



Indian and Northern
Affairs Canada

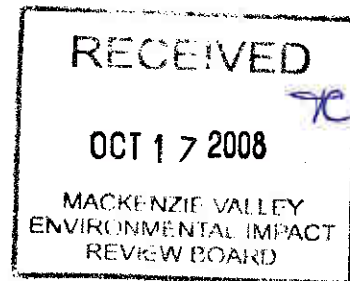
Affaires indiennes
et du Nord Canada

P.O. Box 1500
Yellowknife, NT X1A 2P1

File: CIDM #273278

October 17, 2008

Mr. Richard Edjericon
Chair
Mackenzie Valley Environmental Impact Review Board
200 Scotia Centre
P.O. Box 938, 5102-50th Avenue
Yellowknife, NT X1A 2N7



Dear Mr. Edjericon:

**Re: EA0809-001 Giant Mine Remediation Environmental Assessment – Scoping
Phase – Freeze Optimization Study – Additional Submission**

During the Scoping Hearing held before the Review Board on July 22nd and 23rd, 2008, INAC submitted that the Freeze Optimization Study (the Study) be excluded from the scope of the development, being the proposed Giant Remediation Plan. At the request of the Board, INAC undertook to provide further details regarding its position on this matter, and did so in Undertaking #1 that was provided to the Review Board on August 15, 2008. As a result of further questions raised by Review Board staff regarding the Study in an email dated October 6, 2008, INAC formally requested, in an email dated October 7, 2008, that because of the importance of the Study it be allowed to provide further information to the Board. As a result of the Review Board's approval of this request, INAC hereby provides this additional submission in support of the Study's exclusion.

Please note that this submission is separated into two main parts. The first part deals with the specific technical information that was requested by Review Board staff on October 6, 2008. The second part further details INAC's legal position for the exclusion of the Study from the proposed development.

Part I – Additional Specific Technical Information

The following questions were posed in the October 6, 2008 email from the Review Board staff:

The Review Board would like to know more about the nature of the study. What infrastructure or equipment will be installed on site? Will this be eventually removed, or will it become part of the frozen block, should the project be approved? When does CARD anticipate the results from this study that would be useful for optimizing the frozen block process?

The following addresses the questions put forward by the Review Board staff.

Purpose and Overview of Study

- The main purpose of the Study is to confirm and compare the freeze rates for both the active and hybrid freeze systems. The Study will provide information about the operation and efficiency, including the power requirements, for each system. The Study will also provide more accurate cost estimates for the installation and operation of all components of the freeze systems.
- The Study involves freezing a portion of an arsenic chamber on the Giant Mine site. The Study area includes the small section of land, approximately 1,500 square meters in area, between Arsenic Chamber 14 and Chamber 15 (an empty arsenic chamber). The attached map shows the location of the Study area (shown in green).
- The Study comprises the drilling of thirteen holes, approximately 150mm in diameter on the west and north margins of Arsenic Chamber 14. The holes will be drilled to shallow depths of 50 to 100 meters. Once drilled, welded steel tubes (freeze pipes) would be inserted in the holes with a connector flange on the top of each tube that would allow different types of freeze systems to be connected to the freeze pipes.
- The Study envisages using both active and hybrid freezing systems to compare freeze rates and relative efficiencies in power consumption. The active freezing system includes a mobile freezing unit (similar to that used in ice rinks) connected to the freeze pipes through which a coolant would be circulated at approximately -30 degrees Celsius. The hybrid thermosyphon system uses both active freezing (a cooling refrigerant unit) and passive freezing. By using different freeze systems, with possibly different low temperature freeze fluids in a similar test situation, engineers will obtain better comparative information on the relative efficiencies and operational/maintenance requirements of the different freeze systems. This information will be very important in informing both the environmental assessment and in the development of engineering specifications for the full freeze project implementation.
- The Study also includes the drilling of a series of smaller diameter instrumentation holes (twelve on surface and six underground). These holes would house monitoring equipment that would be used to measure the rock temperature and the progression of the freeze front as the ground freezing progresses through the rock and arsenic chamber.

- The Study area includes one of the existing bulkheads (Bulkhead 68) located on the site. Bulkheads are concrete plugs used to seal the arsenic trioxide dust into the underground storage chambers. Bulkhead 68 is one of the most problematic of the sixty-one bulkheads located on the site because of the high amount of arsenic seepage that occurs at this location. Data collected from the site shows that an average of 2.83 kilograms of arsenic seeps from this bulkhead daily (1033 kg/year). This adds to the amount of arsenic in the water that must be pumped from the mine and treated by the water treatment plant. Conducting the Study in this location will provide valuable information on the freeze rates at a leaking bulkhead and when frozen, will have the added benefit of eliminating the arsenic seepage from this bulkhead.

Infrastructure / Equipment

- Some earthwork equipment, such as a loader or grader, would be required to provide access to the Study area. The main equipment required for the Study is a drill rig that would be used to drill the holes for the freeze pipes and monitoring equipment.
- Once the study is complete, the mobile freezing units would be removed. INAC is proposing to leave the freeze pipes in place so that they can be converted to thermosyphons should the proposed remediation plan proceed. However, upon completion of the Study, the freeze pipes could also be removed and the drill holes sealed with concrete.

Timing / Anticipated Results

- INAC is currently preparing the project brief and specifications for the Study and anticipates having this completed by the end of December 2008. INAC will then determine if any permits or licences are necessary to complete the Study and if so, will make the required applications. INAC will then proceed with the tendering and contracting of the Study through the Department of Public Works and Services Canada. INAC presently believes that it will be able to begin implementation of the Study in the summer of 2009.
- INAC will begin to receive results when the Study commences. The initial information provided by the Study will include the drilling accuracy of the specific types of drill equipment and the optimal methods of installing and welding the freeze pipes. The Study will also provide the optimal installation methods for the different types of freeze systems, including operating efficiency, within a few months of the commencement of the Study (fall 2009).
- The instrumentation in the eighteen monitoring holes will determine the rate of progression of the freezing through the rock and the arsenic chamber. If the Study commences in summer 2009, INAC anticipates that the freeze progression data will be available by the November 2009 and will continue to be provided throughout the Study as the freezing progresses.

- INAC anticipates that a complete set of freeze progression data will be available and provided to the Review Board by spring 2010.
- INAC commits to keeping the Review Board apprised of the progress related to the Study.

In summary, this is a small unobtrusive study that by its performance will not commit or foreclose any course of action regarding the Remediation Plan. Most importantly, the Study has the potential to provide valuable information for the Plan itself and the EA and regulatory processes.

Part II – Legal Basis for Exclusion from Scope of Development

Exclusion of the Study Can Be Supported by the MVRMA

- Part 5 of the MVRMA and the Review Board's discretion to scope a development, pursuant to s.117(1), can support the exclusion of the Study from the scope of the development, being the proposed Giant Remediation Plan. Correspondingly, there is neither an explicit nor an implied legislative requirement that restricts the ability of the Review Board to exclude this Study from the scope of this proposed development.
- Moreover, the legislative framework contemplates the separation of testing from a development proposal and the environmental assessment it serves to inform. For example, the inclusion of an exemption from preliminary screening for testing under s.15 of the Exemption List Regulations, illustrates that, whether a preliminary screening is required or not, testing can be considered separately from the proposed development it serves.
- Accordingly, the legislative framework can and has recently allowed the separation of testing from the proposed development it serves to inform. In the case of the proposed Mackenzie Gas Pipeline development (MGP), certain geotechnical testing required for the MGP (Imperial Oil Resources Ventures Ltd. – Deh Cho Geotechnical Survey - EA03-009 [2003]), is being reviewed separately and does not form part of the scope of the proposed MGP.
- To be clear, separation of testing in the form of the Study in this case is not 'project-splitting' or an attempt to divide or carve out components of the proposed development. As a test, the Study informs the proposed development, it is not a component of the proposed development. As such, considering the Review Board's EIA Guidelines (3.8 Scoping the Development), it is neither ineffective nor inefficient to separate the Study from the proposed development. Moreover, contrary to the concerns set out in these guidelines, separating and excluding the Study will not lead to an inability of the Review Board to assess the bigger picture. Rather, considering its purpose, performance of the Study will better enable the Review Board to comprehensively assess major components of the proposed development.

Purpose of the Study – 2 Functions

- The Study serves two important functions. First, as submitted in INAC's response to Undertaking #1 and Part I above, the results of the Study will generally serve to define and confirm certain design and engineering elements of the Frozen Block Method which forms a central part of the proposed Giant Remediation Plan (the proposed development). More specifically, the results of the Study will provide and confirm the best methods to increase the speed of the freezing; build in certain efficiencies; and confirm certain modelling and power requirements that can be incorporated into the Remediation Plan.
- Second, such information derived from the Study, which can confirm and enhance existing information about the proposed Giant Remediation Plan can, depending on the stage and timing of the Study in relation to the stage of the EA, correspondingly serve to inform the EA process, the environmental impact significance determination and the possible measures that the Review Board may recommend under s.128 of the MVRMA.

Including the Study in the Scope of the Development Denies its Purpose and Benefit

- As discussed above, the purpose of the Study is twofold: it will provide information that will inform the proposed development, and it will in turn provide information that will inform the EA and regulatory process. Including the Study in the scope of the development would therefore negate its purpose, for inclusion would mean that, pursuant to s.118 of the MVRMA, the Study could not be performed until the EA is complete and the water licence is issued.
- It is important to consider that a study of this kind has no value to the EA and regulatory process unless it is implemented and performed so that it can inform the EA and regulatory process of the underlying development. This is precisely why the Exemption List Regulations exempt Engineering tests undertaken to define the elements of a development from preliminary screening. In the present case, though this particular exemption may not apply because the Study may require a Water Licence, this exemption does indicate an intent for tests of this nature to be considered separate and apart from the underlying development specifically because of their supportive nature.
- It is specifically by its exclusion that the Study provides value and benefit to the EA and regulatory processes.

Conclusion

- Based on the foregoing, there is no legal impediment to excluding the Study. On the contrary, there are good legal and procedural reasons to ensure its exclusion based on its purpose and nature.

Sincerely,

A handwritten signature in black ink that reads "W.S. Mitchell". The signature is written in a cursive style with a comma at the end.

W.S. Mitchell
Manager, Giant Mine Remediation Project

Attachment

cc Ms. Tawanis Testart
Environmental Assessment Officer
Mackenzie Valley Environmental Impact Review Board



ISSUED FOR DISCUSSION

LEGEND

| | |
|--|--|
| | Arsenic Trioxide Chamber (full) |
| | Arsenic Trioxide Chamber (empty) |
| | Non Accessible Workings with Probable Arsenic Trioxide |
| | U/G Development |
| | Survey Station |

| NO. | REVISED | DESCRIPTION | DATE |
|-----|---------|-------------|------|
| | | | |
| | | | |

| | | |
|---|-------------------------|-----|
| A | A detail number | A |
| C | number of detail | B/C |
| | B source drawing no. | |
| | de dessin no. | |
| | C detail on drawing no. | |
| | detail sur dessin no. | |

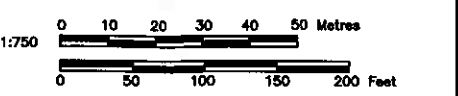
GIANT MINE FREEZE OPTIMIZATION PROJECT

GENERAL ARRANGEMENT SURFACE

| | | | |
|----------------------|--------------------------------|-------------|---------------|
| Designed by | MNDWH | checked by | |
| Drawn by | VYDMC | designed by | |
| Approved by | DEH | approved by | |
| PMSC Project Manager | Administrateur de Projets W800 | | |
| Scale | AS SHOWN | Scale | |
| Project no. | 12801.213.B13.07 | Project no. | 02T |
| Date | August 2006 | Date | 2 OF 13 TOTAL |

Survey Information: UTM NAD 83 ZONE 11
 STA WP-2: E635787.99 N6932530.92 EL 165.38
 Giant Mine Grid Ref: Pending

- Notes:**
- Underground development is projected to surface.
 - Unless otherwise noted, all overhead powerlines are to be assumed energized.



Note: All 11x17 size prints are plotted "to Fit."

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