



Giant Mine Environmental Assessment

IR Response

Round One: Information Request - Review Board #23

June 17, 2011

INFORMATION REQUEST RESPONSE

EA No: 0809-001

Information Request No: Review Board #23

Date Received

February 14, 2011

Linkage to Other IRs

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June 17, 2011

Request

Preamble:

In reaching its predictions about the significance of impacts, the developer considered whether the magnitude, duration, or spatial extent were ranked "low". If any one was, the developer did not consider the frequency, probability, reversibility, VC ecological importance, or VC social value for any predicted impacts. These are latter criteria are not necessarily secondary considerations. For example, with the method used, a highly probable impact on a highly valued component, with high magnitude and high spatial extent would automatically be considered "not significant" if duration is low.

Question:

1. Please explain the detailed reasoning behind using only three of seven criteria to evaluate the significance of most predicted impacts.
2. Please provide an updated Table 12.3.1 in which a ranking of "high" in any of the "Primary Criteria" results in consideration of the remaining criteria.

Reference to DAR (relevant DAR Sections)

S.12.2.2 Significance Determination

"If any of the Primary Criteria (magnitude, spatial extent or duration) was assigned a "low" ranking, then the residual effects would immediately be considered a minor adverse effect (not significant)".

Reference to the EA Terms of Reference

S.3.1 Considerations

"... the developer must apply the impact prediction criteria in the Review Board's EIA Guidelines.... The developer will provide its views on the significance of predicted impacts..."





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Response 1 Summary

The evaluation of significance was conducted as a two-step process to ensure that a focus was placed on those evaluation criteria that have the greatest potential to influence the significance of a residual effect.

Response 1

Environmental Assessment (EA) specialists use a variety of methodologies to assess significance. While none of the methodologies have been universally accepted as the standard approach, the methodology used in the Developer's Assessment Report (DAR) has been applied extensively as an effective tool for screening significant effects. For example, the approach has been used by SENES on high profile nuclear and uranium mining projects.

The rationale for using a two-step screening process is that some criteria are implicitly more important than others in determining significance. The selection of these "primary" criteria, which include *Magnitude*, *Spatial Extent* and *Duration*, was based on the degree to which they influence the significance of an effect. All other criteria were classified as "secondary". The first step in the evaluation of significance is, in essence, a preliminary screening to determine if the rankings for the primary criteria are sufficiently high to potentially result in an adverse effect. In situations where such a potential exists, the ratings for the secondary criteria are evaluated to determine whether the effect is likely to be significant. However, if the ratings are not sufficiently high for the primary criteria, there are no scenarios in which a significant effect would occur, regardless of the ratings for the secondary criteria.

Notwithstanding the fact that only three of the seven criteria were classified as primary, Table 12.3.1 provides an evaluation of every residual effect against all seven criteria. While the two-step process was not required based on the methodology outlined in Section 12.2.2, the other criteria have already been evaluated.

Response 2 Summary

None of the identified residual effects is considered to be significant.

Response 2

In determining significance, it is necessary that at least one of the three primary criteria be rated as "high" in order for there to be any possibility for a significant adverse effect. In addition, the methodology specifies that the other two primary criteria would need to be rated as either a "medium" or "high" to be advanced to the second step of the evaluation. In other words, if any one of the primary criteria is rated as "low" the residual effect would automatically be classified as being not significant.

The Review Board has requested that the methodology be adjusted to require that any residual effect be advanced to the second stage of the evaluation if only one of the primary criteria is rated as "high". This was based on an example involving a residual effect with high magnitude and high spatial extent





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being classified as “not significant” if the duration of the effect is low. Although such an effect may be perceived as significant due to the influence of magnitude and spatial extent, a low duration effect indicates that the system would rapidly recover. Fundamentally, the rapid recovery of the environment implies that the effect is not significant.

Based on the above, the Giant Mine Remediation Project Team (Project Team) is not aware of circumstances under which a residual effect could be significant if one or more of the primary criteria are rated as low. Nonetheless, in response to the Review Board’s request, we have revisited the evaluation presented in Table 12.3.1 and identified the following eight residual effects that were assigned a rating of “high” for one or more of the primary criteria:

- I. Treated minewater discharged from the diffuser will exceed the CWQG –FAL guideline for arsenic within a small volume of water.
- II. The discharge of treated minewater will alter the thermal conditions of the water column in the vicinity of the diffuser.
- III. Mobilization of contaminated soils, sediment and pore water during earthwork activities.
- IV. Mobilization of contaminants during construction of the diffuser/outfall.
- V. Increased contaminant loadings in the vicinity of the diffuser in Yellowknife Bay (Great Slave Lake).
- VI. Localized loss of permafrost
- VII. The demolition of existing surface infrastructure and buildings may eliminate existing terrestrial habitat.
- VIII. Buildings and surface infrastructure that have heritage value may be demolished as part of Project implementation.

It is important to note that the following primary criteria ratings were assigned to every one of residual effects identified above:

Magnitude = Low

Spatial Extent = Low

Duration = High

Although each of the residual effects was rated as having a high duration, the magnitude and spatial extent of each effect was also determined to be low (i.e., low, low, high). The Project Team cannot conceive of a situation in which an effect of low magnitude, low spatial effect but high duration would be significant. On this basis, the previous conclusion that the Remediation Project will not have significant effects on the environment has not changed.

In addition to the above, it should be emphasized that the assessment of significance presented in the DAR evaluated individual residual effects in isolation, without acknowledging the “net effect” of the project as a whole. This is particularly challenging for remediation projects which are intended to achieve positive effects. Instead of considering the contributions of these positive effects, assessments of significance focus exclusively on adverse effects that are, in relative terms, inconsequential. For example, with regard to the new treated water outfall in Great Slave Lake, this change represents a



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significant improvement in the overall environmental conditions relative to baseline conditions (i.e., the discharge of treated mine water to Baker Creek). Unfortunately, EA methodologies for the assessment of significance are not amenable to looking at the overall net benefit of the project.