

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 30, 2009

TO: Timothy Dwyer, Technical Director
FROM: Donald Owen and David Kupferer, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending January 30, 2009

ORNL Building 3019/Uranium-233 Disposition. DOE-ORO and Isotek personnel discussed efforts under the Uranium-233 Downblending and Disposition Project with the staff and site rep. this week. Recent information evaluated by DOE-ORO and Isotek indicates that most of the downblended material product will be well below the transuranic waste threshold and can be disposed as low-level waste. Additionally, Isotek had reevaluated the intended processing of the downblended uranyl nitrate solution. As a result, Isotek is proposing to DOE-ORO to change the process from high-temperature thermal conversion to uranium oxide to a low-temperature drying process. The drying process would involve chemical additives that would leave a solid after cooling and containerization. Isotek indicated that this waste form will allow disposition either as low-level or transuranic waste. Isotek has started formal feasibility and conceptual design studies on this substantial change. A formal submittal to DOE-ORO to revise the project baseline is projected by April.

Highly Enriched Uranium Materials Facility (HEUMF). Preparations for HEUMF start-up continue (see the 1/2/09 and 6/27/08 site rep. reports). Approximately 1000 empty Rackable Can Storage Boxes have been moved to HEUMF and are being used for training purposes. Construction in the work areas (stations to support can inspection, loading, and unloading) has not been completed. Testing of safety systems is expected to be completed during the next few months. B&W has created a Readiness Certification Assurance Board, consisting of upper-level managers and outside experts, to review the progress of readiness efforts. Given that facility start-up authorization is not expected to occur until approximately one year from now, YSO has inquired on conduct of preventive maintenance of HEUMF safety systems.

Conduct of Operations. The staff and site reps. discussed observations from the recent review of Conduct of Operations (see the 1/16/09 site rep. report) with Y-12 management. Observations were discussed regarding: independent verification for hazardous energy lockout/tagouts, supervisor training, availability of abnormal operating procedures, log keeping, equipment out-of-service tagging, and pre-job briefs.

Oxide Conversion Facility (OCF). Last week, cognizant B&W personnel met to review uranium holdup data for OCF. During that meeting, it was identified that the Production division and the Nuclear Materials Control & Accountability (NMC&A) organization were using different calculation methods to determine the holdup value. Since the system was already loaded with uranium trioxide at that time, the Material-at-Risk (MAR) limit in the safety basis (a general fire dispersion limit, not a criticality limit) was exceeded by using the NMC&A holdup value. B&W entered the appropriate Limiting Condition of Operation (LCO) and put B-1 Wing into a warm standby mode as required. The following morning, B&W used an approved procedure to transfer the uranium trioxide through (unreacted) and out of the system (additional holdup accumulated during this transfer). The overall decrease in system inventory allowed B&W to exit the LCO and resume B-1 Wing operations. B&W is developing an improved and consistent methodology for calculating the uranium holdup in OCF. Meanwhile, OCF operations are suspended. Also last week, B&W coincidentally submitted the safety basis annual update to YSO, which proposes increasing the MAR limit. This change has not yet been approved.