Giant Mine Remediation Project (GMRP) Responses to Recommendations from

Giant Mine Oversight Board (GMOB) Establishment Report (July 2015 to December 2016)

Subject	GMOB Comments [1]	GMOB Recommendations[2]	Giant Mine Project Team Response
1. Giant Mine Project Plan	An important task for the Board is to track and assess the overall progress of the Project. Over the past several months, the GMOB has received briefings on remediation activities and reviewed the detailed work plans used to guide and monitor activities. However, there is no overall plain language Project work plan. This makes it difficult to assess overall progress, and to relay clearly both plans and progress to the public. In our opinion, a formal work plan is necessary to gauge planned activities against actual achievements.	GMOB recommends that a plain language work plan be developed that sets out the main activities planned for the next five years. The work plan should be presented in a plain language format, complete with budgets, timelines, and performance measures. The plain language multi-year work plan should be submitted to the GMOB and made widely available to the public. Consistent language and numbering should be used to link the work plan with the annual report.	A plain language summary of the annual work plan is an important part of the Project team's presentation made at yearly public forums. It is also presented to key stakeholders in Yellowknife, Dettah, and Ndilo, and to Yellowknife City Council. We're committed to extracting the annual work plan details from this presentation and ensuring the information is published to the website in an accessible, easy-to-find format. The Project team will work to incorporate a five-year look ahead that includes relevant timelines and other details as part of our work plan summary we previously committed to append in future GMOB Annual reports.
		We note that the Co-Proponents agree with the GMOB's recommendation to include an annual work plan as an appendix in the Project Team's annual report (see Appendix B, GMOB Subject #3).	
2. Means to Measure Progress/Performance	As the GMOB noted in its comments on the federal and territorial governments' *Giant Mine*	The GMOB recommends that quantifiable performance measures and timelines be developed	As indicated during the review of the GMRP Annual Report to GMOB, the Project team is

[1] This text is taken directly from the Giant Mine Oversight Body Establishment Report
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Metrics	*Remediation Project 2015-2016 Annual Report,* the absence of performance measures makes it difficult to assess intended progress and the appropriateness of mitigation measures. Monitoring and measuring progress and effectiveness requires comparison with baseline data for various elements of the remediation Project. The data must be gathered, targets determined, and a timeline set out for achieving these targets. Any variation should be reported, analyzed, and corrected as required. In the GMOB's opinion, this is a standard requirement for proper project management. We note that the federal government provided similar guidance to departments through such documents as the Government of Canada's *Supporting Effective Evaluations: A Guide to Developing Performance Measurement Strategies.* In its comments on the *Giant Mine Remediation Project 2015-2016 Annual Report*, the GMOB recommended that quantifiable performance measures be developed and included in the annual report; however, the Project Team has stated such measures will not be put in place until the "implementation phase of the Project" (see response to Subject #4 in Appendix B). The GMOB assumes that implementation means when the final remediation plan is initiated, after the issuance of the water license. The GMOB notes that the Project Team is already implementing many remediation activities through care/maintenance (e.g., treatment and discharge of mine water), emergency interventions (e.g.,	as soon as possible and reported in future Project annual reports.	currently updating its performance targets to align with INAC's Departmental Performance Measurement framework. This will include specific quantitative performance targets in future plans and reports. We expect to have a draft to share with GMOB in the coming months, and will welcome input before it is finalized. In addition, we will identify specific performance measures that are included as part of the Main Construction Manager contract and any sub contracts they procure. Due to the evolution of the Project over the past several years, most notably as a result of the Environmental Assessment, identifying a meaningful baseline can be difficult. The team continues to work to address this challenge. For example, the final scope of the project is currently being defined to comply with the Environmental Assessment measures and other constraints, which the project team feels will set a reasonable baseline against which the active remediation can be measured through to project completion. This will include using quantifiable performance metrics. It is important that care and maintenance activities are not confused with remediation activities; they serve two different purposes. Care and maintenance activities ensure the site remains in a stable condition until remediation can be completed.

	taking down buildings, stabilizing stopes), public engagement, socio-economic improvements, and work on the 26 measures set out in the environmental assessment report; therefore, it is not clear why it is not possible to develop performance measures immediately. The Project has an annual budget, which it reports on at year-end. However, in the absence of clear, quantified performance targets and timelines, and any discussion of variances, it is difficult for the GMOB to assess Project performance and expenditures relative to budgeted amounts in areas including environmental quality, socio-economic costs and benefits, and health and safety targets. Further, the *Giant Mine Remediation Project 2015-2016 Annual Report* mentions 'objectives', 'commitments', and vision' but these terms are not defined or supported by any measurable indicators.		
3. Communications and Engagement	The Project Team spent considerable effort to communicate with the public and key interest groups about remediation plans and activities. While there is much to be commended, communication and engagement efforts have been inconsistent and sometimes ineffective. The Surface Design Engagement (SDE) outreach strategy appears to have been largely effective but other efforts to reach out to local communities have been less so. For instance, Yellowknife public meetings, hosted by the Project Team, have been very poorly attended; the website hosted by the Project Team is out of date; there is no plain	The GMOB recommends that communication and engagement be treated with an importance equal to other aspects of the Project and that they be resourced accordingly. Specifically, the Project website must be updated and kept current; and the Project Team should establish an accessible office where the general public can obtain current information on remediation activities, progress, plans, and opportunities to become involved (e.g., jobs, contracts, consultations).	The Project team is extremely committed to communication and engagement with stakeholders and the public, and considers this an important and valued part of the Giant Mine remediation process. Communication and engagement efforts are an integral part of our work plans and the ongoing management of the project, and we will strive to maximize opportunities for the public to obtain the most up to date information on the Project. The team includes a full-time Engagement Manager to ensure that engagement activities are incorporated into overall project planning,

	language Project plan; nor an accessible office where the interested public can easily obtain current information directly from the Project Team. The GMOB suggests that the lack of consistently effective communication and engagement with the public and other outside Parties may in part be due to relatively less planning and fewer resources devoted to these activities compared to the investment in on-the-ground remediation efforts. This may be understandable given the nature of the remediation Project, but inadequate communication and engagement at this stage will inevitably result in a more difficult path ahead when the Project enters the formal regulatory phase. This is not unprecedented: many of the recommendations of the Mackenzie Valley Environmental Impact Review Board (MVEIRB) stemmed from what the public perceived as the Project Team's inadequate communication and engagement efforts prior to and during the environmental assessment. Notably, the Project Team has not effectively and meaningfully responded to the YKDFN's continuing demand for a formal apology and compensation for past harm from Giant Mine operations. These demands seem to have largely been ignored despite the Government of Canada's current commitment to reconciliation with Indigenous peoples. The GMOB is of the view that a formal apology would help to heal the harms of the past and greatly facilitate the ability of the Parties to move forward together. Failure to address the		and to oversee the actual engagement events throughout the year. The input from the engagement activities is carefully considered by the team as it works to finalize the remediation plan and the development of the updated project description. We are also in the process of staffing a full-time position to support the Engagement Manager and be a liaison with our stakeholder communities. The team also includes dedicated Communications staff. Work on a major update of the project website is already underway. The update will bring the website in line with current Government of Canada guidelines and standards, and our hope is that the new format will make more frequent updates easier. We expect to launch the updated web site by early Fall. In the meantime, ongoing efforts to communicate with stakeholders and the public will continue. For example, this includes an electronic newsletter, which highlights ongoing and upcoming work on the site and published a minimum of bimonthly or more frequently to reflect activities on site. As well, this also includes monthly meetings with the Giant Mine Working Group, the Giant Mine Advisory Committee, and the recently-established Heath Effect Monitoring Program Advisory Committee.

	issues of a formal apology and a commitment to compensation are likely to affect the success of community engagement and the future of the remediation Project.		
		The GMOB recommends that the Project Team improve efforts to determine what kinds of communication and engagement tools will be most successful when communicating with the public in all local communities.	The Project team continually assesses new methods to reach the broadest possible audiences, and is always open to suggestions on ways to improve our communications with the public and individual stakeholder groups.
		In the spirit of continued reconciliation, the GMOB recommends that the Federal Government formally respond to requests of Indigenous groups for an apology and compensation related to the historic operations at the Giant Mine.	The issues arising from the legacy of the Giant Mine are complex. While the Project Team is focused on the remediation of the former mine site, and as formal responses on the issue of apology and compensation for Indigenous groups are outside the Project team's mandate, the team has conveyed this request within INAC's NWT regional office. Regional staff has, in turn, met with the Yellowknives Dene First Nation to hear concerns directly in order to develop a formal response.
4. Traditional Knowledge and Community Relations	The Project Team is commended for its efforts to incorporate traditional knowledge in the SDE process. Other remediation activities would be strengthened by similar efforts. A comprehensive traditional knowledge strategy would give some assurance to all Parties to the Agreement that traditional knowledge and relationships with knowledge holders are valued, and will be included in remediation decisions and day-to-day activities. Currently, no comprehensive traditional knowledge strategy exists. The Project Team has	The GMOB recommends that the Project Team draw on best practices to develop a comprehensive traditional knowledge strategy. This should be done in close collaboration with the affected Indigenous peoples and include a timeline for immediate implementation.	A stand-alone traditional knowledge strategy has not been developed by the Project Team; rather, the consideration of traditional knowledge has been integrated into project planning and activities through the consultation and engagement processes we undertake with First Nations and other Indigenous groups on various project work, as well as the overall remediation plan. For example, traditional knowledge was incorporated into the planning and scheduling of the work when the C-Shaft and A-Shaft headframes were deconstructed.

	been less successful in developing meaningful, effective, and ongoing community relationships that ensure solid engagement, shared commitment, and real partnerships with the Indigenous Parties to the Agreement. The full engagement of YKDFN and the NSMA in decision-making processes is critical to the success of remediation activities and the integration of traditional knowledge		The Project team will continue to incorporate traditional knowledge into our implementation strategy as part of the remediation plan currently under development.
5. Care and Maintenance/Advanced Remediation	A wide range of care and maintenance activities were completed to mitigate potential environmental impacts associated with the site (e.g., maintenance of critical infrastructure and treatment of contaminated water). These activities were generally implemented according to plan and achieved intended objectives. The Project Team conducted a Site Stabilization Plan (SSP) to address urgent site risks prior to the full remediation Project. The plan included the demolition of unstable and contaminated structures and reinforcement of potentially unstable mine workings. A cautious approach was taken when determining which actions to include in the stabilization plan. Therefore, it is possible that some aspects of it were not truly urgent (e.g., surface crusher). Nonetheless, the SSP has successfully reduced the risk profile of the site. It is the understanding of the GMOB that, subject to evolving site conditions, further advanced remedial work may be necessary prior to implementation of the full remediation Project.	The GMOB recommends that the Project Team identify foreseeable additional advanced remedial work that may be reasonably required prior to full remediation. The team should provide appropriate justification for such work.	The Project team monitors the site continually and, based on evolving site conditions, will identify any work that is required to be completed in advance of full remediation. All foreseeable work is identified in the annual work plan and communicated to the public and stakeholders through the annual Public Forum, the electronic newsletter, and regular Working Group and other meetings. The need to carry out advanced remedial work will be evaluated based on the relative risk and considers the level of effort to proceed in advance of the overall remediation plan, while also taking into account the input from various technical experts, mine specialists, and stakeholders.
		The GMOB recommends that the Project Team	The Project team will continue to monitor,

		document and communicate trends in the risk profile of the site. The trends should clearly illustrate: a) any increasing risks caused by site deterioration (e.g., aging infrastructure); and, b) risk reductions achieved by advanced remedial works such as the SSP.	document, and communicate trends in the risk profile, such as the relevant information provided in the 2015-16 Annual Report of the Giant Mine Remediation Project (external link, English only) provided to the GMOB in October 2016.
6. Remediation Planning	The MVEIRB Report required that the Giant Mine Remediation Project Team revisit multiple aspects of the remediation plan. Over the past year, the Project Team has made important progress towards the development of a final remediation plan. Specific initiatives include: • Freeze Optimization Study: 237,000 tonnes of toxic arsenic trioxide dust stored underground represents the greatest risk to humans and the environment. The technique selected to manage the dust is to freeze it in place. The Project Team recently completed a multi-year field trial of the technique. Referred to as the Freeze Optimization Study, the field trial demonstrated that ground freezing can effectively isolate the dust, and provided critical information to support detailed engineering. • Surface Design Engagement (SDE): There are numerous surface risks that need to be mitigated in addition to the arsenic trioxide stored underground. Through the SDE process, the Project Team has worked with a broad group of stakeholders to gather their insights and preferences on the remediation of the site. The outcome of the SDE process, scheduled for early 2017, represents a critical milestone for the Giant	The GMOB recommends that the Project Team work with interested Parties to identify and mitigate potential delays to the remediation planning process. Opportunities to accelerate the planning process should be considered.	The Project team will continue to work with stakeholders to identify ways to optimize and expedite the planning process.

	Mine Remediation Project. In the opinion of the GMOB, the SDE process provided an effective and respectful forum for engagement on the remediation of the Giant Mine site. • Baker Creek: Passing through the centre of the site, Baker Creek is linked to many aspects and risks associated with Giant Mine. Selecting the most appropriate strategy for the remediation of Baker Creek is complex and will inevitably involve trade-offs and difficult decisions. In an effort to address this complexity, the Project Team recently initiated a process to re-evaluate options for Baker Creek. Consistent with the requirements of the Agreement, the GMOB is contributing to this planning process. We will report on our feedback on the outcomes and effectiveness of the process in 2017. Overall, the GMOB is of the view that the Project Team is making progress towards the development of a revised and fully integrated closure and reclamation plan. However, based on the rate of progress to date, the GMOB is concerned that the finalization of the plan may not occur within expected timelines. This would delay the regulatory phase and subsequent remediation activities.		
7. Environmental Issues	It is the view of the GMOB that progress is being made on several environmental issues. In particular, • Environmental Monitoring: The Project Team continues to operate and expand a series of environmental monitoring programs. Viewed in	Expedite the development of a fully integrated Environmental Management System.	The Giant Mine Project Team currently has an Environment Health and Safety and Community Management System in place for the project. It is an integrated system that includes aspects of both an Environmental Management System (ISO 14001) and Health and Safety (OHSAS

	isolation, each of these monitoring programs appears to be technically appropriate. However, insufficient progress has been made towards the development of a fully integrated monitoring regime and environmental management system. • Environmental Quality: A broad array of site characterization and monitoring data has been collected. While this information is a valuable resource for understanding site conditions, there has been limited analysis of the data to identify trends in environmental quality. The Project Team has indicated that it will perform such analyses once full remediation has been initiated. The GMOB is of the view that assessments of environmental quality trends should begin immediately. • Regulatory Affairs: Following the completion of the environmental assessment process, the Project Team developed a multi-year plan to work towards obtaining the regulatory approvals necessary to implement the Project. In the interim, regulatory authorizations have been obtained for advanced remedial work such as site stabilization. However, some activities at the site continue to occur without the necessary authority. Of particular note, the Project Team has discharged treated effluent into Baker Creek without a water license for more than a decade. While the discharges have reportedly complied with the provisions of the former operating license, the GMOB is not aware of the Project Team's rationale for operating without the regulatory authority that would typically be		18001). The Project is currently updating the Management System to be compliant with the revised 2015 ISO 14001 Standard. The Project can commit to providing this to the Board once completed. In addition, the Project will be requiring the Main Construction Manager, who will oversee the overall implementation of the remediation, to have an Environmental Management System in place that will include the development of Environmental Protection Plans and programs. The Main Construction Manager is expected to be in place in late 2017. We welcome further discussion with the GMOB to address any other questions or concerns.

	required.		
		Use and expand upon existing monitoring information to identify trends in environmental quality for soil, water and air. It is important that such trends be clearly documented prior to the initiation of full remediation. Also, see the GMOB's recommendation #6 on the Project Team's 2015-16Annual Report (Appendix B).	Based on lessons learned from year to year, monitoring programs evolve and adapt to ensure continual improvement in the data that is being gathered. This is used to better design the final remedial program and determine the health of the surrounding environment. This can make year-over-year trend analysis challenging, but the Project team continues to complete work in specific areas leading up to and throughout remediation to ensure planning takes into consideration any identified trends. Some examples include: • Trends in effluent and surface water quality stations in Baker Creek, Yellowknife Bay, Yellowknife River, and Horseshoe Island Bay were assessed as part of the Environmental Effects Monitoring (EEM) Program under the federal MMER. Specifically, the Phase 4 EEM Program Final Interpretative Report (Golder 2013a) and the Phase 5 EEM Program Investigation of Cause Study (in prep) include detailed trend analysis since mine closure in 2003. • A comprehensive assessment of spatial trends in sediments as well as effects in biota was completed in 2011 in Baker Creek (Golder 2013b). A site-wide soils sampling program was completed in 2015 to establish the existing condition and spatial variation in concentrations of parameters of potential concern (Golder 2016a,b). This information is being used to inform the decisions

			associated with soil remediation. These data will also be used to assess the efficacy of remediation activities. • Air quality is currently monitored regularly at the fence line of the property and at stations located in the community of Yellowknife. The purpose of these two monitoring programs is to determine if there are exceedances to threshold values, which would pose potential risk to human health and the environment. In addition, activity-specific air quality monitoring is also conducted, as required (e.g., roaster demolition). Should any exceedances be identified through any of these programs, there is follow up to determine the cause of the exceedance and implement any remedial measures. Real-time data and weekly reports are available on the NWT Air Quality Monitoring Network. More information on the monitoring programs is available on the Government of the Northwest Territories' Giant Mine Remediation Project webpage. The Project team will continue to look at useful ways to identify and communicate trends in environmental quality for various media, including seeking input from regulatory authorities and stakeholders through the Working Group. The project team is also exploring the Government of Canada's new Open Data initiative (http://open.canada.ca/en/open-data)

			to see how we can better communicate and share our data with the public. A Status of the Environment Report will be submitted in 2022 (that is, seven years after the Effective Date, as stipulated in the Environmental Agreement). It is expected that trend analyses will be included, as appropriate.
		Present the rationale for the ongoing practice of discharging effluent to Baker Creek without the required authorizations and describe what steps the Project Team is taking to become fully compliant with legislation.	As discussed in past meetings with GMOB, the Project is governed by the *Mackenzie Valley Resource Management Act* (MVRMA). The Environmental Assessment Final Decision of August 2014 included 26 measures, several of which would need to be partially- or fully-addressed before the Project could advance its water license application for the remediation. While the Project Team works toward addressing these measures, section 89 of the MVRMA allows the Minister to "take any reasonable measures to prevent, counteract, mitigate or remedy any adverse effect, in a federal area, on persons, property or the environment…if the federal Minister has reasonable grounds believe that [(b)(ii)] a danger to persons, property or the environment may result from past operation of the work or from its closing or abandonment." Under section 89, the Project is able to release treated effluent to Baker Creek since this needs to be completed as an interim measure given there is no viable alternative discharge. INAC ensures that all effluent meets the parameters that had been established in the

			former mine's water licence, prior to discharge. In addition, the Project complies with the Metal Mine Effluent Regulations (MMER) under the *Fisheries Act*, which directs the operators of metal mines to conduct Environmental Effects Monitoring (EEM) as a condition to deposit effluent. EEM has two main components: effluent and water quality monitoring, and biological monitoring. Regulatory authorities, including the Department of Fisheries and Oceans and the Territorial Land Use Inspector, monitor the activities on the site.
		The GMOB also recommends that INAC provide a plain language explanation of how they monitor and report on activities at the Giant Mine site in the absence of a full remediation water license and land use permit.	In addition to updates provided at the annual Public Forum and other stakeholder meetings, the Project Team reported on our monitoring activities for human health, air, water, soil, sediments, waste, and biodiversity in the 2015-16 Annual Report of the Giant Mine Remediation Project [external link, English only] provided to the GMOB and available to the general public, in October2016. We will continue this in future annual reporting. The Project team welcomes suggestions to improve how it communicates on the monitoring activities at the Giant Mine site.
8. Off-Site Contamination	The former Giant Mine lease defines the boundaries for the remediation Project that underwent an environmental assessment. However, the historic operation of Giant Mine resulted in environmental impacts that extend	The GMOB recommends that the federal, territorial, and municipal governments make it a priority to initiate a process to ensure off-site contamination is appropriately addressed to protect public health and the environment.	While clean-up efforts at Giant Mine contribute to the Government's actions to protect the health and safety of NWT residents and the environment, legacy contaminations issues beyond Giant Mine boundaries fall outside the

	well beyond this area. It is noteworthy that while Giant was the largest operation in Yellowknife, there were two other sources of airborne and water-borne arsenic as both the Con and Negus Mines contributed to contamination in the region. All three operations used roasters to process ore. Elevated concentrations of arsenic have been measured in soils and some small lakes in the Yellowknife area. While some of the elevated concentrations are in remote locations, others are in areas frequently used by the public. The GNWT recently issued health advisories to reduce potential public exposures to off-site contamination, which originated more than 50 years ago. The extent and severity of off-site contamination and risks have not been fully documented, though a number of research studies have recently been initiated by universities. The GNWT has established an inter-departmental working group to coordinate efforts related to off-site contamination throughout the NWT. However, no government department has accepted responsibility for assessing and remediating off-site contamination caused by historic operations at Giant Mine. The GMOB notes that the Project is being designed and implemented in isolation, due to the absence of a broader strategy to address NWT mining off-site contamination.		scope of the Project as defined by the Mackenzie Valley Environmental Impact Review Board's Report of Environmental Assessment and Reasons for Decision [external link, English only] . The Government of Canada is, however, aware of the issue. Officials from INAC are working with the Government of the Northwest Territories and other federal departments to explore appropriate ways the federal government could support the GNWT in managing arsenic contamination on territorial lands and in waters.
9. Capacity	The GMOB has repeatedly received the message at meetings that capacity is an issue for the six Parties to the Agreement, especially given the	The GMOB recommends that steps be taken immediately to address capacity issues including meeting the current capacity needs and committing	The Project team recognizes that capacity is an issue across the Northwest Territories, and takes a number of actions to help stakeholders

	magnitude of the Project and the plethora of technical information generated. The YKDFN, NSMA, and Alternatives North have neither the staff nor the money to hire technical expertise to undertake technical reviews to ensure their interests are addressed. This not only severely limits the Parties' capacity to provide input on an ongoing basis but also compromises their ability to meaningfully participate in upcoming regulatory hearings.	to providing intervenor funding during the regulatory review process.	participate meaningfully in the project. The Project team receives annual proposals from the Yellowknives Dene First Nation, North Slave Métis Alliance, and Alternatives North for technical and administrative resources to participate in all aspects of the Project. Historically, the project has fully funded all compliant requests. This includes providing funding for: • a full-time Yellowknives Dene First Nations (YKDFN) staff member dedicated to the Project, including salary, rent and expenses; • all YKDFN and North Slave Métis Alliance (NSMA) members to attend any and all community meetings; and, • a technical advisor, who is available to all members of the Working Group, which includes YKDFN, NSMA and Alternatives North. In addition, the Project has heard and addressed specific concerns from YKDFN regarding capacity through: • improving scheduling of meetings and engagement sessions to accommodate work load of YKDFN staff, • providing communication and design support for community notices, • increasing timelines for reviewing technical documents, and • developing the yearly engagement plan and calendar with YKDFN staff to ensure their capacity to participate meaningfully is

			maximized. The Project will continue to work with the Yellowknives Dene First Nation and the North Slave Métis Alliance to be responsive to their capacity concerns, and welcomes suggestions on ways to continue to improve. With regard to intervenor funding, although there is no statutory requirement to fund public participation in regulatory proceedings, the Project will consider requests for intervenor funding from parties leading up to future Land Use Permit or Water License Proceedings. INAC will also provide notice to parties well in advance of submission of the water licence application to allow time for these discussions to take place.
10. Delivery Model	The Project encountered challenges associated with the environmental assessment process. These challenges have resulted in the requirement to meet a wide range of MVEIRB conditions prior to application for a water license. The water license is required prior to fully implementing remediation activities. The GMOB acknowledges that the Project Team is making progress on MVEIRB requirements but has substantial work to complete before applying for a water license. The Co-Proponents estimate that a water license will be in place by 2021. Given that the Project was called to an environmental assessment in 2008, it will have taken 13 years and several million dollars to move the Project through regulatory processes. The GMOB notes that this	The GMOB recommends that the Project Team carefully examine options other than the current government-driven and controlled approach to the Project to expedite the regulatory process and reduce costs. If a new model is impractical, then a very careful review of efficiencies should be undertaken with the results implemented quickly and effectively to reduce or eliminate further delays and unnecessary costs	The Giant Mine site reverted to the Crown when the owner, Royal Oak Mines, went into receivership in 1999. In accordance with the *Department of Indian and Northern Affairs Act* and the terms of the Northwest Territories Lands and Resources Devolution Agreement, the Giant Mine site falls within shared Federal and Territorial jurisdiction, and is, therefore, subject to Government of Canada policies, procedures and practices with respect to project management. In compliance with applicable regulations and policies, and in keeping with project management best practices, the Project team will continue to seek efficiencies to eliminate further delays and unnecessary costs, and

	timeframe contrasts sharply with the norm, which tends to be four or five years for private sector companies to successfully complete environmental and regulatory review stages. The GMOB also notes that the effort required by the Project Team to satisfy internal government administrative demands is enormous. These challenges point to a need to seek a more efficient and effective model than that currently in place. We suggest that rather than a government driven approach, a private-public or a private sector approach to the remediation of the Giant Mine site may be warranted.		welcomes suggestions from the GMOB and others to continually improve delivery of the Giant Mine project at the best value possible.
11. Establishing the Socio-Economic Costs and Benefits	The Giant Mine Remediation Project exists within the Federal Contaminated Sites Action Plan (FCSAP). Therefore, it is expected to follow the Federal Decision Making Framework for FCSAP and the related suite of policies and processes. One area where the GMOB sees gaps, is where the Site Management Strategy (SMS) is defined and options analyzed, while taking stakeholders' inputs into consideration. The Project will affect the well-being of local people for generations to come. The Project performance should be measured not only by minimizing negative impacts as it achieves its clean-up goals but also in terms of how it maximizes benefits from the Project. Given the size, scope, potential impacts, and length of the Project, remediation activities should be a major economic driver of the local and territorial economies. If done properly, major economic	The GMOB recommends that the Project Team apply a structured and deliberate framework, such as a Health Impact Assessment (HIA) or Social Economic Impact Assessment to evaluate the social, economic, and cultural aspects of the Project from a community health and well-being perspective. The framework should assist the Project Team to analyze and optimize local education, training, procurement, and jobs skills development opportunities. Further, this evaluation should aim to minimize negative effects while maximizing the positive effects of the Project; for example, the potential negative impacts of transient labour and major contractors on local housing, medical and social resources. (Examples of resources which could assist the Project Team include: the National Collaborating Centre for Healthy Public Policy, the Society of Practitioners of Health Impact Assessment, the Alaska HIA Program, and the	In accordance with the Environmental Assessment, the Project is designing and implementing a long-term Health Effects Monitoring Program [external link, English only] to ensure the remediation activities do not have negative impacts on community health. Scoping of this program is currently underway, led by Dr. Laurie Chan from the university of Ottawa. This includes consultation with area First Nations, other Indigenous groups, and the community at large. This program will generate a baseline for community health prior to the start of the remediation work, and will continue throughout active remediation and for years after work at the site is complete. In addition, the Giant Mine Remediation Project's socio-economic strategy is being developed in conjunction with the Government of the Northwest Territories and other agencies

	spinoffs could be identified; and potential problems could be identified and mitigated early in the process. This would be in keeping with the Project's stated goals. There is this commitment in the Government of Canada – Government of Northwest Territories Cooperation Agreement: "Both Parties agree to maximize northern economic development opportunities in carrying out the Giant Mine Remediation Project." The Giant Mine Environment, Health and Safety, and Community Policy describes this goal: "The Giant Mine Remediation Project will implement strategies to maximize the economic opportunities for Northerners and local Aboriginal people through employment and procurement." These goals are consistent with the Federal Contaminated Sites Policy, which states: "Many FCSAP Projects have socio-economic benefits, particularly in Aboriginal communities and in northern or rural areas. Through joint ventures established between some custodial departments and local communities, work conducted on FCSAP sites offers opportunities for local residents and contractors to learn and develop skills, and to build careers and businesses. The partnerships forged among employed people and businesses, especially at the local level, help to foster a sense of ownership of the Project results".	International Association for Impact Assessment.)	to ensure Northerners and Indigenous persons are positioned to benefit from employment opportunities that result from the remediation of the Giant Mine site. The strategy includes measures to reduce and limit barriers that might prevent Indigenous and Northern persons, including those living in the Monfwì Gogha Dè Nıhtł'è claim area, from successfully participating in employment opportunities that arise out of the Giant Mine site's remediation. The socio-economic strategy also looks at ways to support and build capacity in the North, and includes working with INAC and the Government of the Northwest Territories, as well as other federal departments. For the Main Construction Manager contract in particular, the successful bidder will need to demonstrate they have an approach and process in place to maximize the use of Northern and Indigenous businesses, and to promote Northern and Indigenous employment. This includes the need for a dedicated Economic Development Officer as part of the contract, whose role will be to work with and engage the community members on employment and business opportunities. The Project has also worked to maximize Northern and Indigenous employment and business opportunities prior to tendering the Main Construction Manager contract. Between 2006 and 2016, we are pleased to report that

			56% of workers on site were Northern employees, and 15% of workers on site were Indigenous employees. In addition, of approximately $130 million in contracts that were awarded between 2006 and 2016, $61 million in contracts were awarded to Yellowknives Dene First Nation-owned businesses, and $3 million were awarded to Tłı̨chǫ-owned businesses. The Project has plans this year to conduct a socio-economic session specifically for the Yellowknives Dene First Nation, as well as hold a capacity building workshop.
12. Health and Community Well-Being	Concern about the toxicology and health effects of historic and current arsenic exposures is prevalent in discussions regarding the Project. The Human Health and Ecological Risk Assessment (HHERA), formerly referred to as the Human Health Risk Assessment (HHRA), and the Health Effects Monitoring Program intend to address quantitative science questions that typically become the focus of health related concerns. The GMOB has seen positive progress in both of these initiatives. The GMOB anticipates release of the HHERA report in 2017. The Health Effects Monitoring Program will engage with communities to finalize the recruitment and monitoring approach and seek ethics approval in the spring of 2017 and begin their sample collection in that year. The Project Team recognizes that current human health research efforts do not address qualitative	The GMOB recommends that the Project Team actively embrace the principles of trust, transparency, and communication and engagement to communicate Project risk with respect to health and community well-being. The progress and outcomes of the HHERA and Health Effects Monitoring Program are essential elements of Project risk communication. Perceptions of risk, beyond quantitative science, must be addressed.	Every member of the Project Team is committed to an open, transparent, and respectful approach to communicating and engaging with stakeholders, First Nations and other Indigenous people, and the general public in a way that creates, maintains, and builds a mutual and lasting trust. Specifically, the Project acknowledges the importance of listening to and understanding community perceptions of risk, responding to concerns, and communicating the risks identified by the project team to stakeholders, and we will continue to do so through the risk assessments being conducted by the Project team. In addition, the project will be undertaking a Quantitative Risk Assessment as per Measure 5 of the Environmental Assessment in 2017. As part of this assessment, we will be seeking input from the public and encourage participation in a

	well-being issues. To this end, the Team has stepped outside the traditional remediation delivery model to engage a research program on the issue of stress and its impact on health. The GMOB commends this as a critical step in acknowledging that health and community well-being depend on many interdependent factors, including those highlighted at the outset of this Observations and Recommendations section.		risk session where community concerns related to the risks on site will be taken into consideration. The Project will also work with stakeholders to ensure that their concerns and perspectives are key inputs into the Quantitative Risk Assessment.

References

Golder (Golder Associates Ltd.). 2013a. Giant Mine Phase 4 Environmental Effects Monitoring Program Final Interpretative Report. Prepared for Aboriginal Affairs and Northern Development Canada, Yellowknife, NT, Canada.

Golder. 2013b. Giant Mine Remediation Project: 2011 Baker Creek Assessment, Giant Mine, Yellowknife, NT. Submitted to Public Works and Government Services Canada, Yellowknife, NT, Canada.

Golder. 2016a. Arsenic Characterization – Disturbed Areas – Giant Mine, Yellowknife, NT. Submitted to AECOM Canada Ltd., Edmonton, AB.

Golder. 2016b. Arsenic Characterization – Undisturbed Areas – Giant Mine, Yellowknife, NT. Submitted to AECOM Canada Ltd., Edmonton, AB.