

## Draft Individual Review Form

**Proposal number: 2001-F202-1**

**Short Proposal Title: Pilot Demonstration of  
Passivation Technology**

**1a) Are the objectives and hypotheses clearly stated?**

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The objective and hypothesis are clearly stated with the exception that the chemical process resulting in passivation is not adequately described

**1b1) Does the conceptual model clearly explain the underlying basis for the proposed work?**

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Too little detail is presented on the passivation mechanism by each of technique regarding the extent (e.g. thickness) of oxide coatings formed. This is critical to evaluating or estimating the longevity of the treatment process. Likewise, the lab tests conducted to date are of limited duration relative to required lifetime for a remedial application.

**1b2) Is the approach well designed and appropriate for meeting the objectives of the project?**

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Overall, the approach is adequately designed to meet the objectives of the project. However, the lab tests with the treated material concurrent to the field pilot demonstration should be conducted prior to attempting the large-scale test. Specifically, the effect of other AMD waters on the durability of the passivated material is critical to the success of the treatment.

**1c1) Has the applicant justified the selection of research, pilot or demonstration project, or a full-scale implementation project?**

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Selection of the field demonstration site is adequate as the need for reducing or eliminating sulfide oxidation.

**1c2) Is the project likely to generate information that can be used to inform future decision making?**

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Results of both lab and field study will assist in evaluating the performance of this treatment method for use at other acid-generating mine-waste sites.

**2a) Are the monitoring and information assessment plans adequate to assess the outcome of the project?**

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Overall, the monitoring and assessment plans are adequate for assessing project performance. However, the longevity of the remediation in excess of the planned 1-year and the effect of changes in water chemistry encountering the test pads should be addressed to fully evaluate performance.

**2b) Are data collection, data management, data analysis, and reporting plans well-described, scientifically sound and adequate to meet the proposed objectives?**

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

There was little information provided on data collection, management, analysis and reporting plans to adequately evaluate. For example, nothing was presented on analytical methodology, QA/QC, or data management.

**3) Is the proposed work likely to be technically feasible?**

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The field demonstration likely can be undertaken as described. However, it was not clear that the methods of application of chemical solution would reach all surfaces in the pile to result in effective passivation. This may be difficult to achieve and may require much larger volumes than described or may require some mixing of the 50-100 tons of tailings for adequate contact. Preliminary testing is required.

**4) Is the proposed project team qualified to efficiently and effectively implement the proposed project?**

Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The project team appears to have extensive experience in AMD systems.

**Miscellaneous comments**

[Note: in the electronic version, this will be an expandable field]

I recommend that the study be conducted in two phases with the lab component as planned conducted during the first year and evaluated to address the questions it poses prior to the field scale pilot demonstration. This is largely because the preliminary work is not of sufficient duration to cover the effects of AMD water contacting the passivated waste rock, both critical to the performance and design.

The effect of reductive dissolution of the oxide coatings warrants study

particularly if the passivated material is to be vegetated. In addition, the 9-month study following revegetation seems inadequate in duration.

Assay of microbial activity of the material from each of the three different treatments would be of value since the oxidation process is thought to be microbial enhanced. Does the passivation effectively eliminate these organisms and how long does this process take?

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**Overall Evaluation  
Summary Rating**

- Excellent
- Very Good
- Good
- Fair
- Poor

**Provide a brief explanation of your summary rating**

[Note: in the electronic version, this will be an expandable field]

good to very good.

The approach appeared sound but could be expanded as noted. The preliminary study was not conducted at a sufficient level of detail to warrant conducting the field demo concurrently with the planned more extensive lab tests.

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