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MACKENZIE VALLEY
REVIEW BOARD

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) – Response to Parties Recommendations

On behalf of the Giant Mine Remediation Project Team, we wish to submit the following items for inclusion on the public registry. Where appropriate we have noted the corresponding action item as stated in the Pre-Technical Report Workshop Report submitted to the Mackenzie Valley Environmental Impact Review Board on July 17, 2012.

1. Giant Mine Remediation Project response to Parties Technical Report Recommendations in table form;
2. *Giant Mine Remediation Project Updated Commitments Tables*;
3. Memo describing the process for determining the criteria for success of ground freezing (Action Item #1 in Pre-Technical Report Workshop Report);
4. Report: *Frozen Block Wetting Studies, Giant Mine Remediation Project (SRK, August 2012)* (Action Item #4);
5. Memo: Baseline Data Collection for Snow Depth, Ice Thickness and Water Quality for Hydrodynamic Modelling of Yellowknife Bay, Great Slave Lake, NWT (Action Item # 10);
6. Report: *Giant Mine Bench Scale Testing Report (AECOM, August 8 2012) Please note that this document does not have the author's signatures as they were unavailable at the time of submission. A signed report will be resubmitted when available*(Action Item #11);
7. *Giant Mine Water Treatment – Sulphates* (Action Item # 12) (*Attached as Appendix A);*
8. Giant Mine Project Team structure (Action Item # 13);
9. *Financial Resource Requirements for the Giant Mine Remediation Project* (Action Item #16 and 17); (*Attached as Appendix B);*
10. AANDC Directive on Records Keeping (Final Draft) (Action Item #20);
11. Report: *Consideration of Long Term Risks* (Action Item #21);
12. Report: *Giant Mine Tailings Cover Trials, 2010 Data Summary (SRK/Senes, December 2010)* (Action Item #24);

13. Memo: Exposure to Members of the Public Using Ingraham Trail from Air Emissions During GMRP (Senes, July 30 2012);

14. Sludge Volume:

    As per a commitment made at the Pre Technical report workshop, the sludge volume generated by the water treatment process is estimated to be 6.3m^3 per day.

15. *Environmental Management System (EMS) Progress Report August 2012*;

16. *Site Stabilization Plan for the Giant Mine Remediation Project (October 14, 2011)* Note: *The attached copy of the Site Stabilization Plan was approved by the Minister of Aboriginal Affairs and Northern Development Canada on November 2, 2011. To ensure an open and competitive procurement process for the project, all of the cost related information in the plan has been omitted;*

17. Baker Creek Reports (5 reports);

18. *2012 Procurement Strategy for Giant Mine*; and

19. *Giant Mine Remediation Project (EA0809-001) – Long-Term Stewardship of the Giant Mine* (August 10, 2012).

The following items have yet to be finalized at which time they will be made available to the Parties.

1. Update on FOS Findings (Action Item #3): Findings from the FOS are still being evaluated by our technical team. This report will serve to update the Board and Parties on our current thinking about frozen block implementation methods. It will include a summary of the most recent analyses of the frozen blocks' long-term stability, and updates on engineering trade-off studies of wet block and dry block configurations, methods to achieve the bottom freeze, and selected freeze system components; and

2. Memo : Best Available Practical Technology for the Giant Mine Water Treatment Plant.

Should you require any additional information or have any questions please contact the Giant Mine Remediation Project Office at 867.669.2425.

Respectfully,

Adrian Paradis
A/Manager
Giant Mine Remediation Project
Aboriginal Affairs and Northern
Development Canada

Ray Case, Ph. D.
Assistant Deputy Minister
Corporate and Strategic Planning
Environment and Natural Resources
GNWT

APPENDIX A - Giant Mine Water Treatment – Sulphates

The Project Team submits the following information:

The water testing records for 2001 to 2010 from Giant Mine indicate a range of sulphate in the mine water. Ferric Sulphate is utilized in the existing plant and an increase in sulphate is reflected in the plant discharge quality records.

Table 1: Sulphate Levels from 2001 to 2010 from Giant Mine

Range of Sulphate Levels	Sulphate in Mine Water to Northwest Pond (mg/l)	Sulphate in Existing Plant Discharge (mg/l)
Low	< 0.50	928
Median	490	1160
High	877	1260

The amount of sulphate added to the plant discharge due to the ferric sulphate use will depend on the doseage rate used and the percentage of the sulphate that remains in a dissolved state. The doseage rate will vary with arsenic in the water and the portion of the sulphate that remains in a dissolved state in the plant discharge will be a function of overall water chemistry.

Assuming an arsenic concentration of 77 mg/l the bench scale work indicates a ferric sulphate doseage of 1500 mg/l. If 100% of the sulphate remains dissolved, and that would be a very conservative assumption, then 1070 mg/l would be added to the plant outflow.

Considerable detail design and pilot testing is required prior to plant finalization however it is likely that sulphate increases in the plant outflow will be similar to the increases recorded at the existing plant.

APPENDIX B - Financial Resource Requirements for the Giant Mine Remediation Project

Financial Resources Requirements

During the Pre-Technical Workshop the Giant Mine Remediation Project Team committed to providing a new cost estimate for the Remediation Project. Please see the updated costs from section 6.13.6 Financial Resource Requirements from the Developers Assessment Report.

Revised Table 6.13.4 Estimate of Total Costs – Implementation Phase

COMPONENT	SUBTOTALS (2007)	SUBTOTALS (2010)
Remediation Management	$63,000,000	$75,116,479
Care and Maintenance		
Baker Creek	$16,000,000	$18,135,314
Buildings, Hazardous Waste and Debris Disposal	$17,000,000	$57,354,523
Contaminated Soils	$13,000,000	$21,647,537
Freeze Systems	$127,000,000	$148,162,928
Highway	$5,000,000	$4,488,354
Pits	$3,000,000	$4,082,025
Shafts and Adits	$1,000,000	$5,359,021
Tailings and Sludge Ponds	$53,000,000	$52,777,237
Sub-Surface Work	$13,000,000	$27,104,667
Water Management	$31,000,000	$35,387,907
Subtotals	**$342,000,000**	**$449,615,993**