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December 2, 2019

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RE: Giant Mine Remediation Project – MV2007L8-0031 and MV2019X007– Response to Interventions

Dear Ms. Allerston,

Crown-Indigenous Relations and Northern Affairs Canada, on behalf of the Giant Mine Remediation Project (GMRP) Team is pleased to submit the following response to the interventions from Alternatives North, City of Yellowknife, Environment and Climate Change Canada, Fisheries and Oceans Canada, Giant Mine Oversight Board, North Slave Métis Alliance, Slater Environmental Consulting, Yellowknife Historical Society and Yellowknives Dene First Nation related to the Type A Water Licence (MV2007L8-0031) and Type A Land Use Permit (MV2009X007) applications.

The GMRP would like to thank the interveners in this Water Licence process, as well as the many interested and concerned citizens, who have participated in the Project engagement efforts. The GMRP values the time and commitment Parties have dedicated to this Project and looks forward to further discussing the application at the upcoming public hearing on January 20-24, 2020. As a result of this ongoing dialogue, the GMRP believes that the Closure and Reclamation Plan (CRP) has been significantly improved from the original Developer's Assessment Report. The GMRP is of the opinion that the CRP reflects stakeholders' preferences and opinions, while still achieving the co-proponent's goals and meeting the intent of the Mackenzie Valley Land and Water Board closure guidelines.

Should you require any further information or require clarification, please contact the undersigned by telephone at (867) 669-2823 or by email at Natalie.Plato@Canada.ca.

Sincerely,

Natalie Plato
Deputy Director
Crown-Indigenous Relations and Northern Affairs Canada
Giant Mine Remediation Project

Encl.



GIANT MINE
**REMEDICATION
PROJECT**

Response to Interventions
Water Licence Application (MV2007L8-0031)
Land Use Permit Application (MX2019X0007)

submitted by
Crown-Indigenous Relations and Northern Affairs Canada,
on behalf of the Giant Mine Remediation Project

December 2, 2019



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Giant Mine Remediation Project: Response to Interventions

Acronym/Abbreviation	Definition
3D	three-dimensional
AANDC	Aboriginal Affairs and Northern Development Canada
AECOM	AECOM Canada Ltd.
AEMP	Aquatic Effects Monitoring Plan
Application	Crown-Indigenous Relations and Northern Affairs Canada
AQMP	Air Quality Monitoring Program
AN	Alternatives North
Canada	Government of Canada
CDA	Canadian Dam Association
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
CoY	City of Yellowknife
CRP	Closure and Reclamation Plan
DAR	Developer's Assessment Report
DFO	Fisheries and Oceans Canada
e.g.	for example
EA	Environmental Assessment
ECCC	Environment and Climate Change Canada
EHSC-MS	Environment, Health and Safety, and Community Management System
ENR	Environment and Natural Resources (GNWT)
EQC	Effluent Quality Criteria
ETP	effluent treatment plant
et al.	and others (Latin: et alia)
GHG	Greenhouse Gas Emissions
GMAC	Giant Mine Advisory Committee
GMOB	Giant Mine Oversight Board
GMRP	Giant Mine Remediation Project team
GNWT	Government of the Northwest Territories
GNWT-Lands	Government of the Northwest Territories, Department of Lands
Golder	Golder Associates Ltd.
HEMP	Health Effects Monitoring Program
HHERA	Human Health and Ecological Risk Assessment
i.e.	that is (Latin: id est)
IPRP	Independent Peer Review Panel
Ltd.	Limited
MCM	Main Construction Manager
MDMER	Metal and Diamond Mining Effluent Regulations
MVLWB	Mackenzie Valley Land and Water Board
Closure Guidelines	Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories. (MVLWB and AANDC, 2013)
MVRMA	<i>Mackenzie Valley Resource Management Act</i>
NO ₂	Nitrogen Dioxide
NSMA	North Slave Métis Alliance
PCP	Perpetual Care Plan
PM _{2.5}	particulate matter with a mean diameter of 2.5 µm or less
PMF	probable maximum flood
PMMP	probable maximum precipitation
Project	Giant Mine Remediation Project
PV	photovoltaic
QRA	Quantitative Risk Assessment
Report of EA	Report of Environmental Assessment and Reasons for Decision
SDE	Surface Design Engagement
SENES	SENES Consultants Limited



Giant Mine Remediation Project: Response to Interventions

Acronym/Abbreviation	Definition
Site	Giant Mine
SNP	Surveillance Network Program
SO ₂	sulphur dioxide
TCA	Tailings Containment Area
TDS	total dissolved solids
TK	Traditional Knowledge
WTP	water treatment plant
YKDFN	Yellowknives Dene First Nation



Introduction

The Giant Mine is located on the traditional territory of the Yellowknives Dene First Nation (YKDFN), the Tłı̄ch̄ Nation, and the homeland of the North Slave Métis Alliance (NSMA). The Giant Mine has been a central feature of the City of Yellowknife since the mine went into production over 50 years ago. It operated from 1948 to 2004 and introduced a new era of development in the Northwest Territories. The contamination spread by the mine in its earliest years had broad ecological effects as well as impacts to the well-being of people who lived in the area and continues to influence contemporary life in the City of Yellowknife and the surrounding areas. In the words of the Yellowknives Dene, “the sights, sounds and smells of Giant Mine have never been far from our peoples’ perceptions and minds, especially when they are at home in the communities of Ndilo and Dettah, or on the land that has been so deeply impacted by the Northwest Territory’s mining history. Much of our modern history since the 1940s has been consumed by the Giant Mine, and the decisions related to its operation – and remediation.” (see page 2, YKDFN Intervention, 2019).

As a result of the Mine’s history, its proximity to the City of Yellowknife, its continued influence on life for the over 20,000 nearby residents, and the continued and perceived risks associated with the site, the Giant Mine Remediation Project (the Project) is of particular public interest.

On behalf of the Giant Mine Remediation Project team (GMRP), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC, the Applicant) has submitted its Post Environmental Assessment Information Package (the Application) to the Mackenzie Valley Land and Water Board (MVLWB) for the remediation of the Giant Mine site. The Application includes the GMRP’s Water Licence and Land Use Permit applications and the final Closure and Reclamation Plan (CRP) for the Project and is reflective of the Report of Environmental Assessment (EA), engagement activities (see Engagement Log); updated site assessment, and ongoing studies and research. As described in the Application, the Government of the Northwest Territories (GNWT) and the Government of Canada (Canada) are co-proponents of the Giant Mine Remediation Project. The Application was developed in accordance with the Board’s Post-Environmental Assessment information request, relevant Board Guidelines and Policies as well as relevant territorial and federal guidelines and regulations.

The EA process and the resulting Report of Environmental Assessment and Reasons for Decision (Report of EA) illustrated to the GMRP the need for improved relationships between the Project and its stakeholders. Since that time the GMRP has moved to accommodate stakeholder input while still operating within the constraints of the federally funded and mandated program. The GMRP recognizes its potential impact on the community of Yellowknife and the importance of the stewardship of the site into the future to community members.

As a result of the EA Measures, or through other Project commitments made through engagement with stakeholders, the GMRP has continued to demonstrate its commitment to remediate the site in a socially responsible manner. This includes but is not limited to:

- The GMRP has signed the Environmental Agreement, which established and funds the Giant Mine Oversight Body (GMOB), an independent oversight body for the Project.



- The GMRP has established a Working Group comprised of signatories to the Environmental Agreement, GMOB, Health Canada, Environment and Climate Change Canada and Department of Fisheries and Oceans, which meets monthly to provide a forum for interested parties to discuss and make recommendations on technical, operational, and Project activities regarding the remediation of Giant Mine.
- The GMRP has developed a Socio-Economic Strategy and has established a Socio-Economic Working Group, funded training, and developed and implemented procurement strategies through the Main Construction Manager (MCM) that maximize local and Indigenous opportunities. In addition, several studies have either started or are nearing completion, including a Health Study, a Stress Study, and Traditional Knowledge (TK) studies.
- As part of ongoing capacity development initiatives, the Project has funded positions at the City of Yellowknife, NSMA, and YKDFN to participate on Working Groups and in the regulatory processes.
- Most recently, the GMRP has begun a process to co-develop the site's Perpetual Care Plan (PCP) with Environmental Agreement signatories.

As discussed further in Section 1.2, the GMRP notes that some of these activities fall outside the jurisdiction of the Mackenzie Valley Land and Water Board (MVLWB or the Board). The GMRP will continue to undertake the implementation of the remediation of Giant Mine with the social responsibility it has demonstrated to-date.

The GMRP would like to thank the interveners in this Water Licence process, as well as the many interested and concerned citizens, who have participated in the Project engagement efforts for the past 20 years. The GMRP values the time and commitment Parties have dedicated to this Project. As a result of this ongoing dialogue, the GMRP believes that the Closure and Reclamation Plan (CRP) has been significantly improved from the original Developer's Assessment Report (DAR). The GMRP is of the opinion that the CRP reflects stakeholders' preferences and opinions, while still achieving the co-proponent's goals.

1.0 INTERVENER THEMES

In some cases, similar topics were addressed by multiple interveners. The GMRP presents the following responses for the MVLWB's consideration on the recurring topics of scope, the CRP and approvals and submissions, long-term funding, and land-use. Each recommendation is also addressed per Intervener.

1.1 Scope of the GMRP

As described by Board staff at Technical Session #1, there is a finite scope to the Project based on the Water Licence and Land Use Permit Applications (the Applications) and Report of EA (MVLWB, 2019a; page 19). The limitations of this scope (impacts, geographic, temporal, and activities) are outlined in Section 2.0 of the Preliminary Screening Document provided with the Application. The GMRP has responded to Interveners recommendations in consideration of this defined scope. The GMRP has responded to the recommendations while being guided by the Goals of the Project.



1.2 Jurisdiction of the Mackenzie Valley Land and Water Board (MVLWB)

The MVLWB derives its jurisdiction and mandate from the *Mackenzie Valley Resource Management Act (MVRMA)*, specifically ss. 101.1 and 102. The GMRP submits that the Water Licence and Land Use Permit issued by the MVLWB must focus on those activities specific to the MVLWB's mandate; i.e., uses of land, the use of water, or deposition of waste.

Where Interveners have recommended to the Board conditions or requirements that the GMRP considers outside the MVLWB's jurisdiction, the GMRP has stated its opinion. Out of respect for our intervenors' efforts and concerns, the GMRP has tried to address these topics to the degree practicable or to articulate where in the Project's framework these issues may be addressed. The GMRP does not consider the Water Licence to supplant the Project's other activities or regular engagement schedule and fully anticipates, and looks forward to, further discussions with our stakeholders on issues that are important to them.

1.3 Closure and Reclamation Plan (CRP) and Application of Closure Guidelines

The Project's goal is to stabilize and remediate one of Canada's largest and most contaminated sites. During the EA, the GMRP committed to following the Closure Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (MVLWB, 2013).

The Closure Guidelines are drafted with a focus on new mines or advanced exploration properties under the operation of private companies. Neither the *MVRMA* nor the Closure Guidelines directly address the situation in which a property is abandoned and being remediated by a government, as is the case for the Giant Mine. The GMRP applied the Closure Guidelines as closely as possible when developing its CRP; however, the Project's Application may differ in some cases from the Closure Guidelines given that the Guidelines do not specifically address abandoned sites.

The GMRP has submitted the final Giant Mine CRP to the Board for approval. Four interventions included recommendations regarding this request (i.e., YKDFN, City of Yellowknife, GMOB, and Alternatives North). To avoid repetition, the GMRP has attempted to address this topic by addressing the following questions:

1. Why has the GMRP requested approval of the CRP at issuance?
2. How will details of detailed design be provided?
3. How will updates made through this proceeding be incorporated into the CRP?



Why has the GMRP requested approval of the CRP at issuance?

The CRP was developed in accordance with the Closure Guidelines and has requested it be approved with Water Licence issuance. The GMRP believes its request to be consistent with the intent of the Board's Closure Guidelines. The Closure Guidelines describe that a final CRP "must be approved before permanent closure takes place or immediately after unplanned closure" (p. 24). This approval would provide certainty of the integrated site wide plan for closure and associated activities to the Board, Parties, and the GMRP. It is unclear to the GMRP what, if any, remediation activities could commence prior to CRP approval. Therefore, a delay in CRP approval would likely result in significant Project delays.

Since Giant Mine is a remediation project, the CRP also serves as the scope of the Project and the Project description. The GMRP believes it is integral to our project planning that the Water Licence scope and CRP align, which requires the approval of the proposed closure concepts at issuance. As described further below, the GMRP has proposed a process (i.e., submission of Design Plans) to provide many of the additional details that Parties are seeking. However, these details will expand upon the concepts outlined in the final CRP and therefore the GMRP does not believe revisions to the CRP would be required.

Many of the concepts in the CRP were first developed in the Giant Mine Abandonment and Reclamation Plan (Royal Oak, 1998), and refined in the Developer's Assessment Report (DAR) (INAC and GNWT, 2007). The Project has undergone an EA of its remediation plan; completed extensive engagement activities (see Engagement Log); updated its site assessment, studies and research; and modified the remediation plans accordingly. The CRP submitted in 2019 reflects 20 years of assessment and development of the remediation approach.

The Closure Guidelines explicitly recognize the need for regulatory certainty before proponents advance to detailed design: "Once the Board approves the selected closure activity, the proponent can begin the final engineering and design phase for each project component" (p. 16). Engineering work has been advanced to confirm the viability of the planned activities to close and reclaim Giant Mine (the Site), with detailed engineering work now in progress. The GMRP has requested approval of the CRP to allow detailed design to be completed with certainty.

The Closure Guidelines (p. 24) state that final CRPs are to include "Detailed descriptions of selected closure activities for each project component to a 'detailed engineering' or 'issued for construction' level of detail." The GMRP has submitted a Final CRP and has proposed that detailed engineering will be provided in the form of "Design Plans" to allow review and approval. The GMRP has proposed a phased approach to present detailed design for Board consideration on a component-specific basis in the form of Design Plans. The GMRP has proposed a Design Plan be submitted to the Board for approval for each closure component prior to implementation. This would allow for targeted review and consideration of component-specific details, beyond the integrated site-wide plan outlined in the final CRP. A schedule will be provided in the annual CRP progress report so reviewers are aware of upcoming Design Plan submissions



The GMRP disagrees with Interveners suggestions that continuing to revise, review, and rework the CRP (other than the administrative update already provided for in Section 1.3) is the best way to resolve uncertainties at this point for the following reasons:

- the above approach would delay the delivery of a much needed remediation of a highly contaminated site that presents human health and safety and environmental risks;
- the Project is concerned with the risk associated with advancing detailed design before concepts are approved by the MVLWB; and
- The GMRP has invested significantly in engaging with stakeholders on the CRP components for the past 5 years and believes strongly that the remaining uncertainties can be resolved as the Project continues to move forward.

In their Interventions, GMOB and the City of Yellowknife recommended only select sections of the CRP be approved. The GMRP does not support this recommendation. The remediation is a highly complex project with numerous interdependencies between components. For example, interveners have identified the landfill and the water treatment plant as two possible components that could be approved before others such as borrow and contaminated soils. The challenge for the Project is that borrow is required to build the berms of the landfill, and the water treatment plant requires that the shoreline design at the Townsite and Marina (an element of the contaminated soils component) be advanced before the outfall design can be completed. Moving forward with detailed design on some components while other component remediation activities remain uncertain and unapproved would be counter-productive and ineffective. Such an approach would also be challenging for Parties as it would be difficult to review a Design Plan with final detailed design when the concepts of other components of the CRP have not yet been approved.

GMRP Position

The GMRP strongly believes that approval of the Final CRP at licence issuance, followed by a series of more detailed submissions for approval, would allow the Project to move forward while outlining a clear, transparent method for engagement, affected party review, and regulatory approvals of any additional information. If treated as an Interim CRP, the resubmission and review of updated revised CRP(s) which incorporate detailed design, in addition to the review of Design Plans, appears redundant, inefficient, and with reclamation scheduled to commence in 2021 it would result in an unnecessary burden on reviewers.

How will details of detailed design be provided?

The GMRP proposes the following items be included in Design Plans for each component to be submitted to the Board for approval 90 days prior to commencement of remediation activities related to the specific mine component. As discussed at Technical Session #2, the GMRP proposes that Design Plans would include the following:

- Final closure objectives, activities, and criteria;
- Description of how the design meets component and site-wide objectives and criteria;



- Summary of Engagement and Traditional Knowledge that has informed the design since the CRP (if applicable);
- Description of how the EA measures have been met (if applicable);
- Summary of Quantitative Risk Assessment (QRA) Results as they relate to the specific component and how design has addressed these (see Recommendation GMOB 4);
- Updates of any additional site investigations related to the Design Plan since the CRP;
- Operational considerations and anticipated maintenance;
- Monitoring for the post-construction period;
- Contingencies, action levels, and responses (if and as applicable); and
- Design drawings.

The Project has committed to engage on the following specific topics that stakeholders are particularly interested in:

1. Final volumes and location of borrow sources;
2. Baker Creek final design and closure criteria, remediation activities in Yellowknife Bay including nearshore sediments and foreshore tailings design;
3. Criteria under development; and
4. Timing and access to the Townsite and marina area.

The GMRP is committed to engaging with the GMRP Working Group and its wider community of stakeholders on items 1 and 2 in 2019 and 2020. The GMRP has also proposed a path forward for criteria under development (item 3). The GMRP has committed to sharing the draft of criteria currently under development, once revised and ready for review to the GMRP Working Group, ahead of submissions to the MVLWB to allow time to review and improve these criteria. The GMRP has made progress on negotiating a Townsite Access Agreement with the City of Yellowknife and the GNWT, which will provide more clarity and predictability for land users and occupiers during remediation (item 4).

The GMRP has proposed that the results of engagement undertaken since the CRP will be carried forward to the Design Plans, which will be submitted to the MVLWB for approval.



How will updates made through this proceeding be incorporated into the CRP?

Parties have raised concerns with document management and tracking of changes to the CRP proposed through this process. To provide a complete final CRP on the public registry, the GMRP proposes it provide an administrative update to CRP within six months of Water Licence issuance to reflect those changes to which the GMRP committed through this process, including:

- The Closure Criteria tables submitted as IR1 from Technical Session 2 will be used to update Objectives, Activities and Criteria.
- The GMRP will update the Section 5.12 and generally within the CRP, to reflect the process and terminology described in the Water Licence after issuance.
- The GMRP will describe and implement a document change control process within the Closure and Reclamation Plan and throughout its submissions to facilitate the review process.
- Through the water licencing process, the GMRP has removed the Minewater Raise Research Reclamation Plan from the scope of the Project and will remove Appendix 5.1B and general references in the CRP to reflect this change.
- 'The arsenic wastes currently stored in the Northwest Pond hazardous waste area will be removed and placed in a freeze zone as described in Section 5.9.5.5.' The reference should be 5.1.5.4. This will be changed in the next draft of the CRP.
- Figure 3.4-1 in the CRP shows the Site post-closure, including the locations of the fences. This figure will be included in the Plain Language Summary. The list of closure activities in the plain language summary will be updated to include Monitoring and Maintenance. The detailed discussion that follows does include Monitoring and Maintenance, but the topic numbering does not align with the numbering in the preceding list. The numbering will be corrected.
- Long-term care refers to the 100-year design life of the frozen shell and the context here is the need for stabilizing underground backfill in voids under and adjacent to it. The text in Table 5.1.2 will be edited as follows: "Structures, controls, and adaptive management approaches used for the remediation of the arsenic trioxide meet appropriate design levels required to support the 100-year design life of the frozen zones".
- A typographical error on page 2-37 of the CRP will be corrected to read: [...] (215 m from the 750L).

The GMRP anticipates this submission would be an administrative update, only to reflect already approved changes. The GMRP proposes that the revisions to the final CRP only be required in the future if changes to the closure concepts or objectives are planned.

The GMRP submits that an administrative update of the final CRP, combined with the tracking table proposed above will alleviate concerns raised regarding document management.



1.4 Long Term Funding

During the Environmental Assessment, there was a common concern among stakeholders about how a project requiring perpetual care could be guaranteed funding in perpetuity. The result was a Measure (Measure 6) that required the Project to commission a study to evaluate long-term funding models. Stakeholders remain concerned about the long-term funding of the Project and have recommended the MVLWB include conditions specific to further studying long-term funding options or other related topics.

The GMRP is of the opinion that the long-term funding of the site is not within the mandate of the MVLWB. This does not mean that the GMRP will not continue to work on this issue. The Measure 6 report on Long Term Funding Options, which considered stakeholder input, has been finalized and provided to the Chief Financial Officer of CIRNAC for their review and consideration. The Executive Director of the Northern Contaminated Sites Branch has also committed to further engaging with the appropriate Government of Canada officials regarding long term funding of several projects within the portfolio, including the GMRP. The Environmental Agreement requires that the Perpetual Care Plan address long-term funding and the GMRP has begun the process of working with stakeholders on developing that Plan. The long-term costs of monitoring and maintenance of the Project will be better known towards the end of the remediation. Regardless, the co-proponents will continue to meet their obligations for the site, in order to protect the environment and the health and safety of the public.

1.5 Land Use

Some Interveners are concerned that a lack of an articulated end land-use of the site impedes the development of a cohesive CRP. This has been a long-standing concern for some GMRP stakeholders. The issue has remained unresolved by the Project because land-use planning is outside of the applicant's authority.

Regardless of authority, the remediation decisions made by the GMRP inherently result in land-use constraints being established for the site. Constraints on the future land-use must be expected for such a large and extensive contaminated site. These decisions have been taken carefully and with extensive stakeholder input, including the City of Yellowknife, the YKDFN, and the NSMA. Within the Closure Guidelines, discussions of land-use are limited to the inclusion of 'Future Use' as a closure principle: "Future-Use (including aesthetics and values) – the site should be compatible with the surrounding lands and water bodies upon completion of the closure activities." (Closure Guidelines p. 14). The GMRP has modified this principle to be practically achievable, and reflective of the Project's overlapping jurisdictions for land management to consider: "Constraints of future use – the CRP should take into account restrictions and opportunities to permit future use of the closed mine to the extent practicable" (Section 1.2 of CRP). The GMRP feels the CRP reflects the co-proponents approach to maintaining flexibility for future land use while balancing the potential for remediation to adversely impact the environment or become cost-prohibitive.

Physical controls (e.g., fences), similar to those currently in place on Site, will be maintained by the GMRP for the core industrial area, which includes the water treatment plant, and non-hazardous landfill (see CRP Figure 3.4-1 for location). The core industrial area will remain under a reserve of notation for use by CIRNAC (or other appropriate land tenure). Access to the tailings will be restricted to meet



Measure 24. Additional constraints will also be communicated to Government of the Northwest Territories, Department of Lands (GNWT-Lands): Use of the pits should be aligned with design assumptions that land-use is restricted to short-term, uninvited access. Future use of areas outside of the fence, with the exception of the Townsite and shoreline areas, will need constraints to limit the area to short term recreational uses as assumed in the Human Health and Ecological Risk Assessment (HHERA). There will be fewer constraints for the Townsite and shoreline areas as those areas will be remediated to the residential soil criteria for arsenic.

The Project can assist stakeholders, as well as GNWT-Lands in future land-use planning exercises in two ways: the Project will provide necessary information to make informed decisions about land-use of the Site (i.e., contaminations levels, HHERA assumptions, exposure pathways) and the Project can provide assistance in representing visually what the Site may look like post-remediation.

The GMRP will provide information and expertise about the final state of remediation and will outline any residual risks and/or constraints to the Commissioner of the NWT in the Final Closure and Reclamation Report. The Commissioner is responsible for reviewing the information provided to them by the GMRP, determining appropriate uses of the lands, and using the tools available to them to control the use of land.



Responses to Interventions

Interveners presented their recommendations in a variety of formats or structures. For ease of reference the GMRP has mirrored Intervener headings.

2.0 ALTERNATIVES NORTH (AN)

2.1 Post-Remediation Site Appearance, Use and Objectives

Recommendation AN 1

We are not comfortable with the idea of approving anything that is not adequately defined, and recommend the Board approve what is necessary to begin needed work while making approval of any currently undefined aspects of the Project contingent upon further clarification and input from the parties. As an example, we recognize that the process of determining what sort of pit covers may be used lies largely within the purview of relevant experts, but where aspects of the Project like this undergo the process of decision-making, Alternatives North (AN) recommends that this process be transparent and include opportunities for the parties to comment.

Response to AN 1

What Alternatives North suggests, i.e., “*approval of any currently undefined aspects of the Project contingent upon further clarification and input from parties.*” is in line with what the GMRP is proposing. The GMRP is requesting approval of the CRP, the closure objectives, activities, and criteria. The GMRP is proposing that once engineering advances and more detail becomes available on a component-specific basis, Parties will have the opportunity to review and the Board to approve those details at that time through the Design Plans.

With respect to pit-fill, the decisions remaining are which pits should be partially filled instead of completely filled and the details of the final type of top layer, or cover, for each pit. The most significant decision, which is to fill the pits, has been made and was informed by a significant engagement undertaking which the Project calls the Surface Design Engagement (SDE).

Recommendation AN 2

AN recommends that no Closure and Reclamation Plan which is not fully defined through a process of engagement with the parties be approved as a part of the current Water Licence process.

Response to AN 2

The GMRP believes it has completed extensive engagement with Parties on the level of detail included in the CRP to-date. The Engagement Log submitted in support of the Water Licence Application (April 2019) supports this statement. The GMRP has described that additional engagement will be necessary prior to the submission of Design Plans (e.g., Borrow, Baker Creek, Nearshore and Foreshore Tailings as part of Fisheries Authorization requirements, and closure criteria *under development*). Further, the proposed submission of Design Plans for approval would see the Project continuing under a formalized requirement for engagement on Project details.



2.2 Open Pit Workings

Recommendation AN 3

If the final design of pit covers entails the possibility of non-permanently ponding water, AN recommends that the Board require additional study and public engagement regarding how this would alter the possibility of any inflow to underground mine workings.

AN also recommends that the feasibility of utilizing clay to minimize permeability of pit covers be fully explored on the basis that this would present greater longevity than the use of a manufactured geomembrane.

Response to AN 3

The closure criterion P2-2 was revised through Technical Session 2 as follows: “The pits will not pond water”. Therefore, the final design does not entail the possibility of non-permanently ponding water.

If low permeability pit covers are required to meet objectives, clay barriers will be considered along with other potentially feasible design options. However, there is considerable evidence in the scientific literature of geomembranes providing more consistent long-term permeability control than clay layers.

2.3 Contaminated Soils and Sediments

Recommendation AN 4

AN recommends that the GMRP include a commitment to mapping the contamination levels in soil areas outside the fenced boundary areas, making that information publicly available, and determining ways that these areas of concern may eventually be effectively remediated.

Response to AN 4

The GMRP has provided a map of arsenic concentrations in soils within the Project Boundary as shown in Figure 5.4-2 of the CRP. This map was developed based on extensive soil sampling and modelling to interpolate between sample locations. The GMRP has committed through Closure Objective Site Wide 4 and the associated three closure criteria to communicate risks, including risks outside the fenced areas, in the following manner:

- public communication initiatives as outlined in the Perpetual Care Plan / Engagement Plan are undertaken and evaluated;
- a final report land map with residual risks/constraints identified will be made available to the Commissioner of the NWT, and posted on the Project website (see AN 8);
- perimeter barriers are installed near risk areas to reduce inadvertent access and are visually displeasing to communicate that residual risk is present (e.g., large grey boulders, earth embankments).

Furthermore, SW4-2 commits to producing a land-map and GMRP has provided increased clarity in response to Recommendation AN 8:



SW4-2 A final report land map with residual risks/constraints identified will be made available to the Commissioner of the NWT, and posted on the Project website.

In most cases, maps of chemical concentrations do not effectively communicate risk to the general public. Therefore, the GMRP will rely on engagement and technical work undertaken during the development of the Perpetual Care Plan to further inform the specifics for the format and mechanisms for communication of risk. The GMRP already has requirements to develop the Perpetual Care Plan through the Environmental Agreement and does not require a Water Licence condition related to this.

2.4 Baker Creek and Surface Water

Recommendation AN 5

AN recommends consideration of adding some amount of additional freeboard to pit rims as a contingency against possible underestimation of the probable maximum flood.

Response to AN 5

The PMF (probable maximum flood) is a highly conservative design criteria, with an extremely low likelihood of occurring, even under a climate change scenario. In Technical Session 1 (MVWLB, 2019b see page 20), the GMRP noted how conservative this design is - the PMF for Baker Creek, based on an extreme precipitation event, is equivalent to the mean annual flow for the North Saskatchewan River going through the Site, or five times the average annual flow of the Yellowknife River. In Technical Session 1, the GMRP committed to review updated climate forecasts to reduce uncertainty in the PMF prediction and then review which pits, if any, require additional freeboard, as well as possible scour protection (MVLWB, 2019b, see pages 27 to 31). This updated information will be presented in the Design Plans for pits and Baker Creek.

2.5 Borrow Material

Recommendation AN 6

AN recommends that borrow needs – how completely voids and pits are to be filled, as well as decisions regarding how and where borrow is to be collected – be informed by safety considerations first. Following public safety, we ask that community input and cost considerations be incorporated, while also bearing in mind post-remediation site appearance.

Response to AN 6

The GMRP does not believe this recommendation should form a term or condition of either the Water Licence or land use permit. The GMRP agrees that safety is the top priority, followed by other factors such as rock mechanics, geochemistry, and community input. The Project is planning to source borrow materials from fine grained soil deposits and bedrock from within the Project boundary for general fill and engineered structures and covers. Quarry permits from GNWT-Lands will be obtained prior to development of these sources.



As discussed in the CRP, safety/stability is a key driver in addressing the hazards in open pits. Public safety in the development and reclamation of any new borrow will be paramount, in line with the Project goals as well as Borrow Closure Criteria.

Community input will be received during a Borrow Engagement workshop to be held in Yellowknife and Dettah during the week of December 2, 2019. The workshop is intended to present Project requirements and constraints with respect to borrow sources, collect any additional traditional knowledge related to borrow sources and further understand stakeholder concerns and priorities in order to prepare a sustainable borrow development plan for the Giant Mine site.

2.6 Water Treatment Plant and Outfall

Recommendation AN 7

AN recommends that the proponent be asked to outline a plan for meeting the site's long-term power needs which includes a cost-benefit analysis of different power generation options as well as consideration of how dependent these options are upon external inputs. Of particular interest would be exploration of any possibility that site conditions may allow for the effective development of local geothermal power to meet its long-term energy needs.

Response to AN 7

The GMRP considers the process by which the Project selects the long-term power supply to lie outside the jurisdiction of the MVLWB. Considerations of renewable energy and climate change are important to Project and it will continue to investigate alternatives and share findings with interested parties.

To date, the GMRP has commissioned two studies to examine options for long-term power supply. The GMRP commissioned a study in 2016 to examine potential for Greenhouse Gas Emissions (GHG) emission reduction. The 2016 report entitled, "Energy and GHG Reduction Opportunities for the Giant Mine Remediation Project" (Stratos) found that renewable energy sources are not a viable option for supplying prime power to the Giant Mine site. The water treatment plant (WTP) includes several critical electrical loads which require a continuous and reliable source of power. Since many renewable energy sources, such as solar and wind, are intermittent or highly seasonal, the power requirements of the site cannot be met by alternative energy sources alone. The report outlines a preliminary investigation into the viability of several renewable energy options. Wind turbines, solar photovoltaic (PV), biomass (wood pellet) combined heat and power, biogas anaerobic digester combined heat and power, and geothermal electricity are all considered as options. The Stratos report identifies solar photovoltaic supplemental power as a recommended option for further consideration. Recently, the GMRP has commissioned a further study to build on that 2016 analysis and evaluate solar photovoltaic supplemental power as an option for the site (including the WTP) and develop a high-level cost-estimate.

The option selection for the site's long-term power supply will be guided by the Project's stated closure goals and objectives. Should the selection of the long-term power supply require water use or the deposition of waste, the GMRP will seek the appropriate approvals from the MVLWB.



2.7 Site-Wide

Recommendation AN 8

AN recommends that the current wording in closure criterion SW4-2 be revised.

Response to AN 8

The GMRP agrees with Alternatives North that refinement of closure criterion SW4-2 could be helpful for accuracy. The GMRP has received further clarification from the GNWT on the process by which constraints and risks are communicated to GNWT - Lands and has revised wording for SW4-2 is as follows: A final report and land map with residual risks/constraints identified will be made available to the Commissioner of the NWT, and posted on the Project website.”

2.8 Measures from Environmental Assessment

Recommendation AN 9

AN recommends that research funding amounts be indexed to inflation

Response to AN 9

The Environmental Agreement dated June 9, 2015, Section 11.3 (Research Program Funding) stipulates that research funding is adjusted against the Consumer Price Index (CPI) for Yellowknife published by Statistics Canada. The amounts have been adjusted accordingly since 2015.

Recommendation AN 10

AN also recommends that the GMRP establish a research incentive similar to the XPRIZE to provide independent research groups with motivation to pursue solutions for safely addressing arsenic management unconnected with direct Project funding.

Response to AN 10

As per Sections 2.3 and 3.1 of the Environmental Agreement, all research for addressing the arsenic trioxide is the responsibility of GMOB. The GMRP is of the opinion that this recommendation should be directed to GMOB.

Recommendation AN 11

AN recommends that the Board require the GMRP to address these concerns about long term funding which have repeatedly been expressed by parties to the agreement.

Response to AN 11

The GMRP does not consider long-term funding to be within the mandate of the MVLWB. Please refer to Section 1.4.



Recommendation AN 12

In order to improve local communities' ability to respond to potential health risks in a timely and effective manner, AN recommends that the GMRP utilize a qualitative risk assessment framework to produce and distribute a plain-language "Giant Mine Handbook" that outlines defined contingency responses to potential problem scenarios.

Response to AN 12

The GMRP does not consider this recommendation to be within the jurisdiction of the MVLWB.

The GMRP has undertaken two extensive risk assessments: Human Health and Environmental Risk Assessment and the Quantitative Risk Assessment. The HHERA considers chronic exposure and its potential risks, whereas the QRA focuses on failure scenarios and their potential effects on different aspects, including human health. Results of the HHERA have been shared with the community and the QRA results will be available in early 2020.

See response to Recommendation CoY 11 for further information.

Recommendation AN 13

AN recommends adding chloride, sulphate, nitrate, and ammonia to water monitoring criteria.

Response to AN 13

The GMRP proposed Effluent Quality Criteria (EQC) for chloride and sulphate for effluent treatment plant (ETP) effluent (Table 1, Response to IR #03 from Technical Session 2). The GMRP also proposed EQC for nitrate and ammonia for the ETP and WTP (Table 7 of the Response to IR #06 from Technical Session 2). These four parameters will be monitored under the AEMP and Surveillance Network Program (SNP) and results will be provided to the MVLWB for all parties for review.

2.9 Suggestions from the Environmental Assessment

GMRP notes that there are no recommendations to the MVLWB for consideration. Rather Alternatives North offers feedback on how the Project can address select suggestions from the Environmental Assessment. GMRP thanks Alternatives North for its thoughtful input and looks forward to continuing to work together.



3.0 CITY OF YELLOWKNIFE

3.1 Part A – Recommendations and Suggestions

This section contains no formal recommendations however, the City of Yellowknife asks, “what is the reclamation returning to the citizens of Yellowknife?” The City also states, “...the value of land to the well-being of our City, from either a development or recreational sense is uncertain.” This Project does not have a stated goal to contribute to the future development of Yellowknife, nor is the goal of the Project to increase the value of the City’s or the GNWT’s land. The Government of Canada and the Government of the Northwest Territories are co-proponents of this major Project to reduce the risk to the citizens of Yellowknife of exposure to contaminants and physical hazards, as well as to protect wildlife and ecosystems that are a part of the City. The GMRP believes that this Project is bringing value to the people of Yellowknife.

3.2 Part B – Short Term Completion

3.2.1 Emergency Management Agreement

Recommendation CoY 1

The City recommends that the Board require conditions in the land use permit that require the Project to complete an agreement that provides for City Emergency Response and appropriate engagement and training with City Public Safety officials and the Yellowknife Fire Department to ensure an effective and efficient emergency response.

Response to CoY 1

Safety, security and protection of the environment are of paramount importance as the Project proceeds to remediate and manage the historic contamination at the Giant Mine Site. To that end, the GMRP has developed a variety of contingency and emergency management plans. Some of those plans, while essential, are outside of the scope of the land use permitting and water licencing process. For example, plans related to occupational health and safety fall into this category. Relevant to the current licence and permitting process, the GMRP has already prepared and submitted a Spill Contingency Plan to the Board.

With respect to broader contingency and emergency management planning, the GMRP is currently considering the best means of contracting for or otherwise ensuring that the necessary services will be available at the Site as and when needed. The Project has been engaged in discussions with the City of Yellowknife to determine the basis upon which it might be able to provide necessary emergency services: to date the parties have not reached an agreement. In these discussions, the Project must take into consideration the actual service needs of the Project, the City capacity to meet them, and the best value for public resources. If the GMRP and the City ultimately cannot agree on a mutually satisfactory arrangement, then it will be necessary for the Project to pursue alternative contracting arrangements, akin to those that a comparable project outside of municipal boundaries might put into place.



The GMRP submits that the Board should not require as a licence or permit condition that an emergency services agreement be entered into specifically with the City, or with any other service provider. The GMRP is of the opinion that it would be outside the jurisdiction of the Board to require a proponent to enter into a contractual agreement with a specific service provider.

The Project intends to continue engaging and communicating with the City regarding their respective emergency management plans to verify that efficient and effective emergency services continue to be in place for the Project.

3.2.2 Borrow and Explosives Management Plan/Pit Filling

Recommendation CoY 2

The MVLWB require development of the Burrow [sic] and Explosives Management plan, to be submitted for approval within 12 months of the licence issuance.

Response to CoY 2

In the draft Water Licence provided with the Application, the GMRP proposed the Borrow and Explosives Management Plan be submitted “90 days prior to commencement of Remediation”. Given that the use of borrow and/or explosives is anticipated to be required within 12 months of Water Licence issuance, the GMRP is agreeable to the proposed timeline.

3.3 Part C – In Progress

3.3.1 Land Use Planning/Opportunities

Recommendation CoY 3

Within 3 years, the Project should commence collaborative planning efforts to establish the land use opportunities and constraints for the site

Response to CoY 3

As discussed in Section 1.5, the ability to designate future land use (or administrative constraints) does not rest with the applicant and as such the GMRP cannot support this recommendation. Please refer to the general response regarding land use planning in Section 1.5.

With respect to the areas referenced by the City that will “remain untouched and unrestricted”, the GMRP reiterates that the decision to manage these areas of contamination *in-situ* was developed through extensive engagement during the SDE and continues to have support from stakeholders. The results of the HHERA demonstrated that risks to humans are low to very low, assuming limited use of the area for recreational purposes only. It is assumed that the limited use will occur on the weekend during the summer months, or for 2 days a week, 10 weeks a year.



The GMRP will provide information and expertise about the final state of remediation outlining any residual risks and/or constraints to the Commissioner of the NWT. The Commissioner is responsible for reviewing the information provided to them by the GMRP and determining appropriate uses of the lands, using the tools available to them to control the use of land.

3.3.2 Updated Closure and Reclamation Plan

Recommendation CoY 4

That the Project provide an updated CRP complete for approval

Response to CoY 4

The GMRP agrees with the City that effort spent building understanding and ensuring transparency has long-term value. The GMRP acknowledges the City of Yellowknife's efforts to find solutions mutually agreeable to both parties on this and other topics. Please see the GMRP's general response regarding the requested CRP approval in Section 1.3.

More specifically, the GMRP disagrees with the City's suggestion that continuing to revise, review, and rework the CRP (other than the administrative update already provided for in Section 1.3) is the best way to resolve uncertainties. Please refer to Section 1.3 for detailed rationale.

The GMRP strongly believes that approval of the Final CRP at issuance, followed by a series of more detailed submissions for approval, would allow the Project to move forward while outlining a clear, transparent method for engagement, affected party review, and regulatory approvals of any additional information.

3.3.3 Closure Criteria, Components & Reclamation Plans

3.3.3.1 Closure Criteria

Recommendation CoY 5

The MVLWB direct the Project to provide a complete set of Closure Criteria for approval with the updated Closure and Reclamation Plan.

Response to CoY 5

Since the submission of the final CRP on April 1, 2019, the GMRP has provided two iterations of the closure criteria table. These iterations proposed revisions based on input received through reviewer comments, the closure criteria workshop, and engagement with Parties. The GMRP has identified which criteria are still under development and proposed that it would be most appropriate to submit those as final closure criteria to the Board for approval with the appropriate Design Plan. With the exception of the criteria under development, the GMRP believes the criteria table to be complete, ready for approval, and in accordance with the Closure Guidelines. As described in Section 1.3, the GMRP proposes within six months of Water Licence issuance a revised CRP be submitted for conformity to reflect those changes proposed and considered through this process.



3.3.3.2 Closure Components

Recommendation CoY 6

The MVLWB direct the Project to provide a description of how, depending on the results of the existing Reclamation Research Plans (Dam 3 and Wetland Treatment), the Project would create a new Mine Component and the process to populate the Objectives and Criteria.

Response to CoY 6

The CRP identifies the potential for two additional components (i.e., Passive and Semi-passive Treatment Systems; Contamination Downgradient of Dam 3), pending the results of reclamation research. A summary of this reclamation research is proposed to be included in the Annual Report. The GMRP has also committed to present the outcomes of the reclamation research plans to the Giant Mine Working Group. If the GMRP chooses to pursue either additional component, activities, objectives, and criteria will be provided to the Board for approval. The GMRP has proposed that this information would most efficiently be provided in the form of a Design Plan for Board approval.

3.3.3.3 Nature of Closure Criteria – Design vs. Achievement

Recommendation CoY 7

The MVLWB encourage the Project to continue developing Closure Criteria, transitioning from those that are based on intended actions to those based on performance standards.

Response to CoY 7

The GMRP agrees that where possible, it is important to include closure criteria which measure performance. However, as described at the closure workshop, the GMRP believes there is a benefit to the inclusion of design criteria. Criteria which require a component to be “built to design” hold the Project accountable to “build what it said it would”. Designs include many different measurable requirements that contribute to achieve the overall intent or objective of the closure activity. Design criteria can often provide an earlier evaluation of reclamation work compared with performance criteria. The GMRP believes both types of criteria are important and work together to evaluate the success of a Project.

The GMRP has submitted the updated closure criteria table (provided in IR 1 following Technical Session #2) to the Board for approval. The GMRP will continue to develop those criteria identified to be ‘under development’ (24 criteria out of 122 total) as it undergoes detailed design. When finalizing criteria in development, the GMRP will continue to include criteria based on performance, where possible. The GMRP does not believe additional Water Licence conditions are required on this; the submission of the Design Plans will allow review of updates and revisions to the closure criteria



3.3.4 Standard for Baker Creek

Recommendation CoY 8

The MVLWB direct the Project to revise the Baker Creek Component to fulfill the promises of the DAR and allowing Baker to fulfill its natural potential. This will be done through submission of new, more rigorous criteria that achieves this.

Response to CoY 8

The GMRP has already agreed to develop two closure criteria for Baker Creek aquatic life (benthic invertebrates and fish) and that these would be developed through forthcoming engagement with all parties and in conjunction with the *Fisheries Act* Authorization process, including discussion of the natural productivity of the creek. These criteria are currently noted as 'in development' in the Closure Objective and Criteria tables submitted in October 2019 (i.e., BC5-2 and BC5-3). In a September 2019 GMRP Working Group meeting, the GMRP proposed that engagement on aquatic topics be combined into a group called 'Aquatic Engagement' and that meetings on these topics be staggered throughout the year to discuss:

- community-based monitoring;
- AEMP;
- *Fisheries Act* Authorization;
- design of Baker Creek habitat; and
- Yellowknife Bay habitat.

These topics are intertwined and should build upon each other so that all parties can understand and contribute meaningfully to each. Therefore, the GMRP agrees to revision of the criteria in development based on results from the Aquatic Engagement process and the engagement with Fisheries and Oceans Canada (DFO) on the *Fisheries Act* Authorization and to provide the final criteria for approval to the MVLWB in the Baker Creek Design Plan. The Engagement Plan would be updated to reflect the intention and dates for possible workshops and meetings on aquatics.

3.3.5 Quantitative Risk Assessment (QRA)

No recommendations.

As per Recommendation GMOB 4 - The GMRP agrees that it is important to document the QRA findings and to demonstrate how these have influenced the design of the Project.



3.4 Part D - Requiring commitment and action

3.4.1 Environmental Management Plans

Recommendation CoY 9:

The MVLWB require the 'site-wide' environmental management plans to be submitted for approval a minimum of 6 months prior to construction. Ideally these will be submitted as soon as possible in a phased approach to allow for thorough reviews.

Response to CoY 9

The GMRP appreciates the City of Yellowknife's support for approval of Phase 1 Plans with issuance. The GMRP had proposed that Phase 2 versions of the management and monitoring plans be submitted to the MVLWB 90 days prior to the commencement of remediation activities. It is the view of the Project that the proposed timelines are consistent with other Water Licences issued by the MVLWB and Draft Standard Water Licence Conditions circulated for public review in July 2019. In consideration of the concerns raised by the City of Yellowknife, the GMRP commits to pre-engagement with the GMRP's distribution list of interested parties on the next version of the management plans. While the next version of management plans will include many improvements and alterations as committed to through this Water Licence process, they will address the remediation activities planned for early in active remediation.

Similar to other projects, the GMRP anticipates that future updates to management plans will be required as the Project advances through active remediation and into post-closure. For such updates the GMRP submits that plans should be required 90 days prior to implementation, consistent with the MVLWB Draft Standard Water Licence Conditions circulated for public review in July 2019.

3.4.2 Annual Water Licence Report

Recommendation CoY 10

The MVLWB require the Annual Water Licence Report to be provided for approval. The composition of the report should be reviewed 1 year after construction starts, with a follow on review 5 years after.

Response to CoY 10

The GMRP disagrees that the Water Licence Annual Report should require Board approval. The GMRP submits that the Annual Report is a communication tool to update Parties on activities conducted in the previous year. It is unclear what standards the MVLWB would use to determine whether the reporting should be approved. The GMRP has proposed that the Annual Water Licence Report be for informational purposes only. The GMRP request appears to be consistent with other Water Licences issued by the MVLWB and the Draft Standard Water Licence Conditions circulated for public review in July 2019.

The GMRP would like to clarify that the Annual Water Licence Report is not intended to be the document in which the GMRP would demonstrate the success of remediation but rather reporting of the data collected. The GMRP has previously described that summaries of monitoring data related to closure criteria would be reported in the Annual Water Licence Report, however an evaluation of whether closure



criteria are being met would be completed through the Performance Assessment Report and Closure and Final Reclamation Report (MVLWB, 2019c, see pages 104 to 105).

3.4.3 Notifications

Recommendation CoY 11

The MVLWB licence should require the Project to provide notifications for matters involving upset or unexpected conditions.

Response to CoY 11

The Giant Mine Remediation Project currently has an Emergency Communications Plan (ECP) that was developed with input from different parties when it was first developed at the time of the roaster decommissioning,

The Plan defines an emergency using the Government of Canada Communications Policy definition (*An “emergency” as defined by the Government of Canada, is an abnormal situation that requires prompt action, beyond normal procedures, in order to limit damage to persons, property or the environment*). The Plan also states “Intended to further illustrate what is meant by onsite emergencies, though not to be read as an exhaustive list, this plan shall be followed for such instances as accidental death, serious injury, fire, explosion, a failure of any part of the underground mine workings, or a flood of Baker Creek. Given the close proximity of citizens of Yellowknife, Ndilo and Dettah to the mine site, the public must be made aware, in a timely manner, of emergencies on site that may affect them”. The GMRP will follow the Emergency Communications Plan as necessary.

The GMRP does not propose to communicate spills, or other incidents of non-compliance that may be considered “unexpected conditions,” but that are not considered emergencies to parties other than the authorities with the relevant jurisdiction. If a spill exceeds the thresholds identified by the GNWT Reportable Spill Quantities, then the Environmental Manager and/or Incident Commander will report the Spill to the GNWT Spill Line and the land use inspector, within a 24-hour period as required by the regulations. Section 4.1 of the Environmental Agreement states “the Co-Proponents shall, without unreasonable delay, provide the Oversight Body a report of any reportable spill, accident or significant malfunction in or caused by the Project, together with a description of the Co-Proponents' response.” The Spill Response Plan Section 6.0 will be updated to reflect this reporting obligation to GMOB.

The GMRP commits to appending the ECP to the GMRP Engagement Plan.



3.4.4 Review Timelines

Recommendation CoY 12

The MVLWB and the Project work to establish which plans (for approval) are likely to have a critical links to the Project schedule and ensure that there is appropriate time for full review and collaborative efforts to resolve concerns or disputes.

Response to CoY 12

It is unclear to the GMRP to which plans the Intervener refers. The remediation of the Giant Mine site is a large, interconnected Project with many plans (e.g., CRP, management plans, Design Plans, Construction Plans) working together to provide the regulatory framework for work completed on site.

The GMRP has proposed review timelines it believes provides reasonable time for review and approval and consistent with other water licenses issued by the Board. In an effort to alleviate the concern that the review times will not be sufficient for the City, the GMRP has made the following commitments or proposals:

- The GMRP has proposed linking submissions to Project milestones (e.g., commencement of remediation) rather than a calendar date (e.g., issuance); therefore the timelines inherently reflect the linkages to Project schedule.
- Design Plans will be submitted sequentially as the Project Schedule dictates. The GMRP is not proposing to submit all Design Plans at the same time.
- The GMRP has committed to component-specific engagement on particular items or components that are of high-interest or concern, as itemized in Section 1.3 “What is In a Design Plan” in an effort to collaborate to resolve concerns
- The GMRP commits to pre-engagement on the next submission of management plans (Response to CoY 6)

The GMRP believes the proposed timelines provide the necessary Project flexibility to adapt to any unknown factors that may influence the Project schedule.

3.4.5 Dams

Recommendation CoY 13

The MVLWB incorporate CDA [Canadian Dam Association] requirements into the Water Licence, preserving commonality in reporting and requirements.



Response to CoY 13

Dams will be managed in accordance with CDA guidance, and the GMRP expects that conditions for adherence to the guidance to be incorporated into the Water Licence in a form that is consistent with the Boards' previous practice and draft standard conditions. If required, the GMRP will provide a copy of the CDA-required reporting to the Board. The GMRP does not believe that Board approval of the inspections, reporting and maintenance activities carried out in accordance to CDA guidelines is either necessary or appropriate.

3.5 Future Needs

3.5.1 Project Funding

Recommendation CoY 14

The MVLWB direct the Project to undertake a special study to complete a thorough examination of the different funding models for the lifespan of this licence and this Project. The study will be undertaken with a steering committee composed of suitably competent members at arms' length from the proponents and will be submitted for Board approval.

Response to CoY 14

The GMRP submits that this issue is outside of the jurisdiction of MVLWB. Please refer to Section 1.4.

3.5.2 Management Gaps

Recommendation CoY 15

The MVLWB direct the Project to complete a land use plan for the Giant Mine area, to be commenced within 3 years of licence issuance and completed within 8 years. This will be completed by all parties who have interests in the development and management of the Giant Mine area.

Response to CoY15

As stated in Section 1.5, the Applicant does not have the authority to lead land-use planning.

3.5.3 Waste Stream Auditing

Recommendation CoY 16

The MVLWB require an auditing effort of waste stream segregation to be implemented in Phase I of the Project, to be formalized in when the waste management plan is re-submitted for Phase II.

Response to CoY 16

Table 4-1 of the Waste Management and Monitoring Plan submitted with the Application lists the waste streams, quantities and proposed method of waste disposal during the remediation process. The GMRP has an inventory of waste that is currently on site. This inventory will be managed by the MCM throughout the remediation process and updated as waste is generated and/or disposed of offsite. Volumes of new waste that are generated will be reported to the Board in the Annual Water Licence Report.



The Giant Mine Remediation Project will have an auditing procedure in the Environment, Health and Safety, and Community Management System (EHSC-MS). The EHSC-MS is focused on the protection of the environment and the health and safety of its employees, contractors and general public. The EHSC-MS will verify procedures are in place to confirm that waste that is being sent to the City has been appropriately segregated and free of hazardous substances.

4.0 ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

4.1 Closure and Reclamation Plan (Review 5 of 7)

4.1.1 FI-ECCC-1: Foreshore Tailings

Recommendation ECCC 1

ECCC recommends the proponent undertake monitoring to ensure that the cover placed on the foreshore tailings will prevent long term leaching of contaminants into Great Slave Lake. ECCC further recommends that the Proponent implement monitoring and adaptive management to address any leaching of contaminants into Great Slave Lake that monitoring may reveal.

If covering/capping the tailings merely avoids human contact and does not prevent the leaching of contaminants into the lake, ECCC recommends that the Proponent consider an alternative approach for foreshore tailings remediation. This could include tailings Removal.

Response to ECCC 1

As defined in the CRP, the closure objective of the tailings cover in the foreshore area is that the “Risk of tailings erosion and human contact with tailings in the foreshore area is reduced”. The specific criteria that will be applied for measuring the success of the closure activities in meeting the objective are in development, along with the design of the foreshore remediation. As the closure objective is physical in nature (prevent erosion, prevent human contact), it is expected that the appropriate monitoring will also be physical in nature (e.g., inspections, surveys, depth soundings or similar).

As the final design for remediation of the foreshore is in development, the GMRP will continue to evaluate alternatives to meet the stated project objectives. The Project objectives, including that specific to the Foreshore Tailings (T2), were developed and reviewed with a broad range of stakeholders in different forums since 2018. The objective T2 forms the basis of ongoing design work, and GMRP is not proposing to change the objective. Design will continue with full consideration of practical alternatives to the original plan for the foreshore tailings, as presented in the DAR (INAC and GNWT, 2010), which was to extend the existing geotextile and rip-rap cover below the lake surface to cover the tailings where they occur in the littoral zone. Finalizing the design for the foreshore tailings will require further consultation and approval from the DFO.



4.2 Management Plans Group 2 (WATER) (Review 6 of 7)

4.2.1 FI-ECCC-2 Surface Runoff Monitoring

Recommendation ECCC 2

ECCC recommends that the Proponent monitors tributaries upstream of Baker Creek and establishes thresholds for investigation or action in the event that monitoring shows increasing concentrations in these tributaries. This may be included as part of the SNP Monitoring.

Response to ECCC 2

The GMRP has been monitoring, and will continue to monitor, upper Baker Creek at SNP 43-11, which captures runoff from multiple sources and tributaries upstream of the Site. More specifically, the GMRP monitors small tributaries (i.e., Pocket Lake [P-LA], Trapper Creek [TR-CK, SNP 43-16]) and other stations on the site under the Operational Monitoring Program (OMP). Future SNP and OMP locations to be sampled through Phases 1, 2 and 3 of the remediation are provided in the Standard Operating Procedure (SOP; CIRNAC and GNWT 2019a) in Table 3-2 and Figure 3-1 which was submitted as per the GMRP's Water Licence application. The GMRP interprets ECCC's position to be that monitoring should be conducted to differentiate source loadings (i.e., site runoff vs. direct discharges from site facilities). The GMRP submits that the proposed SNP and OMP presented in the SOP meets this objective.

The GMRP disagrees with setting thresholds related to upstream on-site tributary concentrations. The combination of off-site and on-site loadings will contribute to the water quality in Baker Creek post-closure. Post-closure monitoring data from the SNP and OMP data will be reviewed annually to identify/confirm source quality. This information can be used to review the need for further action on Site.

4.2.2 FI-ECCC-3: Aquatic Effects Monitoring Program / Environmental Effects Monitoring Program

Recommendation ECC 3

ECCC recommends that the Proponent establish an Aquatic Effects Monitoring Program Working Group to discuss the finalization of the monitoring program and ongoing results.

Response to ECCC 3

As discussed with the Giant Mine Working Group including ECCC, the GMRP proposes to setup an Aquatic Engagement Group who could discuss monitoring programs, and other topics. See below for a description. The GMRP considers the approach to meet the ECCC recommendation.

The GMRP has a wide range of stakeholders committed to the health of the Baker Creek and Yellowknife Bay and who are interested in having various roles in developing and participating in aquatic monitoring related to the GMRP. The stakeholders' backgrounds and areas of expertise vary greatly. Recently, the GMRP developed an approach to engaging on aquatic-related topics in a coordinated manner, which the Project has presented to the GMRP Working Group (September 2019) and will present to the YKDFN



Giant Mine Advisory Committee (GMAC) at the next opportunity. The approach articulates two desired outcomes:

- GMRP in-water components are designed in a way that considers the needs and expectations of the GMRP, stakeholders and regulators; and
- Stakeholders understand and have improved trust in the way in which GMRP monitors and manages Project-related impacts to the aquatic environment.

Part of the proposed strategy is to develop an “Aquatics Engagement Group” comprising members from the Working Group (including ECCC) and/or additional members from YKDFN and NSMA or other EA signatories that wish to participate. The Plan lays out a path to build capacity within the Aquatics Engagement Group with respect to regulatory requirements (Metal and Diamond Mining Effluent Regulations [MDMER], *Fisheries Act*, and MVLWB), existing GMRP aquatics monitoring and existing conditions in Baker Creek and Yellowknife Bay. This will position the group for success in providing meaningful input to the design of Baker Creek, the potential fish habitat off-setting requirements related to the Project, the development of the AEMP as it evolves to focus on Yellowknife Bay and co-developing a Community-Based Monitoring Program. The proposed approach was developed to make the topic of aquatics monitoring and the concepts of AEMP and fish habitat off-setting accessible to the full range of Project stakeholders.

4.3 Management Plans Group 3 (OTHER)

4.3.1 FI-ECCC-4: Canadian Ambient Air Quality Standards and Nitrogen Dioxide Management

Recommendation ECCC 4

ECCC recommends that the Proponent incorporate the CAAQS for Nitrogen Dioxide (NO₂), sulphur dioxide (SO₂), and particulate matter with a mean diameter of 2.5 µm or less (PM_{2.5}) Monitoring Plan.

In addition, ECCC recommends that the Proponent Dust Management and Monitoring Plan include mitigation measures to reduce NO₂ and PM_{2.5} associated with power plant emissions, in the event that an active freeze system is implemented.

Response to ECCC 4

Regarding the wording in ECCC’s text for “Proponent Conclusion”, the GMRP would like to correct the statement made regarding the conclusions for NO₂ from the CALPUFF report. ECCC indicates in their intervention that the 2012 SENES report notes a full active freeze program would draw 3 MW of incremental power from the Jackfish Power Plant and that under such a scenario, emissions from the power plant would result in elevated concentrations of NO₂, including at sensitive receptors within Yellowknife. What is missing from the ECCC text from the report is the qualifying text regarding Jackfish Power Plant operations, including that “it operates on an as required basis when other sources of electrical power are not available” (SENES, 2012). The report also notes that the reasonable worst case emissions considered in this CALPUFF modelling assessment, which ECCC speaks to, “are based on the



Jackfish Power Plant operating at 2/3rds capacity (18 MW) for an entire year, and is not based on historical typical plant operations” (SENES, 2012).

As ECCC also notes, current plans for the freeze program for the GMRP do not include full active freeze which was the basis for the CALPUFF report worst case scenario to which ECCC speaks. Should freeze plans change for the GMRP, all applicable management plans, including mitigation measures in the Dust Management and Monitoring Plan, would be updated accordingly through the Board process.

The Project currently measures PM_{2.5} concentrations at three community stations as part of the GMRP air monitoring program and compares measured concentrations against the Guideline for Ambient Air Quality Standards in the Northwest Territories of 28 µg/m³ averaged over 24-hours or 10 µg/m³ averaged annually. This standard is currently similar to CAAQS and is reported as such in the GMRP annual air reports, which have been made publicly available as supporting reference documents to the GMRP Water Licence and Land Use Permit application.

The Project measures NO₂ only at the Niven community air quality monitoring station (along with other parameters), as per Measure 25, using the Guideline for Ambient Air Quality Standards in the Northwest Territories. The NO₂ measurement taken at this station is influenced by emissions from Jackfish Power Plant and other local sources such as residential vehicle emissions. The GMRP is only one part of the Jackfish power draw and resulting emissions. As noted, should the GMRP need to transition to an active freeze system in a contingency scenario, monitoring plans would be re-evaluated at that time. GMRP has committed to identifying the need to reconsider NO₂ in the event of a change in the Freeze program in the contingencies section of the Air Quality Management and Monitoring Plan.

For reporting and evaluation purposes, the statistical form of the CAAQS numerical standards are not as suitable for comparison against real-time action levels as the standard numerical values included in the Guideline for Ambient Air Quality Standards in the Northwest Territories. As well, the GMRP uses the GNWT National Air Pollution Surveillance (NAPS) air monitoring station in downtown Yellowknife for comparison purposes in its annual report, so using the same standards and guidelines as the GNWT is advantageous for comparison purposes. As noted in ECCC-5 and other responses, the GMRP has committed to updating action levels, thresholds and contingencies in updated management plans for the next submission. These updates will include those for the community air quality monitoring stations. The GMRP will continue to work with ECCC and GNWT to evaluate changes to the Ambient Air Quality Monitoring Plan on a regular basis as the Government of the Northwest Territories makes revisions to their Guidelines and standards and as the GMRP remediation plans are refined through detailed design.

The GMRP does not measure SO₂ as part of its air monitoring program. The inclusion of SO₂ criteria in Table 4-2 of the Air Quality Monitoring Plan (AECOM, 2019a) was in error and will be removed in future versions of the Air Quality Monitoring Program (AQMP).

4.3.2 FI-ECCC-5 Adaptive Management of Air Pollutants

Recommendation ECCC 5

ECCC recommends that the Proponent revise the Dust Management and Monitoring Plan to include adaptive management thresholds for PM_{2.5}, NO₂, and metals (arsenic, antimony, lead, iron, and nickel).



The revised plan with updated thresholds should be made available to interested parties prior to commencement of Project activities.

Response to ECCC 5

In Technical Session 2 (Day 2), and reiterated here, the GMRP agrees to including adaptive management thresholds for metals (arsenic, antimony, lead, iron, and nickel) in the revised Dust Management and Monitoring Plan (MVLWB, 2019d, see page 10). This updated management plan will be submitted to the MVLWB for review and approval prior to commencement of remediation activities. The GMRP looks forward to continued dialogue with ECCC and other Intervener and affected parties.

Adaptive management thresholds for PM_{2.5} and NO₂ will also be included in the revised Dust Management and Monitoring Plan, to be submitted for review and approval prior to commencement of remediation activities. Currently, action levels and thresholds for exceedances of air quality criteria at the community stations are outlined in Tables 8-2 and 8-3 of the Air Quality Monitoring Plan (AECOM, 2019a), which is an appendix to the Dust Management and Monitoring Plan. These tables outline the actions to be taken should any community station register an exceedance based on site activities. These include notification, investigation, and corrective and mitigative actions. Any exceedance at a community station is investigated to deduce a cause, whether local, regional, or site-related. These investigations include the examination of weather patterns (wind direction and speed) to determine if transport of airborne contaminants from the GMRP is suspected; conditions at the community stations to confirm proper working order of the air monitoring equipment; other activities occurring at the community stations such increased traffic or spring melt related fugitive road dust; and potential site activities at GMRP that may have contributed to the exceedance. If the investigation determines site activities were a factor in any exceedance, then corrective actions are put in place. This process will be revised and refined in the next iteration of the Dust Management and Monitoring Plan, and as required through the life of the remediation project.

5.0 FISHERIES AND OCEANS CANADA (DFO)

5.1 Interventions

5.1.1 Baker Creek

Request DFO 1

DFO requires the preparation of a Fish and Fish Habitat Protection Plan for review and approval by DFO as part of the Fisheries Act Authorization. The Fish and Fish Habitat Protection Plan should include:

- *final Baker Creek designs;*
- *offsetting plan, including quantification of impacts (e.g., death of fish and habitat lost) and offsetting;*
- *mitigation measures to be implemented to manage and minimize death of fish and downstream impacts to fish and fish habitat during remediation;*



- *how the mitigation measures will be monitored;*
- *a monitoring plan to evaluate the restoration of Baker Creek as functioning fish habitat; and*
- *preliminary concepts regarding adaptive management plans.*

5.1.2 Jo-Jo Lake

Recommendation DFO 2

DFO recommends the completion of a Fish and Fish Habitat Assessment in Yellowknife Bay in areas around historical Jo-Jo Lake (e.g., Trapper Creek) that may be impacted by the remediation of Jo-Jo Lake.

Request DFO 3

If areas adjacent to the historical Jo-Jo Lake are considered to be fish habitat, DFO requires the following information be included in a Fish and Fish Habitat Protection Plan:

- *final designs;*
- *offsetting plan, including quantification of death of fish and quantification/descriptions of habitat lost and offset;*
- *mitigation measures to be implemented to manage and minimize death of fish and impacts to fish and fish habitat during remediation;*
- *how the mitigation measures will be monitored;*
- *a monitoring plan to evaluate the fish use of the remediated historical Jo-Jo Lake area; and*
- *preliminary concepts regarding monitoring and adaptive management plans.*

5.1.3 Foreshore Tailings Area

Recommendation DFO 4

DFO recommends the completion of a Fish and Fish Habitat Assessment in Yellowknife Bay in the Foreshore Tailings area.

Request DFO 5

If the Foreshore Tailings area is considered to be fish habitat, DFO requires the following information be included in a Fish and Fish Habitat Protection Plan:

- *final Foreshore Tailings cover designs;*
- *offsetting plan, including quantification of death of fish and quantification/descriptions of habitat lost and offset;*



- *mitigation measures to be implemented to manage and minimize death of fish and impacts to fish and fish habitat during remediation;*
- *how the mitigation measures will be monitored;*
- *a monitoring plan to evaluate the fish use of the remediated Foreshore Tailings area; and*
- *preliminary concepts regarding monitoring and adaptive management plans.*

5.1.4 Nearshore sediments

Recommendation DFO 6

DFO recommends the completion of a Fish and Fish Habitat Assessment in Yellowknife Bay in the nearshore sediments area.

Request DFO 7

If the nearshore sediments area is considered to be fish habitat, DFO requires the following information be included in a Fish and Fish Habitat Protection Plan:

- *final nearshore sediments area designs;*
- *offsetting plan, including quantification of death of fish and quantification/descriptions of habitat lost and offset;*
- *mitigation measures to be implemented to manage and minimize death of fish and impacts to fish and fish habitat during remediation;*
- *how the mitigation measures will be monitored;*
- *a monitoring plan to evaluate the fish use of the remediated nearshore sediments area; and*
- *preliminary concepts regarding monitoring and adaptive management plans.*

5.1.5 Outfall

Recommendation DFO 8

DFO recommends the completion of a Fish and Fish Habitat Assessment in Yellowknife Bay at the proposed Outfall location.

Request DFO 9

If the Outfall location is considered to be fish habitat, DFO requires the following information be included in a Fish and Fish Habitat Protection Plan:

- *final Outfall designs;*
- *offsetting plan, including quantification of death of fish and quantification/descriptions of habitat lost and offset;*



- *mitigation measures to be implemented to manage and minimize death of fish and impacts to fish and fish habitat during Outfall construction;*
- *how the mitigation measures will be monitored;*
- *a monitoring plan to evaluate the fish use of the Outfall; and*
- *preliminary concepts regarding monitoring and adaptive management plans.*

5.1.6 Intake

Recommendation DFO 10

DFO recommends the completion of a Fish and Fish Habitat Assessment in Yellowknife Bay at the proposed Intake location.

Request DFO 11

If the Intake location is considered to be fish habitat, DFO requires the following information be included in a Fish and Fish Habitat Protection Plan:

- *final Intake designs;*
- *offsetting plan, including quantification of death of fish and quantification/descriptions of habitat lost and offset;*
- *mitigation measures to be implemented to manage and minimize death of fish and impacts to fish and fish habitat during Intake construction;*
- *how the mitigation measures will be monitored;*
- *a monitoring plan to evaluate the fish use of the Intake; and*
- *preliminary concepts regarding monitoring and adaptive management plans.*

Response to DFO Intervener Recommendations and Requests

The GMRP has reviewed DFO Recommendations/Requests 1-11 (restated above). These requests will be very useful in the preparation of all necessary documentation in the Fisheries Act Authorization process. GMRP has taken the recommendations into consideration and looks forward to cooperating with DFO to meet its requirements. The GMRP will provide the requested material to Fisheries and Oceans Canada through the forthcoming *Fisheries Act* Authorization and review process.



6.0 GIANT MINE OVERSIGHT BOARD (GMOB)

6.1 Freeze Program - Future Research and Reversibility

Recommendation GMOB 1

The Waste Management Plan should be updated to include the commitment to place arsenic-impacted materials into the pits and Chamber 15 in a manner that fully documents the type, quantity, location and placement of the materials and to develop an extraction strategy. The Waste Management Plan should describe where this information will be found after construction is complete (for example, in the As-Built reports and/or the Reclamation Completion Report).

Response to GMOB 1

The GMRP agrees to update the Waste Management Plan to reflect the commitment to document the type, quantity, location and placement of arsenic-impacted materials in Chamber 15 or B1 pit. The GMRP does not agree with the requirement to develop an extraction strategy within the Waste Management Plan, as any extraction strategy may be directly informed by the future treatment technology. Once remediation activities are complete for a given component, documentation will be provided in the Reclamation Completion Report. The GMRP believes the Reclamation Completion Report is the appropriate location for this type of documentation, rather than the Waste Management Plan.

6.2 Pit Filling

Recommendation GMOB 2

There should be further discussion and engagement regarding the closure of the pits prior to the GMRP submitting its final Design Plan for this component. Further discussions would be informed by:

- *Information from the QRA process that is relevant to pit filling;*
- *Updated estimates of the amount of borrow that would be needed for different pit-filling scenarios (e.g., partial fill, fully filled);*
- *Additional information on the consequences of additional quarrying - including new disturbances outside the minesite, water contamination from blasting, the need to reclaim the new quarry sites, greenhouse gas emissions, etc; and,*
- *With respect to the preference of some parties to fill and cover the pits in order to prevent clean surface water getting into the underground, a trade-offs analysis that considered the following factors could be helpful:*
 - *The amount of water that will go into the pits and underground versus the impacts caused by quarrying (both during operation and post-closure);*
 - *The total reduction of infiltration (and, therefore, the contamination of clean water) over the site and the relative amount of water changes.*



Response to GMOB 2

Public engagement meetings on Borrow are set for December 3-5, 2019.

The GMRP understands that the principal concern raised by GMOB with respect to the placement of fill in pits is related to the amount of borrow material that will be required to do this, and the related impacts with that borrow development. The GMRP has already engaged with stakeholders regarding placement of fill in the pits, including GMOB (during SDE). Engagement indicated supported the concept to fill the pits including support from YKDFN and other stakeholders and provided direction in design choices.

The GMRP fully understands that borrow development is an important issue for stakeholders, and there is a general desire for more clarity on how much borrow will be obtained and from where. This is being addressed through two components. Firstly, within the context of ongoing design for pit fill placement, the advancement of the design must incorporate quarry objective Q1 (*“New disturbance due to borrow quarry areas is minimized, to the extent practicable”*). This has led to a preference for partial-fill versus complete-fill approaches where this is capable of meeting closure objectives for the pits. Secondly, the GMRP has already committed to further engagement on borrow development. The GMRP considers this engagement to be the key venue to provide more detail on borrow needs and alternatives, informed by advances in the design.

The GMRP agrees that the Design Plan for pit closure will address any relevant input from the QRA process (see Recommendation GMOB 4).

6.3 Engagement Plan and Communication

6.3.1 Engagement Plan

Recommendation GMOB 3

GMOB believes there are a number of pending engagement activities that are not well captured within the current Engagement Plan. The Engagement Plan should be re-submitted within six months and include an updated Table 7.1 that includes specific engagement triggers related to items that could influence the Design Plans.

Response to GMOB 3

The GMRP recognizes the need to update Table 7.1 Engagement Plan (Trigger Table; CIRNAC and GNWT, 2019b) to reflect commitments made through this process and to reflect the changes in the proposed submission process. The GMRP commits to submitting a revised Engagement Plan within six months of the Water Licence issuance.

6.3.2 Quantitative Risk Assessment

Recommendation GMOB 4

The Water Licence should require the Design Plans and the site-wide Management and Monitoring Plans to contain a section describing how relevant QRA results have been incorporated/addressed.



Response to GMOB 4

The GMRP agrees that it is important to document the QRA findings and to demonstrate how these have influenced the design of the Project. During Technical Session #2, the GMRP indicated that the Design Plans would include a section that describes relevant results of the QRA (MVLWB, 2019c, see page 75). This section will also outline how these findings have been incorporated into the design of the component. The GMRP has also previously indicated that the Management and Monitoring Plans could include a section that describes relevant QRA findings or assumptions.

Recommendation GMOB 5

The Water Licence should require the CRP to include a section summarizing the results of the QRA as a whole and describing how relevant results have or will be incorporated into the Design Plans and Management and Monitoring Plans. Alternatively, the Water Licence could require a standalone report summarizing the QRA results; in this latter case, the report would not need to be for Board approval.

Response to GMOB 5

While the GMRP is committed to include findings from the QRA into design and management of the site (see response to GMOB4), GMOB's recommendation may not be necessary to achieve this important goal. Measure 5 requires the QRA be completed "before the Project receives regulatory approvals". The GMRP has committed to producing a QRA report and making that report available to the public through its existing SharePoint site, and to holding an engagement session(s) to acquaint stakeholders with the findings of the QRA. The GMRP will notify the MVLWB at the time the QRA Report is made public. The expected timeline is January – March 2020. The GMRP submits that the issuance of the QRA Report and the documentation of the results and influence of the QRA on the design of the Project in the Design Plans (and Management and Monitoring Plans where applicable) will be sufficient to demonstrate that the Project has met the intent of Measure 5. The GMRP does not see a benefit to re-submitting the CRP with a section specific to the QRA, however the GMRP will not object should the MVLWB decide to grant GMOB's request for a QRA report to be submitted to the MVLWB.

6.3.3 Contaminated Soils

Recommendation GMOB 6

The GMRP should conduct additional engagement to ensure that the public at large fully understands the level of use assumed under the current HHERA. The outcomes of this engagement should be reported in the Design Report for this Project component.

Response to GMOB 6

The GMRP submits that extensive engagement occurred on the assumptions and results of the HHERA at the time of its completion, as documented in the Engagement log. Engagement on residual risks associated with the site will continue through various Project venues as outlined in the Engagement Plan, including the Project website, newsletters and annual Public Forums, however the GMRP disagrees that these should be documented in the Contaminated Soils Design Report (the GMRP interprets this to refer to the proposed 'Design Plans'). Extensive engagement to support design decisions has already been



completed, as documented in the CRP, and any ongoing risk communication efforts will be carried out as per the Engagement Plan.

GMOB is of the opinion that additional engagement on this topic is required to confirm that the risk assessment scenarios are appropriate for the expected level use in the future. The GMRP disagrees and notes that the HHERA consultant study team engaged with the Working Group multiple times, as well as with YKDFN members and received input into the risk assessment assumptions and scenarios that were selected. Furthermore, during the QRA engagement sessions, stakeholders identified potential scenarios in which administrative controls or risk communication fail and areas are used in a way not evaluated in the HHERA. The QRA is currently analyzing the risk associated with these scenarios. The results of that analysis will be presented through face-to-face engagement sessions in early 2020 and any relevant results will be included in the Contaminated Soils Design Plan or associated Management Plans.

GMOB also indicates that engagement should establish a strategy for communicating the level of risk to future generations. The Project's Site –Wide Object (SW4) and associated Closure Criteria specifically address the issue of risk-communication: "SW4 Residual risks are identified, and local residents have been, and continue to be, informed of residual hazards (post-remediation)". In addition, the Environmental Agreement requires the GMRP to develop a Perpetual Care Plan, which includes requirement to develop strategies to communicate with future generations.

Recommendation GMOB 7

Management strategies for on-site soils should align with strategies used for off-site areas that are impacted to a similar level. This approach should be described in the CRP and ultimately documented in the Post-Closure Monitoring and Maintenance Plan.

Response to GMOB 7

The GMRP has proposed that the Post-Closure Monitoring and Maintenance Plan (PMMP) be submitted to the Board for approval one year prior to completion of Phase 2. The GMRP submits that it would be appropriate to articulate the long-term risk management of on-site soils at that time. While risk management activities outside the Project Boundary are not part of the scope of the Project, it is sensible to strive to align the approach to risk management between the Project Boundary and surrounding lands.

6.3.4 Construction Schedule

Recommendation GMOB 8

The GMRP Team should proactively engage with members of the public potentially affected by remediation activities to identify methods for reducing impacts during construction. A summary of how the GMRP has attempted to address resident's concerns about construction activities and scheduling should be provided in the final Construction Plan for each Project component.

Response to Recommendations GMOB 8

The GMRP submits that communication requirements in the Construction Plans is not appropriate. If there are communication requirements to mitigate potential impacts from remediation activities, the site-



wide management and monitoring plans are the more appropriate documents. For example, if there are notification requirements for blasting activities, it would be more appropriate to include these in the Borrow and Explosives Management and Monitoring Plan. GMRP has committed to pre-engagement on the next version of management plans (Recommendation CoY 9).

Recommendation GMOB 9

The GMRP should update its construction schedule at least once a year and share this information with the public. The updated construction schedule should also be either a standalone requirement of the Water Licence or required as part of the Annual Water Licence Report.

Response to Recommendation GMOB 9

The GMRP has proposed in the Draft Water Licence to include an outline of engineering work and closure activities planned for the upcoming calendar year with estimated timelines for Construction Plan submission(s) and implementation in the Annual Water Licence Report. The GMRP will also share this information with the public at the annual Public Forum and through other engagement tools as outlined in the Engagement Plan. GMRP does not consider any specific Water Licence conditions necessary.

Recommendation GMOB 10

The Water Licence should include a requirement that run-off from engineered structures be collected and treated until criteria in the approved Water Management and Monitoring Plan are met and approval of the Inspector be required prior to allowing direct discharge of site run-off to the environment.

Response to GMOB 10

The GMRP presented supporting evidence for inclusion of runoff criteria in the Water Management and Monitoring Plan in its application and is therefore in agreement with GMOB. The surface runoff criteria should remain within the Water Management and Monitoring Plan for Board approval, rather than in the body of the Water Licence. The GMRP supports a revision to the draft Water Licence submitted such that the surface runoff criteria are included in the Water Management and Monitoring Plan (Schedule 3, Condition 1; CIRNAC and GNWT, 2019c). Surface runoff from Tailings Containment Areas (TCA), remediated pits and the landfill will be collected, conveyed to the underground mine pool, and treated. Flow to the receiving environment will be established once concentrations are confirmed to be at or below the surface runoff quality criteria outlined in the approved Water Management and Monitoring Plan. GMRP is agreeable to the Inspector's approval required prior to allowing direct discharge of site-runoff to the environment.

Recommendation GMOB 11

The GMRP should do additional work to identify and support appropriate site-specific criteria for assessing run-off quality. This work should be included in the Phase 2 update to the Water Management and Monitoring Plan. At a minimum, information in the Water Management and Monitoring Plan regarding these criteria should include the following:

1. *Considerations for site-specific criteria that are protective and representative of potential water quality issues at the site;*



2. *A rationale for the selected criteria;*
3. *The SNP locations where the criteria are met; and*
4. *A discussion regarding the achievability of the criteria (i.e., number of samples over time/seasons etc.) and a process for determining when the criteria have been achieved and monitoring can be discontinued.*

Response to GMOB 11

The GMRP agrees to re-visiting the proposed surface runoff criteria in the revised Water Management and Monitoring Plan (WMMP), with consideration of GMOB's recommendation. The anticipated water quality of runoff from engineered covers is under review, including conducting geochemical studies of potential cover materials. The GMRP will be better positioned to address GMOB recommendations 11-1,2 and 4a (achievability) in the next version of the WMMP. The SNP locations (recommendation 11-3) will continue to reside in the Standard Operating Procedures, however relevant stations will be referenced in the WMMP. The process for determining when the criteria have been achieved and monitoring can be discontinued (i.e., request 11-4b) is already provided in Section 3.4.2 of the WMMP.

6.4 Effluent Quality Criteria

Recommendation GMOB 12

In addition to the EQC already proposed by GMRP, EQC should be included in the Water Licence for chloride, sulphate, nitrate and ammonia for the ETP. The concentrations proposed by the GMRP in the October 10, 2019 Information Request Response appear to be adequately protective of Baker Creek.

Response to GMOB 12

The GMRP proposed EQC for chloride and sulphate for ETP effluent (Table 1, Response to IR #03 from Technical Session 2). The GMRP also proposed EQC for nitrate and ammonia for the ETP (Table 7 of the Response to IR #06 from Technical Session 2). Should the MVLWB set EQC for chloride, sulphate, nitrate and/or ammonia for the ETP discharge, the GMRP recommends that the EQC be set at the values proposed in IR #03 and #06. In their respective interventions, GMOB indicated the proposed EQC “*appear to be adequately protective of Baker Creek*” and Slater Environmental stated “*the provided rationales seem reasonable*”.

Recommendation GMOB 13

In addition to the EQC already proposed by GMRP, EQC should be included in the Water Licence for chloride, sulphate, nitrate and ammonia for the WTP. The sulphate EQC for the WTP could be set at the same level as for the ETP. Lower EQC could be considered for chloride based upon model predictions from 2026 onwards. The nitrate and ammonia EQC proposed by the GMRP in the October 10, 2019 Information Request Response appear to be adequately protective of Yellowknife Bay.



Response to GMOB 13

Similar to the response to Recommendation GMOB 12, should the MVLWB set EQC for nitrate and ammonia for the ETP or WTP, the GMRP recommends that they be set to the values proposed in Table 7 of the Response to IR #06.

The GMRP disagrees with GMOB that EQC for sulphate and chloride are required for the new WTP. The GMRP has submitted evidence to support this position, including low discharge volumes, high assimilative capacity of the receiving environment, concentrations at the mixing zone boundary well below chronic guidelines for chloride and sulphate, and no viable option for salt removal or treatment. Concentrations of chloride and sulphate were predicted to be less than 10 mg/L and 20 mg/L, respectively, at the edge of the mixing zone in Yellowknife Bay (EQC Report, CIRNAC and GNWT 2019d). For concentrations at the mixing zone to approach water quality objectives, end-of-pipe concentrations for both parameters would likely need to be greater than 5,000 mg/L (refer to response to IR#04 from Technical Session 2). In the absence of setting EQC in the Water Licence, the GMRP intends to monitor and report total dissolved solids (TDS) and its constituent ion concentrations through the SNP and AEMP. The GMRP will not discharge effluent that is acutely toxic, in accordance with the Fisheries Act. Comparisons will be made to model predictions annually and reported to the MVLWB for review.

Recommendation GMOB 14

The Board should consider whether EQC for cyanide and radium-226 are necessary given they do not seem to be parameters of potential concern.

Response to GMOB 14

Effluent quality criteria for radium-226 and cyanide were proposed simply to align the Water Licence with MDMER requirements, thereby keeping all relevant end-of-pipe limits in one place. The GMRP agrees with GMOB that the federal MDMER limits for radium-226 and cyanide will be met regardless of whether they are included in the Water Licence. As such, if the MVLWB decides that including the MDMER limits in the Water Licence would cause confusion for reviewers, then the GMRP agrees that the limits can be excluded from the Water Licence.

6.5 Aquatic Effects Monitoring Program

Recommendation GMOB 15

A single AEMP should be developed for the entire Project. This program can evolve as the discharge from the Project moves from the current ETP and Baker Creek to the new WTP and direct discharge into Yellowknife Bay.

Response to GMOB 15

The GMRP would like to clarify GMOB's statement that: "GMRP proposes that remediation success will be monitored and reported under other plans such as performance monitoring reports, construction monitoring plans and the Fisheries Act Authorization" (GMOB Intervention, p 30). The GMRP does not



propose that remediation success would be monitored or reported under construction monitoring plans, nor has GMRP proposed “performance monitoring reports.”

GMRP has stated that post-construction monitoring results relevant to closure criteria will be made available in the Annual Water Licence Report during active remediation. The Annual Water Licence Report will also include updates on the progress of the CRP. Once the Project transitions from Active Remediation to Post-Closure (i.e., once the Final Closure and Reclamation Report has been submitted), the GMRP will monitor the remediation success under the Post-Closure Monitoring and Maintenance Plan and will communicate and evaluate progress in the Performance Assessment Reports.

The GMRP agrees with the recommendation to have a single AEMP that evolves over time through the standard MVLWB re-evaluation process. The GMRP proposes that the current ‘Baker Creek AEMP Study Design’ be approved and renamed to “AEMP Study Design”. The concepts outlined in the draft Yellowknife Bay AEMP Study Design will be retained and used for upcoming engagement and future versions of the AEMP Study Design. The focus of the AEMP will change to Yellowknife Bay. Based on the MVLWB’s standard 3-year schedule for AEMP re-evaluations, the 2026 AEMP will shift focus to Yellowknife Bay, as discharge to Yellowknife Bay is scheduled to commence in 2026.

Recommendation GMOB 16

The overall aquatic monitoring for the Project should be designed to measure improvements to the aquatic receiving environment as well as potential impacts. Improvements to the aquatic environment may be reflected in monitoring conducted under other programs, e.g., DFO authorization or Community Based Monitoring; the results of these programs should be summarized in the AEMP Annual Reports.

Response GMOB 16

The GMRP agrees with a brief summary of the various aquatic/biological monitoring programs in a central location. However, the location of that summary will change over time, as outlined below. Detection of improvements will not occur until the end of remediation and into post-closure; there is ample time to discuss and refine format and reporting. Therefore, the GMRP submits a Water Licence clause directing the Project on where to report all these programs is not necessary.

Early years of remediation where habitat is not yet restored: The AEMP and the SNP are the primary monitoring tools. The GMRP agrees with GMOB and AEMP results will be reported via the AEMP Annual Report. Additional water data will be found in the SNP program in the Water Licence Annual Report.

The AEMP will focus on detecting the possible negative effects of construction and release of treated effluent. In general, no positive effects to aquatics are expected until late in remediation. This is because the restoration of Baker Creek occurs near the end of remediation after the contaminated material has been removed, tailings are covered, and the freeze has begun.

Late remediation after restoration of aquatic habitat: The GMRP proposes that the Water Licence Annual Report will be the location for summaries of aquatic monitoring in late remediation. This is because aquatic monitoring at this stage of remediation will be conducted either through the *Fisheries Act* Authorization(s) for Baker Creek and Yellowknife Bay, and an AEMP for Yellowknife Bay and the anticipated Community-based monitoring program (scope yet to be determined). These programs will assess the expected early positive improvements to aquatics related to habitat restoration and the new



water treatment plant operation as well as possible negative effects related to treated effluent discharge to Yellowknife Bay.

Post-Closure: Post-Closure Monitoring and Maintenance Plan will conduct water quality and remaining aquatic monitoring. Annual results will be reported in the Annual Water Licence Report. The success of remediation will be measured against the closure criteria and reported in the Performance Assessment Report, nominally proposed to occur every five years.

In summary, in alignment with the MVLWB AEMP and Closure guidance documents, the overall aquatic monitoring results are expected to be summarized in reports as follows:

1. Early Remediation: Annual AEMP Report
2. Late Remediation: Annual Water Licence Report
3. Post-Closure: Performance Assessment Report (PAR)

6.6 Plan Content and Approvals

6.6.1 Accounting for Greenhouse Gas Emissions

Recommendation GMOB 17

Future decisions related to closure options and activities should include an assessment of the relative GHG emissions of different remediation scenarios. Selected options should demonstrate that emissions have been minimized to the extent feasible.

Response to GMOB 17

The GMRP agrees fully that GHG emissions and their reduction are important globally. The GMRP does not agree that the few remaining closure option reviews (final borrow locations and final foreshore tailings design) require an assessment of the GHG emissions nor does the GMRP agree that it is a useful criterion to drive design priorities or within the mandate of the MVLWB.

The principal source of GHG emissions from the implementation of the GMRP will be through the operation of heavy construction equipment. The use of heavy equipment for earthmoving activities is unavoidable, like any other remediation or mine closure project. There are no practical alternatives to conventional earthmoving equipment to carry out the remediation works. Given that heavy construction equipment must be used, the principal tool available to minimize GHG emissions is to minimize the total fuel use.

Further, the GMRP has committed to the efficient use of borrow materials on site to prevent blasting and hauling more material than required, which would also reduce GHG emissions. Closure criterion Q1-1 states that the Project will preferentially use by-products of remediation as borrow.

The closure activities for the Project have been developed based on the agreed-upon Project goals and objectives of the Project. Within that context, engineering design has been carried out and will continue to be carried out to attain those objectives in the most efficient manner. The GMRP submits that a Water Licence condition related to demonstrating the minimization of GHG emissions to the extent feasible is neither necessary nor a reasonable design driver.



6.6.2 Design Plans and Construction Plans

Recommendation GMOB 18

In addition to the content that the GMRP Team has already proposed, Design Plans should include the following additional information:

- A description of how the QRA results have been incorporated (in addition to the results themselves);
- A summary of pre-engagement done with affected parties (e.g., how they worked with the Sailing Club to minimize disruption);
- A summary of the Independent Peer Review Panel's opinion regarding the closure approach adopted by the GMRP; and
- How the design addresses site wide closure criterion SW3-2 to "minimize perpetual care requirements".

Response to GMOB 18

As discussed in Section 1.3, the GMRP agrees the Design Plans should include the following content:

- Summary of QRA Results as they relate to the specific component and how design has addressed these;
- Summary of Engagement and Traditional Knowledge that has informed the design since the CRP (if applicable); and
- Description of how the design meets component and site-wide objectives and criteria.

GMOB recommends that the GMRP include a summary of the Project's Independent Peer Review Panel (IPRP)'s advice as it pertains to a component in that component's Design Plan. GMOB indicates in its intervention that this recommendation was made in an effort to help reviewers keep pace with submissions and thereby help the Project continue to advance without significant delays due to issues arising during a review period. The GMRP appreciates GMOB's efforts to help both the Project and reviewers find a mutually acceptable method to facilitate the review process, however in this case, the GMRP does not agree with the recommendation. The IPRP provides expert advice to the GMRP on technical aspects of the Project.

The GMRP and its engineering consultants have multiple levels of quality assurance and senior review, similar in principle to how other proponents may have internal review or quality assurance processes. The MVLWB does not generally require proponents to provide the details of its internal review process but rather requires stamped engineering drawings for designs to confirm that the designs are technically sound. The GMRP agrees that it is important that designs be properly developed, reviewed and approved and has even included closure criteria requiring stamped drawings that meet closure objectives to that end.

While the MVLWB requires drawings issued-for-construction, the purview of the MVLWB and reviewers is not necessarily to review the adequacy of the detailed designs of structures or components, but rather to



review how the use of water and deposition of waste is proposed to be undertaken and how impacts will be managed and mitigated. The IPRP's reviews do not share that focus.

The GMRP recognizes that GMOB's mandate is different than the MVLWB and has agreed to provide to GMOB a detailed accounting of the IPRP feedback to the Project and how this feedback has been addressed to-date. As the design progresses further, the Project can continue to provide a summary of IPRP reviews to GMOB.

6.6.3 Closure and Reclamation Plan

Recommendation GMOB 19

Only sections of the Closure and Reclamation Plan where the closure approach is more final and that describe activities that are independent of the other sections of the plan should be approved upon licence issuance. These include the:

- *Freeze Program;*
- *Water Treatment Plant and Outfall systems;*
- *Buildings and Site Infrastructure; and*
- *Landfill.*

Response to GMOB 19

As discussed in Introduction Section 1.3, the GMRP disagrees with this recommendation. The Project components are highly interconnected, and the proposed activities are not independent. Due to the interconnectedness of Project components, approving only these sections of the CRP would not permit their implementation, and would result in an unnecessary delay of the entire Project.

6.6.3.1 Water Treatment Plant Discharge Location

Recommendation GMOB 20

A Reclamation Research Plan should be developed to assess whether there would be benefits to discharging WTP effluent upstream in Baker Creek during portions of the year.

Response to GMOB 20

The GMRP submits that it is inappropriate to develop a Reclamation Research Plan for discharge to Baker Creek, given that Measure 14 in the Report of Environmental Assessment requires the discharge of water treatment plant effluent through a near shore outfall immediately offshore of the Giant Mine site. The siting of the outfall was selected through engagement with stakeholders. Effluent Quality Criteria have been developed for the near shore outfall and the GMRP is seeking approval for these criteria in the Water Licence.



6.6.4 Site Wide Management and Monitoring Plans

Recommendation GMOB 21

Definitions of Project Phases 1, 2 and 3 should be integrated into the Water Licence. Possible wording could be:

- *Phase 1: phase of the Project in which activities are undertaken to support the care and maintenance of existing site conditions prior to submission of the Construction Plans and commencement of remediation;*
- *Phase 2: phase of the Project in which approved closure activities are undertaken; this phase includes detailed design of engineered components, component-specific remediation/construction activities, and monitoring to confirm component performance;*
- *Phase 3: post-closure monitoring and maintenance phase of Project which begins after all site components have been remediated as per the approved CRP and submission of the Final Closure and Reclamation Report.*

Recommendation GMOB 22

Portions of the site-wide management and monitoring plans relating to Phase 1 of the Project could be approved upon issuance of the Water Licence. Alternatively, a condition could be added to the Water Licence that current care and maintenance activities (i.e., Phase 1 work) could be continued without requiring approval of the management plans. The sections relating to Phases 2 and 3 should not be approved pending further updates that incorporate the results of the Water Licence process.

Response to Recommendations GMOB 21 and 22

In the Updated Project Description (Section 2.3; CIRNAC and GNWT, 2019e), the GMRP provided definitions of Project phases to give context to Parties about how the proposed remediation schedule would proceed. Although Phases have been useful for process discussions, the GMRP is unclear whether defining these Phases in the Licence would provide any added clarity.

The GMRP is in an unusual situation where care and maintenance activities at the site are occurring in advance of the issuance of the Water Licence and approval of management plans. The GMRP has proposed that the submitted management plans be approved by the Board at issuance to provide clarity on the requirements during care and maintenance. Given the anticipated timing of the Water Licence issuance in summer of 2020, and the proposed start of remediation activities (landfill, Town Site demolition, and AR-1 freeze pad construction) in the spring of 2021, the GMRP proposes to resubmit management plans which include the scope of these remediation activities as well as current site care and maintenance, rather than focusing efforts to develop plans devoted only to care and maintenance of the site.



Management plans are guides for on-site staff and contractors to confirm their activities comply with applicable regulatory requirements and overall Project direction. While management plans are required under the regulatory framework, the overall intended purpose is to inform the staff and contractors on site how to manage and monitor their activities during the implementation of remediation project to achieve compliance with regulations.

6.6.5 Post Closure Monitoring and Maintenance Plan

Recommendation GMOB 23

The Water Licence should contain a requirement for submission of a Table of Contents for a Post-Closure Monitoring and Maintenance Plan to the Board for review and approval in 2025.

Response to GMOB 23

The GMRP is amenable to a licence condition which requires the submission of a Table of Contents for a Post-Closure Monitoring and Maintenance Plan to the Board for review and approval in 2025.

6.7 Licence Term

Recommendation GMOB 24

The licence term should align with the active remediation of the site, and a new licence should be required when the site transitions to post-closure (Phase 3). This would mean a term of 12 to 15 years for MV2007L8-0031.

Response to GMOB 24

The GMRP agrees that a new Water Licence may be required when the site transitions to post-closure (Phase 3). The GMRP submits that the requested 20-year term provides the necessary Project flexibility to adapt to any unknown factors that may influence the Project schedule. The GMRP submits that a 20-year term allows the MVLWB, the GMRP, and all Parties to avoid a potential burdensome renewal process prior to the completion of remediation activities. Given that Licence requirements Post-Closure would likely be less onerous compared to those required during active remediation, the GMRP does not see a risk to the requested Licence term. If Active Remediation is completed prior to a required renewal process, the GMRP will submit a Licence application for its Post-Closure Water Licence prior to expiry of the current Licence.



7.0 NORTH SLAVE MÉTIS ALLIANCE (NSMA)

7.1 Issue 1: Baker Creek Aquatic Effects Monitoring Plan (AEMP) – Widespread Soil and Water Contamination.

Recommendation NSMA 1

NSMA recommends additional monitoring studies on local lakes and on the aquatic biota that live in lakes within 30km of Yellowknife, notably if these lakes are used for recreational activities such as fishing and swimming. The Board should consider requiring an implementation plan for risk communication to the public about this affected area and how contamination affects recreational activities.

Response to NSMA 1

The GMRP submits that no Water Licence term or condition is necessary to address this issue, as legacy contamination off-site is outside the scope of the Project and the jurisdiction of the MVLWB.

The GNWT Department of Environment and Natural Resources (ENR) and other partners continue to monitor and fund research with respect to legacy arsenic contamination in water, sediments, soils, and fish in the Yellowknife area. Results are continually shared with the GNWT Department of Health and Social Services (HSS) and are used to inform public health advice for arsenic. ENR staff is currently working to update the legacy arsenic website so that it better consolidates and communicates information for the current Legacy Arsenic Human Health Risk Assessment (HHRA) and legacy arsenic contamination in general.

With respect to risk-communication, a sub-group has been established by the GNWT, upon original request from the YKDFN through the GNWT-led HHRA, to further understand the linkages between the various arsenic studies undertaken by the GMRP (e.g., Human Health and Ecological Risk Assessment (HHERA), Quantitative Risk Assessment (QRA), Health Effects Monitoring Program (HEMP)) and other researchers, to improve community and public risk communication. The objective of the sub-group is to work together with the relevant parties to identify solutions and make improvements to communication tools (e.g., Public Health Advisory revisions and subsequent appropriate communication methods). The GMRP will document engagement initiatives relative to the Project within the engagement log.

The GNWT has recently extended the invitation to North Slave Métis Alliance to participate on the monthly calls and looks forward to working together on these initiatives.



7.2 Issue 2: Baker Creek AEMP - Potential Contamination of Reference Sites

Recommendation NSMA 2

NSMA asks that the Proponent clarify whether the Baker Creek AEMP seeks to compare water quality, toxicity, and benthic invertebrate and fish health of contaminated locations in Baker Creek to reference points in Yellowknife Bay (also contaminated); if not, new reference points should be identified.

Response to NSMA 2

The GMRP acknowledges NSMA comments that the current reference areas versus the future reference areas may be unclear.

Current Reference Areas

In the Baker AEMP Design Plan for MVLWB approval, the GMRP outlined the reference areas for Baker Creek for benthos and fish and water (see Section 6.3):

- the Yellowknife River (fish and benthos);
- the mouth of the Yellowknife River (benthos), which is in Yellowknife Bay; and
- Horseshoe Island Bay (fish only), which is in Yellowknife Bay, near Dettah.

For water quality, the reference area is Baker Creek above the site (SNP 43-11), as well as water quality in the areas where fish and benthos are collected.

The areas were chosen as a balance of similar habitat and local geology and as much 'outside of the influence of contaminants from the mine' as possible. Each of these areas was approved by a technical advisory panel through the Environmental Effects Monitoring program under the Metal and Diamond Mining Effluent Regulations. The GMRP proposes that these reference areas be retained for consistency with the last 15 years of monitoring. This is appropriate for the remaining few years of monitoring in Baker Creek while treated effluent is still being discharged to the creek. The GMRP submitted as part of its Responses to reviewer comments the Technical Memo – Giant Mine Aquatic Monitoring – Current Reference Areas (Golder, 2019a), which provides more information regarding the selection of the reference site for the Baker Creek-focused AEMP.

Future Reference Area(s)

The GMRP agrees with the NSMA that it will be important to define an appropriate reference area(s) for the AEMP once the treated effluent is discharged to Yellowknife Bay via an outfall. The GMRP noted that a new reference area would be needed in the future (see Section 8.3.1 of the conceptual Yellowknife Bay AEMP Design Plan; CIRNAC and GNWT, 2019f). The GMRP proposed a special study to review appropriate reference areas for the outfall area of Yellowknife Bay. This special study would be done with input from NSMA and YKDFN and other parties through an aquatic engagement process. The GMRP assumes that this special study may take a few years to complete and that annual updates would be given to the MVLWB as part of the AEMP Annual Report. Once the study is complete and the outfall is



constructed, a final decision on a reference area will be proposed for approval in a revised AEMP Study Design.

7.3 Issue 3: Baker Creek Monitoring Frequency.

Recommendation NSMA 3

NSMA requests that water sampling be conducted and that the extent of the plume be measured monthly during all open water conditions during the first year of the program.

Response to NSMA 3

Sample Frequency: The GMRP will collect samples at SNP 43-11 (upstream of site, as a reference area) monthly during the open water season (see AEMP Design Plan [CIRNAC and GNWT, 2019f) and Standard Operating Procedures Table 3-1 [CIRNAC and GNWT, 2019a]). This station is frozen for most of the winter so samples can only be collected during the open water season; also, Baker Creek is a seasonal stream so in late fall flows can be absent or so low that samples cannot be collected.

The GMRP will collect samples at SNP 43-5 (lower Baker Creek just before the mouth of the creek, prior to entering Yellowknife Bay) twice per month (see Table 3-1 of the Standard Operating Procedures [CIRNAC and GNWT, 2019a). This station is critical to understanding the water quality in the creek before it leaves the Site. It also incorporates the runoff from the highway and the City's landfill and the parking lot area. As Baker Creek is seasonal, this station also freezes to the bottom from October to April. Water can usually be sampled at this station from mid-May to late September.

Plume Sampling:

While the existing ETP is discharging to Baker Creek: The GMRP does not agree with the need to conduct a formal plume study for Baker Creek while discharge is from the ETP to the creek. The plume for discharge to Baker Creek is well understood (see EQC Report Section 2.5 ; CIRNAC and GNWT, 2019d) as it has been monitored in the past and modelled. However, the GMRP will agree to continued monitoring of Baker Creek as it enters and disperses into Yellowknife Bay. The GMRP will sample SNP Station SNP 43-12 at the end of the breakwater where Baker Creek meets Yellowknife Bay (see SOP). As well, under the Baker Creek AEMP Study Design (Section 7.8.1.1, Special Study Yellowknife Bay; CIRNAC and GNWT, 2019f), surface water samples will be collected in late winter, spring, summer, and fall from stations farther into Yellowknife Bay (i.e., near the proposed future outfall location, near edge of the proposed future mixing zone in Yellowknife Bay, and several stations beyond the edge of the future mixing zone into Yellowknife Bay). These stations serve the purpose of further characterizing existing conditions including mixing in Yellowknife Bay, and to support modelling the future conditions with the new outfall. This information will be reported in the AEMP Annual Report.

Once the new WTP is discharging to Yellowknife Bay: SNP 43-12 near the end of the breakwater will continue to be monitored during open-water (when Baker Creek flows into Yellowknife Bay). Three new SNP stations will be established (SNP 43-27a, b, c) at the edge of the mixing zone which will be sampled monthly year-round. As well, GMRP expects a formal plume study will be required once the new outfall is



installed and discharge is released into Yellowknife Bay. This is specified in the draft Water Licence (Part I, Item 6) and will be proposed under an updated AEMP Study Design.

7.4 Issue 4: Yellowknife Bay Special Study - Surface Water Monitoring Frequency

Recommendation NSMA 4

NSMA recommends that, prior to post-development monitoring, water samples be collected monthly to establish any variability within seasons.

Response to NSMA 4

The GMRP disagrees with increasing the frequency of sampling in Yellowknife Bay from quarterly to monthly. The GMRP has the benefit of multiple years of sampling data from Yellowknife Bay (see Appendix B, Table B-1 of the Conceptual Yellowknife Bay AEMP Study Design for a listing of stations and maps of locations; CIRNAC and GNWT, 2019f). The annual patterns were shown graphically in the Baker Creek AEMP Study Design (Appendix B). A brief discussion of the seasonal patterns was provided in Section 4 of the Conceptual Yellowknife Bay AEMP Study Design including water temperature profiles. Further discussion of the seasonal patterns was outlined in Section 2.5 of the EQC report and Section 4.3.5 of the 2018 Annual Water Monitoring Report (Golder, 2019b). Quarterly sampling of numerous stations covering a wide spatial extent is an appropriate study design given the breadth of existing data, that a 3D hydrodynamic model was developed for Yellowknife Bay, and that it calibrates well with the existing data.

7.5 Issue 5: Impacts of Treated Effluent and Sediment on Fish and Benthic Invertebrates

Recommendation NSMA 5

NSMA requests that fish and benthic invertebrate communities be monitored annually rather than every three years in order to ensure accurate trends in fish and benthic invertebrate health are documented. NSMA also believes further studies should be undertaken to assess effects of contaminants in water and sediment in Baker Creek on fish and benthic invertebrates.

Response to NSMA 5

The GMRP disagrees that the biological monitoring of Baker Creek should increase in frequency from every three years to annually. It is known that Baker Creek is contaminated, and that this contamination is likely affecting fish growth and diversity of benthic invertebrates. The GMRP proposes to remove the contaminated sediments and treated effluent from Baker Creek during remediation; improvements to the creek are not expected until such time as that is complete. Additional monitoring of Baker Creek under the currently proposed AEMP is related to the effects due to treated effluent and existing contaminated sediment and not related to improvements in the creek in the future.

Baker Creek re-alignment and removal of sediment and construction of new habitat will be done late in remediation once a new water treatment plant and outfall are installed and commissioned. Remediation



will be done in sequence from upstream to downstream and is expected to take a minimum of three years to do Reach 6 to Reach 0. The CRP outlined that there would be a lag time before the fish and benthic invertebrate community recolonized the creek. This recovery would be monitored under the *Fisheries Act* Authorization Habitat Compensation monitoring.

7.6 Issue 6: Modelling – Freeze Optimization Program

Recommendation NSMA 6

NSMA recommends that the optimization study be updated annually or every two years, as new climate predictions become available. NSMA also requests the Board consider requiring implementation of an action plan such that if climate models are not accurately predicting measured changes, a plan is in place to efficiently manage risks to the surrounding environment.

Response to NSMA 6

Please note that the GMRP has recently revised the predicted mean annual air temperature used in its modelling from 6.1 to 7.2 °C as discussed in Response to Reviewer Comments ORS2 Alternatives North – Thomas Katherine 4. The GMRP has modelled the Freeze using COMSOL software. The COMSOL model has used a number of assumptions based on outputs from ICPP and SNAP modelling and data. Annual updates to the COMSOL model are not considered necessary. Rather, the freeze monitoring program will include frequent ground temperature measurements. Comparison of observed ground temperatures to predicted ground temperatures will be conducted annually. Deviation in observed ground temperatures from predicted ground temperatures (i.e COMSOL predictions) will serve as a trigger to update the freeze model. Significant updates to model inputs (such as IPCC RCP revisions) will also trigger model updates. Action will be required if the revised and updated COMSOL model predicts that the Project will not continue meeting its closure criteria in the future.

The GMRP submits that a Water Licence condition is not necessary, as the specifics of these triggers and responses will be included in the Arsenic Trioxide Frozen Shell Monitoring and Management Plan, which will be submitted at the same time as the Arsenic Trioxide Frozen Shell Design Plan.

7.7 Issue 7: Communicating Risk to the Public

Recommendation NSMA 7

NSMA requests that engagement take place to review: 1) the specific location of fencing on-site; 2) potential contaminated off-site locations that would most likely pose a risk to the public in future use of the site; 3) signage on fencing warning the public about the risks of contamination within the fenced area; 4) public awareness and education programs to ensure residents of Yellowknife are aware of the risks on site. This information should then be reported in the Design Report.



Response to NSMA 7

Engagement on site risks to increase public awareness, as well as information on the specific location of fencing and other advances to the design will continue through existing Project venues and tools outlined in the Engagement Plan, including the annual Public forums, website and newsletters. The NSMA is correct in its statement in the intervention that discussions with respect to the communication of residual risks, after remediation activities are complete, will take place through the development and implementation of the Perpetual Care Plan. However, there is always opportunity for the GMRP to improve communications and notifications throughout the Project, and during remediation activities. As stated in response NSMA 1.0, the GNWT is leading a sub-group to improve risk communication. The GNWT has recently extended the invitation to the NSMA to participate on these initiatives.

The GMRP has identified in Section 1.3 the contents of the Design Plans including

- Summary of Engagement and Traditional Knowledge that has informed the design since the CRP (if applicable);

GMRP has commented on the recommendation to include details regarding risk-communication in Design Plans in Response to Recommendation GMOB 6.

7.8 Issue 8: Pit Wall Contouring

Recommendation NSMA 8

NSMA requests that the Board require the Developer to summarize the new considerations for pit wall re-contouring, potential new borrow material sites, and if a preferred course of action has been selected.

Response to NSMA 8

The intent of the Borrow Engagement Sessions in December 2019 is to share information about the current state of borrow design and the process that will be used to finalize decisions. It is also an opportunity for stakeholders to offer input about locations, and design decisions, and for the GMRP to gain a better understanding of what is important to stakeholders. The workshop will also allow for discussion on mitigative measures. A workshop summary report will be issued and can be provided to the MVLWB for the public record prior to the Public Hearing. The GMRP will do a formal report back to stakeholders during the annual public forums in March 2020. The final details will be presented in the Borrow and Open Pits Design Plans, which will be submitted or comment and approval. Therefore, the GMRP submits that a specific Water Licence condition is not required.

7.9 Issue 9: Onsite Revegetation

Recommendation NSMA 9

NSMA recommends that the Board require the Developer hold an engagement period with signatories on the possible locations for revegetation as well as proposed revegetation species.



Response to NSMA 9

Active stabilization using vegetation is planned for locations such as steep slopes near the Townsite to prevent erosion of new material into Yellowknife Bay, and at borrow locations where there are remaining exposed fine-grained sediments to prevent erosion of material. Vegetation success will be measured in terms of erosion control success e.g., by measuring TSS in runoff, with the objective of vegetation to be functional rather than aesthetic.

Specific species of vegetation have not been chosen to date, but the GMRP is committed to the use of native species. GMRP will look for input from affected parties at a future Working Group meeting to discuss options for the selection of appropriate native species. The GMRP submits that a Water Licence condition is not required.

8.0 SLATER ENVIRONMENTAL CONSULTING

8.1 Future Land Use Constraints

Recommendation SEC 1

When issuing authorizations for the GMRP, the Board should incorporate conditions that require the co-proponents to establish appropriate definitive administrative constraints on future land use in parts of the Project area that have soil arsenic concentrations that exceed residential standards but do not include physical barriers. This should include updating of Closure Objectives and Criteria to focus on land use actions rather than only knowledge of risks, and the development and implementation of actions aimed at achieving these Objectives and Criteria. The Board should require progress reporting on the establishment of these constraints and monitoring of their effectiveness.

Response to SEC 1

The ability to designate future land interests (or administrative constraints) does not rest with the applicant; therefore providing progress reporting to define land use actions, or establishment of constraints during the implementation of the remediation activities isn't appropriate for the requested Water Licence. Please refer to Section 1.5.

8.2 Potential Ecological Risks

Recommendation SEC 2: The Board should incorporate conditions in authorizations that require completion of future investigations, as proposed in the Ecological Risk Assessment (HHERA Report), aimed at gaining a better understanding of terrestrial effects of mine-related contaminants both currently and in the future.

Response to SEC 2

The GMRP submits that a condition in the Water Licence for further studies "aimed at getting a better understanding of terrestrial effects of mine-related contaminants both currently and in the future" is unnecessary. The HHERA had sufficient data to draw conclusions of risks related to the existing and future conditions on the site and to support the selection of closure activities. There are no significant



uncertainties that remain to be addressed to inform the selection of closure activities. The GMRP has developed a Wildlife and Wildlife Habitat Management and Monitoring Plan as a best practice and required by the Environmental Agreement and will continue to assess the need for wildlife and wildlife habitat monitoring as the Project progresses. The Intervener does not provide any rationale as to why more studies would be required, what purpose they would serve or what would make such studies relevant to the use of water or deposition of waste.

8.3 Adaptive Management

Recommendation SEC3

Adaptive management is seen as a key part of the GMRP. The Board should incorporate conditions that require development and submission (for approval) of a comprehensive adaptive management plan (AMP) that identifies key areas of performance uncertainty (e.g., cover performance, loading from pit runoff, conditions in the aquatic environment in Baker Creek, Trapper Creek, Yellowknife Bay, and other key locations, etc.) and for each of these defines appropriate indicators, monitoring, thresholds/action levels, analysis/interpretation methods and timing, responses, and reporting. For consistency with other NWT projects, it may be appropriate to retain the aquatic response framework in the Aquatic Effects Monitoring Program (AEMP). However, the more proactive adaptive management components aimed at identifying and responding to unexpected and/or unacceptable performance of Project components and the closure landscape should be clearly defined and described for this Project, at least through to the end of Phase 2. Requirements for Phase 3 would be difficult to define at this time because there is too much uncertainty about the conditions and performance at the end of Phase 2.

Response to SEC3

Proposed Approach to Adaptive Management

The GMRP disagrees that a separate Adaptive Management Plan (AMP) is necessary and proposes that the current approach of integrating adaptive management concepts amongst the management plans is in-line with MVLWB guidance. For example, the Post-EA Package Schedule 3 (MVLWB, 2014), requires a section on contingencies in management plans. The MVLWB Standard Outline for Management Plans includes requirements for contingencies, mitigations and frameworks. Guidance for developing waste management plans and AEMPs also require plans to include adaptive management contingencies and response frameworks. Items triggered within those separate plans will be reported in the Annual Water Licence Report, and for aquatics, more detail will be provided in the Annual AEMP Report.

Currently, there are seven site-wide plans, each of which has an adaptive management component, either referred to as action levels, response framework or contingencies. The relevant plans include:

- *Aquatic Effects Monitoring Plan (AEMP)* – the Baker Creek action levels are for approval; the Yellowknife Bay response framework is conceptual and will be developed further. Action levels for Yellowknife Bay will be developed through the appropriate MVLWB process (i.e., re-evaluation and AEMP study design).



- *Water Monitoring and Management Plan (WMMP)* – Water management action levels to be proposed in Version 2 of the plan.
- *Tailings Monitoring and Management Plan (TMMP)* – Contingency monitoring and maintenance and adaptive management flowchart developed and included.
- *Dust Management and Monitoring Plan* – Contingencies and action levels.
- *Sediment and Erosion Control* – thresholds and action levels.
- *Wildlife and Wildlife Habitat Monitoring Program* – adaptive management section.
- *Explosives and Blasting Management Plan* – in development, will include best practices and thresholds and action levels.

The GMRP will submit updated versions of the management plans for active remediation (Phase 2) for review and approval in advance of remediation with the necessary actions and contingencies as discussed in Technical Session 2. The GMRP submits that the separate frameworks proposed will allow for a proactive approach to monitoring and managing the site, and additional conditions in the Water Licence are not required.

Proactive Approach to Identifying Exceedances of Water Quality Objectives

The GMRP agrees with SEC that a proactive adaptive management approach cannot rely on receiving water thresholds alone. Accordingly, the GMRP has monitoring stations established on-Site and in Baker Creek, upstream of the ultimate receiving environment (Yellowknife Bay), and concentrations and trends would be flagged before exceedance of water quality objectives at the edge of the mixing zone. More specifically, the GMRP has identified numerous SNP locations on the site and a broad runoff monitoring program in the Operational Monitoring Program (OMP). The GMRP will update and expand the water management framework (Section 5.0 of the WMMP) and revisit the site-specific runoff criteria for runoff from the TCAs and engineered covers (Section 3.4.2 of the WMMP and Refer to GMOB 4.0, Recommendation 11). The scope of the Design Plans includes details of monitoring as well as thresholds, where appropriate, for CRP components. Results of monitoring related to achieving the site's closure criteria will be reported in the Annual Water Licence Report and subsequently in the Performance Assessment Reports. The GMRP submits that another management plan is not necessary, given the framework proposed

8.4 Licence Term and Post-Remediation Funding

Recommendation SEC 4

The Board should grant authorizations that have terms limited to the duration of the proposed Phase 2 of the GMRP. As part of the authorizations, the Board should include conditions that require development of appropriate long-term administrative and funding regimes that will be in place to support relicensing for Phase 3 (Post-closure Monitoring and Maintenance) of the Project. The Board should specifically define requirements for a process to develop long-term administrative and funding regimes that includes engagement with the public, and consideration of a range of administrative regimes and funding



mechanisms. Consistent with the Report of Environmental Assessment, there should be a requirement to consider delivery and funding mechanisms that rely on use of trust funds with multi-year up-front funding.

Response to SEC 4

The GMRP submits that neither the long-term funding of the Project (Section 1.4), nor the administrative frameworks under which Governments of Canada and the Northwest Territories deliver the Project, is within the jurisdiction and mandate of the MVLWB. The GMRP submits that fulfilling the Measures from the Report of Environmental Assessment addresses issues and concerns raised during the EA. As per Response to Recommendation GMOB 24, the GMRP does not recommend limiting the term of the licence to the projected active remediation phase.

8.5 Pit Backfilling and Covers

Recommendation SEC 5

As part of authorizations for the GMRP, the Board should incorporate conditions that require further analysis and design related to pit remediation, including about materials for pit filling and the need for pit covers. Conditions should also require the development of a material management plan that addresses monitoring and decision-making related to borrow materials used for pit filling and covers.

Response to SEC 5

The GMRP submits that further conditions related to the analysis and design related to pit remediation are not required. The GMRP directs SEC to the geochemical results from various borrow types and leachate that was provided to the MVLWB in Fall 2019. Further analysis and design is ongoing, the results of which will be provided to the MVLWB through the associated Design Plan. Engagement sessions on Borrow, are scheduled for December 2020, which is directly related to material management and material used for pit filling. The GMRP will also have a Waste Management Plan that deals with the management of waste including pit fill and a Borrow and Explosives Management and Monitoring Plan; additional plans and requirements are redundant.

8.6 Land Reclamation and Re-vegetation

Recommendation SEC 6

The Board should require the development of appropriate closure objectives and criteria that define expectations for land reclamation and future conditions of the terrestrial environment.

Response to SEC 6

The GMRP agrees that land use and the terrestrial environment are important factors in closure planning and submits that the proposed closure objectives/activities/criteria will improve the terrestrial environment. The GMRP does not have the ability to define final land use in its closure plan (see Section 1.5 for further discussion), however it has identified constraints and has proposed a closure principle around future use: 'Constraints on future use—The CRP should take into account restrictions and opportunities to permit future use of the closed mine to the extent practicable.'



The GMRP has also set over ten closure objectives/criteria with accommodation for land/wildlife/terrestrial considerations where possible. No further requirement for closure criteria for land reclamation is needed.

Table 1. Summary of GMRP Closure Objectives and Criteria with Terrestrial Considerations

Item	Relation to land/terrestrial
Goal of GMRP: minimize the release of contaminants from the Site to the surrounding environment	Overarching goal of the remediation is to minimize contaminant release to terrestrial and aquatic environments
SW4 3 Perimeter barriers are installed near risk areas to reduce inadvertent access and are visually displeasing to communicate that residual risk is present (e.g., large grey boulders, earth embankments)	Visual appearance is rocky, displeasing at perimeter to convey risk and to avoid inadvertent access
SW5-1 Remediated areas are designed to resist erosion including armouring and targeted revegetation with native species	Inclusion of targeted revegetation with native species
UG1. Access to underground workings from surface openings is restricted for the safety of humans and wildlife	Safety of wildlife from trips/falls into underground or pits is prioritized
UG4. Underground is stabilized (geotechnically and physically) to reduce risks for public, workers, and wildlife safety	
P2. Public, worker, and wildlife safety risks associated with pits are reduced	
BC4. Water quality and sediment quality in Baker Creek are improved to reduce exposure of aquatic and terrestrial organisms to contaminants	Improved habitat for terrestrial organisms using Baker Creek including such as waterfowl or beavers
CS1-3: Industrial soil quality objective standard of 340 mg/kg for total arsenic is met in Developed Areas.	Improved quality of land/habitat available for various land uses that land owners determine
CS1-4: Residential soil quality objective standard of 160 mg/kg for total arsenic is met in the Townsite, Shoreline Lands, and Marina area.	
T5. Footprint of tailings is reduced	
Q1. New disturbance due to borrow quarry areas is minimized, to the extent practicable	Maintain undisturbed areas
Q3: New borrow and quarry areas are reclaimed at the end of their production	
L1-3 (in development) Cover over landfill to mitigate mammal or bird access	Prevent exposure of wildlife to land fill contaminants in long-term

8.7 Water Treatment Residuals

Recommendation SEC 7

The Board should incorporate conditions that require further testing of water treatment residuals for the proposed new WTP to confirm that the proposed long-term storage methods are appropriate.



Response to SEC 7

The GMRP does not agree with the recommendation to have a Water Licence condition for testing water treatment plant residuals; there is already a proposed closure criterion related to this. On October 10, 2019 (Technical Session 2, IR1), the GMRP proposed revised closure criterion WTP3-1: Spent ion exchange media, sludge, and other process residuals will meet the 2017 NWT Guideline for Hazardous Waste Management leachate criteria prior to landfill disposal. As noted in the Approach to the closure criterion, the GMRP committed to presenting results of the testing of residuals in the Annual Water Licence Report.

With regards to data already submitted to the MVLWB, the CRP (Section 5.8.5.4) included information about the existing ETP sludge. Subsequent documents, ETP Sludge and WTP Media Waste Characterization Results (AECOM, 2019b) and Pilot Treatment Plant Testing Report (AECOM, 2019c) included characterization of the media from pilot water treatment plant testing and sludge from the Settling Pond from the existing ETP. As noted in the ETP sludge report, 'Sludge residuals produced by the ETP are a reasonable surrogate for sludge to be generated by the WTP because environmental conditions (influent constituent loading) and process inputs (chemical type and amount used) will be similar for the oxidation and precipitation processes.'

Each of the ETP sludge and spent ion exchange media from pilot testing are classified as non-hazardous, following the GNWT guideline. If follow up testing from the WTP in the future reclassifies the waste as hazardous, an alternate disposal strategy will need to be determined. Notification of a modification and rationale would be given to the MVLWB in the event of such an occurrence.

8.8 Management and Monitoring Plans

Recommendation SEC 8

The GMRP has requested approval of several management plans with issuance of the Water Licence. Before approving these plans, the Board should consider comments provided on these management plans in the SEC report dated May 25, 2019.

Response to SEC 8

The GMRP provided responses to all of the comments submitted by SEC through the reviewer comments process. Any commitments made in GMRP's Response to Reviewer Comments will be reflected in the next submission of the relevant Management and Monitoring Plans. The GMRP considers the submitted Management and Monitoring Plans are sufficiently complete to support existing conditions i.e., Phase 1. Revisions will be made as necessary to reflect remediation activities and these revised Management and Monitoring Plans will be submitted to the MVLWB for approval.

8.9 Scope of AEMPs

Recommendation SEC 9

The Board should require the development and implementation of AEMPs for both Yellowknife Bay and Baker Creek throughout all phases of the Project. The development of a long-term AEMP for Baker Creek



should be supported by closure criteria that directly define expected environmental outcomes in Baker Creek.

Response to SEC 9

The GMRP proposed an AEMP for early remediation that included Baker Creek and a special study on Yellowknife Bay to collect relevant information in advance of moving the discharge to an outfall in Yellowknife Bay. The special study collects information from a broad spatial extent in Yellowknife Bay. The GMRP proposes that the current focus on Baker Creek with its inclusion of a Yellowknife Bay Special Study are appropriate for early remediation. The GMRP proposes that the Baker Creek AEMP Study Design be renamed the AEMP Study Design. The name change would allow all parties to see the AEMP as a whole, rather than as separate areas. The AEMP Study Design can be re-evaluated and an updated study design submitted through the standard MVLWB re-evaluation process, which is usually every three to four years. This would allow the scope of the AEMP to change over time as the remediation progresses.

The GMRP disagrees that AEMPs should be required for all phases of the Project or that there would be a Water Licence condition requiring a proponent to do this. The MVLWB Closure Plan guidance suggests that a Post-Closure Monitoring and Maintenance Plan may be appropriate once remediation is complete. The GMRP submits that there is considerable time to evaluate the scope and need for an AEMP in each phase of remediation.

8.10 Effluent Quality Criteria

Recommendation SEC 10

The Board should include EQC for sulphate and chloride in any Water Licence issued for the GMRP. Criteria proposed by the GMRP in October 2019 appear reasonable.

Response to SEC 10

EQC should be set in each Water Licence through an appropriate MVLWB process, including evaluation of expected site-specific conditions and determination of parameters of potential concern. The GMRP would accept EQC for sulphate and chloride for the operation of the existing ETP based on the numbers submitted by the GMRP in October 2019. Please refer to the response to GMOB 5.0, Recommendations 12 and 13 for more information.

8.11 Nearshore Sediments in Yellowknife Bay

Recommendation SEC 11

The Board should require refinement of closure criteria for remediation of the nearshore sediments in Yellowknife bay. It should also require a robust, long-term monitoring program for proposed covers on nearshore sediments.



Response to SEC 11

Closure criteria for both the nearshore area (CS1-9) and foreshore area (T2-2, T2-3) have been clearly marked as “Criteria in Development” and the process for moving criteria from “in Development” to finalized has been discussed through the technical sessions and the associated objectives and criteria workshop. No additional requirement by the MVLWB is necessary.

The criteria suggested by SEC in the preamble to this recommendation may or may not be appropriate, depending on the final design suggested for the remediation of these areas. As noted in the Intervention, the suggested values were based on preliminary work, and studies and design have continued to evolve. It is expected that engagement on this will occur in 2020 in relation to the Design Plan and the *Fisheries Act* Authorization process for these areas and that this will further inform final design and criteria.

The GMRP fully agrees that monitoring will be required, and the most appropriate monitoring specifically for remediation works at these areas will be developed as the designs are further advanced. These monitoring programs are expected to focus on the monitoring of the ongoing physical integrity of the closure works. They will be carried out in the context of site-wide water quality monitoring and will include the monitoring program for water quality in Yellowknife Bay.

9.0 YELLOWKNIFE HISTORICAL SOCIETY (YKHS)

9.1 Closure and Reclamation Plan comments

9.1.1 Open Pits (Closure Plan Section 5.3)

Recommendation YKHS 1

The Giant Mine Townsite Lease and all areas visible from the Lease should be remediated to an aesthetic degree. For example: no blasting of outcrop ridges and hills adjacent to the A1 or A2 open pits.

Response to YKHS 1

The GMRP submits that a Water Licence condition is not necessary for this recommendation. The GMRP has a stated objective that new disturbance due to borrow/quarry areas is minimized, to the extent practicable (please refer to the Response to IR 1 from Technical Session 2) and it expanded its consideration of this by revising closure criterion Q1-1:

- Q1-1 Design borrow and quarry areas to:
 - Preferentially use materials from Closure project by-products
 - Limit aesthetic impact (visibility to public) of borrow areas
 - Limit impacts to culturally sensitive areas

The intent of the Borrow Engagement Sessions in December 2019 is to share information about the current state of borrow design and the process that will be used to finalize decisions. It is also an



opportunity for stakeholders to offer input about locations, and design decisions, and for the GMRP to gain a better understanding of what is important to stakeholders. The workshop will also allow for discussion on mitigative measures. A workshop summary report will be issued and can be provided to the MVLWB for the public record prior to the Public Hearing. The GMRP will do a formal report back to stakeholders during the annual public forums in March 2020. The final details will be presented in the Borrow and Open Pits Design Plans, which will be submitted or comment and approval. Therefore, the GMRP submits that a specific Water Licence condition is not required.

9.1.2 Borrow Material (Closure Plan Section 5.7)

Recommendation YKHS 2

The Giant Mine Remediation Project should not increase the size of the mine's footprint on the landscape. Any quarry material required for engineering purposes should be sourced from outcrops already surrounded by the mine's physical footprint. Rock should also NOT be sourced from areas adjacent to the Ingraham Trail or the Vee Lake Road, the Giant Mine Townsite, or any place where the travelling public would see the destruction of the landscape. Alternate borrow sources must be found.

Response to YKHS 2

As noted in the GMRP response to reviewer comments (specifically ORS 5 – General Public YKHS 1 and 2), the selection of borrow locations and their design will consider a number of factors, including safety, aesthetics, public feedback, geochemical characteristics of the rock in the potential borrow locations, haul distance, the location of required remediation infrastructure, traditional land use/archeological considerations, and the extent of soil contamination.

Design efforts are ongoing for the selection and landscape design of borrow extraction areas, and for defining the amount of fill needed for pits. GMRP recognizes the importance of this aspect of the Project to all stakeholders, and there will be engagement specifically on the topic of borrow material in December 2019. The GMRP has met recently with the YKHS and conducted site tours to review possible borrow locations and to discuss constraints around borrow for both aesthetics and locations that need recontouring for safety.

Given the above, the GMRP submits that there should be no terms or conditions in the Water Licence regarding the location of borrow. Engagement and submission of the Design Plan will allow review of the selected borrow areas by all parties.

9.1.3 Remaining Infrastructure (Closure Plan Section 5.9.5.7)

Recommendation YKHS 3

The "City Boat Launch Parking Lot" outdoor display be maintained in situ and only relocated temporarily in the event of soil remediation below individual Society assets. The "Commissary" building remains the property of the Society until a new location for storage can be arranged; the Proponent should compensate the Society for the loss of the building if necessary. The "A-shaft Powerhouse" diesel engines be preserved in situ as a permanent monument to Giant Mine. The "Akaitcho" headframe be preserved in situ as a permanent monument to Giant Mine. The proponent should be responsible for solving the drainage issue in the Society's "Museum Parking Lot". They must remove the former pipebox



wasterock “berm” that runs from the Boilerhouse to the former Curling Rink, and redirect the drainage around our parking area. This berm stops the flow of water off the old highway and has created a large stagnant pond behind our museum building. If any remediation of soils is required at the “Museum Parking Lot”, this shall be conducted at the expense of the Remediation Project. The final product will be a graded lot upon which we may be permitted to use as a landscaped parking lot for museum public access.

Response to YKHS 3

The GMRP understands the wishes of the YKHS and will continue to negotiate access with the City of Yellowknife as the leaseholder to arrive at mutually agreed upon solutions. With respect to the list of recommendations provided above, the GMRP considers only one recommendation to be within the MVLWB mandate: the recommendation that the GMRP “be responsible for *solving the drainage issue in the Society’s “Museum Parking Lot”*. They must remove the former pipebox wasterock “berm” that runs from the Boilerhouse to the former Curling Rink, and redirect the drainage around our parking area. This berm stops the flow of water off the old highway and has created a large stagnant pond behind our museum building..” GMRP will consider potential impacts to drainage to adjacent areas in its design of remediated areas and will generally work to avoid ponding. The final design will be presented for this area will be presented in the associated Design Plans. The GMRP submits that a specific Water Licence condition is not necessary.

The GMRP has completed a structural assessment of the Commissary Building with the conclusion that it can be moved and relocated. All compensation claims are being addressed through the water compensation process established by the MVLWB.

The GMRP plans to demolish the Akaitcho headframe. Through past engagements, including the Perpetual Care Plan workshops, various stakeholders have expressed a desire to repurpose the materials from the Akaitcho headframe, possibly using the materials for a memorial or monument. The GMRP is willing to work with the YKHS, YKDFN, and other stakeholders to determine if this can be possible.

9.1.4 Baker Creek Closure Objectives and Criteria (CRA Section 5.5.3)

Recommendation YKHS 4

The Baker Creek realignment should follow a similar path where it currently enters Yellowknife Bay with the exception of removing the sharp turn where it goes under the highway. The creek should avoid the A-shaft area due to the amount of blasting that may be required in this area. The Proponent should ensure that the final site design for Baker Creek Reach 1 to Reach 0 floodplain does not limit public access to the Giant Mine Townsite Area in the future. New roads and bridges to provide access to the public boat launch are necessary. If the Commissary building and the Outdoor Display are impacted by the proposed floodway and must be relocated, the Society expects to be compensated. (see Section 5.0 below)



Response to YKHS 4

As noted in GMRP response to reviewer comments (ORS 5, YKHS #4), the re-alignment of Baker Creek and improvements to the floodplain are necessary to mitigate risks of flooding on the site and are determined by topography. The existing Baker Creek channel, which does not have an adequate floodplain, is located in close proximity to the A2 Pit. The need to provide a floodplain and separation from the A2 Pit crest requires that Baker Creek be relocated to an alignment that passes across areas currently occupied by YK Historical Society assets. Changes to the existing area will impact the Outdoor Display and Boat Launch Parking Lot. To preserve the value of the Outdoor Display, the Yellowknife Historical Society will need to move the Display. The planned future Baker Creek alignment is shown in Closure and Reclamation Plan Figure 5.5-7 and is anticipated to also have a small encroachment on the southwest corner of the Boat Launch Parking Lot. The GMRP is currently considering two bridges in the Reach 1 area; one to provide access north to the future WTP and freeze areas, along the approximate alignment of the existing road; and one to provide access to the public boat launch and Townsite Area.

Regarding the recommendation that the Society be compensated if the Commissary building and Outdoor Display are impacted by the Project, please refer to the “Responses to claims for compensation with respect to Water Licence application MV2007L8-0031” submitted by CIRNAC to the MVLWB on November 15, 2019.

The GMRP is willing to work with the YKHS to limit disruption where practicable.

10.0 YELLOWKNIVES DENE FIRST NATION (YKDFN)

Legacy issues, including apology and compensation are led by the NWT Regional office of Crown-Indigenous Relations and Northern Affairs Canada, as they are outside the scope of the Giant Mine Remediation Project and outside the mandate of the MVLWB.

The Government of Canada does recognize this issue is of great importance to the Yellowknives Dene First Nation. Senior officials from CIRNAC's NWT Region have met with the Chiefs to discuss how best to engage the community and especially the Elders. In October 2018, Minister Carolyn Bennett wrote to Chief Ernest Betsina and Chief Edward Sangris to advise that she instructed Matthew Spence, Regional Director General, CIRNAC NWT Region, to further engage with the Yellowknives Dene First Nation on this matter. This engagement will help Canada to better understand the nature of the Yellowknives Dene First Nation's concerns and find ways to meaningfully address them in the interests of reconciliation and strengthening our nation-to-nation relationship. The Department is currently reviewing and assessing the historical record so Canada can respond to the Yellowknives Dene First Nation in a meaningful way. This process is ongoing, and the findings will be shared with the First Nation. Canada is committed to working with the Yellowknives Dene First Nation in support of the Government of Canada's commitment towards reconciliation and is working closely with them on next steps. In the last quarter of 2018/2019, CIRNAC NWT Region provided the YKDFN with \$197,000 in funding to cover the costs associated with their own independent research. This includes their review of historical documents and traditional knowledge.



The YKDFN states, “Although we support the overall goals of the Project, we do not support the issuance of a Water Licence in the absence of a community benefits agreement that addresses the accommodation of YKDFN rights and other interests.”

As discussed in Response to Reviewer Comments ORS3 - YKDFN 3, the GMRP has developed and is implementing a Socio-economic Strategy so that Northerners and Indigenous persons are positioned to benefit from opportunities that result from the remediation of the Giant Mine site. A summary of the Strategy was shared with partners and stakeholders in December 2018 and the updated Strategy was made publicly available on September 4th, 2019. The Project team is now working with the Socio-economic Working Group to develop a comprehensive Socio-economic Action Plan.

As detailed in the Engagement Plan, the GMRP will continue to support training and capacity building through yearly Contribution Agreements with the YKDFN.

10.1 Stress Study (1.0)

Recommendation YKDFN 1

YKDFN requests that the Board require the Project to complete the Stress Study in a timely manner to better inform future decisions.

YKDFN requests that the Board direct the Project to submit the results of the Stress Study, and to “identify, design and implement appropriate design improvements and identify appropriate management responses to avoid or reduce the severity of any predicted unacceptable health risks.” Moreover, funding to implement the measures identified in the Stress Study should be identified.

Response to YKDFN 1

The GMRP considers stress and health impacts outside the jurisdiction of the MVLWB.

The GMRP is committed to completing the Stress Study in a timely manner, and to completing a Stress Study that addresses the concerns of the YKDFN in particular. As a result, the initial timeline of the Stress Study has been delayed at the YKDFN’s request in order to take the time to re-work the Study Design with the full participation of the YKDFN. The GMRP has been working closely with the YKDFN and their Wellness Committee to inform the design of the Stress Study (“Study”) over the last 9 months.

The GMRP, through the GNWT, has provided financial support to YKDFN to retain Dr. Sue Moodie to act as a technical advisor for the YKDFN so that holistic, community and cultural perspectives are appropriately considered in the development of the design of the Stress Study (Study Design). As part of the research team, she has been working closely with the YKDFN community coordinator, and Dr. Ketan Shankardass, the Principle Investigator from Wilfred Laurier University, so the Study is designed to address the concerns of the YKDFN Wellness Staff, community members and leadership.

Various components of the draft Study Design have recently (WLU and YKDFN, 2019) been compiled and submitted to the GMRP and other stakeholders for review and input, and the GMRP is pleased with the work carried out to date and is confident the Study Design has been improved upon significantly. Upon Ethics Approval and issuance of a Research Licence approval, the Study will be implemented in 2020.



Once completed, study results will allow the GMRP to evaluate any relevant opportunities for improved communications and engagement, in addition to any communication efforts by health care providers including the YKDFN Wellness Group. Any improvements will be included in updates to the Engagement Plan or Management Plans if applicable.

10.2 Baker Creek (2.0)

Recommendation YKDFN 2

The YKDFN requests the Board direct the Project to develop more expansive planning criteria for Baker Creek's remediation, which would see Baker Creek restored to its greatest and most productive potential.

Response to YKDFN 2

The GMRP has already agreed to develop two closure criteria for Baker Creek aquatic life (benthic invertebrates and fish) and that these would be developed through forthcoming engagement with all parties and in conjunction with the *Fisheries Act* Authorization process, including discussion of the natural productivity of the creek. These criteria are currently noted as 'in development' in the Closure Objective and Criteria tables submitted in October 2019 (i.e., BC5-2 and BC5-3).

In a September 2019 GMRP Working Group meeting, the GMRP proposed that engagement on aquatic topics be combined into a group called 'Aquatic Engagement' and that meetings on these topics be staggered throughout the year to discuss:

- community-based monitoring;
- AEMP;
- *Fisheries Act* Authorization;
- design of Baker Creek habitat; and
- Yellowknife Bay habitat.

These topics are intertwined and should build upon each other so that all parties can understand and contribute meaningfully to each. Therefore, the GMRP agrees to revision of the criteria in development based on results from the Aquatic Engagement process and the engagement with Fisheries and Oceans Canada (DFO) on the *Fisheries Act* Authorization and to provide the final criteria for approval to the MVLWB in the Baker Creek Design Plan. The Engagement Plan would be updated to reflect the intention and dates for possible workshops and meetings on aquatics.

10.3 Quantitative Risk Assessment (3.0)

Recommendation YKDFN 3

The YKDFN requests the Board to direct the Project that upon completion, the Quantitative Risk Assessment is submitted to the Board and that it becomes a part of the Water Licence and forms a part of the Project's record.



Response to YKDFN 3

Measure 5 requires the QRA be completed "before the Project receives regulatory approvals". Therefore, the GMRP has committed to producing a QRA report and making that report available to the public through its existing SharePoint site and to holding an engagement session(s) to acquaint stakeholders with the findings of the QRA in early 2020. The GMRP will notify the MVLWB at the time the QRA Report is made public. The expected timeline is January – March 2020.

As per Response to Recommendation GMOB 5, The GMRP submits that its proposed approach of publication and notification of the QRA and its results can meet the needs of the Board and the Intervener. The GMRP submits that the issuance of the QRA Report and the documentation of the results and influence of the QRA on the design of the Project in the Design Plans and Management and Monitoring Plans where applicable, all of which will be submitted to the MVLWB for approval will be sufficient to demonstrate how and where the QRA has influenced the Project, thereby meeting the intent of Measure 5. However, the GMRP will not object should the MVLWB decide to require a submission of the QRA not for approval be included as a condition in the Water Licence.

10.4 Emergency Management Measures (4.0)

Recommendation YKDFN 4

The YKDFN recommends the Board require the Project to address the unique situation of Dettah in developing their Emergency Response Plan. Whereby we request that Dettah is taken into consideration of these plans.

Response to YKDFN 4

The GMRP submits that Emergency Response is outside the jurisdiction and mandate of the MVLWB.

The GMRP currently has an Emergency Communications Plan (ECP) that was developed with input from different parties when it was first developed at the time of the roaster decommissioning and The GMRP has an Emergency Response Plan. Currently, Dettah, its residents, and their reliance on the Ingraham Trail for connection to the City of Yellowknife are specifically taken into consideration in both documents.

For example, the ECP specifically identifies the residents of Dettah as stakeholder groups that could be included in emergency communication activities. In the ERP, the GMRP has completed a list of worst-case scenarios that could impact the surrounding environment as part of the Emergency Response Plan preparation. The possibility that Dettah could be isolated by some incident that could result the closure of the Highway is addressed. The GMRP commits to appending the Emergency Communications Plan to the GMRP Engagement Plan and will also commit to including the YKDFN on the list of governments under the distribution list of the Emergency Response Plan.

10.5 Emergency Management Measures (5.0)

Recommendation YKDFN5

The YKDFN requests that the Board require the Project to develop an efficient and functioning notification system to communicate unexpected conditions to YKDFN administration and to members.



Response to YKDFN5

As stated in Response to Recommendation YKDFN 4, The Giant Mine Remediation Project currently has an Emergency Communications Plan (ECP) that was developed with input from different parties when it was first developed at the time of the roaster decommissioning.

The Plan defines an emergency using the Government of Canada Communications Policy definition (*An “emergency” as defined by the Government of Canada, is an abnormal situation that requires prompt action, beyond normal procedures, in order to limit damage to persons, property or the environment*). The Plan also states “Intended to further illustrate what is meant by onsite emergencies, though not to be read as an exhaustive list, this plan shall be followed for such instances as accidental death, serious injury, fire, explosion, a failure of any part of the underground mine workings, or a flood of Baker Creek. Given the close proximity of citizens of Yellowknife, Ndilo and Dettah to the mine site, the public must be made aware, in a timely manner, of emergencies on site that may affect them”. The GMRP will follow the Emergency Communications Plan as necessary.

See response to CoY11, in Section 3.4.3 for further information.

10.6 Closure Planning (6.0)

Recommendation YDFKN6

We recommend to the Board to have YKDFN directly involved in the monitoring of Giant Mine; to begin to re-build trust and confidence with the Project.

Response to YKDFN6

The GMRP has heard clearly the YKDFN interest in being directly involved in the monitoring of Giant Mine and will continue to explore ways to directly involve the YKDFN in monitoring at Giant Mine. The GMRP included commitments for the inclusion of traditional knowledge through closure plan objective Site-Wide 6 based on the feedback of YKDFN during pre-engagement meetings.

The GMRP has undertaken a range of actions to assist in building capacity in the YKDFN to support the First Nation in achieving their long-term goal of having the YKDFN eventually lead monitoring at the GMRP. These are outlined below:

1. For the past 2 years, the GMRP has provided \$282,000 in funding to the YKDFN to run Dechita Naowo – an environmental monitoring training program, based on ECO Canada's BEAHR certification program;
2. The procurement process for the water monitoring program for 2019 was customized to encourage bidders to fairly include successful trainees from ECO Canada BEAHR certification program in the delivery of work and leverage the training opportunities on the site. As a result, in June 2019, 2 students from the BEAHR program were hired by a sub-contractor at the Giant Mine site. These students were from the Dechita Naowo program; and
3. Recently, the GMRP developed an approach to engaging on aquatic-related topics in a coordinated manner, which the Project has presented to the GMRP Working Group (September,



2019) and will present to the YKDFN Giant Mine Advisory Committee (GMAC) at the next opportunity. The approach articulates two desired outcomes:

- GMRP in-water components are designed in a way that considers the needs and expectations of the GMRP, stakeholders and regulators and
- that stakeholders understand and have improved trust in the way in which GMRP monitors and manages Project-related impacts to the aquatic environment.

Part of the proposed strategy is to develop an “Aquatics Engagement Group” comprising members from the Working Group (including ECCC) and/or additional members from YKDFN and NSMA or other EA signatories that wish to participate. The Plan lays out a path to build capacity within the Aquatics Engagement Group with respect to regulatory requirements (MDMER, Fisheries Act, and MVLWB), existing GMRP aquatics monitoring and existing conditions in Baker Creek and Yellowknife Bay. This will position the group for success in providing meaningful input to the design of Baker Creek, the potential fish habitat off-setting requirements related to the Project, the development of the AEMP as it evolves to focus on Yellowknife Bay and co-developing a Community-Based Monitoring Program. The proposed approach was developed to make the topic of aquatics monitoring and the concepts of AEMP and fish habitat off-setting accessible to the full range of Project stakeholders. The GMRP hopes that interested YKDFN members are active participants in this Group. The approach will be refined based on feedback from Working Group and GMAC in the next few months and rolled out in early 2020.

While the GMRP is committed to continuing to support the YKDFN in its goal to take a leadership role in monitoring the site, the GMRP submits that it is not necessary to include a Water Licence condition which requires the GMRP to involve a specific independent organization.

Recommendation YKDFN 7

In particular, we would like to see the Implementation and Construction Plans describe opportunities for employment, contracting, and education for the YKDFN businesses and individuals.

Response to YKDFN 7

The GMRP submits that socio-economic factors are outside the mandate and jurisdiction of the MVLWB and therefore should not be included in the Construction Plan Schedule of Requirements.

As discussed in the introduction to the YKDFN’s Intervention (Section 10.0), the GMRP has developed and is implementing a Socio-economic Strategy so that Northerners and Indigenous persons are positioned to benefit from opportunities that result from the remediation of the Giant Mine site. Given that GMRP consider socio-economic factors outside the mandate of the MVLWB, GMRP does not consider it appropriate to require details of opportunities for employment, contracting and education for the YKDFN businesses and individuals to be included in Schedules for submissions to the MVLWB.

As detailed in the Engagement Plan, the GMRP will continue to support training and capacity building through yearly Contribution Agreements with the YKDFN.



10.7 Explosives Management Plan (8.0)

Recommendation YKDFN 8

We recommend to the Board that sensory impacts to our community and the environment should be considered and mitigated within the Explosives Management Plan.

Response to YKDFN 8

The borrow and explosive management plan will be developed taking into consideration the following mitigation factors in order to measure, analyze and reduce impacts to the local communities:

- Qualified personnel overseeing the blast.
- Clear communication to the public regarding blast days and times.
- Defined blast safety radius.
- Engineered blast tie-ins.
- Blast vibration analysis
- Blast fume monitoring
- Wind direction monitoring

10.8 Post-Remediation Design and Appearance (9.0)

Recommendation YDKFN 9

The YKDFN requests that the Board direct the Project to conduct, as part of an updated CRP, extensive engagement and consultation on the physical design of the mine site.

Response to YKDFN 9

The GMRP has undertaken extensive engagement through the Surface Design Engagement process and sought considerable input from the community and other organizations with respect to decisions made on the final plans for soil and sediment remediation, pit remediation options, tailings covers, and the Site footprint. Section 5 of the CRP further describes what, and how this input was incorporated into final closure decisions. The GMRP recognizes that further engagement is still required to address the overall site aesthetics and landscape design as it pertains to borrow, and the final design of Baker Creek. The December 2019 Borrow Session will provide the opportunity for stakeholders to offer input about location preferences and to identify preferred mitigation measures that ultimately will influence the physical design of the Site. The Baker Creek engagement initiatives scheduled for 2020 will also achieve similar objectives. The GMRP looks forward to continuing the work on this issue.



10.9 Aquatics Effects Monitoring

Recommendation YKDFN 10

We recommend that, given the perpetual care aspect of monitoring at Giant and YKDFN's interest in seeing some benefits from the mine's legacy, the community take a lead role in developing aquatic monitoring.

Response to YKDFN 10

As discussed in the response to YKDFN Recommendation 6, the GMRP has put forward a draft strategy to build capacity amongst its stakeholders around aquatic monitoring and provide a forum through which stakeholders can participate in the development of the Aquatic Effects Monitoring Program. The Strategy also outlines an overall approach to co-develop a Community Based Monitoring Program.

However, the GMRP does not agree with the suggested Water Licence condition. The MVLWB lays out a very specific framework and requirements for AEMP and the GMRP anticipates that the MVLWB's standard conditions related to AEMPs would apply to the GMRP as well. It is important that the GMRP have the necessary control of the AEMP to meet its legal obligations. It would not be inappropriate to give the GMRP the legal responsibility to meet the MVLWB's requirements for AEMPs but then make the development of the AEMP, or its execution, conditional upon a third-party outside of the GMRP's control.

The GMRP is cognizant of the YKDFN's interest in having a more active and lead role in the site's aquatic monitoring. The GMRP suggests that the Community Based Monitoring Program, in parallel with active stakeholder representation and participation in the development of the AEMP could help both parties achieve the goal to increase the YKDFN's participation in and trust of the aquatic monitoring at Giant Mine, while still allowing the Project to manage its regulatory requirements. The GMRP would like to note that the MVLWB framework for AEMPs allows for these programs to grow and evolve, with regulatory requirements to re-evaluate the AEMP typically every three years.

The GMRP considers the continued advice, input and cooperation of the YKDFN important to the long-term success of the Project and is looking forward to working together, and with its other stakeholders, as the Project's aquatic effects monitoring evolves.



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