

HSS Independent Activity Report - Rev. 0**Report Number:** HIAR-ID-2011-09-22**Site:** Idaho Site - Idaho Cleanup Project**Subject:** Office of Enforcement and Oversight's Office of Safety and Emergency Management Evaluations Activity Report for the Shadow Review of the Advanced Mixed Waste Treatment Project (AMWTP) Transuranic Storage Area-Retrieval Enclosure (TSA-RE) Retrieval Restart Department of Energy Readiness Assessment**Dates of Activity :** 09/20/2011 – 09/22/2011**Report Preparer:** Aleem Boatright**Activity Description/Purpose:**

A review of nuclear safety implementation verification review (IVR) procedures and processes was conducted at the Idaho Site from September 12-22, 2011. The scope originally included shadowing of the Department of Energy (DOE) Idaho Operations Office (DOE-ID) Idaho Cleanup Project IVR for the Sodium Bearing Waste Treatment Project (SBWTP). However, the planned SBWTP IVR was postponed. In lieu of this review, Independent Oversight utilized the second week on site to shadow the Idaho Cleanup Project AMWTP TSA-RE restart readiness assessment (RA).

On February 25, 2010, Bechtel BWXT Idaho (BBWI) reported an event involving a degraded box in the AMWTP TSA-RE. Efforts to stabilize the box resulted in a significant airborne release of radioactive materials with a number of individuals subsequently receiving uptakes. A for-cause review of the TSA-RE retrieval operations conducted by DOE-ID Nuclear Safety and Performance identified a number of concerns and findings with retrieval operations. In addition to addressing the concerns and findings prior to resuming retrieval operations, the team also recommended that transition to retrieval operations should include demonstrations of the ability to safely conduct retrieval operations during normal, abnormal, and emergency conditions. On July 12, 2010, BBWI management suspended further retrieval operations in the TSA-RE.

BBWI conducted its own internal independent investigation and in September 2010 identified a set of corrective actions to address the judgments of need, concerns, and findings resulting from the reviews. The corrective actions were completed in early 2011. To support continued retrieval of waste containers from TSA-RE, BBWI designed and installed a Retrieval Contamination Control System (RCCS), which consists of the Retrieval Contamination Enclosure (RCE) and Inner Contamination Enclosure (ICE). Operations within the enclosures were analyzed and included in the 2011 update of the documented safety analysis (RPT-DSA-02) and accompanying technical safety requirements (TSRs) (RPT-TSR-03). BBWI completed a management self-assessment and contractor readiness assessment of its ability to restart and operate with the new controls and procedures in September 2011.

The purpose of the DOE RA was to verify contractor readiness to safely resume retrieval of degraded waste containers on TSA-RE Pad 1 using the RCE, ICE, and associated support systems. In addition, the DOE RA was to evaluate the readiness of DOE-ID line management to perform adequate oversight of the remaining TSA-RE retrieval operations.

Independent Oversight shadowed the DOE-ID readiness assessment in order to assess implementation of the site processes for conducting readiness reviews, reviewed documents governing planning and preparation for the RA, and directly observed the conduct of the RA by the DOE-ID team.

Result:

The DOE RA was conducted in accordance with an approved plan of action and implementation plan, which were developed as required by DOE Order 425.1D and the governing DOE-ID work instruction. The plan of action described the background for the RA, identified the team leader and senior advisor, and listed the assessment prerequisites. It also included an appendix that provided a detailed cross reference of the core requirements in the startup and restart Order to the planned scope and breadth of the RA, which was focused on those core requirements specific to the restart of retrieval operations in the RCE and ICE.

The implementation plan described the physical boundaries of the systems included in the scope of the RA and provided a discussion of the RA prerequisites, which appropriately included completion of the contractor RA and closure of identified pre-start findings. The plan adequately describes the process for translating the core requirements into the functional areas of the review and includes the criteria, review and approaches for each of the areas. The plan also includes discussion of the readiness assessment process, establishes expectations for the team members in preparing for the RA, and discusses the process for reporting the results (including documentation of findings). The review addressed eleven functional areas; including contractor assurance, safety basis, radiation protection, operations, and training. The criteria review and approach documents (CRADs) provided sufficient detail to guide the team members, including expectations for the document reviews, interviews, and observations.

Independent Oversight observed the conduct of the RA by attending RA team meetings and briefings and shadowing RA team members during interviews and observations. The first day of the RA was used for document reviews, interviews, and planning of evolutions. Independent Oversight observed a number of interviews conducted for the safety basis functional area, which included the implementation of revisions to the TSRs to support the retrieval upgrades. The revisions included the addition of a specific administrative control for “free” fossil fuel in the TSA-RE and the use of respiratory protection inside the ICE. The interviews were conducted using a prepared set of questions; interviewees ranged from the engineering and safety basis managers and the nuclear facility manager to the retrieval shift supervisor and operators. The interviews were well constructed and appropriately focused. The safety basis functional review also included observation of daily rounds and assessment of the implementing procedures. The review was thorough (including, for example, confirmation that all vehicles used in TSA-RE had been re-verified by the contractor to contain less than 160 gallons of fuel) and established that most TSR requirements were appropriately implemented through the operating procedures and operator rounds. The reviewer identified one minor issue with the control of fossil fuel in the TSA-RE.

Independent Oversight shadowed the RA team while they observed daily rounds and evaluated two evolutions; a simulated drum retrieval in the RCE and box retrieval in the ICE. The drum retrieval evolution included transfer of the drum into the enclosure airlock and entry of drum data into the waste tracking system. The box retrieval evolution included a simple continuous air monitor alarm drill and demonstration of remote operations. During the second day, the drum retrieval evolution, a routine task, was conducted smoothly by the operators under close observation of the RA team. Generally, the RA team maintained close observation and awareness of the activities and allowed the operators to demonstrate their proficiency, though in a couple of instances RA team members interrupted the operators at inopportune times.

The final day of the RA was devoted to observation of simulated box retrieval in the ICE – an evolution similar to the release event in 2010. The evolution, which requires the use of remote handling equipment while dressed in fully encapsulating protective equipment, was significantly more complex and challenging than the drum retrieval evolution. The start of the evolution was delayed in order to brief the crews on changes that had been made to the hazard controls the previous day. Again, the RA team maintained close observation of the operators and identified a number of difficulties and deficiencies in the performance of the evolution; including the conclusion by the retrieval shift supervisor at one point in the evolution that it was not possible to follow the procedure as written due to the lack of sufficient numbers of qualified personnel.

Independent Oversight observed the RA team meeting following completion of the evolutions and planned data collection activities. The discussion was open and frank and team members identified a number of issues with operations, training, and radiation protection that indicated the facility was not ready to restart retrieval operations.

Subsequently, the RA team leader appropriately recommended that the RA be suspended pending improvement in the areas of conduct of operations, radiation protection, and startup readiness. The startup authority accepted this recommendation and plans to resume restart activities when the new AMWTP management and operating contractor, the Idaho Treatment Group, LLC (ITG), determines that readiness has been achieved. ITG officially took over its line management role on October 1, 2011.

Overall, following its established procedures, DOE-ID conducted a suitably detailed, critical assessment of the contractor’s readiness to restart.

HSS Participants	References
1 (lead). Aleem Boatright	<ul style="list-style-type: none"> DOE Implementation Plan, Readiness Assessment for Restart of WMF-636 Transuranic Storage Area – Retrieval Enclosure Retrieval Operations, Idaho Cleanup Project, August 2011, Rev. 0, 8/29/11
2. David Odland	<ul style="list-style-type: none"> DOE Plan of Action Readiness Assessment for Restart of WMF-636 Transuranic Storage Area – Retrieval Enclosure Retrieval Operations, Idaho Cleanup Project, Rev. 0, 6/16/11
	<ul style="list-style-type: none"> Form-1833, AMWTP Change Implementation Strategy, 8/1/11
	<ul style="list-style-type: none"> RPT-DSA-01-IM, AMWTP Safety Basis Implementation Matrix for RPT-DSA-02 and RPT-TSR-03, Rev. 5, 4/4/11
	<ul style="list-style-type: none"> RPT-DSA-02, Documented Safety Analysis Advanced Mixed Waste Treatment Project, Rev. 8, 6/30/11
	<ul style="list-style-type: none"> RPT-TSR-03, Technical Safety Requirements Advanced Mixed Waste Treatment Project, Rev. 11, 6/30/11

	<ul style="list-style-type: none">• AMWTP-PLN-048, Contractor Readiness Assessment Implementation Plan for the Restart of WMF-636 TSA-RE Retrieval Operations, 5/11
	<ul style="list-style-type: none">• AMWTP-PLN-044, Plan of Action for the Contractor RA: Restart of WMF-636 TSA-RE Retrieval Operations, 7/11
	<ul style="list-style-type: none">• AMWTP-RPT-087, Management Self-Assessment Report WMF-636 Retrieval Recommencement, Rev. 0, 9/11

Were there any items for HSS follow up? ☒Yes ☐No

HSS Follow Up Items

- When the RA resumes for the TSA-RE, maintain operational awareness and potentially conduct a shadowing review.