

Giant Mine Environmental Assessment

IR Response Template

INFORMATION REQUEST RESPONSE

EA No: 0809-001	Information Request No: Environment Canada #01
Date Received	
February 28, 2011	
Linkage to Other IRs	
YKDFN IR #09	
Date of this Response	
May 31, 2011	
Request	

Preamble:

The groundwater quality of Giant Mine has been assessed but never compared to guidelines and the DAR therefore does not report on the chemical quality of the groundwater. The DAR states that the groundwater concentrations measured on site are not compared to any guidelines as currently there are no regulatory criteria (guidelines) for groundwater in the Northwest Territories or the rest of Canada. The Federal Interim Groundwater Quality Guidelines for Federal Contaminated Sites were released by FCSAP in May 2010 for use on contaminated sites on federal land and should be used for comparison at Giant Mine.

Question:

Please compare the groundwater concentrations measured at Giant Mine to the Federal Interim Groundwater Quality Guidelines and provide the results of the chemical quality of the groundwater currently at the site. These guideline numbers should be used in the future to compare to sampled groundwater as well.

Reference to DAR (relevant DAR Sections)

DAR, s.7.2.4 Groundwater Quality

Reference to the EA Terms of Reference

TOR, s. 3.2.3 Description of the Existing Environment TOR, s. 3.6 Monitoring, Evaluation and Management







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Summary

The Giant Mine Remediation Plan (Remediation Plan) recommends parameters and their detection limits to allow for assessment of changes in the hydrogeochemistry due to remedial works or natural flushing due to groundwater movement over time. The results would be compared to historical data not the Interim Groundwater Guidelines for groundwater entering the receiving environment.

Response

The Interim Groundwater Quality Guidelines for federal contaminated sites as released by Federal Contaminated Sites Action Plan (FCSAP) in May 2010 apply to groundwater entering the receiving environment. The groundwater within the Giant Mine induced hydraulic capture zone reports to a water treatment plant before being discharged into the receiving environment. Currently no groundwater criteria apply to water reporting to the treatment plant.

However, detection limits were recommended in the Remediation Plan to allow for assessment of changes in the hydrogeochemistry due to remedial works or natural flushing due to groundwater movement. over time. These were presented in Table 7.1 of the Remediation Plan (SRK, 2007).

Parameter Name (Units)	Parameter Type	Detection Limit		Preparation Method		Test Method
Alkalinity (mgCaCO ₃ eq/L)	physical	0.1		none		SM2320:B
Conductivity, Specific (S/cm)	physical	0.4		none		SM2510:B
рН	physical	0.05		none		SM4500-H:B
Solids, Total Dissolved (mg/L)	physical	10		GF/C Filt.		SM2540:C
Solids, Total Suspended (mg/L)	physical	3		GF/C Filt.		SM2540:D
Calcium (mg/L)	major ion	0.1		none		SM4110:B
Cation/Anion Balance (mg/L)	major ion	na		Major Ion Detection		Calculated
Chloride (mg/L)	major ion	0.7		none		SM4110:B
Electroneutrality (mg/L)	major ion	na		Major Ion Detection		Calculated
Magnesium (mg/L)	major ion	0.1		none		SM4110:B
Nitrate as Nitrogen (mg/L)	major ion	0.01		none		SM4110:B
Nitrite as Nitrogen (mg/L)	major ion	0.01		none		SM4110:B
Potassium (mg/L)	major ion	0.1		none		SM4110:B
Sodium (mg/L)	major ion	0.1		none		SM4110:B
Sulphate (mg/L)	major ion	1		none		SM4110:B
Ammonia as N (mg/L)	nutrient	0.005		none		SM4500-NH3:G
Nitrate + Nitrite as Nitrogen (mg/L)	nutrient	0.01		none		SM4110:B
Arsenate (μg/L)	other	5		none		SM3113:B
Arsenite (µg/L)	other	5		none		SM3113:B
Inorganic Carbon, Dissolved (mg/L)	other	0.5		GF/C Filtration		EPA415.1
Organic Carbon, Dissolved (mg/L)	other	0.5		GF/C Filtration		SM5310:B
Metals		Total	Dissolved	Total	Dissolved	
Aluminum (mg/L)	metals	0.03	0.0006	Acid Digest	(0.45 µm filt.)	EPA200.8
Antimony (mg/L)	metals	0.0001	0.0001	Acid Digest	(0.45 µm filt.)	EPA200.8
Arsenic (mg/L)	metals	0.0002	0.0002	Acid Digest	(0.45 µm filt.)	EPA200.8

Table 7.1: Proposed Analyte List for Surface and Groundwater Samples





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Digest (0.45 μm filt.) EPA200.8
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Reference:

SRK Consulting Inc. 2007. *Giant Mine Remediation Plan*. Prepared for Indian and Northern Affairs Canada.



