

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 22, 2008

TO: Timothy Dwyer, Technical Director
FROM: Donald Owen and David Kupferer, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending August 22, 2008

Mr. Owen attended the DOE Readiness Workshop in Knoxville on Tuesday and Wednesday. Mr. Kupferer was out of the office on Thursday and Friday.

Criticality Safety: In February 2007, DOE issued DOE Standard 3007-2007, *Guidelines for Preparing Criticality Safety Evaluations*, which superseded DOE-STD-3007-1993. The revised Standard included the following changes: (1) requiring that two independent parameters (e.g., mass, moderation, geometry, etc.) be controlled to prevent criticality accidents rather than allowing multiple controls on a single parameter, and (2) defining an *unlikely event* as an event that is not expected to occur more than once in the lifetime of a facility. DOE Standard 3007-2007 was incorporated into the Y-12 contract more than a year ago, a B&W Implementation Plan was approved by YSO and the Standard was incorporated into site procedures.

In May, a federal review led by DOE Headquarters of the Y-12 criticality safety program was conducted at YSO's request (see the 7/3/08 site rep. report). The review focused on several areas including the criticality safety evaluations (CSEs) for particular wet chemistry operations. The report from this review has not yet been issued. The draft report has been in revision and is undergoing factual accuracy review among DOE Headquarters, YSO and B&W personnel.

At a quarterly meeting this week of YSO and B&W management on Y-12 criticality safety program activities, some results from the federal review were discussed. Chief among the results was the lack of compliance with the double contingency principle in CSEs due to incorrect use of terms defined in DOE Standard 3007-2007. Also noted was the need to formally credit the gamma radiation monitor for the wet chemistry primary extraction raffinate stream as a criticality control (see the 6/20/08 site rep. report). B&W noted that there are several operations at Y-12 where the requirement to demonstrate double contingency on two independent parameters is not implemented in current CSEs. B&W acknowledged that the implementation of DOE Standard 3007-2007, including proper application of double contingency, needs to be reworked. A revised implementation strategy for DOE Standard 3007-2007 is to be developed.

Conduct of Operations/Criticality Safety: As reported last week, B&W had determined that operations personnel in January did not formally declare a criticality safety deficiency (or "back-off") following identification of prohibited metal cans with enriched uranium parts in the Assembly/Disassembly Building. This week, B&W senior management required that nuclear operations personnel be briefed on the event with an emphasis on the requirement to follow the back-off protocol upon discovery of a non-compliant condition. Causal analysis of the event is in progress.

ORNL Building 3019/Uranium-233 Disposition: DOE-ORO continues evaluation to address the structural support issues with the current design of the downblending system (see the 7/25/08 site rep. report). DOE-ORO management indicated to the site rep. that the option to construct a new processing area outside of the current walls of Building 3019 is the intended path forward, but will require further evaluation by Isotek and DOE over the next few months before making formal design changes.