Project Hanford Lessons Learned

Title: Repair of Safety Significant System Equipment Requires Formal Work Planning

Date: September 12, 2005

Identifier: 2005-RL-HNF-0032

Lessons Learned Summary:
Work on safety significant systems should be performed using a formal work planning process. Before releasing work packages, supervisors must have sufficient information about work to be performed to fully understand the impact to the facility. When work is being performed by an outside entity, communication of the work to be performed and the impact to all associated systems is absolutely essential prior to release of the work. Technical documents and procedures must have consistent definitions/terminology to enable facility and facility support organizations to implement work packages appropriately.

Discussion of Activities:
While performing troubleshooting of a Fire System Restriction in the 2404WC building, Hanford Fire Department (HFD) personnel shut down the fire suppression system for Fire Systems Maintenance (FSM) personnel to make repairs. Facility personnel did not clearly understand the systems impact of the HFD action, and the facility was still in operational mode when the fire system was shut down. This placed the facility in noncompliance with a Limiting Condition for Operation (LCO). Repair work was performed under a Minor Work Ticket (MWT). Although there is conflicting documentation as to the type of work package, if any, to be developed for the proposed work, a MWT may not be used to perform work on a Safety Significant system such as the 2404WC Fire Suppression System.

Analysis:
The Technical Safety Requirement (TSR) definition of emergency impairment differs from HFD/FSM definition of emergency. HFD defines an Emergency Impairment as "Any unplanned condition that causes all or part of a fire protection system to be inoperable (unable to perform its intended function)." This includes both the alarm system, which was not functional during this event, and the fire suppression system, which was functional during this event until taken out of service by the HFD. The TSR credits the fire suppression system as mitigation in the event of a fire. No credit is taken for the alarm system.

HNF-PRO-12155, "Work Management" allows emergency work to be conducted with no work planning, as long as the work is documented in the facility log. The examples indicate emergency work would be stabilizing conditions due to a fire or flood. The definition of emergency work includes reference to a Fire System Emergency Impairment. FSM believed it was appropriate to use the MWT because the work was to address an Emergency Impairment.

When an alarm is received by HFD, there is no way to distinguish between a real fire and a system malfunction. The HFD responds as though a real fire existed. By Master Documented Safety analysis (MDSA) definitions, this response is allowed as an emergency response (no work planning required). However, once the system is stabilized, work planning should take place to

restore the system. The conflicting definitions of emergency allowed this step to be missed by replacing formal work planning with a MWT.

FSM adopted use of the MWT as a means to document Emergency Impairment work performed during off-shift hours. Restoration of a fire suppression system is considered routine work by HFD crafts. Work on a Safety Significant system is not considered to be routine work. Although FSM adopted the MWT as a documentation method, the requirements associated with the MWT were not fully applied and use of the MWT was not authorized for work on a Safety Significant System.

Neither facility operations supervisor had sufficient information about the work to be performed by FSM to fully understand the impact to the facility. Under these conditions, the supervision could not maintain adequate control of facility equipment. Supervision surrendered responsibility for these systems to FSM and agreed to release the work.

Recommended Actions:
Any work being performed on a Safety Significant system should be conducted using formal work planning.

Supervisory personnel should receive continuing training on the fire systems and the system relationship to the Technical Safety Requirements to enhance their understanding.

Interface control documents should be reviewed to determine if lines of authority and responsibility are clearly defined and revised for clarity if necessary.

Estimated Savings/Cost Avoidance: Not evaluated

Priority Descriptor: BLUE/Information

Work / Function: Maintenance - Safety Systems

Hanford Functional Categories: Associated Causal Factors - A2B6C01, A4B5C01, A3B2C05

Hazard: Other

ISM Core Function: Analyze Hazards; Develop/Implement Controls

Originator: Fluor Hanford, Inc., Submitted by Beth Poole of the Waste Stabilization and Disposition Project

Contact: Project Hanford Lessons Learned Coordinator; *(509) 372-2166; e-mail: PHMC_Lessons_Learned@rl.gov*

Authorized Derivative Classifier: Not required

Reviewing Official: Gerald Whitney

Keywords: Fire System Maintenance, Safety Significant Systems, Work Planning

References: Occurrence report: RL--PHMC-WRAP-2005-0003