

SUBJECT: Office of Independent Oversight's Office of Environment, Safety and Health Evaluations Activity Report for the Tour and Review of the Office of River Protection Waste Treatment and Immobilization Project Construction Site, November 16-18, 2010

The U.S. Department of Energy Office of Independent Oversight, within the Office of Health, Safety and Security (HSS), conducted an orientation visit on November 16-18, 2010, at the Office of River Protection Waste Treatment Immobilization Project (WTP) at the Department of Energy (DOE) Hanford Site. The purposes of the visit were to plan and coordinate future HSS oversight activities and to review corrective actions to the most recent HSS review at WTP.

The WTP is an industrial complex for separating and vitrifying millions of gallons of radioactive and chemical waste stored at the Hanford site. The WTP complex consists of five major components: the Pretreatment Facility (PTF) for separating the waste, the High Level (HLW) and Low Activity Waste (LAW) facilities where the waste will be immobilized in glass, the Analytical Laboratory for testing the quality of the glass, and the Balance of Plant (BOP) facilities which will comprise support functions. The PTF and HLW structures are Category 2 nuclear facilities. The LAW and laboratory structures are Category 3 nuclear facilities. The BOP facilities are non-nuclear. The WTP is currently in the design and construction phase. Design and construction activities at WTP are being managed by Bechtel National Incorporated (BNI) under contract to DOE.

HSS reviewed construction status, inspection reports, and assessments completed by the site DOE-WTP staff since the HSS assessment of WTP performed in October – November 2008, and documented in a report dated February 2009. The concrete batch plant and preparations for cold weather concreting operations were examined. A new contractor, Kleinfelder and Associates, was recently retained by BNI to perform onsite testing of soils and concrete. HSS examined the contractor's onsite laboratory and testing equipment, and reviewed the training program and qualifications of Kleinfelder testing personnel.

HSS examined corrective actions for Nonconformance Report (NCR) 24590-WTP-NCR-CON-10-0105, which was issued to disposition six structural steel bolts discovered in the HLW on April 13, 2010, that were not properly tensioned. The structured steel bolts used on the project are, for the most part, twist-off type tension control bolts with splined ends that are severed during tensioning by the installation crews. Proper bolt tension is achieved when the splined end is severed from the bolt. These six bolts still had the splined ends in place. The inspection records accepting these six bolts had been completed in November 2008 and indicated the bolts had been properly tensioned (i.e., the splined ends were severed). Corrective actions for this issue included re-inspection of a large sample of bolted connections in the HLW building and a smaller sample in the PTF building. An additional action included retraining of Quality Control (QC) inspectors on applicable bolting requirements. BNI identified three additional bolts that had not been properly tensioned (the splined ends were still in place) in the HLW during the re-inspection program. Inspection records for the three bolts were signed in December 2009 by the same BNI inspector that had signed the inspection record for the other six bolts discussed above.

During the November 2010 site tour, HSS and DOE-WTP performed a field inspection to determine the effectiveness of BNI corrective actions to resolve previously identified bolting issues. During the inspection in the PTF, two permanent bolts were identified in one connection that had not been tensioned (i.e., the splined ends were not severed). A BNI completed inspection report that indicated the bolts were properly tensioned was signed in March 2010. The BNI inspector who signed this report was not the same one who had signed the inspection report for the nine HLW bolts. BNI issued NCR 24590-WTP-NCR-CON-10-0359 to document and disposition this issue.

HSS also reviewed the corrective actions completed by BNI to disposition Finding F-2 (structural steel bolting issues) identified during the 2008 HSS assessment. HSS reviewed reports documenting several surveillance inspections performed by DOE-WTP site inspectors and BNI QC inspectors to follow up on Finding F-2. During a field walk down with DOE WTP, the storage of bolting materials in the PTF was examined and found to be satisfactory. Structural steel connections in the HLW and PTF, partially assembled with temporary erection bolts, were examined. These bolts were required by to be painted yellow, as described in WTP construction procedure 24590-WTP-GPP-CON-3206, Rev. 3D, *Structural Steel Installation and On-Site Fabrication*. Yellow is the standard color used on the WTP site to indicate non-permanent plant material. All temporary erection bolts examined in the PTF had been painted, although a large number had been painted white instead of yellow. During examination of partially assembled structural steel connections in the HLW, the reviewers identified a few bolts used as temporary erection bolts that had not been painted to indicate temporary status. The structural steel in these areas had not been inspected or accepted by BNI QC inspectors. Conversations with BNI Supervision led to a determination that structural steel erection crews did not devote sufficient attention to detail regarding using yellow paint to identify temporary erection bolts prior to use.

Corrective actions for Finding F-2 were partially effective. Structural steel erection crews need additional instructions that emphasize the need for clearly identifying temporary bolts with yellow paint. Additional attention to also detail is needed by BNI QC inspection personnel to ensure inspection records accurately reflect completed work activities. DOE-WTP issued a Surveillance Report to BNI with a finding of noncompliance to document and formally communicate the identified bolting deficiencies. The surveillance report provides details about the two permanent bolts identified in the PTF that were not tensioned and provides details about temporary bolts that were not properly marked to indicate they were non-permanent. DOE-WTP will be performing a follow up of BNI corrective actions for these issues.

Potential future HSS Independent Oversight and mission support activities were discussed with the DOE-WTP Construction Manager.