



Giant Mine Remediation Project
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August 10, 2012

Mr. Richard Edjericon, Chairperson
Mackenzie Valley Environmental Impact Review Board
Box 938, 5102 – 50th Avenue
YELLOWKNIFE NT X1A 2N7

Re: Giant Mine Remediation Project (EA0809-001) – Long-Term Stewardship of the Giant Mine

Dear Mr. Edjericon,

The following summary sets out some of the current thinking of the Giant Mine Remediation Project team with respect to long-term stewardship of the waste legacy at Giant Mine. Included are thoughts on the progression from goals to implementation of a long-term stewardship plan. This summary is intended to begin to respond in part to some of the enquiries of the Review Board and Parties to the EA in terms of perpetual care.

Included is a general description of our thinking on a process and plans by which the government will implement and manage the site into the future. Sections included in the attachment:

1. Goal.....	1	6. Openness and Transparency.....	4
2. Long-Term Stewardship.....	1	7. Records and Information Management	4
3. Technologies and Processes	3	8. Environmental Risk Assessment	5
4. Continuous Monitoring.....	3	9. Other Matters Raised by Parties to the EA.....	5
5. Adaptive Management Process.....	4		

Respectfully,

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LONG TERM STEWARDSHIP OF THE GIANT MINE SITE

A SUMMARY SUBMITTED TO THE REVIEW BOARD

1. Goal

The goal of the Giant Mine Remediation Project is to stabilize the Giant mine site, to safely isolate contaminants from entering the environment, and to establish safe site conditions that allow for the restoration of ecological processes. Within the Giant Mine Remediation Plan the proposal to protect human health, public safety and the environment included the objectives “to manage the underground arsenic trioxide dust in a manner that will prevent the release of arsenic to the surrounding environment, minimize public and worker health and safety risks during implementation, and be cost effective and robust over the long term.”

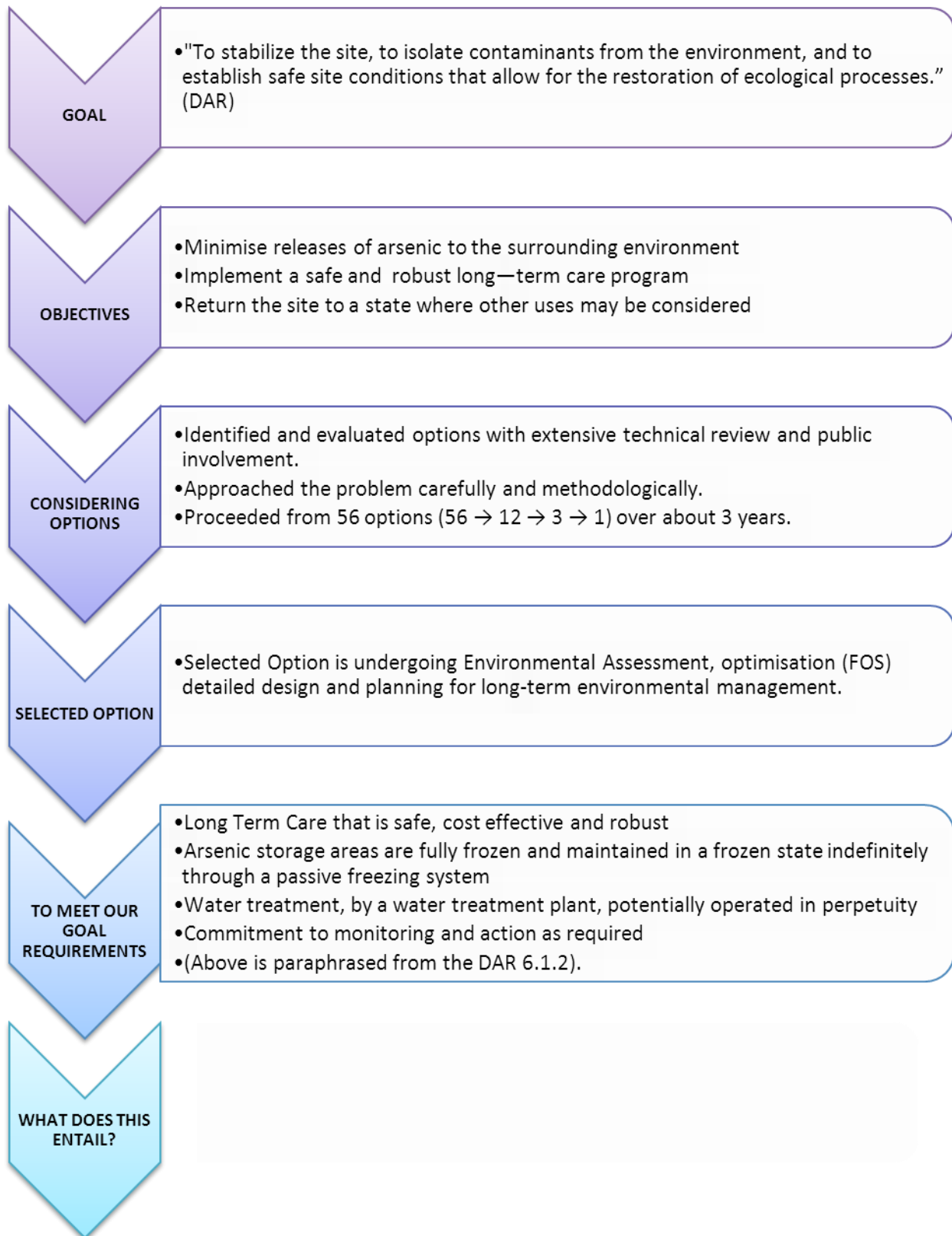
Our commitment, as expressed in the DAR and in subsequent documents includes, in part, monitoring and operation of a passive cooling system to meet the goal and objective. The water treatment plant will also be operated until such time, if ever, as water quality from the mine is safe to enter the environment directly.

2. Long-Term Stewardship

In order to meet the stewardship goal and objectives as set out in Figure 1 below, the Government is committed to the long-term care of the facility based on the following:

1. To permanently sequester the arsenic trioxide stored in chambers and stopes by keeping the arsenic trioxide frozen in place indefinitely.
2. To assess and monitor to ensure compliance and safety.
3. To put in place and follow a multi-stage adaptive management process to ensure that actions and adjustments are made as necessary to maintain the safety of the site, stability of the frozen block and the effectiveness of water treatment.
4. To be open and transparent throughout by reporting monitoring results with regulatory agencies, Aboriginal and stakeholder organizations and the public.

Below is a first draft of a Process Chart for the Giant Mine Remediation Project for Long Term Stewardship/Perpetual Care. It is followed by some further details on our current thinking on the process and principles that define Canada’s commitment to long term stewardship of Giant Mine.

**Figure 1. Giant Mine Remediation Project Chart for Perpetual Care/Long Term Stewardship**



3. Technologies and Processes

Selecting an option for long term management of arsenic trioxide and developing a plan to implement that option involved input from agencies, community groups, and Aboriginal organizations and individuals. One of the key criteria was the suitability of the option to very long term storage. Detailed analysis and consultation were undertaken to arrive at the remediation plan that is the subject of the Developer's Assessment Report and is before this Review Board.

We reviewed 56 possibilities before arriving, through stages, at our preferred option. We believe the assessment of currently available alternatives has been exhaustive and inclusive. We are confident that the preferred option is safe and acceptable; and that it is unlikely that markedly superior alternatives will be identified. AANDC and GNWT view the frozen block method as the long-term solution for Giant Mine arsenic trioxide.

The Project Team has committed to periodic re-evaluation of alternatives if technologies advance. In response to questions raised during the EA, including the Pre-Technical Reports Workshop, we agreed to evaluate technology advances and their application to the Giant Mine site every 10 years, and include this evaluation in the state of the environment report coinciding with that review.

4. Continuous Monitoring

There is the potential that water treatment will be required in perpetuity (See DAR 6.1.2). Ongoing water quality monitoring will be required to ensure that regulated standards and project targets are met. The GOC is committed to working with regulators and community interests to re-evaluate and, where appropriate, adjust discharge criteria based on changes to contaminant levels and the transition of the site.

We anticipate that the frozen chambers and stopes will require passive cooling indefinitely to maintain the stability of the frozen blocks (See DAR 6.1.2). The operation of the passive cooling system, while being self-contained, will require monitoring and periodic maintenance to ensure its effective operation. Ground temperature will also be monitored over the long-term. Based on comprehensive modelling and on data obtained through the recent FOS research, we are confident that the site can be managed with the passive cooling system capacity planned; however options will remain fully open for increasing cooling capacity to maintain the frozen blocks, should it become necessary to respond to ground temperature changes.

Results of monitoring will be made widely available to the regulators, researchers, and to the public. We have been involved in discussions with the YKDFN and other parties to the EA on a potential Giant Mine advisory group. While those discussions are not complete, we anticipate that such an advisory group will play an important and ongoing role in reviewing methodologies and reports, advising on alternatives and adaptation, recommending approaches, commenting on the quality of reporting and providing an avenue for ongoing engagement in the long-term care of the site.



5. Adaptive Management Process

Adaptive management approaches for the Giant Mine Remediation Project were set out in Chapter 6 of the DAR for both surface and subsurface components, where criteria and adaptive management responses to unexpected or abnormal conditions have been defined; these include implementation of the freeze program and operation of the water treatment plant.

Monitoring and assessment and consideration of actions at each step are a guiding philosophy of adaptive management and are central to the implementation of the Giant Mine Remediation Project. As the Remediation Project advances, and in response to monitoring results, the public and Aboriginal communities will continue to be engaged in the review and assessment of monitoring results.

6. Openness and Transparency

Project activities – and the monitoring results – will be subject to regulatory agency oversight and review by members of the public, including through use of an advisory group. Parties to the EA have been involved in advising on and shaping the project's Environmental Management System (EMS) and it is our hope that they will continue to be involved in the development, implementation, and review and updating of the EMS.

While the structure of such a committee has not yet been set, and will need to be developed through discussion with the various parties and government agencies, it is expected that the terms of reference for such a committee will include such matters as membership, timing and term of the committee, and budget for the committee.

7. Records and Information Management

The Government of Canada is committed to implementing a comprehensive records and information management program for the Giant Mine project. We recognize that because of the long term nature of the stewardship of the site, there is a need for a clear and well-articulated approach.

The Giant Mine Remediation Project team anticipates working with the advisory group mentioned above to explore techniques used elsewhere, and identify the best approach for Giant. The records and information management program shall be in accordance with Government of Canada directives, standards and guidelines. For purposes of illustration only, this may include things like: Treasury Board of Canada Secretariat Directive on Recordkeeping; Government of Canada's Management of Government Information Policy (MGI); and the Government of Canada Records Management Metadata Standard. The description of records and storing of hard copies of records will be discussed within the advisory group and will also be managed according to appropriate standards and will conform to various government policies. Access to this information by any interested party will also be discussed with the appropriate Giant Mine advisory group and will be governed by directives, standards and guidelines.



8. Environmental Risk Assessment

Environmental Risk Assessment forms part of our commitment to long term care of the Giant Mine site and is addressed within the evolving project-specific Environmental Management System (EMS). The EMS has been under development with Parties to the EA and is not complete. However, the discussion includes, for example, using ISO14001 Environmental Management Systems to address the need to identify and assess environmental risks and potential impacts of activities associated with demolition and remediation works.

Potential environmental risks associated with the Project were identified during preparation of the DAR. These risks continue to be reviewed as part of risk assessment carried out for the demolition and remediation activities as part of the Environmental Management Plan. We anticipate that future risk assessments as part of the EMS will include participation and involvement of Giant Mine advisory group.

9. Other Matters Raised by Parties to the EA

There have been other matters raised by parties to the EA and these are discussed briefly below:

In terms of site designation and land use controls, the DAR states that part of the site will remain under direct control of the GoC over the long term. The remainder of site will be made available for other uses that are still to be decided. We anticipate that the types of future use will be determined by parties including the GNWT and City of Yellowknife, in consultation with YKDFN and stakeholders.

We anticipate that any future uses would be subject to appropriate land use controls that would need to be decided along with discussion of those uses. Some examples of possible uses of the site include: public recreational uses (with appropriate monitoring); industrial development; or residential development.

In terms of long-term funding, although it is not possible to bind future governments, the federal government has demonstrated consistent support for this project and, by comparison, future long-term funding will be a relatively small amount. I will be well within government's normal infrastructure funding capability. The commitment to site care and monitoring, the presence of a Giant Mine advisory group and the need to ensure compliance with regulatory requirements will help ensure that funding will remain a priority for Canada.

In terms of communicating the presence of hazards to future generations, this will be part of the discussions with a Giant Mine advisory group. Measures consistent with best practices at similar long term sites will be presented and assessed.

In terms of some other good points raised by parties to the EA, such as transitioning from highly managed remediation to low level perpetual care, we have not yet given these matters a great deal of thought. However, we believe that we have time to do that and to do that with the help of the public. It will also depend, for example, on factors which are not yet determined such as whom exactly is operating the site and what contractual arrangements are in place. This will likely be captured in a



future water license. We are committed to discussing this with stakeholders (e.g. through a Giant Mine advisory group or other appropriate vehicle) as the project nears that phase.