



Alternatives North

February 28, 2011

Parties to the Giant Mine Remediation Project Environmental Assessment

Re: Alternatives North Round One Information Requests (EA 0808-001)

Please find attached the Round One Information Requests for the Environmental Assessment of the Giant Mine Remediation Project from Alternatives North. Please note that these are directed to Indian and Northern Affairs Canada and GNWT, where appropriate.

On February 25, 2011 Alternatives North met with representatives of the City of Yellowknife and the Yellowknives Dene First Nation in an effort to avoid duplication and overlap of information requests. The Review Board Information Requests issued on February 9, 2011 were also studied in an attempt to avoid duplication and overlap.

Given the very short period of time available to Alternatives North following the resolution of residual issues regarding the form and content of contribution agreements (February 3, 2011) and the deadline for filing the Information Requests (February 28, 2011), it was not possible for us to have our engineering consultants complete their review of the Developers' Assessment Report and to prepare Information Requests. We look forward to the opportunity to fully engage our consultants during the technical meetings and a second round of Information Requests as indicated in the revised workplan released by the Mackenzie Valley Environmental Impact Review Board on December 23, 2010.

Should there be any questions regarding this letter or the attached Information Requests, I can be reached at 920-2765 (home, evenings) 669-9141 (work, daytime) or kor@theedge.ca

Sincerely,

Kevin O'Reilly
Coordinator

**Mackenzie Valley Environmental Impact Review Board
Round One Information Requests to Indian and Northern Affairs Canada and GNWT
EA 0809-02: Giant Mine Remediation Project**

Alternatives North IR# 1 Roles and Responsibilities

Reference

DAR, s. 1.1.4 Project Proponents, pg.1-4, 1-8, 1-16

Terms of Reference Section

ToR s.3.2.2 Developer

Preamble

It is important to understand exactly who the Developer is, how conflicting mandates may be dealt with and the roles and responsibilities of other bodies such as the Oversight Committee and the Independent Peer Review Panel.

Request

Please provide the following:

1. A list and rationale for federal and territorial Ministers that will serve as “Responsible Ministers” under the *Mackenzie Valley Resource Management Act* for the purposes of this Environmental Assessment.
2. On pg. 1-8 of the DAR, INAC describes a number of potentially conflicting roles and responsibilities including environmental assessment decision-maker, regulator, inspector, Aboriginal interests, economic development and capacity building. How will these potentially conflicting responsibilities be dealt with in the context of the Remediation Project?
3. Meeting summaries for the Oversight Committee established under the Giant Mine Cooperation.
4. What role if any, did other federal or territorial government departments (e.g. Natural Resources Canada, Environment Canada, or others) play in the preparation of the Developer’s Assessment Report? Please provide any reviews or correspondence that demonstrates such input and how it was dealt with.
5. The Independent Peer Review Panel was active in 2003 and 2004. Did it have any role in the preparation of the Developer’s Assessment Report? If so, please provide any reviews or correspondence that demonstrates such input and how it was dealt with.

6. The Developer intends to retain the Independent Peer Review Panel. Have the members agreed to continue to serve and what will be the terms of reference for this body in relation to the Development?

7. Has INAC and GNWT given any consideration to transforming the Independent Peer Review Panel into an independent oversight body that reports to a representative multi-stakeholder group?

Alternatives North IR# 2 Management Plans, Designs, Studies and Strategies

Reference

DAR, s. 15.3 List of Commitments Table 15.3.1

Terms of Reference Section

ToR s.3.2.6 Public Consultation and 3.6 Monitoring, Evaluation and Management

Preamble

The DAR references a number of management plans, designs and strategies as follows:

- Procurement strategy
- Socio-Economic Benefits Strategy (on pg. 1-18);
- Detailed design for remediation of Baker Creek;
- Revegetation Plan;
- Diffuser and outfall design;
- Environment, Health and Safety Plans for emergency/spill response, dust management, protocols for vegetation surveys;
- Water Management;
- Wildlife Management Plan;
- Archaeological Resource Management protocol;
- Traffic Management Plan;
- Audit protocol; and
- Improvements to the frozen block method and review or alternative technologies.

Many if not all of these, are essential to the Review Board and all parties understanding the effects of the Development, proposed mitigation measures and the significance of any residual effects. Little if any detail is available on these items in the DAR.

Request

1. Please provide details on the format and content of the above plans, design, studies and protocols.
2. If there are specific targets, criteria or guidelines, and thresholds or triggers for adaptive management, please provide them.
3. If drafts of these are available now, please provide copies or a schedule of when these will be available. Please indicate whether there will be an opportunity for public review and comment.

Alternatives North IR# 3 Applicability of Land Use and Municipal Laws and Regulations

Reference

DAR, s. 1.7.2 Key Environmental Legislation and Regulations Table 1.7.1; and Table 6.13.1.

Terms of Reference Section

ToR s.3.2.4 (17) Development Description

Preamble

There is no mention in the DAR of the applicability of the *Mackenzie Valley Land Use Regulations* or any municipal by-laws to the Development. The former would require a land use permit with terms and conditions that can be attached regarding waste disposal, fuel storage, erosion control and many other environmentally significant matters. Without a land use permit, it is not clear how these aspects of the Development will be regulated, inspected and enforced.

Municipal by-laws, such as the Zoning By-law, Building By-law, Emergency Response By-law and others may have some relevance to the Development and allow some measure of local control over aspects of land use, heritage preservation and other matters of interest to citizens.

Request

1. Please provide the Developer's views on the applicability of the *Mackenzie Valley Land Use Regulations* and of municipal by-laws to the Development.
2. If the Developer is of the view that these do not apply to the Development, please describe how inspection and enforcement activities may be carried out in relation to those matters that would normally be regulated by these regulations and by-laws.

Alternatives North IR# 4 Site Record Information Management

Reference

DAR, s. 4 Site History.

Terms of Reference Section

ToR s.3.2.4 (1 and 2) Development Description

Preamble

Some history is provided of the Giant Mine site based on the following information sources:

- Monthly operation reports to company board of Directors, stored at the Prince of Wales Northern Heritage Centre;
- Published papers; and
- Selected correspondence in files located at Giant Mine.

In reading the DAR, it becomes evident that past record keeping left a lot to be desired. For example, surface disposal took place of captured arsenic trioxide dust from July 1949 to February 1950 but the exact location was not recorded (pg. 4-11). There are many other instances where accurate and organized record keeping would assist with current remediation efforts.

Records related to Giant Mine were found at the following locations:

1. Prince of Wales Heritage Centre, Finding Aid N2001-014

<http://pwnhc.learnnet.nt.ca/databases/DigitalResources/Archives/N-2001-014/N-2001-014.pdf>

This accession consists of 3.5 meters of textual material, 328 photographs including 197 colour transparencies, 25 colour prints, 50 colour negatives, 4 black and white transparencies, 2 black and white glass slides and 50 black and white prints. In addition, there are 18 architectural plans, blueprints, site plans and flow charts. The majority of the textual material dates from 1944-1999 and includes monthly operational reports and reports from the President, underground operations, diamond drilling and treatment plant for Giant Yellowknife Gold Mines Ltd. There are also meeting minutes, by-laws and constitution for the Giant Recreation Association and 10 Year Club, as well as menus and dinner invitations from 10 year club celebrations. There are also copies of the Giant Mine newsletter Baker Creek News. The remaining textual material includes correspondence and monthly operational reports for the Salmita Mine, Taurcanis (Bulldog) Mine and Tundra Gold Mine. The architectural plans show buildings and mine site layout for Taurcanis Mine. There are also blueprints, site plans and milling flow sheets from Giant Mine. The photographs date from the 1950s to 1991 and include aerial views of Giant Mine, headframe buildings, tailings retreatment plant, tailings ponds, employees at work both above and underground, pouring of the 10,000 gold brick and safety awards. In addition, there are photographs of the Akaitcho Mine, Salmita Mine, Tundra Mine and Crestaurum Mine. There are

also several black and white prints that were taken by George Hunter in the 1950s documenting activities at Giant Mine.

2. Northwest Territories Geoscience Office, *Giant Mine File* 016266, Scanned Images 238 MB in 211 files. Reports as PDF. Maps as JPEG.

This file contains many different items related to Giant Mine including early work on the AES Claims at Akaitcho/Supercrest, geochemical studies at the mine and varying era's of sections, plans and underground drawings. Material in these reports was acquired by the Northwest Territorial Geoscience Office (NTGO) from a variety of donors. The collections were received in varying condition, and degrees of completeness.

Many other files are also available on Giant Mine through the Gateway database search engine.

3. Library and Archives Canada (Ottawa), Government of Canada Files searched using Archivianet at: http://www.collectionscanada.gc.ca/archivianet/020105_e.html

A limited search turned up the following files:

RG29, National Health and Welfare, Volume 2977

File: 851-5-2

Parts: 1=1951/05-1974/11 2=1975/01-1975/03 3=1975/04-1976/07 4=1976/07-1977/01

File Title: Arsenic

Outside Dates: 1951/05-1977/01

Finding Aid number: 29-143

RG85, Northern Affairs Program, Series D-1-A, Volume 40

File: 139-7, Arsenic Surveys, NWT - Accounts

Outside Dates: 1950-1954

Finding Aid number: 85-1

RG22, Indian and Northern Affairs, Series A-1-a, Volume 233

File : 99-2-39, Parts: 1 Giant Yellowknife Gold Mines Limited - General

Outside Dates: 1939-1959

RG22, Indian and Northern Affairs, Series A-1-a, Accession 1995-96/693, Box 32

File : 99-2-39, Parts: 2 Giant Yellowknife Gold Mines Ltd. - General

Outside Dates: 1960-1969/10

Finding Aid number: 22-46

RG85, Northern Affairs Program, Series D-2-a, Volume 1529

File: 16803-G Clippings and metallurgical reports - Giant Yellowknife Gold Mines

Outside Dates: 1946/10-1951/08

RG85, Northern Affairs Program, Series D-2-a, Volume 1531

File: 53259, [Audit reports - Mining companies - Giant Yellowknife Gold Mines] Notes: Title based on contents of file.

Outside Dates: 1950/08-1950/12

A limited review of some of the above materials has been made.

It will be very important to provide a consolidated inventory of documents, studies, plans and other information related to Giant Mine for current and future management, including the work proposed as part of this Development. This information management system will need to be accessible to future generations forever.

Request

1. Please provide a file list or inventory of records that currently exist at the Giant Mine site as discussed in Chapter 4 of the DAR.
2. If no such listing or index is available, please describe the records that are available (corporate or company files or any government records) that may be at the site, the general volume of records, current storage condition.
3. Please provide details on the overall information management system that the Developer intends to use including any plans for consolidating known information sources, collaboration with other record holders, digital imaging and other methods of creating a permanent set of records regarding site history, site development and regulatory history.
4. In chapter 4 of the DAR, Giant Mine site records were used to make the following statements:
 - page 4-10, a May 1949 study on the effects of arsenic pollution
 - page 4-11, according to the records, surface disposal of arsenic trioxide dust occurred in July 1949 and February 1950, but the disposal location is not recorded in any of the documents reviewed
 - page 4-11, the sand plain option was abandoned due to a high water table, and the Department of National Health and Welfare (the responsible regulatory authority) would not consider the Veronica Lake option until more information was available
 - page 4-11, in a letter dated July 21, 1950, the Department of National Health and Welfare stated that it regarded the use of concrete vats on surface as the safest method of storage

Please provide a copy of these specific records and any other relevant document held at the Giant Mine site related to understanding how the arsenic pollution and its effects on people and the environment were initially identified and managed, and how the decision was made about underground storage of the arsenic dust.

Alternatives North IR# 5 Waste Management

Reference

DAR, s. 5.2.3 Underground Infrastructure and Equipment; and 6.11 Buildings and Infrastructure

Terms of Reference Section

ToR s.3.2.3 (9,10) Description of Existing Environment; 3.2.4 (7) Development Description

Preamble

There is some discussion in the DAR of underground infrastructure and waste, demolition of buildings on the surface, and removal of contaminated materials on the surface into pits or possibly underground. There is no overall inventory of waste on site and what its ultimate disposition will be as part of this Development.

Request

1. Please provide a current inventory (quantities and location) of infrastructure, equipment and waste materials found underground and how this will be disposed of as part of this Development.
2. Please provide an inventory (quantities and location) of anticipated demolition debris from the surface infrastructure and any contaminated materials on surface (including how such materials will be classified as hazardous or non-hazardous). Indicate what the ultimate disposition of this material will be including where it will be located and how it will be managed.
3. In discussing the calcine pond on site (pg. 5-48), it is not clear whether excavation removal was considered as a closure option for this mine component. Please provide details on the closure options for the calcine pond, and how and why the option of leaving the calcine sludge in place was reached.

Alternatives North IR# 6 Baker Creek Effects and Perpetual Care

Reference

DAR, s. 5.8 Baker Creek and s. 7.1.2.1 Study Site Area

Terms of Reference Section

ToR s.3.2.3 (5) Description of Existing Environment

Preamble

This section of the DAR describes ice blockages in Baker Creek that causes water infiltration in C1 pit. It appears that human intervention may be required forever to maintain Baker Creek.

Minewater has been directly discharged into Baker Creek (with or without treatment) for many years. It is not clear what will happen to Baker Creek's fish and fish habitat if and when minewater discharges are not made directly into this stream as it could completely dry up in the summer months.

Request

1. What options and designs may there be to remediate Baker Creek that reduce or eliminate the chance of ice blockages or other events that require human intervention?
2. It appears to be predicted by INAC that Baker Creek may dry out completely in the summer months. Now that fish exist in Baker Creek and fish habitat have been created within Baker Creek, how will this be affected if the minewater discharges into Baker Creek are discontinued?

Alternatives North IR# 7 Long-term Review of Alternatives to the Frozen Block

Reference

DAR, s. 6.2.4.4 Future Reconsideration of Alternatives (pg. 6-10)

Terms of Reference Section

ToR s.3.3.5 Arsenic Containment

Preamble

One key issue raised during the Environmental Assessment to date is how and when alternatives to the frozen block method will be reviewed. The following quote from the DAR appears to summarize the Developer's current position:

INAC and GNWT view the frozen block method as the long-term solution for Giant Mine arsenic trioxide, rather than as a temporary measure. The Project Team remains open to improvements in the frozen block method, and will re-evaluate alternatives if technologies advance or if monitoring data indicate unforeseen emerging risks to the environment and/or humans. However, there is no intention of turning the proposed remediation into a long-term search for "something better". (pg. 6-10)

Request

Is there any intention on the part of the Developer to initiate and/or fund active research and development into a more permanent solution for the underground arsenic stored at the Giant Mine that would reduce or eliminate perpetual care requirements? If not, please provide a detailed rationale.

Alternatives North IR# 8 Reversibility of Freezing Underground Arsenic

Reference

DAR, s. 6.2 Arsenic Containment (pg. 6-5 to 6-46)

Terms of Reference Section

ToR s.3.3.9 Arsenic Containment

Preamble

Although INAC chose the frozen block method for managing the underground arsenic to afford greater redundancies in protecting against uncontrolled releases, the frozen shield method (without injecting water into the arsenic chambers) may provide another alternative that may be easier to intentionally thaw.

INAC has also not yet chosen the preferred method of the implementing the frozen block as it may involve a hybrid or non-hybrid system. This choice may have implications for the reversibility of the frozen block method.

Request

Please discuss the methods, risks (including probabilities and severity of potential effects), costs, advantages and disadvantages of each of the following with regard to reversibility:

1. frozen block versus frozen shield methods of containing the underground arsenic
2. hybrid versus non-hybrid systems for the frozen block method
3. backfill alternatives for the current arsenic storage chambers as discussed in the DAR (i.e. coarse rock, cemented aggregate and foam cement, pg. 6-12)
4. secondary coolant options as discussed in the DAR (i.e. brine, ethylene glycol and propylene glycol, pg. 6-26)

Alternatives North IR# 9 Design Criteria for Initial Frozen Wall

Reference

DAR, s. 6.2.6 Initial Freeze (pg. 6-28)

Terms of Reference Section

ToR s.3.3.1 Arsenic Containment

Preamble

The DAR describes the initial frozen wall as follows:

The objective of the first step will be to create a frozen zone around each storage area that is wide enough to prevent any outflow of water or soluble arsenic trioxide when the chamber or stope is flooded. The current design criterion to reflect that objective is a ground temperature colder than -10°C over a distance of at least 10 m around and below each chamber and stope. (pg 6-28)

Request

1. What is the rationale behind these design criteria?
2. What are the contingencies if these criteria are not reached?

Alternatives North IR# 10 Perpetual Maintenance and Replacement of Thermosyphons

Reference

DAR, s. 6.2.7.2 Maintaining the Frozen Block (pg. 6-31); s. 14.2.1 Frozen Ground Monitoring (pg. 14-9)

Terms of Reference Section

ToR s.3.3.1 (e) Arsenic Containment

Preamble

Few details could be located in the DAR on maintenance and replacement of the thermosyphons that would be required in perpetuity as the passive freezing system for the frozen block method.

Request

1. Please provide the anticipated maintenance and replacement requirements for the thermosyphons along with justification for the same.
2. Please provide details on the monitoring and inspection regime to keep the thermosyphons functioning properly including indicators and triggers for maintenance and replacement, public reporting on performance, expected costs for maintenance and replacement, ease of maintenance and locating replacement materials (including any additional tools, equipment and specialized skills required).

Alternatives North IR# 11 Open Pit Reclamation Alternatives

Reference

DAR, s. 6.4.2 Open Pits

Terms of Reference Section

ToR s.3.2.4 (7) Development Description

Preamble

The DAR discussion on the open pit alternatives is as follows:

The remediation options that were considered for the pits are:

- Backfilling and covering;
- Allowing flooding to form full depth pit lakes; and
- Partially backfilling and flooding to form shallow pit lakes or wetlands.

Backfilling and covering the pits would produce a surface that could allow a variety of future land uses. The main issue is the availability of backfill material. The available amount of clean backfill is very limited and is also in demand for other remediation activities. Two sources of material for backfilling the pits are the tailings and the contaminated soils from elsewhere on site. Both of these materials contain high levels of arsenic. Measures to limit release of that arsenic would need to be included in the backfill design.

Establishing pit lakes might provide additional aquatic habitat. However, the pits are connected to the underground mine workings. Therefore, any water allowed to accumulate in the pits would be contaminated for as long as the minewater itself was contaminated.

Partially backfilling all the pits could minimize the contact between the contaminated minewater and the shallow pit lakes or wetlands. However, any leakage through the backfill could result in Baker Creek drying up during low flow periods. The lack of sufficient clean backfill is also a problem for this option.

After consideration of these options, it was decided to proceed with a combination that makes use of the limited available backfill, reduces physical hazards associated with mine openings and pit walls and prevents the formation of contaminated pit lakes. (pg. 6-51 and 6-52)

Request

1. Please provide a systematic review of the reclamation alternatives considered for each pit on site including costs, perpetual care requirements (including fences, berms, water treatment), risks, end uses and any other matters considered.
2. Please indicate whether pit perimeter blasting and sloping was considered as an option and whether it might eliminate the need for fences or berms.

Alternatives North IR# 12 Tailings Reclamation Issues

Reference

DAR, s. 6.6 Tailings and Sludge (pg. 6-57 to 6-65)

Terms of Reference Section

ToR s.3.2.4 (8) Development Description

Preamble

The DAR discusses placing a cover on the various tailings ponds on site, construction of gullies and drainage channels through the tailings, and some cut and fill work on the Northwest Pond. The DAR also states on page 6-57:

“Many areas that produce dusting problems cannot be reached due to the wet and soft nature of the tailings.”

This raises issues of trafficability on the tailings, or the ability to use equipment without the risk of it sinking. The highly erodible and toxic tailings also raise issues around how to design and maintain physical works to control drainage during the tailings cover placement and afterwards in perpetuity.

Request

1. Please provide information on the trafficability of the various tailings ponds where cover placement and drainage works are to be constructed.
2. What if anything has been learned from the test plots on the Northwest Pond in relation to trafficability and cover design?
3. What special design and construction techniques will be adopted to avoid erosion and ice build up in or on any of the tailings remedial works?
4. Please describe the perpetual care requirements and costs for the covers, drainage channels, dams or other features that will form the remedial work on tailings.

Alternatives North IR# 13 Minewater Submergence of Frozen Blocks

Reference

DAR, s. 6.8.2 Technical Risks; 6.8 Site Water Management

Terms of Reference Section

ToR s.3.2.4 (9) Development Description; s. 3.3 Arsenic Containment

Preamble

The following statements are found in the DAR regarding mine reflooding:

The resulting groundwater level will be at roughly 2/3 of the distance between the top and bottom of most of the arsenic chambers and stopes. Only one chamber (B230) will be completely submerged, and three (11, 12, and 14) will remain completely above the water table. (pg. 6-32)

The alternative to surface storage is to store contaminated water in the underground mine workings. However, the combination of seasonal water treatment and underground storage would require large fluctuations in the minewater level during the year, repeatedly flooding and draining mine workings on several levels (approximately 100 m). Large fluctuations in the water level are likely to increase the release of arsenic from sources such as tailings and waste rock backfill, and could even cause uncontrolled movement of backfill and ground stability problems. (pg. 6-68 and 6-69)

Allowing for the risk of much larger than normal freshet inflows may require drawing water down as far as the 425 Level. Although the mine pumping and water treatment systems will be designed to handle a range of flow rates, the mine must be used to store significant amounts of water on a temporary basis each year, in order to smooth the flow through the water treatment system and avoid the need for storage of contaminated water on surface. (pg. 6-71)

It appears that there is the potential for seasonal water level changes in the underground workings. The frozen blocks may be continually submerged and then dry again with some risks in nearby areas where backfill and ground stability. This may become an issue and affect the ability to intentionally thaw out the frozen blocks.

Request

1. Please provide a rationale for submerging the frozen blocks versus keeping the minewater below the lowest frozen block at all times.
2. Please provide a risk assessment for seasonal submergence and then lowering of minewater levels below the frozen blocks.

3. Please consider and discuss the implications for seasonal fluctuations of minewater on the reversibility of the Frozen block method.

Alternatives North IR# 14 Diffuser Design and Effects

Reference

DAR, s. 6.8.5 Water Treatment and Sludge Disposal

Terms of Reference Section

ToR s.3.2.4 (9) Development Description

Preamble

The DAR discusses the design of the proposed new water treatment plant, its outputs and the year-round use of an outfall and diffuser into Yellowknife Bay. The following quotes from the DAR highlight some of the issues raised in this IR:

The new plant will use best available technology for the separation of precipitates from the treated water and, therefore, the final effluent quality is expected to be slightly better, on average, than achieved in the existing system. (pg. 6-75)

Further investigation of alternative diffuser locations and the associated on-land and offshore pipeline alignments is still required. The design of the diffuser will be dependent on the results of these investigations. (pg. 6-77)

The fish habitat has been characterized as marginally to moderately suitable spawning habitat for northern pike, white sucker, longnose sucker, and possibly lake trout and lake whitefish. There is considerable tailing (silt) deposits from earlier mining activities in the substrate which may affect spawning activities and fish egg survival. (pg. 8-21)

Request

1. Please provide data and predictions on the water quality at end of pipe discharge for the old versus new water treatment plant for the chemical and physical parameters currently measured at the Giant Mine.
2. Please provide some discussion and predictions regarding the potential for stirring up the contaminated sediment near the diffuser and how far those effects are expected to spread.
3. It appears that some fish habitat will be destroyed through the construction, placement and operation of the outfall and diffuser. There will also be a mixing zone where the effluent will be above water quality guidelines for the protection of fish. Is INAC of the view that a Fisheries Authorization is required for this part of the Development? Have there been any discussions to date on this issue with the Department of Fisheries and Oceans? If so, please describe any outcomes to date.

4. Please provide further details on the research for the design of the diffuser and when it is expected to be completed.

Alternatives North IR# 15 Project Costs

Reference

DAR, s. 6.13.6 Financial Resource Requirement, Table 6.13.4 (pg. 6-107)

Terms of Reference Section

ToR s.3.2.4 (14) Development Description

Preamble

The DAR description of costs is limited to two tables with little supporting evidence or detail.

Request

1. Please describe the difference between ‘direct’ and ‘indirect’ costs set out in Table 6.13.4.
2. Please describe how the contingency figures in Table 6.13.4 were calculated and any justification to support such calculations.
3. What assumptions and unit costs were used in preparing the calculations in Table 6.13.4 and 6.13.5? Please provide justification for same.

Alternatives North IR# 16 Air Quality Monitoring and Predictions

Reference

DAR, s. 7.3.3 Ambient Air Quality; 8.6.2 Air Quality

Terms of Reference Section

ToR s.3.2.3 (11) Description of Existing Environment; 3.4.2 Human Health and Safety

Preamble

The DAR describes the existing environment at the Giant Mine Site including ambient air quality. High-volume air samplers have been installed and operated at the site since 2004. Air quality predictions for several contaminants of potential interest were also modeled during the construction phase

Request

1. Figure 7.3.6 shows the location of the hi-vol samplers at the Giant Mine site. None of these appears to be downwind when compared to the windrose from the Yellowknife airport shown in Figure 7.3.1. Please explain the rationale for the sampler locations and whether the monitoring results are a good indication of ambient air quality at the site.
2. Please correlate the air quality exceedances shown in Table 7.3.3 with the recorded wind data (speed and direction) from the Yellowknife airport on those dates and the length of time from the last application of soil cement on the tailings at the site. This may provide some insights into the cause of these exceedances and possible mitigation to avoid similar occurrences.
3. Figures 8.6.1 to 8.6.4 show predictions for air contaminants (arsenic, particulates, NO_x, and SO_x). The predicted areas above various guidelines extend outside the surface lease area and sometimes encompass a stretch of the Ingraham Trail highway. This public road is open to the public, including pedestrians and cyclists. Please explain how INAC has concluded that there will be no adverse effects from changes to air quality caused by the Development. What triggers and thresholds will be used to guide mitigative actions up to and including shutting down site construction activities?

Alternatives North IR# 17 Effects of Wildfire on the Development

Reference

DAR, s. 10 Assessments of Accidents and Malfunctions

Terms of Reference Section

ToR s.3.2.5 Accidents and Malfunctions; 3.2.5 Biophysical Environment

Preamble

The only assessment of the possible effects of wildlife on the Development appear on pg. 10-11:

“ Should the buildings, equipment or thermosyphons be damaged by accident, vandals or wildfire, the Project Team will require that they are replaced prior to the outer limit of the dust actually beginning to thaw, which is expected to take several years. No further assessment required.”

Request

1. Please describe the history and patterns of forest and grass fires associated with the Giant Mine site.
2. Given this history, what are chances of a forest fire developing nearby and resulting in an unintentional release from the Giant Mine site?

Alternatives North IR# 18 Lessons Learned from Spills During the Freeze Optimization Study

Reference

DAR, s. 10 Assessments of Accidents and Malfunctions

Terms of Reference Section

ToR s.3.2.5 Accidents and Malfunctions

Preamble

The Review Board IR #1 deals with the lessons learned to date from the Freeze Optimization Study from an engineering and design perspective. The Study was carried out without a land use permit and there were at least three publicly reported spills at the Giant Mine site as follows:

June 11, 2009 Spill of Drill Mud into Baker Creek;
August 12, 2009 Spill of Drill Mud; and
October 22, 2009 Spill of Arsenic that covered a worker at site.

The DAR also states at page 10-9 “Since the Project Team assumed responsibility for Giant Mine in 1999, workplace safety has consistently been good and improvements to health and safety practices are continuously occurring.”

Request

Please describe any lessons learned regarding spill reporting, spill management, monitoring, inspection and enforcement resulting from the spills that took place at the Giant Mine site during the Freeze Optimization Study.

Alternatives North IR# 19 Access to Information from Monitoring and Inspections

Reference

DAR, s. 14.1.4 Access to Monitoring Data

Terms of Reference Section

ToR s.3.2.5 Accidents and Malfunctions

Preamble

The DAR states at page 14-5:

“INAC will facilitate third-party access to data for research and/or analysis, subject to the applicable government legislation, policies and contractual obligations. Whenever possible, this access will be through the Giant Mine Remediation Project website. Comments received from the public on monitoring data will be considered in the development and amendment of EMPs.”

This statement does not provide much assurance that this information and data will be made readily available or what sort of rules may govern the availability of various types of data. For example, three Access to Information requests were filed with INAC in 2009 regarding various aspects of the Giant Mine. A formal response with copies of records took over a year and is still outstanding, well over the statutory requirements under federal legislation.

Request

1. Please clarify whether access to monitoring data related to the Giant Mine Remediation Project will be made available only subject to formal requests under the *Access to Information Act*.
2. Please indicate what types of information will routinely be made available through an informal request.

Alternatives North IR# 20 Annual and State of the Environment Reports

Reference

DAR, s. 14.2 Long-Term Environmental Monitoring

Terms of Reference Section

ToR s.3.2.6 Public Consultation

Preamble

The DAR states at page 14-8:

“While the requirements of and reporting for many parameters of long-term monitoring will be governed by the water licence, the following two levels of reporting are proposed for data collected throughout the Long-term Environmental Monitoring Program. Ultimately, monitoring and reporting will be adjusted to meet the requirements of the water licence:

- Annual Report(s) - prepared annually to summarize and review all operational and environmental data collected in the 1-year reporting period; and
- Status of the Environment (SOE) Reports - prepared every three years during the initial 15-year remediation period and every five years thereafter, to summarize, review and interpret the operational and environmental data collected in the reporting period and to provide recommendations for modifications to the monitoring program or site operations that may be affecting environmental quality.

The reporting requirements will provide a mechanism by which on-going feedback regarding the effectiveness of the remediation works and the monitoring activities is provided to the Project Oversight Committee, to regulators, Aboriginal communities, the public and stakeholders. Consistent with adaptive management, periodic reviews of operational and environmental data will help determine the appropriate duration for monitoring particular components of the program, the need to modify existing programs or to add new components, and the need to modify existing site operations that may be affecting a particular environmental component.”

This appears to be a good start at public information and consultation with regard to long-term monitoring.

Request

1. Please provide a draft table of content or outline for each of the Annual and SOE reports.
2. Please indicate whether INAC can commit at this point to providing details on the following items in these reports:
 - Monitoring and inspection (internal and external regulatory) program results;
 - Spills, non-compliance with regulatory requirements including responses and remedial actions;
 - Complaints received, if any, and responses;
 - Internal and external audit summaries and responses;
 - Summary of public consultations, issues raised and responses;
 - Predicted effects vs. actual monitoring results;
 - Changes to any monitoring and inspection programs and the rational for same;
 - Adjustments to any conceptual or predictive models used to manage the Project;
 - Evaluation of the adaptive management systems; and
 - Long-term trends from baseline conditions.

Alternatives North IR# 21 Minewater Monitoring

Reference

DAR, s. 14.2 Long-Term Environmental Monitoring

Terms of Reference Section

ToR s.3.2.6 Public Consultation

Preamble

Minewater sampling was done from C-shaft beginning in June 2005 but was not possible in the lower parts of the mine after August 2007 due to “blockages”. Alternatives North understands that C-shaft is no longer in operation.

Request

1. Please describe and discuss the current status of C-shaft and the implications, if any, for continued and comparable minewater monitoring.
2. Please provide a copy of the related reference cited in the DAR at page R-17 and any more recent reports of a similar nature:

SRK Consulting Inc., 2009a. *Giant Mine Arsenic Trioxide Management Project, Groundwater & C-Shaft Monitoring: 2008 Update Report*. Prepared for Indian and Northern Affairs Canada. August.

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Alternatives North IR# 22 Funding Certainty

Reference

Deficiency Statement Response 4—Discussion of Funding Certainty

Terms of Reference Section

ToR s.3.2.2 (5) Developer

Preamble

The INAC letter dated December 14, 2010 in response to the Review Board Deficiency Statement provides no options to ensure long-term funding for Giant Mine Remediation Project perpetual care requirements. INAC has not offered to research or investigate any options.

The following reference provides some interesting insights into how a similar issue might be addressed in the United States:

Long-Term Stewardship of Contaminated Sites Trust Funds as Mechanisms for Financing and Oversight. Carl Bauer and Katherine N. Probst. December 2000. Discussion Paper 00–54. Resources for the Future. Washington, D.C. <http://www.rff.org/documents/RFF-DP-00-54.pdf>

Request

1. Is INAC prepared to research and investigate options other than annual or occasional parliamentary budgetary approvals to fund the perpetual care requirements associated with the Giant Mine Remediation Project? If so, please provide a timeline and preliminary budget for this work.

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