

## 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 9, 2013

D. Andersen and E. Gibson were at Y-12 to observe a B&W survey of structural cracking at the Highly Enriched Uranium Materials Facility.

**Oxide Conversion Facility (OCF):** On Monday, just after the end of day shift operations, the hydrogen fluoride (HF) detectors inside the OCF vaporizer enclosure alarmed while the system was in warm standby. Two OCF operators happened to be near the enclosure when the alarm sounded and evacuated the area. The Plant Shift Superintendent also received an HF detector alarm and, per procedure, contacted the operators, who communicated the location of the leak and their observations from the scene prior to evacuation—most notably that they did not observe any visual indications of HF outside the enclosure (the vaporizer enclosure is credited in the Building 9212 safety basis to provide a safety-significant secondary confinement function). The operators were able to definitively confirm that no HF was detected outside the enclosure when they manned the OCF control room, approximately 30 minutes after evacuating the OCF dock area. Soon thereafter, the operators started the OCF dock scrubber in order to begin reducing the concentration of HF in the enclosure, which had a peak reading of approximately 7 ppm on one detector. After reducing the HF concentration in the enclosure to a negligible value, operators began purging the vaporizer vessel to prepare the enclosure to be accessed for troubleshooting. In the first attempt to troubleshoot the leak, engineering personnel entered the enclosure to look for any obvious visual indications of the location of the leak, but could not find any. B&W is now developing a work package to perform a leak check of the system. B&W plans to hold a fact-finding meeting next week to identify any lessons learned from the event.

**Highly Enriched Uranium Materials Facility (HEUMF):** Craft personnel have successfully completed the modification and testing of the roll-up door that failed to close during activation of the HEUMF secondary confinement system (SCS) (see 5/24/13 and 7/19/13 reports). The Production Engineering organization has determined that the other SCS door in the facility will require similar modifications to preclude the same failure mechanism (the door cable was permanently deformed (kinked), which caused the cable to bind and fail to release upon activation). Their goal is to have these modifications completed by the end of the fiscal year. There are several other doors in the facility that function as fire barriers and use similar cable release mechanisms, but do not support the SCS. Once the modifications to the other SCS door have been completed, the plan is to evaluate the four fire doors credited as safety-significant fire barriers in the HEUMF safety basis followed by the 24 non-credited fire doors. These doors use a cable arrangement with fusible links that will release and close the door during a fire. The cables are strung with an acute angle (~180 degree turn through a single eyebolt near the ceiling), which is similar to the arrangement that contributed to the failure of the SCS door. Engineering personnel anticipate that the release mechanism for each door will require the mounting of another eyebolt to make two 90 degree bends instead one 180 degree bend in the cable. Engineering personnel also plan to use a more flexible cable to prevent kinks.

**Building 9212:** Chemical recovery operations in Building 9212 continue to be limited by equipment issues. In addition to the issues discussed in last week's report, high capacity evaporator operations have been on hold for the last several weeks because of a leaking flange. Maintenance personnel have attempted to fix the leak on several occasions, but the system has not passed post-work testing.