

**BLM Responses to EPA and ADEC Comments
Solidification Treatability Study
Bench Scale Phase**

EPA Comments on the Draft Treatability Study Technical Memorandum

Specific Comments:

There was one Mercury TCLP result that was right at the TCLP criteria of 0.2 mg/L (ppm). Upon looking over the lab reports, even though the mercury TCLP data were flagged for blank contamination, the lab method blank value of 0.0283 ug/L (ppb) was barely detectable and below the Reporting Limit of 0.2 ug/L (ppb). The only Mercury TCLP result that would potentially be impacted by the blank contamination would be for sample RDM-CS03-05 (0.00013 mg/L, or 0.13 ug/L). All other Mercury TCLP results should be usable as reported.

Response: BLM acknowledges EPA's observation regarding sample RDM-CS03-05. Based on the results for all other samples included in the study, solidification appears technically feasible for RDM tailings. BLM assumes that EPA concurs with that overall conclusion.

Editorial Comments:

P. 3, Pilot Test Sample Preparation. The text states that samples 13TS01 and 13TS03 had the greatest arsenic concentrations. Table 1 states the arsenic concentration in 13TS02 is 7,700 mg/kg which is greater than the 6,700 mg/kg concentration of arsenic in 13TS03. However, the reviewer does not disagree with the samples chosen for the treatability study since they do contain the largest concentration of mercury.

Table 3 should have the reporting units added (mg/L).

Response: Reporting units will be added to Table 3

Table 2-3 Footnote

On January 22, 2014, E&E distributed the following revised footnote text:

The arsenic RG for tailings/waste rock and soil represents the background value, therefore the residual excess lifetime cancer risk at the site will exceed ADEC's standard of 1 in 100,000. While the arsenic RG does not include cumulative risk from exposure to arsenic in other media at the site, the RG is within the risk range of 10^{-4} to 10^{-6} .

On January 31, 2014, DEC distributed the following proposed revision to the January 22 footnote text:

EPA and DEC met on Jan. 30th to discuss the issue of carcinogenic cumulative risk at the site. DEC regulations specify that cumulative risk should not exceed 1×10^{-5} across all exposure pathways across all media. Thus, the arsenic risk needs to be evaluated for soil, Red Devil Creek sediment, and groundwater, together.

We recognize that this area is a naturally-mineralized zone with background concentrations of arsenic which exceed the cumulative risk level. However, when reviewing the carcinogenic risk from the various media as calculated in the risk assessment, it is clear that the risk from the contaminated groundwater far surpasses the other media. When this situation occurs in a mineralized area, the typical risk management decision is to reduce the risk as much as possible from the other pathways - setting RGs at background levels.

The arsenic remedial goal for soil is currently proposed for background at 28.6 mg/kg. We believe that this is appropriate. The RG in groundwater is not being proposed at this time, however the background concentration is 13 ug/L compared to the EPA and DEC MCLs of 10 ug/L. The RG for the Red Devil Creek sediment is proposed as 130 mg/kg based on a 10^{-5} risk for future residents. We believe this additional risk on top of that from the groundwater can and should be reduced. Although the background concentration for Red Devil Creek sediment is 1.1 mg/kg, we recommend using the soil background concentration of 28.6 mg/kg as the cleanup will likely remove the creek sediments down to the native soil. If that assumption is incorrect we will need to discuss this issue further.

In addition, the following footnote should be added to the table: "The arsenic RGs for tailings/waste rock, soil, and Red Devil Creek sediment represent the naturally-occurring background values for soil. As the background concentrations are higher than the calculated risk-based levels, the residual excess lifetime cancer risk at the site will exceed ADEC's standard of 1 in 100,000."

BLM's response to the position on cumulative risk and Red Devil Creek sediment is summarized in the attached email from Doug Cox/BLM Risk Assessor