two of the deposits were mined underground and the remaining 50 deposits were mined as open pits. Before the mine closed in 1988, Cominco produced approximately 70 million tons of ore, with grades of 2.9% lead and 6.8% zinc. There was a mill and a town site at Pine Point, which were removed at the end of mining. The remaining Pine Point tailings impoundment area is currently being reclaimed by Teck Metals Ltd. under its Permit MV2019X0006 and Licence MV2017L2-0007.

Pine Point Mining Limited (PPML) currently hold three authorizations including Permits MV2017C0024 and MV2018C0005, and Licence MV2020L2-0008. These authorizations allow PPML to conduct mineral exploration at Pine Point, NT. Associated activities include geological mapping, sampling, diamond drilling, use of water, deposit of waste, use of heavy machinery and vehicles, storage of fuel, maintaining existing access roads and trails, and progressive reclamation. A total of 40 Mineral Leases and 106 Mineral Claims, and three Surface Leases are held by PPML. An Environmental Assessment (EA) for the Pine Point Pilot Project (EA0607-002) was conducted, with a Ministerial decision on May 13, 2008.⁴ The Board subsequently conducted several screenings associated with the authorizations held by PPML since 2009. All screened activities, including mitigations and impacts, can be found in the most recent preliminary screening for PPML's Permit Amendment Application for Permit MV2017C0024, approved by the Board on February 11, 2021.⁵

On November 27, 2020, PPML submitted new Applications for Permit MV2020C0017 and Licence MV2020L8-0012 for the Confirmation and Exploration Program at Pine Point, NT (attached). PPML is proposing to amalgamate all its existing authorizations including Permit MV2017C0024, MV2018C0005, and Licence MV2020L2-0008.

In addition to the existing authorized activities described above, PPML is proposing the following:

- Increase the camp size from 49-person to 249-person;
- Aquifer testing, metallurgical bedrock sampling, and geotechnical bedrock sampling;
- Increase of fuel storage; and
- Increase in equipment.

As indicated in PPML's Application Form, the Applicant has applied for a seven-year Licence term and proposed a completion date of March 30, 2028 for the Confirmation and Exploration Program. The Board notes that a separate EA proceeding for Mining and Milling activities at Pine Point Mine was initiated on February 4, 2021.⁶

⁴ See Review Board Public Registry www.reviewboard.ca for EA0607-002.

⁵ See MVLWB Online Registry www.mvlwb.com for MV2017C0024 – PPML – Notification – Preliminary Screening Determination and Notification to Review Board – Feb12-21.

⁶ See Review Board Online Registry <https://reviewboard.ca> for EA2021-01.

The Board approved PPML's Engagement Plan V.2⁷ with the Issuance of Licence MV2020L2-0008 and extension of Permit MV2018C0005 on October 9, 2020. An Engagement Log⁸ and Engagement Plan V2.1⁹ were included in the Application (attached). PPML noted they engaged with the following Parties:

- Denínu Kúé First Nation (DKFN)
- Kát'odeeche First Nation (KFN)
- Northwest Territory Métis Nation (NWTMN)
- Ts'ueh Nda (Westpoint) First Nation (WPFN)
- Deh Gáh Got'ie (Fort Providence) First Nation (DGGFN)
- Akaitcho Territorial Government (directed to Akaitcho Dene First Nation)
- Hamlet of Fort Resolution
- Town of Hay River
- Town of Fort Smith
- City of Yellowknife
- Łutsek'e Dene First Nation (LDFN)
- Smith Landing First Nation (SLFN)
- Salt River First Nation (SRFN)
- Timberworks Inc.

PPML conducted engagement for their Type A Applications from June 26, 2020 to November 18, 2020. Follow up engagement was conducted with the Parties listed above except for SLFN, SRFN, and the Town of Fort Smith. The Board notes that these Parties are not listed in PPML's approved Engagement Plan V.2.

PPML presented its Confirmation and Exploration Program over Zoom/teleconference to the Town of Hay River, City of Yellowknife, KFN, Łutsek'e Dene First Nation, and NWTMN. PPML engaged with Chief Balsillie with DKFN and Chief Joachim with DGGFN to discuss the project further.

From the Engagement Record, some concerns identified were about socio-economic issues, including employment/contracting opportunities going forward and benefit agreements. In addition, there were some concerns about environmental impacts and mitigations from the Project included in the Log, which PPML followed up on. KFN, NWTMN, and LDFN identified the Parties that they believe should be engaged with and have recognized rights.

The Applications includes proposed changes to the Project. Under Part 1, Schedule 1, section 2.1 of the Exemption List Regulations to the MVRMA, project areas and activities that have already been subject to Part 5 of the MVRMA are exempt from preliminary screening. The new Project activities and areas require screening by the Board in accordance with subsection 124(1) of the MVRMA.

In accordance with paragraph 125(1)(a) of the MVRMA, the Board must conduct a preliminary screening of the proposed changes to the Project to determine and report to the Review Board whether, in its

⁷ See MVLWB Online Registry www.mvlwb.com for [MV2020L2-0008 MV2018C0005 – PPML – Engagement Plan – Aug28 20](#).

⁸ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Engagement Log – Nov27 20](#).

⁹ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Engagement Plan V2.1 – Nov27 20](#).

opinion, the proposed changes to the Project might have a significant adverse impact on the environment or might be a cause of public concern. The details of the Board's analysis are set out in section 3 below.

Public Record and Regulatory Proceeding:

To assist the Board in its preliminary screening determination for the Project, the Board distributed the Applications for public review on December 7, 2020, inviting reviewers to provide comments and recommendations on the Applications and the preliminary screening (e.g., on impacts and mitigation measures) using the Online Review System (ORS). Comments were due January 19, 2021, with responses from the Applicant due February 2, 2021. The Board received comments and recommendations from DKFN, Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO), Government of the Northwest Territories Department of Lands – Hay River Region (Lands Inspector), Government of the Northwest Territories Department of Lands, on behalf of all GNWT Department (GNWT), KFN.¹⁰ Board staff also submitted comments.

Since there were no requests to extend the reviewer comment deadline, the Board is satisfied that a reasonable period of notice was given to affected communities and First Nations, as required by subsection 63(2) of the MVRMA.

Further discussions about topics related to the preliminary screening were discussed during the technical session, held from February 24-25, 2021 in Yellowknife, NT and on Zoom^{11 12}. During the technical session, ten information requests (IRs) were generated and sent to PPML on February 26, 2021.¹³ PPML responded to all IRs except IR 3 related to an updated Water Withdrawal Plan on March 12, 2021. The responses to the IRs were sent for public review on March 16, 2021. PPML responded to IR 3 on March 22, 2021, and this IR response was added to the public review. Comments were due March 26, 2021, with responses from the Applicant due March 30, 2021. The Board received comments and recommendations from ECCC, GNWT, and Board staff.¹⁴

Pursuant to Schedule 4.1 of the NWTMN Interim Measures Agreement, the Board determined that written notice was given to the NWTMN and that a reasonable period of time was allowed for NWTMN to make representations with respect to the Applications.

Pursuant to subsection 1.6, paragraphs (a) and (b) of the Akaitcho Territory Dene First Nations (ATDFN) Interim Measures Agreement, the Board determined that written notice was given to the ATDFN and that a reasonable period of time was allowed for ATDFN to make representations with respect to the Applications.

¹⁰ See MVLWB Online Registry www.mvlwb.com for [PPML – Review Comment Table – Initial Applications – Feb 2 21](#).

¹¹ See MVLWB Online Registry www.mvlwb.com for [PPML – Technical Session Transcript Day 1 \(Feb 24, 21\) – Mar9 21](#).

¹² See MVLWB Online Registry www.mvlwb.com for [PPML – Technical Session Transcript Day 2 \(Feb 25, 21\) – Mar9 21](#).

¹³ See MVLWB Online Registry www.mvlwb.com for [PPML – Technical Session Information Requests – Feb 26 21](#).

¹⁴ See MVLWB Online Registry www.mvlwb.com for [PPML – Technical Session Information Request Response – Review Comment Table – Mar 30 21](#).

Pursuant to section 27, paragraphs (a) and (b) of the Dehcho First Nations DFN Interim Measures Agreement, the Board has determined that written notice was given to the DFN, and that a reasonable period of time was allowed for DDFN to make representations with respect to the Applications.

Previously Screened Areas:

For Permit MV2018C0005 and Licence MV2020L2-0008, the area previously screened (Northeast: 114° 19'14.1" W, 60°53'27.6" N; Southwest: 114°46'15.6"W, 60°45'54.3" N) includes a subset of the area that has been screened for Permit MV2017C0024 (Northeast: 114°2'0" W, 60°58'0" N; Southwest: 115°17'0"W, 60°40'0"N).¹⁵

In total, 40 Mining Leases, four Surface Leases, and 106 Mineral Claims had been screened by the Board for the PPML Mine, as follows:¹⁶

Table 1: Mining Leases, Surface Leases, and Mineral Claims held by PPML

Mining Leases	Surface Leases	Mineral Claims
4858, 4859, 4860, 4861, 4862, 4863, 4864, 4865, 4866, 4867, 4868, 4869, 4870, 4871, 4872, 4873, 5239, 5240, 5241, 5242, 5243, 5244, 5245, 5246, 5247, 5248, 5249, 5250, 5251, 5252, 5253, 5254, 5255, 5256, 5257, 5258, 5259, 5260, 5261, 5262,	85B/11-15-2, 85B/11-16-2, 85B/11-18-2, and 85B/11-19-2	D1-K15913, D2-K15914, D3-K15915, D4-K15917, D5-K15916, D6-M10298; D7-M10297, D8-M10296, D9-M10299, D10-M10300, D11-M10301, D12-M10302, D13-M10303, D11-M10301, M10191, M10192, M10426, M10427, M10653, M10654, M10658, M10659, M10660, M10514, M10515, M10516, M10517, M10518, M10519, M10550, M10551, M10552, M10553, M10554, M10555, M10801, M10803, M10804, M10805, M10806, M10807, M10808, M10809, M10810, M10811, M10812, M10813, M10814, M10815, M10816, M10817, M10818, M10819, M10820, M10821, M10822, M10823, M10824, M10825, M10826, M10827, M10828, M10829, M10830, M10831, M10832, M10833, M10834, M10835, M10837, M10838, M10839, M10840, M10841, M10842, M10843, M10844, M10845, M10847, M10849, M10850, M10851, M10852, M10853, M10854, M10855, M10856, M10857, M10858, M10859, M10860, M10861, M10862, M10863, M10865, M10866, M10868, M10869, M10870, M10877, M10878, M10879, M10880, M10520, M10846, M10848

The Mineral Claims M10520, M10846, and M10848 were partly within the Project area for Permit MV2017C0024. PPML had indicated that it was only proposing to add part of the claims area that was within the existing Project area boundary for Permit MV2017C0024 when additional Mineral Claims were screened by the Board on February 13, 2020 for a Permit MV2017C0024 Amendment Application.¹⁷

¹⁵ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Cover Letter – Dec4 20](#) (see map on page 11).

¹⁶ See MVLWB Online Registry www.mvlwb.com for [MV2017C0024 – PPML – Notification – Preliminary Screening Determination and Notification to Review Board – Feb12-21](#).

¹⁷ See MVLWB Online Registry www.mvlwb.com for [MV2017C0024 – PPML – Preliminary Screening Notification to Review Board – Feb14-20](#).

Previously Screened Activities:

Previously screened activities¹⁸ are listed below for reference, to ensure all ongoing and proposed activities are described in this current screening of the Project.

- Use of heavy equipment and vehicles;
- Construction and maintenance of a 90-person camp facility;
- Confirmatory, exploration, definition drilling program, and drilling to install holes for future dewatering tests, consisting of approximately 2,500 diamond drill holes;
- Use of water and deposit of waste at sumps;
- Fuel storage of approximately 32,500 L of diesel, gasoline and aviation fuel, and 8000 lbs of propane;
- Construction and maintenance of trails; and
- Progressive reclamation and associated closure activities.

New Areas and Activities:

As indicated in PPML's Cover Letter, no additional Mining Leases, Surface Leases, or Mineral Claims are proposed for the Project. However, PPML has applied to increase the Project boundary (Northeast: 113°57'0.62" W, 61°2'30.173" N; Southwest: 115°17'0"W, 60°40'0" N).¹⁹ The new Project boundary encompasses the three Mineral Claims (M10520, M10846, and M10848) that were previously only partly within the Project area.

For the Confirmation and Exploration Program, the Applicant intends to increase the camp to a 249-person facility.²⁰ Specifically, PPML plans to continue operating the previously established tent camp that is located approximately 3 km north of the former Pine Point town site but may also establish satellite camp(s) in previously disturbed areas.²¹ The 249-person camp would require the construction of 90 camp buildings. The Applicant has proposed that wastewater treatment may be a method employed to treat greywater and/or sewage. During the technical session, PPML also proposed use of a septic system and dispersal field for treating camp wastewater.²² In response to IR 4 from the technical session, PPML clarified that there are three options under consideration for camp wastewater, including: installation of a modular wastewater treatment plant; construction and operation of a sewage lagoon; or construction and operation of septic system with a dispersal field.²³

It has been estimated by the Applicant that drilling at up to 3,000 sites would occur at Pine Point Mine to determine the depth and thickness of mineralized zones, and test core samples for metals.²⁴ Additional

¹⁸ See MVLWB Online Registry www.mvlwb.com for [MV2017C0024 – PPML – Notification – Preliminary Screening Determination and Notification to Review Board – Feb12-21](#).

¹⁹ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Cover Letter – Dec4 20](#) (see map on page 11).

²⁰ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Cover Letter – Dec4 20](#).

²¹ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Project Description – Nov27 20](#).

²² See MVLWB Online Registry www.mvlwb.com for [PPML – Technical Session Transcript Day 2 \(Feb 25, 21\) – Mar9 21](#), page 46.

²³ See MVLWB Online Registry www.mvlwb.com for [PPML – Technical Session Response IR 4 – Wastewater Treatment Options – Mar12 21](#).

²⁴ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Project Description – Nov27 20](#).

activities related to the drilling program at Pine Point are also proposed, including aquifer testing, metallurgical bedrock sampling, and geotechnical testing.²⁵ In a Water Withdrawal Plan that was included with the Applications, PPML indicated that water for the Project will be withdrawn for camp use, exploration drilling, dust control, and aquifer testing.²⁶ The Screening Impact Assessment document submitted with PPML's Applications indicates that existing roads and trails will be used to the extent practicable to limit the need for new trails.²⁷ In the Draft Licence Conditions proposed by PPML, the following was specifically included as an item in the Scope section of the Licence: "Construction, operation, and maintenance of trails, access roads and haul roads".²⁸

Aquifer testing is proposed to obtain values for hydrogeological parameters of geologic deposits in the Pine Point area that will enable quantitative models of groundwater movement to be developed and flow rates for the aquifers to be determined.²⁹ The intent is for this information to be used to develop the water management plan for future mining and milling at Pine Point. To conduct this testing, PPML has proposed to pump water in historical mine pits from an existing open pit to another pit that is far enough away to not interfere with the source pit groundwater. The Applicant also proposes to use boreholes near a mineral deposit to draw down the water table and move water to a nearby existing open pit or re-inject the water via a second borehole for the aquifer testing. During the public review on the Applications, PPML submitted a comment requesting the Applications be updated to reflect a revised volume of water to be moved during aquifer testing.³⁰ In the Application, PPML had indicated that it was expected that the groundwater drawdown tests would remove 3,600 m³/day of water from a borehole or pit. PPML indicated in the review comment that further examination of historical data revealed that a higher rate of water drawdown will be necessary and requested that the drawdown rate be increased to 15,000 m³/day.

The Applicant proposed that metallurgical bedrock sampling will involve sampling mineralized bedrock to understand future operational blasting parameters and obtain samples of comminution (crushing/grinding) testing.³¹ Approximately five tonne samples at up to twenty separate sites are proposed to be required for the bedrock sampling, and the area to be cleared for each blast for the sampling would be about 100 m by 100 m. This sampling requires explosives storage and handling, and the Applicant has proposed to construct explosives storage magazines, an ammonium nitrate (AN) storage pad, an AN loading facility and an emulsion plant. A water sample (up to 10 m³ spread over 20 locations) would also be obtained from the existing open pits for metallurgical testing.

²⁵ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Cover Letter – Dec4 20](#).

²⁶ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 – PPML – Water Withdrawal Plan V1.0 – Nov27 20](#).

²⁷ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Screening Impact Assessment – Nov27 20](#).

²⁸ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020 – PPML – Draft Licence Conditions – Nov27 20](#).

²⁹ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Project Description – Nov27 20](#).

³⁰ See MVLWB Online Registry www.mvlwb.com for [PPML – Review Comment Table – Initial Applications – Feb 2 21](#), PPML, comment 1.

³¹ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Project Description – Nov27 20](#).

Geotechnical testing has also been proposed by the Applicant, which would include shallow test pitting sampling to occur to characterize surface and shallow subsurface materials.³² This work is necessary to understand availability of construction materials, such as gravel and sand. The test pitting would occur at approximately 200-300 sites around the Project boundary. About 10 kg of material would be sampled from each site for material characterisation.

During the public review of the Applications, Board staff noted that PPML had proposed that an option for disposal in the event of a spill could be “on-site treatment at a facility approved for the purpose”.³³ Board staff recommended PPML clarify if this option meant that a Petroleum Hydrocarbon-Contaminated Soil Treatment Facility (i.e., a landfarm) may be constructed and operated on site. In response, PPML noted that the landfarm is an option under consideration, but has not decided if it will be required.

The following summarizes the new New project activities discussed above that the Board has considered for this preliminary screening:

- Use of additional heavy vehicles and equipment;
- Construction and operation of a 249-person camp;
- Construction, operation, and maintenance of Wastewater Treatment Facilities, including a modular wastewater treatment plant, sewage lagoon, or septic system with a dispersal field;
- Resource definition and exploration core drilling at approximately 3,000 drill sites;
- Withdrawal of water for camp use, metallurgical testing, aquifer testing, and dust control;
- Fuel storage of approximately 275,000 L of diesel, 28,000 L of gasoline, 28,000 L of aviation fuel, and 10,000 lbs of propane;
- Construction, operation, and maintenance of additional trails, access roads and haul roads;
- Aquifer testing including water drawdown from open pits and boreholes at a rate of 15,000 m³/day for up to seven days;
- Metallurgical bedrock sampling at approximately 20 sites;
- Handling, use, and storage of explosives, including construction of an explosives storage magazines, an ammonium nitrate (AN) storage pad, an AN loading facility, and an emulsion plant;
- Geotechnical testing including test pitting at 200-300 sites; and
- Construction and operation of a Petroleum Hydrocarbon-Contaminated Soil Treatment Facility.

4.0 Potential Impacts and Proposed Mitigations

PPML provided a Screening-Level Impact Assessment document³⁴ with the Applications that discussed mitigations associated with the New project activities that PPML believed needed to be screened.

³² See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Project Description – Nov27 20](#).

³³ See MVLWB Online Registry www.mvlwb.com for [PPML – Review Comment Table – Initial Applications – Feb 2 21](#), MVLWB, comment 13.

³⁴ See MVLWB Online Registry www.mvlwb.com for [MV2020L8-0012 MV2020C0017 – PPML – Screening Impact Assessment – Nov27 20](#).

The Board notes that the GNWT Minister of Environment and Natural Resources has not yet made a determination regarding whether a Wildlife Management and Monitoring Plan will be required for the Project as per section 95 of the *Wildlife Act*. PPML submitted a Wildlife Protection Plan³⁵ with the Applications, and continues to propose that the Wildlife Protection Plan be considered appropriate for the Project.³⁶ Consequently, in discussing mitigations related to wildlife, the Board included a reference to either the Wildlife Protection Plan or the Wildlife Management and Monitoring Plan, in the event the Minister decides that a Wildlife Management and Monitoring Plan is required.

Table 2 below summarizes:

- the potential impacts and proposed mitigations for the proposed changes to the Project;
- the concerns that were identified during the regulatory proceeding and how the Applicant addressed those concerns; and
- the Board's analysis of the potential impacts and proposed mitigations.

³⁵ See MVLWB Online Registry www.mvlwb.com for MV2020L8-0012 MV2020C0017 – [PPML – Wildlife Protection Plan V1.0 – Nov27 20](#).

³⁶ See MVLWB Online Registry www.mvlwb.com for MV2020L8-0012 MV2020C0017 – [PPML – Wildlife Protection Plan Updates Memo – Mar12 21](#).

Table 2: Potential Impacts and Proposed Mitigations for the Proposed Changes to the Project

Potential Impact	Activity	Proposed Mitigations <i>Description of measures to reduce potential impacts, including consideration of cumulative impacts and climate change.</i>	Board Analysis and Determination
Destabilization/erosion of soil, soil compaction, changes in soil structure, and inability to support vegetation	Clearing of timber, brush, or vegetation mat, stripping of overburden, bulk soil sampling, use of motorized and heavy equipment, diamond drilling, geotechnical borehole drilling	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Best management practices to control erosion and sediment would be followed for all clearing and road and trail maintenance operations to minimize soil compaction. Existing roads and trails would be used to the extent practicable to limit the need for new trails. While some effects to soil may result from any required clearing, the impacts would be minor and localized, with activities predominantly confined to the existing roads and disturbed areas. ○ Specifically, it was estimated that 85% or more of the sites will be accessible by existing trails (Review Comment Table – Applications, GNWT, comment 51). ○ For new access roads a 10 m maximum width would only be used as necessary; PPML would endeavor to minimize the width of newly constructed right-of-ways (Review Comment Table – Applications, GNWT Lands Inspector, comment 1). ○ Follow the <i>Northern Land Use Guidelines for Access: Roads and Trails</i> (PPML’s response to IR 10). ○ Brownfield sites used for the Project would be reclaimed as if a new disturbance (Review Comment Table – Applications, GNWT, comment 21). The natural surface of access trails would be protected as much as possible, and mulched organic material would be placed over the trails for reclamation to lessen erosion and encourage vegetation regrowth. Preservation of topsoil would be accomplished by using mulchers wherever possible (Review Comment Table – Applications, GNWT, comment 52). ○ A Bedrock Sampling Management Plan was submitted with the Applications and proposed as a requirement of the Licence for Board approval. The plan would include details of waste rock being returned to bedrock sampling pits and the number and location of the metallurgical samples. ○ Soil compaction and change in soil structure associated with drilling activities would be mitigated by suspending activity at the first sign of rutting or soil compaction. ○ Drill sites would be 30 m by 30 m (0.09 ha) maximum extent (PPML’s response to IR 10). ○ Use drills on tracks to limit disturbance and limit the size of the area cleared for drill pads (target is 20 m x 20 m or less) (Review Comment Table – Responses to IRs, ECCC, comment 1). ○ Minimize the actual drill site area both to reduce environmental effects and reduce costs (PPML’s response to IR 10). ○ It is anticipated that approximately 10% of the new drill holes would be in undisturbed areas (resulting in an estimated 36 ha of new disturbance), minimizing disturbance to greenfield areas. The remaining 90% would be infill drilling in previously disturbed areas (PPML’s response to IR 10). • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: 	Based on the geographic size of the undisturbed area likely to be affected by the impacts, historical development at Pine Point, and the described mitigations, it is the Board’s opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.

		<ul style="list-style-type: none"> ○ DOGLEG APPROACHES ○ EXCAVATED MATERIAL TEST PITS ○ PROGRESSIVE EROSION CONTROL ○ REPAIR EROSION ○ PREVENTION OF RUTTING ○ SUSPEND OVERLAND TRAVEL ○ VEHICLE MOVEMENT FREEZE-UP ○ DRY FORDING ○ EXCAVATIONS AND EMBANKMENTS ○ EQUIPMNET: WATERCOURSE BUFFER ○ EXCAVATION SETBACK ○ NATURAL VEGETATION ○ PROGRESSIVE RECLAMATION ● The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ EROSION CONTROL ○ CLOSURE AND RECLAMATION PLAN 	
Soil contamination	Diamond drilling, geotechnical borehole drilling, on-site storage or disposal of wastes, transfer, storage, and use of petroleum products and/or chemicals, transfer, storage, use of explosives, construction and operation of a Petroleum Hydrocarbon-Contaminated Soil Treatment Facility, use of pit water for a dust suppressant	<ul style="list-style-type: none"> ● The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ The Spill Contingency Plan would be adhered to for mitigating potential impacts associated with drilling waste contaminating the soil or camp operations resulting in soil contamination (e.g., sewage). ○ PPML has indicated that the ammonium nitrate (AN) storage area pads would hold double-bagged totes. If the totes spill, AN could contaminate the surrounding land. If bulk AN is used, PPML would store the bags in a lined pad (Review Comment Table – Applications, MVLWB, comment 19). ○ If emulsion of explosives occurs on-site, PPML would apply for a permit through Natural Resources Canada (NRCAN) under the <i>Explosives Act</i>. If packaged explosives are used, PPML would apply to the Northwest Territories Workers' Safety & Compensation Commission to gain relevant approval under the <i>Explosives Use Act</i> (Technical Session Day 1, pages 51-52). ○ A Bedrock Sampling Management Plan was submitted with the application and proposed to be a requirement of the Licence for Board approval. The Plan would include information regarding explosives management and monitoring. ○ Construction and operation of a Petroleum Hydrocarbon-Contaminated Soil Treatment Facility would result in contaminated soil being kept on-site. PPML noted that if a landfarm were to be constructed it would comply with the Board's <i>Guidelines for Design, Operation, Maintenance, and Closure of Petroleum Hydrocarbon-Contaminated Soil Treatment Facilities in the Northwest Territories</i>. ○ PPML has proposed using pit water for dust control. Given certain parameters including uranium and thallium in the pit water can exceed CCME guidelines, this could result in soil contamination adjacent to roads. PPML would follow the <i>GNWT Guidelines for Dust Suppression (2013)</i>, including limiting the 	Based on the described mitigations, it is the Board's opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.

		<p>application to the roadway, monitoring the application rate to avoid pooling or runoff, and not exceeding the minimum application to effectively suppress dust (Review Comment Table - Responses to IRs, GNWT, comment 15). The roads that are to have the dust suppression applied are constructed from material drawn from the same pits that would be the water sources for dust control (Review Comment Table - Responses to IRs, MVLWB, comment 14).</p> <ul style="list-style-type: none"> • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ DRILLING WASTE DISPOSAL ○ DRILLING WASTE CONTAMINMENT ○ SEWAGE DISPOSAL – PLAN ○ FUEL CACHE SECONDARY CONTAINMENT ○ SECONDARY CONTAINMENT – REFUELING ○ FUEL CONTAINMENT ○ FUEL ON LAND ○ SPILL CONTINGENCY PLAN ○ SPILL RESPONSE ○ DRIP TRAYS ○ CLEAN UP SPILLS ○ REPORT SPILLS ○ WASTE PETROLEUM DISPOSAL ○ WASTE MANAGEMENT • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ HYDROCARBON-CONTAMINATED SOIL TREATMENT FACILITIES – GENERAL ○ WASTEWATER USE 	
Groundwater table alteration, infiltration changes	Withdrawal of groundwater, diamond drilling, geotechnical borehole drilling	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Water table alteration would occur due to the aquifer testing. Water sources would be preferentially selected from existing flooded pits. A Water Withdrawal Plan was submitted with the Applications and is being proposed as a requirement of the Licence for Board approval. The Water Withdrawal Plan was developed with reference to the draft <i>MVLWB Method for Determining Available Water Volumes for Small-Scale Projects</i>, and indicated which water sources have been selected and the water withdrawal limits from each source. The water withdrawals from waterbodies would remain within the 10% of lake volume recommended by DFO. Conditions under Part D of the Board’s Standard Water Licence Conditions could control the water use and withdrawal. No water management structures, or diversions would be constructed. A Groundwater Management Plan Framework was submitted with the Applications and proposed to be a requirement of the Licence for Board approval. This Plan would control the method to aquifer testing to minimize the impacts of water extraction. ○ Groundwater tests would use up to 105,000 m³ total per pit at a pump a rate of up to 15,000 m³/day, 	Based on the described mitigations, it is the Board’s opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.

		<p>running continuously for up to 7 days at each test site. This may exceed the current volume of the pit, and the difference would be made up by recharge from groundwater.</p> <ul style="list-style-type: none"> ○ Groundwater re-injection methods to mitigate changes, including infiltration changes, are outlined in the Groundwater Management Plan. ○ The Inspector would be provided with the necessary water quantity information (e.g., flow rates) prior to aquifer testing pumping, for confirmation by the Inspector prior to commencing pumping. PPML proposed to provide this information in the Annual Water Licence Report (Review Comment Table - Responses to IRs, GNWT, comment 13). ○ Monitoring wells would be installed at various distances from the source water site to monitor changes in groundwater levels associated with the aquifer testing (Review Comment Table - Responses to IRs, GNWT, comment 14). ○ To mitigate water table alteration associated with drilling, conditions under section 26(1)(f) of PPML's proposed draft Permit require that boreholes be plugged to prevent outflow of groundwater. ○ An artesian well could be encountered during Project activities. PPML would permanently plug and report boreholes with flowing water. • The Board has Standard Permit Condition which is typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ FLOWING ARTESIAN WELL • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ REPORT ARTESIAN AQUIFER ○ WATER SOURCE AND MAXIMUM VOLUME ○ MAXIMUM UNDER ICE WATER WITHDRAWAL VOLUME 	
Changes in groundwater quality	Withdrawal of groundwater, diamond drilling, geotechnical borehole drilling, transfer, storage, and use of petroleum products and/or chemical, use of explosives, and construction and operation of a Petroleum Hydrocarbon-Contaminated Soil Treatment Facility	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Aquifer testing could result in changes to groundwater quality. Conditions under PPML's proposed draft Licence (Part F and Schedule 2) would ensure the compliance with the Groundwater Management Plan. ○ A Groundwater Management Plan was submitted with the Applications and proposed to be a requirement of the Licence for Board approval. Groundwater re-injection methods to mitigate changes to groundwater quality are outlined in the Groundwater Management Plan. As per the Plan, water would only be transferred if a water injection site is considered to meet compatible criteria (Review Comment Table - Responses to IRs, ECCC, comment 2, GNWT, comment 7). ○ PPML proposed providing the Inspector with the necessary water quality information prior to aquifer testing pumping, for confirmation by the Inspector prior to commencing pumping. PPML proposed to provide this information in the Annual Water Licence Report (Review Comment Table - Responses to IRs, GNWT, comment 13). ○ To mitigate water quality changes associated with drilling, conditions under section 26(1)(f) of PPML's proposed draft Permit require that boreholes be plugged to prevent outflow of groundwater. ○ There is potential for groundwater quality to be impacted related to drill cuttings and sludges and 	Based on the described mitigations, it is the Board's opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern. Regarding the aquifer testing impacting groundwater quality, the Board believes that changes to groundwater quality can be mitigated through the Groundwater Management Plan and other conditions in the Licence.

		<p>returned water from drilling entering groundwater. To mitigate this, drill cuttings/sludges would be buried in sumps located away from the high-water mark, where required.</p> <ul style="list-style-type: none"> ○ There is the potential for fuel to enter groundwater in the area associated with the Project activities. Fuel-handling and spill protocols would be followed as per the Waste Management Plan and the Spill Contingency Plan. ○ PPML has indicated that the ammonium nitrate (AN) storage area pads would hold double-bagged totes. If the totes spill, AN could infiltrate overburden and contaminate groundwater. If bulk AN is used, PPML would store the bags in a lined pad (Review Comment Table – Applications, MVLWB, comment 19). ○ If emulsion of explosives occurs on-site, PPML would apply for a permit through NRCAN under the <i>Explosives Act</i>. If packaged explosives are used, PPML would apply to the Northwest Territories Workers' Safety & Compensation Commission to gain relevant approval under the <i>Explosives Use Act</i> (Technical Session Day 1, pages 51-52). ○ A Bedrock Sampling Management Plan was submitted with the application and is being proposed as a requirement of the Licence for Board approval. The plan would include information regarding explosives management and monitoring. ○ Construction and operation of a Petroleum Hydrocarbon-Contaminated Soil Treatment Facility could result in petroleum hydrocarbons contaminating groundwater. PPML noted that if a landfarm were to be constructed it would comply with the Board's <i>Guidelines for Design, Operation, Maintenance, and Closure of Petroleum Hydrocarbon-Contaminated Soil Treatment Facilities in the Northwest Territories</i>. ● The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ MINERAL EXPLORATION DRILL CASINGS ○ CHEMICALS ○ DRILLING WASTE DISPOSAL ○ DRILLING WASTE CONTAMINMENT ○ FUEL CACHE SECONDARY CONTAINMENT ○ SECONDARY CONTAINMENT – REFUELING ○ FUEL CONTAINMENT ○ FUEL ON LAND ○ SPILL CONTINGENCY PLAN ○ SPILL RESPONSE ○ DRIP TRAYS ○ CLEAN UP SPILLS ○ REPORT SPILLS ○ WASTE CHEMICAL DISPOSAL 	
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		<ul style="list-style-type: none"> ○ WASTE PETROLEUM DISPOSAL ○ WASTE MANAGEMENT • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ HYDROCARBON-CONTAMINATED SOIL TREATMENT FACILITIES – GENERAL ○ OBJECTIVE – WASTE AND WATER MANAGEMENT ○ OBJECTIVE – PREVENT WASTE INTO WATER ○ SPILL CONTINGENCY PLAN ○ REPORT SPILLS ○ SPILL PREVENTION AND RESPONSE EQUIPMENT ○ CLEAN UP SPILLS 	
Loss or change in extent of permafrost	Clearing of timber, brush, or vegetation mat, stripping of overburden, construction of structures	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ The Project is located in an area of sporadic discontinuous permafrost with generally subdued topography, which NRC (1995)³⁷ suggests that between 10% and 50% of the land area is underlain by permafrost, and the ground ice content in the upper 10 to 20 m of the ground (% by volume of visible ice) is low (<10%) (NRC 1995) (PPML's response to IR 10). ○ Permafrost has not been intersected by any recent core drilling in the area; however, it was detected at one location during a soil/vegetation reconnaissance survey in 2019 (Golder 2021)³⁸. As a result, it is expected that the area of permafrost to be disturbed by the Project will be small (PPML's response to IR 10). ○ Road and trail maintenance could result in localized loss of permafrost that could lead to slumping and loss of vegetation due to erosion and subsidence. Best management practices to control erosion and sediment would be followed for all road and trail maintenance operations. Permafrost has a low ice content. ○ Conditions under Section 26(1)(f) of the Board's Standard Land Use Permit Conditions require that that Permittee insulate the ground surface beneath all structures associated with this land-use operation to prevent any vegetation present from being removed, the melting of Permafrost and the ground settling and/or eroding. ○ Infrastructure would be placed on disturbed ground where appropriate and repaired as required; activities would be predominantly confined to existing roads and disturbed areas; and activity would be suspended at the first sign of rutting or soil compaction to prevent disturbance of shallow permafrost. As the permafrost in the Pine Point area is discontinuous and has a low ice content, any localized changes to permafrost are unlikely to lead to any erosion or ground instability. • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: 	Based on the geographic size of the undisturbed area likely to be affected by the impacts and the described mitigations, it is the Board's opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.

³⁷ NRC (Natural Resources Canada). 1995. The National Atlas of Canada, Permafrost. 5th Edition. [accessed 2 March 2021]. http://ftp.geogratis.gc.ca/pub/nrcan_rncan/raster/atlas_5_ed/eng/environment/land/mcr4177.jpg.

³⁸ Golder (Golder Associates Ltd.). 2021. Existing Environment for Pine Point Project. Pine Point Project. Submitted to Pine Point Mining Ltd. February 1, 2021. Available at: https://reviewboard.ca/upload/project_document/Volume%203%20-%20Description%20of%20Existing%20Environment.pdf.

		<ul style="list-style-type: none"> ○ CAMP SETBACK ○ PERMAFROST PROTECTION ○ PREVENTION OF RUTTING 	
Surface water flow or level change, surface drainage pattern changes	Withdrawal of water from a watercourse, construction and use of a watercourse crossing (bridge, ford), clearing of timber, brush, or vegetation mat near a watercourse, stripping of overburden adjacent to a watercourse, sourcing potable water	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Aquifer testing could lead to changes in water levels and flows. The water sources would be preferentially selected from existing flooded pits. A Water Withdrawal Plan was submitted with the Applications and proposed to be a requirement of the Licence for Board approval. The Water Withdrawal Plan was developed with reference to the <i>MVLWB Method for Determining Available Winter Water Volumes for Small-Scale Projects</i> and indicated which water sources have been selected and the water withdrawal limits from each source. The water withdrawals from waterbodies would remain within the 10% of lake volume recommended by DFO. Water withdrawals from waterbodies/watercourses would follow the conditions set out in the Water Licence (conditions under Part D of the Board’s Standard Water Licence Conditions control the water use and withdrawal). Withdrawal volumes would be limited to volumes approved under the Water Withdrawal Plan. No water management structures, or diversions would be constructed. ○ To mitigate changes in water quantity associated with aquifer testing, water movement between open pits during aquifer testing would consider the quantity (volume) of water in both the extracting pit and receiving pit. This would be detailed in the Groundwater Management Plan, which was submitted with the Applications and is being proposed as a requirement of the Licence for Board approval. Transfers between pits will be monitored and of limited duration. ○ Groundwater tests would use up to 105,000 m³ total per pit at a pump a rate of up to 15,000 m³/day, running continuously for up to 7 days at each test site. This may exceed the current volume of the pit, and the difference would be made up by recharge from groundwater. Pits would not be dewatered. At least 2 metres of water would always remain in the pit. The receiving pit would be filled to not higher than 1 m from the bedrock elevation at the pit edge. Water levels and pumping rates would be tracked during each groundwater test. Where necessary, pit depths (bathymetry) would be measured prior to the groundwater test. If bathymetry has not been measured, current volume was estimated with an assumed average 3 m depth (PPML’s response to IR 3 - Water Withdrawal Plan V1). ○ Providing the Inspector with the necessary water quantity information (e.g., flow rates) prior to aquifer testing pumping, for confirmation by the Inspector prior to commencing pumping. PPML proposed to provide this information in the Annual Water Licence Report (Review Comment Table - Responses to IRs, GNWT, comment 13). ○ PPML would visually monitor nearby waterbodies during aquifer testing (lakes, swamps, and streams) where they exist in reasonable proximity to the test site for changes in surface level (Review Comment Table - Responses to IRs, GNWT, comment 14). ○ Water crossings would be avoided; if any new water crossings are required, they would be planned 	Based on the described mitigations, it is the Board’s opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.

		<p>per applicable regulatory requirements and best practices.</p> <ul style="list-style-type: none"> ○ To mitigate impacts to natural drainage patterns, existing roads and trails would be used to the extent practicable to limit the need for new trails, best management practices would be in place to control erosion and sediment and water crossings would be avoided. No water management structures, or diversions would be constructed. New trails and vegetation clearing are expected to be minimal. ○ Potable water would be sourced from Great Slave Lake or would be delivered by truck from Hay River, so would not impact water flow or level changes across the site. ○ To mitigate natural drainage patterns associated with metallurgical sampling, waste rock would be placed back in the sample hole immediately (within 2-3 days, but ideally within the same day) to restore natural drainage after the sample has been collected (Technical Session Day 2, page 26). • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ NATURAL DRAINAGE ○ PROGRESSIVE EROSION CONTROL ○ REPAIR EROSION ○ PREVENTION OF RUTTING ○ SUSPEND OVERLAND TRAVEL ○ VEHICLE MOVEMENT FREEZE-UP ○ DRY FORDING ○ EQUIPMENT: WATERCOURSE BUFFER • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ OBJECTIVE – WASTE AND WATER MANAGEMENT ○ REPORT ARTESIAN AQUIFER ○ WATER SOURCE AND MAXIMUM VOLUME ○ MAXIMUM UNDER-ICE WATER WITHDRAWAL VOLUME 	
Surface water changes in water quality, temperature changes	Withdrawal of water from a watercourse, direct or indirect disposal of waste into water, clearing of timber, brush, or vegetation mat near a watercourse, stripping of overburden adjacent to a watercourse, use of motorized or heavy equipment adjacent to, within, or through a watercourse, transfer, storage, and use of petroleum products and/or chemical, use of explosives	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ To mitigate changes in water quality associated with aquifer testing, water movement between open pits during aquifer testing would consider water quality and compatibility of the receiving pit, and the quantity (volume) of water in both the extracting pit and receiving pit. This would be detailed in the Groundwater Management Plan, which was submitted with the Applications and is being proposed as a requirement of the Licence for Board approval. Transfers between pits would be monitored and of limited duration. ○ Available pit water data indicated that the water quality in the pits is similar to the range of groundwater and surface water data in the area of the Project. Groundwater information indicates that, within the aquifer, water flows throughout the whole rock formation with no isolated zones of water identified within the formation. Therefore, pit water quality and groundwater quality are expected to be similar between source/extraction and deposit/reinjection sites. As source and deposit sites would generally be 	Based on the described mitigations, it is the Board’s opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern. Regarding the aquifer testing impacting surface water quality, the Board believes that changes to groundwater quality can be mitigated through the Groundwater Management Plan and other conditions in the Licence.

in relatively close proximity, any pit water to be deposited or reinjected is likely to be sourced from the same region of the aquifer from which it is sourced/extracted ([PPML's response to IR 2](#)). To support this expectation, PPML committed to providing results in a memo during the regulatory proceeding for the Type A Licence and Permit. This would include an analysis of the available historical pit water and groundwater quality data to determine spatial variability across the historical Pine Point mine site ([Review Comment Table - Responses to IRs](#), GNWT, comment 1).

- To prevent water quality changes associated with the aquifer testing, the end of the pipe for the receiving pit would be within the water column and at least 5 metres from the edge of water to prevent erosion from shoreline or disturbing sediments ([PPML's response to IR 3 - Water Withdrawal Plan V1](#)).
- Provide the Inspector with the necessary water quality information prior to aquifer testing pumping, for confirmation by the Inspector prior to commencing pumping. PPML proposed to provide this information in the Annual Water Licence Report ([Review Comment Table - Responses to IRs](#), GNWT, comment 13).
- Drilling waste could impact surface water quality. Drilling locations could be controlled under the Board's Standard Land Use Permit Conditions 26(1)(a).
- Water management activities could lead to changes in surface water quality. A future Wastewater Treatment Facility would require development of Effluent Quality Criteria.
- To mitigate impacts on surface water quality associated with direct or indirect disposal of waste into water from sump and camp activities, sump and camp locations can be controlled under the Board's Land Use Permit conditions 26(1)(a). Excavation setback control, watercourse buffer, flooding and erosion can be controlled under the Board's Standard Land Use Permit conditions 26(1)(f). Sewage disposal could be controlled under the Board's Standard Land Use Permit Conditions section 26(1)(i). Greywater would be discharged to a sump as per the Waste Management Plan; greywater and/or sewage would not be discharged directly to water.
- Metallurgical bedrock sampling that requires use of industrial equipment could be near an existing water crossing or waterbodies which could impact surface water quality. PPML has proposed that this activity would require approval of a Bedrock Sampling Management Plan, which would describe further information regarding bedrock sampling, including a description of the sampling program and analytical methods that would be used to support the operational classification and management of all rock types. Erosion could be controlled through conditions in the Permit and best management practices.
- Impacts to water quality associated with erosion from use of heavy equipment could be mitigated through conditions in the Land Use Permit and best management practices.
- Hazardous substances associated with the transfer, storage, and use of petroleum products and/or chemicals could enter a watercourse and impact surface water quality. Hazardous substance would not be stored near existing waterbodies or water sources. The Waste Management Plan would govern the storage, use, and disposal of all hazardous materials.
- Fuel-handling and spill protocols would be followed per the Waste Management Plan and the Spill Contingency Plan to mitigate impacts of spills on surface water quality. Fuel storage is controlled under

		<p>the Board's Standard Land Use Permit conditions 26(1)(m).</p> <ul style="list-style-type: none"> ○ PPML has proposed to treat runoff water from an ammonium nitrate fuel oil (ANFO) vehicle wash with an oil/water separator as necessary, prior to discharging the treated water to a sump (Review Comment Table – Applications, MVLWB, comment 12). This could impact nearby waterbodies. PPML noted that the treated water would not be a large or ongoing source, that the volumes of wash water are expected to be small, and that ANFO residual on the trucks is expected to be limited and would flush out with the wash-down. The sump would be located at a site that has been approved by the Lands Inspector to avoid potential for effects to nearby waterbodies. ○ Blasting could result in ammonia nitrate runoff impacting the receiving environment, including waterbodies (Review Comment Table – Applications, MVLWB, comment 18). PPML proposed a setback of 100 metres from all waterbodies for any blasting activity in the next version of the Bedrock Sampling Management Plan. ○ PPML has indicated that the ammonium nitrate (AN) storage area pads would hold double-bagged totes. If the totes spill, AN could contaminate surface water. If bulk AN is used, PPML would store the bags in a lined pad (Review Comment Table – Applications, MVLWB, comment 19). ○ If emulsion of explosives occurs on-site, PPML would apply for a permit through NRCan under the <i>Explosives Act</i>. If packaged explosives are used, PPML would apply to the Northwest Territories Workers' Safety & Compensation Commission to gain relevant approval under the <i>Explosives Use Act</i> (Technical Session Day 1, pages 51-52). ○ PPML has proposed using pit water for dust control. Given certain parameters such as uranium and thallium in the pit water can exceed CCME guidelines, this could result in runoff and changes to surface water quality. PPML would follow the <i>GNWT Guidelines for Dust Suppression (2013)</i>, including limiting the application to the roadway, monitoring the application rate to avoid pooling or runoff, and not exceeding the minimum application to effectively suppress dust (Review Comment Table - Responses to IRs, GNWT, comment 15). • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ CAMP SETBACK ○ DRILL LOCATIONS ○ DRILLING/ ADIT SETBACK ○ SUMP SETBACK ○ PROGRESSIVE EROSION CONTROL ○ REPAIR EROSION ○ PREVENTION OF RUTTING ○ SUSPEND OVERLAND TRAVEL ○ VEHICLE MOVEMENT FREEZE-UP ○ DRY FORDING 	
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		<ul style="list-style-type: none"> ○ EQUIPMENT: WATERCOURSE BUFFER ○ EXCAVATION SETBACK ○ WASTE MANAGEMENT ○ SEWAGE DISPOSAL – PLAN ○ REPAIR LEAKS ○ FUEL STORAGE SETBACK ○ FUEL CACHE SECONDARY CONTAINMENT ○ SECONDARY CONTAINMENT – REFUELING ○ FUEL CONTAINMENT ○ SPILL CONTINGNECY PLAN ○ SPILL RESPONSE DRIP TRAYS ○ CLEAN UP SPILLS ○ REPORT SPILLS • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ OBJECTIVE – WASTE AND WATER MANAGEMENT ○ WASTEWATER USE ○ EROSION CONTROL ○ DAILY INSPECTIONS OF DISCHARGE LOCATIONS ○ DISCHARGE LOCATION – ORDINARY HIGH-WATER MARK ○ EFFLUENT QUALITY CRITERIA ○ TESTING BEFORE DISCHARGE ○ EFFLUENT QUALITY CRITERIA – EXCEEDANCE ○ OBJECTIVE – PREVENT WASTE INTO WATER ○ SPILL CONTINGENCY PLAN ○ REPORT SPILLS ○ SPILL PREVENTION AND RESPONSE EQUIPMENT ○ CLEAN UP SPILLS ○ MATERIAL STORAGE – ORGINARY HIGH-WATER MARK 	
Changes in air quality	Mobilization and operation of equipment for construction and operational activities, incineration on-site, use of explosives	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Some dust emissions are expected from drilling activities, use of roads, and use of equipment for construction and operational activities. Dust effects are predicted to be minor and localized, as most dust and particulates would settle near the source. Travel would be via existing unpaved roads and trails. The amount of traffic is not expected to be greater than previous levels of activity in the area in the past 5 years, and significantly less than the activity associated with an operating mine. Walker and 	Based on the described mitigations, it is the Board’s opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.

		<p>Everett (1987)³⁹ and Everett (1980)⁴⁰ reported that effects from dust deposition were confined to a 50 m buffer on either side of a road. Meininger and Spatt (1988)⁴¹ found that most of effects from dust deposition occurred within 5 to 50 m of a road, with less obvious effects observed between 50 m and 500 m from a road. Roads and laydown areas would be watered to suppress dust (PPM's response to IR 10).</p> <ul style="list-style-type: none"> ○ Air and greenhouse gas emissions would occur from diesel use due to use of industrial equipment and vehicles. The Project is expected to have considerably less air emissions than a mine and have a very small contribution to NWT greenhouse gas production. Diesel use would be reduced with appropriately sized generators for power demands and use of the Northwest Territories Power Corporation substation connected to the Taltson Hydro to reduce greenhouse emissions. ○ If the sludge produced by treatment of sewage is incinerated, high auxiliary fuel use or incomplete combustion could occur and result in a potential for emissions of metals and organic micropollutants (Review Comment Table – Applications, ECCC, comment 2). Waste incineration could have emissions to the atmosphere (Review Comment Table – Applications, ECCC, comment 5). The need for incineration on site has not yet been confirmed. If sewage waste is to be treated on site, the resulting sludge would be either transported to the Hay River Sewage Lagoon or possibly incinerated on site. Air emission modelling conducted at open pit mines in the NWT, which experience considerably higher levels of incineration than the proposed exploration program, suggest that annual peak concentrations of nitrogen dioxide and sulphur dioxide should generally not exceed the Ambient Air Quality Standards for NWT (ENR 2014)⁴². Furthermore, studies have shown that where annual peak concentrations exceed the NWT standards, effects are confined to 1 to 1.7 km from the mine (Golder 2011⁴³; Dominion 2014⁴⁴). If incineration is used for the Project, it would be included in the Waste Management Plan, and the following mitigation would be implemented: <ul style="list-style-type: none"> ▪ the incineration equipment used would be rated specifically for this use, as described in the <i>CCME National Guidelines for Hazardous Waste Incineration Facilities</i>; ▪ only appropriate wastes would be incinerated (i.e., non-hazardous combustible waste); ▪ the incinerator would be properly operated and maintained for proper combustion; ▪ tack testing would be included in the approved Waste Management Plan, in the instance that incineration forecasts exceeds 120 tonnes per year (PPML's Response to IR 10). 	
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³⁹ Walker DA, Everett KR. 1987. Road dust and its environmental-impact on Alaskan Taiga and Tundra. *Arctic and Alpine Research* 19: 479-489.

⁴⁰ Everett KR. 1980. Distribution and properties of road dust along the northern portion of the Haul Road. In J. Brown and R. Berg (eds.). *Environmental engineering and ecological baseline investigations along the Yukon River-Prudhoe Bay Haul Road*. U.S. Army Cold Regions Research and Engineering Laboratory, CRREL Report, 80-19: 101-128.

⁴¹ Meininger CA, Spatt PD. 1988. Variations of tardigrade assemblages in dust-impacted arctic mosses. *Arctic and Alpine Research* 20(1): 24-30.

⁴² ENR (2014). Guideline for Air Quality Standards in the NWT. https://www.enr.gov.nt.ca/sites/enr/files/guidelines/air_quality_standards_guideline.pdf.

⁴³ Golder (Golder Associates Ltd.). 2011. Fortune Mineral's Limited NICO Developer's Assessment Report.

⁴⁴ Dominion (Dominion Diamond Ekati Corp.). 2014. Developer's Assessment Report Jay Project. October 2014.

		<ul style="list-style-type: none"> ○ Blasting could result in potential emission sources (Review Comment Table – Applications, ECCC, comment 5). For bedrock sampling, blasting would only be used, where required, to reduce excavator time by loosening the bedrock. Bedrock sampling is planned at five locations. While blasting may generate large amounts of dust depending on the location and charge size, blasting would not generate a large quantity of particulates smaller than 10 mm (EPA 1991⁴⁵; Richards and Brozell 2011⁴⁶). Dust deposition is expected to be limited to within 50 m of dust generating sources and each blast is expected to be small (less than 50 x 50 m). Most dust particles generated from blasting would not remain suspended in the air and are generally deposited in the blast area. • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ WASTE MANAGEMENT • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ OBJECTIVE – WASTE AND WATER MANAGEMENT 	
<p>Direct loss of vegetation, introduction of non-native (invasive) species</p>	<p>Clearing of timber, brush ,or vegetation mat, stripping of overburden, construction, maintenance, and operation of lines, trail, or rights-of-way, construction of structures, reclamation activities, use of motorized and heavy equipment</p>	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ As activities would be predominantly confined to existing roads and disturbed areas, new trails and vegetation clearing are expected to be minimal. Conditions under Sections 26(1)(a) and 26(1)(n) of the Board’s Standard Land Use Permit Conditions can mitigate against vegetation loss. The Project would use existing roads and trails to the extent possible. The Project is located within an area disturbed by previous mining operations. The Project would follow the <i>Northern Land Use Guidelines for Access: Roads and Trails</i>. ○ In general, to mitigate again loss of vegetation associated with construction, maintenance, and operation of lines, trail, or rights-of-way, the Project area would be minimized, as practicable. Previously disturbed areas would be preferentially used where possible. ○ In general, to mitigate again loss of vegetation associated with construction, the Project area would be minimized, as practicable. Previously disturbed areas would be preferentially used where possible. ○ PPML has proposed to develop an interim Closure and Reclamation Plan 1 year prior to expiration of the Land Use Permit. ○ Equipment could introduce non-native (invasive) species. To mitigate this, equipment would be washed prior to bringing new equipment to site. ○ Use of motorized and heavy equipment could result in compaction of vegetation. Conditions under section 26(1)(f) the Land Use Permit mitigates against soil compaction. • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ PARALLEL ROADS ○ WIDTH RIGHT-OF-WAY 	<p>Based on the geographic size of the undisturbed area likely to be affected by the impacts, historical development at Pine Point, and the described mitigations, it is the Board’s opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.</p>

⁴⁵ EPA (Environmental Protection Agency). 1991. Review of Surface Cola Mining Emission Factors. NC, USA. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park.

⁴⁶ Richards J, Bozell T. 2001. Compilation of National Stone, Sand and Gravel Association Sponsored Emission Factor and Air Quality Studies. Arlington, VA, USA.

		<ul style="list-style-type: none"> ○ MINIMIZE AREA CLEARED ○ FINAL CLEANUP AND RESTORATION ○ NATURAL VEGETATION ○ PROGRESSIVE RECLAMATION • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ CLOSURE AND RECLAMATION PLAN 	
<p>Direct loss or removal of terrestrial wildlife habitat, dens, or nests, loss or removal of terrestrial wildlife keystone species and/or Species at Risk habitat, fragmentation of wildlife corridor, direct injury or mortality to terrestrial wildlife, disturbance to key lifecycle stages of terrestrial wildlife: breeding, feeding, nesting, staging, effects on terrestrial wildlife health</p>	<p>Clearing of timber, brush, or vegetation mat, stripping of overburden, construction of structures, construction, maintenance, operation of lines, trails, or rights-of ways, increased human presence, noise, transfer, storage, and use of petroleum products and/or chemicals, on-site storage or disposal of wastes, geotechnical testing</p>	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Critical habitat has been defined for caribou (boreal population). The Pine Point area is a highly disturbed brownfield site and has reduced functionally as critical habitat for boreal caribou by historical mining operations. Wildlife species of concern that may interact with the Project include: Boreal caribou; Wood bison; Wolverine; Little brown myotis; Northern myotis; Short-eared owl; Whopping crane; Bank swallow; Barn swallow; Common nighthawk; Horned grebe (western population); Olive-sided flycatcher; Rusty blackbird; Yellow rail; Gypsy cuckoo bumble bee; Yellow-banded bumble bee; and Northern leopard frog (PPML's Response to IR 10). ○ PML is committed to avoiding effects on boreal caribou as much as possible, including implementing the following measures: <ul style="list-style-type: none"> ▪ Reducing the areas to be explored from 2021 to 2023 (the areas that would be explored would be highly disturbed areas of PPML leases that are avoided by the Pine Point boreal caribou herd, as indicated by 2015 to 2020 satellite collar data); ▪ if available, using weekly caribou satellite collar location data during the late winter and calving seasons, or more frequently if possible. PPML would only consider commencing exploration activities if satellite collar data indicates that there are no collared caribou within pre-defined "Cautionary Zones" around site of the exploration activity; ▪ during the late winter and calving seasons, if collared caribou are identified within Cautionary Zones around exploration activities, PPML would initiate a pre-clearing survey within 500 m of exploration activities to verify that no boreal caribou are present. During the remainder of the year, pre-clearing wildlife surveys to look for caribou and recent caribou sign would be completed within 500 m of new exploration sites in advance of exploration crews moving to a new site. Exploration activities would be suspended if caribou are observed by exploration crews. Activities would be resumed after the animal has moved away from the exploration site; and ▪ data from 2015 to 2020 would be used to model probability of caribou occurrence to each exploration area, which would be used to create probability of occurrence maps. The maps would be used by PPML to determine the exploration sites that have high probability of caribou occurrence, and therefore higher potential for application of mitigation (Wildlife Protection Plan Updates Memo – March 12, 2021). ○ PPML would update the Wildlife Protection Plan/Wildlife Management and Monitoring Plan to 	<p>Based on the geographic size of the undisturbed area likely to be affected by the impacts and the described mitigations, it is the Board's opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.</p>

		<p>include species at risk identified by ECCC, including: Red-necked Phalarope, Short-eared Owl and Lesser Yellowlegs (Review Comment Table – Applications, ECCC, comment 7).</p> <ul style="list-style-type: none"> ○ To mitigate potential impacts associated with land clearing, land clearing would occur outside of the nesting season and the Wildlife Protection Plan/Wildlife Management and Monitoring Plan would be implemented. Surveys would be required prior to clearing vegetation during sensitive seasons (such as the migratory bird nesting season). Conditions under Section 26(1)(h) of the Board’s Standard Land Use Permit Conditions limits habitat damage to wildlife. ○ The biophysical attributes for boreal caribou critical habitat are within the Project area (Review Comment Table – Applications, DKFN, comment 4). PPML would continue to work with DKFN to better understand the concerns and find ways to further mitigate impacts. ○ PPML would provide more details on nest monitoring and pre-clearing monitoring, as requested by ECCC, in the next version of the Wildlife Protection Plan/Wildlife Management and Monitoring Plan (Review Comment Table – Applications, ECCC, comment 8). ○ PPML would update the Wildlife Protection Plan/Wildlife Management and Monitoring Plan with additional measures for the protection of bank swallows (Review Comment Table – Applications, ECCC, comment 10). ○ PPML would update the Wildlife Protection Plan/Wildlife Management and Monitoring Plan to indicate that Whooping Cranes would be searched for during pre-clearing surveys within 500 m of an area to be cleared, and would include mitigation measures for Whooping Cranes (Review Comment Table – Applications, ECCC, comment 11). ○ PPML would provide more details on surveys for big game prior to vegetation clearing that would precede drilling or blasting in the next version of the Wildlife Protection Plan/Wildlife Management and Monitoring Plan (Review Comment Table – Applications, GNWT, comment 8). ○ PPML would update the Wildlife Protection Plan/Wildlife Management and Monitoring Plan to include investigations for bear dens where possible, considering the timing of activities (Review Comment Table – Applications, GNWT, comment 10). ○ PPML would add bat roosting activity procedures to the pre-clearing survey procedures for times other than summer (Review Comment Table – Applications, GNWT, comment 19). ○ To mitigate against the potential impacts associated with construction and activities related to construction, maintenance, operation of lines, trails, or rights-of ways, PPML would minimized the Project area, as practicable, and unnecessary activity will be avoided. Previously disturbed areas would be preferentially used where possible. Conditions under Section 26(1)(h) of the Board’s Standard Land Use Permit Conditions limits habitat damage to wildlife. The Project is located within an area disturbed by previous mining operations. The Waste Management Plan and Spill Contingency Plan mitigate against the release of toxins. ○ Increased human presence may result in disturbance from odours, lights, and activity, and may cause 	
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		<p>wildlife to avoid the area. Roads and laydown areas would be watered to suppress dust. Best management practices and mitigation measures would be employed per applicable management plans to manage sensory disturbance and emissions to the environment. The Wildlife Protection Plan/Wildlife Management and Monitoring Plan would be implemented. Sensory disturbance would be minor and localized, and activities would be predominantly confined to existing roads and disturbed areas.</p> <ul style="list-style-type: none"> ○ Direct mortality from operations and human-animal interactions may occur, and problem wildlife may have to be destroyed to ensure human safety. For example, feeding of wildlife could result in direct mortality of wildlife. To mitigate this, the Wildlife Protection Plan has been developed (or the Wildlife Management and Monitoring would be developed) to includes measures to avoid human-wildlife conflicts. Feeding of wildlife would be prohibited, wildlife incidents would be investigated, and food waste and other attractants would be isolated or disposed of, as per the Waste Management Plan. The camp is located within a disturbed area with little wildlife activity. Unnecessary activity would be avoided. PPML camp managers would obtain bear training and would communicate bear response procedures to workers. ○ Bear response procedures would be included in the camp orientation (Review Comment Table – Applications, GNWT, comment 16). ○ Effects on population abundance could be associated with increased human presence through camp activities. Camp staff would be prohibited from harvesting. ○ Noise disturbance due to operation of industrial equipment and vehicles, and blasting when required, may cause wildlife to avoid the area. Effects are expected to be seasonal due to the seasonal presence of wildlife. To mitigate this, previously disturbed areas would be preferentially used, best management practices and mitigation measures would be employed per applicable management plans to manage sensory disturbance. The Wildlife Protection Plan would be implemented. Sensory disturbance would be minor and localized; activities would be predominantly confined to existing roads and disturbed areas. ○ Effects on wildlife health associated with toxins could be related to petroleum products and/or chemical transfer, storage, and use. The Waste Management Plan and Spill Contingency Plan mitigate against the release of toxins. ○ To mitigate direct mortality of wildlife related to on-site waste, food waste and other attractants would be isolated or disposed of, as per the Waste Management Plan, which mitigates against the presence of wildlife attractants. ○ PPML would update the Waste Management Plan to specifically indicate that waste which may attract animals would be stored in wildlife-proof containers, and that the containers would be cleaned regularly (Review Comment Table – Applications, GNWT, comment 14). ○ Geotechnical test pits could pose a wildlife hazard. The test pits are intended to be 5m or less in 	
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		<p>depth, and the slope of the sides of the pits would take into account the stability of the material removed, and comply with all safety requirements of the Mine Health and Safety Act. The pits would be refilled immediately after the sample is collected, or PPML would place temporary barriers if this is any delay to refilling (Review Comment Table – Applications, KFN, comment 4).</p> <ul style="list-style-type: none"> ECCC has informed the Board that PPML must apply for a permit under section 73 of the <i>Species at Risk Act</i> (SARA) for the Project. The Board considers this requirement to be a further mitigation for species at risk for the Project. The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> MINERAL EXPLORATOIN DRILL CASINGS EXCAVATED MATERIAL TEST PIT EXCAVATION AND EMBANKMENTS DRILLING WASTE CONTAINMENT HABITAT DAMAGE WASTE MANAGEMENT GARBAGE CONTAINER SPILL CONTINGENCY PLAN 	
Aquatic breeding disturbance, effects on aquatic health	Clearing of timber, brush, or vegetation near a watercourse, stripping of overburden adjacent to a watercourse, blasting near a watercourse, use of motorized or heavy equipment adjacent to, within, or through a watercourse, withdrawal of water from a watercourse, retaining, storing, or diverting water, direct or indirect disposal of waste into water	<ul style="list-style-type: none"> The Applicant proposed the following mitigations: <ul style="list-style-type: none"> In the regional area, a total of 34 fish species have been identified in Great Slave Lake, but many of these species are not present in waterbodies near the Project site. Fish species such as Burbot, Lake Whitefish, Inconnu, Northern Pike, Walleye, Longnose Sucker, White Sucker, Goldeye, and Brook Stickleback have been recorded in tributaries to Great Slave Lake (e.g., Buffalo River, Twin Creek) in the area of the Project (Golder 2021)⁴⁷. No activity is proposed within 100 m of Twin Creek or within 500 m of the Buffalo River. Brook Stickleback have been observed in connected drainage channels and pits at the historical Pine Point Mine site (PPML’s response to IR 10). Inconnu (Upper Mackenzie River and Great Slave Lake populations) have been classified as Sensitive by the NWT Species at Risk Infobase (GNWT 2020)⁴⁸. Inconnu have not been classified federally by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and are not listed on Schedule 1 of the SARA (Government of Canada 2021)⁴⁹. Shortjaw Cisco have been documented in Great Slave Lake and are classified as Threatened by COSEWIC but are not listed on Schedule 1 of SARA 	Based on the described mitigations, it is the Board’s opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern. Regarding the groundwater testing impacting aquatic life, the Board believes that impacts to aquatic life can be mitigated through the Groundwater Management Plan and other conditions in the Licence.

⁴⁷ Golder (Golder Associates Ltd.). 2021. Existing Environment for Pine Point Project. Pine Point Project. Submitted to Pine Point Mining Ltd. February 1, 2021. Available at: https://reviewboard.ca/upload/project_document/Volume%203%20-%20Description%20of%20Existing%20Environment.pdf.

⁴⁸ GNWT (Government of the Northwest Territories). 2020. Species at Risk in the Northwest Territories 2020. Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NT.

⁴⁹ Government of Canada. 2021. Species at Risk Public Registry A to Z Species Index. [accessed 2 March 2021; updated 2 February 2021]. <https://species-registry.canada.ca/indexen.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>.

		<p>(Government of Canada 2021)⁵⁰. Shortjaw Cisco are found in deep (greater than 50 m), cool lakes (Scott and Crossman 1998⁵¹; Richardson et al. 2001⁵²) and are unlikely to be found in tributaries to Great Slave Lake due to lack of suitable habitat. Beaver and muskrat are semi-aquatic mammals that may occur at the Project. Both species are not federal or territorial species at risk (Government of Canada 2021)⁵³. Although ranges of four amphibian species overlap the Project, only two species (boreal chorus frog and wood frog) were detected during baseline surveys in 2011 and 2018 (Golder 2021)⁵⁴. Northern leopard frog, which is a federal listed species, has not been detected in the area of the Project (PPML's response to IR 10).</p> <ul style="list-style-type: none"> ○ Drilling activities would not occur within waterbodies or watercourses. If any temporary water crossings are required (e.g., snow fills), regulatory requirements would be followed to prevent effects on aquatic habitat. ○ Clearing and stripping could result in erosion that could be a breeding disturbance. Erosion would be controlled through conditions in the Land Use Permit, including the Board's Standard Land Use Permit conditions 26(1)(f) and best management practices. ○ Metallurgical sampling requires use of explosives and blasting near a watercourse could effect aquatic health. PPML proposes a setback of 100 metres from all waterbodies for any blasting activity, to be included in the next version of the Bedrock Sampling Management Plan (Review Comment Table – Applications, MVLWB, comment 18). ○ Hazardous substance spills or use of industrial equipment near existing water crossings or waterbodies could lead to changes in surface water quality, which could affect fish habitat and be a breeding disturbance as well as affect aquatic health. The Waste Management Plan would govern the storage, use, and disposal of all hazardous materials. Spills would be avoided and managed through the Spill Contingency Plan. The Waste Management Plan and Spill Contingency Plan would also mitigate against the release of toxins. ○ To mitigate impacts on aquatic health, PPML would submit a Notification Form to DFO and would comply with the End-of-Pipe code of practice and the measures to protect fish (Review Comment Table – Applications, DFO, comment 1). ○ Water movement between open pits could affect fish and aquatic habitat, through both changes in 	
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⁵⁰ Government of Canada. 2021. Species at Risk Public Registry A to Z Species Index. [accessed 2 March 2021; updated 2 February 2021]. <https://species-registry.canada.ca/indexen.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>.

⁵¹ Scott WB, Crossman EJ. 1973. Freshwater Fishes of Canada. Bulletin 184. Fisheries Research Board of Canada. 966 pp.

⁵² Richardson ES, Reist JD, Minns CK. 2001. Life history characteristics of freshwater fishes occurring in the Northwest Territories and Nunavut, with major emphasis on lake habitat requirements. Canadian Manuscript Report of Fisheries and Aquatic Sciences 2569. July 2001. 158 pp.

⁵³ Government of Canada. 2021. Species at Risk Public Registry A to Z Species Index. [accessed 2 March 2021; updated 2 February 2021]. <https://species-registry.canada.ca/indexen.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>.

⁵⁴ Golder (Golder Associates Ltd.). 2021. Existing Environment for Pine Point Project. Pine Point Project. Submitted to Pine Point Mining Ltd. February 1, 2021. Available at: https://reviewboard.ca/upload/project_document/Volume%203%20-%20Description%20of%20Existing%20Environment.pdf.

		<p>water quality and quantity, and could cause breeding disturbances to aquatic life. Water movement between open pits during aquifer testing would consider water quality and compatibility of the receiving pit, and the quantity (volume) of water in both the extracting pit and receiving pit, to be detailed and monitored through the Groundwater Management Plan, which was submitted with the Applications and proposed to be a requirement of the Licence for Board approval. Withdrawal limits from water sources are defined in the Water Withdrawal Plan, which was also submitted with the Applications and proposed to be a requirement of the Licence for Board approval. Conditions under Part B of the Board's Standard Water Licence Conditions ensure the licensee to take every reasonable precaution to protect the environment.</p> <ul style="list-style-type: none"> ○ Water withdrawal associated with groundwater testing would preferentially include pits that are unlikely to include fish (PPML's response to IR 10). Minnow trapping and seine netting around the shoreline of the pit are expected to be the primary method to determine which pits are free of fish, supplemented by backpack electrofishing and small mesh multi-panel gill nets where conditions are suitable (Review Comment Table - Responses to IRs, GNWT, comment 12). ○ In instances where fish may be present, pumping tests would be monitored to confirm that pits are not dewatered or overflow. For instances where a pump test includes a pit where fish are known or likely to be present, pit water levels would be monitored to confirm that levels stay within a range that continue to support fish habitat. Further, pumping rates would follow the DFO interim code of practice for end-of-pipe fish protection screens by installing suitable screens and not exceeding a pumping rate of 0.15 m³/s. PPML has also prepared criteria for determining compatibility of water between the source and receiving sites (PPML's response to IR 10). ○ Additionally, for the groundwater testing for pits where fish may be present, the Protocol for Winter Water Withdrawal from Ice-Covered Waterbodies in the Northwest Territories (DFO 2010) would apply, whereby the groundwater test would not cause the water level to change beyond the equivalent of a 10% change in pit water volume. As well, to prevent disturbing sediment that could impact aquatic health, the end of the pipe for the receiving pit would be within the water column and at least 5 metres from the edge of water to prevent erosion from shoreline or disturbing sediments (PPML's response to IR 3 - Water Withdrawal Plan V1). ○ Greywater and/or sewage would not be discharged directly to water; all discharges would be regulated by the Land Use Permit/Water Licence Conditions (for example, Conditions from section 26(1)(i) of the Board's Standard Land Use Permit Conditions) and the Waste Management Plan. Future Wastewater Treatment Facilities would require development of effluent quality criteria. ● The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ SUMP SETBACK ○ PARALLEL WATERCOURSE SETBACK ○ NATURAL DRAINAGE 	
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		<ul style="list-style-type: none"> ○ PROGRESSIVE EROSION CONTROL ○ REPAIR EROSION ○ FLOWING ARTESIAN WELL ○ PREVENTION OF RUTTING ○ SUSPEND OVERLAND TRAVEL ○ VEHICLE MOVEMENT FREEZE-UP ○ CONSTRUCT ICE BRIDGES SNOWFILLS ○ REMOVE ICE BRIDGES/SNOWFILLS ○ STREAM BANKS ○ MINIMIZE APPROACH ○ DRY FORDING ○ EQUIPMENT WATERCOURSE BUFFER ○ EXCAVATION SETBACK ○ WASTE MANAGMENT PLAN ○ SPILL CONTINGENCY PLAN • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ OBJECTIVE – WASTE AND WATER MANAGEMENT ○ REPORT ARTESIAN AQUIFER ○ WATER SOURCE AND MAXIMUM VOLUME ○ MAXIMUM UNDER ICE WATER WITHDRAWAL VOLUME ○ EROSION CONTROL ○ EFFLUENT QUALITY CRITERIA ○ TESTING BEFORE DISCHARGE ○ EFFLUENT QUALITY CRITERIA – EXCEEDANCE ○ OBJECTIVE – PREVENT WASTE INTO WATER ○ SPILL CONTINGENCY PLAN ○ MATERIAL STORAGE – ORGINARY HIGH-WATER MARK 	
<p>Loss or reduction in game species populations, effects on traditional land use, subsistence, and harvesting rights</p>	<p>Clearing of timber, brush, or vegetation mat, stripping of overburden, noise, construction, maintenance and operation of lines, trails, or rights-of-way , increased traffic risk to wildlife,</p>	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ The area near the CEP Project area straddles Wildlife Management Zones D and U, meeting at the Buffalo River. Wildlife may be harvested according to the Hunting and Trapping Regulations for the Wildlife Act. The Buffalo River is a traditional fish harvesting area (PPML's response to IR 10). ○ The Hay River Reserve is located between the Hay River and the Pine Point area. Harvesting in the reserve requires permission from KFN. Barren-ground caribou may only be harvested by Indigenous rights holders between the Slave and Buffalo Rivers in the U/BC/01 hunting zone. The Bison Control Area extends west from the Buffalo River. Any bison sightings in this area must be reported to GNWT-ENR (PPML's response to IR 10). 	<p>Based on the geographic size of the undisturbed area likely to be affected by the impacts, historical development at Pine Point, and the described mitigations, it is the Board's opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.</p>

- There would be no overlap of the Project with fish harvesting areas. There may be a small overlap of the Project with wildlife harvesting areas; the maximum size of each drill site is 900 m² and is estimated that 10% of the drilling would be at previously undisturbed sites for exploration. The remaining drill sites would be for infill drilling at previously disturbed sites ([PPML's response to IR 10](#)).
- Clearing associated with road and trail maintenance could lead to disruption of traditional land use. Conditions under Section 26(1)(a) of the Land Use Permit limit operations within the vicinity of private property or cabins. The project is primarily located in areas disturbed by previous mining.
- Metallurgical sampling could lead to disruption of traditional land use. Conditions under Section 26(1)(a) of the Land Use Permit limit operations within the vicinity of private property or cabins. The project is primarily located in areas disturbed by previous mining.
- Use of heavy equipment, blasting and drilling could lead to disruption of traditional land use. Conditions under Section 26(1)(a) of the Land Use Permit limit operations within the vicinity of private property or cabins. The project is primarily located in areas disturbed by previous mining.
- Construction maintenance and operation of lines, trails, or rights-of-way could lead to disruption of traditional land use. Conditions under Section 26(1)(a) of the Land Use Permit limit operations within the vicinity of private property or cabins. The project is primarily located in areas disturbed by previous mining.
- Increased traffic associated with the project could result in risk to wildlife and a loss or reduction in game species populations. Conditions under Section 26(1)(a) of the Land Use Permit limit operations within the vicinity of private property or cabins. The project is primarily located in areas disturbed by previous mining.
- Increased traffic could result in sensory disturbance to wildlife that could result in a loss or reduction in game species populations. To mitigate this, best management practices and mitigation measures would be employed per applicable management plans to manage sensory disturbance and emissions to the environment.
- In general, operations from the Project could result in a disruption of traditional land use through changes to the aesthetic value of the area and through changes to the availability of wildlife. This impact would be minimized by seeking advice and suggestions from local communities through the Engagement Plan. The Confirmation Exploration Program area would be minimized, as practicable and previously disturbed areas would be preferentially used where possible. Land users would not be inhibited from using any area within the mining lease claims or activity areas, except where safety concerns exist.
- The Confirmation and Exploration Program could impact research planned by DKFN. DKFN are conducting research on boreal caribou within the current mining lease area. PPML would continue to engage with DKFN to reduce overlap between drilling activities and DKFN's research ([Review Comment Table – Applications](#), DKFN, comment 1). DKFN is also developing a boreal caribou forage

		<p>lichen restoration study. PPML agreed to work with DKFN to incorporate the outcomes of this study in the Closure and Reclamation Plan (Review Comment Table – Applications, DKFN, comment 3).</p> <ul style="list-style-type: none"> • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ LOCATION OF ACTIVITIES ○ PRIVATE PROPERTY SETBACK ○ BUFFER/NO ACTIVITY ○ ENGAGEMENT PLAN ○ PROGRESSIVE RECLAMATION • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ INCORPORATE SCIENTIFIC AND TRADITIONAL KNOWLEDGE ○ IDENTIFY TRADITIONAL KNOWLEDGE ○ ENGAGEMENT PLAN ○ CLOSURE AND RECLAMATION PLAN 	
Change to or loss of traditional lifestyle, change to or loss of heritage resources	Construction of structures, construction, maintenance and operation of lines, trails, or rights-of-way	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Construction could result in change to or loss of heritage resources. Protection of Historical, Archaeological, and Burial Sites are controlled under Land Use Permit Conditions section 26(1)(j). Archaeological sites in the Pine Point area have been identified through an Archaeological Impact Assessment and would be avoided. ○ Board’s standard land use permit conditions called Archaeological Overview and AIA-High Potential were recommended by GNWT, and PPML agreed (Review Comment Table – Applications, GNWT, comment 58). ○ Construction could result in change to or loss of heritage resources. Protection of Historical, Archaeological, and Burial Sites are controlled under Land Use Permit Conditions section 26(1)(j). Archaeological sites in the Pine Point area have been identified through an Archaeological Impact Assessment and would be avoided. • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ ARCHAEOLOGICAL BUFFER ○ SITE DISTURBANCE ○ SITE DISCOVERY AND NOTIFICATION ○ ARCHAEOLOGICAL OVERVIEW ○ AIA – HIGH POTENTIAL 	Based on the geographic size of the undisturbed area likely to be affected by the impacts, historical development at Pine Point, and the described mitigations, it is the Board’s opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.
Impairment of the recreation or traditional use of the land or water , aesthetic quality of the land or water	Noise, increased human access and presence, withdrawal of water from a watercourse, direct or indirect deposit of waste into water	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Members of DKFN regularly hunt and trap in the Pine Point area, and the Project could result in impacts to traditional use of the area (Review Comment Table – Applications, DKFN, comment 2). PPML committed to continued communication and engagement with DKFN when locations and timing of the activities are known and to develop mitigations where required to address potential impacts on 	Based on the geographic size of the undisturbed area likely to be affected by the impacts, historical development at Pine Point, and the described mitigations, it is the Board’s opinion that

		<p>traditional land use activities and users.</p> <ul style="list-style-type: none"> ○ Withdrawal of water from watercourses, and direct or indirect deposit of waste into water associated with the Project could result in impairment of the recreational or traditional uses of the land or water. Conditions under Section 26(1)(a) of the Land Use Permit limit operations within the vicinity of private property or cabins. The Project is primarily located in areas disturbed by previous mining. Through the Engagement Plan, surrounding communities have been informed of the proposed undertakings. ○ Conditions under Part B of the Water Licence ensure the identification and incorporation of the Traditional Knowledge in the project as well as the compliance with the Engagement Plan. ○ The GNWT-Lands Inspector recommended that signs and notices be posted around areas of Project activity so that hunters and recreational users from Fort Resolution and Hay River are made aware of the activity in the area, so no conflicts or accidents occur (Review Comment Table – Applications, GNWT Lands Inspector, comment 2). PPML noted the comment. ○ In general, the Confirmation Exploration Program could result in the impairment of the aesthetic quality of the land or water. The project is primarily located in areas disturbed by previous mining. • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ LOCATION OF ACTIVITIES ○ PRIVATE PROPERTY SETBACK ○ ENGAGEMENT PLAN • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ INCORPORATE SCIENTIFIC INFORMATION AND TRADITIONAL KNOWLEDGE ○ IDENTIFY TRADITIONAL KNOWLEDGE ○ ENGAGEMENT PLAN 	<p>the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.</p>
Economic opportunities	Project	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Expansion of activities at Pine Point would lead to more economic opportunities for surrounding communities. Through the Engagement Plan, surrounding communities have been informed of the proposed undertakings. ○ The camp for the CEP would likely consist of a starter stage then be expanded as operational requirements necessitate. There may be periods when occupancy is minimal. During such periods a caretaker staff would be at the camp. Camp services would be provided by contractors, preferably those that are locally based and indigenous owned or have indigenous partners. The camp would be dry. Crews would be sourced locally where possible or from other regions if necessary and would work on rotation. While work is expected to be year-round (depending on results), spring thaw and fall freeze-up may result in periods of reduced activity (Review Comment Table – Applications, KFN, comment 7). • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ ENGAGEMENT PLAN 	<p>Based on the described mitigations, it is the Board’s opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.</p>

		<ul style="list-style-type: none"> • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ ENGAGEMENT PLAN 	
Changes to the use of the area by other non-Indigenous people	Project	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ To mitigate possible changes to the use of the area by other non-Indigenous people (e.g. trappers, outfitters, residents, hunters, forest harvesters, other authorized projects), conditions under Section 26(1)(a) of The Land Use Permit limits operations within the vicinity of private property or cabins. The Project is primarily located in areas disturbed by previous mining. • The Board has Standard Permit Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ LOCATION OF ACTIVITIES ○ PRIVATE PROPERTY SETBACK ○ ENGAGEMENT PLAN • The Board has Standard Licence Conditions which are typically used to mitigate the described impacts: <ul style="list-style-type: none"> ○ ENGAGEMENT PLAN 	Based on the described mitigations, it is the Board's opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.
Spread of COVID-19	Increased human access and presence	<ul style="list-style-type: none"> • The Applicant proposed the following mitigations: <ul style="list-style-type: none"> ○ Strict measures are in place at the Pine Point camp to prevent the spread of COVID-19, including limiting access to the camp, dividing camp occupants into isolated 'pods', health monitoring and enhanced hygiene and sanitation protocols. PPML is following the GNWT guidance on COVID-19. 	Based on the described mitigations, it is the Board's opinion that the proposed activities will not have a significant adverse impact on the environment and will not be a cause of public concern.

4.1 Consideration of Potential Impacts

Based on the potential impacts and proposed mitigations identified above in Table 2, the Board considered whether the changes to the Project might have a significant adverse impact on the environment. In general, impacts of the changes to the Project on the environment can be mitigated through the use of standard permit and licence conditions and project-specific conditions established by the Board as per the MVLWB [Standard Process for Creating New Conditions](#). These conditions may include requirements for management and monitoring plans that provide detailed information regarding the implementation of mitigation measures and the evaluation of their effectiveness.

The conditions will be discussed in further detail by all Parties through the regulatory proceeding and will be finalized by the Board following completion of the regulatory proceeding.

As previously discussed, the Board also considered mitigations not directly tied to permit or licence conditions in the preliminary screening. This included a consideration of regulatory instruments that could, or will be required through other bodies, including GNWT-ENR (*Wildlife Act*), ECCC (*SARA*), and NRCan (*Explosives Act*) or the Northwest Territories Workers' Safety & Compensation Commission (*Explosives Use Act*). PPML has also committed to following best management practices outlined in several guidelines (e.g., *Northern Land Use Guidelines for Access: Roads and Trails*, *GNWT Guidelines for Dust Suppression (2013)*) that are not directly referenced in any of the Board's standard permit or licence conditions.

4.2 Consideration of Public Concern

In addition to considering the potential impacts of the changes to the Project, the Board considered whether the changes to the Project might be a cause of public concern.

Based on the evidence provided during the regulatory proceeding, the Board did not identify any comments or issues that indicate that the Project is a cause of public concern.

5.0 Conclusion

The Board completed preliminary screenings of the Project on July 2, 2009⁵⁵; July 20, 2017⁵⁶, October 12, 2017⁵⁷, June 29, 2018⁵⁸, February 13, 2020⁵⁹, and February 11, 2021.⁶⁰ However, these Applications include proposed changes to the Project. Accordingly, the Board has determined that Project activities that have already been subject to Part 5 of the MVRMA are exempt from preliminary screening under Part 1,

⁵⁵ See MVLWB Online Registry www.mvlwb.com for [MV2008C0023 – Tamerlane Ventures – Preliminary Screening Report – Jul 2-09 – Jul6-09](#).

⁵⁶ See MVLWB Online Registry www.mvlwb.com for [MV2017C0024 – Darnley Bay Resources Ltd – Issuance – Preliminary Screening – Jul20-17](#).

⁵⁷ See MVLWB Online Registry www.mvlwb.com for [MV2017C0024 – PPML – Amendment – Updated Preliminary Screening – Oct12-17](#).

⁵⁸ See MVLWB Online Registry www.mvlwb.com for [MV2018C0005 MV2018L2-0003 – PPML – Preliminary Screening – Jun29-18](#).

⁵⁹ See MVLWB Online Registry www.mvlwb.com for [MV2017C0024 – PPML – Preliminary Screening Notification to Review Board – Feb14-20](#).

⁶⁰ See MVLWB Online Registry www.mvlwb.com for [MV2017C0024 – PPML – Notification – Preliminary Screening Determination and Notification to Review Board – Feb12-21](#).

Schedule 1, section 2.1 of the Exemption List Regulations to the MVRMA. The Board has conducted a preliminary screening of the proposed changes to the Project.

The Board has reviewed all the evidence received during the regulatory process with respect to the Preliminary Screening of the proposed changes to the Project. Based on the evidence, it is the Board's opinion that the proposed changes to the Project will not have a significant adverse impact on the environment or be a cause of public concern, as set out in paragraph 125(1)(a) of the MVRMA. The Board has therefore decided not to refer the proposed changes to the Project to EA and will resume the regulatory process.



Mavis Cli-Michaud, Chair
Mackenzie Valley Land and Water Board

April 13, 2021

Date