



11 May 2021

Jaqueline Ho, Regulatory Specialist

Mackenzie Valley Land and Water Board
4922-48th Street
7th Floor YK Centre Mall
PO Box 2130
Yellowknife, NT, X1A 2P6

Re: Response to Technical Interventions for Pine Point Mining Limited Confirmation and Exploration Program Type A Water Licence Application W2020L8-0012

Dear Jaqueline,

Pine Point Mining Limited (PPML) is pleased to submit the responses to technical interventions for Pine Point Mining Limited Confirmation and Exploration Program Type A Water Licence application W2020L8-0012. Detailed responses to each intervention are provided in Table 1 below and associated attachments.

PPML appreciates the effort of the Mackenzie Valley Land and Water Board and interested parties to review our applications, and look forward to working with all parties in the next steps of the applications.

Should you have any questions or need any additional information, please feel free to contact the undersigned at 416-209-2056 or acwilliams@live.ca.

Regards,

Pine Point Mining Limited

A handwritten signature in black ink, appearing to read "A. Williams", is written over a horizontal line.

Andrew Williams
Environmental Manager

Attachments:
Attachment A Security Estimate Updates

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
ECCC-1	Groundwater Management Plan Framework	With respect to water transfers, ECCC recommends that the licence conditions include monitoring requirements for the full suite of parameters for source and receiving waters (pit or groundwater), either in a Surveillance Network Program (SNP) term or the approved management plans.	<p>Pine Point Mining Ltd. (PPML) agrees with this recommendation, and considers the monitoring requirements are best captured in the Groundwater Management Plan to be submitted to the Mackenzie Valley Land and Water Board (MVLWB) for approval. With respect to the suite of parameters for source and receiver waters (pit or groundwater wells), PPML proposes they include:</p> <p>Field:</p> <ul style="list-style-type: none"> physico-chemical parameters — pH, dissolved oxygen, temperature, and specific conductivity <p>Laboratory:</p> <ul style="list-style-type: none"> conventional parameters — conductivity, hardness, acidity, total alkalinity, total dissolved solids (TDS, calculated), total suspended solids, turbidity, and colour major ions — bicarbonate, bromide, calcium, carbonate, chloride, fluoride, magnesium, potassium, sodium, and sulphate nutrients — nitrate, nitrite, total ammonia, total nitrogen, total Kjeldahl nitrogen, total and dissolved phosphorus, orthophosphate, and total and dissolved organic carbon total and dissolved metals — aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, silicon, silver, strontium, sulphur, thallium, tin, titanium, uranium, vanadium, and zinc <p>Further, PPML proposes to include acute toxicity testing for water from a source pit that will be directed to a receiver pit where fish are known to be present in the receiver pit. Toxicity testing will include Rainbow Trout (Environment Canada 2007) and <i>Daphnia magna</i> (Environment Canada 2000).</p> <p>References: Environment Canada. 2000. Biological test method: acute lethality of effluents to daphnia magna. Method Development and Applications Section. Reference Method EPS 1/RM/14. December 2000. Environment Canada. 2007. Biological test method - acute lethality test using rainbow trout. Method Development and Applications Section. Report EPS 1/RM/13. December 2000 (with May 2007 amendments).</p>
ECCC-2	Compatibility Criteria	<p>ECCC reiterates its recommendation that PPML monitor and review pre-activity (baseline) water quality for a full suite of parameters, and confirm parameter concentrations are acceptable for discharge to an aquatic environment, before any transfers to fish-frequented pits.</p> <p>ECCC recommends that the licence conditions (via SNP term or approved management plans) require confirmation that parameter concentrations are acceptable for discharge to an aquatic environment before any transfers to (i) pits that are fish-frequented and (ii) pits connected to fish-frequented waters.</p>	<p>PPML commits in ECCC-1 that the source and receiver waters will be tested for the comprehensive suite of parameters proposed in the response to ECCC-1. This testing will take place prior to any transfer to water. These results will be used to confirm that the parameter concentrations are acceptable for transfer using the decision tree approach.</p> <p>PPML has committed to monitoring groundwater and/or pit water chemistry as a component of any decision-making process for water transfers (see the Groundwater Management Plan Framework, response to Technical Session Information Request [IR] #2, and the April 2021 memo on the Groundwater Management Plan Framework and Approach for Compatibility). PPML believes that the compatibility assessment and the proposed two-step threshold approach for water transfers (i.e., initially comparing TDS concentrations between the source and receiver waters, and if they are determined to be compatible for TDS, comparing parameter concentrations for those parameters with guidelines; if these guideline parameters are compatible, the source water can be deemed acceptable for transfer) have been designed to limit the amount of change in the receiver pit water quality, which provides a strong basis for limiting risk to aquatic life in the pit water. To further mitigate any potential for risk to aquatic life, where fish are identified to be present in the pit waters, PPML proposes to include acute toxicity testing of the source pit water to be transferred in the compatibility monitoring program.</p> <p>As per the response to ECCC-1, PPML proposes that the acceptability requirements be included in the Groundwater Management Plan that will submitted to the MVLWB for approval.</p>
ECCC-3	Water Transfers	ECCC recommends that PPML clarifies whether groundwater testing will include well to pit water transfers and, if so, provides a compatibility decision tree for well to pit water transfers.	PPML confirms that the groundwater testing program will not include well to pit water transfers.

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
ECCC-4	Fish	ECCC recommends that the compatibility decision tree(s) include an assessment/decision regarding whether the receiving pit is fish-frequented and/or potentially connected to surface waters. Any site water that is fish-frequented and/or connected to fish-frequented waters should be considered the receiving environment and protected accordingly.	<p>PPML agrees to include a determination of whether fish are present in the pits in the compatibility decision trees that will be included in the Groundwater Management Plan to be submitted to the MVLWB for approval. This update will also include the addition of the acute toxicity testing of the source water as described in ECCC-1 and ECCC-2.</p> <p>As indicated in the response to ECCC-2, the two-step compatibility assessment approach for water transfers has been designed to limit the amount of change in the receiver pit water quality and to identify parameters in the source water that may potentially provide risk to aquatic life in the receiver water, which will be protective of pit water quality. As per the response to GNWT-7 and the Water Withdrawal Plan, PPML will manage water transfers so that they do not result in pit overflow.</p>
ECCC-5	Receiving Environment	ECCC recommends that the receiving environment definition clearly encompass all waters that are fish-frequented or connected to fish-frequented waters; where connection and/or being fish-frequented has not clearly been established the assumption should be made that this is the case.	For pit water transfers, PPML developed a screening approach as part of the compatibility assessment to minimize potential water quality changes and thereby provide protection to aquatic life in the receiver pit. Further, as stated in the response to ECCC-4, PPML will manage water transfers so that they do not result in pit overflow. Please see the responses to ECCC-02 and ECCC-04 for additional information regarding fish presence in pits.
ECCC-6	Whooping Cranes and their Habitat	<p>Given the endangered status of whooping cranes, ECCC recommends that a specific management plan be developed for whooping cranes, in consultation with ECCC, to further assess potential residual impacts and to implement specific measures to minimize risks associated with all project activities.</p> <p>At a minimum, ECCC recommends:</p> <ul style="list-style-type: none"> • The primary mitigation for all project activities should be avoidance of impacts to whooping cranes and their habitat, to the greatest extent possible. • Regardless of season, in areas where avoidance of whooping crane habitat is not possible, surveys should be conducted by qualified individuals when whooping cranes are expected to be present. • Any observations of whooping cranes by staff or contractors on site should be immediately investigated and reported to ECCC. • All staff and contractors should be made aware of the potential presence of whooping cranes in the area, their conservation status and reporting procedures. 	<p>PPML agrees to the inclusion of the additional information, but suggests that this information should reside within the Wildlife Protection Plan rather than a standalone plan. The Wildlife Protection Plan already considers Whooping Crane and is being updated to incorporate other suggestions. PPML also suggests incorporating the considerable work regarding Whooping Crane already completed in the area for the Timberworks timber harvesting permit (Golder 2015). PPML will contact Environment and Climate Change Canada (ECCC) to discuss in further detail.</p> <p>Reference: Golder (Golder Associates Ltd.). 2015. Timberworks Inc. Effects to Hydrology and Whooping Crane Nesting from the Five Year Timber Harvest Plan. Submitted to Timberworks Inc. November 13, 2015. Available at: http://registry.mvlwb.ca/Documents/MV2015W0011/MV2015W0011%20-%20Timberworks%20-%20Effects%20to%20Hydrology%20and%20Whooping%20Crane%20Nesting%20from%20the%205%20year%20Timber%20Harvest%20Plan%20-%20Nov13-15.pdf</p>
ECCC-7	Wildlife Protection Plan	<p>ECCC recommends that MVLWB rely on GNWT-ENR and other interveners regarding the adequacy of the proposed caribou-specific measures.</p> <p>ECCC recommends to the MVLWB (or GNWT-ENR) that an additional opportunity be provided for interveners to review the revised WPP (or WMMP).</p>	<p>The Government of the Northwest Territories, Environment and Natural Resources (GNWT-ENR) has determined that the Project triggers Section 95 of the <i>Wildlife Act</i>, and thus the Wildlife Protection Plan requires approval by GNWT-ENR (GNWT 2021). In making this determination, GNWT-ENR has provided specific guidance to PPML on the incorporation of intervener's feedback. Further review of the revised Wildlife Protection Plan is at the discretion of GNWT-ENR.</p> <p>Reference: GNWT (Government of the Northwest Territories). 2021. Wildlife Act Section 95(1) determination of the requirement for a Wildlife Management and Monitoring Plan for Pine Point Mining Ltd.'s Confirmation and Exploration Program. April 30, 2021. Available at: http://registry.mvlwb.ca/Documents/MV2020L8-0012/PPML%20-%20Wildlife%20Management%20and%20Monitoring%20Plan%20Determination%20-%20Apr30_21.pdf</p>

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
ECCC-8	Boreal Caribou Critical Habitat	ECCC recommends that biophysical attributes important to boreal caribou be avoided, to the extent possible.	<p>PPML agrees with this recommendation. GNWT-ENR has offered to share a predictive resource selection function map for boreal caribou (GNWT 2021). This map will be incorporated into an updated and approved Wildlife Protection Plan, and will be an important tool to meet this recommendation.</p> <p>Reference: GNWT (Government of the Northwest Territories). 2021. Wildlife Act Section 95(1) determination of the requirement for a Wildlife Management and Monitoring Plan for Pine Point Mining Ltd.'s Confirmation and Exploration Program. April 30, 2021. Available at: http://registry.mvlwb.ca/Documents/MV2020L8-0012/PPML%20-%20Wildlife%20Management%20and%20Monitoring%20Plan%20Determination%20-%20Apr30_21.pdf</p>
ECCC-9	Boreal Caribou on Federal Land	N/A – For information only.	
GNWT-1	Annual Water Licence	<p>GNWT recommends that the following items are reported by PPML within the Annual Water Licence report:</p> <ul style="list-style-type: none"> a) Location of testing (GPS and map); b) Dates and duration of testing; c) Quantity of water removed from source and location of source; d) Quantity of water discharged and location of discharge; e) Water quality sampling results for source and discharge locations; f) Result of monitoring conducted during testing and description of any adaptive management actions triggered; and g) Demonstration that water transfer criteria were achieved for each test. 	PPML agrees with this recommendation.
GNWT-2	Submit Groundwater Management Plan for Approval	2. GNWT recommends that a Groundwater Management Plan be submitted for review and Board approval 90 days prior to commencing any hydrogeological investigations.	PPML disagrees that the timeline for the review and approval process for the Groundwater Management Plan should be 90 days. PPML understands that the framework of the plan will be finalized through this process, with the exception of the locations for test work, and proposes that the Groundwater Management Plan with the final test locations be submitted 30 days in advance of conducting any hydrogeological investigations.

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
GNWT-3	Groundwater Management Plan Uncertainties	<p>GNWT recommends that the Groundwater Management Plan be updated to clarify and resolve the uncertainties noted in the bullets listed above, and summarized here:</p> <ul style="list-style-type: none"> • Inclusion of pit chemocline influence on the compatibility assessment. • Description of methodology for the development of the depth-average TDS concentration and specific conductivity–TDS relationship. • Clarification on which guidelines are being referenced in Figure B1 of the April memorandum. • Clarification on methodology for the calculation of the “upper bound”. • The well to well and pit to well scenarios should consider an evaluation against appropriate guidelines that are protective of the receiving environment. <p>The compatibility assessments should be made between samples collected prior to groundwater testing, and not in relation to the database presented in the April memorandum.</p>	<p>PPML agrees with this recommendation. With respect to each of the bulleted points, the following addresses the uncertainties from GNWT:</p> <ul style="list-style-type: none"> • Chemoclines have been observed in some of the pits, and will be incorporated into the compatibility assessment for any water transfer. Where chemoclines are identified, water samples will be collected in the surface water and deeper water zones of the pit. Except for TDS, where a depth averaged concentration would be determined from the water column specific conductivity measurements, the compatibility assessment would compare the average parameter concentration from the two pit depths in the source and receiver pits to determine the compatibility prior to water transfer. • The site-specific relationship between field measured specific conductivity and the corresponding laboratory calculated TDS for existing pit waters will be used to estimate TDS in the source pit at the depths sampled through the water column (typically collected at 1 m depth intervals). These estimates would then be averaged over the water column depth to determine the depth-averaged TDS concentration. The same approach would be used to determine the depth-averaged TDS concentration in the receiver pit. These estimations will be verified from the analysis of TDS in water samples from the source and receiver pits collected as part of the water quality monitoring associated with the compatibility assessment. • Currently, guidelines refer to approved and interim Canadian Council of Ministers of the Environment (CCME; 1999) Protection of Aquatic Life guidelines (fluoride is an interim guideline), except for sulphate, which is sourced from the British Columbia Ministry of Environment and Climate Change Strategy (BC ENV; 2019) approved water quality guidelines. In the Groundwater Management Plan to be submitted to the MVLWB for approval, PPML may incorporate other relevant federal or provincial updates to the protection of aquatic life guidelines for specific parameters. • The upper bound refers to the maximum parameter concentration in the water quality data set for a receiver pit, which will comprise any available pre-existing data for the pit as well as the data collected in the compatibility assessment monitoring. If water quality data are limited to the compatibility assessment monitoring (because there are no other available data), the upper bound would be represented by the parameter concentration reported in this monitoring step. As described in the decision trees illustrated in Figures B2 and B3 of the April 2021 technical memorandum on the Groundwater Management Plan Framework and Approach for Compatibility, the secondary screening threshold, which is established from the receiver water data, represents a parameter concentration that is 30% above the upper bound concentration; for water to be compatible for a transfer, parameter concentrations in the source water would need to be below this threshold. • At this time, PPML considers the compatibility assessment for well to well and pit to well water transfer scenarios as illustrated in Figures B2 and B3 of the April 2021 memo on the Groundwater Management Plan Framework and Approach for Compatibility remain limited to a comparison of the water quality of the source and receiver. PPML considers the two-step screening used in the selection of a receiver well (i.e., initially comparing TDS concentrations between the source and receiver waters, and if they are determined to be compatible for TDS, comparing parameter concentrations for those parameters with guidelines; if these parameters are compatible, the source water can be deemed acceptable for transfer) minimizes the potential for change to the groundwater quality in the receiver wells, and thereby also limits the potential for risk to aquatic life in a pit or surface water in the proximity to the receiver well as a result of any approved water transfer to the wells. <p>PPML does not agree with the second recommendation. Baseline sampling surveys have been conducted in the area of the Project over the past three years, and are planned in the future, to further the understanding of the temporal and spatial water quality of the pit waters in the area of the Project. These data will also be supplemented by field and laboratory data collected as part of the compatibility assessment for any water transfer. Therefore, using all available data for the receiver pit provides a stronger basis for decision-making rather than relying on a single set of data.</p> <p>References: BC ENV (British Columbia Ministry of Environment and Climate Change Strategy). 2019. British Columbia Approved Water Quality Guidelines: Aquatic Life, Wildlife & Agriculture. Available at https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-quality/water-quality-guidelines/approved-water-quality-guidelines. CCME (Canadian Council of Ministers of the Environment). 1999. Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life (Updated 2019). Available at: https://ccme.ca/en/summary-table</p>

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Intervener	Subject	Recommendation	Response
GNWT-4	Fish Presence in Pits	GNWT recommends the Water Licence include a condition that requires fish presence determinations in a pit prior to water being discharged into it.	<p>PPML agrees to conduct fish presence surveys in pits prior to conducting water transfers. As stated in the response to ECCC-4, PPML will include a determination of whether fish are present in the pits in the compatibility decision trees that will be included in the Groundwater Management Plan to be submitted to the MVLWB for approval.</p> <p>Note that the determination of fish presence in a receiver pit does not mean that a water transfer cannot occur. PPML believes that the compatibility assessment process is ultimately protective; further, where fish presence is determined in the receiver pit, acute toxicity tests will be conducted on the source pit water that has been passed the two-step screening process prior to any transfer.</p>
GNWT-5		GNWT recommends that source water for discharge to pits confirmed to have fish present must have parameter concentrations equal to, or lower than the concentrations in the receiving pit or parameter concentrations that are below CCME Guidelines for the Protection of Aquatic Life.	<p>PPML disagrees with this recommendation. The review of pit water data, as presented in the April 2021 memo on the Groundwater Management Plan Framework and Approach for Compatibility, identified that some parameters (e.g., fluoride, and some metals) have been measured above guidelines (which is consistent with surface water quality within and downstream of the area of the Project) and there remains the possibility that fish could be present in these pits. The compatibility assessment and proposed two-step screening approach has been designed so that water transfers to pits limits the extent of change to the pit waters, which imparts a level of protection to aquatic life that may be present in the pit. The approach also accounts for any parameter that has the potential to be above guidelines in the source and receiver pit waters.</p> <p>As an added measure where fish presence is identified in the receiver pit, PPML proposes the addition of acute toxicity testing of the source water once it has passed the two-step screening process as part of the compatibility assessment for water transfers.</p>
GNWT-6		GNWT recommends that existing pits be considered the receiving environment, and that PPML be responsible for protecting the environment within and surrounding these pits (aquatic and otherwise).	PPML believe that the two-step compatibility assessment approach developed for water transfers has been designed to limit the amount of change in the receiver pit water quality and to identify parameters in the source water that are outside of the screening threshold so as to potentially provide risk to aquatic life in the receiver water, is protective of pit water quality and nearby waterbodies. Further, once a receiver pit has been identified as compatible with the source pit, and identified to possess a fish presence, acute toxicity testing of the source pit water will be added to the acceptability process to confirm that there is no deleterious risk to aquatic biota in the pit.
GNWT-7	Water Quality Compatibility Criteria	GNWT recommends that water transfers from pit to pit, well to well and pit to well, be conducted in accordance with the Groundwater Management Plan and subject to the following additional conditions:	<p>PPML is in partial agreement with these recommendations.</p> <ul style="list-style-type: none"> PPML believes that the compatibility assessment approach proposed for the water transfers to pits will be protective of aquatic life in the pits. The two-step process that compares TDS concentrations and parameters that have CCME protection of aquatic life guidelines in the source water and the receiver water limits the amount of change to the receiver water as a consequence of the water transfer. By limiting the change in water quality, the risk to aquatic life is also mitigated. Therefore, a restriction to only transferring water that has parameter concentrations equal to, or lower than, concentrations in the receiver pit or concentrations that are below CCME Guidelines for the Protection of Aquatic Life is not necessary. PPML has also proposed the inclusion of acute toxicity testing as part of the monitoring program to supplement the compatibility assessment in receiver pits that have fish present. PPML agrees that water transfers will be managed through visual observations so that they do not result in temporary flooding from pit or well overflows or the drying up of nearby natural waterbodies. Note that additional mitigation regarding water withdrawal for the groundwater tests is provided in Section 3.2 of the Water Withdrawal Plan.
		a) Not occur in pits containing fish unless source water concentrations are equal to, or lower than, parameter concentrations in the receiving pit or source water concentrations that are below CCME Guidelines for the Protection of Aquatic Life.	
		b) Water transfers shall not result in temporary flooding or drying up of nearby waterbodies as confirmed through visual monitoring;	
		c) There is a less than 30% difference in Total Dissolved Solids concentration between the source and receiving water locations, and	PPML reiterates that the initial screening threshold that will apply to the compatibility assessment is that the TDS concentration in the source water must be within 30% of the TDS concentration in the receiver water.
		d) Source water quality for individual parameters have less than 30% difference in source water and receptor water quality concentrations (for all parameters that have a CCME Water Quality Guidelines for the Protection of Aquatic Life guideline value).	If the source water passes the initial screening threshold, a comparison of parameter concentrations (those with guidelines) between the source water and the receiver water will be conducted. To be deemed compatible to facilitate water transfer, these parameter concentrations in the source water must be below a corresponding concentration that is less than 30% above the upper bound parameter concentration in the receiver water.

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response										
GNWT-8		GNWT recommends that if condition b), c) and d) cannot be achieved, PPML may submit a request, for review and Board approval, that describes with supporting analysis, how the water transfer will be conducted in a manner that mitigates against potential impacts to surface water.	PPML agrees with this recommendation.										
GNWT-9		GNWT recommends that PPML describe how water quality will be monitored during testing to ensure that poor quality water is not discharged as a result of changing water conditions during recharge of the source water pit.	<p>The groundwater tests are short-term in nature (i.e., typically less than 14 days). The monitoring therefore, is focused on the short-term nature of the activity. Once compatibility for water transfer between the source and receiver pits has been determined, the following monitoring will be conducted during and after water transfers between the pits:</p> <p><u>Source Water</u></p> <ul style="list-style-type: none"> • Daily field physico-chemistry (i.e., specific conductivity, pH, and temperature) measurements in the pumped source water • Laboratory analysis of water quality parameters (refer to ECCC-1) on the last day of pumping <p><u>Receiver Water</u></p> <ul style="list-style-type: none"> • Weekly field physico-chemistry (i.e., specific conductivity, pH, temperature, and dissolved oxygen) measurements • Laboratory analysis of water quality parameters (refer to ECCC-1) in a pit sample three to four days after water transfer is complete <p>This proposed monitoring for water transfer between pits will be detailed in the Groundwater Management Plan, and include thresholds associated with the monitoring data that are linked to the TDS screening threshold used in the step one screening assessment (i.e., source water pumped to the receiver pit shall remain within 30% of the receiver pit TDS as determined prior to pumping) and operational responses should measurements in the source and receiver pits fall outside of expected conditions. The daily measured specific conductivity values in the pumped source water will be used to estimate TDS concentrations from the site-specific TDS:specific conductivity relationship. Should the TDS concentration of the source water be measured above the 30% TDS threshold, PPML will respond by verifying the measurements and pausing to evaluate the situation, or ceasing the pumping.</p>										
GNWT-10	Modular Water Treatment Plant	GNWT recommends that the Water Licence include conditions for a modular wastewater treatment plant for the treatment of camp sewage.	PPML agrees to this recommendation.										
GNWT-11		<p>GNWT recommends that the EQC for the discharge from the wastewater treatment plant be set as follows:</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Maximum Grab Concentration</th> </tr> </thead> <tbody> <tr> <td>Fecal Coliforms</td> <td>20 CFU/100 mL</td> </tr> <tr> <td>Carbonaceous Biological Oxygen Demand (CBODs)</td> <td>25 mg/L</td> </tr> <tr> <td>Total Suspended Solids</td> <td>25 mg/L</td> </tr> <tr> <td>pH</td> <td>6 to 9</td> </tr> </tbody> </table>	Parameter	Maximum Grab Concentration	Fecal Coliforms	20 CFU/100 mL	Carbonaceous Biological Oxygen Demand (CBODs)	25 mg/L	Total Suspended Solids	25 mg/L	pH	6 to 9	PPML agrees to this recommendation.
Parameter	Maximum Grab Concentration												
Fecal Coliforms	20 CFU/100 mL												
Carbonaceous Biological Oxygen Demand (CBODs)	25 mg/L												
Total Suspended Solids	25 mg/L												
pH	6 to 9												
GNWT-12	Landfarm and Associated Contact Water	GNWT recommends that the MVLWB not include authorization for a landfarm in the Water Licence at this time.	PPML agrees to this recommendation.										

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
GNWT-13		GNWT recommends that the Water Licence should require submission of a revised Waste Management Plan 30 days after issuance. PPML revise the Plan to specify that hydrocarbon-impacted material and its associated contact water will be shipped to an offsite facility for appropriate disposal.	PPML agrees to this recommendation.
GNWT-14	Vehicle Wash Station	GNWT recommends that the Water Licence should require submission of a revised Waste Management Plan 30 days after issuance. PPML revise the Plan to state that the runoff water from the vehicle wash station will be shipped offsite to an appropriate disposal facility.	PPML agrees to this recommendation.
GNWT-15	Surveillance Network Program	GNWT recommends that the list of proposed locations for groundwater testing be provided for review and approval to the Board 90 days before testing begins.	PPML will present the locations for groundwater testing within the Groundwater Management Plan, which will be submitted to the MVLWB for approval 30 days prior to conducting the groundwater testing program.
GNWT-16		GNWT recommends that PPML provide a SNP containing water quality monitoring locations, sampling parameters and sampling frequency for review and approval for inclusion in the Water Licence. The SNP should include both the source and receiving water bodies involved in groundwater testing, as well as nearby water bodies that could be hydrologically connected.	Surveillance Network Program (SNP) sampling is typically applied for long-term monitoring at fixed locations. As the groundwater testing locations are as-yet undetermined, and as the testing will be short-term (i.e., typically less than 14 days per test site), it is more appropriate that the compliance monitoring program be contained within the approved Groundwater Management Plan. PPML notes that recommendation ECCC-01 allows for this compliance monitoring through either an approved management plan or SNP program. For the reasons provided above, PPML believes that compliance monitoring for the groundwater testing should be provided in an approved Groundwater Management Plan rather than an SNP. Additional information regarding proposed monitoring is provided in the response to GNWT-9.
GNWT-17	Reclamation Security	GNWT that the total security estimate for the project be set to \$1,124,699 with a land and water liability set at \$735,377 and \$389,322, respectively.	<p>PPML is in agreement with the proposed changes with the exception of the addition of 54,000 m³ (0.15 m over 36 ha) of topsoil for greenfield drill sites (Buildings and Equipment Worksheet – Grade and Contour Pads – Grade Overburden). PPML responded to Technical Session IR #8 on March 30, 2021, noting that “PPML takes steps to reduce impacts to existing soils and vegetation regardless of the category of the areas (brownfields or greenfields). This includes using drills on tracks to limit disturbance and limiting the size of the area to cleared for a drill pad.” As such, it is PPML’s intent to limit the disturbance to the topsoil as much as possible. This is driven by environmental and economic concerns; not moving the material is less costly and leaves in the place the regenerative capacity of the topsoil. Much of the activity will also occur during the winter months when the ground is frozen, as the sites would be too wet in summer to access.</p> <p>It is recognized that not all of the drill sites in greenfield areas will have untouched topsoil; PPML will take every effort to limit this disturbance. We estimate that 10% of the greenfield drill sites will require regrading of topsoil prior to revegetation efforts and thus reduce the 54,000 m³ to 5,400 m³ (0.15 m over 3.6 ha).</p> <p>With these changes, PPML has revised the security estimate to \$1,060,755, with a land liability of \$743,457 and a water liability of \$317,298 (Attachment A).</p>
FRMG-1		The MVWLB to require the Proponent to directly engage FRMG for all license and permit activities	PPML agrees with this recommendation, and notes that it is a requirement of the Engagement Plan. PPML will further add the Fort Resolution Métis Government as a Party to the Engagement Plan, in addition to the NWT Métis Nation.
FRMG-2		The MVWLB to require the Proponent to work directly with FRMG to revise the engagement plan and delay approval of the plan until revisions are made.	PPML is open to revising the Engagement Plan, will discuss this issue directly with the Fort Resolution Métis Government, and will add the Fort Resolution Métis Government as a stand-alone Party to the Plan. PPML advises the MVLWB that the Engagement Plan was provided to the NWT Métis Nation on 26 October 2020 for review, before it was submitted to the MVLWB a month later on 27 November 2020. No comments on the Engagement Plan were received, either prior to or since submission. As all Parties have had over six months to comment on the Engagement Plan, there is no reason to delay approval of the Water Licence.
FRMG-3		FRMG recommends that the secondary step for determining the compatibility of water sources for transfer include concentration measurements for the following metals: aluminum, cadmium, chromium, copper, iron, lead, thallium, uranium, and dissolved zinc.	PPML identified these parameters as focus parameters in the compatibility assessment because these parameters were measured above guidelines on occasion or consistently in pit waters in the area of the Project. As part of the compatibility assessment, the second screening step will include the comparison of these parameters in the source and receiver waters in the decision-making process for water transfers. Also see the response to ECCC-2 regarding PPML’s commitment to monitoring field and laboratory water chemistry (which includes these focused parameters) as a component of any decision-making process for water transfers.

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
FRMG-4		FRMG recommends that the secondary step for determining water source compatibility should use an approach that clearly represents the natural variability of each parameter found in water sources on site.	The second screening step in the compatibility assessment of a receiver water does account for natural variability of the waters (refer to PPML's April 2021 memo on the Groundwater Management Plan Framework and Approach for Compatibility). As available, existing water quality data will supplement any data collected as part of the compatibility assessment of source and receiver waters to assist informing the decision making process. PPML will also be updating these data as part of their ongoing site monitoring surveys designed to build upon site-specific existing environment data.
FRMG-5		FRMG recommends that PPML must be required to submit a decision tree regarding well to pit transfer for review and approval before that type of transfer can occur.	As per the response to ECCC-3, PPML confirms that the groundwater testing program will not include well to pit water transfers.
FRMG-6		FRMG recommends that before water is transferred to an empty pit, PPML must be required to consider potential effects on groundwater quality by applying the primary and secondary compatibility criteria.	PPML agrees with this recommendation. However, water transfer from a source pit to an empty receiver pit is expected to be a low probability scenario, with a higher likelihood of this being considered occurring in the northeast zone of the area of the Project. Outside of this zone, water is expected to be present in many of the pits identified as receiver pits. As part of determining compatibility for water transfer if the receiver pit is dry, PPML would use existing pit or nearby well water quality data if available for comparison to the source pit or well. If these data are not available, PPML would use interpolate the water quality of the groundwater using broader existing data for that zone (PPML is currently compiling all available site groundwater data).
FRMG-7		FRMG recommends that PPML not transfer water that does not meet the approved compatibility criteria unless it is a transfer of higher quality water to lower quality water. Any mitigations that may inform decisions regarding transferring lower quality water to higher quality water outside of the compatibility criteria must be subject to appropriate review and approval by MVWLB and FRMG.	PPML has outlined a compatibility assessment that forms the basis for water transfers. If water quality conditions are not met through this process, alternate receiver locations will be sought.
FRMG-8		FRMG recommends that PPML ensures that pumping methodology accounts for the existence of any chemoclines (in respect of TDS or metal concentrations used for the compatibility criteria) that may affect the expected water quality transferred to a receiving pit.	As per the response to GNWT-3, PPML will account for the presence of a chemocline in the compatibility assessment of the source and receiver pit waters.
FRMG-9		FRMG recommends that PPML further develop their argument that the compatibility criteria will protect aquatic life existing in pits and aquatic life in any natural surface waters that are connected to those pits.	The development of TDS-based and the secondary screening thresholds applied to focus parameters in the compatibility assessment is designed to limit the potential for broad water quality changes in the receiver pits as a result of pit water transfers and to identify parameters in the source water that may potentially provide risk to aquatic life in the receiver water. This process is intended to minimize any potential for adverse risk to aquatic life. If fish are identified in the receiver pits, PPML will supplement the monitoring associated with the compatibility assessment with acute toxicity testing. See the response to ECCC-2 and GNWT-5.
FRMG-10		FRMG recommends that PPML not utilize a TDS:Specific Conductance formula with a correlation coefficient less than 0.8 for determining the compatibility of water sources for transfer.	PPML agrees with this recommendation.
FRMG-11		FRMG recommends that PPML not use waters intersecting Federal Contaminated Site 00024168 for project activities without further discussion on risks of contamination to surrounding areas and how these risks can be mitigated.	PPML understands this to be a reference to the Pine Point railbed. PPML agrees to this recommendation.
FRMG-12		FRMG recommends that PPML employ an appropriate methodology to determine minimum flow rates in water courses below which will likely cause adverse effects to fish populations. PPML should then use that finding to institute a "cut-off" limit for water-withdrawals.	PPML agrees to this suggestion, and notes that withdrawal rates protective of aquatic life are included in the Water Withdrawal Plan. Methods for flow measurement are dependent upon season, flow rate, river depth and other considerations, and PPML will employ methods appropriate to the situation.

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
FRMG-13		<p>The Spill Contingency Plan should include the following requirement regarding secondary containment at fuel storage and transfer areas.</p> <p>A secondary containment system for an aboveground storage tank will:</p> <p>(1) for a storage tank system that consists of a single storage tank, have a volumetric capacity of not less than 110% of the capacity of the tank; or</p> <p>(2) for a storage tank system that consists of more than one storage tank, have a volumetric capacity of not less than the sum of:</p> <p>(a) the capacity of the largest storage tank located in the contained space; and (b) 10% of the greater of:</p> <p>(i) the capacity specified in Clause (a); or</p> <p>(ii) the aggregate capacity of all other storage tanks located in the contained space.</p>	<p>This request derives from the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197), which PPML will adhere to.</p>
FRMG-14		<p>Any soils contaminated by fuels or chemicals identified in the Spill Contingency Plan should be properly handled and disposed of in accordance with applicable legislation.</p>	<p>PPML agrees, and has already incorporated these measures into the Spill Contingency Plan</p>
FRMG-15		<p>FRMG recommends updating the Species of Concern Project list to include culturally important species for Fort Resolution Métis members, such as moose, game birds (e.g., ptarmigan), and furbearers.</p>	<p>As per the Wildlife Management and Monitoring Plan Guidelines (GNWT 2019), the Wildlife Protection Plan list of Species of Concern is specific to those species with legislated protection under the federal <i>Species at Risk Act</i> or the territorial <i>Species at Risk (NWT) Act</i>. As the Wildlife Protection Plan includes general mitigation and monitoring for wildlife, these species are already protected. Regardless, the Wildlife Protection Plan will be updated to include specific mention of these species.</p> <p>Reference: GNWT (Government of the Northwest Territories). 2019. Wildlife Management and Monitoring Plan (WMMP) Process and Content Guidelines. June 2019. Available at: https://www.enr.gov.nt.ca/sites/enr/files/resources/wmmp_process_and_content_guidelines_june_2019.pdf</p>
FRMG-16		<p>FRMG recommends that PPML provide justification for the listing of observed Species of Concern at Pine Point.</p>	<p>PPML is required to include a list of species with legislated protection under the federal <i>Species at Risk Act</i> and the territorial <i>Species at Risk (NWT) Act</i> by the Wildlife Management and Monitoring Plan Guidelines (GNWT 2019). Previous studies related to Indigenous knowledge and traditional land and resource use in the vicinity of the Project were reviewed and the species that may be present in the area with potential to interact with the Project were compared to federal and NWT species listing to come up with the list of Species of Concern in the Wildlife Protection Plan.</p> <p>Reference: GNWT (Government of the Northwest Territories). 2019. Wildlife Management and Monitoring Plan (WMMP) Process and Content Guidelines. June 2019. Available at: https://www.enr.gov.nt.ca/sites/enr/files/resources/wmmp_process_and_content_guidelines_june_2019.pdf</p>

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
FRMG-17		FRMG recommends that PPML provide a fulsome assessment of all potential impacts to boreal caribou from the proposed Project, and the implications of these impacts for boreal caribou in the Pine Point herd. In particular, FRMG recommends that PPML adequately consider and account for the amount of habitat that will be disturbed on the site, both directly (i.e., direct habitat loss) and indirectly (i.e., at a minimum within 500 m of all disturbed habitat). This request is also reflected in the GNWT's request that that PPML provide more detailed information on the specific locations, timing and frequency of activities proposed for this project, as well as an estimate of how much new habitat disturbance will occur as a result of project activities in order to properly assess impacts.	<p>Potential effects of the Confirmation and Exploration Program on boreal caribou were included in the Screening-Level Environmental Assessment for the Confirmation and Exploration Program (Golder 2020) with additional information presented at the Technical Sessions (PPML 2021).</p> <p>In addition, the Wildlife Protection Plan lists pathways of potential effects to all wildlife, and proposes mitigation for each. As per GNWT's request, an updated Wildlife Protection Plan is in preparation that will include expanded mitigation and monitoring specific to boreal caribou. The focus of the additional mitigation within the Wildlife Protection Plan will be the avoidance of caribou and caribou habitat, and reducing direct and indirect effects. For example, PPML has also proposed the non-standard condition that "The Permittee shall not move any equipment or commence any drilling when one or more caribou is within five hundred (500) metres. Caribou and all wildlife shall be given the right of way at all times." The updated Wildlife Protection Plan will include pre-activity surveys for caribou and caribou sign. PPML has provided estimates on the area that might be affected by exploration activities, and clarified that approximately 90% of drilling activity will be within previously disturbed areas, as per the response to IR #8 from the Technical Session.</p> <p>References: Golder (Golder Associates Ltd.) 2020. Screening-Level Environmental Assessment for the Confirmation and Exploration Program. Pine Point Project. Submitted to Pine Point Mining Limited. November 2020. Available at: http://registry.mvlwb.ca/Documents/MV2020L8-0012/MV2020L8-0012%20MV2020C0017%20-%20PPML%20-%20Screening%20Impact%20Assessment%20-%20Nov27_20.pdf</p> <p>PPML (Pine Point Mining Ltd.). Confirmation and Exploration Program (CEP) MV2020L8-0012 MV2020C0017 Technical Session – Project Overview 24 and 25 February 2021. Available at: http://registry.mvlwb.ca/Documents/MV2020L8-0012/PPML%20-%20Technical%20Session%20Feb%2024-25,%202021%20-%20Presentation%20-%20Feb23_21.pdf</p>
FRMG-18		FRMG recommends that PPML include specific habitat mitigation measures for both direct and indirect habitat loss, including habitat offsetting at a sufficient ratio to address the impacts to boreal caribou habitat resulting from the proposed exploration within the project area.	<p>Mitigation to reduce impacts to caribou and caribou habitat is provided in Table 3 of the Wildlife Protection Plan. According to the mitigation hierarchy (e.g., BBOP 2012), offsetting should only be considered after avoidance, followed by mitigation, followed by reduction of impacts. PPML is updating the Wildlife Protection Plan to implement additional measures to avoid and mitigate impacts to caribou, such that offsetting is not required for the Confirmation and Exploration Program.</p> <p>Reference: BBOP (Business and Biodiversity Offsets Programme). 2012. Standard on Biodiversity Offsets. BBOP, Washington, D.C. Available at: https://www.forest-trends.org/wp-content/uploads/imported/BBOP_Standard_on_Biodiversity_Offsets_1_Feb_2013.pdf</p>
FRMG-19		FRMG recommends that PPML provide clear methodology on the pre-clearing survey, including a maximum time between surveys and clear activities is established, sign definition, and threshold for sign age. FRMG knowledge holders are experts on the wildlife in this area. FRMG and other Indigenous monitors should be contracted to conduct any pre-clearing monitoring.	PPML will review and clarify these methods in the updated Wildlife Protection Plan and will discuss opportunities for the Fort Resolution Métis Government (FRMG) inclusion in wildlife monitoring prior to vegetation clearing.
FRMG-20		Considering that the majority of the project occurs on a brownfield site that has had natural regrowth, FRMG recommends that this requirement [for Pre-Clearing Surveys] be changed from greenfield areas to all project areas where there will be vegetation removal and disturbance.	PPML will conduct pre-clearing surveys in all instances where vegetation clearing is required. However, to minimize the area of disturbance, PPML will primarily undertake exploration within the extensive areas of Pine Point where there is no vegetation or where re-growth has not advanced to the stage where clearing is required.
FRMG-21		FRMG recommends that PPML develop a clear approach to monitoring dust fall and the application of dust mitigation measures, based on an adaptive management approach, including thresholds and triggers for enacting more stringent mitigation measures.	PPML is willing to discuss concerns related to dust with FRMG. PPML has included 'dust suppression' as a water use in the Water Use Plan to allow the use of road watering to minimize road dust. It should also be noted that this is an exploration program and not a mining operation where there would potential for increased levels of dust generation from haul trucks. Vehicle travel for an exploration program will consist of occasional trips by small vehicles driving at slow speeds. Regardless, PPML is preparing to undertake dust control mitigation and will discuss with FRMG in the context of a site visit so that actual dust emissions can be observed.

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
FRMG-22		Similar to GNWT's request (IR 2), FRMG recommends PPML provides additional information on the noise suppression activities and mitigations that will be used on site in order for FRMG to assess their adequacy and potential impacts to boreal caribou and other wildlife in the area.	An updated Wildlife Protection Plan is in preparation, which will provide additional measures to avoid or minimize effects to boreal caribou, both spatially and temporally. The new measures will include new controls to avoid exploration activity if caribou are or may be in the vicinity. PPML will continue to work with FRMG to discuss wildlife monitoring and look for opportunities to include FRMG members in wildlife monitoring.
FRMG-23		FRMG recommends that PPML develop a restoration standard that can be applied to all disturbed areas, including a requirement to revegetate sites using native vegetation. Furthermore, FRMG recommends that Indigenous knowledge holders, including FRMG members, should lead the restoration efforts to ensure that appropriate standards for reclamation are met across all disturbed areas. FRMG recommends that PPML update the Closure and Reclamation Plan to include this measure.	The Draft Water Licence includes a requirement for a Closure and Reclamation Plan to be submitted to the MVLWB for approval within 24 months of the effective date of the Water Licence. Closure planning will consider the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB and AANDC 2013), which explicitly includes concepts such as revegetation, closure objectives and criteria, and inclusion of Indigenous knowledge. The Closure and Reclamation Plan will undergo its own review process and the FRMG and other reviewers will have opportunities for feedback into the plan through that process. Further, the Engagement Plan requires that PPML submit management plans to affected Parties for review prior to submission to the MVLWB. It should also be noted that PPML has proposed to develop a mine at Pine Point, and that closure planning should be considered in this wider context. PPML also reiterates that the developer's responsibility does not extend to remediation of prior disturbances. Reference: MVLWB (Mackenzie Valley Land and Water Board) and AANDC (Aboriginal Affairs and Northern Development Canada). 2013. Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories. Available at https://mvlwb.com/sites/default/files/documents/wg/WLWB_5363_Guidelines_Closure_Reclamation_WR.p
FRMG-24		FRMG recommends the PPML prepare a Wildlife Management and Monitoring plan per Section 95 of the Wildlife Act, working in collaboration with FRMG, GNWT-ENR, and other Indigenous governments in the region, to provide information needed to ensure sufficient mitigation measures are taken. We recognize that the GNWT has determined that a Tier 1 WMMP will be required and request that this WMMP be developed prior to the approval of the proposed Confirmation and Exploration program (CEP). FRMG further recommends that the WMMP be subject to approval by FRMG before any activity commences on the site.	GNWT-ENR has determined that the Project triggers Section 95 of the <i>Wildlife Act</i> , and thus the Wildlife Protection Plan requires approval by GNWT-ENR (GNWT 2021). Further review of the revised Wildlife Protection Plan is at the discretion of GNWT-ENR. Reference: GNWT (Government of the Northwest Territories). 2021. Wildlife Act Section 95(1) determination of the requirement for a Wildlife Management and Monitoring Plan for Pine Point Mining Ltd.'s Confirmation and Exploration Program. Available at: http://registry.mvlwb.ca/Documents/MV2020L8-0012/PPML%20-%20Wildlife%20Management%20and%20Monitoring%20Plan%20Determination%20-%20Apr30_21.pdf
DKFN 1	Boreal Caribou	MVLWB to incorporate management guidelines and actions into permitting conditions for activities identified as affecting boreal caribou or their habitat.	PPML believes that this recommendation has been incorporated into the application. Section 26(1) of the Mackenzie Valley Land Use Regulations allows the MVLWB to include permit conditions respecting 'protection of wildlife habitat and fish habitat'. Using the MVLWB Standard Land Use Permit Conditions, PPML included the condition that 'The Permittee shall take all reasonable measures to prevent damage to wildlife and fish Habitat during this land-use operation.' (Condition 43). PPML has also proposed the non-standard condition that, 'The Permittee shall not move any equipment or commence any drilling when one or more caribou is within five hundred (500) metres. Caribou and all wildlife shall be given the right of way at all times.' (Condition 83). Finally, GNWT-ENR has determined that the Project triggers Section 95 of the <i>Wildlife Act</i> , and thus the Wildlife Protection Plan requires approval by GNWT-ENR (GNWT 2021), and the Wildlife Protection Plan contains reference to various relevant guidelines. The Deninu Kue First Nation (DKFN) did not identify any specific management guidelines in their Intervention. Reference: GNWT (Government of the Northwest Territories). 2021. Wildlife Act Section 95(1) determination of the requirement for a Wildlife Management and Monitoring Plan for Pine Point Mining Ltd.'s Confirmation and Exploration Program. Available at: http://registry.mvlwb.ca/Documents/MV2020L8-0012/PPML%20-%20Wildlife%20Management%20and%20Monitoring%20Plan%20Determination%20-%20Apr30_21.pdf

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
DKFN 2		PPML, MVLWB, GNWT, DKFN and other Indigenous groups work together to understand the structure and function of the local boreal caribou population before more habitat is altered by the proposed mine-related activities.	PPML agrees with this recommendation and looks forward to the opportunity to work in a collaborative environment with the GNWT, DKFN, and other Indigenous groups. However, PPML would like to remind reviewers that this is an exploration program and not a mine development. PPML has offered to participate in any discussions regarding boreal caribou and their habitat, and has offered to participate in aerial population surveys led by GNWT-ENR and which are expected to also include participation by DKFN and other Indigenous groups. PPML is also preparing an updated Wildlife Protection Plan that will expand on measures to avoid caribou and caribou habitat. Condition 43 of the proposed Land Use Permit requires that "The Permittee shall take all reasonable measures to prevent damage to wildlife and fish Habitat during this land-use operation." PPML has also proposed the non-standard condition that "The Permittee shall not move any equipment or commence any drilling when one or more caribou is within five hundred (500) metres. Caribou and all wildlife shall be given the right of way at all times." PPML will contact DKFN to discuss a site visit to tour the exploration areas, and avoidance of caribou habitat will be discussed during this visit.
DKFN 3		PPML, in collaboration with DKFN, conduct a reconnaissance of proposed investigation sites and access to confirm the presence of biophysical attributes important to boreal caribou. Where these are present, alternate investigation sites and/or access should be explored.	GNWT-ENR has suggested that PPML use the predictive resource selection function map prepared by GNWT-ENR (GNWT 2021). This map will be used to further review the proposed exploration and compare the exploration activities to the habitats and areas that caribou select. The biophysical attributes listed by DKFN (mature forests, open coniferous habitat, spruce peatland and muskeg, black spruce forests with abundant lichens, and sedge and moss availability) will be reflected in the resource selection function. Through the Wildlife Protection Plan, PPML will plan how these areas can be avoided, and describe additional mitigation required before entering any such areas. For example, GNWT-ENR has required that the updated Wildlife Protection Plan include the following: "During the late-winter and calving season, PPML will conduct ground searches within 500m prior to clearing new work sites, prior to returning to previously cleared sites that have been dormant more than 2 days to start up drilling or pitting, or prior to any blasting activities." PPML will contact DKFN to discuss a reconnaissance of the investigation sites. Reference: GNWT (Government of the Northwest Territories). 2021. Wildlife Act Section 95(1) determination of the requirement for a Wildlife Management and Monitoring Plan for Pine Point Mining Ltd.'s Confirmation and Exploration Program. Available at: http://registry.mvlwb.ca/Documents/MV2020L8-0012/PPML%20-%20Wildlife%20Management%20and%20Monitoring%20Plan%20Determination%20-%20Apr30_21.pdf
DKFN 4		PPML has stated "Cautionary Zones" will be used around sites of the exploration activity to limit effects on boreal caribou. Additional information is required on what these zones are and where they will be used.	GNWT-ENR has determined that the Project triggers Section 95 of the <i>Wildlife Act</i> , and thus the Wildlife Protection Plan requires approval by GNWT-ENR (GNWT 2021). In this submission, GNWT-ENR provided additional guidance to PPML on the 'Cautionary Zones'. The updated Wildlife Protection Plan will incorporate this new guidance from GNWT-ENR to provide more detail on how the Cautionary Zones are defined and what additional measures they trigger. Reference: GNWT (Government of the Northwest Territories). 2021. Wildlife Act Section 95(1) determination of the requirement for a Wildlife Management and Monitoring Plan for Pine Point Mining Ltd.'s Confirmation and Exploration Program. Available at: http://registry.mvlwb.ca/Documents/MV2020L8-0012/PPML%20-%20Wildlife%20Management%20and%20Monitoring%20Plan%20Determination%20-%20Apr30_21.pdf

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
DKFN 5		PPML to provide an updated version of the Wildlife Protection Plan/Wildlife Management and Monitoring Plan prior to the water license and land use permit being issued.	GNWT-ENR has determined that the Project triggers Section 95 of the <i>Wildlife Act</i> , and thus the Wildlife Protection Plan requires approval by GNWT-ENR (GNWT 2021). PPML will submit an updated version of the Wildlife Protection Plan in May 2021, which will be prior to the issuance of the Land Use Permit and Water Licence. Reference: GNWT (Government of the Northwest Territories). 2021. Wildlife Act Section 95(1) determination of the requirement for a Wildlife Management and Monitoring Plan for Pine Point Mining Ltd.'s Confirmation and Exploration Program. Available at: http://registry.mvlwb.ca/Documents/MV2020L8-0012/PPML%20-%20Wildlife%20Management%20and%20Monitoring%20Plan%20Determination%20-%20Apr30_21.pdf
DKFN 6		Environment and Climate Change Canada has informed the MVLWB that PPML must apply for a permit under section 73 of the Species at Risk Act (SARA) for the Project. Details on what species are covered under this permit is required.	PPML refers DKFN to ECCC #9 within the ECCC Intervention (ECCC 2021), which clarifies that a permit under Section 73 of the <i>Species At Risk Act</i> is triggered by boreal caribou and the federal land at Pine Point. PPML is preparing the permit application for submission to ECCC. Reference: ECCC (Environment and Climate Change Canada). 2021. Environment and Climate Change Canada's Intervention to the Mackenzie Valley Land and Water Board Respecting the Pine Point Mining Limited Confirmation and Exploration program Land Use Permit and Water Licence Application. May 4, 2021. Available at: http://registry.mvlwb.ca/Documents/MV2020C0017/PPML%20-%20Intervention%20from%20ECCC%20-%20May4_21.pdf
DKFN 7	Traditional Land Use	PPML to coordinate exploration activities with DKFN land users.	The Engagement Plan outlines the triggers where PPML will inform DKFN of Project activities, and will continue to have regular communication with DKFN.
DKFN 8	Water	PPML prepare additional criteria, in collaboration with DKFN, on the selection of suitable waterbodies to be used for water extraction.	PPML has developed the Water Withdrawal Plan using the precautionary approach outlined in the MVLWB Method for Determining Winter Water Source Capacity for Small-Scale Developments (LWBMV 2020). PPML reminds reviewers that the guidelines as outlined in LWBMV (2020) were developed for withdrawal during winter (when lakes and rivers are most sensitive to withdrawal), but PPML proposes to apply these guidelines to withdrawal at any time of year. To meet the expectations of the MVLWB, the Water Withdrawal Plan contains many more waterbodies than will ever be used. For example, PPML's Water Licence Annual Reports for MV2018L2-0003 indicate that water was only withdrawn from nine sources in 2019 and 2020, all of which were open pits. No water was withdrawn from natural waterbodies. PPML is obliged by recent changes to the authorization of water withdrawal by the Land and Water Boards to identify all possible future water sources, as adding additional water sources after the Water Licence has been issued may trigger a Water Licence amendment process. As discussed during the Technical Session, PPML has excluded waterbodies from the Water Withdrawal Plan where there are other users (such as Polar Lake and lakes near the Buffalo River), and encourages Indigenous governments and other water users to identify specific water sources that should be avoided. Reference: LWBMV (Land and Water Boards of the Mackenzie Valley). 2020a. Draft Method for Determining Available Winter Water Volumes for Small-Scale Projects. Available at https://wlb.ca/sites/default/files/distributed_for_review_2_-_draft_method_for_water_source_volume_use_calculations_-_apr_27_20.pdf
DKFN 9		PPML only construct sumps where suitable soils are present.	PPML refers the DKFN and the MVLWB to the proposed Land Use Permit Conditions 35 to 39, which refer specifically to the management of drill cuttings. Condition 36 confirms that drill sumps must be at least 100 metres from water, and in natural depressions. If suitable ground is not present at the drilling location, the cuttings are collected and transported for disposal in disturbed areas with suitable ground. All operations and management of sumps and drill cuttings are overseen by the GNWT Lands Inspector. It should be noted only a very small volume of material is deposited in these sumps, estimated at approximately 30 cubic centimetres of dry cuttings per drill hole. To clarify, this refers to inert drill cuttings only. Other forms of drill waste, such as oil and grease, are managed as hazardous materials under the Waste Management Plan.

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
DKFN 10		PPML implement the post-construction tracking of sumps that includes accurate descriptions of the sump location, soil conditions and type of drilling waste stored in the sump.	PPML documents the location of all sumps, and can provide this information to DKFN on request. PPML reiterates that the volume of material is minor, estimated at approximately 30 cubic centimetres of dry drill cuttings per drill hole.
DKFN 11		PPML to clearly identify sumps should in the field until the site has been decommissioned.	PPML documents the location of all sumps, and can provide this information to DKFN on request. Drill sites are decommissioned immediately after the drilling is complete. PPML reiterates that the volume of material is minor, estimated at approximately 30 cubic centimetres of dry drill cuttings per drill hole.
DKFN 12	Camp Use	PPML to provide specific plans for wastewater management.	Management of non-mineral liquid waste from the camp is described in Section 4.4 of the Waste Management Plan.
DKFN 13		PPML to update its health and safety management plan for the larger camp.	The <i>Mine Health and Safety Act</i> requires that a Health and Safety Plan be submitted to and approved by the Chief Mine Inspector. PPML has done so and the Plan has been approved. The Chief Mine Inspector will require updates to the Plan as operations expand.
DKFN 14	Closure and Reclamation	PPML to describe how residual impacts of the project will be assessed following closure activities.	The Draft Water Licence includes a requirement for a Closure and Reclamation Plan to be submitted to the MVLWB for approval within 24 months of the effective date of the Water Licence. Closure planning will consider the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB and AANDC 2013) and includes closure objectives and criteria. The Closure and Reclamation Plan will include a description of how residual impacts will be assessed following closure activities (Section 6.11 of the Closure and Reclamation Plan). The Closure and Reclamation Plan will undergo its own review process and the DKFN and other reviewers will have opportunities for feedback into the plan through that process.
DKFN 15		PPML to confirm that previously disturbed areas will not be reclaimed to a natural state.	PPML confirms that the closure goal for areas that have been previously disturbed through historical mining activities is to return the areas of the site affected by the Project to at least an equivalent environmental state that they were left by the Government of Canada prior to the Project. However, for previously undisturbed areas, the goal is to return the affected areas of the site developed by the Project to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and human activities. This closure goal for the Project is comprised of the two parts to reflect the historical disturbance that has already been experienced by the site.
DKFN 16		PPML to present criteria that will be used to determine how reclaimed areas, which were previous undisturbed, are compatible with a healthy environment and human activities.	Criteria to determine if closure goals have been met will be presented in future versions of the Closure and Reclamation Plan, following engagement with the DKFN and other Indigenous governments. Part I of the draft Water Licence suggests that an updated Closure and Reclamation Plan be provided to the MVLWB for approval within 24 months of issuance of the Water Licence.
KFN 1		KFN continues to recommend that no disturbance areas occur within 500 metres of the Ejie Tue Dehe (Buffalo River). There is at least one drill site within 500 metres of the Buffalo River. KFN recommends that this site be removed from consideration.	PPML confirms that Condition 52 of the draft Land Use Permit conditions requires that "The Permittee shall not conduct any activity within 500 metres of the Buffalo River." Likewise the Water Withdrawal Plan excludes all sources within 500 metres of the Buffalo River. For the site referred to, PPML would like to discuss with KFN possible options for investigating this deposit.
KFN 2		PPML provided KFN with information on where the drill sites/boreholes will be located, however, there is currently no information on where the road network to access the sites will be located. KFN further recommends that PPML indicate road location and if roads will be sited on linear disturbances (that have not been revegetated). If roads will be sited on linear disturbance, KFN further recommends that PPML indicate how many kms will be sited on previous linear disturbances versus new access.	PPML is sure that KFN appreciates the difficulty of providing specific information such as drill site locations in the context of an exploration program, which must necessarily remain flexible and able to respond to results from exploration as they become available. Similarly, access to drill sites will favour the many unvegetated roads and trails at Pine Point. Doing so makes sense both from an environmental and economic perspective. New linear disturbances will likely be measured in metres or tens of metres rather than hundreds of metres or kilometres. PPML will select the access route to a drilling site that requires the least amount of vegetation clearing. PPML also directs the KFN to the proposed Condition 4 of the draft land use permit, which requires submission of drill target areas to the Board and Inspector, so the information will be public.

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
KFN 3		KFN supports the GNWT's recommendation that PPML work with the GNWT to conduct a population survey to determine how many boreal caribou occur within the project area. PPML has indicated that they will work with PPML on this issue. KFN recommends that a KFN member take part in these population surveys as they take part in any population survey that occurs within the KFN Traditional Territory.	PPML looks forward to working with K'at'l'odeeche First Nation (KFN), other Indigenous governments and the GNWT-ENR on a caribou survey. PPML will defer to GNWT-ENR as the survey lead regarding participation by members of the various Indigenous governments.
KFN 4		PPML has not characterized the potential habitat loss from the Project. In particular, the effects to winter and calving habitat are not sufficiently characterized, the effects of impacts to seasonal movement corridors are not included, and the thresholds of significance for habitat loss and other pathways of impact are not sufficient. The proposed monitoring and mitigation measures are not adequate to address the project effects with respect to the potential impacts of the CEP on boreal caribou. KFN recommends that PPML complete a Wildlife Mitigation and Monitoring Plan that includes information on potential habitat loss from the project and effects to winter and calving habitat. The plan should include a Dene-centric perspective of the potential significance of habitat loss, fragmentation and mortality from the project on Boreal Caribou. The plan should further identify mitigation measures, program monitoring to assess if the mitigation measures are working and adaptive management.	PPML will submit an updated Wildlife Protection Plan to GNWT-ENR for approval under Section 95 of the <i>Wildlife Act</i> , and following the Wildlife Management and Monitoring Plan Process and Content Guidelines (GNWT-ENR 2019). The updated version will incorporate the additional recommendations provided by KFN and the other Indigenous governments through this regulatory process. A key principle of the Wildlife Protection Plan is the avoidance of caribou and caribou habitat, achieved through working within existing disturbed areas whenever possible, and adjusting the exploration areas to avoid caribou habitat and adjust the work schedule to avoid caribou presence.
KFN 5		KFN recommends support for KFN and KFN community members to engage in ongoing collaboration with the proponent to further develop the monitoring plan and develop standards and conditions for minimizing project activities.	PPML agrees with this recommendation. Opportunities for engagement and collaboration have been hampered for the past year by the COVID-19 pandemic, but PPML looks forward to once again meeting with KFN to discuss both concerns and opportunities for the KFN as the Project develops. PPML continues to engage with KFN regarding employment opportunities and involvement in environmental programs.
KFN 6		KFN recommends that the Annual Report provides an update on the drill sites, roads and trails, boreholes and sumps or any other disturbance that has been developed over the last year. KFN further recommends that PPML provide an update on the amount of reclamation that has occurred onsite compared to the total amount of disturbance, which includes photos of the sites and their recovery.	PPML agrees with this recommendation, and notes that these requests are a requirement of the Water Licence Annual Report, as proposed in the draft Water Licence Conditions suggested by PPML.

Table 1: Intervention Responses

Intervener	Subject	Recommendation	Response
KFN 7		<p>KFN recommends that the first method for the protection of boreal caribou is avoiding damage and disturbance to boreal caribou habitat to the greatest extent possible. Recovery of usable habitat is questionable and can take a significant period of time. In the case of the reclamation of roads, PPML currently does not have any definitive plans on when or if roads will be reclaimed, KFN considers that the roads will be on the landscape for at least 20 years or potentially in perpetuity. Golder Associates developed a Boreal Caribou Habitat Restoration Toolkit for address restoration of boreal caribou habitat (http://www.bcogris.ca/sites/default/files/bcip-2018-04-boreal-caribou-restoration-framework-final.pdf). This toolkit contains a summary of habitat restoration treatments that area specific to disturbance features within boreal caribou habitat, designed to limit humans/predators/primary prey (i.e. moose) access and to allow for regeneration to native species. KFN recommends that Golder's approach be used for roads that are developed but are not going to be used in the future.</p>	<p>As stated in the response to KFN 4, avoidance of caribou and caribou habitat will be a pillar of the updated Wildlife Protection Plan. PPML will incorporate the Boreal Caribou Habitat Restoration Toolkit in the updated Wildlife Protection Plan and in the next version of the Closure and Reclamation Plan.</p>



MV2020L8-0012
Technical Intervention Responses
11 May 2021

ATTACHMENT A
Security Estimate Updates

SUMMARY OF COSTS

CAPITAL COSTS	COMPONENT NAME	COST	LAND LIABILITY	WATER LIABILITY
OPEN PIT	Test Pit Restoration	\$120	\$60	\$60
UNDERGROUND MINE		\$0	\$0	\$0
TAILINGS FACILITY		\$0	\$0	\$0
ROCK PILE		\$0	\$0	\$0
BUILDINGS AND EQUIPMENT		\$522,035	\$394,953	\$127,083
CHEMICALS AND CONTAMINATED SOIL MANAGEMENT		\$109,712	\$54,856	\$54,856
SURFACE AND GROUNDWATER MANAGEMENT		\$0	\$0	\$0
INTERIM CARE AND MAINTENANCE		\$10,000	\$0	\$10,000
INFLATION (2014 to 2020) applied to Capital Costs	8.2%	\$52,633	\$36,889	\$15,744
	SUBTOTAL: Capital Costs	\$694,500	\$486,758	\$207,742
	PERCENT OF SUBTOTAL		70%	30%
INDIRECT COSTS				
		COST	LAND LIABILITY	WATER LIABILITY
MOBILIZATION/DEMOBILIZATION		\$148,776	\$104,273	\$44,503
POST-CLOSURE MONITORING AND MAINTENANCE		\$10,000	\$7,009	\$2,991
INFLATION (2014 to 2020) applied to Mobilization and Post-Closure Indirect Costs	8.2%	\$13,020	\$9,125	\$3,894
ENGINEERING	3%	\$20,835	\$14,603	\$6,232
PROJECT MANAGEMENT	3%	\$20,835	\$14,603	\$6,232
HEALTH AND SAFETY PLANS/MONITORING & QA/QC	1%	\$6,945	\$4,868	\$2,077
BONDING/INSURANCE	1%	\$6,945	\$4,868	\$2,077
CONTINGENCY	20%	\$138,900	\$97,352	\$41,548
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
	SUBTOTAL: Indirect Costs	\$366,256	\$256,699	\$109,556
TOTAL COSTS		\$1,060,755	\$743,457	\$317,298

Note: Inflation is applied separately to Capital Costs, and two Indirect Cost Items - Mobilization/ Demobilization and Post-Closure costs. The other Indirect Costs are inflated as a function of being %'s of the total Capital Costs.

1 Building / Equip Name:

Bldg / Equip #: 1

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
DISPOSE MOBILE EQUIPMENT									
Decontaminate and ship off-site	includes heavy equipment, drill units, and large vehicles; 46 previously plus 25	allow	72.	PSBE1S	\$2,000.00	\$144,000	100%	\$144,000	\$0
Decontaminate and dispose on-site		allow		#N/A	\$0.00	\$0		\$0	\$0
Other	light vehicles - trucks, quads, argos, skidoos, kabota's, etc. 33+42 previously; reduce unit cost to 400		75.	PSBE2S	\$400.00	\$30,000	100%	\$30,000	\$0
REMOVE BUILDINGS - see note below									
Accommodation Complex	249 person camp (5250m2) + 532m2 (from previous LUP)	m2	5,782.	BRWL	\$27.50	\$159,005	50%	\$79,503	\$79,503
Process Facilities	equipment/pump shacks; add	ea	10.	BRS1L	\$45.00	\$450	100%	\$450	\$0
Offices, Repair, Lab, Warehouse Storage Facilites	Coreshacks etc	m2	120.	BRWL	\$27.50	\$3,300	100%	\$3,300	\$0
Water and Wastewater Treatment Facilities		m2		#N/A	\$0.00	\$0		\$0	\$0
U/G Heating Plant		m2		#N/A	\$0.00	\$0		\$0	\$0
Emulsion Plant		m2		#N/A	\$0.00	\$0		\$0	\$0
AN Storage Facility	AN facility	m2	500.	BRWL	\$27.50	\$13,750	100%	\$13,750	\$0
Warehouse, Shops and Other	A geological core shed, mechanical shop, cold storage tent, dewatering shacks	m2	1,000.	BRWL	\$27.50	\$27,500	100%	\$27,500	\$0
Storage Facility at Laydown/Airstrip:		m2		#N/A	\$0.00	\$0		\$0	\$0
Fuel tanks	Multiple fuel tanks at various pads; previously 9 units; increase to 15	ea	15.	PSBE3S	\$1,000.00	\$15,000	100%	\$15,000	\$0
Fuel Tanks	Assume multiple large tanks	ea	3.	PSBE4S	\$6,000.00	\$18,000	100%	\$18,000	\$0
Freshwater intake	13 km pipeline	m	13,000.	PSRL	\$1.00	\$13,000	100%	\$13,000	\$0
Temporary Water Pipeline for conveying groundwater to the re-injection wells or to the nearest historical open pit	3 km	m	3,000.	PSRL	\$1.00	\$3,000	100%	\$3,000	\$0
Reclaim pumps		m2		#N/A	\$0.00	\$0		\$0	\$0
Outfall & Diffuser		m2		#N/A	\$0.00	\$0		\$0	\$0
Airstrip lighting, navigation, electrician		mandays		#N/A	\$0.00	\$0		\$0	\$0
Airstrip lighting, navigation, mechanical		mandays		#N/A	\$0.00	\$0		\$0	\$0
Break foundation slabs	total of all buildings	m2		#N/A	\$0.00	\$0		\$0	\$0
Consolidate & dump boneyard debris		m3		#N/A	\$0.00	\$0		\$0	\$0
Other	removal generators and pumps - 1 haul truck picking up multiple locations previously 1; double to 2	allow	2.	PSBE5S	\$2,500.00	\$5,000	100%	\$5,000	\$0
LANDFILL FOR DEMOLITION WASTE									
Place rock cover	Blast rock fill	m3		#N/A	\$0.00	\$0		\$0	\$0
Place soil cover	Soil Cap - Landfill and Septic Field	m3		#N/A	\$0.00	\$0		\$0	\$0
Vegetate		ha		#N/A	\$0.00	\$0		\$0	\$0
GRADE AND CONTOUR PADS									
Accommodation Complex		ha		#N/A	\$0.00	\$0		\$0	\$0
Process Facilities		ha		#N/A	\$0.00	\$0		\$0	\$0
Offices, Repair, Lab, Warehouse Storage Facilites		ha		#N/A	\$0.00	\$0		\$0	\$0
Water and Wastewater Treatment Facilities		ha		#N/A	\$0.00	\$0		\$0	\$0
U/G Heating Plant		ha		#N/A	\$0.00	\$0		\$0	\$0
Emulsion Plant		ha		#N/A	\$0.00	\$0		\$0	\$0
Warehouse, Shops and Other		ha		#N/A	\$0.00	\$0		\$0	\$0
Place rock cover		m3		#N/A	\$0.00	\$0		\$0	\$0

1 Building / Equip Name: Bldg / Equip #: 1

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost	
Vegetate	It is anticipated that approximately 10% of the new drill holes will be in undisturbed areas (36 hectares [ha]), minimizing disturbance to greenfield areas.	ha	36.	PSBE6S	\$2,000.00	\$72,000	50%	\$36,000	\$36,000	
Other	Soil will be spread over the cap as closely as possible to the same level as the immediate surrounding grade: → Spread 3.6 ha @ 0.15 m thick soil	m3	5,400.	DSL	\$0.95	\$5,130		\$0	\$5,130	
PUNCTURE LINED SUMPS										
Puncture liner and place soil cover		m3		#N/A	\$0.00	\$0		\$0	\$0	
RECLAIM ROADS										
Remove culverts		each		#N/A	\$0.00	\$0		\$0	\$0	
Remove bridges		each		#N/A	\$0.00	\$0		\$0	\$0	
Scarify and install water breaks		ha		#N/A	\$0.00	\$0		\$0	\$0	
Scarify airstrip		ha		#N/A	\$0.00	\$0		\$0	\$0	
Scarify laydown areas	Previous estimate was 3; double to 6	ha	6.	SCFYS	\$2,150.00	\$12,900	50%	\$6,450	\$6,450	
Vegetate		ha		#N/A	\$0.00	\$0		\$0	\$0	
Other				#N/A	\$0.00	\$0		\$0	\$0	
SPECIALIZED ITEMS										
Dispose of misc. debris and laydown area refuse				#N/A	\$0.00	\$0		\$0	\$0	
						Total		\$522,035	\$394,953	\$127,083
						% of Total			76%	24%

Note: Unit costs are based on 3m high, single storey building. Scale larger building areas accordingly. E.g. 10m high building multiply area by 3.3 (10/3)