

**HSS Independent Activity Report - Rev. 0****Report Number:** HIAR-RL-2013-09-18**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 :** 09/17/2013 – 09/18/2013**Report Preparer:** Jake Wechselberger**Activity Description/Purpose:**

The U.S. Department of Energy (DOE) Office of Enforcement and Oversight, within the Office of Health, Safety and Security (HSS), performed an operational awareness review of the Sludge Treatment Project (STP) Engineered Container Retrieval and Transfer System (ECRTS) during this site visit. An HSS representative attended the Hanford K Basins Sludge Treatment Project Independent Project Review (IPR).

**Result:**

The purpose of the IPR was to validate the adequacy of preparations to execute construction and provide recommendations to the Federal Project Director to support DOE Richland Operations Office (RL) approval of Critical Decision (CD)-2/3. DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets* delineates the CD milestones.\*Overall, the STP is classified as a spent nuclear fuel stabilization and disposition operations activity (OA) in accordance with the policy and protocol for Office of Environmental Management OAs. Although OAs are not subject to DOE Order 413.3B, RL has chosen to apply its requirements and DOE-STD-1189 to the STP, in a tailored manner, as a good business practice to reduce project performance risks. The Acquisition Executive authority for STP is the RL Manager.

The DOE Acquisition Management System, as defined in DOE Order 413.3B, establishes principles and processes that translate needs and technological opportunities into reliable and sustainable facilities, systems, and assets that address required mission capabilities. The system is organized into project phases and CDs, progressing from broadly-stated mission needs into well-defined requirements. DOE Order 413.3B allows for tailoring when necessary for the efficient delivery of projects. Tailoring, including consolidation or phasing of CDs, does not imply the omission of requirements; all requirements must be addressed to the extent necessary and practical.

DOE Order 413.3B specifies performance of an IPR to ensure early integration of safety into the design process. For this activity, the IPR team was composed of subject matter experts who were independent from the project and from RL and CH2M Hill Plateau Remediation Company (CHPRC), the DOE contractor for the STP.

The IPR team evaluated the ECRTS in the following areas: general requirements and project management; radiation protection; fire protection; safety basis; quality assurance; civil, structural, and seismic design requirements; engineering design; configuration management; and transportation safety.

The preliminary results of the IPR were discussed during the IPR team meetings and provided in an outbrief. In summary, the IPR outbrief comments were:

- Preliminary documented safety analysis (PDSA) approval is on a parallel path with the CD-2/3 approval. Until the PDSA is approved, changes may be required in the design and/or safety designation of equipment within the design. CD-2/3 approval of the final design requires approval of the PDSA and satisfactory accomplishment of any established conditions of approval.
- Although the spray leak analysis in the PDSA is considered adequate at this stage of the project, it results in potentially undesirable and unachievable controls with respect to access to the river. Current initiatives will reanalyze the established controls or modify facility operations. If these measures fail to mitigate concerns about river access, the safety classification of ECRTS systems may need to be upgraded, possibly causing significant changes in the final design.

In addition, the IPR team cited the following as strengths:

- Full scale mockup testing has been used effectively, and is well documented to optimize system design and to minimize the dose to workers and the potential for spreading contamination.
- The ECRTS preliminary fire hazard analysis is well developed and comprehensive for this stage of the project.

- The Seismic Interactions Report was found to be particularly beneficial in the review of the natural phenomena hazards design.
- Development of multiple relevant and robust simulants has proven beneficial to the project design.

\*DOE Order 413.3B provides the following Critical Decision milestones:

- CD-0, Approve Mission Need. There is a need that cannot be met through other than material means.
- CD-1, Approve Alternative Selection and Cost Range. The selected alternative and approach is the optimum solution.
- CD-2, Approve Performance Baseline. Definitive scope, schedule, and cost baselines have been developed.
- CD-3, Approve Start of Construction/Execution. The project is ready for implementation.
- CD-4, Approve Start of Operations or Project Completion. The project is ready for turnover or transition to operations, if applicable.

| <b>HSS Participants</b>      | <b>References</b> |
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| 1 (lead). Jake Wechselberger |                   |
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Were there any items for HSS follow up?  Yes  No

| <b>HSS Follow Up Items</b>                        |
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| 1. Continue operational awareness reviews of STP. |
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