

ACTION ITEMS LIST
August 14, 2012 Meeting
NRC and ExxonMobil Environmental Services

Topic	Discussion Summary	Action Item	NRC Comments
Geology	<p>A. Slide 36 - ExxonMobil stated that a geologic framework model was developed as a visualization tool only. They also stated that there were no "new" boreholes or wells included in the geologic framework model and will include this clarification in the Request for Additional Information (RAI) response. NRC staff requested that this clarification should be included in any revisions to the license amendment request (LAR). ExxonMobil acknowledged that NRC staff was not requesting a "data dump" of the geologic framework model.</p> <p>B. None</p> <p>C. None</p>	<p>A. None</p> <p>B. Slide 37 – ExxonMobil will provide Northing and Easting information for LAR Figure 1-8.</p> <p>C. Slide 37- ExxonMobil will provide the location of the boreholes and well data in Figures 1-9 through 1-12 in the LAR.</p>	<p>A. None</p> <p>B. NRC staff note that there is a related question regarding the well location (RAI H3c). In LAR Appendix C, File: Monitoring Well Table.doc—the explanation related to Northing and Easting locations of the wells notes that "the datum for the MFG wells is WGS 84; the datum for the BBL wells is NAD83. The datum for the other wells is unknown." The licensee should explain how these inconsistencies were accounted for when representing these wells in figures in the LAR and supporting documents.</p> <p>C. None</p>

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Hydrology	<p>A. None</p> <p>B. None</p> <p>C. None</p> <p>D. None</p>	<p>A. Slides 6-10- In response to ExxonMobil's description of unique characteristics of well sampling at the site (i.e., low yields and other challenges) ExxonMobil agreed to provide this additional well pumping/sampling information in the next groundwater monitoring report.</p> <p>B. Slide 16-21 – During the discussion related to the ground water flow regime north of the Tailings Dam, ExxonMobil agreed to review and provide additional publically available data from neighboring ISR sites that support ExxonMobil's conclusion (on Slide 16) that "groundwater flow path in the OBSS is toward the lake, not to the north".</p> <p>C. Slide 32- In response to NRC request, ExxonMobil agreed to provide NRC the Hagmaier reference in their RAI response.</p> <p>D. ExxonMobil agreed to reassess their conceptual and numerical groundwater flow model for the site and develop a new model if necessary. ExxonMobil agreed to consider the following items</p> <p style="margin-left: 20px;">a. In response to NRC-led discussion about the lack of data supporting its assertion that Pit Lake is a hydrologic sink, ExxonMobil agreed to develop and submit a work plan addressing collection of additional data such as drilling additional monitoring wells that are screened in the Orebody Sandstone</p>	<p>A. None</p> <p>B. NRC staff note that this information should be used in the reassessment of the conceptual and numerical groundwater flow model for the site (See Item Hydro-D).</p> <p>C. None</p> <p>D. In general, NRC staff emphasized the lack of data to describe flow adequately in the OBSS layers within the proposed long-term surveillance boundary (LTSB). The characterization of current flow conditions in the OBSS is important for predicting the future conditions (200-1000 years) when the groundwater mound created by the tailings dam would have dissipated and the water table would be located in the OBSS layers. The location of new wells (that could be used as monitoring wells, Point of Compliance (POC), or Point of Exposure (POE) wells in future) and the layers that</p>

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Hydrology (cont.)	Cont. D. None	<p>(OBSS). ExxonMobil expressed concern that any collection of new data should support addressing closure of issues.</p> <p>b. In later discussion regarding the potential for “flow back” from recharge into the Tails Dam Sandstone (TDSS) and 50 Sandstone (50SS) (i.e., flow from east to the west to pit lake implying a potential lack of groundwater divide) which could result in a groundwater flow system that links the Pit Lake to the Southeast Drainage. Center for Nuclear Waste Analysis (CNWRA) staff emphasized the need to consider Pit Lake and Southeast Drainage together rather than two independent systems (RAI H9). There is no data in the OBSS south of the tailings dam that supports the existence of a groundwater divide.</p> <p>c. ExxonMobil agreed to consider NRC staff opinion that wells that dewatering wells open to all lithologic units (e.g., Wells 141, 47, 144, 136) that surround the Pit Lake cannot characterize the flow in the individual OBSS layers.</p> <p>d. In response to CNWRA questions, ExxonMobil agreed to provide an additional explanation for the noted elevation change in Well 176 (one of the POCs) in 2007 by almost 200 ft (Part of RAI H3). NRC staff also note that any responses to RAI H3 that change the water level information should be</p>	<p>should be screened should account for future conditions. Currently, most of the wells at the site are located around the tailings dam and are screened in the TDSS and not in the lower OBSS layers. The potential hydraulic linkage between the Pit Lake and Southeast Drainage should be evaluated in the assessment. The impact of any changes to understanding the groundwater flow conditions on the evolution of geochemistry at the site should be evaluated by ExxonMobil. NRC staff note that the location of the POCs and POEs in the revised LTSB should be consistent <u>with predicted future conditions</u>.</p>

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		accounted for in future analyses. e. ExxonMobil will consider using historic data from nearby sites to support its premining water levels.	

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Geochemistry	<p>A. Slide 10- NRC staff expressed reservations about the regression analysis used to explain the variations in water temperature and solute concentrations in Wells 129 and 128. The regression analysis used was not able capture the temporal aspect of the complex geochemical processes.</p> <p>B. Slide 11 - NRC staff expressed concern about the analysis used to support ExxonMobil's conclusion that "uranium concentrations in MFG-1 are not anticipated to increase in future".</p> <p>C. Slide 16 – NRC staff expressed concerns that there is limited data to define redox conditions at the site.</p>	<p>A. None</p> <p>B. None</p> <p>C. None</p>	<p>A. None</p> <p>B. None</p> <p>C. None</p>

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Hazard Assessment	<p>A. None</p> <p>B. None</p> <p>C. None</p>	<p>A. Slide 39 – ExxonMobil will conduct verification of microbiological sampling in response to RAI HAZ1.</p> <p>B. Slide 39 -In response to CNWRA question, ExxonMobil agreed to consider long term future conditions when providing the basis for ephemeral nature of the alluvial floodplain (re HAZ1 RAI).</p> <p>C. In response to CNWRA questions about ExxonMobil’s approach to addressing RAIs HAZ2 and HAZ4, ExxonMobil agreed to address potential exposure at locations beyond the shallow alluvial aquifer (i.e., inputs to downgradient surface water and potential uses there). ExxonMobil also agreed that the language referred to in RAI HAZ2 was not clear and would be clarified in the RAI response.</p>	<p>A. None</p> <p>B. CNWRA asked ExxonMobil if their basis for characterization of the alluvial floodplain as ephemeral addressed long-term future conditions.</p> <p>C. CNWRA noted the bullet on slide 40 suggesting institutional controls would limit access to the shallow aquifer in the Southeast Drainage and did not address the potential for exposure beyond the aquifer.</p>

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Corrective Action	<p>A. None</p> <p>B. None</p>	<p>A. Slide 41 –ExxonMobil agreed to provide technical bases for not evaluating corrective actions for the uranium exceedance at Well 175.</p> <p>B. Slide 42- ExxonMobil agreed to provide a reference for the 2009 survey of land prices (Exhibit 7 in Appendix E) that supports the licensee’s corrective action assessment in the LAR.</p>	<p>A. CNWRA described how the licensee is required to propose a corrective action program if groundwater protection standards at a POC well is exceeded. This is the basis for RAI CA1 because no related discussion was provided in the LAR for Well 175.</p> <p>B. None</p>
Environmental Assessment	<p>A. None</p> <p>B. None</p> <p>C. None</p> <p>D. None</p>	<p>A. Slide43 - ExxonMobil agreed to provide requested information listed in RAIs PA-1, LU-1, and LU-2.</p> <p>B. Slide 43- ExxonMobil requested a clarification of the term “site features” used in RAI LU-2.</p> <p>C. Slide 44 – ExxonMobil agreed to submit a work plan to collect additional data to assess potential risks to migratory birds in response to the NRC RAI.</p> <p>D. ExxonMobil agreed to have an offline discussion with P. Ramirez, the US Fish and Wildlife Service representative regarding the question of using molasses as an alternative approach to treatment of Pit Lake water</p>	<p>A. None</p> <p>B. NRC clarified the term “site features” referred in RAI LU2 as being any entity relating to land use on or adjacent the site (e.g., mineral rights, exploration) within 10 mile radius of the site that could be affected by or impact the proposed action.</p> <p>C. None</p> <p>D. None</p>