

HSS Independent Activity Report - Rev. 0		Report Number: HIAR-RL-2012-02-27	
Site: DOE-Richland Operations Office		Subject: Office of Enforcement and Oversight's Office of Safety and Emergency Management Evaluations Activity Report for the Sludge Treatment Project	
Dates of Activity :	02/27/2012 – 03/01/2012	Report Preparer:	Jake Wechselberger
Activity Description/Purpose: The U.S. Department of Energy's (DOE) Office of Enforcement and Oversight, within the Office of Health, Safety and Security (HSS), performed operational awareness reviews of the Sludge Treatment Project (STP), Engineered Container Retrieval and Transfer System (ECRTS) during site visits.			
Result: During the period February 27 – March 1, 2012, an HSS representative attended the Defense Nuclear Facilities Safety Board (DNFSB) Review of the Knockout Pot Disposition (KOP) Final Design and Safety Basis Review. The review was attended by DNFSB staff, STP federal project personnel, U.S. Department of Energy, Richland Operations (DOE-RL) nuclear safety staff, CH2M HILL Plateau Remediation Company (CHPRC) engineers, scientists and consultants and Pacific Northwest National Laboratory (PNNL) staff on February 28-29, 2012. The principal focus of the discussion was the influence of uranium hydride (UH ₃) on the condition and behavior of irradiated uranium metal fuel particles present in the KOP material and various aspects of the safety basis with respect to processing Multi-Canister Overpacks (MCOs) with KOP material in the Cold Vacuum Drying Facility (CVDF) and long-term storage aspects in the Container Storage Building (CSB). The meeting was productive. During this period the HSS representative reviewed the current test stands in Maintenance and Support Facility (MASF) test facility with an STP project engineer and the CHPRC test director. One demonstration test platform will examine representative STP system valves to adequately perform their function over their entire design life span of the sludge removal operation. Simulant replicating the worst case sludge to be removed from K Basin will be circulated through the test platform for a total volume exceeding the actual sludge removal volume on the order of three times. During the test, under actual operating conditions, the valves will be cycled to verify their continued operability. As the hardened and abrasive sludge flow may erode the valve internals, system ball valves will be checked for seat leakage and operating torque. Post test, the valve internals will be inspected for erosion and sludge particle entrapment in the valve internals. Similar test functional parameters will be recorded for system check valves. In addition, the test will include operational demonstration of "pigs" to clean and remove residual sludge simulant from the piping system. A number of "pigs" will be demonstrated over the life cycle test runs. The "pigs" are typically pliable material devices usually of various polyurethane foam densities and toughness that are inserted into the system flow stream to remove the sludge simulant. The CHPRC test director adequately addressed the HSS representatives' questions. Further, the HSS representative viewed the initial test stand configuration for the spray leak penetration test of the outer transfer hose. The transfer hose will be used to move sludge from the Engineered Container in K Basin to the Sludge Transport Storage Containers (STSCs). The test objective is to determine if the outer transfer hose can be penetrated and thus result in a spray leak. Various simulant types will be directed at the inner hose wall at 300 psi via varying nozzle diameters and orientation. Each test run will last approximately 15 minutes in duration. Actual simulant transfer time is anticipated to be 10 minutes long. Post test examinations will be conducted by sectioning the hose at each test run hose location for a visual examination. In addition, the HSS representative interfaced with various DOE-RL staff to review planned activities and to follow-up on past HSS report items.			
HSS Participants		References	
1 (lead). Jake Wechselberger			
Were there any items for HSS follow up? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
HSS Follow Up Items			
1. Continue operational awareness reviews of STP.			