From:	Williams, Jonathan
To:	Sheldrake, Beth
Cc:	McDonnell, Kimberlee
Subject:	FW: FMC Request for ET Cap Remedial Design Change for RA-F1 and RA-F2
Date:	Tuesday, October 06, 2015 12:16:29 PM
Attachments:	Partial Approval for ET Cap RD-RA 8-7-15.pdf CBI RFIs for FMC OU 10-6-14.pdf

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FYI per our conversation this morning. I understand from a phone conversation with Rob and Marjo last Wednesday, Sept. 30, that FMC is working on a proposed ET cap design modification for RA-F1 and RA-F2.

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From: Williams, Jonathan
Sent: Wednesday, September 23, 2015 5:45 PM
To: 'Rob Hartman'; Marguerite Carpenter
Cc: Ed Greutert; Doug Tanner; Scott.Miller@deq.idaho.gov; Kelly Wright (kwright@sbtribes.com); susanh@ida.net; 'Wayne.Crowther@deq.idaho.gov'; Cliff Merrill; Tim.Norman@Akana.us; McDonnell, Kimberlee
Subject: FMC Request for ET Cap Remedial Design Change for RA-F1 and RA-F2

Rob and Marjo:

Thanks for the explanatory information in the e-mail below. I would like to clarify that when Cliff Merrill and I were onsite August 29, 2015 we asked why the trial plot ET cap was being constructed in a location where crushed slag had not yet been placed. In response, we were provided with the two attached Chicago Bridge and Iron (CBI) Requests for Information from October 2014. Those we visited with onsite appeared to consider this October 2014 internal communication between FMC contractors, and not EPA's August 2015 partial approval, as governing ET cap construction in RA-F1 and RA-F2.

As you know, on August 7, 2015 EPA provided a Partial Approval of the Soil Remedy Revised Pre-Final Remedial Design Report (RDR) and Revised Pre-Final Remedial Action Work Plan (RAWP) that included the approval for the design of the ET caps. A copy of this partial approval is attached. The approved portions of the pre-final RAWP includes reference to Figure 3-3 and a statement that both the capillary break and screened fill will be placed in RA F1 and RA F2 in advance of the construction of the soil layer component of the ET caps for these RAs.

Your e-mail requests an ET cap design change for RA-F1 and RA-F2 and provides some explanatory

information. EPA has reviewed this request in coordination with the Shoshone-Bannock Tribes and Idaho Department of Environmental Quality. In order to consider the requested design change, EPA requires that FMC demonstrate the proposed slag layer is comparable to the capillary break material to be placed below the soil layer in the EPA-approved ET cap design. This would include quantification of the qualitative description of "very tight with few pore spaces" and a comparison that would show an equivalent performance to the already approved ET cap design for RA-F1 and RA-F2.

The ET cap design as approved is for an engineered cover where the screened slag and capillary break are a manufactured product. There are quality assurance and quality control (QA/QC) measures used to verify the materials meet approved standards. FMC would need to demonstrate that the graded slag surface within RA-F1 and RA-F2 meets necessary construction standards and also identify how areas that might not meet required construction standards would be addressed.

FMC can construct the ET caps as approved August 7, 2015 within RA-F1 and RA-F2. Alternatively, FMC can submit a work plan for EPA review/approval that demonstrates the equivalency of the proposed design revision, and a proposed QA/QC plan to ensure that soil placement and compaction would meet the revised design criteria and original performance criteria. The work plan and revised design would need to be stamped by an engineer licensed in the state of Idaho.

Please let me know if you have any questions. Thanks.

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From: Rob Hartman [mailto:Rob.J.Hartman@mwhglobal.com]
Sent: Tuesday, September 15, 2015 10:40 AM
To: Williams, Jonathan
Cc: Ed Greutert; Doug Tanner; Scott.Miller@deq.idaho.gov; Kelly Wright (kwright@sbtribes.com); susanh@ida.net; Marguerite Carpenter
Subject: Information Regarding RA-F2 ET Cap trial plot and Response to CB&I RFIs 7 and *

Jonathan: During your visit to the site on August 29, 2015, you observed CB&I placing the ET cap trial plot at RA-F2 and requested additional information on the elimination of the requirement for the capillary break and screened slag layers at RA-F2. I understand that Parsons provided you an opportunity to review MWH's responses to CB&I's Requests for Information (RFIs) 7 and 8 that modified the requirement for placement of the screened slag and capillary break layers at RA-F2 and RA-F1. As you are aware, Specification 02222 (Earthwork and Grading) contained in Appendix C of the Pre-Final Remedial Design Report for the soil remedy (January and July 2015) requires that the Contractor construct a

minimum of a one-acre trial plot to determine the appropriate placement and compaction methods for achieving the required densities and thicknesses for the ET covers. The main objectives of the fill placement trial plot is to determine the loose lift thickness and number of passes of the low pressure dozer to achieve the required cover thickness and density for full-scale construction of the ET caps. The placement of the ET trail plot on RA-F2 will meet the trial plot objectives and was placed on the compacted slag surface that already meets the functionality of the screened slag and capillary break layers of the ET caps as described below.

As described in the Remedial Design (RD) for the soil remedy, the ET design includes placement of a 12-in layer of both screened slag and capillary break over the general fill in the RAs designated for ET caps. The purpose of the screened slag is to provide compatibility between the general fill surface and the overlying capillary break layer such that the capillary break layer does not filter into or embed in the underlying general fill. The coarse-grained slag capillary break layer functions by holding back the water in the fine-grained soil layer via capillary forces (air entry pressure). During MWH review of CB&I's RFIs 7 and 8, MWH's RD engineering manager conducted a site visit to observe the surface condition of the slag on RA-F including RA-F1 and RA-F2. Based on the site visit, it became apparent that the worked and equipment-compacted surface of the slag is very tight with very few pore spaces on the compacted surface. As a result, MWH concluded that loss of fines through the re-worked slag material would not be a concern and the screened slag layer would be superfluous (i.e., adding a slag layer on the compacted surface of the slag pile). The significant thickness of slag at RA-F1 (about 80 feet thick) and RA-F2 (20 to 100 feet thick) creates a very robust capillary break layer compared to the minimum 12-inch thick layer specified for the other RAs specified for the ET cap. The Pre-Final RD for the soil remedy inadvertently did not capture the modification indicated by MWH's responses to RFIs 7 and 8; however, this modification will be captured in the Final RD for the soil remedy. This modification of the specification to eliminate placement of the 12-inch screened slag layer and 12-inch capillary break layers at RA-F1 and RA-F2 does not apply to the other RAs designated for ET caps. Those RAs have heterogeneous fill materials, including fine-grained materials (e.g., pond solids), within and at the surface of the general fill which makes placement of the uniform screened slag and capillary break layers necessary prior to placement of the 30-inch soil layer of the ET cap. We would appreciate your expedited review and concurrence with this modification as the site-wide grading phase, including slag crushing and screening, is scheduled to be completed during the week of September 28.

Please call Marjo Carpenter at (215) 299-6210 or me at (801) 617-3256 if you have any questions. Thank you,

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