



U.S. Department of Energy
Office of River Protection

0073779

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AUG 28 2007

07-TPD-047

Ms. Jane A. Hedges, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Blvd.
Richland, Washington 99354

RECEIVED
AUG 28 2007

EDMC

Dear Ms. Hedges:

APRIL 3, 2007, INSPECTION ON THE COMPLETION STATUS OF HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (HFFACO) MILESTONE M-47-02 AND M-47-04

Reference: Ecology letter from E. Van Mason to S. J. Olinger, ORP; M. S. Spears, CH2M HILL; and W. S. Elkins, BNI, "April 3, 2007, Inspection on the Completion Status of Hanford Federal Facility Agreement and Consent Order Milestone M-47-02 and M-47-04," dated July 31, 2007.

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The U.S. Department of Energy, Office of River Protection (ORP) received the Reference letter from the Washington State Department of Ecology (Ecology) on August 6, 2007. The Reference documents verification of the completion of the Milestones M-47-02 and M-47-04 contingent on one action. Attachment 1 to this letter closes that action and provides additional information on the concerns documented in the Reference.

With the provision of the information above, in response to the requested action, and pursuant to the Reference letter, it is understood that HFFACO Milestones M-47-02 and M-47-04 are considered complete by Ecology.

Please note that the due dates for Milestones M-47-02 and M-47-04 were changed in December 2003 (Change Request M-47-03-01). The revised date for both milestones is March 31, 2009. Ecology's letter contained the old due dates of March 31, 2007, and June 30, 2007, for Milestones M-47-02 and M-47-04, respectively.

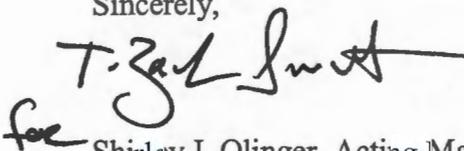
Ms. Jane A. Hedges
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If you have any questions, please contact me, or your staff may contact Corbun A. Babel, Tank Farms Program and Projects Division, (509) 373-9281.

Sincerely,



for Shirley J. Olinger, Acting Manager
Office of River Protection

Attachment

cc w/attach:

M. N. Jaraysi, CH2M HILL

M. A. Knight, CH2M HILL

P. Miller, CH2M HILL

S. Harris, CTUIR

J. J. Lyon, Ecology

S. L. Leckband, HAB

G. Bohnee, NPT

K. Niles, ODOE

A. Conklin, WDOH

J. Martell, WDOH

R. Jim, YN

Administrative Record *m-047-02 & m-047-04*

CH2M HILL Correspondence

Environmental Portal, LMSI

Attachment
07-TPD-047

APRIL 3, 2007, INSPECTION ON THE COMPLETION STATUS OF
HANFORD FEDERAL FACILITY AGREEMENT AND CONSENT ORDER
MILESTONE M-47-02 AND M-47-04

(4 pages including coversheet)

The action item is addressed in the following paragraphs.

Action Item: “Submit documentation showing how CH2M HILL Hanford Group, Inc. (CH2M HILL) or Bechtel National, Inc. (BNI), will track and complete an action to evaluate the need to replace manual valve actuators with motor operated valve actuators on the transfer system.”

Action Item Documentation: As discussed in the response to Concern Number One, although the initial design included motor actuators, there are no requirements that these valves be motor actuated. Manual valves were installed and will be operated to support a compliant Double-Shell Tank (DST) transfer system. In 2011, the operational benefits of remote operations of the valves will be evaluated as part of the ongoing maintenance of the DST system. The evaluation will include consideration of motor actuators based upon operational needs.

The U.S. Department of Energy (DOE), Office of River Protection (ORP) will track the completion of the evaluation of the valves. As documented in the current baseline in Fiscal Year 2011, under Work Breakdown Structure number 5.08.03.06, entitled, “DST Retrieval Projects,” a review will be conducted to evaluate changes in valve functions and requirements based upon any changes in operations.

The concerns are addressed in the following paragraphs.

Concern 1: “Changes to the design of the transfer system upgrades appear to be made to satisfy short-term needs in response to funding constraints and equipment failures at the time of acceptance testing. These changes were not made due to modifications in Waste Treatment and Immobilization Plant (WTP) design or procedures. Changing from the use of motor actuated valves to manually operated valves was apparently done in response to motor actuator failures and the need to complete acceptance testing of the system before funding for Project W-211 ended. It does not appear that CH2M HILL has thoroughly assessed this aspect of the transfer system design and how it can best support future WTP operations”.

Response to Concern 1: During Project Acceptance Testing of the automated valve actuators installed on the AN-101 and AN-A valve pits, a number of operational difficulties with the valves were identified. A Problem Evaluation Request was prepared to formally document and track the problem. Further, a Cause Analysis Report was generated to provide an engineering evaluation and an Apparent Cause Analysis to address the problems and recommend a path forward. The testing identified design weaknesses of the motor operated valve actuators. These weaknesses are documented in the Project Turnover Document RPP-28344, Revision 1.

The changes to the design were not made based on short-term response to funding constraints or equipment failure. They were made to correct testing identified, design weaknesses, and provide

a compliant DST transfer system. Since there are no requirements that these valves be motor actuated, manual valve actuators were installed to support current operational needs.

Concern 2: "The number of valve problems encountered during these Tank Farm (TF) upgrades under Projects W-211 and W-314 raises serious questions about the adequacy of installation and overall reliability of equipment throughout the TF complex. The valve position indicator problems, high torque valve issues, and the decisions made by CH2M HILL management to suspend funding for Project W-211 before the system was completed to design specifications, indicates a severe disregard for crucial details. If this disregard for details during TF equipment installations or modifications continues, Washington State Department of Ecology (Ecology) is concerned that serious unintended consequences may result".

Response to Concern 2: The design of waste transfer system valves installed has evolved and improved. Valves initially installed by Project W-314 (in the AN-A and AN-B valve pits) had high torque values due to the valve seat material that was selected to account for high radiation fields (6×10^7 Rad total lifetime accumulated dose). Valves that utilized o-ring backed seats, a different seat material, and/or the combination of a different seat material with o-rings were later utilized by both Projects W-314 and W-211 to reduce high operating torque values.

All components must complete both the project acceptance testing and formal operational acceptance testing prior to placing the equipment in service. Problems with valve position indicators were associated with equipment that had completed project acceptance testing but had not completed operational acceptance testing or jumper leak testing, which is a Conduct of Operation Program Defense-in-Depth Feature. Specific corrective actions were taken to address each discrepancy identified during the testing activities. All work was completed to the controlled design specifications, and equipment configuration control established for all TF equipment installations and subsequent modifications.

Concern 3: "Problems with Valve Position Indicators (VPI) were identified during the acceptance testing of the transfer system equipment rather than through inspections during installation. Three VPI were found to be installed incorrectly and no documentation could be found that independent inspections had been done to verify the VPI position. Ecology is concerned that significant errors such as these VPI misalignments were not caught during installation inspections. Fundamental errors such as these, which have the potential for significant consequences if not identified, should be identified during installation and not make it to the acceptance testing phase".

Response to Concern 3: While it is agreed that it is desirable to identify deficiencies as soon as possible, DOE has established multiple phases of inspection and testing to ensure that systems function properly prior to being placed into operation. Acceptance and operational tests are performed after installation is completed to verify the equipment is installed correctly and to ensure that it operates per design. The deficiencies were identified during the required acceptance and operational testing prior to placing the equipment in service as part of a robust acceptance testing program.

Concern 4: "Interaction between CH2M HILL contractor and BNI appear to be minimal during construction and acceptance testing of the transfer system. The interface control document process was maintained, however BNI did not independently inspect or survey any part of the transfer system to verify it was constructed correctly. Since the lines of this transfer system going to the WTP will have the important job of linking the treatment facility to TF, BNI should have had some form of independent physical participation in verifying the construction was adequate. If the transfer system is eventually found to have construction errors, there could be additional delays to WTP startup".

Response to Concern 4: The waste transfer line and interface point between the TF and WTP was independently inspected and verified by the Independent Qualified Registered Professional Engineer. Additionally, the waste transfer line interface point was independently verified by BNI on April 30, 2003.

The interface management process between the Tank Farm Contractor (TFC) and the WTP contractor defines system requirements and specific interface points where contractor responsibilities meet. All physical work performed on the transfer systems is the responsibility of the participating contractors on their respective sides of the defined interface points. Joint contractor responsibility for testing and inspections does not occur until system tie-in and operational testing. To date, the transfer piping has been installed by the TFC up to the interface point, and, as previously stated, the location was independently verified by the Independent Qualified Registered Professional Engineer and BNI WTP contractor. The WTP contractor is not yet scheduled to complete construction or tie-in at the interface point. Joint inspections and testing are required, and planned for, at the time when both independent systems are ready for tie-in and operability testing. Physical system requirements and the need to develop joint tie-in, testing, and operability plans are described in ICD-19 - Interface Control Document (ICD) for Waste Feed (24590-WTP-ICD-MG-01-019, Rev.3).