

Alan Ehrlich

From: Sparks,Amy [Edm] [Amy.Sparks@EC.gc.ca]
Sent: Tuesday, May 31, 2011 1:30 PM
To: Mark.Palmer@inac-ainc.gc.ca
Cc: Nicole Spencer; Alan Ehrlich; Tara Kramers; Adrian Paradis; McPherson, Morag
Subject: EC Response to Giant Mine Remediation (EA0809-001), Information Requests, Yellowknives Dene First Nation IR #26
Attachments: EC response IR YKDFN #26.pdf; EC Comments on Giant Mine Draft DAR Feb01_2010.pdf

Dear Mr. Palmer,

Please find attached a letter from Environment Canada in response to the Yellowknives Dene First Nation Information Request #26 directed to Indian and Northern Affairs Canada (INAC) in regards to the Giant Mine Remediation (EA0809-001). This response also addresses the Alternatives North Information Request # 1.4.

If you should have any questions or concerns about the attached letter please feel free to contact me.

Thank you.

<<EC response IR YKDFN #26.pdf>> <<EC Comments on Giant Mine Draft DAR Feb01_2010.pdf>>

Amy Sparks

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Environment
Canada

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Mark Palmer
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Indian and Northern Affairs
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PO Box 1500
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Re. Environment Canada response to Giant Mine Remediation (EA0809-001), Information Requests – Round #1, Yellowknives Dene First Nation IR #26

May 31, 2011

Dear Mr. Palmer,

Environment Canada would like to respond to the Yellowknives Dene First Nation Information Request #26. This response also addresses the Alternatives North Information Request # 1.4. In addition to this response, the comments on the draft Developer's Assessment Report that Environment Canada submitted to INAC on February 2010 are attached.

Source: Yellowknives Dene First Nation
To: Indian and Northern Affairs Canada
Subject: Federal groups collaboration

Preamble:

It was indicated that the project collaborated with other federal departments including as follows:

- Federal Contaminated Sites Action Plan (FCSAP)
- Environment Canada
- Department of Fisheries and Oceans Canada (DFO)
- Health Canada

It was stated that input from the federal groups were utilised to provide advice on various items of the remediation project including site assessment, risk assessment and the evaluation of remedial option/risk management for the site. It was further indicated that collaboration with federal groups has proven to be important in the selection of remediation options for site components such as Baker Creek. Given this input, it seems that the current remediation plan has the effective endorsement from the other responsible ministries and the degree of technical review to be provided during the forthcoming EA processes will be substantially reduced compared to other similar projects.

Request:





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It is requested that a summary of the collaboration process and how the technical issues of the federal groups were addressed are provided. At minimum information should be provided on the following remediation items:

- Foreshore historical tailings remediation;
- Baker Creek remediation options selection;
- Open pits remediation;
- Proposed outfall and diffuser system

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

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:

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.

Environment Canada Response:

Environment Canada has participated in the Giant Mine Remediation Project and the associated Environmental Assessment in many ways over the years. Environment Canada has a role as an expert support department in the Federal Contaminated Sites Program (FCSAP) and as such has worked extensively with INAC-CARD on the Giant Mine Remediation Program. Environment Canada provides technical advice on project activities such as remediation options, sampling/study design, and data gaps.

EC has reviewed and provided comments and advice on the draft Developer's Assessment Report (DAR) in January 2010. EC submitted information requests to the Mackenzie Valley Land and Water Board (MVLWB) based on a review of the final DAR in February 2011.

EC attended the workshop on remedial options for Baker Creek in September 2009 and participated in the working group formed from this workshop that held meetings in September, October, November 2009 and July 2010. During these meetings remedial options and outfall routes were discussed.

EC reviewed and provided comments on the Tier 2 Risk Assessment Giant Mine Remediation Plan in December 2009. The comment letter is available on the Mackenzie Valley Review Board public registry.

In January 2008 Environment Canada provided comments on the Giant Mine Remediation Plan to the MVLWB from the Type "A" Water Licence Application, MV2007L8-0031 (Preliminary Screening)





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The 2005 version of the *Draft Giant Mine Remediation Plan* was reviewed by Environment Canada in June 2005. The scope of EC's review included the Main Document, and various Supporting Documents including "*Tier 2 Risk Assessment*", (SENES Consulting Ltd., 2005). Technical comments were submitted to DIAND on June 22nd, 2005.

Environment Canada, in consultation with a multi-agency technical advisory panel, has provided written review comments on 3 Environmental Effects Monitoring (EEM) study designs (2004, 2006 & 2010) and 2 EEM interpretative reports (2005 & 2008) submitted by Giant Mine. As part of the EEM review process, Environment Canada also took part in 3 face-to-face meetings (2006, 2008 & 2010) with Giant Mine staff and the technical advisory panel. EC also reviews and provides written comments on EEM Effluent Characterization and Water Quality Monitoring reports, submitted annually by mines.

Environment Canada enforcement officers review quarterly and yearly Giant Mine Effluent Monitoring reports to ensure that they are compliant with the discharge requirements set out in Schedule 4 of the Metal Mining Effluent Regulations (MMER).

Environment Canada will continue to provide expert support and advice to the Giant Mine Remediation Project team and work with the MVEIRB to reduce ecological risks at the Giant Mine site.

Please feel free to contact myself if you have any questions or concerns regarding this response.

Sincerely,

Amy Sparks

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cc. MVEIRB Public Registry
Tara Kramers, INAC
Adrian Paradis, INAC
Morag McPherson, DFO



Environment Canada's EA Review Questions for Giant Mine Remediation Project Developer's Assessment Report – February 10th, 2010

| Question/Comment | Reviewer | TOR # (if applicable) | Is Additional Fieldwork Required? | DAR Completeness Issue? (I.e. is the information required to resolve major information gaps or uncertainties?) |
|---|----------|--------------------------|---|--|
| Section, Figure, Table, Page. | | | | |
| <p>1. Section 6.8 <i>Site Water Management</i></p> <p>Table 6.8.1 shows that the average concentrations for arsenic under the current water treatment plant for July and August are 0.302mg/L and 0.236mg/L. It is suggested that the new treatment plant would produce effluent of similar quality. The new treatment plant should be much more effective and EC would therefore like to see operational targets in the range of 0.15mg/L to 0.20mg/L included in the Site Water Management Plan. For the purposes of the DAR EC requests that further discussion, including justification, is included regarding a realistic operational target for arsenic limits in the effluent.</p> | SL | | No | No |
| <p>2. Section 6.8.6 <i>Outfall and Diffuser</i></p> <p>(Page 6-47) The document refers to a study done by Hay and Co. (2005) where diffuser performance at two alternative locations was evaluated. It appears that there some considerations that were not taken in to account with this study, nor does it look at the 3rd proposed location. However, it is understood that a fish habitat assessment for all three proposed locations was conducted in November of 2009 by Golder and results are pending.</p> <p>Two factors that need to be included in further studies are the effects of the diffuser under varying ice thicknesses and sediment disturbance due to turbulence created by the diffuser. Hay and Co. looked at the diffuser performance in summer and winter, however it does not appear that surface ice was a factor, specifically ice thickness as this would greatly reduce the depth, therefore reducing the dilution at trapping depth.</p> <p>Given that the 2 of the 3 proposed locations are located within the area that was contaminated by historic tailings, the effects of the diffuser and turbulence on sediments needs to be investigated. The proposed configuration of the diffuser is at a 50 degree angle which will direct the effluent jet stream away from the bottom. However, the ambient water will be pulled into the mixing zone and could potentially disturb the contaminated sediments. In comparing Figure 7.1.4 Arsenic Concentrations in North Yellowknife Bay Sediments to</p> | SL | | No | Yes |

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|---|----------|--------------------------|---|--|
| <p>Section, Figure, Table, Page.</p> <p>Figure 6.8.5 Potential Future Locations of Treated Water Discharge, it appears that location 3 is located in the area containing arsenic concentrations greater than 1000ppm. Location 1 is on the perimeter of contaminated sediment plume and Location 2 is further out, appearing to be outside of the area most affected by the submerged tailings. Page 6-46 states that “Further investigation the possible diffuser (note editing error here) locations and the associated surface and offshore pipeline alignment is still required; and final design of the diffuser will only be possible thereafter.” EC would like to see that the two aforementioned factors are included in the investigations. It would be helpful if this section stated all the factors/potential issues to be considered in the investigations.</p> | | | | |
| <p>3. Section 13.2.3 <i>Monitoring Program (Treated Water Monitoring)</i></p> <p>Environment Canada suggests that a Plume Characterization Study is completed once the system has been installed. The purpose of this would be to assess the performance of the diffuser under varying conditions (such as open water and ice-covered). EC would like to see sampling completed such that plume behaviour is captured for open water, post-spring freshet, pre-freeze-up and under ice-covered conditions.</p> | SL | | | No |
| <p>4. Section 5.11.2 <i>Fuel Storage and Handling Systems</i></p> <p>Please ensure that all of the storage tanks presently on the Giant Mine site are in compliance with <i>Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations</i> (Government of Canada, 2008). Please note that you have 4 years from the date the regulations came into force to comply (e.g. withdraw storage tank systems from service, implement monitoring programs, etc.). Additional information on these regulations can be found at:</p> <p>http://www.ec.gc.ca/CEPARRegistry/regulations/detailReg.cfm?intReg=110</p> <p>Technical advice and compliance information on monitoring and leak detection, upgrading existing storage tank systems, and withdrawal from service of storage tanks can be found in the CCME <i>Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products</i> (2003).</p> | AS | | No | No |
| <p>5. Section 6.1.1 <i>Remediation Objectives</i></p> <p>Remediation Objective #2 states that one of the objectives of the Project is: To remediate the</p> | AS | | No | Yes |

| Question/Comment Section, Figure, Table, Page. | Reviewer | TOR # (if applicable) | Is Additional Fieldwork Required? | DAR Completeness Issue? (I.e. is the information required to resolve major information gaps or uncertainties?) |
|--|----------|--------------------------|---|--|
| <p>surface of the site to the industrial guidelines under the NWT Environmental Protection Act, recognizing that portions of the site will be suitable for other land uses with appropriate restrictions. Further into the report there are mentions of options for development on this site involving public day use areas and residential areas.</p> <p>The land use criteria chosen for a site are protective of human and environmental health for specified uses of soil at the site. The remediation objective for industrial lands assumes that little or no public access is available, and the primary receptor is a worker on the site (Environmental Guideline for Contaminated Site Remediation, NWT ENR, 2003). If there will be residential and/or public day use areas in the future on this site it would be more appropriate to use guidelines for a residential/parkland land use. If this is not done the site will not be cleaned up to a level protective of the individuals using the site and will not be safe for these land uses.</p> | | | | |
| <p>6. No specified section</p> <p>In multiple areas of the document it states that once water has reached a certain arsenic concentration deemed safe it will be release directly to Baker Creek and no longer treated through the Water Treatment Plant. Please clarify what this concentration is at which the water is deemed acceptable for direct release to Baker Creek.</p> | AS | | No | Yes |
| <p>7. Section 6.10 <i>Contaminated Surficial Materials</i></p> <p>The document states that contaminated soil will only be excavated to a limit of 2 m. The plan is then to cover the areas with at least 0.5 m of clean fine-grained fill.</p> <p>If the bottom of this excavation has contaminated soil at a concentration greater than the soil clean-up criteria the fill needs to be a depth of at least 1.5 m to remove the surface soil pathways that create this guideline. For the guideline to be protective as it is meant to be the soil concentration needs to be met for the top 1.5 m of soil. Please provide further information to verify that 0.5 m of clean-fill will remove the exposure pathways and provide protection for the receptors of the appropriate site land use.</p> | AS | | No | Yes |
| <p>8. Section 6.10 <i>Contaminated Surficial Materials</i></p> <p>The document states that soils in the tank farm contaminated only with hydrocarbons may be</p> | AS | | No | Yes |

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|---|----------|--------------------------|---|--|
| Section, Figure, Table, Page. | | | | |
| bio-remediated in place. Please provide more information on the method that will be used for this bio-remediation. | | | | |
| <p>9. Section 7.2.1.1 <i>Water Quality Indicators and Standards</i></p> <p>The document states that there are no regulatory criteria covering groundwater chemistry in the Northwest Territories or the rest of Canada. Therefore, all groundwater data collected to date has been assessed, but it is not possible to report on the chemical quality with respect to criteria performance targets.</p> <p>These groundwater concentrations should be compared to the Alberta Tier 1 Soil and Groundwater Remediation Guidelines (Alberta Environment, 2007). These guidelines are being slightly modified and will be recommended for use at federally contaminated sites across Canada soon. These guidelines can be found at:</p> <p>http://environment.alberta.ca/777.html</p> | AS | | No | Yes |