

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Timothy Dwyer, Technical Director  
FROM: Rory Rauch, Site Representative  
SUBJECT: Oak Ridge Activity Report for Week Ending September 21, 2012

**Uranium Processing Facility (UPF):** NNSA recently issued the final report for the Technical Independent Project Review (TIPR) of the UPF project. The report identified the following key conclusions:

- The overall safety design strategy for the project is sound and the UPF integrated project team (IPT) is implementing DOE Standard 1189, *Integration of Safety into the Design Process*.
- The existing safety analysis is not sufficiently mature to support final design. The current approved control set in the preliminary safety design report (PSDR) is not sufficiently developed to support ongoing final design efforts. The IPT plans to update the PSDR to reflect updated hazards analysis results to better support final design efforts.
- Appropriate safety expertise exists within the UPF IPT; however, the federal technical support staffing (e.g. fire protection, safety basis) is insufficient to support project needs. The federal project team recently developed a plan to address these gaps.

The report also discusses the fact that the IPT, just prior to the TIPR, had concluded that the facility design did not provide adequate space allowance for all required process equipment. The IPT is developing a solution to this issue; however, the re-engineering required to address this issue, as well as several other factors, will prevent the IPT from achieving 90% design maturity by the end of fiscal year 2012, as requested by NNSA headquarters (see 2/17/12 report).

**Fire Protection:** This week, during a vital safety system walkdown, the cognizant system engineer for one of the safety class wet pipe fire suppression systems in Building 9212 discovered several sprinkler heads that had been painted at some indeterminate time in the past. The engineer found approximately 15 co-located sprinkler heads in this unexpected condition. Initially, the system engineer did not believe that the paint would affect the operability of the system, but, as a conservative measure, directed production personnel to remove all combustibles from the affected area. The area in question does not contain any radiological material. Later that day, the system engineer was able to verify that the sprinkler heads for the portion of the system that covers areas containing radiological material (primarily C-1 Wing) were not in a potentially impaired condition. After discussing the condition of the heads with NPO fire protection engineers, the system engineer decided to declare the system inoperable and the shift manager entered the appropriate limiting condition of operation (LCO) for the system. This occurred approximately eight hours after initial discovery of the condition. The system will remain in the LCO—requiring a fire watch every hour—until the sprinkler heads can be replaced or engineers can establish a technical basis demonstrating operability of the system.

**Highly Enriched Uranium Materials Facility (HEUMF):** HEUMF has a drainage system that performs two safety significant functions. First, the system protects assumptions supporting criticality safety by preventing water from accumulating in the facility following activation of the fire suppression system. Second, the drainage system must maintain a constant minimum water depth to provide a seal that maintains secondary confinement of material during a facility fire. Late last week, the HEUMF shift technical advisor (STA) discovered that the access port for this system had been damaged. The STA determined that the damage was not severe enough to prevent the system from performing its credited safety functions. The debris from the access port had been stacked back together, indicating that the damage had been noticed at some point prior to the STA's discovery. The damage was not reported to the shift manager, per procedure.