

### Mechanical Systems On-Site Review Summary

Participants: NRC                                 MOX Services  
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#### PURPOSE:

The purpose of this site visit was to gain a general knowledge of the Aqueous Polishing (AP) process, Mixed Oxide (MOX) Processing (MP), heating, ventilation, and air conditioning (HVAC), and the fluid support systems. The applicant has utilized a PDS 3-D full-scale computer model in order to facilitate their design, analysis, procurement, fabrication, and construction of the MOX Fuel Fabrication Facility (MFFF). The software also color codes similar process items. For example, the glove boxes are green, the process piping is gold, the HVAC system is red, and the electrical system is purple. The color coding greatly aided in quickly determining which part of the MFFF are being displayed.

#### SCOPE OF REVIEW:

An overview of the AP process was presented using a PowerPoint slide show that accompanied the PDS model (Enclosure 2). The presentation involved stepping through the AP process. The first slide started with the first process room that initially received the material. The presentation continued to follow the material until it reached the final AP process room that transferred the material to the MP. The presentation and model were coordinated in order to show the appropriate vertical or horizontal slices of each process room, as well as the methods for transferring material from each process room.

An overview of the MP process was presented using a PowerPoint slide show that accompanied the PDS model (Enclosure 3). The presentation involved stepping through the MP process. The first slide started with the first process room that received the material from the AP process. The presentation continued to follow the material until the MOX fuel assembly was packaged and ready for transport. The presentation and model were coordinated in order to show the appropriate vertical or horizontal slices of each process room, as well as the methods for transferring material from each process room.

An overview of the HVAC system was presented using a PowerPoint slide show that accompanied the PDS model (Enclosure 4). The presentation included the general purpose of the HVAC system and described the various containment levels at the MFFF. Specific detail was given about the ambient cell pressure levels and how they are based on operational experience at similar facilities in France. Also, a general overview of the high efficiency particulate air filters was presented.

**Enclosure 1**

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2

An overview of the fluid support systems was presented using a PowerPoint slide show (Enclosure 4). The fluid support systems consist of utilities, gases, and reagents. Each system purpose was described along with any accompanying items relied on for safety (IROFS).

SPECIFIC ITEMS DISCUSSED:

The meeting closed with a discussion about the next vertical slice review. NRC staff stated that the next vertical slice review will consist of reviewing the Plant System Safety Components (PSSC) to IROFS comparison sheet. IROFS details and boundaries will also be reviewed. Support calculations for the emergency diesel generator fuel oil system will be reviewed. NRC staff also stated how helpful the PDS model was in visualizing the MFFF and how helpful the staff was in providing the overviews presentations and answering questions.

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