REVIEW COMMENTS

PROJECT: BLM Red Devil Mine **DOCUMENT:** Draft RI Work Plan Supplement

DATE: 3/9/15 **REVIEWER:** Anne Marie Palmieri **PHONE:** (907) 766-3184

Item No.	Location (page, par., sen.)	COMMENTS	Contractor Response
1.	Page 2-15, section 2.3	Line 7-8 states that there hasn't been a NTCRA post-construction report submitted. According to BLM, there won't be a report developed. Please revise the wording here (and elsewhere in the report that this reference is made) to clarify.	**BLM Response:** The Work Plan will be revised per this comment.
2.	Page 2-18, Section 2.4	Are there BLM reports currently being drafted which present results and findings of the 2014 periphyton sampling event and the 2012 and 2013 follow-up work? What is the expected release date of these reports?	**BLM Response:** The BLM is not planning to prepare a report specific to the 2014 periphyton data collection effort. The results will be incorporated into the Supplemental RI report and analyzed as part of the larger data collection effort for the Kuskokwim River. The raw data are currently undergoing QA review. A copy of the reviewed data can be made available upon request.
3.	Page 3-7, Section 3.3, Kuskokwim River Sediments	This would also be a good opportunity to run an additional bioassay test to determine bioaccumulation of metals from the sediment locations. There is a 28-day oligiochaeate test (EPA Methods for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Freshwater Invertebrates guidance (http://water.epa.gov/polwaste/sediments/cs/upload/freshmanual.pdf), or perhaps there is another test that would give the same information and is more appropriate. We do want to know the toxicity of the sediment (mortality, growth, and reproductive effects), but we also need to how bioavailable the metals in the various locations are.	**BLM Response:** Based on the additional comments provided by the EPA on May 13, 2015 and agreement reached during the May 28, 2015 comment resolution call, the BLM will not collect samples for bioaccumulation testing. Instead, selected sediment samples will be analyzed directly for methylmercury content to provide information on the potential for bioaccumulation of mercury for sediment. Please see BLM's response to additional comments provided by the EPA on May 13, 2015 regarding evaluation of potential bioaccumulation of mercury for Kuskokwim River sediment (Use of 28 Day Hyalella Toxicity Test vs a 42 Day Test, Mercury Bioaccumulation Toxicity Test).

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4.	FSP, Page 2-9, Section 2.4	The proposed sample collection method is a blind grab sample based on past analytical data using a GPS to identify the former sample location. We recommend using field screening methods (such as: XRF and DeltaTox II) in order to determine the sample locations in the field with the highest concentrations. One method would be to collect several samples in the area of the former location and then select the one with the highest concentrations.	**BLM Response:** The use of field screening to determine sample locations is not consistent with the planned approach presented in the Work Plan. As discussed during the May 8, 2015 comment resolution call, the proposed sample locations were selected based on RI sediment sampling results and are biased toward locations where: • Larger proportions of finer grained materials (sand size and smaller) are expected to be present (to facilitate sample collection); • TOC concentrations are expected to be fairly similar; and • A wide range of total antimony, arsenic, and mercury concentrations are expected to be present. Although this is location selection approach is presented in the Work Plan, the Work Plan will be revised to make the approach more clear. Also, a new figure and table summarizing RI Kuskokwim River sediment sample locations and results will be included in the final Work Plan.
5.	Page 2-9, Section 2.5	What type of QC will be performed on the toxicity tests? On other sites, we have seen replicate tests performed to ensure that the conclusions drawn have a smaller chance of error. The QAPP does not address this either.	**BLM Response:** BLM will conduct a 28-day toxicity test with *Hyalella azteca*. For this test, the acceptability and QC requirements specified in USEPA (2000) will be adhered to (see Tables 12.3 and 14.3 for *Chironomus* and *Hyalella*, respectively). The final work plan will refer to USEPA (2000) for this information and provide a summary. The work plan does not specify collecting a field duplicate sample for sediment toxicity because USEPA (2000) specifies that the toxicity tests be run in replicate in the lab (eight replicates for routine testing with *Chironomus* and up to 12 replicates for long-term tests with *Hyalella*). Given that each test will be replicated in the lab, we posit that including a field duplicate sample is unnecessary for sediment toxicity.

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6.	Table 2-1, Sample Selection Criteria	This table states that the sample with the highest mercury XRF reading will be selected for laboratory analysis. We recommend that this process be revised to include evaluation of field screening results for both arsenic and antimony. The background mercury concentrations have historically been fairly low, and inclusion of other metals may provide for a more informed decision.	**BLM Response:** The table will be revised to specify that XRF field screening data for arsenic and antimony, in addition to mercury, will be used to guide selection of samples for laboratory total metals analysis.
7.	Table 2-4	We suggest that additional sediment toxicity samples are conducted: 1) upriver from the Red Devil Creek delta, and 2) from a downriver location (or two) on the right bank. If needed, one or two samples could be removed from the currently proposed sample set. We believe that this would give a wider view of conditions in the Kuskokwim and how the conditions just downstream of the delta fit into the larger view of the river.	**BLM Response:** 1) Two sample locations upriver from the Red Devil Creek delta already are included in the study design for sediment toxicity (see FSP Table 2-4 and Figure 2-3) and will provide a view of river conditions not influenced by the mine. As stated the response to Comment #5, the sediment toxicity testing will consist of a 28-day test with *Hyalella Azteca* rather than a 42-day test with *Hyalella Azteca* as indicated in the draft Work Plan. 2) One of the sample locations planned for toxicity testing will be shifted to a downriver location on the right bank (KR0101).
8.	Figure 2-2	Are the locations of borings/wells in the SMA intended to give additional information which could be used in the modeling effort for the discussion of a new repository?	**BLM Response:** The soil borings/wells planned for the Surface Mined Area may serve to provide information on the area downgradient of the possible repository. However, it is expected that the planned hydrogeologic analysis will be completed prior to the installation and sampling of the wells.
9.	Figure 2-2	Are additional borings/wells needed downgradient of or near monofill 2 to give more information regarding potential migration of contamination within the monofill?	**BLM Response:** Please see response to EPA General Comment #1.
10.		--end--	