



Giant Mine Environmental Assessment

IR Response

Round One: Information Request - Environment Canada #08

June 17, 2011

INFORMATION REQUEST RESPONSE

EA No: 0809-001

Information Request No: EC #08

Date Received

February 28, 2011

Linkage to Other IRs

Date of this Response

June 17, 2011

Request:

Preamble:

The DAR states that underground mine water flow is controlled by climatic conditions and that the Northwest Pond represents the largest input of seepage into the mine.

Question:

Please provide monitoring data from the underground sampling locations to support this statement and to illustrate changes in flow over time.

Reference to DAR (relevant DAR Sections)

S.5.7.1 Underground Mine Water

Reference to the EA Terms of Reference

S.3.2.3 Description of the Existing Environment

Summary

Data collected between 1998 and 2004 indicate a constant seepage of approximately 800 m³/day from Northwest Pond.

Response

Seepage rates from Northwest Pond to the underground workings were assessed by Golder Associates as part of the tailings management plan for the Giant Mine when operated by Royal Oak Mines. At the time, the seepage losses were estimated to be 698 m³/day (Golder, 1999). This estimate was based on surveyed water levels taken between January and April 1998, during which time evaporation and



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precipitation losses/gains would be zero. The measured tailings and water volume added to the pond was compared to the storage capacity curve for the Northwest Pond and used to determine seepage losses.

This work was updated in 2002 (SRK, 2002). Infiltration to the mine was estimated based on measurements of mine water flow in the ditches during the mid-winter months when frozen ground conditions would prevent infiltration except under large water bodies such as the Northwest Pond. Results of this study estimated a range of 220 to 700 m³/day seeping in from the pond.

Additional mine water flow data collected between April, 2001 and December, 2004 revised the direct seepage estimate from Northwest Pond to 800 m³/day. This value correlates well with the two previous estimates of 698 m³/day and (up to) 700 m³/day.

References:

Golder Associates Ltd., 1999. *Tailings Management Plan, Giant Mine, Yellowknife, NWT*. Report No. 982-2449 submitted to Royal Oak Mines Inc. January 1999.

SRK Consulting Inc., 2002. *Giant Mine Hydrogeology*. Prepared for Indian and Northern Affairs Canada. (Giant Mine Remediation Plan Supporting Document C1).

SRK Consulting Inc., 2002. *Update to Supporting Document 2*. Prepared for Indian and Northern Affairs Canada. (Giant Mine Remediation Plan Supporting Document C2).