Fort Resolution Métis Government

INTERVENTION REPORT

PINE POINT MINING LIMITED - CONFIRMATION EXPLORATION PROGRAM (MV2020L8-0012 and MV2020C0017)

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Summary

Fort Resolution Métis Government (FRMG) represents the rights and interests of our Métis members in our traditional territory. We have a responsibility to ensure that mining does not infringe on our members traditional way of life. FRMG members are recognized Métis who practice their rights and interests, as did our ancestors, in all parts of our traditional territory including the Pine Point Mine Site. The area under review for the amendment to Permit MV2020L8-0012 and Licence MV2020C0017 has always been considered within our lands of stewardship, responsibility, and interest. Further, the Pine Point area is a highly valued area in our territory which our membership continues to use. Pine Point has been a part of our home for over 300 years. FRMG is a Nation whose un-ceded rights and privileges are protected under Section 35 of the Canadian Constitution. **FRMG is seeking status as an intervenor in these hearing proceedings.**

Pine Point is a significant area for FRMG members and despite constraints imposed from past industrial development is an area integral to the practice of FRMG members rights. **FRMG is concerned that the Pine Point Confirmation and Exploration Program (CEP) will impose significant impacts on FRMG members way of life and therefore we request that the Pine Point Confirmation and Exploration Program be subject to a full environmental assessment.**

In this intervention submission FRMG has identified the following recommendations:

1. **The MVWLB to require the Proponent to directly engage FRMG for all license and permit activities**

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.**

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.**

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.**

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.**

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.**

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.**

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.**

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.**

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.**

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.**

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.**

13. **The Spill Contingency Plan should include the following requirement regarding secondary containment at fuel storage and transfer areas:**

A secondary containment system for an aboveground storage tank will:
(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
(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:
(a) the capacity of the largest storage tank located in the contained space; and
(b) 10% of the greater of:

(i) the capacity specified in Clause (a); or
(ii) the aggregate capacity of all other storage tanks located in the contained space.

14. **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.**

15. **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.**

16. **FRMG recommends that PPML provide justification for the listing of observed Species of Concern at Pine Point.**

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.**

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.**

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.**

20. **Considering that the majority of the project occurs on a brownfield site that has had natural regrowth, FRMG recommends that this requirement be changed from greenfield areas to all project areas where there will be vegetation removal and disturbance.**

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.**

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.**

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.**

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.**

Introduction

Fort Resolution Métis Government (FRMG) represents the rights and interests of our Métis members in our traditional territory. We have a responsibility to ensure that mining does not infringe on our members traditional way of life. FRMG members are recognized Métis who practice their rights and interests, as did our ancestors, in all parts of our traditional territory including the Pine Point Mine Site. The area under review for the amendment to Permit MV2020L8-0012 and Licence MV2020C0017 has always been considered within our lands of stewardship, responsibility, and interest. Further, the Pine Point area is a highly valued area in our territory which our membership continues to use. Pine Point has been a part of our home for over 300 years. FRMG is a Nation whose un-ceded rights and privileges are protected under Section 35 of the Canadian Constitution. **FRMG is seeking status as an intervenor in these hearing proceedings.**

Pine Point is a significant area for FRMG members and despite constraints imposed from past industrial development is an area integral to the practice of FRMG members rights. **FRMG is concerned that the Pine Point Confirmation and Exploration Program (CEP) will impose significant impacts on FRMG members way of life and therefore we request that the Pine Point Confirmation and Exploration Program be subject to a full environmental assessment.**

FRMG looks forward to the opportunity to provide our concerns and issues with the applications and provide our recommendations to the Mackenzie Valley Land and Water Board ("MVLWB"). FRMG intends to speak on behalf of our members at the public hearing on June 15– June 17, 2020 to assist the MVLWB in making a decision related to the Exploration Permit and Water Licence Application.

Structure of the Intervention

This Intervention Report ("the Report") is intended to convey to the MVLWB the priority issues of concern for FRMG with the application for Permit MV2020L8-0012 and Licence MV2020C0017. FRMG's primary focus in the Intervention Report is on our following key considerations for this review process:

- Engagement
- Water Management
- Environmental Quality
- Wildlife Management

Engagement

FRMG Concern – Adequacy of Engagement

FRMG members have not been directly or meaningfully engaged by Pine Point Ltd. ("The Proponent") for this application process. The engagement plan provided by the Proponent does not include reference to FRMG nor is there proof of evidence provided in the most recent engagement log[1] of direct engagement. We recognize that the Proponent has met with the Northwest Territory Métis Nation ("NWTMN"), however, only FRMG can directly support and speak for our members' interests and needs. FRMG takes this obligation seriously and therefore projects within FRMG's territory require full direct engagement and accommodation of FRMG Member's s. 35 Aboriginal rights.

FRMG Recommendations:

1. **The MVWLB to require the Proponent to directly engage FRMG for all license and permit activities**

FRMG Concern – Format of Engagement

FRMG is concerned with the triggers and formats presented in the engagement plan. FRMG asserts that notification alone is not true engagement. It is our understanding that the Mackenzie Valley Land and Water Board, (2018b), *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits* ("Engagement Guidelines")[2] recommends that the engagement plan, "should be developed collaboratively with affected parties. Seeking input at an early stage will assist proponents in identifying the best way of interacting and engaging with affected parties" (p. 12). FRMG has not been provided the opportunity to collaborate on the engagement plan. We understand that the Engagement guidelines recommend multiple forms of engagement for Class A water licenses where the Project is located in an area of significant interest to an Affected Party or parties which includes community meetings and workshops (p. 19). FRMG expects Proponents to engage with and provide information directly to FRMG members via community meetings, through provision of accessible project information in plain language, and the sharing of information via social media.

[1] MV2020L8-0012 MV2020C0017 PPML Engagement Log – November 2020. http://registry.mvlwb.ca/Documents/MV2020C0017/MV2020L8-0012%20MV2020C0017%20-%20PPML%20-%20Engagement%20Log%20-%20Nov27_20.pdf

[2] Mackenzie Valley Land and Water Board, (2018b), *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits.* https://wlwb.ca/sites/default/files/mvlwb_engagement_guidelines_for_holders_of_lups_and_wls_-_october_2_19.pdf

FRMG Recommendations:

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.**

Water Management

FRMG Concern - Criteria for Determining Compatibility

GNWT raised a number of concerns regarding the proposed method for determining waterbody compatibility for the transfer of water as part of dewatering tests (GNWT 1, 4, and 5 in the review comment table). The initial method proposed was described in PPML's Response to IR 2. In this document, PPML proposes to utilize depth-averaged measurements of total dissolved solids (TDS) in source waterbody and the receiving waterbody. The two waterbodies would be determined compatible if their TDS measurements are within 30% of each other. As described by PPML, this 30% variability is found naturally in depth-averaged measurements within a pit, and is found naturally when pit water is measured over time. Therefore, a 30% variability in TDS is considered an appropriate range for water transfer between water sources.

GWNT pointed out that, given high variability in other water quality parameters, PPML should develop criteria for compatibility that are not solely based on TDS measurements. Data submitted by PPML as the Response to IR 1 show that levels of some metals are highly variable across samples of pit and groundwater. GNWT points out in comment 3 that in pit samples, aluminum ranges from 4 to 6600 mg/L and in groundwater samples, iron ranges from 85 to 15,500 mg/L. Therefore, additional parameters should be considered to determine compatibility of sites.

In response, PPML developed a technical memo that presented data on metals with high variability and incorporated a second step into the compatibility determination. The second screening step would "account for parameters that have the potential to occur in concentrations considered anomalous based on the range of available data for the majority of the pits" (PPML April 2021 Memo on Groundwater Management Plan Framework and Approach for Compatibility, pg 3). In this memo, PPML shows data for nine metals that had measured above the Canadian Council of Ministers of the Environment (CCME) chronic guidelines: aluminum, cadmium, chromium, copper, iron, lead, thallium, uranium, and dissolved zinc. PPML grouped pits that are compatible with each other based on the 30% TDS variability rule and showed that the metals of concern are relatively consistent across these groups. Anomalous concentrations were identified in one or two pits for most of those metals. PPML states, "if the concentrations are confirmed to be greater than 30% higher than concentrations in the pit identified to receive the water transfer, other mitigation options would be considered" (PPML April 21 2021 Technical Memo, pg 9). This is incorporated into the

decision trees for Pit to Pit Compatibility (Figure B1), Well to Well Compatibility (Figure B2), and Pit to Well (Figure B3).

First, while PPML completed the analysis for nine metals that were measured above CCME guidelines for aquatic life at least once during their study, it is not clear if they plan to use all of those parameters in the secondary compatibility step. Figure B1 contains a footnote that identifies concentrations of only four metals for the secondary step:

> "available data for most major ions and metals are below guidelines, and where not, generally remain similar for pits across the area of the project, or one of the three specific TDS groupings. Exceptions include copper, lead, thallium, and uranium, which based on measured concentrations may trigger a secondary screening step and follow-up mitigation or result in exclusion."

Based on the data presented in Figure 3 of the technical memo, PPML should utilize all nine metals in the secondary step.

Second, the rationale for choosing a 30% variability in concentration measurement of metals for the compatibility criteria is not clear. PPML gives a clear rationale for the use of a 30% variability in measurements of TDS: this is a natural variation found in a single pit across depths and over time:

> "The 30% factor was selected as it broadly reflects the relative difference in specific conductivity (and therefore TDS) between the pit surface waters and the underlying deeper waters in the pit where water column were available… this relative difference also aligns with the temporal variability in TDS for the majority of the pits that fall within each of the three TDS ranges with some conservatism." (Reponse to IR 2 - Compatibility Criteria, pg 3)

PPML presents graphs in Figure 3 of the April 21, 2021 technical memo that show measurements of these metals are generally similar when compared within pits compatible by the 30% TDS variability rule. However, PPML does not present the natural variability of each of the metals within those groupings, so it is not clear if a 30% variability in metal concentrations is an appropriate measurement of compatibility. A visual inspection of these graphs shows that natural variations may be quite different for each metal.

<u>FRMG Recommendations:</u>

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.**

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.**

FRMG Concern-Use of Decision Trees

FRMG has a number of concerns about the decision trees used by PPML, and has identified several recommendations related to these concerns. PPML presents decision trees for the transfer of water from pit to pit (Figure B1), well to well (Figure B2), and pit to well (Figure B3). While PPML originally discussed utilising well to pit transfers, they stated in their response to GNWT Comment 1 in the Review Comment Table, "There is currently no plan to place groundwater from a well into a pit, as was initially proposed." If PPML decides to utilise a well to pit transfer, PPML should be required to submit a decision tree for approval before any such transfer occurs.

In addition, FRMG has identified that the decision tree presented in Figure B1 of the technical memo does not fully account for effects of surface water transfers on groundwater. One of the earlier decision points in this figure is determining whether the receiving pit is empty or not. The figure shows that if it is empty, water can be transferred without any consideration of water quality parameters. It is only if the receiving pit has water in it that water quality parameters are considered. It is likely, however, that water transferred to an empty pit will permeate the ground until it meets the underlying saturated zone and therefore have an effect on groundwater quality. Before water is transferred to an empty pit, PPML should be required to consider potential effects on groundwater and apply the primary and secondary compatibility criteria.
Figure B1 shows a path that may lead to a transfer of water that does not meet compatibility criteria. For water sources that are above the 30% compatibility criteria for TDS and/or above the compatibility criteria for other parameters (secondary step), PPML considers whether there are other pits available for transfer. If not, the decision tree shows that if PPML can identify mitigations to reduce effects to aquatic life, then they will transfer the water. Specifically, the decision tree states,

> "Is other mitigation available to reduce potential for risk to aquatic life with the Source Pit transfer?"

"Other Mitigation" is explained:

> "Mitigation may include limiting water transfers between pits that pump "better" (lower TDS and/or other parameter concentrations) to "poorer" (higher TDS and/or other parameter concentrations) conditions."

FRMG offers that this mitigation is actually just the use of the compatibility criteria and should not be identified as a measure outside of that criteria. It seems that this may describe a decision around transferring water from a pit with water less than 30% TDS of the receiving pit. In this case, higher quality water is transferred to lower quality water. FRMG is not concerned with this case. However, this also captures the decision around transferring water from a pit with greater than 30% TDS and other parameters compared with the receiving pit. If this is the case, and the receiving pit becomes the source pit, then PPML would be starting at the top of the decision tree again. The statement that "other mitigations" may exist that would allow PPML to transfer water that does not meet the compatibility criteria requires greater discussion. These mitigations must be identified, reviewed, and approved by parties before they can be utilized for water transfer decision-making.

FRMG Recommendations:

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.**

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.**

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.**

FRMG Concern - Presence of Chemocline

PPML states that some pits have a strong TDS chemocline (Response to IR 2, pg 3; April 21, 2021 Technical Memo, pgs 8-9), and proposes using a depth-dependent sample to determine a TDS measurement representative for the entire pit. PPML describes that one sample will be taken near the surface, and one sample will be taken at depth (April 21, 2021 Technical Memo, pg 8). It is not clear how the pumping methodology will take into account this chemocline. If the pump is placed at depth, it is reasonable to assume that the pump will take out water with higher concentrations of TDS than the depth-average; if the pump sits near the surface, it is reasonable to assume that the pump will take out water with lower concentrations of TDS than the depth-average. PPML has stated that pits will not be dewatered (Technical Session Response to IR 3). PPML needs to utilize a pumping method that results in a water transfer that is representative of the depth-average used for the compatibility analysis. If PPML expects the pumping itself will result in adequate mixing of waters above and below a chemocline, then this information should be presented.

There is a notable lack of discussion about the existence of chemoclines for other parameters of concern. PPML should determine if chemoclines exist for the metals measured as part of the compatibility criteria, in order to properly assess the actual concentrations of contaminants of concern in the transferred water.

FRMG Recommendations:

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.**

FRMG Concern - Presence of Aquatic Biota

The presence of aquatic biota in some of the pits is discussed throughout the materials related to this application. The presence of fish in particular suggests a likely connection with natural surface waters, which may occur seasonally. It is also possible that these connections only occurred during a certain period of time, and due to environmental changes, are no longer relevant. PPML has determined that the TDS 30% acceptability factor used for the compatibility criteria is "appropriate to a reasonable range of change for the pits to remain protective should aquatic biota be present in the pit waters" (Response to IR 2, pg 5). It is not clear why PPML considers this acceptable as no information has been provided regarding water quality measurements and the presence of aquatic biota, specifically fish. It is possible that fish only exist in pits with the lowest concentrations of TDS and/or metals and the transfer of water even 20% higher in concentration of these parameters would affect that population. Additionally, any connections with natural surface waters, even seasonally, could affect aquatic biota outside of those pits.

FRMG recognizes that concentrations of parameters would be diluted when transferred to a pit with higher water quality. FRMG also recognizes that concentrations of parameters would be diluted during any time of seasonal natural water connection (i.e. freshet). These factors would influence the determination of how the water transfer would affect aquatic biota and would be complex to model. However, FRMG expects more information regarding the statement that the current compatibility criteria is sufficient for protecting aquatic life during water transfers.

FRMG Recommendations:

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.**

FRMG Concern - Use of Field Measurements

In the April 21 Technical Memo on Groundwater Testing, PPML states that the relationship between TDS and field measured specific conductivity will be calculated using specific conductivity measured in the field and TDS measured in the laboratory. PPML states that they will establish the relationship utilizing data from all pits in the area; however, if a correlation coefficient is less than 0.8, they will create a relationship for TDS at each grouping level.

The use of specific conductivity to measure TDS in the field is common for water quality studies. Health Canada describes this practice in their Guidelines for Canadian Drinking Water. The relationship between specific conductivity and TDS is based on a factor that is derived from site-specific data. PPML states that they will attempt to determine an accurate formula at a site scale, by taking data from pits across the entire project area; however, if the correlation coefficient for this formula is less than 0.8, they will utilize data within pits grouped by TDS to create three different formulas. PPML does not identify that if they cannot create an accurate formula for use in the field, they will not utilize field data for the compatibility assessment. This should be explicitly stated.

FRMG Recommendations:

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.**

FRMG Concern - Water Withdrawal Management Plan

In discussion of water sources that will be utilized for various project activities, PPML states "some water sources intersect the Pine Point Railbed (Federal Contaminated Site 00024168) on federal lands" (Response to IR 3 - Water Withdrawal Plan, pg 2). The Federal Contaminated Sites Inventory identifies the following contaminants by medium at that site.

Contaminant Type	Medium Type
PHCs (petroleum hydrocarbons)	Soil
PAHs (polycyclic aromatic hydrocarbon)	Surface water

Contaminant Type	Medium Type
PAHs (polycyclic aromatic hydrocarbon)	Sediment
PAHs (polycyclic aromatic hydrocarbon)	Soil
Metal, metalloid, and organometallic	Surface water
Metal, metalloid, and organometallic	Sediment
Metal, metalloid, and organometallic	Soil
Metal, metalloid, and organometallic	Other medium

PPML should provide more information about how waters that intersect this site may be used and how the use of those waters may spread that contamination to surrounding areas.

PPML presents water withdrawal limits for natural waterbodies in section 3.1 of the Response to IR 3 - Water Withdrawal Plan. In that section they indicate that withdrawal rates will not exceed 10% of instantaneous flow rate, measured weekly in a given watercourse. It is not clear if seasonal variations will be taken into consideration. For instance, during late summer, flows may be low enough that a 10% reduction is significant. PPML cites DFO's Framework for Assessing the Ecological Flow Requirements to Support Fisheries in Canada: Canadian Science Advisory Secretariat Science Advisory Report as the source for this withdrawal limit:

Cumulative flow alterations <10% in amplitude of the actual (instantaneous) flow in the river relative to a "natural flow regime" have a low probability of detectable impacts to ecosystems that support commercial, recreational or Aboriginal fisheries. Such projects can be assessed with "desktop" methodologies (DFO 2013, pg 2).

In general, based on information gathered for many rivers across Canada, the action of removing less than 10% of the flow of a watercourse has a low probability of resulting in impacts to ecosystems. This DFO report, however, also includes a recommendation for protecting aquatic ecosystems during period of low flow and other sensitive events:

A floor value or "cut-off limit" should be part of the overall prescription to conserve and protect fisheries, and should not simply be considered during low flow events (DFO 2013, pg 3).

Further DFO identifies that

> "a 'cut-off limit' is recognized as an important part of the overall prescription to be applied during these critical low flow events, and can serve to conserve and protect fisheries. It is widely recognized that having such a limit can preserve ecosystem structure and function in riverine ecosystems that support fisheries. Some jurisdictions in Canada and elsewhere currently have established methodologies to specify this 'cut-off limit', for example the "Alberta Desktop Method" (Government of Alberta)."

FRMG Recommendations:

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.**

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.**

Environmental Quality

FRMG Concern – Spill Contingency Plan

PPML states in the Spill Contingency Plan:

> "All contractors and PPML staff must comply with the spill prevention measures in the permit. These measures typically require: inspections, installation and maintenance of appropriate secondary containment at fuel storage and transfer areas…"

In order to ensure that fuel spills do not affect the water and soil in and around fuel storage and transfer areas, FRMG recommends that the capacity of secondary containment be clearly defined. In 2003, the Canadian Council of Ministers of the Environment published the Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products. This document gives guidance on appropriate requirements for secondary containment in Section 3.9. FRMG recommends these measures be required and identified in the Spill Contingency Plan.

PPML includes a Spill Response Action Plan for various substances in Section 8.0 of the Spill Contingency Plan. For spills on land, PPML includes a step for removal of the contaminants from the area by "digging out the soil" (pgs 11-12). There is no information regarding where the contaminated soil will be placed. FRMG believes the Spill Contingency Plan should identify where any spill-contaminated soil will be placed, and that the placement is consistent with applicable legislation.

FRMG Recommendations:

13. **The Spill Contingency Plan should include the following requirement regarding secondary containment at fuel storage and transfer areas:**

A secondary containment system for an aboveground storage tank will:
(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
(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:
(a) the capacity of the largest storage tank located in the contained space; and
(b) 10% of the greater of:
(i) the capacity specified in Clause (a); or
(ii) the aggregate capacity of all other storage tanks located in the contained space.

14. **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.**

Wildlife Management

FRMG Concern - Species of Concern List

Species of Concern within the Screening Impact Assessment and Wildlife Protection Plan (WPP) are limited to species listed as endangered, threatened, or of special concern under the Species at Risk Act, Species at Risk (NWT) Act, and/or COSEWIC designation. This excludes species of cultural importance for FRMG which may not be included within that limited criteria, and fails to reference whether there was any consultation to identify culturally important species to FRMG or other Indigenous groups to add to the Species of Concern list. Under the NWT Wildlife Act, Section (95)1, the wildlife management and monitoring plan must include "a description of potential disturbance to big game (emphasis added) or other prescribed wildlife;" however, no consideration of impacts to wildlife other than species at risk is currently included in the WPP.

FRMG Recommendations:

15. **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.**

Supporting Information: see table 1, below, from p. 7 of Golder 2020 (Screening-level Environmental Assessment for the Confirmation and Exploration Program)

FRMG Concern - Previous Wildlife Observations at Pine Point

For Species of Concern, the listed table includes whether they have been observed at Pine Point, referencing previous scientific and ITK studies. However, from the list it is unclear where these observations are derived from, including the data sources, timelines, methods, and inclusion of local and Indigenous knowledge within these resources. Assuming the resources are the same as those provided in the Studies Undertaken to Date (including TK) (2020), the majority of studies were completed in 2006 and from the list it is also unclear the methods of research.

FRMG Recommendation:

16. **FRMG recommends that PPML provide justification for the listing of observed Species of Concern at Pine Point.**

Supporting Information:
(Technical Session IR Response MAR2021) - "Traditional Land Use Studies conducted by the Katlodeeche First Nation in 2007, and the Deninu Kue First Nation, the Hay River Métis, and the Fort Resolution Métis in 2006 (Swisher 2006a,b; Eagle Eye Concepts 2007)."
(Technical Session IR Response MAR2021) "Additional studies of land use and ITK in the area around the historical Pine Point mine include: a study of post-industrial land use at the historical Pine Point mine (LeClerc and Keeling 2015); a paper regarding the integration of biophysical sciences, social sciences, and ITK regarding the land around Fort Resolution (Wolfe et al. 2006); and a report on boreal caribou and their species at risk status (NWT Species at Risk Committee 2012). Other sources of ITK regarding TLRU of Indigenous communities in the broader region exist in the form of baseline studies for other industrial developments (e.g., the Gahcho Kué Mine) and academic and community-based literature."

FRMG Concern: Direct and Indirect Habitat Impacts to Boreal Caribou:

Draft Permit Condition 43 lists that "the Permittee shall take all reasonable measures to prevent damage to wildlife and fish habitat during this land-use operation." Within the Wildlife Protection Plan, however, measures for habitat protection and mitigation are largely absent.

The only mitigation for direct habitat loss and fragmentation from the Project footprint is listed as the "location of Project in primarily a brownfield site to reduce potential for additional habitat loss." In addition, in accordance with Mackenzie Valley Land Use Regulations: "land use permits may include provisions for the protection of wildlife habitat," the Wildlife Protection Plan states that these provisions are included within the document, but overall habitat protection information in the WPP is nonexistent.

FRMG is particularly concerned about direct and indirect impacts to boreal caribou habitat in the area. Based on the criteria used to identify critical habitat by ECCC, all habitat within the proposed exploration area that has not been permanently altered is considered critical habitat for boreal caribou, given that there is no detailed range plan in place for this area. As noted in GNWT's IR2, the impact to boreal caribou could be significant, notably because the caribou in the Pine Point area may represent a small local population with little chance of rescue from adjacent local populations if their numbers decline. Although the site has been previously disturbed, based on the history of mineral exploration on the site, the last substantial operation was halted in 1988 (Golder 2020, p. 5). Since that time, much of the area has been left to regenerate naturally, and regeneration greater than 0.5 m in height likely provides some functional habitat for boreal caribou (Dickie et al. 2017). Any new exploration activities will set back the natural recovery and revegetation of the site. In addition to this concern, several other substantial potential impacts to boreal caribou have not been adequately considered (e.g., potential impacts of road activity and dust on boreal caribou, direct mortality risks associated with road use, hunting pressure, and increased predator efficiency, potential health risks to caribou from consuming contaminated vegetation, disturbance of caribou from use of explosives, among other impacts). In short, it is FRMG's perspective that the risks to boreal caribou from the proposed Project activities have not been adequately characterized by PPML, making it impossible to determine whether mitigation measures are adequate. Furthermore, mitigations that have been proposed (e.g., halting activities during certain sensitive periods when caribou are within 500 m) have unknown efficacy in terms of reducing impacts to boreal caribou.

FRMG Recommendations:

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.**

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.**

Supporting Information:

(Technical Session Response MAR2021) - "It is anticipated that approximately 10% of the new drill holes will be in undisturbed areas (resulting in an estimated 36 ha of new disturbance), minimizing disturbance to greenfield areas. The remaining 90% will be infill drilling in previously disturbed areas. As this is an exploration program, PPML is unable to give specific areas of shrubs, thickets, muskeg, Species each to be disturbed."

GNWT IR2 re: potential impacts to boreal woodland caribou: "The Government of the Northwest Territories (GNWT) is of the view that impacts to boreal caribou could be significant."

FRMG Concern - Pre-Clearing Survey Methods:

Within the Wildlife Protection Plan, the methodology for advance pre-clearing surveys is unclear. For example the timeframe for advance survey activities is not stated, only that "PPML staff should aim to survey areas to be cleared just prior to the vegetation clearing." Clarity is also required on what is considered a "sign;" does it include tracks, trails, habitat markings, bedding/dens? If so, there is not a threshold stated for the age of signs before clearing activities can begin. The Wildlife Protection Plan relies on PPML staff to be able to identify and monitor wildlife without requiring any experience or training, FRMG is concerned about whether the proposed methodology and staff will be sufficient.

FRMG Recommendations:

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.**

FRMG Concern: Pre-Clearing Site Selection

The methods within the Wildlife Protection Plan state that "all greenfield areas" that are to be cleared of vegetation will be surveyed during pre-clearing monitoring surveys (see Pre-Clearing Survey Procedure and Bird Nesting and Bat Roosting Activity Procedure sections within the

Wildlife Protection Plan). This statement does not reflect the brownfield status of the project site and would eliminate this requirement for 90% of new drilling locations that are on previously disturbed sites.

FRMG Recommendations:

20. **Considering that the majority of the project occurs on a brownfield site that has had natural regrowth, FRMG recommends that this requirement be changed from greenfield areas to all project areas where there will be vegetation removal and disturbance.**

FRMG Concern - Dust Suppression

Mitigation for dust within the Wildlife Protection Plan includes "regular road inspections to determine if dust suppression needs to be applied and if dust suppression is being implemented effectively." However, it is unclear what the road inspections will include and whether there will be dust collectors near roads at distanced intervals to monitor suppression effectiveness.

FRMG Recommendations:

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.**

FRMG Concern - Sensory Disturbance Mitigations

The Wildlife Protection Plan states that "conventional and best-practice methods to suppress noise on components and equipment, including regular maintenance where required." However, no additional information is provided on examples of the measures that will be implemented to reduce noise during Project activities.

FRMG Recommendations:

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.**

Supporting Information:

Similar to GNWT (2) - “Table 3 in the Wildlife Protection Plan cites the use of “conventional and best-practice methods to suppress noise on components and equipment, including regular maintenance where required.” but does not specify what best practices might be employed.”

FRMG Concern: Habitat Restoration

Within the Closure and Reclamation Plan, PPML reclamation activities are limited to spreading mulched organic material back on disturbed areas and spreading cut timber across drill sites and access areas. Given that this area is critical habitat for boreal caribou, FRMG recommends that considerably additional measures be introduced to restore areas of disturbed habitat, including consideration of the extent of natural regeneration on brownfield sites that will be setback from new exploration activities.

FRMG Recommendations:

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.**

Supporting Information:
(Closure and Reclamation Plan) - “For example, contractors will use mulchers to clear the historic cutlines, access trails, and drill pads, thereby providing organic material that will be spread on the disturbed areas to encourage vegetation growth that will lessen erosion and improve vegetation re-growth.”
(Closure and Reclamation Plan) - “Upon departure from a site, cut timber stacked at trail sides will be spread across the drill site and access areas to help with natural revegetation.” Perhaps this should also be mentioned under Section 6.2

FRMG Concern - Request for Section 95

As reflected in comments above, FRMG is concerned about wildlife and habitat impacts as the result of PPML’s CEP Project, which have not been adequately assessed by PPML and have not been adequately addressed within the current Wildlife Protection Plan. Without a proper assessment of impacts to wildlife and wildlife habitat, it is impossible to know if the mitigations identified in the WPP are sufficient. FRMG and other parties have identified serious gaps in the approach taken by PPML to address these concerns, particularly with respect to habitat for boreal caribou.

FRMG Recommendations:

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.**

Supporting Information:

DKFN IR 5 - "Based on the above noted recommendations, we recommend PPML prepare a Wildlife Management and Monitoring Plan, per section 95 of the Wildlife Act, in collaboration with the DKFN."

GNWT IR 6 - "The GNWT notes that PPML's proposed Confirmation and Exploration Program is an advanced mineral exploration program requiring a Type A Water Licence which, according to Section 3.1.1 of the WMMP Guidelines, is a type of project deemed always likely to satisfy one or more of the criteria set out in Section 95(1)(a-d) of the Wildlife Act. As such, at the completion of the current public review period associated with PPML's application, PPML can expect to receive a letter from the Minister of ENR containing the Minister's likely determination that an approved WMMP will be required for this project to proceed, identification of which tier of WMMP is required, and confirmation of the process for fulfilling this requirement."

GNWT PPML Wildlife Management and Monitoring Plan Determination - Apr30_21.

Conclusion

The MVLWB must recognize that Pine Point is a significant area for FRMG members and that FRMG member culture and way of life are closely connected to the land. FRMG members have lived with the legacy of the mining at Pine Point. As a result of this legacy, any additive impacts to the land, water, and wildlife from the CEP will in-turn impact FRMG members' S. 35 Aboriginal rights. **It is FRMG's position that this project requires a full environmental assessment.** At minimum, robust protections need to be in place to monitor and prevent impacts to water and wildlife at Pine Point.

References

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