

HSS Independent Activity Report**Report Number:** HIAR-WTP-2013-07-31**Site:** Hanford Site**Subject:** Office of Enforcement and Oversight's Office of Safety and Emergency Management Evaluations Activity Report for Operational Awareness of Waste Treatment and Immobilization Plant Low Activity Waste Melter Process System Hazards Analysis Activity**Dates of Activity :** 07/31/13 - 08/05/13**Report Preparer:** James O. Low**Activity Description/Purpose:**

The Office of Health, Safety and Security (HSS) staff observed a limited portion of the hazards analysis (HA) for the Waste Treatment and Immobilization Plant (WTP) Low Activity Waste (LAW) Melter Process (LMP) system. The primary purpose of this HSS field activity, conducted from July 31 to August 5, 2013, was to observe and understand the evolving approach used by Bechtel National, Inc (BNI), the contractor responsible for the design and construction of WTP for the U.S. Department of Energy (DOE) Office of River Protection (ORP), to conduct system-by-system HAs as part of developing the documented safety analysis (DSA) for the WTP LAW, Balance of Facility, and Analytical Laboratory (collectively known as "LBL") nuclear facilities.

BNI restarted HA activities on the LMP system in early March 2013 after a pause to address HA methodology weaknesses and retrain BNI staff (Ref. 1). LMP HA activity was suspended in early May 2013 to allow startup of the HA on the LAW melter off-gas primary system (LOP). At the conclusion of the HSS observation activity for the LOP HA (Ref. 2), BNI decided to suspend the effort and restart the LMP HA activity. HA activities are performed by a multidiscipline Safety in Design Integration Team (SDIT) led by a chairperson (known as the HA lead). BNI has too few core team members to conduct parallel SDITs for LOP and LMP systems.

Result:

Summarized below are salient observations on the status of BNI activities to develop the LAW HA.

BNI HA guidance continues to evolve with the issuance of HA Handbook revision 2 (Ref. 3), which was intended to clarify technical areas and gain process efficiencies. Technical areas that were clarified include a new section detailing the graded approach for HA, and the methods of hazard event detection no longer need to be designated as a candidate control. Changes related to process efficiencies include allowing HA activities to be conducted without a full SDIT quorum, allowing multiple hazard events to be combined, and eliminating specific documented justifications for deviations from the DOE hierarchy of controls.

BNI is providing four-day Hazard and Operability (HAZOP) training to SDIT members in three sessions from July through September. After the first training session, some HA leads proposed 15 potential HA process efficiencies for BNI management's consideration. These proposed changes are unlikely to be included in the HA Handbook until after the last HAZOP training session is completed in early September 2013. However, the overall BNI HA process leader noted that some of these changes can be implemented through minor clarification to HA lead training materials, rather than by revising the HA Handbook.

The HA lead for the LMP estimated that the remaining HA effort would last three to four calendar weeks, with closure targeted before Labor Day. HAZOP analysis node 1 (operations) is substantially complete, and most of the planned HA activity will be on HAZOP analysis node 2 (melter idle, startup, and shutdown). The LMP HA lead noted that because of the simplicity of analysis node 3 (melter maintenance and consumable parts replacement), that portion of the HA will be conducted with the "what-if checklist" methodology.

ORP received BNI's response to prior HSS-identified melter HA issues (Ref. 4) and is currently evaluating it. To support the follow-on HSS review of BNI's disposition of these HSS issues, HSS obtained a copy of the draft LMP HA event records as they existed on August 5, 2013, as well as supporting documentation used by the SDIT. The LBL DSA Production Manager agreed to transmit a copy of the draft HA Insight records at the conclusion of the LMP SDIT activity.

HSS Participants	References
1. (lead) James O. Low	1. DOE/HQ HS-45, HSS Activity Report for Follow-up of Waste Treatment and Immobilization Plant Low Activity Waste Melter Process System Hazards Analysis Activity Review, HIAR-WTP-2013-03-18
	2. DOE/HQ HS-45, HSS Activity Report for Waste Treatment and Immobilization Plant Low Activity Waste Melter Off-gas Process System Hazard Analysis Activity Observation, HIAR-WTP-2013-05-13
	3. Bechtel National Incorporated, Hazard Analysis Handbook, 24590-WTP-GPG-RANS-NS-0002, Revision 2, Dated 7/12/13
	4. J. M. St. Julian (BNI) to W.F. Hamel, Contract No. DE-AC27-01RV14136 – Response to the Office of Health, Safety and Security Observations on the LAW Melter Process System Hazards Analysis Activity, August 5, 2013
Were there any items for HSS follow up? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
HSS Follow Up Items	
1. See HSS Follow Up Items for HIAR-WTP-2013-05-13.	