

# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 28, 1997

**TO:** G. W. Cunningham, Technical Director  
**FROM:** P.F. Gubanc & D.G. Ogg, Hanford Site Representatives  
**SUBJECT:** Activity Report for Week Ending February 28, 1997

Paul Gubanc was on leave all week.

**A. 222-S Laboratory Curtailment:** The 222-S Analytical Laboratory conducts analyses on tank waste samples and other samples from throughout the Hanford site. On February 13, 1997, the Washington State Dept. Of Ecology (Ecology) conducted a walk-through inspection of the 222-S Lab to validate corrective actions reported by the contractor, Rust Federal Services of Hanford (RFSH), in a February 3, 1997 report. According to representatives from Ecology, the February 13th walk-through noted continuing problems with unmarked waste bottles and containers, and improperly designated satellite accumulation areas. As a result RFSH suspended all liquid waste generating work on February 13th.

although RFSH began efforts to restart some analytical work last week, additional self-assessment findings led RFSH to restrict solid waste generating work on February 25th. DOE-RL, Flour Daniel Hanford (FDH), and RFSH appear to be taking action to address the issues, but Ecology has yet to issue its final report, and the possibility of enforcement action, including fines, has not been ruled out.

**B. Electrical Safety:** In the past several months at Hanford, there have been several near-miss electrical occurrences. Examples of these near-miss events include:

1. on January 11, 1997, an electrician received a flash burn on his hand when a 480 volt power cable he was installing shorted from phase to phase,
2. on December 12, 1996, an electrician caused a high intensity electrical arc inside an electrical conduit elbow while moving energized conductors with a screwdriver,
3. on November 11, 1996, construction forces severed an energized 110 volt line during a building demolition, and
4. on October 16, 1996, a backhoe struck an energized 440 volt power cable while breaking concrete.

Critiques and investigations of these events identified several common causes including poor work control, improper lock and tag, poor procedural compliance, and poor configuration management.

As a result, Hank Hatch, president of FDH, issued a letter on February 14, 1997 to all major subcontractors directing that immediate corrective action be taken. Additionally, DOE-RL issued a letter dated February 13, 1997 to the Director of the Pacific Northwest National Laboratory (PNNL) with similar guidance. To date, the site representatives have not been made aware of any similar formal direction that has been provided to Bechtel Hanford, Inc. (BHI). The site reps will continue to monitor the electrical safety issue and the corrective actions being taken.

**C. Configuration Management:** As a point of clarification regarding configuration management problems contributing to the January 11, 1997 flash burn at the PNNL 315 Building, additional information is provided.

The electricians involved used no drawings to verify isolation conditions for their electrical work. Due to their mistrust of the drawings, they instead relied on a physical walk-down and visual inspection of the system to

identify the isolation location. They chose a switch, labeled "Incoming Line" which, in fact, did not isolate the work area. The shift superintendent attempted to verify the isolation conditions using an Electrical Utilities one-line diagram (a controlled and essential drawing). This drawing did not show, nor was it intended to show, the motor control center on which the electricians planned to work or the "Incoming Line" switch they had chosen for isolation. Nonetheless, the shift superintendent authorized the work which ultimately caused a flash burn to an electrician's hand.

Controlled facility drawings existed but were not used. However, the subsequent critique and investigation found that the facility drawings failed show the as-built condition including the "Incoming Line" switch. Both the critique and the investigation cited improper drawings and inadequate labeling as contributing causes to this occurrence.

cc: Board Members