



Giant Mine Environmental Assessment IR Response

Round One: Information Request - City of Yellowknife #08

May 31, 2011

INFORMATION REQUEST RESPONSE

EA No: 0809-001

Information Request No: City of Yellowknife #08

Date Received:

February 28, 2011

Linkage to Other IRs:

YKDFN IR #03

Alternatives North IR #11

Date of this Response:

May 31, 2011

Request

1. Under the heading "Is Further Consideration Req'd? When?" in Table 8.4.2 for activity "Earthworks" the table indicates "yes" but only during the detailed design phase and in preparation of the environment management plan. Under the same heading for the activity "Discharge of Treated Minewater to Great Slave Lake" the table indicates "no". Given the sensitivity of Baker Creek and Yellowknife Bay, why wasn't establishing a long-term monitoring program to ensure there were no negative impacts created by the proposed activities given consideration? Do reports or studies exist that guarantee such activities will be successful with no adverse effects? If so, please provide copies.
2. Please provide confirmation based on the dewatering operations proposed that the intent of the remediation is to eliminate the formation of "pit lakes"?

Reference to DAR (relevant DAR Sections):

S.8.4.2.5 Residual Effects

S.8.4.3.2 Summary of Interactions

Reference to the EA Terms of Reference

S.3.5.2 Fish and Aquatic Habitat

Response 1 Summary





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The Giant Mine Remediation Project is anticipated to result in overall improvements to the environment of Baker Creek. In particular, shifting the treated minewater discharge point from Baker Creek to Great Slave Lake will reduce chemical loadings to the creek. Although this may result in Baker Creek drying up during the summer months, this is not viewed as an adverse effect because flows within the creek will be returned to a more natural condition (both in terms of chemical quality and hydrology). A comprehensive monitoring program will be put in place to verify the performance of the Remediation Project in this regard as outlined in Table 14.2.1 of the Developer's Assessment Report (DAR).

Response 1

As indicated in Section 8.4.2.3 and Table 8.4.2, the remediation plan will result in a net improvement in hydrological conditions by returning Baker Creek to a more natural condition when the current practice of discharging treated minewater to the creek is stopped. However, it is recognized that short-term and minor adverse effects to hydrology could occur during construction activities unless effective mitigation is put in place (e.g., excessive sedimentation and/or erosion affecting flows in Baker Creek). The detailed design phase for Baker Creek and the Environmental Management Plans will be used to ensure that effective mitigation is put in place to limit the potential for such impacts.

With regard to the discharge of treated minewater to Great Slave Lake as opposed to Baker Creek, that activity will result in the deliberate (and positive) effect on the hydrology of Baker Creek. As indicated in Table 8.4.2, further consideration of this positive effect on hydrology is not considered necessary (i.e., because it is a positive effect, not adverse). Nonetheless, further consideration of potential effects on aquatic habitat and biota of changing hydrology is described in Section 8.7.2.3 of the DAR. Specifically, the elimination of the volumetric flows associated with the current treated minewater discharge to Baker Creek warrant consideration. This is particularly important during late summer months when, based on current conditions, the discharge of treated minewater often represents the majority of flow within the creek. As indicated in Table 8.7.2, it was concluded that flows associated with the current discharge to the creek are not relevant to Arctic grayling use of the creek as spawning habitat. A similar relationship is expected to apply to other spring spawners such as longnose and white suckers, and northern pike. However, there is a potential that benthic invertebrates, resident fish species (e.g., ninespine stickleback) and any species spawning late in the summer would be affected during years in which natural flows reduce to low levels following movement of the discharge point. This is not considered to be an adverse Project effect because the creek will be returned to a more natural condition.

To summarize, as indicated under the heading "Discharge of treated minewater to Great Slave Lake" in Table 8.7.2 of the DAR, residual adverse effects are not anticipated to be caused by shifting the treated minewater discharge point from Baker Creek to Great Slave Lake. However, the table also indicates that this issue will be evaluated further during the "Detailed design phase of Baker Creek".

With regard to the question "why wasn't establishing a long-term monitoring program to ensure there were no negative impacts created by the proposed activities given consideration?" this issue is dealt with extensively in Chapter 14 of the DAR which describes the comprehensive Environmental Monitoring program that will be established. The program will be used to: a) verify the conclusions





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presented in the DAR that adverse effects are not anticipated; and b) identify any emerging adverse environmental trends so that appropriate actions can be taken. As shown in Table 14.2.1, Baker Creek will represent a major component of the program. The City of Yellowknife (as well as other interested parties) will be appraised of monitoring results through the issuance of publicly available reports.

The IR also asks whether reports or studies exist that guarantee such activities will be successful with no adverse effects. As described in Section 7.4.3, a number of studies have been conducted over the last 10 years to characterize aquatic biota and habitat within Baker Creek. This includes multiple studies reviewing habitat usage within the realigned Reach 4 which have been provided as supporting documents to the DAR. The investigations carried out on Reach 4 demonstrated that Baker Creek can be successfully remediated to support Valued Ecosystem Components that use the creek.

Response 2 Summary

As described in the DAR, there is no intention to allow the formation of pits lakes. To ensure this is the case, the water level in the mine will be maintained below the bottom of the lowest chamber which is well below the base of all pits.

Response 2

Arsenic concentrations in minewater are anticipated to remain elevated for many years to come (as described in Chapter 6 of the DAR). Therefore, it was determined that it would be environmentally unacceptable to let the pits flood. On this basis, the mine will remain dewatered below the base of all pits and, as a consequence, the potential effects associated with the formation of pit lakes have not been evaluated in the EA. In the future, if INAC determines that the formation of pit lakes is desirable both from an operational and ecological perspective, separate regulatory authorizations would need to be obtained. Such authorizations would require appropriate consultation with interested parties.

