



Environment  
Canada

Environnement  
Canada

Environmental Protection Operations  
Room 200 – 4999 98 Ave  
Edmonton, AB T6B 2X3

December 15, 2009

Lisa Dyer  
Project Manager  
Public Works and Government Services Canada  
Greenstone Building  
Suite 420, 4th Floor, 5101-50th Ave  
P.O. Box 518  
Yellowknife, NT  
X1A 2N4

**Re: Tier 2 Risk Assessment Giant Mine Remediation Plan (SENES, 2006) review request**

Ms. Dyer,

The following advice and information is provided in response to Environment Canada's commitment to review the Tier 2 Risk Assessment Giant Mine Remediation Plan (January 2006) and additional supporting documents as determined at the Baker Creek Workshop Follow-Up Meeting on November 26, 2009. The comments detailed below are provided within the context of an expert support review of information pertaining to federal contaminated sites funded through the Federal Contaminated Sites Action Plan (FCSAP). Please note that as expert support within the FCSAP program we have no authority to accept work plans or authorize work; our role is to provide advice on the project design to assist you in developing a design that is likely to meet your objectives.

General comments:

1. The Tier 2 Risk Assessment Giant Mine Remediation Plan (SENES, 2006) was finalized in January 2006. There have been many additional studies completed on this site since this report was released that support or refute the results of this risk assessment in regards to fish and benthic invertebrates. It is recommended that the report is updated to include these additional lines of evidence, that all of the current available information is included within this report. When this report includes all of the available and up to date information about the site, the most informed conclusions and decisions can be drawn with respect to remedial options at this site. This report states that more weight is given to field studies than modelled risk assessment results so any additional study information that can be included will help to confirm risk to the ecosystem.



2. A background or sediment quality benchmark concentration needs to be chosen for arsenic in sediment at this site. There are many guidelines suggested in the risk assessment however for the risk to be characterized more clearly a specific number should be chosen. This number will also help when determining remedial options for this site.

Specific comments:

3. The risk assessment was completed using a bioaccessability of arsenic of 17%. This number was based on the results of earlier studies, however an additional study completed by Jacques Whitford (2005) suggests that this number should be  $56 \pm 30\%$ . This additional information should be taken into account when the risk assessment is updated and a re-evaluation should take place to determine the most appropriate bioaccessability percentage at this site.
4. The TRV for birds is based on an endpoint of mortality for a mallard duck. If the data is available and appropriate it is recommended that a more sensitive endpoint than mortality be used in this risk assessment. The U.S. EPA has developed Ecological Soil Screening Levels for Arsenic that includes a TRV for avian species based on reproduction, growth or survival.  
[http://www.epa.gov/ecotox/ecossl/pdf/eco-ssl\\_arsenic.pdf](http://www.epa.gov/ecotox/ecossl/pdf/eco-ssl_arsenic.pdf) The studies used to develop this number should be assessed to determine if a TRV for this risk assessment can be developed based on a more sensitive endpoint than mortality such as reproduction or growth.
5. A comment made by Environment Canada in an earlier review of the risk assessment, and mentioned in the 2006 version, recommended the use of a 90% protection level and therefore an  $EC_{10}$  for aquatic species. This was recommended over the  $EC_{25}$  and 75% protection level currently used in the risk assessment. Environment Canada maintains this recommendation and again suggests updating the risk assessment using only this protection goal and only including the screening index values calculated using this recommended protection goal.

The information and/or advice is not intended to replace obtaining your own independent scientific, technical and legal advice as to how to establish your own contaminated site risk management plan, how to remediate your contaminated site, and how to comply with federal or provincial environmental law. The Department of the Environment assumes no responsibility or liability of any kind regarding any decisions you make as to how you comply with that law.

Please feel free to contact myself if your have questions or comments regarding this material.

Sincerely,



Environment  
Canada

Environnement  
Canada

## **Amy Sparks**

Contaminated Sites Officer | Agente des Sites Contaminés

Contaminated Sites | Sites Contaminés

Environmental Protection Operations Division | Division des activités de protection de  
l'environnement

Environmental Stewardship Branch | Direction générale de l'intendance environnementale

Environment Canada | Environnement Canada

#200, 4999–98 Avenue | 4999, 98e avenue, bureau 200

Edmonton (Alberta) T6B 2X3

[amy.sparks@ec.gc.ca](mailto:amy.sparks@ec.gc.ca)

Telephone | Téléphone 780-951-8746

Facsimile | Télécopieur 780-495-2444

Government of Canada | Gouvernement du Canada

Website | Site Web [www.ec.gc.ca](http://www.ec.gc.ca)

cc. Jody Klassen, EC  
Savanna Levenson, EC  
Morag McPherson, DFO