

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Steven Stokes, Acting Technical Director
FROM: William Linzau and Rory Rauch, Site Representatives
SUBJECT: Oak Ridge Activity Report for Week Ending August 16, 2013

J. Deplitch was at Y-12 to observe the site's annual emergency response exercise. The exercise tested the coordination of emergency response activities between Y-12, Oak Ridge Reservation, local governments, medical facilities, and the State of Tennessee.

Direct Electrolytic Reduction/Electrorefining (DER/ER): B&W's plan to deploy and operate DER and ER—technologies with capabilities nearly equivalent to the existing Building 9212 purification and metal production processes—is a key strategy to supplement metal production needs during the transition of enriched uranium operations from Building 9212 to the Uranium Processing Facility. B&W has initiated a project to install and operate these capabilities in Building 9215. This week, in accordance with the requirements of 10 CFR 830 and DOE Standard 1189, B&W submitted a letter to NPO requesting approval to treat the DER/ER project as a major modification to Building 9215. The recommendation is primarily based on the determination that DER/ER represents the application of a technology new to Y-12. B&W's letter indicates that a major point of discussion leading up to this decision is the potential application of the "backfit" requirements in DOE Order 420.1C and the potential resultant project cost increases. The letter contends that structural upgrades to Building 9215 to address deficiencies with respect to the modern seismic design criteria are not warranted based on risk benefit arguments allowed by DOE Standard 1020. B&W's latest estimate for the initial operational capability (IOC) of the ER system is sometime in calendar year 2019, with DER approximately two years behind. The ER critical decision-1 package is scheduled to be submitted next fiscal year and should provide a better estimate for its IOC.

Conduct of Operations/Criticality Safety: In late July, while using an approved container to gather the residual uranium oxide powder from a casting operation in Building 9212, chemical operators inadvertently exceeded the criticality safety mass limit for the container by approximately one percent. The applicable procedures allow the operators to fill the container, which creates the potential for the operators to exceed the mass limits for the container by small amounts before the container is weighed. Therefore, the procedures contain a requirement directing the operators to redistribute the material into two containers if the container is found to be overloaded when weighed. In this instance, the operators did not recognize the need to redistribute the contents of the container and placed it into storage with a mass loading that exceeded criticality safety limits. The same crew of operators recognized the issue late last week after re-weighing the container in preparation to transport it to another storage area. The operators have since redistributed the contents of the container, per guidance from the responsible criticality safety engineer. B&W held a fact-finding meeting following the event and is developing corrective actions, including evaluating the criticality safety postings in the area for improvement.

Building 9212: Enriched Uranium Production (EUP) personnel resumed reduction operations this week, producing the first purified uranium metal button since September 2012.

Oxide Conversion Facility operations remain on hold as EUP personnel have been unable to determine the location of a hydrogen fluoride leak in the vaporizer enclosure.