



U.S. Department of Energy  
**Office of River Protection**

P.O. Box 450  
Richland, Washington 99352

04-ESQ-039

Mr. J. P. Henschel, Project Director  
Bechtel National, Inc.  
2435 Stevens Center  
Richland, Washington 99352

Dear Mr. Henschel:

CONTRACT NO. DE-AC27-01RV14136 – ASSESSMENT REPORT A-04-ESQ-RPP-WTP-006 – TRAINING AND QUALIFICATION ASSESSMENT FOR THE PERIOD APRIL 5 – 12, 2004

This letter forwards the results of the U.S. Department of Energy, Office of River Protection assessment of the Bechtel National, Inc. training and qualification process and activities of the Waste Treatment and Immobilization Plant during the period April 5 – 12, 2004. This assessment had no Findings, but did document two assessment follow-up items (AFI). One AFI follows the closure of Corrective Action Report (CAR) 24590-WTP-QA-CAR-2A-04-069, dated May 13, 2004, concerning the “Construction Training” procedure lack of compliance to the Quality Assurance Manual Policy Q-02.2 Section 2.6 relative to the use of qualified instructors for formal classroom training. The second AFI concerned the need for an effectiveness determination process and its implementation for the Construction Training Program (CTP). A summary of the assessment is provided in the attached assessment report.

The assessors determined the training and qualification process for the project (including the Construction, Project, and Radiological Control training programs) were adequate for the development and delivery of training and in conformance with established Authorization Basis and Quality Assurance Manual requirements with the one exception noted above. The performance and documentation of both the construction and project training and qualification processes has improved with the introduction of the Learning Management System since the last assessment two years ago. The oversight provided by the Project Training Program has been effective. Specifically, training provided based on CARs corrective actions, appears to have mitigated the reoccurrence of similar significant actions adverse to quality. However, the CTP could be strengthened by adoption of the Systematic Approach to Training process element for determining the effectiveness of the training process. This could further reduce the potential for significant quality affecting construction events.

Mr. J. P. Henschel  
04-ESQ-039

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If you have any questions, please contact me, or your staff may call Robert C. Barr, Director,  
Office of Environmental Safety and Quality, (509) 376-7851.

Sincerely,

ESQ:JEA

Roy J. Schepens  
Manager

Attachment

cc w/attach:  
R. D. Davis, BNI  
W. R. Spezialetti, BNI  
Administrative Record

U.S. DEPARTMENT OF ENERGY  
Office of River Protection

ASSESSMENT: Training and Qualification Program and Radiological Control Training  
Program Assessment

REPORT NO: A-04-ESQ-RPP-WTP-006

FACILITY: Bechtel National, Inc.

LOCATION: 2435 Stevens Center  
Richland, Washington 99352

DATES: April 5-12, 2004

ASSESSORS: J. Adams, Lead Assessor  
R. Griffith, ORP ESQ Assessor

APPROVED BY: P. Carier, Verification and Confirmation Official  
ESQ Verification and Confirmation Team

## EXECUTIVE SUMMARY

### Introduction

During the period April 5 – 12, 2004, the U.S. Department of Energy, Office of River Protection assessed the Bechtel National, Inc. (the Contractor) training and qualification program for the Waste Treatment and Immobilization Plant. This assessment of training and qualification covered the following areas:

- Adequacy of the Contractor's training and qualification program to comply with requirements of the Quality Assurance Manual (QAM) and the Authorization Basis;
- Effectiveness of the Contractor's implementation of the training and qualification program;
- Adequacy of the Contractor's Radiological Control Program training based on desk audit of Contractor oversight documents; and
- Adequacy of the Contractor's oversight processes to identify and correct inadequacies in the training and qualification program including the use of training to correct inadequacies.

### Significant Issues and Conclusions

The assessors found the Contractor's training and qualification programs (Construction, Project and Radiological Control Training Programs), continued to meet 24590-WTP-QAM-QA-01-001, "Quality Assurance Manual (QAM)," Revision 4b dated November 26, 2003, with one exception. This exception is described in the Contractor Corrective Action Report (CAR) 24590-WTP-QA-CAR-2A-04-069, dated May 13, 2004, and states the "Construction Training" procedure failed to comply with the QAM Policy Q-02.2 Section 2.6, which states, "Classroom Instructors will be qualified by the appropriate training organization." The assessors determined adequate flow down of requirements from the QAM to Contractor's procedures for the implementation of training and qualifications with the exception noted in the CAR. The closure of this CAR is tracked by assessor follow-up item A-04-ESQ-RPP-WTP-006-01-AFI. The Construction and Project Training programs have made improvements over the last two years in the identification and delivery of training, re-organization of the record keeping, and tracking of training using the Learning Management System (LMS). The assessors found other improvements and some weaknesses in the implementation of the training programs as noted below:

- While differing in their level of incorporation of the Systematic Approach to Training (SAT), the Construction and Project Training Programs had effective processes for the identification and delivery of indoctrination and qualification training using line management approved stair-steps to define management expectations and the Plateau LMS for recording and tracking completed training;

- The Project Training Program effectively implemented a graded SAT for the project organization and used effectiveness determinations to improve work products from the Engineering, Environmental and Nuclear Safety and the Quality Assurance (QA) organizations;
- The Construction Training Program was effectively using a similar graded SAT, with the exception of determining effectiveness of the training provided;
- The Project line organization performed effective oversight of the delivery and effectiveness of training resulting in reduced corrective action reoccurrences, particularly on the part of Design Engineering;
- Although Construction Training Program oversight performed by Contractor QA audit concluded the training program was being effectively implemented, it did not provide any basis, process, or method for determining the effectiveness of training; and
- The Contractor Radiological Control Program training program was compliant, adequately implemented, and effective.

## **Training and Qualification Assessment Report for the Period of April 5 through 12, 2004**

### **Introduction**

During the period April 5 - 12, 2004, the U.S. Department of Energy, Office of River Protection (ORP) conducted an assessment of the Bechtel National, Inc. (the Contractor) training and qualification program for the Waste Treatment and Immobilization Plant, including the Radiological Control Program (RCP) training program. This assessment of training and qualification covered the following areas:

- Adequacy of the Contractor's training and qualification program to comply with requirements of the Quality Assurance Manual (QAM) and the Authorization Basis (AB);
- Effectiveness of the Contractor's implementation of the training and qualification program;
- Adequacy of the Contractor's RCP training program based on desk audit of Contractor oversight documents; and
- Adequacy of the Contractor's oversight processes to identify and correct inadequacies in the training and qualification program including the use of training to correct inadequacies.

### **Overall Conclusion**

The assessors found the Contractor's training and qualification programs (Construction, Project and Radiological Control Training Programs), continued to meet 24590-WTP-QAM-QA-01-001, "Quality Assurance Manual (QAM)," Revision 4b dated November 26, 2003, with one exception. This exception is described in the Contractor Corrective Action Report (CAR) 24590-WTP-QA-CAR-2A-04-069, dated May 13, 2004, and states the "Construction Training" procedure failed to comply with the QAM Policy Q-02.2 Section 2.6, which states, "Classroom Instructors will be qualified by the appropriate training organization." The assessors concluded the training programs were adequately identifying and delivering required training for the performance of quality affecting and important-to-safety (ITS) work. Although the AB and QAM do not require the Systematic Approach to Training (SAT) for design or construction, the use of graded SAT principles appeared to eliminate recurring events for the Project Engineering organization. In addition, Engineering was effectively using metrics to monitor training effectiveness, which could prove useful for other project organizations, including Construction. While ineffective training may not be the root cause of reoccurring construction deficiencies, the use of the SAT effectiveness element for the construction training process may reduce this vulnerability or assist in determining what is needed to correct the problems. The two issues above are tracked by Assessment Follow-up Item's (AFI) A-04-ESQ-RPPWTP-04-006-01-AFI (Procedure issue involving QAM compliance and procedure compliance) and A-04-ESQ-

RPPWTP-04-006-02-AFI (Effectiveness determination process and determination implementation).

## **Significant Observations and Conclusions**

### **Plans and Procedures**

- The Project Training and Qualification Program (PTP), as implemented by procedure 24590-WTP-GPP-CTRG-002, “Training,” met the requirements of the AB and QAM and effectively implemented the concepts of SAT. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)
- The Contractor’s Construction Training Program (CTP), as implemented by the requirements of procedure 24590-WTP-GPP-CON-1301, “Construction Training,” met the AB but did not incorporate the QAM Policy Q-02.2 “Personnel Training and Qualification” Section 2.6, which requires classroom instructors to be qualified by the appropriate project training organization. This is documented in the Contractor CAR 24590-WTP-QA-CAR-2A-04-069, dated May 13, 2004, is tracked in this report by AFI A-04-ESQ-RPP-WTP-006-001. (Assessor Note A-04-ESQ-RPP-WTP-006-03.)
- The CTP was not implementing the construction qualification listing (CQ List) as stated in the “Construction Training” procedure, Section 3.4. This is documented in AFI A-04-ESQ-RPP-WTP-006-001. (Assessor Note A-04-ESQ-RPP-WTP-006-03.)

### **Radiological Control Training Program**

- The Contractor's oversight for RCP training (both line and Quality Assurance [QA]) was appropriate, adequate, thorough, and effective with no significant issues identified requiring further oversight by ORP at this time. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)

### **Project Training Program Staff Training Implementation**

- The Contractor was adequately implementing the “Training” procedure requirements for identifying training requirements for specific positions and work assignments, assigning only trained and qualified personnel to perform work, reviewing and updating training requirements for transferred or promoted personnel, and notifying personnel of impending training. The Learning Management System (LMS) maintained current training profiles with histories of training. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)
- The Contractor identified training requirements (stair-steps) for specific job descriptions based on the analyzed tasks for the individual. The assessors considered this equivalent to job task analysis for SAT. Training requirements included computer-based training, classroom training, and required reading for various classifications of employees. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)
- When required training was revised or new requirements added, affected employees were notified by e-mail of the changes and instructed to update their training. The Contractor’s LMS was updated concurrently to include the required training and the required training was



indicated in the Training Forecast included on the employee's personal computer desktop screen. The assessors reviewed examples of e-mail notifications, LMS entries, and the personal computer desktop screen and concluded the process was adequate and effective. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)

- Engineers and designers were made aware of applicable codes and standards via Design Guides which were found to be consistent with the Safety Requirements Document Safety Criteria. The Design Guide was part of the training program stair-step required reading. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)
- Training materials for courses 24590-WTP-CRM-TRA-000600, "Engineering Calculation Quality Improvement Training," dated February 28, 2003, and 24590-WTP-CRM-TRA-000902, "Authorization Basis Maintenance," dated April 9, 2003, were developed in response to CAR (24590-WTP-CAR-QA-02-119, 24590-WTP-CAR-QA-03-033, 24590-WTP-CAR-QA-03-035, 24590-WTP-CAR-QA-03-036, and 24590-WTP-CAR-QA-03-037) and found to adequately address the CAR-related deficiencies and corrective actions.
- The QAM classroom training was well presented, conducted with complete and informative student materials (24590-WTP-CRM-TRA-000502, "Quality Assurance Program Overview," Revision 3), including a Course Completion Record and completed Training Course Evaluations, and was conducted by qualified instructors. (Assessor Note A-04-ESQ-RPP-WTP-06-01.)
- The Manager of Engineering Processes effectively used performance indicators (metrics) based on engineering activities and documentation, to assess for weaknesses in the training and qualification of design engineers. Engineering was tracking performance on open and overdue CARs, Recommendation and Issues Tracking System overdue and near term items, field change requests, supplier deviation disposition requests, specifications/drawings with five or more approved changes, engineering calculations oversight, and management assessments. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)
- The Contractor's PTP, as it applied to design activities, met and exceeded the requirements of the AB and QAM with excellent implementing procedures for the training and qualification of Engineering Department personnel. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)

### **Project Training Program Staff Qualification Implementation**

- Design engineering personnel involved in quality-affecting activities were properly qualified and only qualified personnel were permitted to perform quality affecting and ITS work. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)
- Lead auditors were properly qualified and certified and only qualified and certified personnel were permitted to perform as audit team leads. (Assessor Note A-04-ESQ-RPP-WTP-006-01.)

### **Construction Training Program Staff Training Implementation**

- Training for CARs was completed and listed as classroom modules but was performed without the use of qualified instructors (construction procedure permits this but not the QAM – see AFI A-04-ESQ-RPP-WTP-006-001-AFI). Interviews with construction staff relative to the CAR training determined some clearly getting the lessons learned message (and hoping the next group down the road did not have to learn the lesson the hard way) while others did not see the relevance to them. (Assessor Note A-04-ESQ-RPP-WTP-006-03.)
- The construction qualification (CQ) process was not being implemented per the “Construction Training” procedure. The CQ List by procedure represented those individuals that had completed initial indoctrination training per Section 3.4 of the procedure. However, the CQ List was actually being used to indicate those personnel qualified for signature authority of ITS work. Correction of this discrepancy in the procedure will be tracked by AFI A-04-ESQ-RPP-WTP-006-001-AFI. (Assessor Note A-04-ESQ-RPP-WTP-006-03.)
- The training profiles of all examined personnel (21 of 200 new hires) were current and confirmed adequate implementation of the “Construction Training” procedure relative to the delivery of required stair-step training. (Assessor Note A-04-ESQ-RPP-WTP-006-03.)
- The Contractor was adequately implementing the “Construction Training” procedure requirements for identifying training requirements for specific positions and work assignments, assigning only trained and qualified personnel to perform work, reviewing and updating training requirements for transferred or promoted personnel, and notifying personnel of impending training. The LMS maintained current training profiles with histories of training. (Assessor Note A-04-ESQ-RPP-WTP-006-03.)
- The Contractor identified construction training requirements (stair-steps) for specific job descriptions based on the analyzed tasks for the individual. The assessors considered this equivalent to job task analysis for SAT. Training requirements included computer-based training, classroom training, and required reading for various classifications of employees. (Assessor Note A-04-ESQ-RPP-WTP-006-01)

### **Construction Training Program Staff Qualification Implementation**

- The Contractor had an adequate program for the qualification and certification of specified groups of personnel per QAM, Policy 2.2, Section 3.3, and verified by a 10 % sampling of personnel records associated with Qualification/Certification in all identified areas requiring certification. The records review validated the personnel involved in these activities were properly certified. (Assessor Note A-04-ESQ-RPP-WTP-006-04.)

### **Effectiveness of Project Oversight of the Training and Qualification Programs**

- The Contractor QA performed an audit to determine the compliance and effectiveness of the CTP. The Contractor QA concluded the CTP implementing procedure complied with

requirements. However, the assessors determined the “Construction Training” procedure did not comply with the QAM Policy Q-02.2, Section 2.6, on the use of qualified instructors for classroom training and the “Construction Training” procedure was not being implemented as stated relative to the CQ List. These compliance issues are stated in a previous AFI in this report and CAR-QA-2A-04-069 dated May 13, 2004, has been issued relative to the QAM compliance issue. QA audits had been performed and stated the construction training program was effective, but did not provide a basis for this conclusion. (Assessor Note A-04-ESQ-RPP-WTP-006-05.)

- The effectiveness of the CTP has not been measured by the Contractor but, as measured by the ORP assessments via the CAR search method, the CTP may be ineffective for the prevention of reoccurring significant quality-affecting incidents. This will be further tracked via AFI A-04-ESQ-RPP-WTP-006-002-AFI. (Assessor Note A-04-ESQ-RPP-WTP-006-05.)
- The PTP had multiple management self-assessments performed by Engineering, Environmental and Nuclear Safety, QA, and Training and determined the program was compliant. In addition, the Project Training Manager had completed a Management Assessment which provided a basis and metrics for the determination of effectiveness for the engineering organization and established effectiveness using SAT principles. (Assessor Note A-04-ESQ-RPP-WTP-006-05.)

### **Adequacy of Training and Qualification Records**

- In response to CARs 02-056, 02-082, and 02-099, the PTP procured a new computer program for training tracking and record keeping titled the Plateau LMS. This system was put in place in late 2003 and has been successfully loaded with all training and training records. The Contractor provided oversight in both self-assessment and audit to ensure this system was functional and determined training records were adequately developed and maintained. (Assessor Note A-04-ESQ-RPP-WTP-006-06.)

### **List of Items Opened, Closed, and Discussed**

#### Opened

#### **New Follow-up Items:**

A-04-ESQ-RPP-WTP-006-A01	Follow-up Item	Revise the CTP Procedure 24590-WTP-GPP-CON-1301 to comply with QAM Policy Q-02.2 Section 2.6 relative to use of qualified instructors during formal classroom training. In addition, revise procedure to reflect actual use of the CQ List. See Assessment Note Number: A-04-ESQ-RPP-WTP-006-02
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A-04-ESQ-RPP-WTP-006-A02	Follow-up Item	Verify the Contractor has established a process to verify effectiveness of the CTP and performs oversight to this process to determine effectiveness. See Assessment Note Number: A-04-ESQ-RPP-WTP-006-07
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Closed

None