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Memo

To:	Jane Amphlett, INAC	Client:	INAC
From:	Lee Christoffersen	Project No:	1C1001 036
Cc:	Daryl Hockey, SRK Natalie Plato and Sharon Low, INAC Erika Nyssönen, GNWT	Date:	May 26, 2017
Subject:	Record of Discussion for the February 2017 Surface Design Engagement Meeting		

1 Introduction

Early in 2015, the Giant Mine Project Team initiated an engagement process related to plans for remediating the surface of Giant Mine. The objectives of the Surface Design Engagement (SDE) process are to provide opportunity for stakeholder input to the surface remediation plan, and to ensure that the Project Team understands the perspectives and preferences of all parties. This memo provides a record of discussion for a meeting held in Yellowknife on February 15, 2017. In the morning, the Project Team and SRK presented a summary of ongoing engagement, a recap of the SDE process and findings, the Project Team's current thinking on key decisions, and upcoming technical work. In the afternoon, all meeting attendees provided their thoughts on the remediation of the North Pond tailings spill and fish in Baker Creek.

People from the following groups attended the meeting:

- Yellowknives Dene First Nation (YKDFN)
- North Slave Métis Alliance (NSMA)
- Alternatives North
- Mining Heritage Society
- Giant Mine Oversight Board (GMOB)
- City of Yellowknife
- Environment Canada
- Health Canada
- Department of Fisheries and Oceans (DFO)
- Government of the Northwest Territories (GNWT)

2 Morning Session

The slides that were presented in the morning session are included as Attachment A and the handouts that were given to attendees are included as Attachment B.

Jane Amphlett presented an overview of ongoing and planned engagement for 2017 and 2018, which included closure objectives and criteria, the location of the outfall and Water Quality Objectives, the Health Effects Monitoring Program, the Human Health and Ecological Risk Assessment (HHERA), the Stress Assessment, and the Quantitative Risk Assessment (QRA). The group discussed the following points during this presentation:

- Jane clarified that the Project Team is a partnership between the Federal and territorial governments and that she was speaking on behalf of the Project Team.

- Several members of YKDFN (Norman Betina, Stacey Sundberg, and Mary Rose Sundberg) asked questions about what information would be included in the ongoing health study, such as samples of saliva and urine taken during the 1960s and 1970s, and if the baseline considered in the health study was before mining happened or during mining. William Lines told the group that details of the health study would be shared at the Public Forum on March 1 and asked that questions on the health study should wait until the forum.

Daryl Hockley presented a recap of the SDC process that began in May 2015. He focused on the results of the Options Evaluation Workshop, which was held in February 2016. Groups were most positive about Options 2 and 5, and individual voting agreed with the group results. Daryl stated that there was clear agreement on major parts of the surface remediation plan and noted where people still disagreed. He explained that the SDC process helped the Project Team understand why people agreed on some things and disagreed on others. The group discussed the following points during this presentation:

- Diane Baldwin from the Mining Heritage Society asked about the final alignment and width of Baker Creek near its mouth and whether remediation would threaten existing structures or the City parking lot. Jane clarified that the final onsite alignment and width of Baker Creek had not been determined yet.

- William Lines, Johanne Black, and Peter Crookedhand from YKDFN asked several clarification questions about the sediment cleanup planned for Baker Creek. Sediment will be removed from Reach 0 to Reach 6, which is the limit of the lease boundary. Nearly all of the sediment will be removed. The removed sediment will likely be placed on top of the tailings. Jane agreed to give GMAAC an updated estimate of how much sediment would be removed. Johanne asked that the Project Team consider arsenic speciation during sediment removal. Peter was concerned that the City and the public were still using the mouth of Baker Creek and suggested blocking access until the area was remediated. Wayne Langenhan from NSMA also asked for more information on how much of the marina would be dredged.

- Angus Charfo from YKDFN asked if the tailings dams would be reinforced if tailings were relocated. Jane responded that dams will be reinforced if they need to be and that the Project Team would make sure that the dams were safe.

- There was concern that mosquitoes could be contaminated with arsenic from the tailings and whether arsenic could be transferred from mosquitoes to human beings. The Project Team has not looked into whether this is possible.
 - Johanne Black from YKDFN stated that the Project Team could not say that risks are low because the future uses of the site haven't been decided. She asked that the Project Team identify traditional uses of the area and how people are using the land now in a traditional use study. Jane responded that risks would be determined through the HHFRA.
 - Johanne Black from YKDFN asked if decisions would be made behind closed doors or if the Project Team would be consulting with stakeholders. Jane clarified that the Project Team wanted feedback on their decisions and wanted to understand what priorities people had for the site.
 - Several members of YKDFN mentioned that contaminated rock from the mine was used to build roads in Dettah and Ndilo. Jane said that the borrow material that will be used during remediation will be tested to make sure that it's clean.
 - Johanne Black and Mary Rose Sundberg from YKDFN said that they were glad that the Project Team was going to clean up the Townsite, but were concerned that people would want to use or live in the Townsite area after cleanup and that they could not be stopped. Johanne also mentioned that the foreshore tailings should be removed, instead of capped.
 - William Lines and Peter Crookedhand from YKDFN asked why some areas outside of the lease boundary (like the North Pond tailings spill and the nearshore sediments) were going to be remediated, but the other areas (such as Lower Martin Lake) could not be included. William was worried specifically about Baker Creek becoming recontaminated from contamination upstream that was left in place. Jane and Natalie Plato stated that the Project Team is looking at ways to reduce loading to Baker Creek.
 - The Project Team acknowledged that some of the proposed clean-up areas (for example the North Tailings spill) are outside the current lease boundary and are working on the potential legal requirements for this.
 - Several attendees expressed frustration that the site had not already been cleaned up.
- After the lunch break, Jane Amphlett presented the Project Team's current thinking on key decisions. She discussed key decisions that have been made, the remaining details of those decisions, and what decisions remain. The Project Team has decided that Baker Creek will remain on the site, sediments in the creek will be removed, tailings will be covered with rock, pits will be filled, and soils in the disturbed areas, Townsite, and North Pond tailings spill will be cleaned up. All of these decisions were made because of the feedback that the stakeholders gave during SDE and are different than what was planned for the surface several years ago. The group discussed the following points during and after this presentation:
- Wait-Humphries from the Mining Heritage Society and Morris Martin from YKDFN had concerns about the steepness of the tailings ponds, including the steepness of the dams being a risk for failure

- and the North Pond leaking to the lake. Jane stated that the Project Team will continue to monitor the dams and the tailings.
- Norman Bettsina from YKDFN was concerned about the City of Yellowknife developing the areas around Yellowknife River and Prosperous Lake in addition to the site.
 - Isadore Tsetta and Eddie Sikyea from YKDFN shared stories about their time working at Giant Mine, asked younger people from YKDFN to speak up, and expressed their concern about dust from the tailings.
 - Muriel Bettsina from YKDFN talked about how the YKDFN used to use the area before the mine started, and how they can't use the land like they used to. She mentioned that sled dogs died from eating contaminated fish in the past and that country food needs to be tested. Rose Bettsina said that she used to pick berries there before mining, but can't anymore, and was frustrated that people from the south are working on the project but not many locals.
 - Ted Tsetta asked the Project Team to discuss compensation for elders with Ottawa government officials.
 - William Lines from YKDFN confirmed with Jane that there will not be vegetated covers on the tailings.
 - Tony Brown from GMOB asked when a final closure plan would be prepared and how the Project Team would communicate with stakeholders about it. Jane clarified that the first draft of the closure plan would be ready by May 2018 and that there would be regular meetings with GMAO and the Working Group, but no additional engagement process like SDC.

3 Afternoon Session

- The slides that were presented in the afternoon session are included as Attachment C.
- Daryl Hockley led the whole group through a series of questions about the North Pond tailings spill and fish in Baker Creek. He asked questions about how the past, present, and future:
- North Pond tailings spill questions
 - How did people use this area in the past? How did animals use this area in the past? Did they use wetlands, forest, and rock areas?
 - Do any people or animals use this area now?
 - How would people and animals use this area in the future if the large areas of tailings are removed? What if the large areas of tailings are covered?
 - Fish in Baker Creek questions
 - Did people fish in and around Baker Creek in the past? What kinds of fish used to live in the creek? Where did they live? Were there all the time, or just some parts of the year?

- What have you heard about people fishing in and around it now? What kind of fish live in Baker Creek but might be caught in Yellowknife Bay?
 - How can we test fish from Baker Creek to show that they are safe for people? What kind of fish should we test? What else could the project do to better monitor fish?
- The group discussed the following points for the North Pond tailings spill:

- Johanne Black, Ted Tsetta, Morris Martin, and Murel Betsina from YKDFN talked about the importance of the area to the YKDFN. Johanne said that the area is the heart of YKDFN territory and that they have a spiritual link to the bay. Ted said that the YKDFN used to have a lifeline to the land through hunting, trapping, and fishing, but now that they can't do any of those activities, the connection is gone. Morris talked about how he used to gather firewood and trap muskrat in the area, but now he doesn't feel comfortable going there because he isn't sure if it's safe. He said that he wants more information about the studies that have been done and what the results are, because he feels like that information isn't communicated to YKDFN. Murel said that she used to gather wood in the area to smoke meat and fish but feels afraid to do that now.

- Angus Charlo from YKDFN identified a boat trail along the western shoreline of the bay that travels north to the mouth of the Yellowknife River through the North Pond tailings spill area. He said that YKDFN used to gather firewood in the area and catch fish, although now the fish travel along the area that is contaminated by tailings. Moose also used to migrate from the mouth of the Yellowknife River to Flammigan Rapids. Angus did a moose survey from an airplane in the past in the area.

- Jonas Sangris from YKDFN mentioned that people from Dettah travel in the area on their snowmobiles during the winter and asked if the area was fenced. Jane confirmed that it was not fenced, but that there are some warning signs. Jonas pointed out that no one will get off their snowmobile to read a sign, so the area should be fenced if people aren't supposed to go there.

- Liza Pieper from YKDFN agreed that the area should be fenced. She also was concerned about contaminated soils in Dettah, Ndilo, and Yellowknife. Jane stated that the ongoing risk assessment work will include exposure in those locations.

- Peter Crookedhand from YKDFN asked if the sediment in the lake was contaminated and how much of it was tailings. Daryl responded that there are tailings in the lake, but there is also natural sediment. William Lines from YKDFN asked if the arsenic in the lake sediment had been delineated, and Daryl clarified that arsenic content had been delineated, but tailings had not.

- William Lines from YKDFN asked if more work was planned for the North Pond tailings spill. Jane said that additional assessment of this area is planned and may include sediment sampling in the lake. William mentioned that he has noticed people camping outside of the recreation area by the mouth of the Yellowknife River, and he was concerned that they were collecting firewood, picking berries, or catching fish.

- Norman Betstina remembered that he used to collect firewood from dead trees in the area from the 1970s to the 1990s, and also did some trapping.
- The group discussed the following points for fish in Baker Creek:

- Wayne Langenhan from NSMA described the DFO fish study that he was involved with during the winter of 2015. He explained that they caught fish in the Yellowknife area, including from Kam Lake, Grace Lake, Long Lake, and Martin Lake. He helped to label the fish and then sent them to labs. He said that the fish were unfit for human consumption, so the fish in Baker Creek were likely the same or worse. He also said that he had heard that the Project Team will have more information about the safety of country foods after the get away from the contamination was to move away from Yellowknife. Daryl responded that country foods within 15 kilometers of Yellowknife also could not be eaten, and the only way to get away from the contamination was to move away from Yellowknife. Daryl responded that the Project Team will have more information about the safety of country foods after the HHERRA. He also mentioned that Trail, BC had similar issues but there were some simple solutions that made people safer.
- Johanne Black from YKDFN asked if all of the historical work was going to be included in the health study. She was concerned that the health study would be missing information and wanted to have all of the existing data compiled.

- William Lines asked if the Project Team was planning to do a data gap analysis for the HHERRA and how they were sure that the information that was being collected would address information gaps. Erika Nyssosson responded that the Project Team had asked the Working Group and others to help identify what should be included. Daryl mentioned that the Project Team would finish the study and then would know if they needed more data.

- Isadore Tsetta from YKDFN asked to have a better map of the mouth of Baker Creek so he could identify where he used to camp before the mine was built and where he worked building houses when mining started.

- Morris Martin from YKDFN remembered fishing and hunting in the area and that he and his wife got a rash all over their bodies after eating ptarmigan and fish. He asked advice for what people should do if they think they've eaten a bad fish or bad meat. Erika Nyssosson said that people should go see a doctor if they are worried.

- Peter Crookedhand from YKDFN was frustrated that DFO had not provided more input on monitoring fish. Peter asked that DFO sit down with YKDFN to explain their position and help out.

- Wayne Langenhan from NSMA mentioned that Davik and Ekati have comprehensive fish monitoring programs and suggested that the Project Team learn what they are doing. He also suggested tagging fish so if people catch them in the bay, they know they came from Baker Creek, and perhaps installing underwater cameras in Baker Creek.

- Johanne Black from YKDFN explained that YKDFN doesn't fish in Baker Creek anymore, but they do have nets in the bay and people were concerned if they were catching fish that were from Baker Creek. She said that YKDFN eat all the parts of the fish, including the eggs, eyes, and livers, so all of the organs should be tested. YKDFN also use fish scales to make crafts,

so the fish scales should be tested too. She stated that YKDFN should be a part of any monitoring program and should advise the project team on monitoring, and that the Project Team should do more consultation on monitoring.

- William Lines from YKDFN suggested that because fish seem to move in and out of Baker Creek over the year, perhaps there could be seasonal advisories on catching fish in the area.
- Angus Charlo and several other YKDFN members suggested keeping records of fish that were caught that were bad to eat. Erika Nyssönen suggested contacting the local Environment and Natural Resources officer or the local Fisheries officer. An YKDFN elder said that he remembered when fish were tagged in Hay River and people were given \$5 to return the tag, and rewarding people for returning the tags would be a good idea.

4 Closing

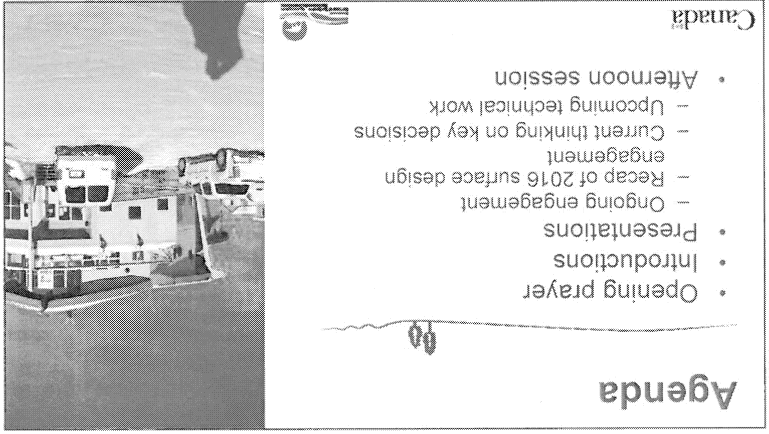
Please contact Lee Christoffersen at 604.661.4196 with questions.

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Lee Christoffersen, EIT, CIT
Consultant

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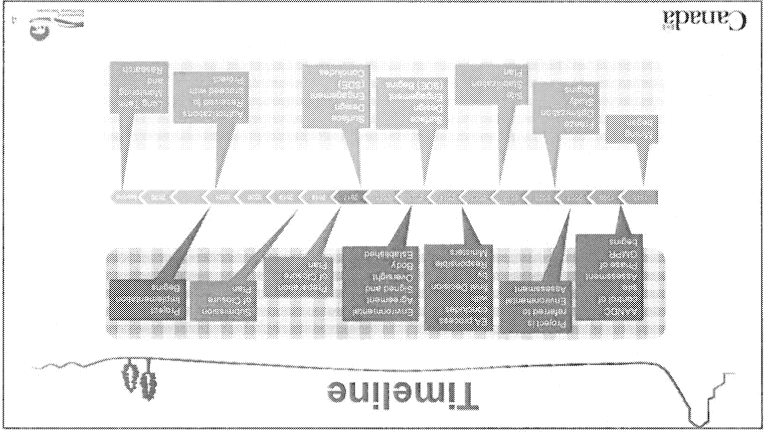
Attachment A – Morning Session Presentation

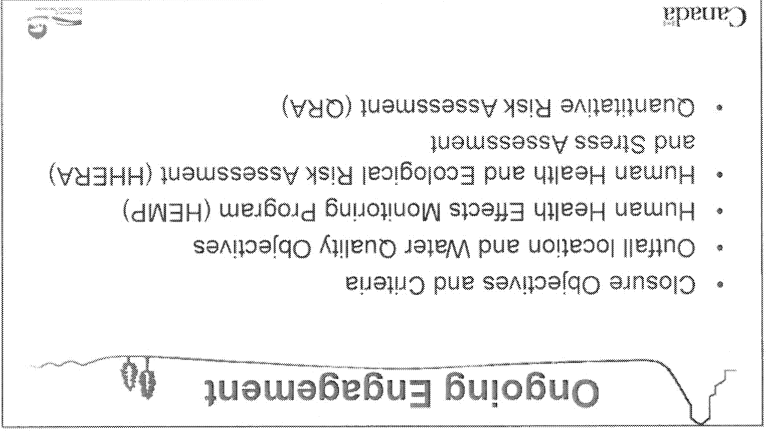
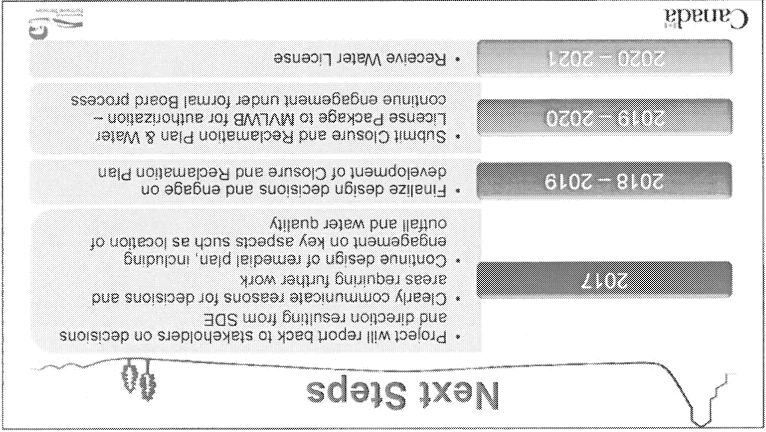




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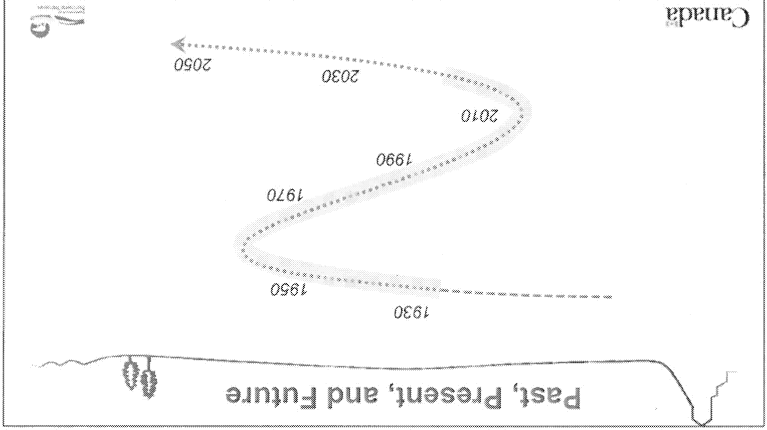
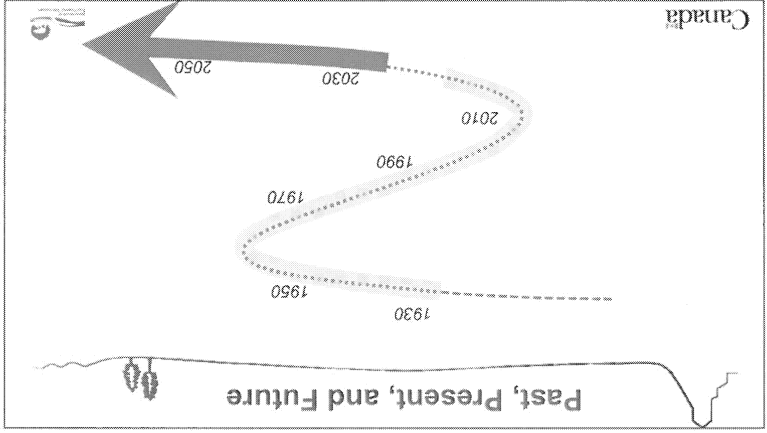


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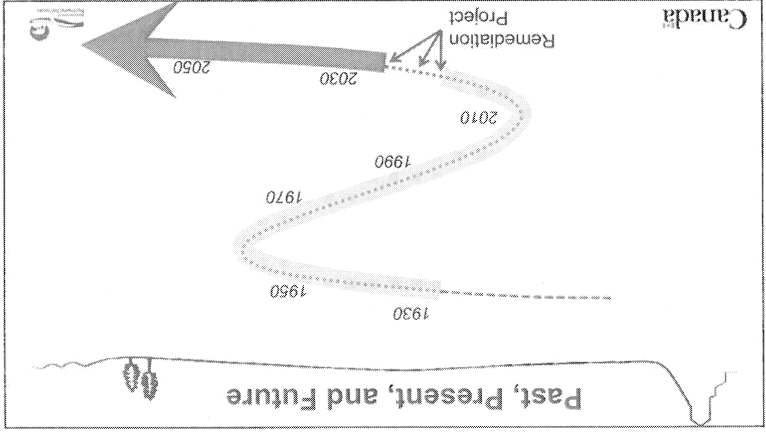
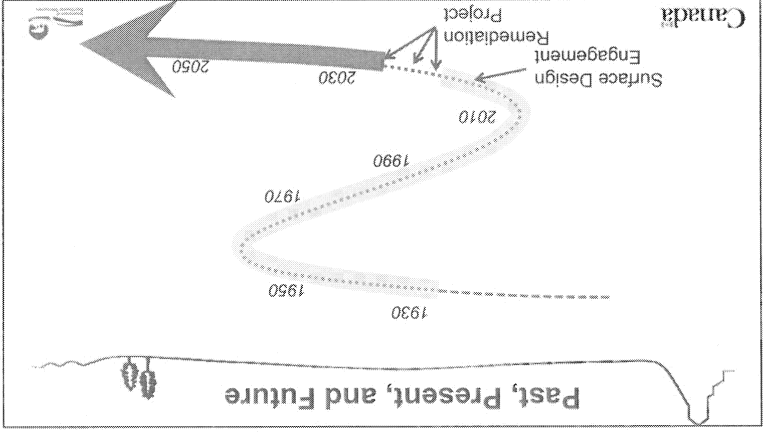


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Surface Design Engagement

Canada

Surface Design Engagement

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• What was included?

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• What was included?

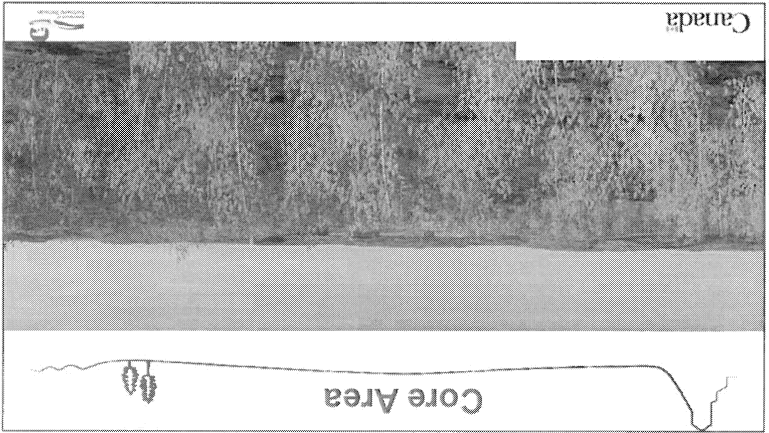
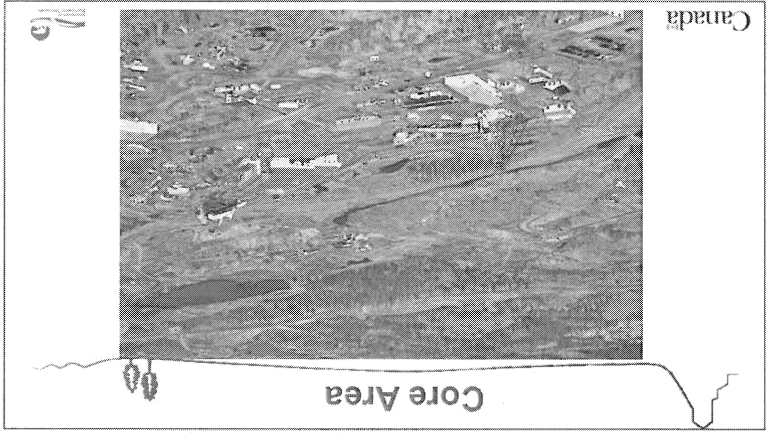
Surface Design Engagement

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• What was NOT included?

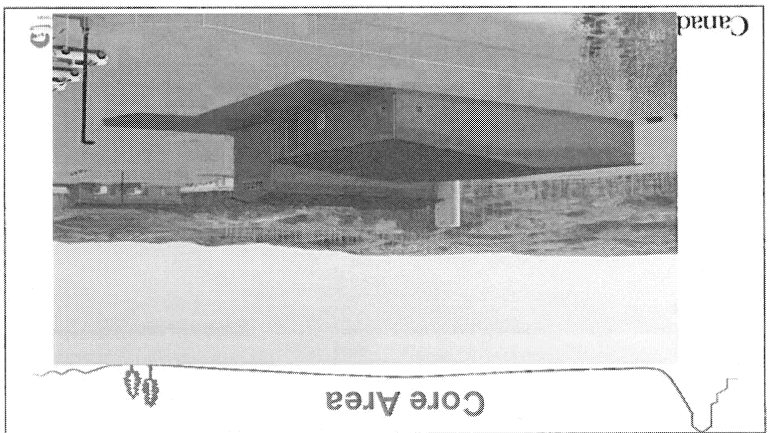
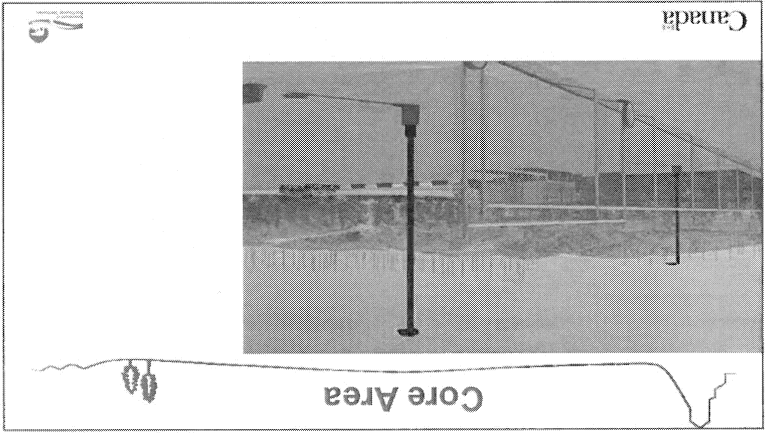
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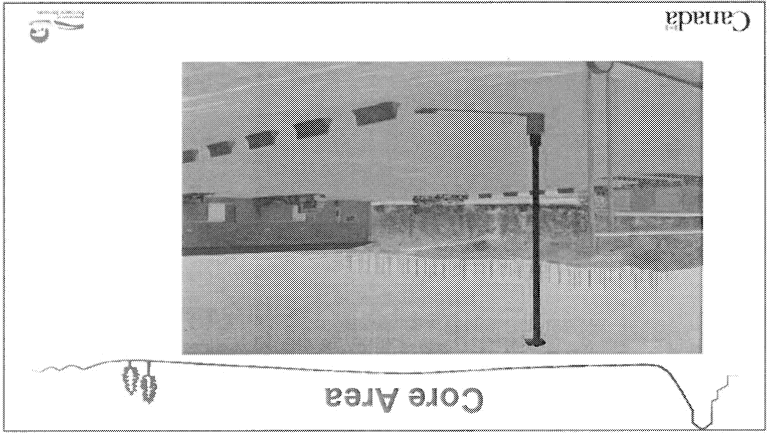
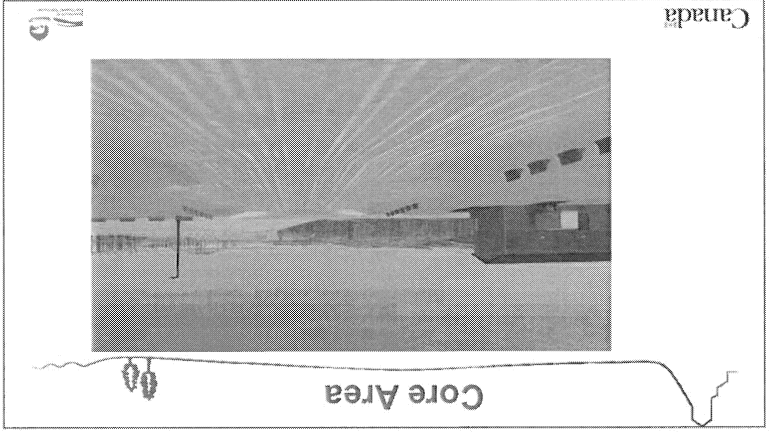


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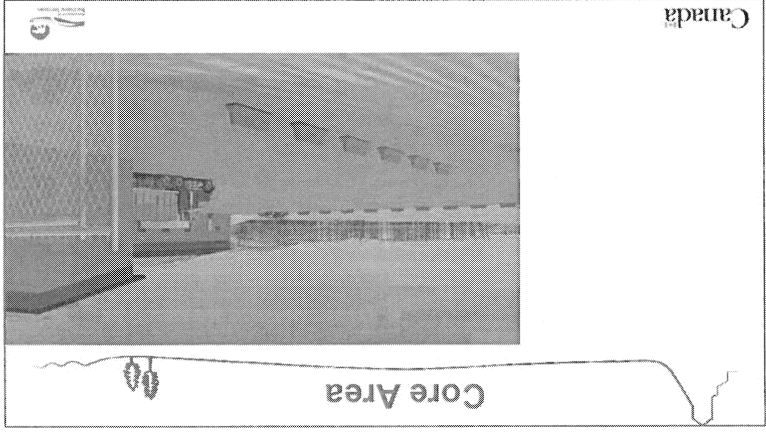
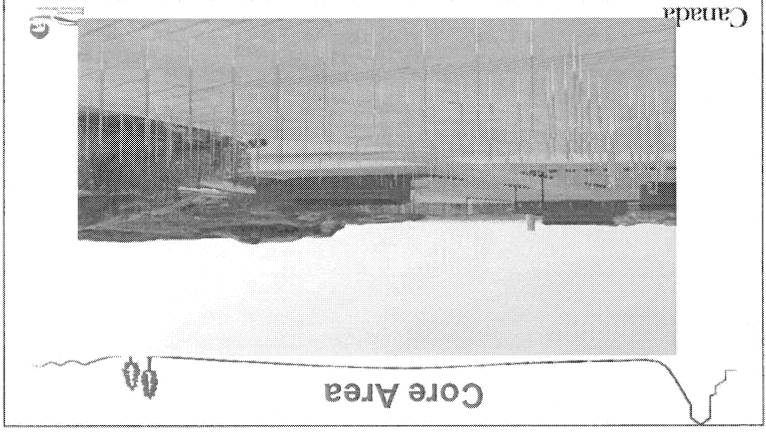


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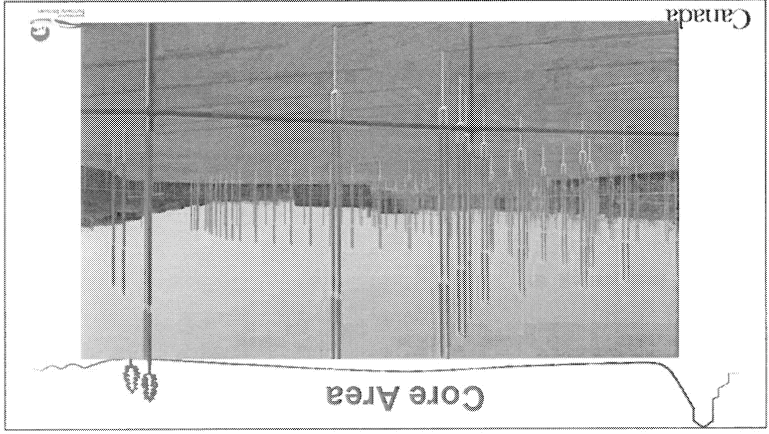
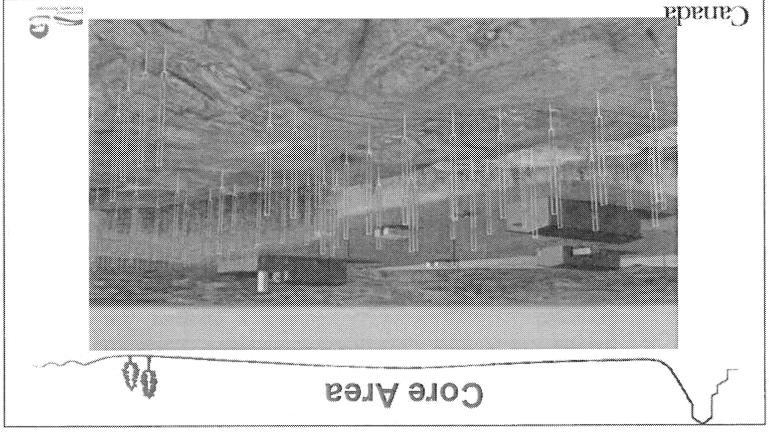
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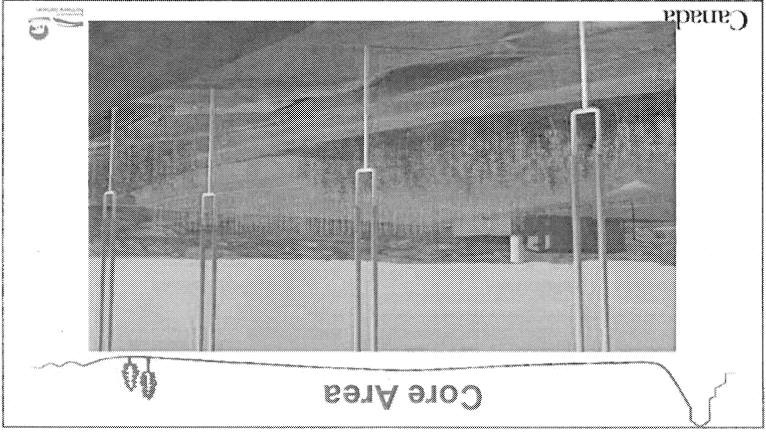
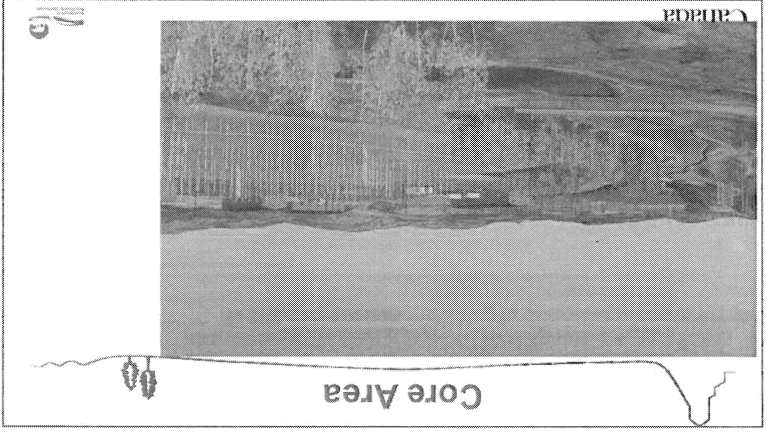


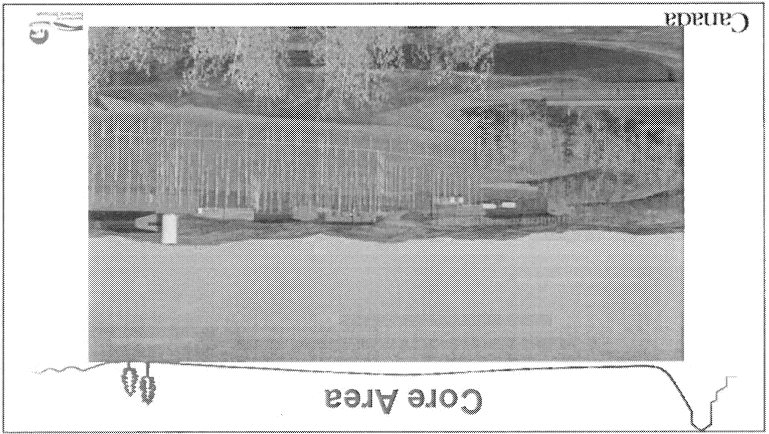
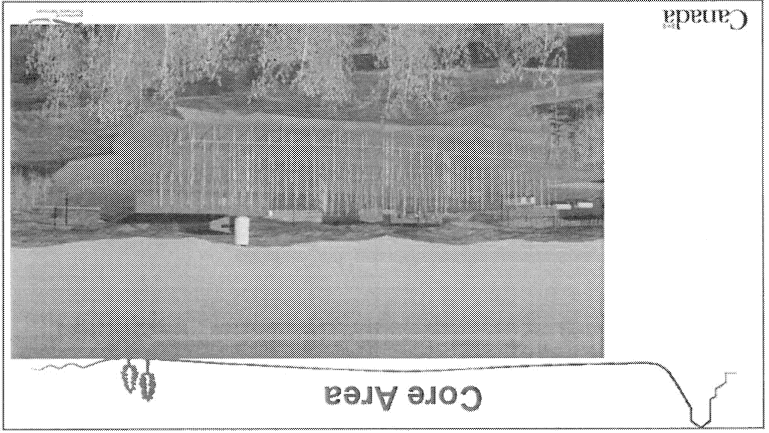
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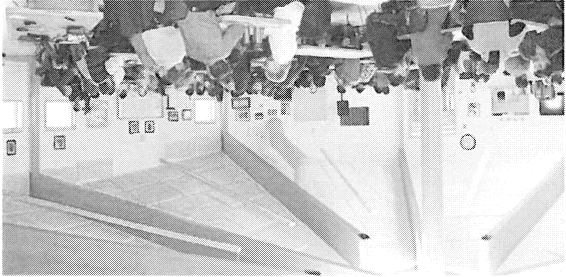
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- What was included?

Surface Design Engagement

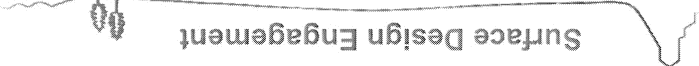
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- Option Definition Workshop

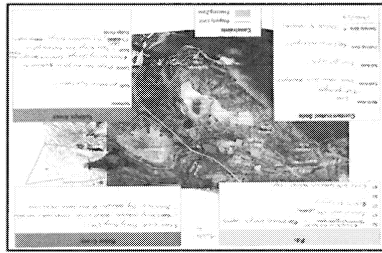
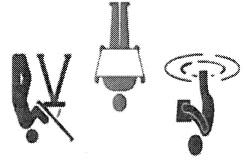
Surface Design Engagement


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Surface Design Engagement

- Further option definition and risk assessment



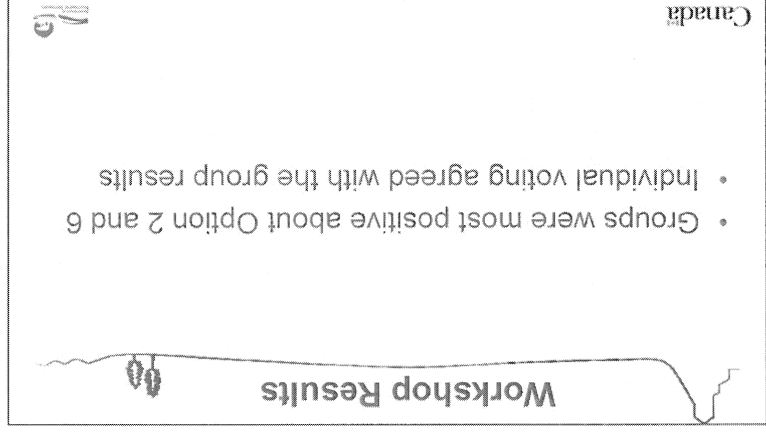


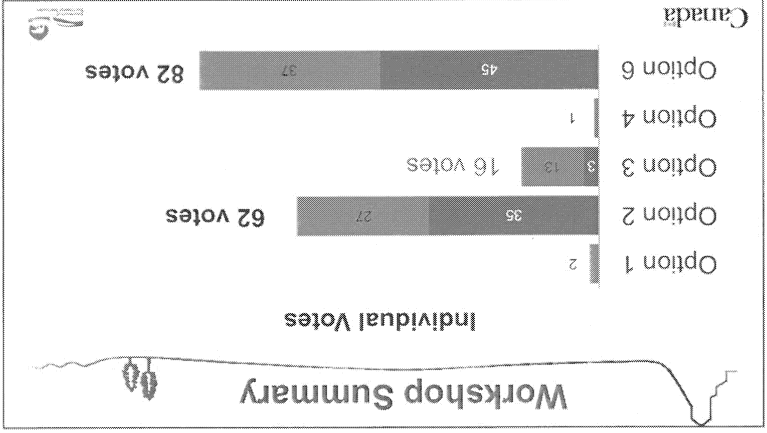
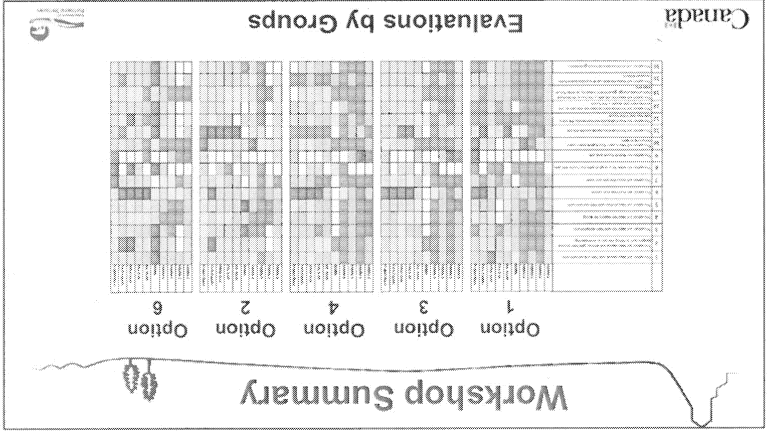
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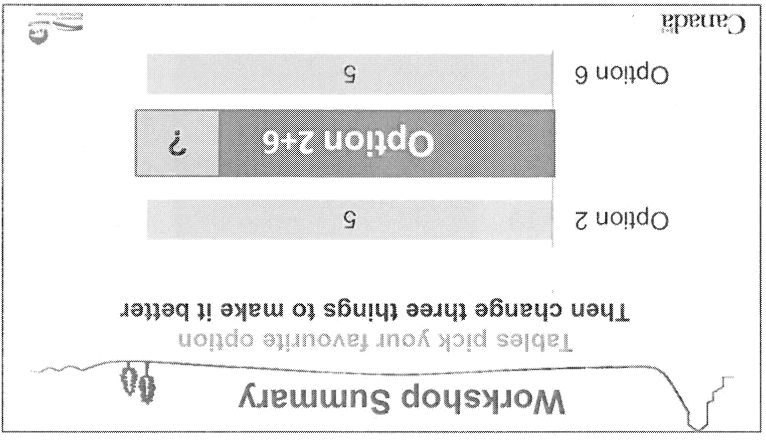
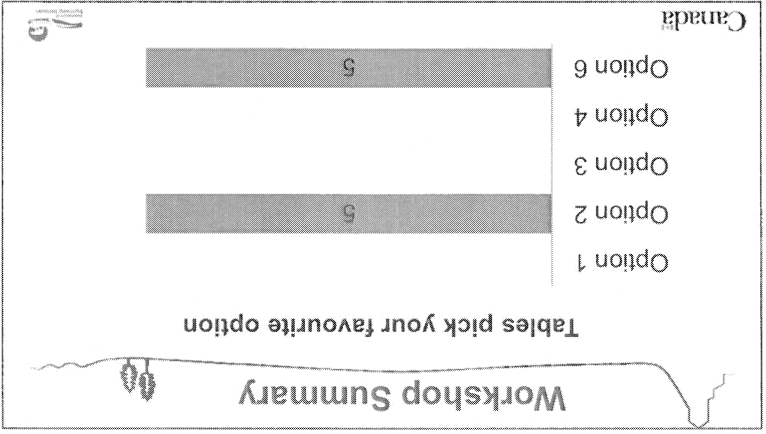
- Options Evaluation Workshop





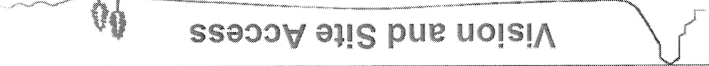







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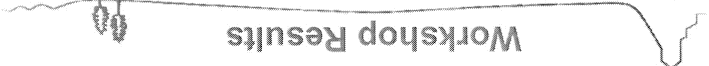


Vision and Site Access

- Access to core area restricted




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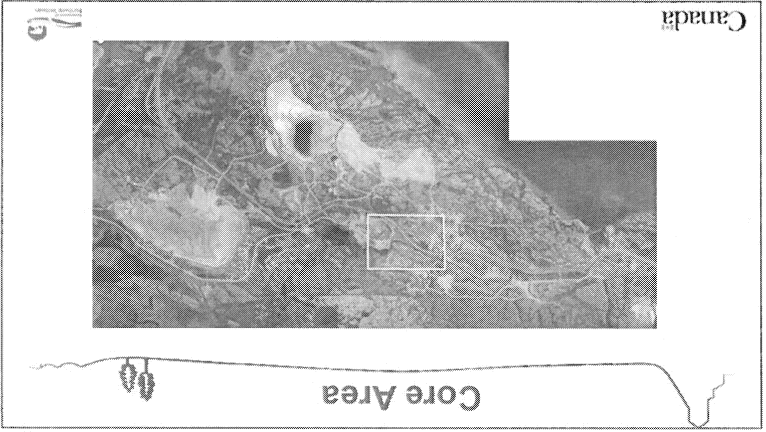


Workshop Results

- Vision and site access
- Baker Creek
- Pits
- Tailings
- Contaminated soils



15/02/2017



Vision and Site Access

- Long term monitoring needed
- Decisions about uses can be made in future
 - We can still clean up the soil to recreational or residential standards
 - That doesn't mean we need to allow those uses

Canada

Environment Canada

15/02/2017








- Memorial/museum


Vision and Site Access

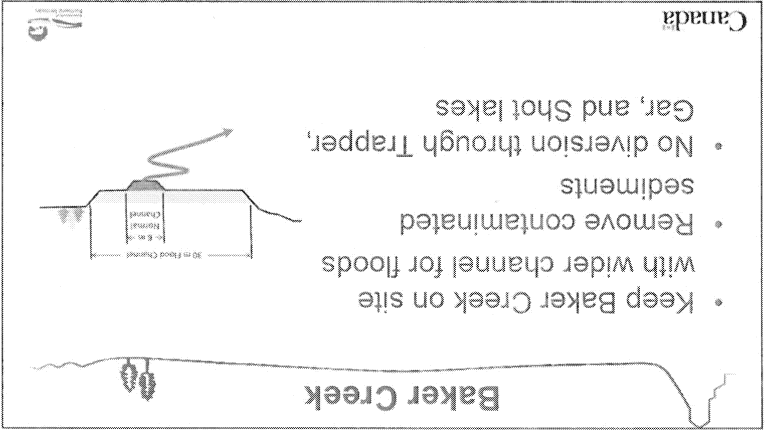




- Should we let people use other parts of the site?
 - No
 - Could lead to uncontrolled use and exposure to contamination
 - Yes
 - There are good uses for parts of the site and access can be controlled

Vision and Site Access





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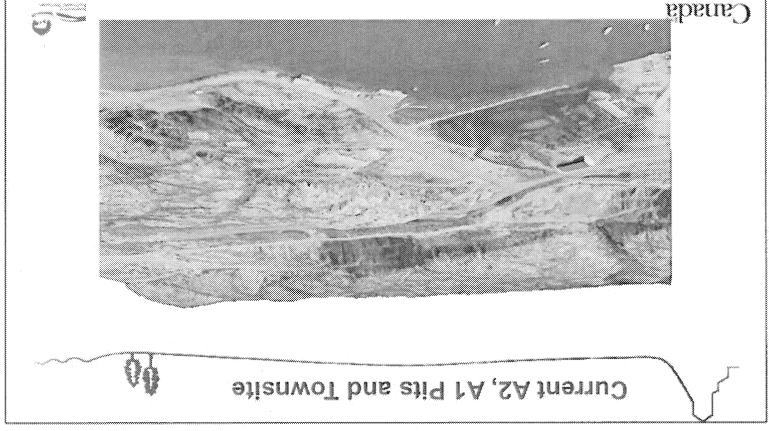
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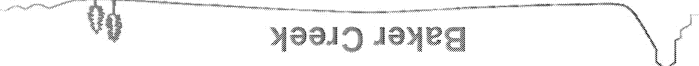
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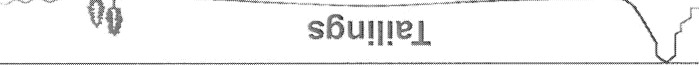


Canada



- Should we allow fish in Baker Creek?
 - No
 - Risk of people eating fish with arsenic in them
 - Yes
 - After sediments are cleaned
 - Baker Creek is valuable grayling habitat
 - Risk to human health is low

Canada



- Tailings should go underground as much as possible
 - Eight groups said use South and Central Pond tailings to fill pits
 - One group said leave South and Central Pond tailings but cover them
 - One group said move South and Central Pond tailings to North Pond

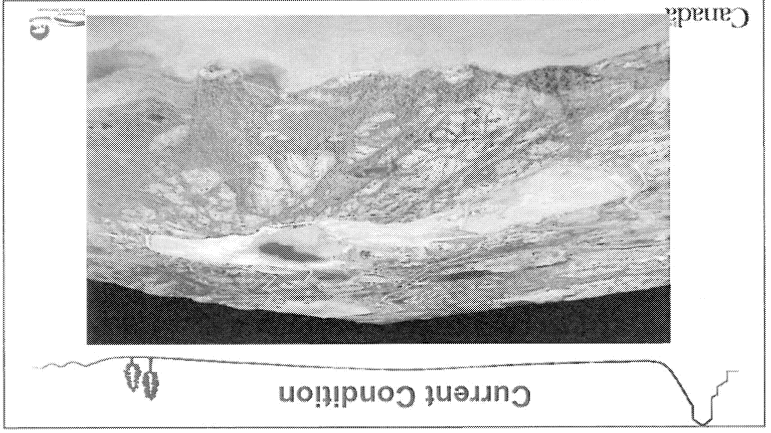
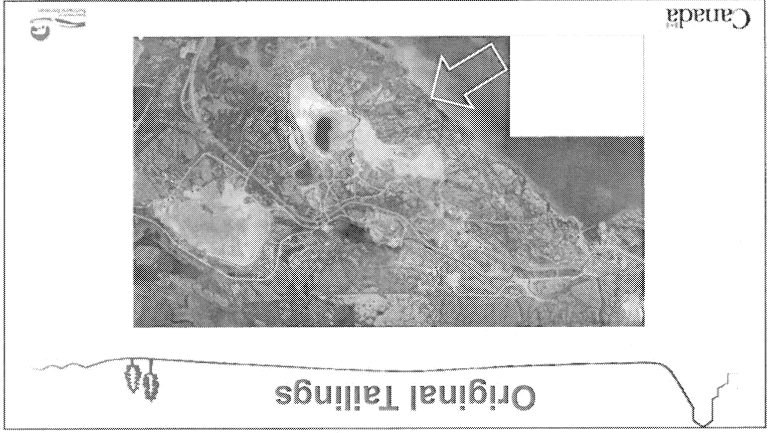
Canada

- What kind of tailings cover?
 - Seven groups preferred rock covers on the tailings and backfilled pits

Canada

- What kind of tailings cover?
 - Three groups preferred vegetated covers
 - Some groups thought the cover design should be changed
 - thicker rock layer
 - add a cement or plastic liner

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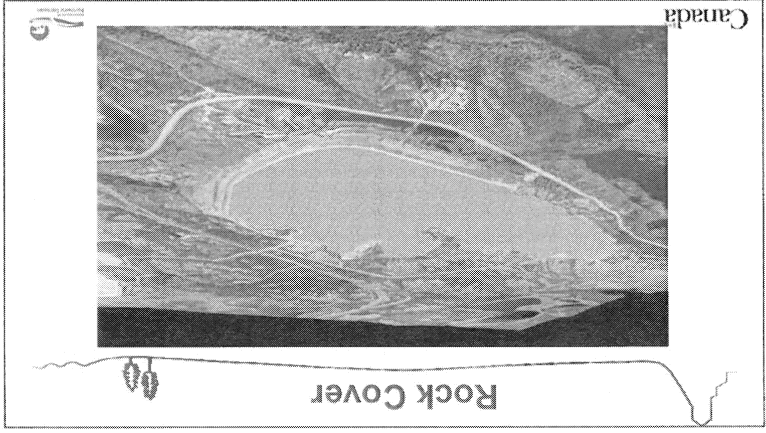
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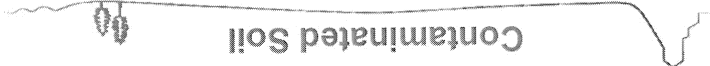
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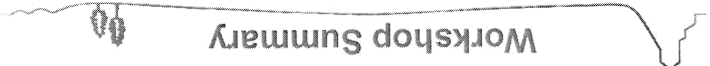


Contaminated Soil

- Clean up soils in industrial areas
- Seven groups wanted to clean up all soils in the southern half of the site, including the shoreline
 - (Other groups did not disagree)
- Some groups wanted to do more
 - Clean up sediments along the shoreline
 - Extend soil remediation outside of the lease boundary




Canada



Workshop Summary

- Clear agreement on major parts of the surface remediation plan

Agreement



Canada

Workshop Summary

- But the engagement helps us understand why

Agreement

?

Canada

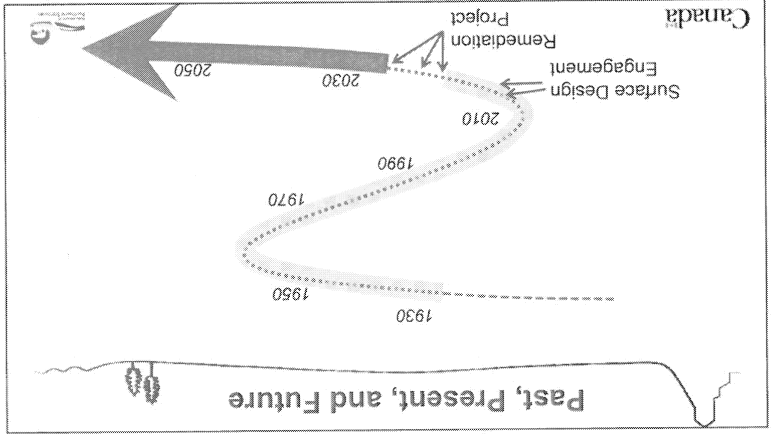
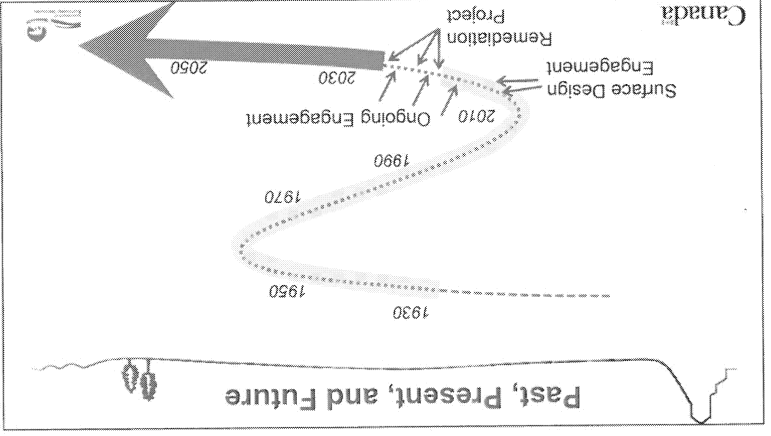
Workshop Summary

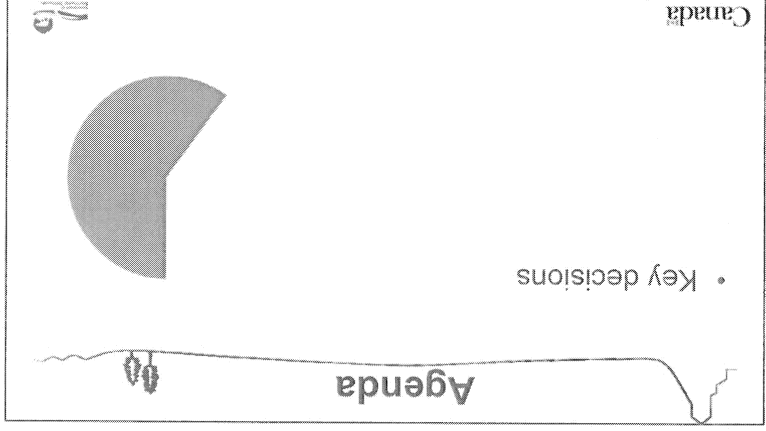
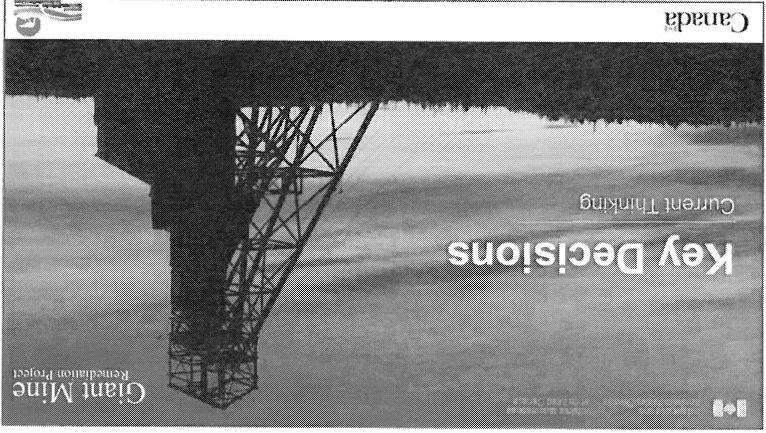
- Still disagree on some points

Agreement

?

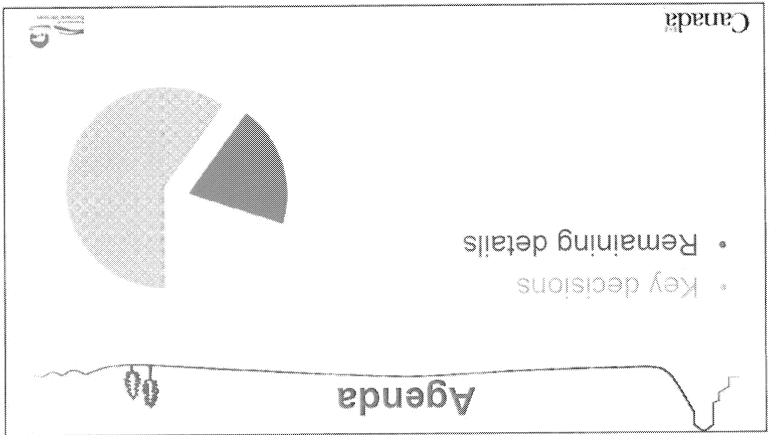
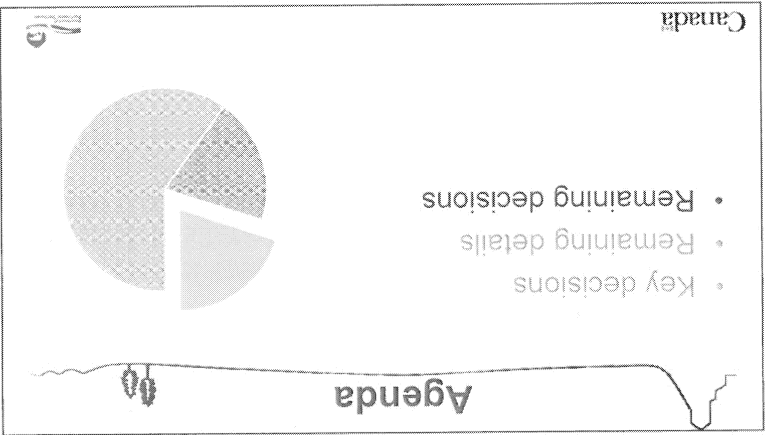
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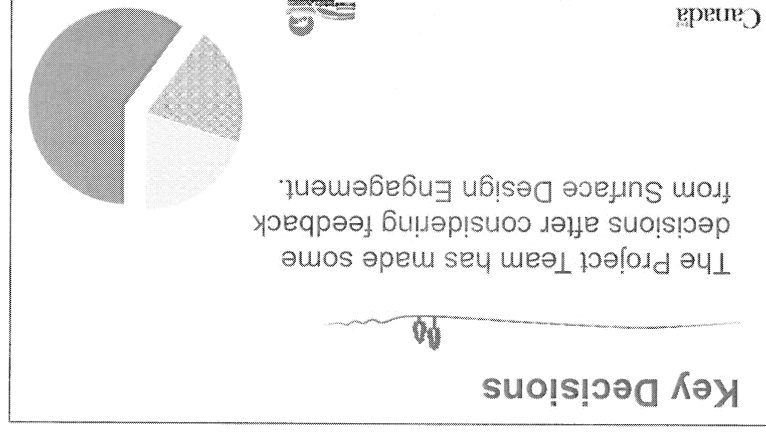
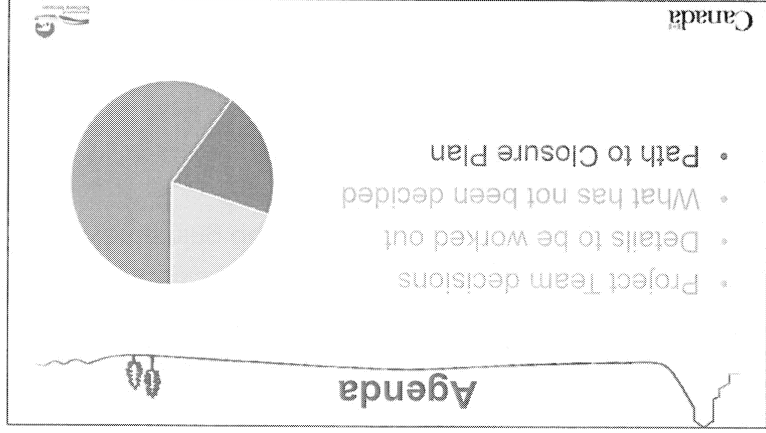
- Key decisions

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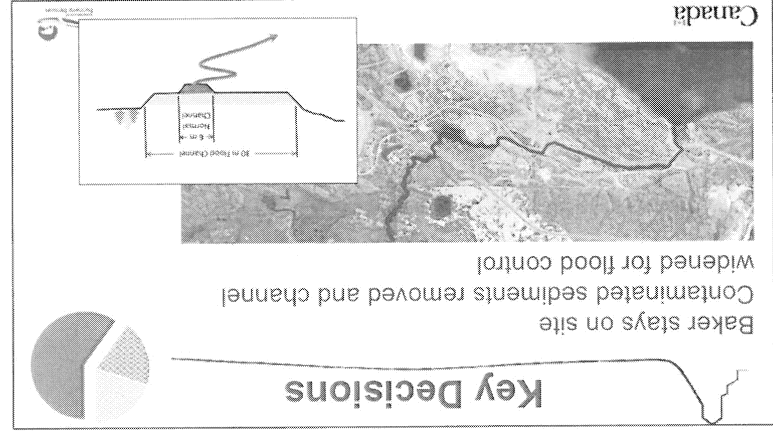


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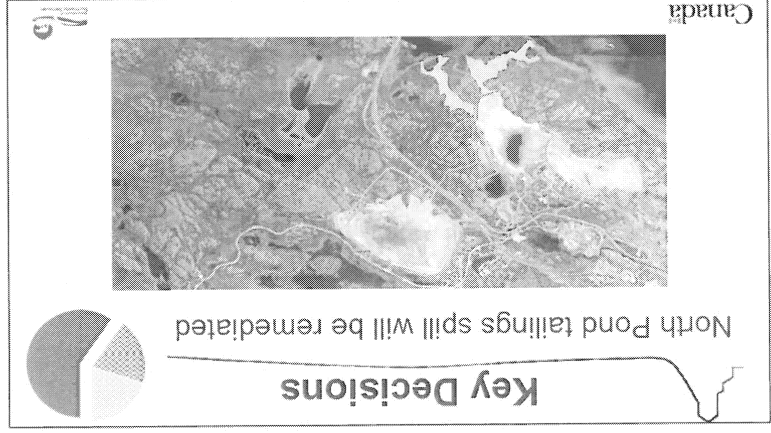
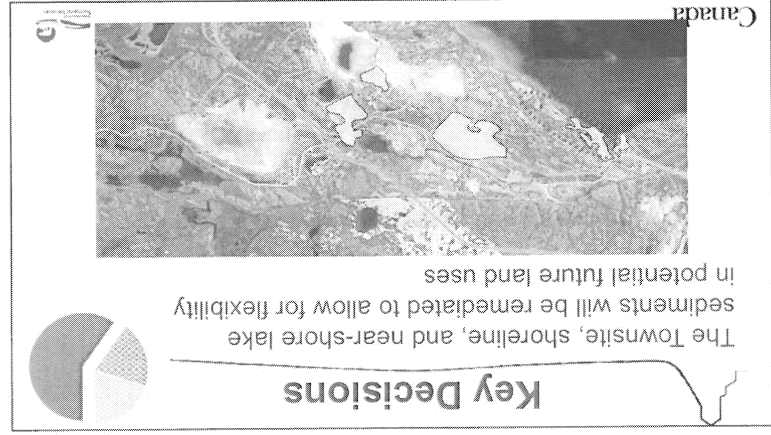


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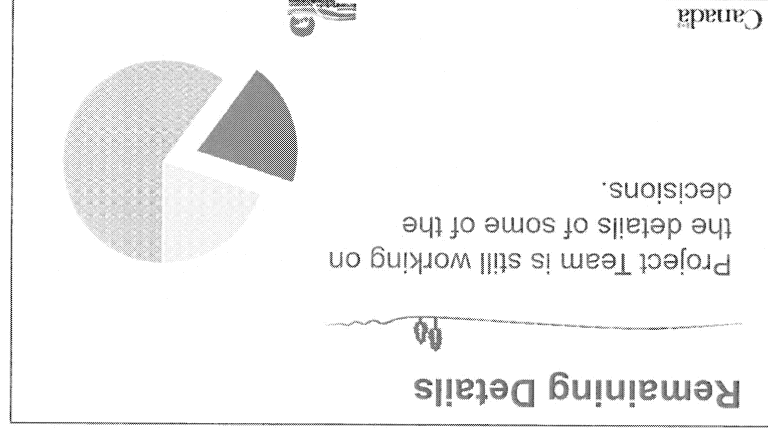
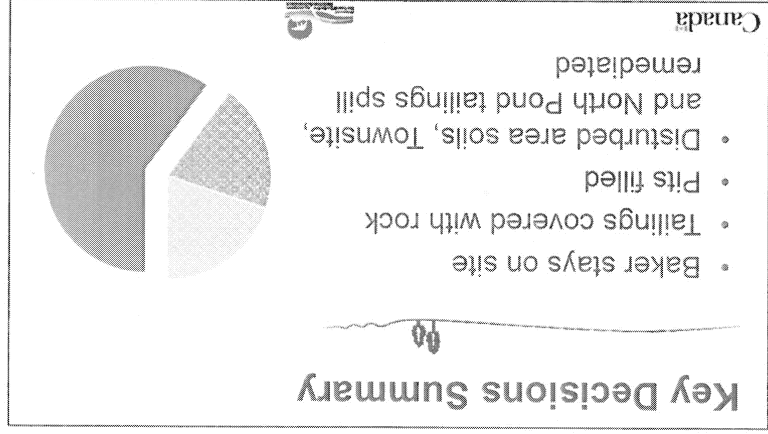




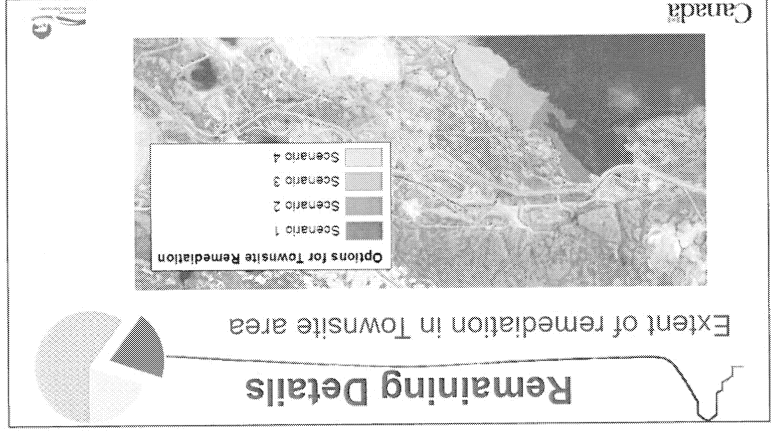
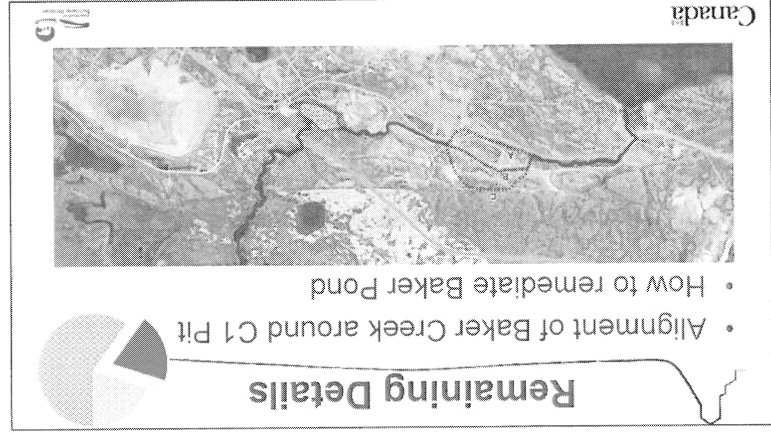
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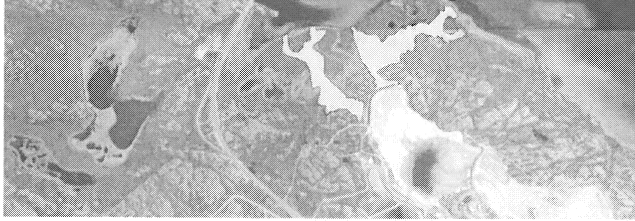
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Remaining Details

Best remediation method for the North Pond tailings spill



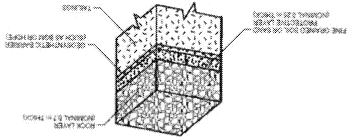





Remaining Details

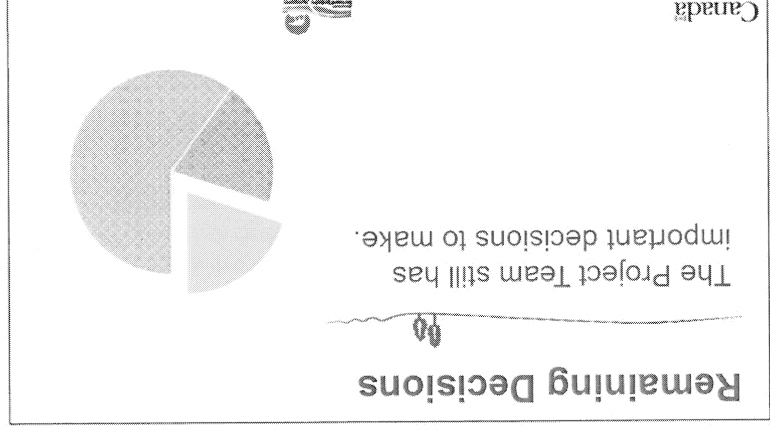
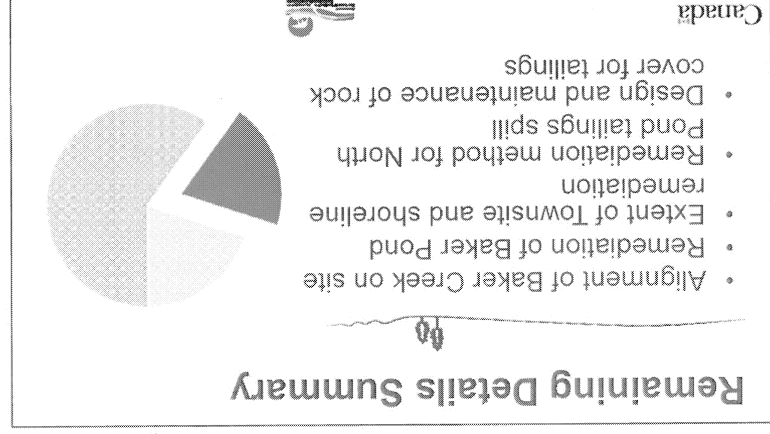
Design of rock cover for surface tailings

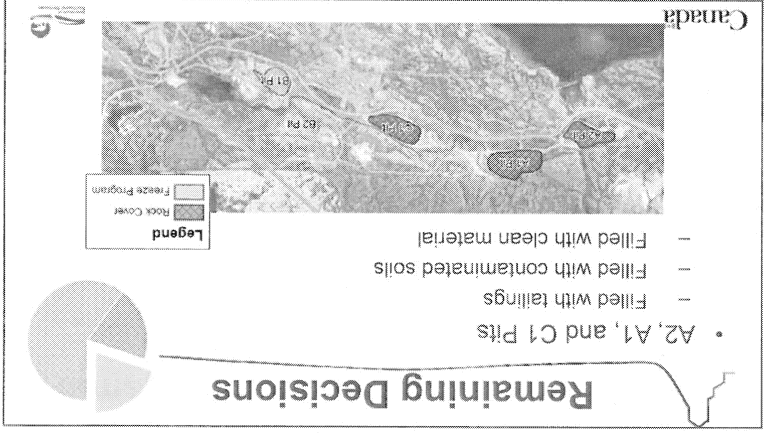
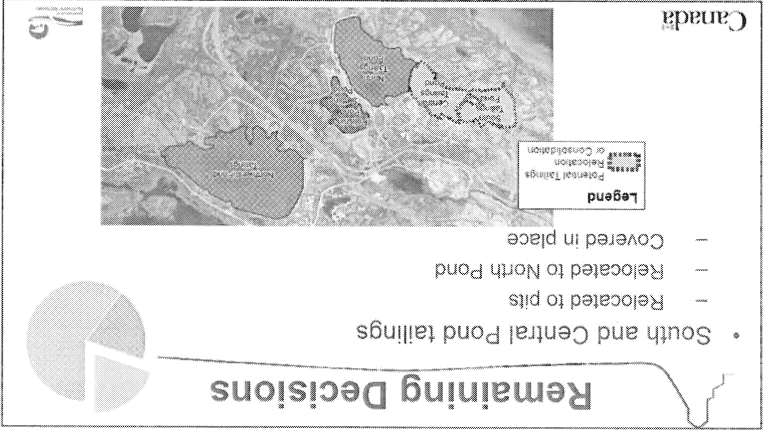
- Thickness of rock layer
- Liner or no liner
- Liner type
- Maintenance required








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• Fish in Baker Creek



Remaining Decisions

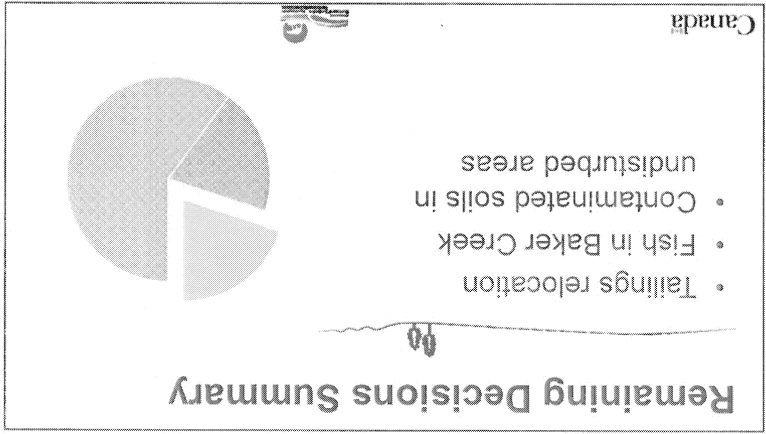
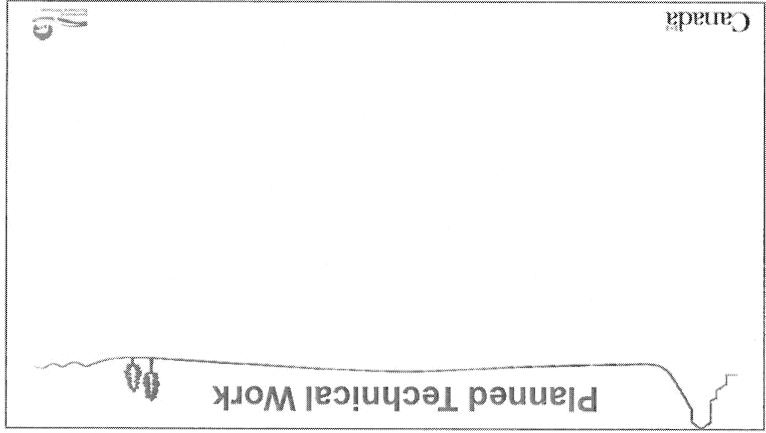






- Contaminated soils in undisturbed bedrock areas
 - Leave in place with only access limitations
 - Excavate
 - Cover



Remaining Decisions




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


Planned Technical Work

- Remedial options assessment
 - Tailings cover design and relocation
 - Pit fill material
- Contaminated soils
 - North Pond tailings spill
 - Undisturbed areas in core
 - Townsite and shoreline
 - Baker Pond
- Development of Water Quality Objectives




Canada

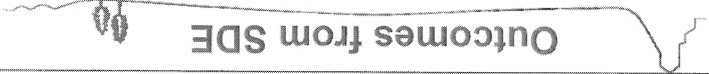


Remediation Schedule

Phase 1 Project Assessment 1999 – 2006	Phase 2 Project Definition 2006 – 2021	Phase 3 Project Implementation 2021 – 2035	Phase 4 Monitoring and Maintenance 2035 and beyond
<ul style="list-style-type: none"> • Site Assessment • Care and Maintenance • Identify Remediation Approach 	<ul style="list-style-type: none"> • Develop Remediation Plan • Environmental Assessment • Site Stabilization Plan • Care & Maintenance • Surface Design • Engagement • Regulatory Approvals 	<ul style="list-style-type: none"> • Site Remediation • Care and Maintenance • Water Treatment 	<ul style="list-style-type: none"> • Post-Remediation Adaptation • Care and Maintenance • Water Treatment • Long-Term Monitoring




Canada

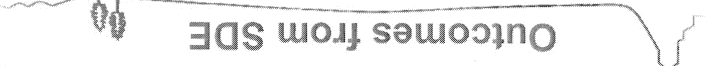


Outcomes from SDE

- Lots of other decisions remain
- Planning takes time... and cooperation
- Need to keep working together!




Canada



Outcomes from SDE

Changes to Project Plan because of what we heard from you in the SDE workshops:

- Pits → Filled
- Tailings → Covered with rock
- Sediments in Baker Creek removed → Including Reach 0
- Townsite area → Complete cleanup
- Sediments along shore → Included in project
- North Pond tailings spill → Included in project



Canada

Attachment B – Morning Session Handouts

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Key Decisions

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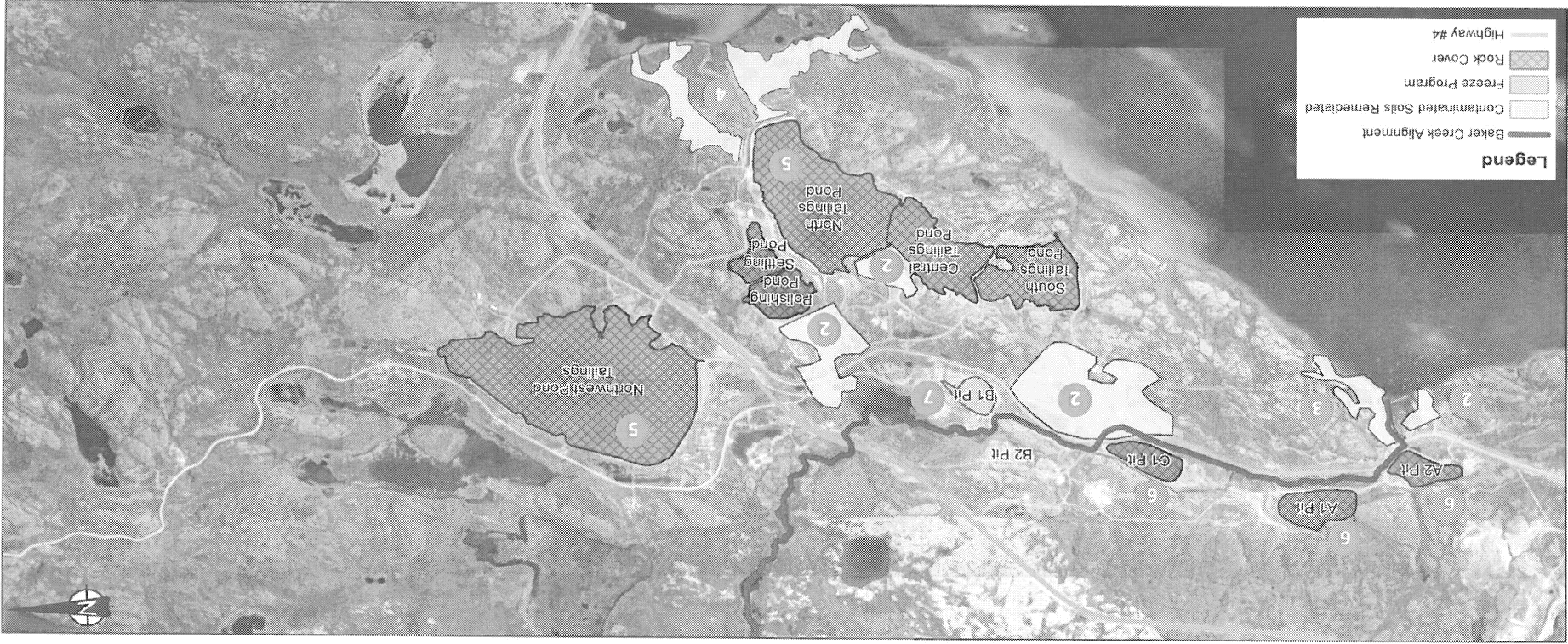


PHOTO HIGHLIGHTS

- 1 Baker Creek will stay on site. Widen Baker Creek channel for flood control and remove contaminated sediments.
- 2 Remove or cover contaminated soils in the disturbed areas.
- 3 Remediate the Townsite, shoreline, and nearshore sediments to allow flexible land uses.
- 4 Remediate the North Pond tailings spill to meet industrial standards.
- 5 Cover the tailings on the surface with a layer of coarse rock.
- 6 Fill A2, A1, and C1 pits.
- 7 Fill B1 pit as part of the freezing project.

IMPORTANT INFORMATION

- Long-term stewardship of the remediated site will include monitoring of water, sediment, fish and vegetation.
- Access to the core industrial area (where the freeze project and water treatment plant will be located) will be restricted.

Remaining Details

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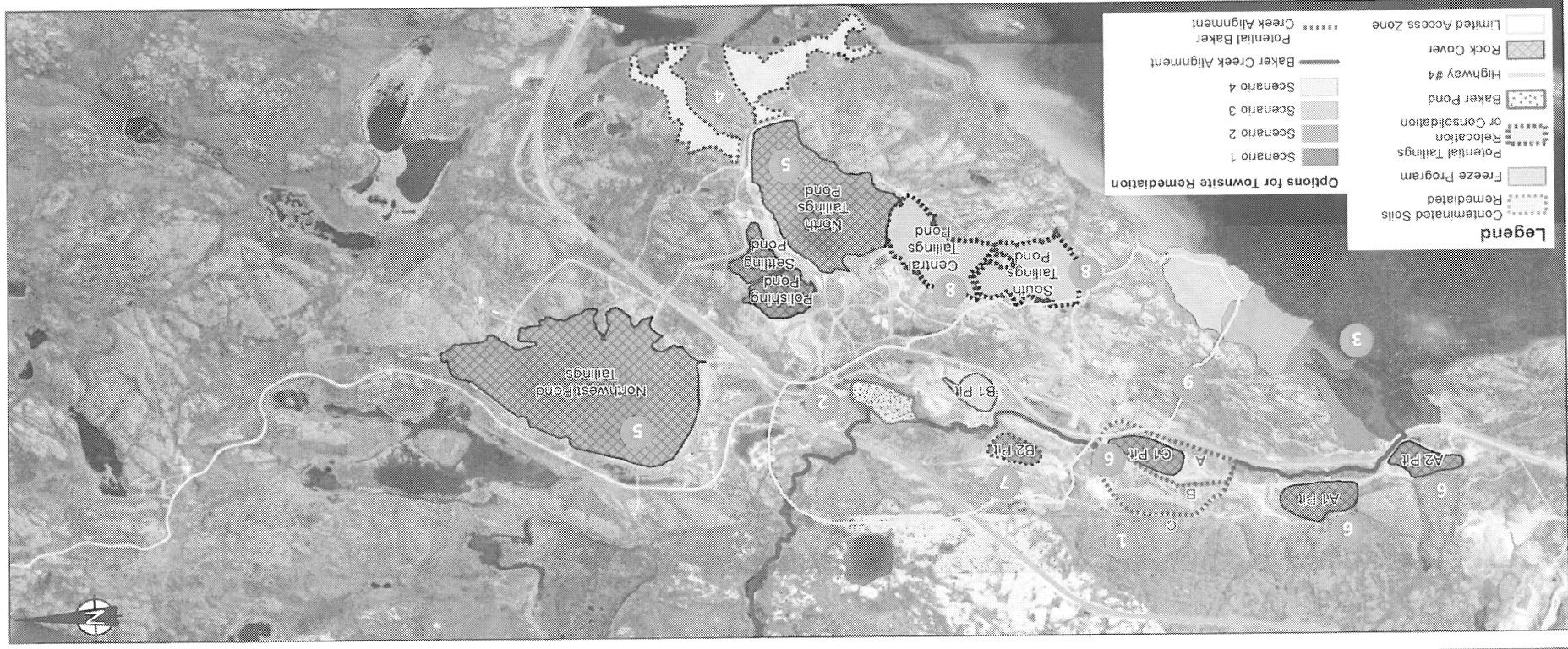
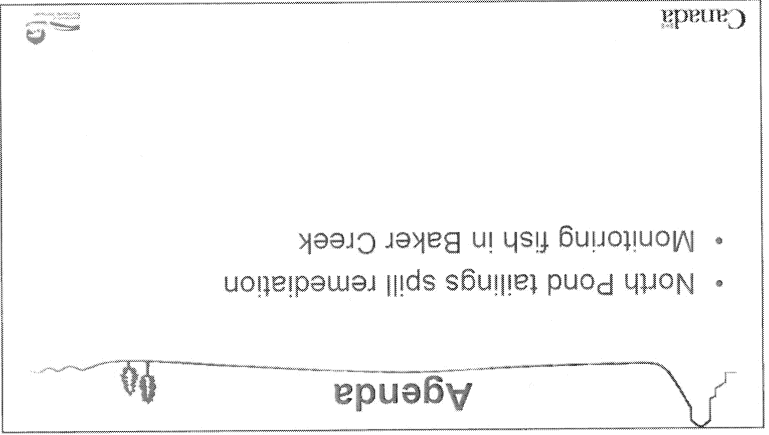
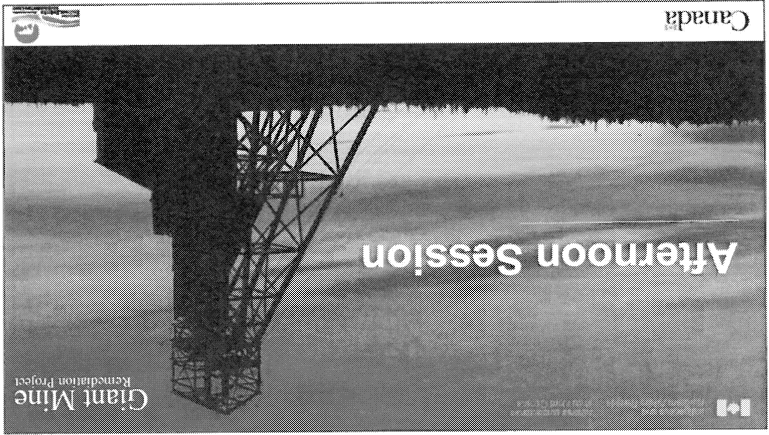


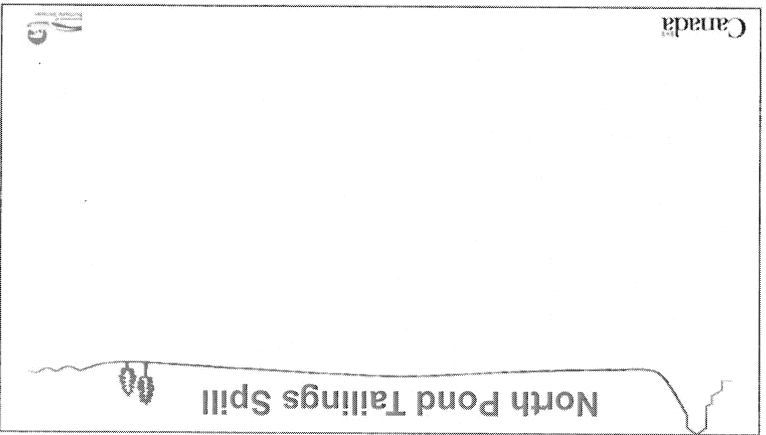
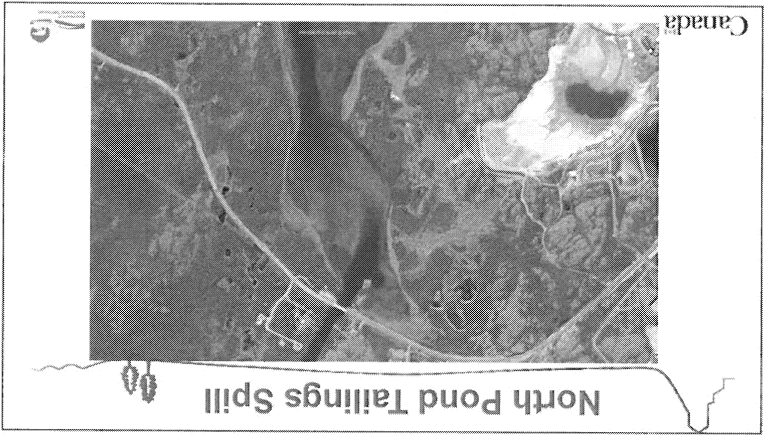
PHOTO HIGHLIGHTS

- ① The alignment of Baker Creek on site is still being decided, including where it will go around C1 Pit.
 - ② The best way to remediate Baker Pond is still being decided.
 - ③ The extent of remediation in the Townsite area is still being decided.
 - ④ The best way to remediate the North Pond tailings spill is still being decided.
 - ⑤ The design of the rock cover on the tailings is still being decided, including the thickness, grading, and the presence of a liner.
 - ⑥ What material to fill the pits with is still being decided.
 - ⑦ B2 pit may also be filled.
 - ⑧ South and Central Pond Tailings may be consolidated or relocated.
 - ⑨ Limited access and/or remediation in contaminated soils in undisturbed bedrock areas is still being decided.
- IMPORTANT INFORMATION**
- The Project Team is still working on the details of some of the decisions.
 - Decisions about access to and uses of the site will need to be made in the future, even where the project has remediated the ground to meet industrial, recreational, or residential standards.

Attachment C – Afternoon Session Presentation



15/02/2017



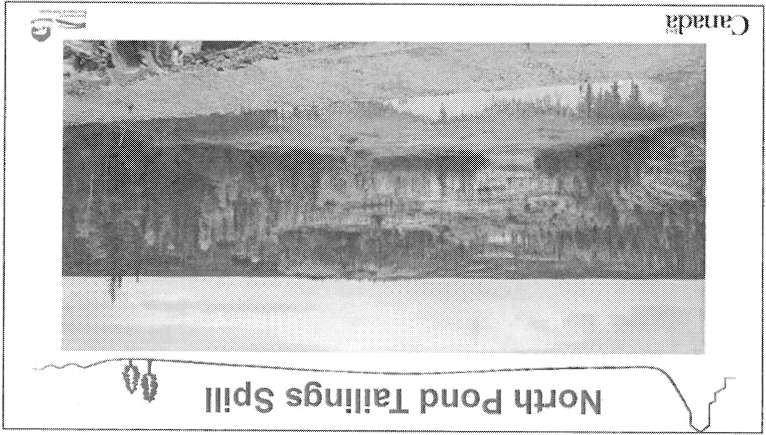
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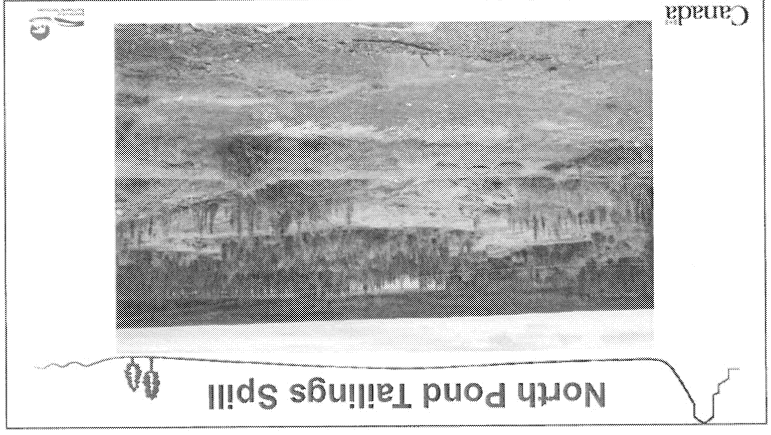


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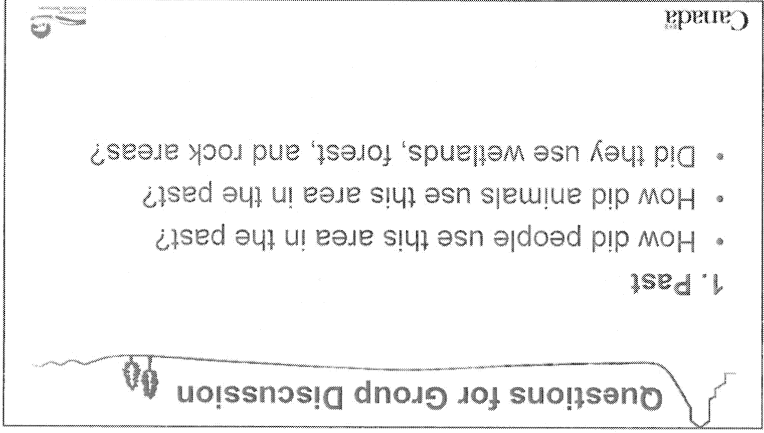
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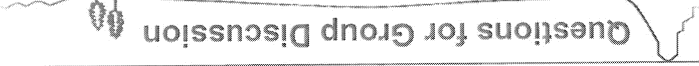
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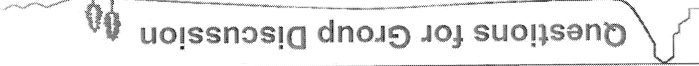


Questions for Group Discussion

2. Present

- Do any people or animals use this area now?






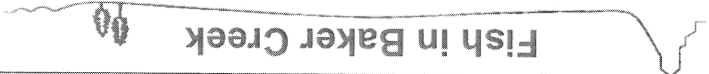
Questions for Group Discussion

3. Future

- How would people and animals use this area in the future...
 - If the large areas of tailings are removed?
 - If the large areas of tailings are covered?




Canada

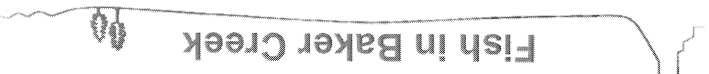


Fish in Baker Creek


- Concern heard during workshops about eating fish that had spent time in Baker Creek
- Blocking fish from the creek seems to be impossible because of fisheries regulations
- We need to think of how we can monitor the fish to be sure they aren't dangerous




Canada



Fish in Baker Creek




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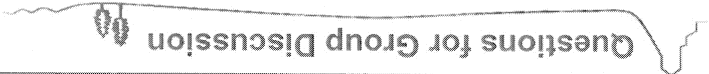
Fish in Baker Creek

- Lots of studies related to fish health
- Ongoing and future studies related to fish as food for humans
 - Human Health and Ecological Risk Assessment
 - Health Effects Monitoring Program
- What else do we need to do?




Questions for Group Discussion

1. Past
 - Did people fish in and around Baker Creek in the past?
 - What kinds of fish used to live in the creek?
 - Where did they live?
 - Were they there all the time, or just some parts of the year?



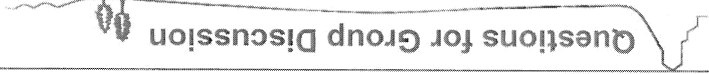
Questions for Group Discussion




Canada

2. Present

- What have you heard about people fishing in and around it now?
- What kind of fish live in Baker Creek but might be caught in Yellowknife Bay?



Questions for Group Discussion



Canada

3. Future

- How can we test fish from Baker Creek to show if they are safe for people?
- What kind of fish should we test?
- What else could the project do to better monitor fish?

ANTICIPATING POLICY QUESTIONS DURING THE EA

Giant Mine – Policy and priority areas

Draft 1: January 27, 2011

ANTICIPATED POLICY MATTERS

Anticipated policy matters are those matters that will likely be raised in the Giant Mine Remediation EA process through Information Requests (IRs), MVEIRB hearings or public and media questions. Fifteen such matters have been identified. A briefing note for each is being prepared in advance to:

- Engage other Directorates within INAC, other departments/governments and senior management in a timely way
- Allow time for INAC with partners to develop and seek approval of a departmental position(s)
- Allow for an efficient and timely response and avoid delays in the IR or hearings process
- Ensure consistency in response throughout the EA and Regulatory Review, and consistency with earlier public responses

Fifteen anticipated policy matters have been identified (see earlier document) and grouped under four themes or categories, namely: Aboriginal Matters, Financial Matters, Environmental and Land Use Matters, and Process/Political Matters. Based on our review of the documents currently available (in the form of the DAR, public hearing transcripts and other background materials) the five highest priority matters for INAC are:

1.1 compensation of YKDFN for past use of land;

1.4 adequacy of Crown Consultation;

2.1 securing funding in perpetuity

3.1 establishing an independent monitoring agency; and

3.3 assessment and remediation of arsenic outside of the geographic scope of the EA.

Terriplan has prepared drafts of a number of briefing notes to help INAC prepare for and deal with questions and issues presented by the MVEIRB, members of Aboriginal groups, the public and other interested stakeholders. These drafts will be further developed and finalized with the assistance of INAC between now and the anticipated receipt of IRs from MVEIRB (i.e. February 14, 2011). Draft responses follow.

POLICY MATTER #1 – Issue 1.1.

Compensation of YKDFN for Past Use of Land

The Issue and Potential Question

1. Anticipated Issue:

Yellowknives Dene First Nation (YKDFN) has expressed strong concern in the past regarding the use and contamination of their land, the Giant Mine site and surrounding area, and is requesting both compensation and an apology from Canada.

2. Category of Issue:

Aboriginal Matters

3. Type of Question Anticipated:

“How will Canada be providing compensation to the YKDFN for the use and contamination of our traditional lands without our permission, involvement or benefit?”

Scoping the Potential Question

4. Is the Question within the Scope of the Giant Remediation EA? No

The Giant Project Team has stated in public meetings that in the context of the EA/DAR, Aboriginal compensation and political initiatives such as an apology are out of scope:

There was a recurring theme, expressed by many participants, about the strong need for the community to be compensated for the loss of its land and resulting damages to the wildlife, fish, drinking water, cultural activities, human health, and peace of mind.

Although outside the scope of this project, the Project Team committed to informing senior government managers about this sentiment. (DAR Section 13.5.1 pp 13-11)

During the community consultations in Yellowknife, Dettah and N'dilo, there was considerable concern expressed about two matters which are outside the scope of the Remediation Project. These concerns include the off-site contamination from historic operation of the mine and compensation for historic impacts (DAR Section 13.12.8 pp 13-29)

5. Is Canada responsible for this Issue?

This issue is currently out of the scope of the EA and DAR. Though a definitive answer on compensation can not be provided by the Giant team, the government of Canada will be likely be expected to provide a well considered response the Yellowknives Dene.

6. If Canada is responsible, is INAC the lead agency for this issue?

Yes INAC will be expected, by Yellowknives Dene and others, to act as the spokesperson for Canada.

This issue will remain outside of the scope of the EA. However, it will be poorly received if INAC continues to respond with the simple, albeit correct, statement that compensation is not part of the terms of reference of the Giant Mine Remediation EA. In an earlier report to INAC following community and Aboriginal engagement meetings on Giant Remediation in the spring of 2010, the consultant recommended the following:

The Giant Mine Remediation Team is encouraged to report to their senior management on the nature and extent of concern expressed by the YKDFN including their strong request for compensation. Canada, through INAC Senior Management, is encouraged to review and respond to this concern.

7. If INAC is the lead agency for this issue, is the Giant Remediation Team to lead on this issue?

No the Giant Remediation Team should not speak to this issue.

8. If not INAC-Giant, who within INAC is responsible to lead on this issue?

TBD (Can INAC Giant Team advise now?)

Briefing Note

9. Background

Members of the YKDFN have publicly stated that they would like compensation for the use (and misuse) of their traditional lands, which includes the Giant Mine site. A number of YKDFN members have also indicated that they would like an apology for what they consider the misuse of the land.

10. Examples of related questions and comments in 2010 Public Engagement Sessions:

Now I call on the Board and I call on Government of Canada, Minister of DIAND Minister Chuck Strahl to engage with the Yellowknives Dene to seek out proper compensation for all that is wrong, have been done wrong in the last 70 years of that operation, compensation for the loss of economic base, cultural values, traditional values, the land base, now the loss of land. We're not seeking hundreds of dollars. We're may be seeking millions because our value, everything we've lost has cost more than that. It's gone forever. We will never regain that back. Our people have suffered greatly

- Chief Fred Sangris, YKDFN, July 23, 2008

We think that this damage -- social, economic, and cultural impacts from the past -- should be mitigated and assessed with the same rigor as is -- as are applied to be biophysical impacts. Restoration, remediation, and compensation issues need to be addressed. If there have been millions and millions of dollars of resource royalties collected by Canada from the sale of our nonrenewable resources and millions are now to be spent by taxpayers, including us, on restoring the lands in Baker Creek, then what is a fair and comparable amount to spend on rehabilitating a severely damaged and endangered population of human beings, the original residents of Yellowknife and the founders of modern civilization in the NWT?

-Sheryl Grieve, NSMA, July 23, 2008

Also, my concern was before the mine was there, before the city came to be, the Yellowknives Dene lost use of the prime -- prime hunting areas, berry-picking areas. And so when it comes to compensation, we want to be at the table to know exactly what's happening, and we would like to see the outcome of the review of their lease agreement. I think it's only fair that the ultimate people who lost use of land should have a look-see at papers, lease agreements, any future talks of compensation land -- for land. Rachel Crapeau, YKDFN, July 23, 2008

11. Examples of INAC or partner response in 2010 Public Engagement Sessions:

At this time, INAC is not able to provide a response to questions regarding compensation

- *"I have to say that I cannot speak to the question about compensation. I am not trying to down-play your concerns but I just cannot speak to it because our specialization is just the clean-up. The Team has been given a mine site that is contaminated and we are being asked to clean it up and make it better and move forward. We could simply go in and clean it up to some regulatory standard and that is what we have to do but that is not our only goal. We cannot right the wrongs of the past but we can do our best job now. I apologize for not being able to respond to your question about compensation but I can make a commitment to work with people to make the clean-up a success."*
- Martin Gavin, INAC representative. Public Q&A Session in Dettah May 2010

- *"We cannot talk about compensation because we don't have the authority or the background. The remediation team is a collection of scientists, engineers, and communication folks. I don't want to come across like I am not respecting your concerns. I do but I cannot speak to that right now. We are here to talk about what we will do with the land in the future."*
- Martin Gavin, INAC representative. Public Q&A Session in Dettah, May 2010

- *"What we can do and what we have already planned to do is bring this up to senior management at INAC. The best way to get the question answered is to pose it to the project team or to INAC senior management directly. Our process is to bring whatever is brought up at every session with our bosses. This is a question we expected to hear and*

is fair to ask. I also encourage you to put that question together and forward it to us or directly with the RDG [Regional Director General]."

- Martin Gavin, INAC representative. Public Q&A Session in Dettah, May 2010

INAC also provided some insight on this issue in the EA/DAR. Responses are found underneath Question #15 below

12. Past examples of questions, responses and sources of those examples (i.e. prior to 2010):

None located at this point. [Can INAC supply Terriplan with these? Has there ever been a written response? Was consultation part of the earlier workshops hosted by INAC in 2008 or earlier, going back to 1999?]

13. Financial and policy implications of response options:

If compensation is considered, a payment scheme or socio-economic agreement would be required. This could add additional costs to the remediation of Giant mine. More importantly, it could set a precedent for other mines and abandoned sites. Responses to this type of request for compensation in the past.... (Does INAC have material for this?)

Not considering compensation could also put INAC and the GNWT at risk of a legal challenge, which could also add costs.

Continuing to use the simple response that compensation is outside the scope of the EA, while accurate, will not be well received and will carry its own risks.

14. Departmental Position and Suggested Response

No departmental response has been articulated yet.

Earlier in 2010, Terriplan recommended the following:

RECOMMENDATION #12: The Giant Mine Remediation Team is encouraged to report to their senior management on the nature and extent of concern expressed by the YKDFN including their strong request for compensation. Canada, through INAC Senior Management, is encouraged to review and respond to this concern.

15. Earlier position of INAC and/or INAC partner (with sources of where stated):

From the DAR/EA, the following commitments and comments were provided:

- INAC will "Identify all commitments and agreements made in response to issues raised by the public during these consultations and how these commitments altered the planning of the proposed development" (DAR Section 13.2 pp 13-2)

- The Project Team will “Identify any plans, strategies or commitments that the developer is contemplating to ensure that individuals or groups that may be affected by the development will continue to be consulted over the term of this environmental assessment and over the life of the project.” (DAR Section 13.2 pp 13-2)
- The Yellowknives Dene First Nation has grievances about how its land was used and misused; participants at several engagements demanded that these grievances be addressed by the government. (DAR Section 13.5.1 pp 13-7)
- The views and concerns of YKDFN and Yellowknife stakeholders must be carefully considered by the Project Team and followed wherever possible. When public advice and recommendations are not followed, the Project Team must explain why in a clear and timely manner. (DAR Section 13.5.1 pp 13-8)
- Compensation and Apology - There was a recurring theme, expressed by many participants, about the strong need for the community to be compensated for the loss of its land and resulting damages to the wildlife, fish, drinking water, cultural activities, human health, and peace of mind. Although outside the scope of this project, the Project Team committed to informing senior government managers about this sentiment. (DAR Section 13.5.1 pp 13-11)
- During the community consultations in Yellowknife, Dettah and N’dilo, there was considerable concern expressed about two matters which are outside the scope of the Remediation Project. These concerns include the off-site contamination from historic operation of the mine and compensation for historic impacts (DAR Section 13.12.8 pp 13-29)

16. Is there a Q and A response available in the Giant Communication Strategy?

Not aware of this. INAC Region may be able to provide this.

17. Suggested Response: To be written

Day 1 EA Hearings – References to Compensation and Apology

Day 1

CHIEF EDWARD SANGRIS (YKDFN):

Now compensation have never been talked
24 about. In keeping with the other industry, how they
25 make their agreements, we're missing out on \$75 million
When Giant began producing gold in the
4 late '40s, it started releasing arsenic into the air
5 and into the water. In 1951, Dene children died and
6 other Dene started getting sick. But the government
7 let Giant Mine continue to pollute the air, the land,
8 and the water. There has never been the official
9 inquiry into the causes of those death. Our people,
10 whose children's mothers have never been given answers
11 for the loss that was suffered.

ELDER ALFRED BAILLARGEON (Elder YKDFN):

This is our land; we were born and
17 raised here. We never did got compensation, no benefit
18 what happened. To really -- to think about it, it
19 saddened us. Our ancestor, grandparent, all the
20 Drygeese -- Elder Chief Drygeese and Crapeau, that was
21 their land. That had a big impact on the community
22 today of the Yellowknife Dene First Nation. And I had
23 concern about this for a long time.
And I don't feel it's right that they damage a big
2 portion of land. And the government, we need some kind
3 of compensation, and that's what I feel strongly about.
4 And they can't just not do nothing.

MR. KEVIN O'REILLY (Alternatives North):

We do support the call for an apology
18 and compensation that have been made by the
19 Yellowknives Dene First Nation Elders to help begin to
20 build trust. And this was documented in a workshop
21 that we did with the Yellowknives in September of last
22 year. And that report is on the public registry.

But on the human and social side,
20 apology and compensation, we don't have that. Local
21 political support for the project, not there. Ongoing
22 research and development, not there. Independent

23 oversight, not there. Long-term funding arrangements
24 not in place. Full disclosure of information and
25 records, not there. No thoughts about site designation, land use controls. No
comprehensive
2 perpetual care plan. No environmental agreement. And,
3 finally, no social licence or contract for this project
4 to proceed.

MR. BILL ENGE(NSMA):

Our peoples received little, if any,
10 benefit from this mine, but yet we're stuck with its
11 cesspool legacy. In that respect, we were not
12 consulted when this mine was built. And there are not,
13 to my knowledge, any compensation made -- compensation
14 negotiations going on between the Crown and the
15 affected First Nations whose non-renewable resources
16 were extracted and traditional lands damaged by this
17 mine.

With respect to the Giant Mine

18 Remediation Project, the NSMA, after careful
19 consideration, cannot support the Crown's proposal for
20 the following reasons: 1) there is no independent
21 oversight of the Crown's work; 2) there must be a
22 commitment by the Crown to research a permanent
23 solution; 3) there is no consideration of compensation
24 to First Nations for the damage done to their
25 traditional lands; 4) the NSMA needs to be better
1 consulted. North Slave Metis traditional know --
2 knowledge was never considered by the Crown in this
3 respect, and it needs to be accommodated for the damage
4 done to their traditional lands.

MS. JOAN KUYEK (Alternative North):

It should be noted that although people
1 had asked for an apology and compensation they were not
2 given that. And there were problems also with the fact
3 finder who was sent out to look at the relationship
4 between what happened to the Sahtu Dene and the work.
5 There were not records. And the records that they
6 wanted to access at the National Archives were
7 considered off limits, because Cameco had owned the
8 site and said that they were the owner of the archive.

Day 2

MR. KEVIN O'REILLY: Thanks, Mr. Chair.

12 It's Kevin O'Reilly here. I -- I'm just pausing
13 because we had a lot of discussion about the issue of
14 trust at the week-long technical sessions in October of
15 last year. And I -- I'm not sure I sort of want to
16 drag everyone through the mud on that again.
17 You know, I think it's fair to say that
18 this site has a lot of legacy issues culturally,
19 economically, socially in this community. We've heard
20 from the Yellowknives Dene First Nation. We know it
21 was the -- the subject of a terrible labour dispute.
22 It's left a tremendous environmental legacy that we're
23 here to try to work through, and resolve in some way.
24 And I think there's a lot of resentment,
25 a sense of betrayal in the community about how this was

1 allowed to happen, and so on. But -- and I think part
2 of the way in which we can begin to better work
3 together on this, and people have talked about this, is
4 through an apology and compensation to those that were
5 most affected. And I think that's really required to
6 begin to build a better basis for trust.
7 There

MS. FRANCE BENOIT (Alternatives North): I will not try to
5 speed up too much, but... My name is France Benoit,
6 and I'm here tonight as a citizen who drives in front
7 of the mine every day, a filmmaker and a farmer who has
8 some concerns around Giant Mine. I'll say a few things
9 and then we will end with a short minute -- five (5)
10 minute film.

11 I would like to acknowledge that this
12 must be a difficult time for you Board members to
13 engage in this process, knowing the current threats to
14 the environmental review process and the possibility
15 that the current government may, with the stroke of a
16 pen, cancel all of your recommendations.
17 My hope is that you do not give up, that
18 you forge ahead and remember that you are from this
19 place and that future generations will be able to read
20 every word of what you will have said and done. You
21 and I are here for our grandchildren and their
22 grandchildren and their grandchildren after them, and

23 so on. I truly see you as a grandmother and
24 grandfathers who have a moral responsibility to future
25 generations.

1 For many people, Giant Mine is an
2 engineering problem. For me, Giant Mine is a story of
3 relationships failed: relationships towards the people,
4 the land, and especially future generations. Trust has
5 been eroded, and it will take many years for it be
6 restored, if ever. To restored what you referred to,
7 Mr. Chair, earlier today as the sacred trust, an
8 apology must first take place. It is within this
9 context of missed trust and failed relationships that
10 you need to navigate.
11 I would encourage you to give this
12 project the magnitude and the attention that it needs.
13 This is the largest arsenic problem in the world, and
14 it is beneath our feet, and it will never go away.
15 Please give this project the scale and time and size
16 that it deserves. It is very difficult to wrap our
17 heads around the fact that this will be with us
18 forever.

MR. BOB BROMLEY (MLA):

Ultimately there are issues such as
12 compensation to indigenous residents, an apology to
13 residents from the serious public threat allowed to
14 develop here and under which we and our descendants
15 must live the rest of our lives, and a comprehensive
16 accounting and report on lessons learned from Giant
17 Mine which still stand to be addressed.
18 If I can be allowed to cry over spilled
19 milk just for a second, I just wish the public had been
20 given the opportunity for independent oversight back
21 when the community raised serious health concerns in
22 the '50s and the '60s and when Ecology North raised it
23 to a national level in the early '70s. Our only
24 response was, Rest easy, your federal government has it
25 in hand. And I thank you, Mr. Chair.

MS. SUZETTE MONTREUIL:

Lastly, but most importantly, the
16 remediation of Giant Mine could not be complete until

17 there is a formal recognition of the impact of Giant
18 Mine on the Yellowknives Dene. As they have very well
19 stated, the Yellowknives Dene have lost access to land,
20 to water, to significant food sources, including coney
21 fish and berries and, indeed, to their historical
22 relationship with the land in this region.
23 If remediation is in any way to make
24 this well, the Yellowknives Dene deserve an apology and
25 compensation. To do otherwise would be to perpetuate
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1 an injustice against this First Nation.
2 In closing, I would like to wish you all
3 the best in your work, and to ask that God would bless
4 your work and guide its findings. Thank you.

Day 3

MR. FRED SANGRIS (YKDFN):

There's never been a compensation or
23 apology from anybody. Even though we begged Canada and
24 asked Health Canada to look into it, nobody came to our
25 rescue. And this is how -- how Canada operates.

And they have a -- they're a known
2 history, even though we're allies to the Crown in times
3 of hard times. We -- we've made an agreement, a treaty
4 agreement where we said we'll be allies. In return, we
5 will help each other.
6 I think our people have given their
7 voices over the years, but Canada never has -- never
8 come to our rescue, has never tried to look after the
9 indigenous people of this area.

I have to say thank you to United
11 Nations, because the Yellowknives of Akaitcho territory
12 are one (1) of the four (4) groups in Canada that has
13 been studied by UN. And we're the ones who really
14 pushed for that, the UN declaration, so that our
15 indigenous people here will be more respected and not
16 abu -- abused in the future again, never like this
17 again.

18 And UN will be watching, and I'm very
19 happy that they're -- they're about and that they're
20 here and studying our treaty and our relationship with
21 Canada and the Crown. And then hopefully in the future
22 we'll be respected more.

23 I've been listening to this forum the
24 last couple of days, and I've seen speaker after
25 speaker come up. And what -- what really disappointed
me is the people, the federal department people who are
2 involved; really, really disappointed.

3 Somehow INAC has it in their head that
4 they can go to other federal departments who have
5 agencies who have a legislation or are under an act --
6 namely, the Department of Fisheries and Ocean -- who
7 has their own authority, own department, own
8 legislation and -- that -- where they can enforce.

So I think Canada really owes us a lot,
25 the compensation. Some of those lands need to be
1 returned. Our archaeological sites in that whole area
2 has been destroyed and destruct. It may not be too
3 late to -- to look at it, but we do have heavy
4 archaeological site in that area.

MS. SUSAN ENGE (NSMA):

That said, we recommend the following:

4 1) The Developer should consult and accommodate the
5 affected Metis Section 35 Aboriginal rights holders in
6 this region. This would be undertaken in accordance
7 with limits to an acceptable change framework. In
8 addition, social, cultural, and economic considerations
9 should be considered, including reasonable compensation
10 for substantial alterations to our traditional land
11 use.

12 We -- just to shorten this, because I
13 would like my Elder to say a few words. AANDC should
14 be required to fund an independent monitoring agency
15 for the Giant Mine project. The Developer must be
16 required to adhere to regulatory binding measures. And
17 we would like to see the surface arsenic trioxide be
18 removed instead of being sealed in perpetuity.

CHIEF PETER LISKE:

And will have a review every six (6)

4 months. And then we will inform the members about the
5 site and what's going on. I also want GMAC to -- to
6 negotiate the compensation package. This is a
7 different issue from the main table negotiations. And
8 they will take directions from Chief and council and
9 the members at large.
10 And thirdly, if you want the community
11 engagement we need your support. And YK Dene will have
12 to be involved 100 percent. Again, to recommend again
13 and what we're saying is that we -- we need long-term
14 commitment and funding arrangements as soon as
15 possible.

Day 4

9 MS. LORI SARKAD: Okay. Thank you very
10 much. This is very short, I promise. I'm happy to
11 have this chance to speak about this issue, because
12 it's really dear to a lot of Yellowknifers. And I've
13 been sitting here all day and kind of watching
14 democracy in action and it makes me happy. I don't
15 think we should take this for granted that we're able
16 to have this type of discussion, all these groups
17 together, everybody working towards the same ultimate
18 goal.

19 I've lived along Ingraham Trail and
20 driven past Giant Mine nearly ever day for the past
21 twenty-two (22) years. During that time I've smelled
22 the roaster, I've been overcome by fumes, I've watched
23 the violence unfold during the strike, I've watched
24 Baker Creek be repeatedly realigned, and throughout it
25 all I've always -- always been concerned about the
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1 arsenic.
2 On a windy day I can see sheets of white
3 contaminated dust blow up from the northeast tailings
4 pond and this has been going on for years, undeterred.
5 And I can only imagine how far and wide it has blown,
6 how many animals, insects, birds, fish, plants, and
7 trees have ing -- ingested it and how many people
8 unknowingly have been exposed to it.
9 While I have not been responsible for
10 the contamination left behind, I apologize to the
11 people of Dettah and N'Dilo, who have seen their
12 traditional lands poisoned in such a way and who have

13 lost relatives because of it. I feel strongly that a
14 formal apology and compensation to these people for the
15 seemingly irreversible desecration of their traditional
16 lands should be part of this remediation process.

Day 5

No mentions of compensation and Apology

**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.
2. Means to Measure Progress/Performance	As the GMOB noted in its comments on the federal and territorial governments' <i>Giant Mine</i>	We note that the Co-Propponents 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).	The GMOB recommends that quantifiable performance measures and timelines be developed
2. Means to Measure Progress/Performance	As the GMOB noted in its comments on the federal and territorial governments' <i>Giant Mine</i>	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
² This text is taken directly from the Giant Mine Oversight Body Establishment Report

<p>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.</p> <p>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.</p> <p>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.</p>	<p>as soon as possible and reported in future Project annual reports.</p>	<p><i>Remediation Project 2015-2016 Annual Report</i>, the absence of performance measures makes it difficult to assess intended progress and the appropriateness of mitigation measures.</p> <p>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 <i>Supporting Effective Evaluations: A Guide to Developing Performance Measurement Strategies</i>.</p> <p>In its comments on the <i>Giant Mine Remediation Project 2015-2016 Annual Report</i>, 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.,</p>	<p>Metrics</p>
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	<p>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.</p> <p>The team includes a full-time Engagement Manager to ensure that engagement activities are incorporated into overall project planning,</p>
	<p>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).</p>
<p>taking down buildings, stabilizing slopes), 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.</p> <p>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 <i>Giant Mine Remediation Project 2015-2016 Annual Report</i> mentions 'objectives', 'commitments', and vision' but these terms are not defined or supported by any measurable indicators.</p>	<p>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.</p> <p>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</p>
<p>3. Communications and Engagement</p>	

<p>language Project plan; nor an accessible office where the interested public can easily obtain current information directly from the Project Team.</p> <p>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.</p> <p>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</p>		<p>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.</p> <p>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.</p> <p>For example, this includes an <u>electronic newsletter</u>, 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 Health Effect Monitoring Program Advisory Committee.</p>
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issues of a formal apology and a commitment to community engagement and the future of the remediation Project.		<p>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.</p> <p>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.</p>	<p>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.</p> <p>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.</p>	<p>4. Traditional Knowledge and Community Relations</p> <p>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.</p> <p>Currently, no comprehensive traditional knowledge strategy exists. The Project Team has</p>	<p>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.</p> <p>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.</p>
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	<p>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</p>		<p>The Project team will continue to incorporate traditional knowledge into our implementation strategy as part of the remediation plan currently under development.</p>
<p>5. Care and Maintenance/Advanced Remediation</p>	<p>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.</p> <p>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.</p>	<p>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.</p>	<p>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.</p> <p>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.</p>
		<p>The GMOB recommends that the Project Team</p>	<p>The Project team will continue to monitor,</p>

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		<p>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:</p> <ul style="list-style-type: none"> • 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
<p>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.</p>	<p>The GLOB 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.</p>	<p>The Project team will continue to work with stakeholders to identify ways to optimize and expedite the planning process.</p>

<p>7. Environmental Issues</p>	<p>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.</p>	<p>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</p>	<p>The Giant Mine Project Team currently has an Environmental 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</p>
<p>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.</p> <p>• 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.</p> <p>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.</p>	<p>Expedite the development of a fully integrated Environmental Management System.</p>		

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<p>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.</p> <p>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.</p> <p>We welcome further discussion with the GMOB to address any other questions or concerns.</p>		<p>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.</p> <ul style="list-style-type: none"> • 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 	
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	required.	
<p>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 2015-16 Annual Report (Appendix B).</p>	<p>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:</p> <ul style="list-style-type: none"> • 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 	

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<p>associated with soil remediation. These data will also be used to assess the efficacy of remediation activities.</p> <ul style="list-style-type: none">• 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. <p>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.</p> <p>The project team is also exploring the Government of Canada's new Open Data initiative (http://open.canada.ca/en/open-data)</p>			
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<p>to see how we can better communicate and share our data with the public.</p> <p>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.</p>			
<p>As discussed in past meetings with GMOB, the Project is governed by the <i>Mackenzie Valley Resource Management Act</i> (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)(iii)] a danger to persons, property or the environment may result from past operation of the work or from its closing or abandonment."</p> <p>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</p>		<p>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.</p>	

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		<p>former mine's water licence, prior to discharge.</p> <p>In addition, the Project complies with the <u>Metal Mine Effluent Regulations (MMER)</u> under the <u>Fisheries Act</u>, 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.</p> <p>Regulatory authorities, including the Department of Fisheries and Oceans and the Territorial Land Use Inspector, monitor the activities on the site.</p>	<p>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.</p>	<p>The Project team welcomes suggestions to improve how it communicates on the monitoring activities at the Giant Mine site.</p> <p>16 Annual Report of the Giant Mine Remediation Project [external link, English only] provided to the GMOB and available to the general public, in October 2016. We will continue this in future annual reporting.</p>	<p>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</p>
8. Off-Site Contamination			<p>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</p> <p>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.</p>		

9. Capacity	
<p>The GMOB has repeatedly received the message at meetings that capacity is an issue for the six Parties to the Agreement, especially given the</p>	<p>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 GSWT 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 GSWT 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 GSWT 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.</p>
<p>The GSWT recommends that steps be taken immediately to address capacity issues including meeting the current capacity needs and committing</p>	
<p>The Project team recognizes that capacity is an issue across the Northwest Territories, and takes a number of actions to help stakeholders</p>	<p>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].</p> <p>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 GSWT in managing arsenic contamination on territorial lands and in waters.</p>

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<p>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:</p> <ul style="list-style-type: none">• 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. <p>In addition, the Project has heard and addressed specific concerns from YKDFN regarding capacity through:</p> <ul style="list-style-type: none">• 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	<p>to providing intervenor funding during the regulatory review process.</p>	<p>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.</p>	
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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.

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

The Project Team carefully examines 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 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 remediation activities.

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 MOB notes that this

10. Delivery Model

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	<p>welcomes suggestions from the GMOB and others to continually improve delivery of the Giant Mine project at the best value possible.</p>		<p>The GLOB 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.</p>	<p>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.</p>	<p>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 GLOB sees gaps, is where the Site Management Strategy (SMS) is defined and options analyzed, while taking stakeholders' inputs into consideration.</p> <p>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</p>	<p>The GLOB 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.</p> <p>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</p>	<p>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.</p> <p>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</p>
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<p>to ensure Northerners and Indigenous persons are positioned to benefit from employment opportunities that result from the remediation of the Giant Mine site.</p> <p>The strategy includes measures to reduce and limit barriers that might prevent Indigenous and Northern persons, including those living in the Montfwi Gogha De Nihit'e claim area, from successfully participating in employment opportunities that arise out of the Giant Mine site's remediation.</p> <p>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.</p> <p>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.</p> <p>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</p>	<p>International Association for Impact Assessment.)</p>	<p>spinoffs could be identified; and potential problems could be identified and mitigated early in the process.</p> <p>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:</p> <p>"Both Parties agree to maximize northern economic development opportunities in carrying out the Giant Mine Remediation Project."</p> <p>The Giant Mine Environment, Health and Safety, and Community Policy describes this goal:</p> <p>"The Giant Mine Remediation Project will implement strategies to maximize the economic opportunities for Northerners and local Aboriginal people through employment and procurement."</p> <p>These goals are consistent with the Federal Contaminated Sites Policy, which states:</p> <p>"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".</p>	
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<p>56% of workers on site were Northern employees, and 15% of workers on site were indigenous employees.</p> <p>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 Tl'chog-owned businesses.</p> <p>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.</p>	<p>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 HHRA and Health Effects Monitoring Program are essential elements of Project risk communication. Perceptions of risk, beyond quantitative science, must be addressed.</p>	<p>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, risks identified by the project team to do so stakeholders, and we will continue to do so through the risk assessments being conducted by the Project team.</p> <p>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</p>	<p>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 (HHRA), 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.</p> <p>The GMOB anticipates release of the HHRA 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.</p> <p>The Project Team recognizes that current human health research efforts do not address qualitative</p>	<p>12. Health and Community Well-Being</p>
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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.
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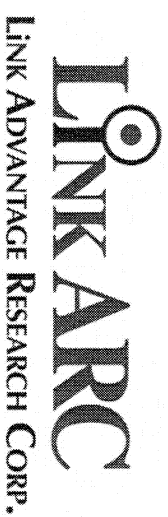
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Giant Mine Research Project

**Phase 1: Stack Emissions Standards and Regulations
in the Northwest Territories and Across Canada
Summary of Preliminary Research Findings**

Submitted to:

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1. Introduction and Objectives

This report presents the results of preliminary research about federal, provincial and territorial regulations and standards that applied to smoke stack emissions from 1949 through 1999. Accompanying the report is an excel spreadsheet listing twenty-six source documents. The source documents will follow, either by secure file transfer or by a mailed disc.

The following excerpt from the statement of work (SOW) provided to Link ARC summarizes the background to the research:

The Yellowknives Dene First Nation (YKDFN) have asked Canada for an apology and compensation related to arsenic contamination of their communities—N'Dilo and Dettah—and their broader traditional territories. The privately owned mine released thousands of tons of arsenic dust into the environment starting in the late 1940s, which persists to this day and which the First Nation alleges to have had some adverse health effects to YKDFN communities and members, including at least one confirmed death in April 1951.

The SOW includes four questions about the mine and pollution. Link ARC's call-up for March, 2017 concerns the first two questions, which read:

- 1) What were the standards and regulations applicable to stack emissions in the Northwest Territories and how did they evolve over time since 1949?
- 2) How did those standards and regulations applicable to stack emissions compare to industrial standards and regulations applicable in other provinces over that same time?

The following deliverable was planned as a response to the two questions:

A document collection of the standards and regulations in force in the Northwest Territories and all other provinces from 1949 to 1999.

This report explains how we have addressed the two questions and what we have provided for the deliverable. It is intended as a guide to the information located so far, and for future reference for later stages of research, but please note that it was not required as a deliverable under the current call-up.

Our methodology involved investigating the history of regulations and acts in the various jurisdictions and attempting to locate as much relevant documentation as possible. A review of web-based information was conducted, along with contacting various government officers and archival staff.

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A high degree of complexity was encountered with the research and the results so far should be considered as preliminary only. Some of the complexities encountered include:

- **The complexity of the acts and regulations:**

The history of pollution regulation is complex due to changes in the regulatory regime and the amount of documentation potentially involved. For example, we noted that an in-depth review of Hansard records may be required to determine the exact changes to regulations and acts over time. Additionally, determining which government department was responsible for stack emission regulation over time is another factor that required investigation.

- **The number of jurisdictions involved:**

Research was completed on all jurisdictions; however, the time available only allowed for a limited amount of research to be spent on each jurisdiction.

- **The timeframe of 1949 to 1999:**

The amount of activity was significant during this fifty-year period in both industrial development and environmental regulation.

- **A lack of information until a relatively late date:**

One government officer referred to the pre-1995 regulatory regime as being devoid of any regulation whatsoever. This absence of information explains why some of the research has turned up very little in the way of results for certain jurisdictions.

- **Regulation geared towards monitoring rather than enforcement:**

The Canadian Environmental Act of 1999, for example, was oriented towards monitoring only and if issues were discovered an investigation may have been recommended. However, this type of government oversight is markedly different from regulations with enforceable penalties or other measures to uphold set quantities on emissions. The researchers therefore had to determine whether these acts/regulations were of relevance or not to the research.

- **Regulation specific to certain operations ("site specific"):**

Some regulation was found to have been created on an as-needed basis and in reaction to concerns about specific operations rather than standards applying to all gold mining in a territory or province.

The site-specific orientation of some regulation may be at least partly explained by a need to regulate a particular mining operation, as emissions concerns could relate strongly to the substance being mined and the ground from which it was being mined, rather than across-

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the-board regulation of a particular type of mining (in this case gold mining). With Giant Mine, there is a possibility that the ground at the location held a much higher amount of arseno pyrite compared to the nearby Con Mine. Also, the Giant Mine process of crushing and heating the ore, was different from other gold mining operations where other methods were employed. Regulation of operations may have sought to address concerns about specific operations, rather than applying to gold mining operations across an entire jurisdiction.

- **Lack of corporate knowledge amongst government contacts:**

Several provincial contacts were agreeable to discussing what they were aware of in terms of the history of regulations; however, few had the corporate knowledge to provide informed responses about the history of regulation, especially given the broad timeframe of 1949-1999.

The twenty-six source documents identified relate to the acts and regulations we could locate; however, several reports and news articles have also been included that provide indications of the overall subject of regulation and the complexities involved. Many of the sources will require further review and additional research will be required to fill-in gaps in information. Note that documents have been assigned document numbers (in the format GM-####). The numbers correlate with the information on the excel table and the table's information can later be imported into a database.

This report consists of summaries by jurisdiction of findings made so far. The information located is simply compiled in the report—with excerpts of correspondence and relevant information from documents—but with little commentary or analysis. However, the information provides a basis for understanding the complexities involved with the subject matter and for determining next steps for research and analysis, and report writing.

Further research is recommended on the following points:

- **More in-depth review of the sources identified:**

Generally, the source documents identified so far require review and analysis. Some documents have a wealth of information to offer, including a report by the Manitoba Law Society (GM-00024) and a book on the history of regulation in Alberta (GM-00001). Those sources should provide more leads on information regarding regulation.

- **Federal sources:**

Further investigation is needed into standards/regulations set by departments such as Fisheries and Oceans and Transport Canada.

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Library and Archives Canada sources also require additional review. Potentially key records identified were restricted and cannot be accessed without permission (see RG29 listings in the NWT section).

The acts and regulations so-far identified, as well as further sources that may be identified, may also need to be tracked in the Canadian Gazette to identify pertinent changes to the regulations over time.

- **Further discussion with government officers:**

More research is required through contact with the ministries responsible for resource development and the environment, as well as, respective provincial legislature archives.

As this report is a compilation of preliminary research results only, note that efforts have not yet been made to finalize citations and bibliographic information into final form as per academic practices (e.g. the Chicago style).

Our team will be pleased to meet to discuss the findings so far. Please contact Dave with any questions about the research.

2. Background

A thorough background on Giant Mine and its history is not provided here; however, a detailed historical timeline, covering 1935 – 2013, is provided on the INAC site footnoted below.¹ Also, this summary from a study on the mine sums up pertinent details about the mine and the substances it emitted in the early years of its operation (the nearby Con Mine is also mentioned):

The resumption of roasting operations at Con Mine in 1948 and the commencement of roasting at Giant Mine in 1949 produced a dramatic increase in arsenic pollution in the Yellowknife area. Although there was no formal monitoring during this period, a report from the 1960s used ore production figures to estimate that Con and Giant produced an average of 22,000 pounds per day of arsenic trioxide dust between 1949 and 1953. Emissions at Giant Mine accounted for most of this daily total (about 16,500 pounds per day) because all of the ore processed at the mine was contained in refractory.

At this early production phase, neither mine installed any form of emissions control on their roasters, even though arsenic was widely known as an industrial poison and the technology for stack emission abatement (the Cottrell Electrostatic

¹“History of Giant Mine: Historical Timeline” - <https://www.aadnc-aandc.gc.ca/eng/1374760498850/1374760562098>

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Precipitator) had been invented in 1907. Con Mine operated from 1948-49 and Giant from 1948-51 with no pollution control installed on their roasting stacks. At the early development stage of Giant Mine, government officials expressed some concern about the potential for arsenic pollution in air and water, but suggested that well-built tailing impoundments and roaster stack of sufficient height would eliminate the danger from arsenic trioxide dust (and sulfur dioxide).²

3. Provinces and Territories – Acts and Regulations

3.1. Northwest Territories

On April 1, 2014, the Government of the Northwest Territories became responsible for managing public land, water, and resources in the NWT through the Devolution Act.³

According to an INAC resource, prior to devolution, the federal government was responsible for land management, water management and land and water inspections in NWT. NWT was responsible for 'air quality', and environmental assessments were considered a 'shared responsibility' between NWT and the Federal government, and 'cumulative impact monitoring' was considered a federal responsibility.⁴

NWT has had Land and Water Boards since the early 1970s that have input into resource development issues.⁵

Giant Mine and Pollution

According to INAC, in 1950 Giant Yellowknife Gold Mines Limited (GYGML) initiated their first studies into arsenic in surrounding environment, leading to revised operations. In 1951, first pollution control efforts appear, the electric precipitation plant, to collect toxic dust from the roaster stacks. [Silke 2009]

Also mentioned is that in 1950, scientists and 'government agencies' agreed that storing the dust underground was the best solution at the time. More research would be required to determine which agencies and if there were standards for pollution at the time.

² Excerpt from: Giant Mine: Historical Summary. Sandlos, John and Keeling, Arn. Memorial University. Aug 8, 2012. Accessed: March 15, 2017. Page numbers to be added. (GM-00003)

³ <http://devolution.gov.nt.ca/>

⁴ <https://www.aadnc-aandc.gc.ca/eng/1390935454173/1390935501040>

⁵ http://www.enr.gov.nt.ca/sites/default/files/nwt_water_boards.pdf (GM-00009)

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In June 1951, there was a meeting of government and Giant Mine officials to discuss pollution control. The result was the adoption of safe threshold level value of arsenic in drinking water of 0.05 parts per million. [Sandlos and Keeling, 2012]

From 1951-1960, there was monitoring by the *federal Industrial Health Laboratory* of arsenic contamination of Yellowknife water and vegetables. [Sandlos and Keeling, 2012]

"In addition to pollution control, the federal government continued to monitor the impact of arsenic on water and food supplies in the region throughout the 1950s and 1960s. Dr. Kingsley Kay, Chief of the federal government's Industrial Health Laboratory, led a survey team to Yellowknife to conduct water and vegetable testing in the fall of 1951, the archives contain results from ongoing monitoring to 1960.25 Federal officials had adopted the Canadian standard of 0.05 ppm as the concentration of arsenic considered a safe threshold level for drinking water (five times the current threshold level in Canada. " [Sandlos and Keeling, 2012]

1958 – 'Dracco' baghouse installed to further catch dust emissions [Silke, 2009]

1974: Giant Mine started looking into better methods of pollution control to match 'the standards of the day' [Silke, 2009]

As late as 1977, the Canadian Public Health Association recommended storing underground as best option. [Thompson, Spencer, Green]

Environmental Regulations in 1980s forced Giant Mine to treat wastewater to destroy residual cyanide. [Silke, 2009]

1989: Proposed arsenic trioxide treatment project, then canceled in 1990 [Silke, 2009]

Contacts:

Aileen Stevens Air Quality Program Manager
Environment and Natural Resources
Northwest Territories
(867) 767-9326 ext: 53185.

Research Sources:

The researcher was not able to view LAC files RG 29, vol. 2977, file 851-5-2, pt 1, 2 and 4 LAC noted below (4 to 14) as they are designated restricted access. A LAC review request is required in order to determine if the documents can be released. It is highly likely that documents 1 to 3 will be located in the same files. These documents were cited in Giant Mine: Historical Summary – John Sandlos and Arn Keeling (2012).

Medical Report: Medical Health Officer - Dr. O. L. Stanton.

Report by Chief Mining Inspector: K.J. Christie referred to in letters below.

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Two letters and attachments Dated May 28 and 29, 1951 from G.E.B. Sinclair (Director) to Major D.M. McKay Director Indian Affairs Branch Department of Citizenship and Immigration.

For early emissions data and the unregulated nature of emissions from 1949-51 An Investigation of the Health Status of the Inhabitants of Yellowknife NWT authored by A.J. de Villiers and P.M. Baker Occupational Health Division, Environmental Health Directorate, Department of Health and Welfare (Ottawa, 1970), RG 29, vol. 2977, file 851-5-2, pt. 4 LAC

Memorandum Jan 16, 1975 from Regional Director NWT Region to Assistant D.M. Medical Services Branch – attention Mr. M. Fillion

Detailed emissions data was also contained in a correspondence from Dr. O. Schaefer, Northern Medical Research Unit to the A/Regional Director, Northern Region, National Health and Welfare, 4 November 1971. RG 29, vol. 2977, file 851-5-2, pt. 1, Library and Archives Canada (hereafter LAC).

Details on the pollution control equipment at Con and Giant were found in W.H. Frost, Senior Medical Advisor, Medical Services Branch, National Health and Welfare, "Arsenic – Yellowknife," 28 October 1970. RG 29, vol. 2977, file 851-5-2, pt. 1, LAC.

Minutes of Meeting held to Discuss the Death of Indian Boy, Latham Island, 1 June 1951. RG 29, vol. 2977, file 851-5-2, pt. 1, LAC.

For Dr. Stanton's approval of the underground storage method, see his letter to G.E.B. Sinclair, Director, Northern Administration and Lands Branch, Department of Resources and Development, 27 February 1951. RG 29, vol. 2977, file 851-5-2, pt. 1, LAC.

Editorial, "Ottawa Hides the Poison," Globe and Mail, 19 January 1977. See also Victor Malarek, "Yellowknife Arsenic Level 'Horrendously High,'" Globe and Mail, 17 January 1977; no author, "Private Study Shows Yellowknife Arsenic Level Dangerously High," Edmonton Journal, 17 January 1977. All clippings found in RG 29 vol. 2977, file 851-5-2, pt. 4, LAC.

The report in question is the D.A. Gemmill, Yellowknife Environmental Survey, Summary Report, Environmental Protection Service, Department of the Environment (Ottawa, 1975), RG 29, vol. 2977, file 851-5-2, pt. 4, LAC.

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Confidential

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For broad background to the development of the Cottrell ESP, see Timothy LeCain, "The Limits of 'Eco-Efficiency': Arsenic Pollution and the Cottrell Electrical Precipitator in the U.S. Copper Smelting Industry," Environmental History 5, no. 3 (July 2000): 336-51. 4

Silke, Ryan. 2012. "High Grade Tales: Stories from mining camps of the Northwest Territories" Self-Published, January 2012.

Geological Survey of Canada, Paper 65-11, published by Natural Resources Canada

Canadian Mining Manual, 1953

Tait, R.J.C., 1957. Giant Yellowknife Gold Mines Limited. In The Milling of Canadian Ores, 1957.

Giant Yellowknife Gold Mines Limited filed annual reports as of 1945 until their role with the mine ended. These are referenced often in historical reports and documents as key source documents on decisions and standards regarding mining operations during the history of Giant Mine.

Northwest Territories Mining Heritage Society – Contact

Mining and Communities in Northern Canada: History, Politics and Memory

Edited by Arn Keeling and John Sandlos Chapter 12 Liability, Legacy and Perpetual Care: Government Ownership and Management of the Giant Mine (2015) University of Calgary Press (GM-00013)

Giant Mine: Historical Summary – John Sandlos and Arn Keeling (2012)

Silke, Ryan. The Operational History of Mines in the Northwest Territories, Canada (2009) (GM-00021)

Management of Arsenic Trioxide Bearing Dust at Giant Mine, Yellowknife, Northwest Territories. Authors: N. Thompson, P. Spencer, P. Green. Department of Indian Affairs and Northern Development. P.O. Box 1500, Yellowknife, NT, X1A 2R3 (GM-00020)

Governments consider regulations on arsenic pollution (from Giant and Con gold mines in Northwest Territories) Canadian Press NewsWire; [Toronto] 22 Oct 1995. (GM-00005)

Note: Quote from article cited above by federal Environment Ministry employee: "Enforceable regulations on releasing arsenic into the air are likely to be among those proposals, said Laura

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Johnston of the Environment Department in Yellowknife. "Air emissions are one of the blanks in terms of there not being regulations."

Also to review is the following report by the Yellowknives Dene First Nation to determine if acts or regulations are cited:

Prepared by Yellowknives Dene First Nation Land and Environment Committee; Prepared for the Department of Indian Affairs and Northern Development Giant Mine Remediation Project, Yellowknife NT. "Impact of the Yellowknife Giant Gold Mine on the Yellowknives Dene, A Traditional Knowledge Report." (October 13, 2005)

registry.mvlwb.ca/Documents/MV2007L8-0031/SD%20A1_Giant%20Mine%20TK%20Report%20YKDFN.pdf (GM-00019)

3.2. Ontario

Source re. pollution in the Sudbury district:

"Nineteen hundred and fifteen was a rather wet year in the Sudbury district. The sulphur dioxide fumes from the open-air roasting heaps hung in sickening mists and low clouds over the region. In increasing numbers the local farmers brought damage suits against the nickel producers, Mond and International Nickel. In desperation, the nickel companies turned to the Ontario Ministry of Lands, Forests and Mines for protection.

The life expectancy of local lakes looked bad too. In 1972, the Science Council of Canada reported, "Severe tree damage has been detected up to 30 miles from the emission sources; vegetation has been stunted within a 720-square mile area...there are now no fish of any kind in at least 32 lakes and soon they will be gone from at least 38 more."

<http://www.republicofmining.com/2010/06/30/the-arrogance-of-inco-by-val-ross-originally-published-in-may-1979-part-4-of-4/>

For additional investigation:

The Efficiency of the Common Law: Sulphur Dioxide Emissions in Sudbury Author(s): D. N. Dewees and Michael Halewood Source: The University of Toronto Law Journal, Vol. 42, No. 1 (Winter, 1992), pp. 1-21 Published by: University of Toronto Press Stable URL: <http://www.jstor.org/stable/825858> (GM-00016)

AIR QUALITY TRENDS CITY OF GREATER SUDBURY, ONTARIO 1953 – 2002. Study by Potvin Air Management Consulting, June 2004 (GM-00015)

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Industrial Heritage in Northern Ontario: The Case Study of the Controversial Inco Superstack.
Sherrington, Amanda (GM-00027)

3.3. Quebec

The following source is recommended for review for the regulations in Quebec; no additional sources were found in the time available:

An Environmental History of Canada Laurel Sefton MacDowell. 2012. Northern Ontario and Quebec

3.4. New Brunswick

The following sources are recommended for review for the regulations in New Brunswick; no additional sources were found in the time available:

New Brunswick Power Corporation for the Belledune Thermal Generating Station Prepared by: Industrial Processes Section, Impact Management Branch Department of Environment and Local Government September 2014 – *Historical emission standards since 1994*. Document to be obtained.

Industrial Process Section, Impact Management Branch, Department of the Environment and Local Government. "Facility Profile New Brunswick Power Corporation for the Belledune Thermal Generating Station." (September 2014) www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Air-Lair/Class-Categorie1/NBPowerBelleduneFacilityProfile.pdf (GM-00017)

3.5. Prince Edward Island

The first testing at the Energy from Waste Plant was conducted in 1985 as part of a national incinerator testing program. At that time, the Charlottetown plant was reported to be emitting 84 kilograms of mercury per year. Testing conducted in November 1998 saw that figure drop to 16 kg/year and the testing in July puts the level at 5 kg/yr.

The Conference of New England Governors and Eastern Canadian Premiers adopted a Mercury Action Plan in 1998 calling for a 50 percent reduction in mercury emissions from identified sources by 2003. Minister Gillan said Prince Edward Island remains committed to that target and he asked Islanders to help the province meet its commitment.

<http://www.gov.pe.ca/webarchive/index.php?number=news&dept=&newsnumber=1877&lang=E>

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3.6. Nova Scotia

"From 1858 to 1893, more than 30 coal mines were opened in the province, producing 700,000 tonnes in the last year." <http://www.minersmuseum.com/history-of-mining/>

Future Research:

Coal mine, Donkin Nova Scotia

Prince Colliery Mine, Nova Scotia

3.7. Newfoundland and Labrador

The following source is recommended for review for the regulations in Newfoundland and Labrador; no additional sources were found in the time available:

The Mineral Industry in Newfoundland and Labrador: Its Development and Economic Contributions. R.J. Wardle, 2004. (GM-00018)

3.8. Alberta

Conducted online departmental searches including Environment and Natural Resources and Provincial Archives. Research led to contacting the Environmental Monitoring and Science Division. Contact there led to 2016 publication: *Dust, Smoke, and Sour Gas: The First 65 years of Air Quality Management in the Alberta Government, 1945-2010.*

Angle, Randolph P., Dust, Smoke, and Sour Gas: The First 65 years of Air Quality Management in the Alberta Government, 1945-2010 (October 2016) 19Oct2016.pdf (GM-0001.pdf)

Contact:

Randy M. Dobko, P. Eng.

Senior Engineer

Air, Biodiversity, and Policy Integration Branch

Alberta Environment and Parks

(780) 427-6869

Randy.Dobko@gov.ab.ca

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3.9. British Columbia

British Columbia documents regarding Acts and Regulations were located but reflect a narrow window of time, as such, more follow-up research is required through contact and with the Ministry of the Environment, the Ministry of Mines and provincial archives.

Contact and Correspondence:

Further to our discussion this morning, please find attached a copy of the Pollution Control Act which came into force March 23, 1967, almost 50 years ago. It appears the Minister of Lands, Forests, and Water Resources was responsible for this legislation. This Act was in place before the US EPA and Environment Canada was formed.

As mentioned the Pollution Control Objectives (Forestry, Mining, Chemical and Petroleum, and Sewage) were the "guidance" documents of the time for designing discharge permits.

In the early 1970s, there was no receiving water criteria (that came quite a bit later on) and government had to research "safe" receiving water levels for each permit.

In the early 1970s and likely late 1960s, there was the Mine Development Review system for mines (predecessor to the Environmental Assessment Act).

The Pollution Control Act marked a new era of environmental protection in B.C. The Pollution Control Act, Pollution Control Objectives, and the Mine Development Review process blazed the way for improved pollution control in Canada, which set the bar/standards for other countries to emulate.

Attached are the Pollution Control Objective for Mining. These are dated 1976 – I do not have copy of the earlier objectives.

The Pollution Control Act, was repealed and replaced by the Waste Management Act, and in 2004, it was replaced with the Environmental Management Act.

Hope this helps,

Maureen Bilawchuk, M.Sc., P. Ag
Clean Technologies, Environmental Standards
Ministry of the Environment
(250) 565-2306
Maureen.Bilawchuk@gov.bc.ca

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Legislative Assembly of the Province of British Columbia "Pollution Control Act" (March 23, 1967) (**GM-00008** – also **GM-00022** but duplication to be verified before document is removed).

file:///C:/Users/test/Downloads/Scan_20170317.pdf

McKenzie, C.J.D. MD. Chairman Pollution Control Board. "Pollution Control Objectives for the Mining, Smelting and Related Industries in British Columbia." Ministry of the Environment Victoria, B.C. (February 22, 1979) (**GM-00023**)

3.10. Manitoba

Conducted online departmental searches that led to the following publication:

Manitoba Law Reform Commission, Manitoba' Environmental Assessment and Licensing Regime under the Environment Act Final Report (May 2015) (**GM-00024**)

Chapter 3 provides a comprehensive history of the evolution of environmental protection and regulation in Manitoba.

http://www.manitobalawreform.ca/pubs/pdf/130-full_report.pdf

Manitoba's environmental assessment regime evolved from statutory pollution control mechanisms that have been in place, in some form, since the late 19th century.

1871 Sanitary Act

1905 Act for Protecting the Public Interest in Rivers, Streams and Creeks

1913 Rivers and Streams Act

1935 The Pollution Prevention of Water Act

1968 The Clean Environment Act - Note: this is the first Act to reflect the need to provide more comprehensive protection for the environment: air, water and land

1988 The Environment Act

Contacts: Don Bezak Manager Air Quality Section Manitoba Conservation Tel: (204) 945-7046
Fax: (204) 948-2357 e-mail: dbezak@gov.mb.ca

To date, Mr. Bezak has not responded to a request for information.

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3.11. Saskatchewan

Contact and Correspondence:

In a conversation with Mr. Moulding, Manager, Uranium and Northern Operations, Government of Saskatchewan, he indicated that air pollution remediation, even today, is an adhoc reaction response to a specific emission issue. This email excerpt provides further information:

Dear Mr. Inglis,

Regarding your inquiry about air quality reports for smoke stacks, mining, for 1949 to 2000, major point source emitters in Saskatchewan report to the Environment and Climate Change Canada - National Pollutant Release Inventory (<https://www.ec.gc.ca/inrp-npri>). Beyond that, if there are specific facilities that you are interested in, or need data on specific parameters, additional information can be obtained through our website.

<http://www.saskatchewan.ca/business/environmental-protection-and-sustainability/industrial-activities/industrial-air-and-waste> or through an information request <http://publications.gov.sk.ca/documents/66/86210-F22-01R1-A.pdf>.

I trust this information will be of assistance,

Regards,

Tim Moulding, M.Sc.

Government of Saskatchewan

Manager, Uranium and Northern Operations
Environmental Protection Branch, Ministry of Environment
112 Research Drive

Saskatoon, Canada S7N 3R3

Bus: [306-933-7063](tel:306-933-7063)

<mailto:tim.moulding@gov.sk.ca>

3.12. Yukon

Acts and Regulations were located for the Yukon; however, they were only passed by, and placed under the control of, the Yukon legislature in 2003. Prior to 2003, the Yukon was, for the most part, under federal mandate regarding the environment and natural resource development.

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Contact and Correspondence:

Hello Alan;

I was able to contact Nora, the other librarian who was working on this question. She did receive the following information from Nicole Hulstein, the Yukon Government mining policy analyst:

I don't believe there was ever any smelting operations during that time (or now for that matter), only milling. Any smelting operations, if there were any would have been regulated through federal legislation for the most part i.e. Yukon Waters Act, CEPA and CEAA (for the environmental assessment), potentially Yukon Environment Act (Air Emissions Regulation) for emissions – this Act came into force in 1998.

Since devolution occurred in 2003, this would have been under Federal jurisdiction, and Federal regulations would have been in force for the period in which you are interested. Yukon Statutes and Regulations are available at this website: <http://www.gov.yk.ca/legislation/>. Federal Statutes & Regulations at this website: <https://www.canlii.org/en/ca/laws/>

Please let us know if we can be of any further help.

Regards,

Margaret Donnelly

Yukon Energy, Mines and Resources Library
Box 2703 (K335)
Whitehorse, Yukon Y1A 2C6
T: 867.667.3111
E: emrlibrary@gov.yk.ca
W: <http://www.emr.gov.yk.ca/library>

Yukon Environmental Act Nov. 24, 1998

http://www.gov.yk.ca/legislation/legislation/page_e.html
RSY 2002, c.76 (GM-00012)

Environment Act

Air Emissions Regulations:

O.I.C. 1998/207

Part 9: Release of Contaminants - pp. 111 to 117; Regulation 145 – pp. 78 to 80

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Part 10: Hazardous Substances and Pesticides – pp. 118 to 131; Regulation 146 – pp. 80 to 82

Part 11: Spills – pp. 132 to 139 Regulation 147 – p. 82

Water Act:

Section 7(1): Deposit of Waste - prohibition – pp. 5-6

This section notes the Canada Water Act

Sections 18(2)(a) – p. , 31(1)(n) - p. 26 , 31(1)(o) – p. 26

Agreements with other provinces Section 5 – p. 4

Yukon Northern Affairs Devolution Transfer Agreement (2001) (GM-00025)

https://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/nth_pubs_yna_yna_1316538556192_eng.pdf

Yukon Act (April 2003) (GM-00026)

<http://laws-lois.justice.gc.ca/eng/acts/Y-2.01/index.html>

4. Federal Research and Information

Summary

Numerous source materials have been cited but not fully reviewed. More research is required through contact with the ministries responsible for resource development and the environment, as well as, LAC. Preliminary research suggests that federal regulation of emissions fall under the auspices of numerous acts and departments over time, and that mitigation has been more reactive than proactive.

4.1. Environment Canada

Contact and Correspondence:

Email excerpt:

Good day Alan,

Given the 1948-2000 time frame of your inquiry: the unofficial predecessor of Environment Canada was the Department of Energy, Mines and Resources which

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became part of Natural Resources Canada. NRCan still exists and may have older documentation on your topic. NRCan, like Environment Canada, is part of the seven federal science libraries who are under one catalogue now called the Federal Science Library (FSL): <http://science-libraries.canada.ca/eng/home/>

From the Canadian Encyclopedia

<http://www.thecanadianencyclopedia.ca/en/article/air-pollution/>

"Most Canadian provinces and the federal government have formal air quality regulations in place such as Clean Air Acts. These acts specify emission standards (maximum permissible rates of release of designated pollutants from particular types of sources) and ambient air-quality objectives or standards (maximum permissible concentrations of designated pollutants in the outdoor environment), such as the Canada-wide standards for PM and O₃. Under the Canadian Constitution, health is a provincial responsibility, with air-pollution control undertaken largely by the provinces. The federal government does have jurisdiction, however, over pollution from transportation (e.g. trains, ships, fuel quality) and can intervene when air pollution crosses the US-Canada border. The Canadian Environmental Protection Act (CEPA) also gives the federal government the authority to regulate many aspects of air pollution."... <http://laws-lois.justice.gc.ca/eng/acts/C-15.31/index.html> Canadian Environmental Protection Act (CEPA), 1999. The Environmental Contaminants Act of 1975 was the predecessor to CEPA.

Environment and Climate Change Canada produces the National Pollutant Release Inventory (NPRI) from 1993- present: <http://www.ec.gc.ca/inrp-npri/default.asp?lang=en&n=0EC58C98> as well as producing NAPS Data Products: <http://maps-cartes.ec.gc.ca/inspa-naps/data.aspx?lang=en> You may find some information in the Air Pollutant Emission Inventory Report 1990-2013: http://publications.gc.ca/collections/collection_2016/eccc/En81-26-2013-eng.pdf

Another interesting article from 1982 talks about the roles of federal and provincial governments in the Control of Toxic Chemicals in Canada: <http://digitalcommons.osgoode.yorku.ca/mwg-internal/de5fs23hu73ds/progress?id=zDhTpnsYz1vWynu8kXiUusLNvFYjHB1b8UCL8QWSLY&dl> and a document on Coal Mining in Canada: A Historical and Comparative Overview (page 65 - Environmental Concerns) <https://documents.techno-science.ca/documents/Transformations5COALMININGINCANADA-1996.pdf>

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If there are any documents before Environment Canada took over emission regulations you may be able to find them in some of these above links. It is information that is not easily found, but could be out there.

Regards,

Mary Orlik

mary.orlik@canada.ca

Library Services / Corporate Services and Finance Branch
Environment and Climate Change Canada / Government of Canada

ec.bibliotheque-library.ec@canada.ca

4.2. Library and Archives Canada

Contact and Correspondence:

Hi Alan,

Further to our conversation on the regulation of arsenic in the mining industry from 1950 to 2000, most of the literature I've encountered seems to point to effluent, or tailings, rather than to stack emissions.

I did a quick search of the *Globe and Mail* and Canadian Business and Current Affairs databases, and the main discussion in articles of the period regarding the Giant Mine in Yellowknife concerned arsenic in the form of powder, which was buried in caverns.

In searching the Canada Gazette, Part II, Consolidated Index of Statutory Instruments, for Federal regulations relating to stack emissions, I didn't have much luck when it came to the mining industry. I used terms such as air pollution, air quality, particulates, (stack) emissions, mines, mining, etc. The only related item was Metal Mining Effluent Regulations (SOR/2002-222), but these regs. are recent and deal with water rather than air. I have a feeling that the material you're looking for might be in Codes of Practice, rather than Regulations, or in provincial or territorial legislation (although this might be quite "thin", the further back in time you go).

I think your best bet would be to contact the Environment Canada (ECCC) Library (see attached document for contacts) and if they can't assist, ask for a departmental contact (I've listed a couple of possibilities in the attached, as well). Hopefully, someone there will be able to help you with the historical component

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of regulation relating to mines and mining. If not ECCC, then perhaps NRCan (although their purview seems to be relatively limited).

For published material, AMICUS (our catalogue) can be helpful. Click on the blue Search AMICUS button and then Entire AMICUS database. Advanced Search gives you more options for searching. In addition, the Federal Science Library which lists the holdings of the catalogues of Agriculture and Agri-Food Canada (AAFC), Environment and Climate Change Canada (ECCC), Fisheries and Oceans Canada (DFO), Health Canada (HC), National Research Council Canada (NRC), Natural Resources Canada (NRCan), and the Public Health Agency of Canada (PHAC) is excellent for more technical scientific information.

If you have any questions concerning the attached material, please don't hesitate to contact me.

Regards,
Julia McIntosh
Reference Librarian, LAC
julia.mcintosh@canada.ca
Tel: 613-995-2371

Publications - Canada Gazette, Part II (Regulations)

Canada Gazette Part II (Regulations)

Consolidated Index (Consolidated Index of Statutory Instruments)
JANUARY 1, 1955 TO DECEMBER 31, 2016 - most recent
<http://www.gazette.gc.ca/rp-pr/ci-ic-eng.html>

Archives

ARCHIVED — 1841–2010

Acts would have to be identified that pertain to mining activity so that oversight and regulations and any changes of same could be tracked overtime via the Gazette.

OAG. Canadian Mining Regulations 1997

http://www.oag-bvg.gc.ca/internet/English/pet_006_e_28702.html

Petition by Canadian Arctic Resources Commission presented to Auditor General of Canada April 16, 1997

Summary: The petition presents a critique of the current federal system for disposing of Crown mineral rights in the Northwest Territories (NWT) through the Canadian Mining Regulations. According to the petitioner, the regulations establish an open-access or free-entry mining regime. Therefore, all Crown lands in the NWT are open for mineral operations unless they are

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specifically withdrawn. The petitioner suggested that the current approach is inconsistent with sustainable development as defined in the *Auditor General Act*.

Please note section (g) and (h) of petition.

Response to petition by DIAND August 27, 1997

Please note department's response to section response to section (g) and (h), as well as the Mining Sequence Development and Production and Closure in the attachment. The latter sections name the governing acts and regulations for mining operations.

As noted previously, these acts can be found in the Canada Gazette. The researcher should be able to backtrack, if needed, through the Gazette to determine previous acts and regulations and how they changed overtime.

Article: Mining Association of Canada Mines - Regulatory Effectiveness

<http://mining.ca/focus/regulatory-effectiveness>

Building and operating mines is complex and so too is understanding the regulatory environment the industry is subject to. The Canadian mining industry is governed by dozens of federal, provincial and territorial acts and regulations across a broad spectrum of subject matter. While regulating mining activity is primarily the responsibility of the provinces, there are many aspects that require approval from several federal government departments.

From the proposal, development and operational phases through to closure, mining companies must adhere to a number of federal acts and regulations. To deal with the complexity of the federal regulatory environment, MAC monitors and assists our members with such legislation as:

- *Canadian Environmental Protection Act*, including the *Chemicals Management Plan* and *Interprovincial Movement of Hazardous Waste Regulations*
- *Canadian Environmental Assessment Act*
- *Fisheries Act*, including the *Metal Mining Effluent Regulations*
- *Navigable Waters Protection Act/Navigation Protection Act*
- *Species at Risk Act*
- *Migratory Birds Convention Act*
- *Transportation of Dangerous Goods Act*

A robust and efficient federal regulatory system is integral to the success of the industry and Canada's ability to attract mining investment. MAC tracks relevant legislation, monitors emerging regulatory issues, and participates in policy development so that industry perspectives are adequately represented.

In 2012, significant legislative changes were made, including introducing a new *Canadian Environmental Assessment Act*, changes to the *Fisheries Act* and *Navigable Waters Protection Act*, and an announcement of a review of the *Metal Mining Effluent Regulations*. MAC is

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currently promoting the mining industry's needs at the federal level for a reasonable, timely and efficient environmental assessment and permitting process, as well as federal-provincial coordination and a smooth implementation of the above-mentioned legislative changes.

Related Links:

Natural Resources Canada, Environment Canada, Fisheries and Oceans Canada

Transport Canada

Mining

Environment Canada works to address the environmental impacts of mining. Waste rock and mine tailings can result in releases to water and soil. Acidic drainage and the leaching of metals from the mine workings and mine wastes may occur at metal mines. Acidic drainage can cause significant impacts on water quality and aquatic ecosystems. Chemicals that are used to process metal-bearing ores can also be found in mine waste water.

Canada's provinces have primary jurisdiction over mining because it is about natural resource extraction. The federal government has legislation that covers key aspects of the sector. The Minister of the Environment is responsible for the Canadian Environmental Assessment Act, and administering the Metal Mining Effluent Regulations (MMER) under the Fisheries Act. Mining operations which are not captured under the MMER, such as coal mines, diamond mines, quarries, and other non-metallic mineral mining facilities, are subject to the requirements of the Fisheries Act. Additional relevant federal laws that may impact mining are the International River Improvements Act, the Migratory Birds Convention Act, the Species at Risk Act and the Canadian Environmental Protection Act, 1999.

Related Links

- Environment Canada's National Pollutant Release Inventory, which contains a summary of emissions from the Canadian mining sector
- Fisheries and Oceans Canada's Fisheries Productivity Investment Policy: A Proponent's Guide to Offsetting
- o Managing Metal Mining Effluent Quality in Canada
<https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=E6575C51-1>
- o Air indicators
<https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=En&n=03603FB3-1>
- o NPRI National Pollutant Release Inventory
<https://www.ec.gc.ca/imp-npri/default.asp?lang=En&n=44E2B03A-1>
- criteria air contaminants (CACs) released from stationary combustion sources

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The National Pollutant Release Inventory (NPRI) is Canada's legislated, publicly accessible inventory of pollutant releases (to air, water and land), disposals and transfers for recycling. It is a key resource for:

- identifying pollution prevention priorities;
- supporting the assessment and risk management of chemicals, and air quality modelling;
- helping develop targeted regulations for reducing releases of toxic substances and air pollutants;
- encouraging actions to reduce the release of pollutants into the environment; and
- improving public understanding.

- National Pollutant Release Inventory (NPRI) Substance List (Arsenic is listed):

This section provides links to the current NPRI Substance List, information on changes to the NPRI Substance List over time, and substance-specific information.

Please visit our Consultations page for more information on the process for making changes to the NPRI Substance List. These changes may include the addition, modification or removal of substances as well as changes in the thresholds at which they must be reported.

Official lists of substances for purposes of reporting by facilities to the NPRI are published in the NPRI notices in the *Canada Gazette*. For substance lists for other years, please contact the NPRI.

- Other Substance Lists and Substance-specific Information

Changes to the NPRI Over Time (Substance List Changes and Other Modifications)

- Inorganic arsenic compounds

<https://www.ec.gc.ca/toxiques-toxics/Default.aspx?lang=En&n=98E80CC6-1&xml=40B2B1A3-9B61-40EE-8746-CD949298CD0D>

Arsenic is present in the aquatic and terrestrial environments because of natural weathering and erosion of rock and soil, and human activities (including gold- and base-metal processing, the use of arsenical pesticides, coal-fired power generation and the disposal of domestic and industrial waste materials).

Other Information

- The Metal Mining Effluent Regulations (Fisheries Act)
- National Pollutant Release Inventory (NPRI) - Information Centre
- North American Commission for Environmental Cooperation Web Site
- Wood Preservation - Information Centre

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Contact

Email address: GR-RM@ec.gc.ca, Fax number: (819) 994-0007
Chemicals Management Division, Environment Canada
Fontaine Building, 200 Sacré Coeur Blvd.
Gatineau, Quebec K1A 0H3

Base Metals Smelters and Refineries and Zinc Plants

Pollution Prevention Planning Notices

Note: An amendment to the Notice requiring the preparation and implementation of pollution prevention plans in respect of specified toxic substances released from base metals smelters and refineries and zinc plants was published in the *Canada Gazette*, June 11, 2011. The Amendment to the P2 Notice updates the form ("Status Report Form on Conformance with the Environmental Code of Practice for Base Metals Smelters and Refineries") to be used by industry when reporting on their level of conformance with the Environmental Code of Practice for the Base Metals Smelters and Refineries.

Notice Requiring the Preparation and Implementation of Pollution Prevention Plans in Respect of Specified Toxic Substances Released from Base Metals Smelters and Refineries and Zinc Plants

On April 29, 2006, the Minister of the Environment published a Notice under Part 4 of the *Canadian Environmental Protection Act, 1999* (CEPA 1999) requiring the preparation and implementation of pollution prevention plans for base metals smelters and refineries.

This Notice outlines the requirements to prepare and implement pollution prevention plans in respect of specified toxic substances released from base metals smelters and refineries and zinc plants and includes forms to be completed by persons subject to the Notice.

Notice Requiring the Preparation and Implementation of Pollution Prevention Plans in Respect of Specified Toxic Substances Released from Base Metals Smelters and Refineries and Zinc Plants (*Canada Gazette*, Part I, Saturday, April 29, 2006; Vol. 140, No. 17, p. 877)

The Notice was developed following consideration of comments received on the Proposed Notice (published in the *Canada Gazette*, Part I, Saturday, September 25, 2004; Vol. 138, No. 39, p. 2541).

A Notice announcing the availability of a companion *Environmental Code of Practice for Base Metals Smelters and Refineries*, Report EPS 1/MM/11E, was also published in Part I of the *Canada Gazette* on April 29, 2006.

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Contacts:

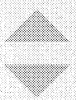
For all technical inquiries regarding the content of this Notice, please contact:

Aimee.Zwieg@canada.ca
Mining and Processing Division
Telephone: 819-420-7707
Fax: 819-420-7381

For inquiries regarding reporting and pollution prevention practices, please contact:

Environment and Climate Change Canada
Regulatory Innovation and Management Systems
c/o Innovative Measures Section
351 St-Joseph Blvd., 20th Floor
Gatineau, Quebec K1A 0H3

Telephone (toll free): 1-844-580-3637
Fax: 819-420-7386 / 1-844-580-3638
Email: ec.planp2-P2Plan.EC@canada.ca



ESTABLISHMENT REPORT

July 2015 | December 2016

GIANT MINE

Oversight Board



GIANT MINE Oversight Board

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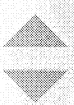
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Glossary

Agreement	Giant Mine Remediation Project Environmental Agreement	NSMA	North Slave Métis Alliance
Co-Propponents	Federal Government, represented by Indigenous and Northern Affairs Canada (INAC), and the Government of the Northwest Territories (GNWT)	NWT	Northwest Territories
ETP	Effluent Treatment Plant	Parties	Yellowknives Dene First Nation, North Slave Métis Alliance, Alternatives North, City of Yellowknife, Government of the Northwest Territories, Indigenous and Northern Affairs Canada
FCSAP	Federal Contaminated Sites Action Plan	Project	Giant Mine Remediation Project
GMOB	Giant Mine Oversight Board	Project Team	Indigenous and Northern Affairs Canada, Government of the Northwest Territories, Public Works and Government Services Canada, and other federal government departments
GNWT	Government of the Northwest Territories	SDE	Surface Design Engagement
HHERA	Human Health and Ecological Risk Assessment	SSP	Site Stabilization Plan
HHRA	Human Health Risk Assessment	SSWQO	Site Specific Water Quality Objectives
INAC	Indigenous and Northern Affairs Canada (Government of Canada)	YKDFN	Yellowknives Dene First Nation
MVEIRB	Mackenzie Valley Environmental Impact Review Board		
MVLWB	Mackenzie Valley Land and Water Board		



Message from the Chair

It gives me great pleasure to present the first report of the Giant Mine Oversight Board (GMOB or the Board). In this report, we summarize our activities to date, offer observations on the status of the Giant Mine Remediation Project (Project), and provide a series of recommendations for the proponents and other Parties.

The GMOB was established as a condition of the Giant Mine Remediation Project Environmental Agreement (Agreement) signed in June 2015 by the federal and territorial governments, the Yellowknives Dene First Nation (YKDFN), North Slave Métis Alliance (NSMA), Alternatives North, and the City of Yellowknife. The publication of an annual report is a requirement for the GMOB under the Agreement; since this is the first such report from our board, we have called this an Establishment Report. It covers the time since the signing of the Agreement until December 2016. Below, I wanted to provide a few highlights from the Board's first year of operation.

In October 2015, Todd Slack was appointed as Interim Chair and I want to thank him for getting the ball rolling on the set-up of the GMOB. Since that time, we have hired two full time staff and set up an office in downtown Yellowknife. We have also worked to formalize our internal practices through the development of administrative and governance policies and procedures. We launched our website in December 2016 and are currently finalizing a Communications Plan. We are pleased that our office is becoming a place where members of the public can come and learn about many aspects of the Project.

An extremely important part of our mandate is the development of a research program towards a permanent solution for the arsenic trioxide currently stored underground at the Giant Mine site. As discussed later in this report, our first task in this regard was to contract a comprehensive update to the state of knowledge review of arsenic trioxide remediation methods that was originally performed

in 2001. The updated review will inform the development of the GMOB research strategy during 2017.

Over the past year, Board members and staff worked together, with input from our appointing Parties, to develop a clear work plan of the priority activities we need to carry out to fulfill our mandate. Board members and staff attended over 33 meetings focusing on various aspects of the Project and hosted several meetings with the proponents and other Parties. We are working hard to build good relationships with all Parties while maintaining our independence.

Within this report, we have tried to reflect both what we heard in the meetings we attended, and to provide some thoughts and recommendations for the Project. Our recommendations are based on our assessment of information from meetings, plans, reports, and, importantly, on our own diverse areas of expertise and experience. We hope that our analysis will be helpful to all Parties.

Overall, the GMOB is satisfied with the progress we made this past year. We believe that our work to date provides a solid foundation to implement our mandate in ways that honour the terms and conditions of the Agreement, and respect the interests of the Parties to the Agreement as well as those of local residents. We encourage everyone who reads this report to share your thoughts with us as to how we might improve it for next year.

In closing, I would like to acknowledge all of the hard work and commitment that clearly went into creating the Agreement and the GMOB. The Board members are honoured to have been appointed and are fully committed to realizing the mandate set out for us. Finally, I want to recognize and thank my fellow board members and our staff for their continued enthusiasm, dedication, and wisdom.

Dr. Kathy Racher
Chair, Giant Mine Oversight Board



The Giant Mine Oversight Board

The Report of Environmental Assessment and

Reasons for Decision: Giant Mine Remediation

Project, EA 0809-001 (June 20, 2013) is the basis for the *Giant Mine Remediation Project Environmental Agreement*, signed on June 9, 2015 by the:

- Government of Canada (Indigenous and Northern Affairs Canada - INAC)
- Government of the Northwest Territories (GNWT)
- Yellowknives Dene First Nation
- North Slave Métis Alliance
- Alternatives North
- City of Yellowknife

The *Agreement* sets out the specific requirements for the GMOB.

The GMOB is an autonomous body that functions under the direction of a six-member Board of Directors appointed individually by each of the Parties to the *Agreement*. The GMOB is incorporated as a non-profit society under the *Societies Act of the Northwest Territories*.

VISION

The GMOB vision is that the remediation of the Giant Mine site, including the subsurface, is carried out in a manner that is environmentally sound, socially responsible, and culturally appropriate.

MISSION

The GMOB mission is to independently monitor, promote, advise and broadly advocate for the responsible management of the remediation of the Giant Mine site, and manage a research program to seek a permanent solution to the arsenic trioxide stored underground at the site.



MANDATE

The GMOB five-part mandate is derived from our mission.

1. Monitor and report on the:

- Environmental aspects of the Project
- Nature and quality of the federal and territorial governments' engagement with the public regarding remediation activities and the effectiveness of their public communications
- Implementation of the Agreement

4. Report through:

- An annual report and an annual public meeting in each of the first five years of operations
- Publicly available reports issued about the GMOB activities, observations, evaluations, and/or advice.

2. Review, report, and/or make recommendations on the:

- Environmental programs, plans and engineering studies
- Integration of traditional knowledge
- Research towards a permanent solution to arsenic trioxide stored onsite
- Federal and territorial governments' annual reports
- Status of the Environment Report and the 20-year independent Giant Mine Remediation Project review.¹

5. Research and administer funding for designated research to find a permanent solution to the arsenic trioxide stored underground at the site, by:

- Identifying priorities
- Conducting studies
- Making results available to the public

3. Undertake communications activities to:

- Promote public awareness of the Agreement and the role of the GMOB
- Provide information to the signatories of the Agreement relevant to their responsibilities, and to the general public
- Establish a publicly-accessible records repository of relevant information

¹These reports are named and required under the Agreement. The first Status of the Environment Report will provide a comprehensive review of the Project and is required in 2022.



Activity Report 2015-2016

This section summarizes key milestones and budget information from the date of incorporation as a Society to the end of 2016.

ESTABLISHMENT OF THE GIANT MINE OVERSIGHT BOARD, STAFF, AND OFFICE

July 2015

- One month after the signing of the Agreement, an Interim Implementation Committee was established made up of representatives of the six Parties to the Agreement.
- A Secretariat to the Interim Implementation Committee within the Department of Environment and Natural Resources, Environment Division, GNWT was established.
- The GMOB was incorporated under the Societies Act of the Northwest Territories.

October 2015

- The six signatories to the Agreement appointed their GMOB Directors.
- The GMOB Directors and the Secretariat participated in an orientation session in Yellowknife, NWT.

January to March 2016

- Office space in Yellowknife NWT was leased for three years.
- An Executive Director was hired.
- The GMOB Administrative Policies and Procedures Manual was adopted.
- The GMOB Governance Policies and Procedures Manual was drafted.

July to September 2016

- A request for proposals for a State of Knowledge Review and Assessment on Arsenic Trioxide Remediation Methods Report was released, generating three inquiries and one active respondent.
- An Office Administrator was hired.
- The GMOB held an internal workshop to report on and discuss the expectations and priorities of the Parties to the Agreement. Interviews were conducted with each Party prior to the workshop to better focus the session and achieve effective outcomes.

October to December 2016

- The website for the GMOB was launched. www.gmob.ca
- Public displays including maps, site models and relevant information were installed at the GMOB office.
- A GMOB Communications Plan was drafted and is expected to be completed in early 2017.

GMOB BUDGET 2016-2017

The GMOB is funded by the federal and territorial governments (Co-Proponents) according to the conditions set out in Article 11 of the Agreement. Here are the highlights of the budget.

- The GMOB budget for 2016-2017 is \$841,500.00. This includes a 2% consumer price index adjustment.
- The GMOB budget is allocated to two categories - general operations and the research program.
- As set out in the Agreement, \$663,000 (79%) of the budget is allocated for general operations.
- The research program budget makes up \$178,500.00 (21%) of the budget. This portion of the budget is for research into finding a permanent solution to the arsenic trioxide currently stored underground at the Giant Mine site.

GMOB FLEXIBILITY IN FUNDING ARRANGEMENTS

- Clause 11.7 of the Agreement contains provisions requiring the federal and territorial governments to permit the GMOB to carry unspent funds over from one fiscal year to another. At this time, the governments have not fulfilled this part of the Agreement although they have stated their intent to do so before the end of the next fiscal year. The GMOB remains concerned about the lack of progress on this issue and notes that a failure to implement clause 11.7 could affect the GMOB's ability to fulfill its mandate.

GMOB FINANCIAL STATEMENT

Crowe Mackay LLP prepared the 2015-2016 Audited Financial Statements, formally accepted at the GMOB Annual General Meeting, held November 9, 2016. In its report, the Auditor stated, "In our opinion, the financial statements present fairly, in all material respects, the financial position of Giant Mine Oversight Body Society as at March 31, 2016, and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations." The audited financial statements can be viewed at www.gmob.ca



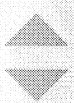
GMOB WORK PLAN 2016-2017

The initial GMOB work plan for 2016-17 was developed in March 2016. Accomplishments to date include:

- The review of significant documents such as the Project team work plans for 2015-2016 and the format of the 2014-15 Draft Annual Report of the Giant Mine Remediation Project and the 2015-2016 Annual Report of the Giant Mine Remediation Project (see Appendix B).
- The design, development, and public launch of the GMOB website.
- A contract for a "State of Knowledge Review and Assessment on Arsenic Trioxide Remediation Methods Report" was initiated.
- An internal GMOB workshop to improve understanding of responsibilities and parameters, and identify priorities was held (see Appendix C).
- Meetings mandated under the Agreement and the Societies Act (see table below) took place. Since the GMOB establishment, its directors and staff have attended 33 formal meetings and a number of informal meetings. Meetings have involved the Parties to the Agreement and various community and technical agencies. The attending directors and/or staff consistently evaluated each meeting and shared those findings with other board members.

GMOB Schedule of Mandated Meetings Completed and Anticipated, 2016-2017

DATE	PARTICIPANTS	MANDATED REQUIREMENTS	FREQUENCY
May, 2016	GMOB and Parties	Agreement, Article 9.1	Biannual
November, 2016	Annual General Meeting	Societies Act of NWT	Annual
November, 2016	Co-Proponents	Agreement, Article 3.4 d	Annual
November, 2016	GMOB and Parties	Agreement, Article 9.1	Biannual
May, 2017	GMOB and Public	Agreement, Article 5.5	Annual



GMOB 2016 RESEARCH PROGRAM

The GMOB's research program is focused on finding a permanent solution for the arsenic trioxide currently stored underground at the Giant Mine site. The GMOB intends to develop a strategy that will describe how its research budget will be spent over the next few years. To ensure that the strategy supports research on the most promising technologies, the GMOB commissioned a comprehensive update of a state of knowledge report originally prepared by INAC in 2001. The report will examine methods in place or in development for the long-term management of arsenic trioxide. A request for proposals was released in August 2016 through the MERX electronic contracting system. Three inquiries and one proposal were received. The contract for the State of Knowledge Review and Assessment: Arsenic Trioxide Remediation Methods Report was awarded to Arcadis Canada Inc. The report, due in early 2017, will inform the development of the GMOB's research strategy.

GMOB ESTABLISHMENT REPORT

This first report of the GMOB has been prepared as an establishment report rather than an annual report. There are two reasons for this:

1. The report covers the 18-month period from incorporation (July 2015) to December 31, 2016.
2. The activities undertaken over this 18-month period have focused, for the most part, on establishing the Board operations.

What We Heard

In our meetings with the Parties to the Agreement, the public and others, the GMOB heard a wide variety of issues and concerns. To our knowledge, these concerns are not consistently documented or addressed by the Project Team (see Appendix B, Subject #12). For this reason, we tried, in this section, to summarize some of what we heard, especially those concerns that were raised more than once. Note that the GMOB does not necessarily agree with the points of view described in the issues listed below, but it does consider these observations in the recommendations made later in this report. Some of these issues are within the purview of the Project while others speak to broader community concerns.

1. Health Issues

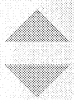
- Human health impacts were raised with respect to relocating portions of the Ingraham Trail/ Highway 4 and the possible use of Yellowknife Bay as a future site for Yellowknife's water supply. In both cases, concerns were expressed about the possible elevated risk of exposure to arsenic.
- Insufficient capacity and priority by the GNWT were raised with respect to the monitoring, staffing and tracking of potential human health impacts. In particular, there was concern that the GNWT's cumulative effects monitoring activities do not include health effects, and that the GNWT does not employ a specialist with the expertise to analyze potential human health impacts.
- There was a query as to how a 1970s health baseline study, that measured arsenic levels within the local population, will inform upcoming health studies.

2. Engagement/Consultation

- The Co-Proponents are engaged in a variety of Project activities and have several contractors working on their behalf. Concerns have been expressed about the inclusiveness of consultations and the consistency of messages among the Parties and contractors. Recent examples include: YKDFN's desire to be included in a planned technical meeting regarding Baker Creek only to have the Project Team revert all consultations on this particular issue to the Giant Mine Working Group without clearly communicating the reasons to YKDFN; in another case the Project Team presented a decision about the new outfall location to the Giant Mine Working Group without first providing the technical background to support the decision.

3. Environment

- For other industrial projects in the NWT, the GNWT provides useful and necessary technical reviews during the regulatory phase. Since the GNWT is a co-proponent, there was concern about the lack of independent expertise to review and/or complete various designs and plans relevant to the GNWT's responsibilities prior to its application for a water license for remediation activities.



4. Safety

- Some local residents are worried for their personal safety. This fear is often related to their belief that the underground stopes and chambers containing arsenic trioxide dust are located under their homes and/or Back Bay.

5. Community Related Concerns

- Studies conducted by the GNWT's Cumulative Impact Monitoring Program (and its research partners) have found high levels of arsenic in soils, vegetation, and lakes within a 30-kilometre radius of the Giant Mine site. Many people are concerned about contamination and responsibility for it in areas outside of the Project site (off-lease)
- There continues to be requests for compensation for the harm caused, and expected, to future generations of YKDFN members and to the Chief Drygeese Territory in general. The need for an impact benefit agreement with the YKDFN was also raised.
- There is concern about how local communities and stakeholders will access socio-economic benefits, including jobs, associated with remediation activities.

6. Funding

- The need was raised for intervenor funding to assist stakeholders to better engage in the remediation process. This issue is particularly relevant to the water-licensing phase when intervenor funding will be required.

Observations and Recommendations

The following observations and recommendations for the Project are based on: the various meetings and discussions the GMOB has had with the remediation team and the Parties to the Agreement; materials directly provided by the Project Team; observations at various committee and public meetings and analysis of materials presented; and, the community concerns identified in the previous section.

The GMOB's observations and recommendations are based on the belief that the Giant Mine Remediation Project should be guided by the following principles:

- **Trust** – evidence and confidence that the agencies and individuals involved in the remediation process are doing what they committed to do and are ensuring the safety of the people and the land.
- **Transparency** – governments and decision makers are open and accountable for processes and decision-making.
- **Communication and Engagement** – meaningful dialogue and the legitimate exchange of knowledge and ideas takes place, rather than a one-way information flow that has historically characterized government-community communications and engagement activities.
- **Reconciliation** – the decisions and actions of past governments and corporate interests are acknowledged, and an apology is made for the impacts that these decisions and actions have had on the YKDFN and NSMA memberships and the people of the Yellowknife/Great Slave Lake region in general.
- **Social License** – credibility is established between and among the Project core partners that leads to a view that the process is legitimate and results in trust and community support.
- **Culture** – the role and importance of tradition and culture is understood along with how the different technical and non-technical approaches to remediation can honour traditions and provide opportunities to re-build and strengthen social capital.
- **Knowledge** (Western scientific and Indigenous/traditional knowledge) - notwithstanding past efforts, that serious effort is made to view the Project from both Western and Indigenous perspectives and accord equal value to each.
- **Community** – the Giant Mine Remediation Project process is used to strengthen human communities and make them fundamentally better.



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.

RECOMMENDATION

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.

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 Metrics

As the GMOB noted in its comments on the federal and territorial governments' *Giant Mine 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., taking down buildings, stabilizing slopes), 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.

RECOMMENDATION

The GMOB recommends that quantifiable performance measures and timelines be developed as soon as possible and reported in future Project annual reports.

3. Communication 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 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 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.

RECOMMENDATIONS

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 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.

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.

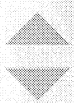
4. **Traditional Knowledge and Community Relations**

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 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.

RECOMMENDATIONS

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.



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.

RECOMMENDATION

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 GMOB recommends that the Project Team 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.

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 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.

RECOMMENDATION

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.



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 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 required.

RECOMMENDATION

The GMOB recommends that the Project Team:

- Expedite the development of a fully integrated Environmental Management System.
- 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 2015-16 Annual Report (Appendix B).
- 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.

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 licence and land use permit.

8. Off-Site Contamination

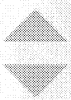
The former Giant Mine lease defines the boundaries for the remediation Project that underwent an environmental assessment. However, the historic operation of Giant Mine resulted in environmental impacts that extend well beyond this area. It is noteworthy that while Giant was the largest operation in 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.

RECOMMENDATION

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.



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 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.

RECOMMENDATION

The GMOB recommends that steps be taken immediately to address capacity issues including meeting the current capacity needs and committing to providing intervenor funding during the regulatory review process.

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 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.

RECOMMENDATION

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.

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 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."

RECOMMENDATION

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 International Association for Impact Assessment.)

12. Health and Community Well-Being

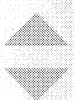
Concern about the toxicology and health effects of historic and current arsenic exposures is prevalent in discussions regarding the Project. The Human Health and Ecological Risk Assessment (HHERA), formerly referred to as the Human Health Risk Assessment (HHRA), and the Health Effects Monitoring Program 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 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.

RECOMMENDATION

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.



Priority Activities for 2017

The GMOB priority activities for the coming year include:

- 1. Review of the Project Team activities and reports including:**
 - Annual Report
 - Project Plan
 - Project Team Work Plans (as needed)
 - Human Health and Ecological Risk Assessment
 - Health Effects Monitoring Program Report
 - Quality studies
 - Observation of Project Team Public presentations
 - Freeze Optimization Study
 - Air Quality Reports
 - Risk Mitigation Measures
- 3. Giant Mine Oversight Board initiatives:**
 - GMOB Annual Report
 - GMOB meeting with the Parties, Project Team and the Public
 - Completion of the "State of Knowledge Review and Assessment on Arsenic Trioxide Remediation Methods Report"
 - GMOB Research Strategy
 - GMOB Communications Strategy
 - GMOB Website and Database
 - Public Information Tools
- 2. Participation in Committees:**
 - Giant Mine Working Group
 - Communicating with Future Generations
 - Surface Design Engagement
 - Baker Creek Engagement
 - Environmental Giant Mine Advisory Committee (YKDFN)
 - Health Effects Monitoring Program Advisory Committee



APPENDICES

APPENDIX A

The Giant Mine Site: Background

Gold was found on the Giant Mine site in 1935 but a commercial ore body was not confirmed until 1944 when a massive gold-bearing shear zone was uncovered beneath the Baker Creek Valley. The Burwash Mine, Con Mine and Negus Mine were all developed in the area before the Giant claims entered into production. Giant Yellowknife Gold Mines Limited poured its first gold brick on June 3, 1948 and the mine remained in operation until 2004. Over this period, the Giant Mine generated over seven million ounces of gold.

To access the gold, arsenopyrite ore had to be roasted at extremely high temperatures. This process caused the release of an arsenic rich gas as a highly toxic by-product. During the mine's first several years of operation, arsenic was released directly into the air, resulting in human health impacts, including widespread contamination of local soil and vegetation, and archival evidence of one child's death. The introduction of pollution control equipment in the 1950s reduced the arsenic air emissions but resulted in the accumulation of arsenic trioxide dust, which is approximately 67% arsenic. The storage of this approximately 237,000 tonnes of dust, is currently onsite in 14 underground stopes and chambers.

Arsenic trioxide dissolves in water and is dangerous to both people and the environment. If left unmanaged, the arsenic trioxide dust could gradually dissolve and arsenic concentrations in groundwater would increase. Contaminated groundwater could make its way into local water bodies downstream of the site, particularly into Great Slave Lake. There are other legacy concerns at the site such as 14 million tonnes of tailings that contain arsenic; arsenic contaminated soils across the site; and more than 100 buildings onsite, many of which

are contaminated with arsenic and asbestos. Open pits and openings to the underground mine also represent health and safety hazards.

During the life of the mine, ownership moved through the hands of a number of companies including Giant Yellowknife Mines, Ltd. (a subsidiary of Falconbridge – 1948-86), Pamour (1986-1990), Royal Oak Mines (1990-1999) and Miramar Mining Corporation (1999-2004). When Royal Oak went bankrupt in 1999, the Government of Canada became responsible for cleaning up the Giant Mine site. After many studies, workshops and community consultation, the options to deal with the arsenic trioxide stored underground were reduced from 56 to 12 and finally to two options. One option would keep the arsenic trioxide underground as a frozen block and another would involve removing it and storing it above ground. The leave-underground option was selected and the frozen block method was incorporated into the Remediation Plan for Giant Mine.

In 2007, the Project submitted a water license application to the Mackenzie Valley Land and Water Board for the remediation of the site. This triggered an environmental assessment, and in 2014 the Ministers responsible issued their decision, which stipulated 26 legally-binding measures. The water licensing process has not resumed, since some of environmental assessment measures must be completed prior to regulatory approvals.

The Giant Mine site encompasses everything within the boundaries of the lease in place during the operational period of the mine.

APPENDIX B

Review of the 2015-16 Annual Report Giant Mine Remediation Project

The GMOB reviewed the 2015-2016 Annual Report of the Giant Mine Remediation Project entitled Remediating the Mine dated October 2016. The document was reviewed in accordance with the requirements set out in Article 5.2 of the Agreement. It is important to note that the GMOB's review focused on the report itself and did not include an assessment of the overall progress of the remediation Project.

Although the GMOB identified areas where we believed the report could be improved in future, overall we found that the Annual Report addressed

the requirements outlined in Article 5.2 of the Agreement. The GMOB notes that it is clear that the Project Team put significant effort into summarizing a large amount of information and endeavoured to produce a report that will be useful for a diverse audience. In its comments on this report, the GMOB realized that this was the first report under the terms of the Agreement and that it was early days for reporting under this structure.

Summary Table of Review Comments and Responses for the 2015-16 Annual Report of the Giant Mine Remediation Project

SUBJECT 1: PLAIN LANGUAGE SUMMARY

GMOB Observation	The Agreement requires that the report contain a plain language summary. The Report Summary, on pages 8 - 11, is very technical and cannot, in our opinion, be classified as a "plain language" summary. A stand-alone, plain language summary document would be very beneficial for distribution to the Parties to the Agreement and the general public.
GMOB Recommendation (November 3, 2016)	The GMRP should either revise the language of the Report Summary next year so that it is more accessible to readers at all levels of technical knowledge and/or that it provide a standalone plain language summary document. The latter document could be produced independently from the Annual Report and be made available for wider public distribution.
Project Response (December 12, 2016)	The GMRP will provide a plain language summary of this report for the GMOB, as a template for future summaries that will form part of the report but also be available as a stand alone document for wider circulation.
GMOB Response (February 3, 2017)	We look forward to reviewing the plain language summary and note the commitment by the Project Team to include it in the 2016-2017 Giant Mine Annual Report.

SUBJECT 2: REPORTING CYCLE

GMOB Observation	The reporting cycle for the Annual Report covers activities that took place from April 2015 to March 2016 with mention of some activities that took place in 2014. As the Annual Report was provided to the GMOB in October 2016 and we are now at the end of the field season for 2016, the reporting is one year behind the Project's activities. The nature of this reporting cycle means that there is little opportunity for Parties to use the Annual Report information as a basis for recommendations for the next year's Project activities.
GMOB Recommendation (November 3, 2016)	The GMOB would like to discuss with the Project Team how best to maximize the utility of the Annual Report. For example, one way to address the reporting cycle issue might be through the presentation of a preliminary Project report in May of each year so that feedback from the GMOB and the community could be applied adequately to the following year's planning cycle.
Project Response (December 12, 2016)	The Annual Report is intended to be a more comprehensive description of Project activities and outcomes; there is no way to have a comprehensive report on a fiscal year basis any earlier, due to when information comes in, can be collated, organized and summarized and then approved. Our intention with sharing our 5-year work plan (with a focus on the upcoming fiscal year) with GMOB prior to each field season is to provide an opportunity for recommendations for upcoming activities.
GMOB Response (February 3, 2017)	The provision of a 5-year work plan along with the regular Project updates in the Working Group meetings may mitigate GMOB's concerns in this regard. Also, please see discussion under Recommendation #1 of this report.

SUBJECT 3: ANNUAL PROJECT PLAN

GMOB Observation	There is no Project Plan included in the Annual Report. Without it, the process for reporting progress is not meaningful. The approved working plan is necessary so that cross-referencing of what was planned and what was delivered can be clearly followed and explained. The Annual Report, as it stands now, does not allow for an assessment of actual schedule performance against a baseline schedule on a multi-year basis. For example, does the current Project status align with plans that were established 3 or 5 years ago? If not, why?
GMOB Recommendation (November 3, 2016)	An Annual Project Plan be included in the Annual Report.
Project Response (December 12, 2016)	Our approved Annual Work Plan will be attached as an Appendix in future reports.
GMOB Response (February 3, 2017)	Attachment of the approved Annual Work Plan as an appendix in future reports along with the Project Team's commitment to provide a 5-year work plan may mitigate the concerns expressed by the GMOB on this issue. Also, please see discussion under Recommendation #1 of this report.



SUBJECT 4: PERFORMANCE MEASURES

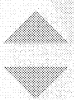
GMOB Observation	There are no stated performance measures included in the Annual Report. Information in the Annual Report is listed as either "objectives", "commitments" or "vision". Without performance measures, it is hard to know whether mitigation measures are working as intended or expected.
GMOB Recommendation (November 3, 2016)	Quantifiable performance measures should be further developed and included in the Annual Report.
Project Response (December 12, 2016)	Quantifiable performance measures will be developed for the implementation phase of the Project. At this stage, while the remediation plan is still being developed, any performance targets are qualitative in nature. Also, the Department is updating its Performance Measurement framework in line with Government of Canada objectives and so Giant will be updating its own performance targets to align with this initiative. In the meantime, specific in-year performance targets will continue to be monitored (i.e. Project team performance in meeting the goals established in the annual Detailed Work Plan.
GMOB Response (February 3, 2017)	GMOB respectfully disagrees that it is not possible to define quantifiable performance measures prior to the initiation of full site remediation. Also, please see discussion under Recommendation #2 of this report.

SUBJECT 5: EXPENDITURES

GMOB Observation	The Project expenditure figures are provided in the Annual Report as only a lump sum figure and there is no comparison of planned versus actual expenditures.
GMOB Recommendation (November 3, 2016)	A further breakdown of the Project expenditure figures as well as a multi-year trend analysis of the total cost estimate of spending versus budget would be helpful to include in future annual reports. The latter item should include a justification for any significant variances. The cost vs. budget trend analysis would help us to understand if and where there may be issues with scope creep, schedule slippage, etc.
Project Response (December 12, 2016)	GMRP will in the future provide a similar breakdown as the FCSAP categories (Care & Maintenance, Regulatory, Consultation, Investigation & Assessment, Remediation, Monitoring, Program Management), planned vs. actual. GMRP Project will explore options to create a separate annex for more detailed budget information, one that would not be released for general consumption.
GMOB Response (February 3, 2017)	The GMOB looks forward to reviewing the Project Team's proposed breakdown and/or annex prior to incorporation into the next Annual Report.

SUBJECT 6: TRENDS

GMOB Observation	Contrary to what is stated in the Annual Report, we do feel that there is more than adequate historical information collected by the Project that could be analyzed for trends (e.g., water quality, health and safety indicators, engagement, socio-economic measures, and regulatory compliance).
GMOB Recommendation (November 3, 2016)	There are a lot of potential datasets that could be analyzed for trends but likely only a few key analyses would be truly useful. We recommend that the Project Team consult with the Parties to the Agreement as to what datasets should be analyzed for trend reporting in the Annual Report.
Project Response (December 12, 2016)	GMRP will examine ways to consult with the Parties on how best to look at trend analysis through the Working Group.
GMOB Response (February 3, 2017)	The GMOB requests that the Project Team define how and when it plans to consult with the Parties on this issue so that there is sufficient time to incorporate changes into the 2016-2017 Giant Mine Annual Report. Please update GMOB as soon as possible with specifics of how the team will address this.



SUBJECT 7: AIR	
GMOB Observation	The Annual Report refers to the Air Quality Monitoring Program and there are very helpful links to the monitoring data online. However, there is no reference or link provided to the current Air Quality Monitoring Plan. As a result, an assessment of the basis for the current monitoring program is not possible.
GMOB Recommendation (November 3, 2016)	The Air Quality Monitoring Plan should be referenced in the Annual Report and a link to the plan provided.
Project Response (December 12, 2016)	Agreed.
GMOB Response (February 3, 2017)	The GMOB will look for this reference in the 2016-2017 Giant Mine Annual Report.

SUBJECT 8: WATER	
GMOB Observation	The report includes information on the outfall design/location, the potential re-routing of Baker Creek, and the design of the new Effluent Treatment Plant (ETP) and the development of the site-specific water quality objectives (SSWQO) but there is no clear explanation of how these important items relate or how work on these items will be sequenced. In addition, we note that unlike the air quality monitoring results, the GMRP Project does not seem to have any way of sharing water quality monitoring results from routine or special studies. Finally, there is mention of a settling pond dredge being removed but we were unable to find mention of how the dredge was managed after removal.
GMOB Recommendation (November 3, 2016)	It would be helpful if the Annual Report could provide a roadmap and timeline as to how the outfall design, the re-routing of Baker Creek, the ETP design and the development of SSWQO relate to each other and how the Project team plans to sequence work on these items. The GMRP Project should work with the Parties to develop a way of sharing key water monitoring data as is done for air quality. All operational details, such as the dredge removal, should be followed through in future Annual Reports.
Project Response (December 12, 2016)	Future reports will have an expanded sections, or provide links/references to more detailed information.
GMOB Response (February 3, 2017)	The GMOB requests further discussion with the Project Team on the kinds of routine water monitoring data that could be made available on an ongoing basis and how this information would be shared. The GMOB will also look for these proposed changes in the 2016-2017 Giant Mine Annual Report.

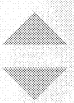
SUBJECT 9: BIODIVERSITY	
GMOB Observation	In the section on Biodiversity, there does not seem to be a direct link between monitoring results and actions for biodiversity components. For wildlife and birds, the actions are to consider results or recommendations in the future for remediation design but no further detail is provided. For Environmental Effects Monitoring, the only action listed is to continue monitoring.
GMOB Recommendation (November 3, 2016)	As written, it is not clear what the objective of monitoring wildlife/birds is or what mitigations or plans this monitoring will inform. It would be helpful if there were a more systematic way to link the results of monitoring to corrective actions or to design planning.
Project Response (December 12, 2016)	Future reports will describe how the monitoring results are incorporated into work planning (i.e. considerations when planning physical work at the site) as well as how the results will be incorporated into the overall remediation planning and execution.
GMOB Response (February 3, 2017)	The GMOB will look for these proposed changes in the 2016-2017 Giant Mine Annual Report.



SUBJECT 10: LAND	
GMOB Observation	Much of the work to date in this section of the Annual Report deals with soil sampling and characterization, which will inform a remediation plan.
GMOB Recommendation (November 3, 2016)	No specific recommendation; however, the GMOB is interested in reviewing the proposed soil remediation plan, including the development of soil criteria, as this aspect of the Project moves forward.
Project Response (December 12, 2016)	Acknowledged.
GMOB Response (February 3, 2017)	We look forward to reviewing the proposed soil remediation plan, including the development of soil criteria, as this aspect of the Project moves forward.

SUBJECT 11: HEALTH	
GMOB Observation	In the section on Health and Safety in the Annual Report, it would be helpful to have an analysis on the effectiveness of the measures used to address the exceedances of urinalysis tests for onsite workers. The current work in the next year on the Human Health Risk Assessment and the Health Effects Monitoring Program will be very important elements that GMOB will be tracking.
GMOB Recommendation (November 3, 2016)	The Annual Report should include a section on the effectiveness of the measures used to address the exceedances of urinalysis tests for present onsite workers.
Project Response (December 12, 2016)	Future reports will describe how to the monitoring results have improved our Health & Safety practices at the site, our understanding of arsenic risks as they relate to on-site workers, as well as how the results will be incorporated into the overall remediation planning and execution.
GMOB Response (February 3, 2017)	The GMOB will look for these proposed changes in the 2016-2017 Giant Mine Annual Report.

SUBJECT 12: COMMUNITY AND ENGAGEMENT	
GMOB Observation	The number of attendees at engagement events is not very meaningful without an analysis of the concerns identified by the attendees and what will be done to address these concerns. The efforts to heal the legacy issues created by the long history of the mine, as well as previous Project activities, also remain to be addressed. Perhaps it is beyond the scope of the Project Team to deal with activities outside the immediate remediation but it is within the purview of the Co-Proponents to undertake a long-term proactive community based healing process.
GMOB Recommendation (November 3, 2016)	This section of the Annual Report could be strengthened by, for example, including an analysis of concerns identified during engagement and how those concerns are being addressed.
Project Response (December 12, 2016)	Future reports will describe engagement particulars, and how these are shared within the Project for consideration when conducting work, planning activities, and incorporated into lessons learned and the overall remediation planning and execution.
GMOB Response (February 3, 2017)	The GMOB will look for these proposed changes in the 2016-2017 Giant Mine Annual Report. The Project Team may want to consider responding to the concerns the GMOB has summarized in the "What We Heard" section of the GMOB Establishment Report. It would be beneficial to all Parties if there were a formal mechanism to record concerns raised as well as follow-up or responses.



SUBJECT 13: EMPLOYMENT

GMOB Observation	The employment data provided in the Annual Report does not provide sufficient detail to allow for analysis. For example, the figures provided are not clear as to whether each group reported is separate and distinct from each other. There is little information on the number of contractors, value of contracts, and jobs created, etc.
GMOB Recommendation (November 3, 2016)	The Annual Report should provide more detailed information on employment, contractors and value of contracts as well as any other information linked to direct socio-economic activity. The Project team should consult with GMOB and the Parties about exactly what kinds of information would be most useful to report on.
Project Response (December 12, 2016)	This is very difficult metric to report on, as all reporting is voluntary. But we can commit to working with GMOB and Parties to try to improve on reporting. There are provisions within the future Main Construction Manager contract that should improve the quality of data we get on socio-economic aspects of the Project.
GMOB Response (February 3, 2017)	The GMOB continues to believe that its recommendation is achievable by the Project Team and will make itself available to work with the team on this issue. The GMOB also requests that the Project Team define how and when it plans to consult with the Parties on this issue so that there is sufficient time to incorporate changes into the 2016-2017 Giant Mine Annual Report. Please update the GMOB as soon as possible with specifics of how the Project Team will address this issue

SUBJECT 14: TRAINING

GMOB Observation	It is not clear, if the training information in the Annual Report is comprehensive or only drawn from contractors who are required to deliver Health and Safety and Orientation sessions to their workers. The Project itself could be much more proactive in its efforts to identify how and what local training, employment opportunities and economic spinoffs to the community were maximized.
GMOB Recommendation (November 3, 2016)	The Project team should consider including a section in the report that describes the overall socio-economics of the Project including, for example, comprehensive and measurable local training and employment initiatives as well as secondary economic effects of the Project.
Project Response (December 12, 2016)	Additional clarity will be provided in future reports. There are provisions within the future Main Construction Manager contract that should improve the quality of data we get on socio-economic aspects of the Project.
GMOB Response (February 3, 2017)	GMOB will look for these proposed changes in the 2016-2017 Giant Mine Annual Report. Also, please see discussion under Recommendation #11 of this report.

SUBJECT 15: TRADITIONAL KNOWLEDGE

GMOB Observation	There is no mention of consultations regarding traditional knowledge or the incorporation of any traditional knowledge for Project activities in the Annual Report. This is an important aspect of the Project team's community consultation and Project planning.
GMOB Recommendation (November 3, 2016)	A specific section reporting on consultation and incorporation of traditional knowledge should be included in the Annual Report.
Project Response (December 12, 2016)	Agreed.
GMOB Response (February 3, 2017)	The GMOB will look for these proposed changes in the 2016-2017 Giant Mine Annual Report. Also, please see discussion under Recommendation #4 of this report.

SUBJECT 16: OFF-SITE CONSIDERATIONS

GMOB Observation	The surface contamination present within the Project boundaries extends to off-site locations. The Annual Report does not indicate how the Project Team is working with the applicable authorities to ensure the effective and consistent management of both off and onsite contamination.
GMOB Recommendation (November 3, 2016)	The Annual Report should describe how the Project Team is working with applicable authorities to ensure the effective and consistent management of both off and on site contamination.
Project Response (December 12, 2016)	This can be included in future annual reports as part of our report on engagement. The Project does not lead on this, but is a participant in discussions through the INAC NWT Regional Office.
GMOB Response (February 3, 2017)	The GMOB understands that the Project Team is not itself responsible for the off-site issues; however, the Co-Proponents are responsible. Please see Recommendation #8 in this report, for additional discussion. The GMOB will look for these proposed changes in the 2016-2017 Giant Mine Annual Report.

SUBJECT 17: EMERGENCY MEASURES

GMOB Observation	The Annual Report does not reflect what the criteria is for work to be categorized as an emergency measure versus care and maintenance. GMOB would like to understand how the Project makes these determinations. There is also no mention in the Annual Report of any Emergency Preparedness Plan to deal with potential system or structural failures.
GMOB Recommendation (November 3, 2016)	The Annual Report should provide the criteria and rationale used to categorize on-site activities that are deemed to be of an emergency measure and describe or provide a link to an Emergency Preparedness Plan.
Project Response (December 12, 2016)	Agreed.
GMOB Response (February 3, 2017)	The GMOB will look for these proposed changes in the 2016-2017 Giant Mine Annual Report

SUBJECT 18: PLANS TO INCORPORATE NEW REMEDIATION TECHNOLOGIES IN THE FUTURE

GMOB Observation	There is no information in the Annual Report explaining how the Project Team intends to address potential changes in remediation technologies, techniques, or processes that may be recommended because of the research program currently undertaken by GMOB. For example, how will the Project Team's remediation plan address future access to stopes and access to the site for possible arsenic trioxide remediation?
GMOB Recommendation (November 3, 2016)	The Annual Report should outline the process and actions taken to address any potential changes in remediation technologies, techniques, or processes that may be recommended because of the research program currently undertaken by GMOB.
Project Response (December 12, 2016)	Additional detail will be provided in future reports, in the context of remediation planning.
GMOB Response (February 3, 2017)	The GMOB looks forward to seeing how the Project Team incorporates additional detail about how future changes in remediation technologies will be accommodated. The GMOB expects that the 2016-2017 Giant Mine Annual Report will begin to address this issue.

APPENDIX C

Giant Mine Oversight Board Workshop Report

The GMOB held a facilitated workshop on September 14 - 15, 2016 in Ottawa, ON. The primary goals of the workshop were to:

- Continue to build a collective GMOB understanding and consistent approach to meeting its mandate.
- Better understand the expectations and priorities of the GMOB itself, and compare these to the expectations of the signatories to the Agreement.
- Better understand the financial and human resource realities of the GMOB.
- Make decisions on the GMOB priorities using the above information and decisions.
- Apply the collective GMOB understanding and priorities to creating tangible deliverables.

One of the major results of the Workshop was a better understanding of the four roles of GMOB that are set out in Article 2.3 of the Agreement. Each of the roles, summarized below, are in reference to the GMOB's expectations and priorities as discussed during the Workshop.

i. Promote public awareness of the Project, disseminate information about the Project, and promote public engagement in processes related to the Project

One of the 'core roles' of the GMOB is to ensure that the remediation Project is as effective as possible. It is essential that the GMOB understand the Project and its various components, and that it communicate its understanding, its observations and its research findings. While the GMOB has a mandate to promote public awareness, it should not be expected to directly reassure or convince the public that the site is safe - that is the Co-Proponent's primary responsibility.

The GMOB's mandate requires that it be an objective observer. It is not responsible for Project management. Rather, the GMOB will draw on its expertise in evaluating Project information to come to its own independent conclusions. For example, completed health studies provided to the GMOB will be reviewed and evaluated, and responses provided based on the information presented. In effect, the directors and staff of the GMOB are technical advisors and technical reviewers that provide feedback, but are not technical "doers." The GMOB does however, have a very hands-on management role with respect to its research mandate.

The GMOB members agree that they need to clearly define their role with respect to engagement. For example, the role of GMOB is not to promote the Co-Proponents or the Project, nor to push a vested interest or view. It is important that the GMOB encourage the Co-Proponents to engage in a meaningful way with the public and provide advice on how to do so.

One form of engagement is the dissemination of information, be it at the GMOB (storefront) office, working group meetings, or community sessions. The GMOB will produce and distribute its own materials; it will not act as a distribution office for the material of the Co-Proponents or other Parties. The GMOB office will provide general information pertaining to the Project and can point visitors to sources of additional Project information. In summary, the GMOB:

- will produce and disseminate its own GMOB materials
- is not a distribution office for the Co-Proponents or the Parties
- will point people to the Co-Proponent/Project Team for additional Project information
- will complete its own communication strategy.

It is important to know how to respond to Project-specific questions when engaging with the public (e.g., 'here is our understanding, but here is the responsible proponent authority who can speak with you on this particular topic'). Being transparent with the Co-Proponents, the Parties and the public in terms of what the GMOB is (and is not) doing is central to the GMOB's mandate. GMOB is not in partnership with the Co-Proponents or the Project Team.

ii. Provide independent advice to the Co-Proponents on the management of the Project as the GMOB considers appropriate

A central role of the GMOB is to provide constructive criticism of the information provided to it and challenge that information. Perhaps the greatest value the Board can provide is to encourage the Co-Proponents and Project Team to 'think outside the box' by providing an independent perspective.

Mechanisms for providing advice to the Co-Proponents include working group meetings, advisory committee meetings, and a review of the Co-Proponent's Annual Report, the GMOB's annual report, and public meetings. It is also through these mechanisms that the Board will be receiving other reports and information.

Sharing and communicating advice within the GMOB is equally important. Respectful and open dialogue between the Board, the Co-Proponents, and other technical experts is essential. When one member of the Board speaks with and/or provides advice to other Parties, this should be communicated to all board members and staff. One director stated: "No one should be surprised by the advice presented in the GMOB annual report." Consistency and sound communications are key. In this context, the GMOB members engaging with others (be it asking questions or providing advice) will provide a brief overview to inform other GMOB members. This can be coordinated through the GMOB staff.

The GMOB must determine and communicate its

expectations for transparency within the GMOB and with the Co-Proponents and other Parties. The GMOB could use the working group meetings as a communication tool to provide advice and/or express GMOB concerns and/or questions. The GMOB's annual report presents another opportunity to address outstanding issues and recommendations.

iii. Provide independent advice on the monitoring and management of the Project to regulatory authorities, the Parties, the public and to whomever else the GMOB considers appropriate

The GMOB's annual report should incorporate advice, observations and recommendations for regulatory bodies and other agencies, including federal agencies. The discussion concerning advice to the Parties also focused on what the Board is not.

- The GMOB is not the Parties replacement, nor does it represent the Parties.
- The Parties should not anticipate that the GMOB will undertake the Parties roles or speak for them.

iv. Manage the program for research toward a permanent solution for dealing with arsenic at the Giant Mine site as set out in the Agreement Article 7 ("Active Research Toward a Permanent Solution for Arsenic") and section 8.2 ("Research Results").

One of the first actions for the Board is a state of the knowledge review. The review will be useful for the Board as it prioritizes future research actions for subsequent fiscal years.



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Chairperson
Yellowknife, NT



Ginger Stones
Director
Ottawa, ON



David Livingstone
Director
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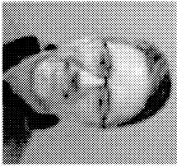
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