



U.S. Department of Energy
Office of River Protection

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Richland, Washington 99352

05-ESQ-025

Mr. E. S. Aromi, President
and General Manager
CH2M HILL Hanford Group, Inc.
Richland, Washington 99352

Dear Mr. Aromi:

CONTRACT NO. DE-AC27-99RL14047 – ASSESSMENT REPORT A-05-ESQ-TANKFARM-004 – CH2M HILL HANFORD GROUP, INC. (CH2M HILL) TRAINING AND QUALIFICATION (T&Q) ASSESSMENT, APRIL 25 THROUGH MAY 5, 2005

This letter forwards the results of the U.S. Department of Energy (DOE), Office of River Protection (ORP) assessment of the CH2M HILL T&Q program conducted during the period of April 25 through May 5, 2005.

The assessment team concluded the CH2M HILL T&Q program complied with DOE Order 5480.20A and the Quality Assurance Program Description Section 2.2 with some noted exceptions identified in one Finding and three assessment follow-up items (AFI). The assessment team determined the T&Q organization was responding to recent issues identified by both CH2M HILL and ORP assessments to improve program compliance and the quality of training services. The assessors concluded the required personnel are effectively trained and qualified using a systematic approach.

The assessment team identified a Finding (A-05-ESQ-TANKFARM-004-F01) for CH2M HILL's failure to document in their Corrective Action Management program a condition adverse to quality. A recent management assessment, FY2005-TF-M-0172, identified a condition which violated quality assurance requirements. This condition was not documented in the company's corrective action program, which is contrary to the requirements of 10 CFR 830.122 "Nuclear Safety Management," Subpart A "Quality Assurance Requirements," Criterion 3 "Management/Quality Improvement." The assessment team evaluated the Contractor's PER-2005-1661, and determined the Problem Evaluation Request (PER) did address the inappropriate use of corrected on the spot in the Corrective Action Program. However, the PER did not address the failure to meet 10 CFR 830.122 requirement for reporting a condition adverse to quality. Please address the reasons why the above PER did not address the failure to meet 10 CFR 830.122 in your response to the Finding.

The AFIs identified in this report will be used to track resolution of issues identified by the ORP assessors and documented in the PER. These issues were: 1) lack of a currently approved Training Implementation Matrix; 2) lack of a qualification card for Health Physics Technicians and Industrial Hygiene Technicians; and 3) failure to flow down requirements from the Training Plan to implementing procedures. When placed in context, the issues identified by ORP do not challenge the adequacy or effectiveness of the delivery of training or the qualification of the

staff. However, the assessors believe a more timely assessment of T&Q, using DOE STD-1070-94, may have provided CH2M HILL an opportunity to self-identify and resolve issues discussed in this report. In addition, the Finding discussed above provides some indications CH2M HILL staff may not fully comprehend how to properly use the corrective action program.

Within 30 days of receipt of this letter, please respond to the Finding and the AFIs. For the Findings, the response should include:

- The cause of the Finding;
- The corrective steps that have been taken to control or remove any adverse impact to identified non-compliances (remedial actions) and the results achieved;
- The corrective steps that will be taken to prevent recurrence; and
- The date when all corrective actions will be completed, verified, and compliance achieved.

The response to the AFIs should include the PER resolution and corrective action dates for each.

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,

Roy J. Schepens
Manager

ESQ:JEA

Attachment

cc w/attach:

G. Harvey, CH2M HILL
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A. McKennon, CH2M HILL
E. J. Millikin, CH2M HILL
M. L. Sheriff, CH2M HILL
C. R. Ungerecht, PAC
Administrative Record

U.S. DEPARTMENT OF ENERGY
Office of River Protection
Environmental Safety and Quality

ASSESSMENT: CH2M HILL Hanford Group, Inc. Training and Qualification Program
Assessment

REPORT: A-05-ESQ-TANKFARM-004

FACILITY: CH2M HILL Hanford Group, Inc. Tank Farms

LOCATION: Hanford Site

Dates: April 25 through May 5, 2005

ASSESSORS: J. Adams, ORP Lead Assessor
C. Blanchard, ORP Assessor
L. McKay, ORP Assessor

APPROVED BY: Patrick P. Carier, Team Lead
Verification and Confirmation

Executive Summary

The U.S. Department of Energy (DOE), Office of River Protection conducted an assessment of the CH2M HILL Hanford Group, Inc.'s (CH2M HILL) Training and Qualification (T&Q) Program during the period of April 25 through May 5, 2005. The purpose of the assessment was to verify the Tank Farm T&Q Program, as described in the T&Q Plan, incorporated the source requirements of the CH2M HILL Quality Assurance Program Description (QAPD) Section 2.2 and the DOE Order 5480.20A; flowed down those requirements to implementing procedures; and verified the adequate implementation of those procedures. The assessment also reviewed the CH2M HILL's (Contractor) ability to identify, document, and correct deficiencies identified via the Contractor self-assessment process using the Contractor's corrective action program.

The assessors concluded the T&Q Plan did incorporate the source requirements of the DOE Order 5480.20A and the QAPD Section 2.2, and was being adequately implemented with approved procedures with the noted exceptions in the body of this report. In support of this conclusion, the assessors noted the Contractor required personnel were being effectively trained and qualified in a systematic approach. However, the assessors noted the Contractor had not followed their corrective action program for the identification, documentation, and corrective action follow up for an issue identified in a management assessment. The assessors concluded this was a violation of 10 CFR 830.122 Criterion 3 and is documented by a Finding.

The assessors identified the Finding mentioned above and three additional assessment follow up items associated with procedure flow down and implementation.

Table of Contents

Executive Summary	ii
Table of Contents	iii
List of Acronyms	iv
Details	1
Items Opened, Closed, and Discussed	6
Opened Findings	6
Signatures	9

List of Acronyms

AFI	Assessment Follow-up Item
ATS	Analytical Technical Services
CH2M HILL	CH2M HILL Hanford Group, Inc.
DOE	U.S. Department of Energy
HPT	Health Physics Technician
IHT	Industrial Health Technician
ITEM	Integrated Training Electronic Matrix
JTG	Joint Test Group
MA	Management Assessment
ORP	Office of River Protection
PER	Problem Evaluation Request
QAPD	Quality Assurance Program Description
RadCon	Radiological Control
RCSTS	Replacement Cross-Site Transfer System
SAT	Systematic Approach to Training
STD	Senior Test Directors
T&Q	Training and Qualification
TFC	Tank Farm CH2M HILL
TIM	Training Implementation Matrix

**CH2M HILL Hanford Group, Inc. (CH2M HILL)
Training and Qualification (T&Q) Program Assessment
April 25 through May 5, 2005**

Details:

1.0 Programmatic Compliance to Requirements

The assessors reviewed the requirements in 10 CFR 830.122, the U.S. Department of Energy (DOE) Order 5480.20A, the CH2M HILL (Contractor) Quality Assurance Program Description (QAPD), and the Contract DE-AC27-99RL14047 to evaluate the incorporation of T&Q program requirements to the CH2M HILL T&Q Plan, TFC-PLN-61 (Training Plan). The Contract required the Contractor to meet 10 CFR 830.122 and the DOE Order 5480.20A.

1.1 CFR 830.120 Compliance Review

The assessors evaluated the Contractor's compliance with 10 CFR 830.122, Criterion 2 "Personnel Training and Qualification" which required the following: 1) "Train and qualify personnel to be capable of performing their assigned work; and 2) Provide continuing training to personnel to maintain their job proficiency." The assessors reviewed the CH2M HILL Training Plan TFC-PLN-061, Sections 4.5 and 4.6 and determined these sections covered the two requirements above. The assessors also determined these requirements were covered through the Contractor's compliance to the DOE Order 5480.20A "Personnel Selection, Qualification, and Training Requirements for the DOE Nuclear Facilities," which states in Part 5 "Policy and Objectives," "Implementation of the requirements of this Order will meet 10 CFR 830.122, Criteria 2: Personnel Training and Qualification."

The assessors concluded the Contractor met 10 CFR 830.122 based on the compliance to DOE Order 5480.20A via the Contractor Training Plan.

1.2 DOE Order 5480.20A Compliance Review

The assessors reviewed Attachment 1 of DOE Order 5480.20A "CH2M HILL Requirements Document," which stipulated six requirements for compliance to this order. The assessors reviewed two of these requirements, which were: 1) Submittal of a Training Implementation Matrix (TIM) to the Operations Office Manager for review and approval; and 2) Performance of periodic systematic evaluations of T&Q programs.

The assessors reviewed the approved CH2M HILL TIM Revision 2a and the periodic systematic evaluation of training (Management Assessment Report FY2005-TP-M-0172, "TFC Assessment Report of Training Management Systems, Instructional Staff, and Radiological Control Training") to verify the CH2M HILL compliance to DOE Order 5480.20A.

The assessors' review of the TIM Table 1 against the Contractor implementing references determined some substantive inconsistencies existed such as: 1) The original training program was based on a different contractor's program and procedures; and 2) The procedures listed for implementation had been changed to CH2M HILL procedures to support the Training Plan. The assessors were provided the draft revised TIM, Revision 3, along with the newly approved T&Q Plan TFC-PLN-061, issued April 11, 2005. The draft TIM aligned with the TFC-PLN-61 (Training Plan) and resolved most of these inconsistencies. However, the draft TIM had not been submitted by the CH2M HILL to DOE Office of River Protection (ORP) for concurrence. During an interview with the Training Procedures Manager, he stated the revised TIM Revision 3 would be submitted after the DOE ORP assessment was completed. The lack of a current TIM reflecting the Training Plan TFC-PLN-061 will be tracked as an Assessment Follow-up Item (AFI) (A-05-ESQ-TANKFARM-004-A01)¹.

The assessors' reviewed the CH2M HILL Management Assessment (MA) FY2005-TP-M-0172 and concluded, based on the lines of inquiry sourcing from DOE Standard 1070-94, this assessment satisfied the requirement for periodic systematic evaluation of T&Q.

Based on the review of the two requirements above, the assessors concluded CH2M HILL Training Plan was in compliance with DOE Order 5480.20A with the exception noted in AFI A-05-ESQ-TANKFARM-004-A01 listed above.

1.3 QAPD Section 2.2 Compliance Review

The assessors evaluated the Training Plan to ensure the requirement (QAPD Section 2.2) "to ensure that personnel are trained, qualified and proficient to perform assigned tasks," was appropriately incorporated. The assessors reviewed the Training Plan, Section 4.0 "Training Program Administration," and found it covered the areas of personnel selection including education and experience, general employee training, individual training profile, initial training, continuing training, remedial training, equivalency and reciprocity, vendor provided training, subcontractor training, regulatory and safety training, qualification programs, and the systematic approach to training. The assessor concluded the Training plan, Section 4.0, appropriately incorporated the QAPD Section 2.2 requirement.

The assessors reviewed a sampling of management training profiles to determine how management the Contractor complied with QAPD Section 2.2.4.1, which stated, "Management at all levels is responsible for developing job function descriptions, identifying personnel training needs, and for ensuring that personnel in their organizations are trained, qualified and proficient to perform assigned work." During interviews with management the assessors were unable to determine how the management chain of command determined the management below them was adequately trained, qualified and proficient to perform assigned work per QAPD Section 2.2.4.1. The assessors concluded, as an Observation, management personnel need to review and approved the Integrated Training Electronic Matrix (ITEM) profiles of management below them and ensure these managers obtain and maintain their qualifications per QAPD 2.2.4.1.

¹ DOE Order 5480.20A, Technical Interpretation 2003-01, dated December 3, 2003, specifically required the updated TIM to be submitted and approved by DOE, if the changes involved substantive technical content

The assessors reviewed the Contractor's implementing procedures to verify the requirements of the Training Plan were captured in these procedures. The Training Plan, Section 4.0 "Training program Administration" detailed how requirements were captured in the various Contractor procedures and implementing standards. The Training Plan, Section 4.2 "Entry-Level Education and Experience" referenced a series of standards (TFC-BSM-TQ-STD-XX) and provided links to the standards, which provided requirements for entry education and experience. The Training Plan Section 4.12 "Qualification Program" stated "This (procedure) applies to the qualification process for positions identified in the Tank Farm Contractor (TFC) and Analytical Technical Services (ATS) TIMS, Quality Assurance personnel, selected positions within the scope of DOE/RW-0333P or other specific requirements, when identified." However, Section 4.12 did not provide the reference linkage to the required implementing procedure for the qualification process. In addition, Section 4.13 "Systematic Approach to Training," which discussed the Systematic Approach Training (SAT) process required by DOE Order 5480.20A, also did not provide the reference linkage to the implementing procedure. In both cases, implementing procedures were approved, but were not required to be used by the Training Plan.

The assessors concluded the Training Plan addressed the requirements for SAT and qualification process, but did not provide the implementing procedure linkage requiring the use of the procedures for either process. The resolution of this issue will be tracked by AFI A-05-ESQ-TANKFARM-005-A02.

2.0 Technical Staff and Miscellaneous Professionals T&Q

The assessors reviewed the Contractor's standards, procedures, qualification cards, and records of qualification to verify the implementation of the T&Q process for the technical staff position classifications defined in the TIM to the requirements of QAPD Section 2.2.3.2.

The assessors reviewed the listing of personnel required to be trained and qualified by the TIM Revision 3, Table 1, which included 27 position/function titles. The assessors' review of procedures and records determined the 25 of 27 position functions of the Contractor staff were covered by the Training Plan.

The two exceptions were the Health Physics Technicians (HPT) and the Industrial Hygiene Technicians (IHT). The HPTs were excluded from the qualification card procedure TFC-BSM-TQ-IMP-C-02, Revision A-2 using an undocumented exception process. This process was not procedurally controlled by the Contractor nor described as an exemption to the TIM. (This issue is further discussed in Section 4.0 of this report.) The IHT had on-the-job qualification cards, but the cards only covered a portion of the requirements of the qualification card procedure TFC-BSM-TQ-IMP-C-02 and did not fully comply with the Training Plan. The assessors will track the resolution of the above exceptions to the TIM with AFI A-05-ESQ-TANKFARM-004-A03.

The assessor sampled 22 qualification records of recently qualified personnel in the engineering organization and concluded the qualification records were compliant to the procedure TFC-BSM-TQ-IMP-C-02 "Conduct of Qualification Cards and Guides" because: 1) The qualification process included an oral interview with several subject matter experts for knowledge

verifications concluding with an oral interview with the Chief Engineer; 2) The qualification card provided signature verification of education and experience, ITEM profile training completed, and required reading completed; and 3) The final signature verification was conducted by the Chief Engineer. The assessors determined the SAT process was used to determine the required training. The assessors found the above qualification process exemplary because the CH2M HILL Engineering Management ensured line management was involved in determining special safety training requirements; verified the requisite knowledge of the individual being qualified; and had final approval of the qualification with the ability to withdraw qualification, if the requisite training updates were not maintained.

The assessors reviewed the implementing standard TFC-BSM-TQ-STD-05 (Requirements for Miscellaneous Professionals). The standard described requirements for 12 professionals including Senior Test Directors (STD) and Joint Test Group (JTG) members. The requirements for STDs were listed as a four-year degree with at least two years related startup experience. The Standard required no minimum education or experience levels required for a JTG member. The assessors determined the Contractor should consider modifying the above standard to correct the qualification inconsistency between the STDs and JTG.

Based on the above, the assessors concluded the Contractor had implemented an adequate and effective T&Q program for the technical staff and the miscellaneous professional staff.

3.0 Verification of Operational and Maintenance Crafts Knowledge, Skills, and Abilities to Perform Work

The assessors evaluated the Replacement Cross-Site Transfer System (RCSTS) initial training records, the continuing and re-qualification training records for RCSTS, the proficiency training records for RCSTS, and the RCSTS quarterly continuing training attendance, to assess whether the Contractor had provided the RCSTS operators and maintenance craft personnel with training on the knowledge, skills, and abilities to perform their work activities safely and efficiently.

The assessors concluded the RCSTS initial training addressed the knowledge, skills, and attributes for operators to safely and efficiently operate systems and associated equipment.

The assessors' review of the RCSTS quarterly continuing training program concluded it was an effective forum in providing information pertaining to Contractor operations and maintenance employees; however, since it did not cover system or equipment upgrades or changes, the assessors recommend continuing training should consider including system and component specific content for systems, which have been modified in the recent past.

The assessors reviewed the proficiency training records of over 30 waste feed operators. The assessors concluded the operators were current with their quarterly proficiencies.

Based on the above, the assessors were unable to reach any specific conclusions as to the general adequacy or effectiveness of the Contractors operators or maintenance training at this time due to limited sample reviewed by the assessment team.

4.0 Verification of Compliance of Radiological Control Program Training to DOE Order 5480.20A

The assessors reviewed a sample of relevant program documentation and interviewed staff members cognizant of, and responsible for, implementation of the Program to verify the CH2M HILL Radiological Control (RadCon) Training Program (the Program) was complying with the requirements of DOE Order 5480.20A. After examining the T&Q records for two current Contractor HPTs, the assessors determined the existing system performed a majority of the functions provided by the “qual card” process. While the system appeared to operate effectively, T&Q records for HPTs were not being kept in “qual card” format as required by the Training Plan and procedure TFC-BSM-TQ-IMP-C-02, “Conduct of Qualification Cards.” From a flow down of requirements viewpoint, the lack of a “qual card” made tracing the Order requirements to HPT Training Program implementation more difficult than necessary as well as non-compliant to the Training Plan.

The process being used (using the ITEM database to track training; supervisory review of completed course rosters in hard copy; scanning the hard copy records; and updating ITEM) provided adequate assurance training was being delivered for RadCon Field Line Management and HPTs. However, this did not follow the qualifications process outlined in the Training Plan or the associated procedure for the proper documentation of qualification, which required the use of the SAT process and the qualification card, which provided the documentation of management involvement in the definition of adequate training and the approval of receipt of this required training. The resolution of this issue will be tracked in AFI A-05-ESQ-TANKFARM-004-A03.

5.0 Effectiveness of Oversight of the T&Q Program

The assessors evaluated the Contractor’s assessments of the past year to determine whether the frequency, scope, and depth of Contractor oversight processes was commensurate with the status and importance of work in accordance with QAPD Section 2.3 “Quality Improvement,” Section 2.9 “Management Assessment,” and DOE Order 5480.20A “Training Implementation Matrix for DOE Order 5480.20A,” using DOE STD-1070-94.

The assessors determined the Contractor had conducted a number of documented training assessments including both management assessments by the Training organization and line management, independent assessments by the Independent Assessment organization, and special assessments by function management such as radiological control. The assessors’ review included the recently performed management assessment FY2005-TP-M-0172, “TFC Assessment Report of Training Management Systems, Instructional Staff, & Radiological Control Training,” which satisfied the oversight requirements of the Order based on the inclusion of lines of inquiry from the DOE STD-1070-94, “Guidelines for Evaluation of Nuclear Facility Training Program,” and effectively evaluated the Training Plan to this standard. The results of assessments were documented in Problem Evaluation Requests (PER) with one significant exception. The MA FY2005-TP-M-0172 report documented the following significant Observation: “Many of the corrective actions initiated in the PER process to make improvements did not improve the stated condition or prevent recurrence; and assessment results

are not applied to other areas to determine if similar conditions exist.” The Contractor’s report considered this in violation of 10 CFR 830.122 (i) Quality Assurance, Criterion 9 which states “Ensure managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives.” This condition adverse to quality was not documented in the Contractor’s corrective action program, thus losing an opportunity for self-improvement per QAPD Section 2.3.

The assessors concluded this failure to document an issue as a PER was a violation of the 10 CFR 830.122 Criterion 3 and QAPD Section 2.3.3. This non-compliance is documented in this report as Finding A-05-ESQ-TANKFARM-004-F01.

Based on the review of the various oversight documentation reviewed, the assessors concluded CH2M HILL had an adequate oversight program, which was compliant to QAPD Section 2.3, DOE Order 5480.20A using DOE STD-1070-94, and QAPD Section 2.9 with the exception noted above. In addition, the assessors concluded the use of the quarterly assessments introduced by the Training Organization based on DOE STD-1070-94 would greatly improve the training process and provide a good knowledge base to make continued improvements.

Items Opened, Closed, and Discussed

Opened Findings

- **A-05-ESQ-TANKFARM-004-F01:** The failure to use the Corrective Action Management system to document a significant Observation reported in MA Report TFC-M-0172, is contrary to 10 CFR 830.122 “Nuclear Safety Management” Subpart A “Quality Assurance Requirements,” Criterion 3, Management/Quality Improvements, based on CH2M HILL QAPD Section 2.2.3.

Requirements:

10 CFR 830.122 “Nuclear Safety Management” Subpart A “Quality Assurance Requirements,” Criterion 3, Management/Quality Improvements states:

“Establish and implement processes to detect and prevent quality problems,” and

“Identify the causes of problems and work to prevent recurrence as a part of correcting the problem”

TFC-PLN-02, Revision B-1, “Quality Assurance Program Description,” in Section 2.3.3.2 Item 1 which states:

“The Corrective Action Management system shall be employed for: a) Documenting and reporting deficiencies, and for evaluating the impact, or potential impact, or deficiencies for the purpose of grading corrective action processes and establishing priorities.”

TFC-ESHQ-Q-C-C-01, Revision B-8, “Problem Evaluation Request,” Section 3.8 which states:

“Identify and report adverse conditions or concerns, both verbally to the most appropriate manager and in a PER. A PER should be initiated as soon as possible after safety concerns have been addressed.”

Contrary to the above, the Contractor did not document a significant observation in Management Assessment FY2005-TP-M-0172, “TFC Assessment Report of Training Management Systems, Instructional Staff, & Radiological Control Training,” per the CH2M HILL corrective management process document per procedure “Problem Evaluation Request, TFC-ESHQ-Q-C-C-01, Revision 8.”

Discussion:

The CH2M HILL training organization issued an MA FY2005-TP-M-0172 on March 31, 2005, and documented one significant Observation involving the failure of the corrective management program to correct problems, and four other issues involving procedural non-compliance with the training program without documenting the issues per the procedure TFC-ESHQ-Q-C-C-01, Revision B-8, “Problem Evaluation Request,” Section 3.8. The MA report specifically stated the assessment did not attempt to generate Findings of non-compliance since the PER system performed this function. The statement of the significant Observation was, “Many of the corrective actions initiated in the PER process to make improvements did not improve the stated condition or prevent recurrence; and assessment results are not applied to other areas to determine if similar conditions exist.” This assessment clearly documented a condition adverse to quality contrary to 10 CFR 830.122 (i) “Quality Assurance” Criterion 9, which states:

“Ensure managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives.”

The MA report stated the basis for not generating a PER was the problem was “Corrected On-the-Spot.” This process does not appear in the CH2M HILL procedure TFC-ESHQ-Q-C-C-01, Revision B-8, “Problem Evaluation Request.” The assessors interviewed the T&Q Manager who acknowledged this was not per procedure and initiated PER 2005-1661. However, this PER only acknowledged the mis-use of the on-the-spot process contrary to the PER procedure and did not acknowledge lack of compliance to the QAPD Section 2.3.3 and 10 CFR 830.122 Criteria 9.

Opened AFIs

- **A-05-ESQ-TANKFARM-004-A01: The CH2M HILL did not have an approved TIM reflecting the approved Training Plan as the implementing document for compliance to DOE Order 5480.20A.**

Requirement: Attachment 1 of DOE Order 5480.20A “Contractor Requirements Document,” stipulates six requirements for compliance to the Order. One of these is the submittal of a TIM to the Operations office Manager for review and approval. The Technical Interpretation

2003-01, December 3, 2003, requires the updated TIMs to be submitted and approved by DOE if they involved substantive technical content.

Discussion: The Contractor had previously obtained approval of the TIM Revision 20A-2a in January 2003. The program had been modified in a recent Training Plan change, and a draft revision to the TIM was available but not submitted to ORP for concurrence. The Contractor had previously documented the fact the TIM was not current in PERs, but had never stipulated the corrective action of submitting the revised TIM to ORP for concurrence. The lack of having an approved TIM reflecting the approved Training Plan (TFC-PLN-061) will be tracked as an AFI, based on the DOE Order Technical Interpretation 2003-01, dated December 3, 2003, which requires the updated TIMs to be submitted and approved by DOE if they involved substantive technical content.

- **A-05-ESQ-TANKFARM-004-A02:** The failure to flow down the Training Plan requirement for a qualification process documented in a qualification card, for those required positions in the TIM, to the implementing procedure TFC-BSM-TQ-IMP-C-02, “Conduct of Qualification Cards.”

Requirement: TFC-PLN-061, Revision A, “Tank Farm CH2M HILL Training and Qualification Plan” in Section 3.1.2, which states in the fifth bullet:

“Ensure personnel complete required training and qualification prior to being assigned to perform work independently.”

In addition, TFC-PLN-061 Section 4.12 Qualification Programs which states:

“This applies to the qualification process for positions identified in the TFC and ATS CH2M HILL TIMs, Quality Assurance personnel, select position with the scope of DOE/RW-0333P or other specific requirements, when identified.”

Discussion: The Contractor has committed in the TIM to a set of positions descriptions, which are subject to a qualification process involving the use of a qualification card per the Training Plan Section 4.12, to satisfy the requirements of DOE Order 5480.20A. The Contractor had an approved procedure to provide a qualification process with qualification card guidance. This procedure did not reference the Training Plan as a source document and did not require qualification cards, but instead provides a process if qualification cards were desired by management. The lack of reference between the Training Plan and the procedure TFC-BSM-TQ-IMP-C-02, “Conduct of Qualification Cards and Guides” created the loss of commitment for any personnel to have qualification cards. The assessors concluded the source requirements from DOE Order 5480.20A were captured in the CH2M HILL Training Plan, but the requirement was not properly transmitted from the Training Plan to the implementing procedure causing of the failure to provide qualification card process for two of the positions descriptions listed in the TIM.

- **A-05-ESQ-TANKFARM-004-A03:** The failure to provide a qualification card for the IHTs and HPTs in accordance with the Contractor procedure TFC-BSM-TQ-IMP-C-02, “Conduct

of Qualification Cards and Guides” is contrary to the Training Plan commitment to provide qualification of required positions identified in the approved TIM.

Requirement: TFC-PNL-061, Revision A, “Tank Farm CH2M HILL Training and Qualification Plan” in Section 3.1.2, which states in the fifth bullet:

“Ensure personnel complete required training and qualification prior to being assigned to perform work independently.”

In addition, TFC-PLN-061, Section 4.12 “Qualification Programs,” which states:

“This applies to the qualification process for positions identified in the TFC and ATS CH2M HILL TIMs, Quality Assurance personnel, select position with the scope of DOE/RW-0333P or other specific requirements, when identified.”

Discussion: The Contractor had committed to a set of positions descriptions as identified in the TFC CH2M HILL TIM, which are subject to the qualification process identified in DOE Order 5480.20A, and restated in the requirements in Section 4.12 of the Training Plan. The Contractor had also approved a procedure TFC-BSM-TQ-IMP-C-02 “Conduct of Qualification Cards and Guides,” to provide this qualification process with guidance. This procedure includes use of standards providing: 1) minimum education and experience requirements for hiring; 2) a SAT process for defining training content; 3) a process for tracking training; and 4) management involvement in defining minimum acceptable training and the signature acceptance of training completion. The existing process of qualification of HPTs does not conform to this procedure. The assessors concluded the decision to not require qualification cards of HPTs and IHTs was inconsistent with written Contractor procedures. The resolution of this issue will be tracked as A-05-ESQ-TANKFARM-004-A01.

Signatures

James E. Adams
Assessment Team Leader

Courtney A. Blanchard
Assessment Team Member

Dr. Larry R. McKay
Assessment Team Member

ASSESSMENT NOTE

Assessment Note Number: A-05-ESQ-TANKFARM-004-01

Assessors Name(s): J. E. Adams

Date of Assessment: April 25 through May 5, 2005

Item Assessed: CH2M HILL Hanford Group, Inc. (CH2M HILL) Training and Qualification Program Compliance to Regulatory Requirements

Scope

The assessors reviewed the requirements of 10 CFR 830.120, the U.S. Department of Energy (DOE) Order 5480.20A, DOE O 414.1B, and the CH2M HILL's Quality Assurance Program Description (QAPD), to verify the flow down of requirements contained in these source documents were contained in the CH2M HILL charters, Training Plans, standards, and procedures. The assessors also interviewed the CH2M HILL management and staff to understand the intended flow down process of the Training Plan and associated implementing procedures.

Observations and Assessments

Assessment of Compliance to 10 CFR 830.122 and DOE 5480.20A by the CH2M HILL QAPD

The assessors reviewed the following documents:

- TFC-PLN-02, Revision B-1 CH2M HILL "Quality Assurance Program Description," issued March 9, 2005;
- 10 CFR 830.122, "Quality Assurance Criteria;"
- DOE O 414.1B, "Quality Assurance;"
- DOE Order 5480.20A, "Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities," dated November 15, 1994;
- CH2M HILL "Training Implementation Matrix per DOE Order 5480.20A, Revision 20A-2a," of January 2003;
- CH2M HILL "Training Implementation Matrix per DOE Order 5480.20A, Revision 20A-3Draft," of January 2005;

- DOE Office of River Protection (ORP) letter 02-ESQ-006 Contract No DE-AC27-99RL14047 – “Approval of Training Implementation Matrix per DOE 5480.20A,” CCN 0205573, dated December 30, 2002;
- TFC-PLN-61 Revision A, “Tank Farm CH2M HILL Training and Qualification Training Plan,” dated April 11, 2005;
- TFC-BSM-TQ_ADD-C-01, Revision C-1, “Training Analysis, Design and Development,” dated December 01, 2004;
- FY2005-TP-M-0172, TFC “Assessment Report of Training Management Systems, Instructional Staff, and Radiological Control Training,” issued March 31, 2005;
- TFC-BSM-TQ_MGT-P-07, Revision B, “Training Evaluation,” dated April 12, 2005;
- TFC-BSM-TQ_IMP-C-02, Revision A-2, “Conduct of Qualification Cards and Guides,” dated March 22, 2005; and
- TFC-CHARTER-07, Revision A-1, “Training Steering Council,” dated March 10, 2005.

Compliance to QAPD and 10 CFR 830.122

The CH2M HILL’s QAPD Section 2.2 “Personnel Training and Qualifications” discussed the basic requirements of Section 2.2.1 “Basic Requirements.” This section required the CH2M HILL to meet 10 CFR.122(b), “Quality Assurance” Criterion 2 and DOE O 414.1A “Quality Assurance,” Attachment 1 (2)(a)(2).

The assessors reviewed Code of Federal Regulations, 10 CFR 830.122 “Quality Assurance Criteria,” Item (b), Criterion 2, “Management/Personnel Training and Qualification” which stated CH2M HILL should: 1) Train and qualify personnel to be capable of performing their assigned work; and 2) Provide continuing training to personnel to maintain their job proficiency. The assessors reviewed the CH2M HILL Contract DE-AC27-99RL14047 and determined it required CH2M HILL to comply with the DOE Order 5480.20A, which provided contractual based requirements to establish selection, qualification, and training requirements for management and operating personnel involved in the operation, maintenance, and technical support of DOE non-reactor nuclear facilities. This Order also stated “Implementation of the requirements of this Order will meet 10 CFR 830.120, Criteria 2 – ‘Personnel Training and Qualification.’” The assessors concluded the CH2M HILL complied with 10 CFR 830.122 by requirements in the Contract.

Compliance to DOE Order 5480.20 A “Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities”

- The assessors reviewed the DOE Order 5480.20A and determined Attachment 1 of DOE Order 5480.20A “CH2M HILL Requirements Document,” stipulated six requirements for compliance to the order. The two major requirements of the order are: 1) Item 2 required the preparation and submittal of a Training Implementation Matrix to the Operations Office Manager for review and approval; and 2) Item 6 required performance of periodic systematic evaluations of training and qualification (T&Q) programs. The assessors reviewed the CH2M HILL “Training Implementation Matrix” for compliance to the order and found CH2M HILL had submitted and obtained approval of the matrix Revision 2A per DOE ORP letter 02-ESQ-006 Contract No DE-AC27-99RL14047 – “Approval of Training Implementation Matrix per DOE 5480.20A,” CCN 0205573, dated December 30, 2002. The second major requirement for a periodic systematic evaluations of the T&Q program was addressed by the procedure TFC-BSM-TQ_MGT-P-07, Revision B, “Training Evaluation,” dated April 12, 2005, and the completed assessment FY2005-TP-M-0172 Tank Farm Contractor (TFC) “Assessment Report of Training Management Systems, Instructional Staff, and Radiological Control Training,” dated March 31, 2005. This assessment had been performed using lines of inquiry based on DOE-STD-1070-94 “DOE Standard Guidelines for Evaluation of Nuclear Facility Training Programs” and resulted in a series of issues documented in Problem Evaluation Requests (PER) (PER 2005-1377, 1378, 1380, 1381, and 1382).

The assessors’ review of the approved Training Implementation Matrix (TIM) and the periodic systematic evaluation of training determined some inconsistencies existed in the program as approved including:

- The TIM is described as the Training Plan for CH2M HILL but the Training Plan RPP-MP-011 was also approved and was a different document;
- The Training Plan, RPP-MP-011, stated CH2M HILL would “Select, train, and qualify operating personnel using HNF-IP-1184, Section 2.0 and the Integrated Training Electric Matrix (ITEM). However, the procedure was not listed in the TIM and not on the CH2M HILL web site;
- The TIM listed the charter TFC-CHARTER-001, which had a section on training and qualification, but another charter TFC-CHARTER-007 existed which identified a Training Steering Council and was not on the approved TIM;
- The review of the referenced procedures in the TIM, (specifically the HNF-IP-0842 procedure) was found to be out of date with the approved procedures on the CH2M HILL’s web site for implementation. The lack of a current CH2M HILL TIM reflecting the approved CH2M HILL Training Plan as the implementing document for compliance to DOE Order 5480.20A will be tracked as Observation A-05-ESQ-TANKFARM-004-001; and

- The review of the assessment FY2005-TP-M-0172 TFC “Assessment Report of Training Management Systems, Instructional Staff, and Radiological Control Training” determined it met part of the scope of the periodic systematic evaluation as defined by TFC-BSM-TQ_MGT-P-07, Revision B, “Training Evaluation,” but did not sufficient implement the procedure (the procedure is based on a three-year cycle of assessments) to fully complete the systematic assessment. The completion of this assessment process will be revisited in future assessments by ORP.

The assessors were supplied a draft revised TIM Revision 3 along with a newly approved training and qualification Training Plan TFC-PLN-61 (Training Plan), issued April 11, 2005. The Training Plan resolved most of these inconsistencies, but the revised TIM has yet to be submitted by CH2M HILL which was documented in PER-2005-1649. During interviews with the Training and Procedures Manager, it was indicated the revised TIM would not be submitted until after the ORP assessment was completed. The assessors determined CH2M HILL was in the process of upgrading the T&Q program documentation in response to numerous significant PER corrective actions and management self-assessments including the recent management assessment report FY2005-TP-M-0172 TFC “Assessment Report of Training Management Systems, Instructional Staff, and Radiological Control Training.”

The assessors concluded CH2M HILL was in generally in compliance with the CH2M HILL QAPD Section 2.2, by approval of the Training Plan, which included both QAPD Section 2.2 requirements as well as DOE Order 5480.20A requirements with the exceptions tracked by ORP AFIs Observation A-05-ESQ-TANKFARM-004-O01 identified in this assessment note.

CH2M HILL Compliance to QAPD

The assessors’ reviewed QAPD, Section 2.2 “Training and Qualification.”

1. Section 2.2.1 “Basic Requirements,” was addressed previously in this note as being compliant.
2. Section 2.2.2 “Implementation.” This section involved the hiring of qualified personnel and assigning necessary training prior to work assignments using a tracking system and management approval to verify this. Section 2.2.2 is analyzed in a later section of this report. The assessors’ concluded the majority of the CH2M HILL staff identified in the TIM did comply with the Training Plan. The only exceptions to this were the Health Physics Technicians (HPT) and the Industrial Hygiene Technicians (IHT). The HPTs were exempted from the qualification card requirement provided by procedure TFC-BSM-TQ_IMP-C-02, Revision A-2 using a waiver process not procedurally addressed. This issue is addressed by AFI A-05-ESQ-TANKFARM-004-A-02. The IHTs had on-the-job training (OJT) qualification cards, but these were not fully compliant to the procedure TFC-BSM-TQ_IMP-C-02 and are tracked by AFI A-05-ESQ-TANKFARM-004-A-01.

3. Section 2.2.3 “Training and Qualification Program.” This section provided detailed specific requirements for the separate areas of T&Q. The assessors determined the CH2M HILL had assessed compliance to the QAPD Section 2.2.2 and 2.2.3 for T&Q of the staff in the old Training Plan last year as documented in report FY2004-ESH-M-0125, Quality Assurance Program Management Assessment, dated August 5, 2004. Subsequent to that assessment, the program had been re-issued with the approval of the new Training Plan, which was programmatically evaluated in a recent management assessment FY2005-TF-M-0172, but not yet fully evaluated under the new systematic evaluation procedure TFC-BSM-TQ_MGT-P-07, Revision B, “Training Evaluation.”

The assessors’ concluded the Training Plan did implement the QAPD Section 2.2 requirements and did provide implementing procedures for the qualification of the required staff. However, the Training Plan did not establish exceptions for management relative to being properly training and qualified for their work. The assessors were unable to find the program implementation for the management compliant to QAPD Section 2.2.4.1 which states, “Management at all levels is responsible for developing job function descriptions, identifying personnel training needs, and for ensuring that personnel in their organizations are trained, qualified and proficient to perform assign work.” ORP makes the Observation senior management personnel should define how the systematic approach to training applies for their position in the CH2M HILL organization. The resolution of this issue will be tracked under AFI-A-05-ESQ-TANKFARM-004-O02.

Assessment of the Compliance to the CH2M HILL’s Training Plans and Procedures for Implementation of the Training Implementation Matrix

The following Training Plans and procedures were reviewed:

- TFC-PLN-61 Revision A, “Tank Farm CH2M HILL Training and Qualification Training Plan,” dated April 11, 2005;
- TFC-BSM-TQ_ADD-C-01, Revision C-1, “Training Analysis, Design and Development,” dated December 01, 2004;
- TFC-BSM-TQ_IMP-C-01, Revision A-3, “Conduct of Performance Demonstrations,” dated March 21, 2005;
- TFC-BSM-TQ_IMP-C-02, Revision A-1, “Conduct of Qualification Cards and Guides,” dated February 19, 2004;
- TFC-BSM-TQ_IMP-C-03, Revision A-2, “Control of Vendor Training,” dated February 19, 2004;
- TFC-BSM-TQ_IMP-C-04, Revision A-2, “Conduct of On-The-Job Training,” dated February 19, 2004;

- TFC-BSM-TQ_IMP-C-05, Revision A-6, “Conduct and Administration of Knowledge Checks,” dated July 26, 2004;
- TFC-BSM-TQ_IMP-C-06, Revision A-2, “Conduct of Classroom Training,” dated July 21, 2004;
- TFC-BSM-TQ_IMP-C-07, Revision A-2, “Conduct of Oral Boards,” February 20, 2004;
- TFC-BSM-TQ_IMP-C-08, Revision A-2, “Training and Management Oversight Program,” dated October 25, 2004;
- TFC-BSM-TQ_MGT-C-01, Revision A-2, “Training Equivalencies and Extensions and Educational and Experience Equivalents,” dated October 25, 2004;
- TFC-BSM-TQ_MGT-C-02, Revision A-3, “Integrated Training Electronic Matrix (ITEM) Administration,” dated February 20, 2004;
- TFC-BSM-TQ_MGT-C-04 Revision A-2, “Training Records Administration,” dated October 25, 2004;
- TFC-BSM-TQ_MGT-C-05, Revision A-4, “Training Material Management System,” dated January 10, 2005;
- TFC-BSM-TQ_MGT-C-06, Revision B-1, “Revoking/Suspending and Reinstating Employee Qualifications,” dated April 27, 2004;
- TFC-BSM-TQ_MGT-CD-08, Revision A, “Training Review Board,” dated April 16, 2004;
- TFC-BSM-TQ_MGT-P-07, Revision B, “Training Evaluation,” dated April 12, 2005;
- TFC-BSM-TQ_STD-C-01, Revision C-2, “Technical Staff Qualification Requirements,” dated March 31, 2005;
- TFC-BSM-TQ_STD-C-02, Revision A-3, “Operations Engineer/Operations Shift Manager Qualification Requirements,” dated March 31, 2005;
- TFC-BSM-TQ_STD-C-05, Revision D-2, “Miscellaneous Professional Staff Qualification Requirements,” dated March 31, 2005;
- TFC-BSM-TQ_STD-C-07, Revision B, “Industrial Hygiene Technician Qualification Requirements,” dated March 31, 2005;
- TFC-BSM-TQ_STD-C-08, Revision A-2, “Nuclear Facility Project Manager Qualification Requirements,” dated March 31, 2005;

- TFC-BSM-TQ_STD-C-10, Revision A-2, “Maintenance Crafts Qualification Requirements,” dated March 31, 2005; and
- TFC-BSM-TQ_STD-C-11, Revision A-1, Manager “Qualification Requirements,” dated March 31, 2005.

Plan Compliance

The assessors reviewed the TFC-PLN-61 Revision A, “Tank Farm CH2M HILL Training and Qualification Plan,” (Training Plan) dated April 11, 2005, which stated “This Plan describes the methodology used to meet the programmatic training requirements, regulations, and directives specified in DE-AC27-99ORP14047, CH2M HILL Hanford Prime Contract.” This included 10 CFR 830-122, 10 CFR 835, DOE O 414.1B, DOE Order 5480.20A and a number of other requirements. This Training Plan provided the flow down of requirements of QAPD Section 2.2 and provided compliance to the DOE Order 5480.20A with a Systematic Approach to Training (SAT) process in Section 4.0 of the Training Plan. The Training Plan also provided linkages to qualification standards in Section 4.2 but does not address the requirement for a qualification cards (implementing procedure TFC-BSM-TQ_IMP-C-02 “Conduct of Qualification Cards and Guides”) to satisfying the requirement in the TIM for a qualification process of selected personnel. This is considered an AFI A-05-ESQ-TANKFARM-005-A-02. The assessors reviewed the Training Plan and determined it addressed the SAT using the Analysis, Design, Development, Implementation, and Evaluation model in Section 4.1.3, but the Training Plan did not tie this process to an implementing procedure. This was self-identified by the CH2M HILL in PER 2005-1646 and will also be tracked with AFI A-05-ESQ-TANKFARM-005-A-02. The assessors concluded the Training Plan provided the compliance flow down for the requirements from the source DOE 5480.20A for SAT, but did not provide a tie to an implementing procedure and is tracked by AFI A-05-ESQ-TANKFARM-005-A-02.

Standards and Procedure Flow down from the Training Plan

The Training Plan identified many interfaces which were linked to numerous implementing procedures. Only two processes are captured in this review of the program, which verify the DOE Order 5480.20A. These are the requirements for a SAT and the qualification of listed personnel in the TIM via qualification cards.

Systematic Approach to Training

Based on the assumption the procedure TFC-BSM-TQ_ADD-C-01, Revision C-1 “Training Analysis, Design and Development” was the implementing procedure for the SAT process, and that procedure TFC-BSM-TQ_IMP-C-02 “Conduct of Qualification Cards and Guides” was the implementing procedure for the development and approval of qualification cards for the positions listed in the TIM, the assessors reviewed both implementing procedures and verified the procedure properly incorporated the required elements of DOE 5480.20A.

The assessors interviewed the Training Manager to determine how the SAT job task analysis and hazard analysis for both operations and technical staff was conducted. Interviews with the Training Manager and his staff provided an explanation of the efforts involved included the Employee Job Task Analysis which was completed by a qualified Industrial Hygiene professional, a job task analysis involving the objectives of the position which involved the manager discussion with training discussing the duties of the position and placing this information in the VISION computer to organize the training needs and objectives. From this training was developed and training methods were determined on a graded approach. If formal training was needed the VISION system was used to develop training objectives and for vendor supplied training or training developed locally with exam questions based on the VISION computer listed training objectives. The assessors concluded the training requirements included in the qualification cards were developed on a adequate SAT process and tracked on the ITEM profiles.

Qualification of Personnel by Implementing Procedures

The assessors reviewed the procedure TFC-BSM-TQ_IMP-C-02, Revision A-1, "Conduct of Qualification Cards and Guides," which provided for the qualifications of personnel to an appropriate standard and was to be completed prior to work. As previous noted above, this procedure does list the Training Plan or DOE O 480.20A as a source requirement but is being implemented by the CH2M HILL with this in mind. The assessors reviewed the standards listed above and determined standards were in place for all positions called out in the approved TIM. The assessors also determined the above listed standards and implementing procedures did contain the requirement flow down from the Training Plan to implementing procedures for training processes including tracking and controlling training, continuing training, operator proficiency maintenance, OJT, selection of vendor supplied training, conduct of formal training, conduct of oral boards were in keeping with a higher level of proficiency for both operations and technical staff. The assessors concluded there were sufficient standards and procedures in place to provide compliance to the DOE Order 5480.20A with the exceptions noted in AFI A-05-ESQ-TANKFARM-005-A-02.

1.3.3 Conclusions

The CH2M HILL had a T&Q program, which was being implemented by under an approved Training Plan and using controlled standards procedures and in general, complied with source requirements. The exceptions to this are noted as follows:

- The lack of a current TIM is documented and tracked by ORP AFI A-05-ESQ-TANKFARM-004-O01;
- The failure to provide a qualification card for the HPT by procedure TFC-BSM-TQ_IMP-C-02, Revision A-2 was considered contrary to QAPD 2.2.2 and DOE Order 5480.20A. This issue is addressed by AFI A-05-ESQ-TANKFARM-004-A-01;

- The Training Plan does not establish the program implementation for the management T&Q compliant to QAPD Section 2.2.4.1 which states, “Management at all levels is responsible for developing job function descriptions, identifying personnel training needs, and for ensuring that personnel in their organizations are trained, qualified, and proficient to perform assign work.” This issue was not addressed in any previous assessment by CH2M HILL. This is documented and tracked under AFI-A-05-ESQ-TANKFARM-004-002; and
- The failure to require formal qualification cards in PLN-061 and implement this require formally in implementing procedure TFC-BSM-TQ_IMP-C-02 “Conduct of Qualification Cards and Guides” is contrary to DOE Order 5480.20A Section 5e and 6a which provide for qualification only be granted after assuring all requirements have been satisfied completed and written procedures which include requirements for documented assessment of a person’s qualifications through examination and operational evaluation. This is considered a AFI A-05-ESQ-TANKFARM-004-A-02.

Signed/date _____ Signed/date: _____
 Inspector Lead Inspector

The following personnel were interviewed:

- M. Hassell
- E. Adams
- G. Eaton
- C. DeFigh-Price
- R. Stickney
- M. Jones
- G. Harvey
- E. Kennedy
- K. Coffland
- C. Phillips
- D. Wilczynaski
- G. Grant
- E. Milliken
- R. Higgins
- M. Elkins
- A. McKennon
- T. Erickson
- J. Cuneo
- V. Herndon

ASSESSMENT NOTE

Assessment Note Number: A-05-ESQ-TANKFARM-004-02

Assessors Name(s): J. E. Adams

Date of Assessment: April 25 through May 5, 2004

Item Assessed: CH2M HILL Hanford Group, Inc. (CH2M HILL) Technical Staff and Miscellaneous Professional Staff Implementation of the Training and Qualification (T&Q) Program

The assessors reviewed the CH2M HILL's standards, procedures, qualification cards, and records of qualification to verify the implementation of the T&Q process for the technical staff position classifications defined in the CH2M HILL's "Training Implementation Matrix to DOE Order 5480.20A." The assessors also verified the implementation of the miscellaneous professional staff qualification requirements per Quality Assurance Program Description (QAPD) Section 2.2.3.2. The assessors interviewed the CH2M HILL management and staff relative to the development of the qualification cards, the management involvement in the initial qualification and the oversight provided to maintain qualification current.

Observations and Assessments

Assessment of the Training Implementation Matrix (TIM) Technical Staff Qualification Positions

Documents reviewed included the following standards and procedures:

- TFC-BSM-TQ_ADD-C-01, Revision C-1, "Training Analysis, Design and Development," dated December 01, 2004;
- TFC-BSM-TQ_IMP-C-01, Revision A-3, "Conduct of Performance Demonstrations," dated March 21, 2005;
- TFC-BSM-TQ_IMP-C-02, Revision A-1, "Conduct of Qualification Cards and Guides," dated February 19, 2004;
- TFC-BSM-TQ_IMP-C-04, Revision A-2, "Conduct of On-The-Job Training," dated February 19, 2004;
- TFC-BSM-TQ_IMP-C-05, Revision A-6, "Conduct and Administration of Knowledge Checks," dated July 26, 2004;
- TFC-BSM-TQ_IMP-C-06, Revision A-2, "Conduct of Classroom Training," dated July 21, 2004;

- TFC-BSM-TQ_IMP-C-07, Revision A-2, “Conduct of Oral Boards,” February 20, 2004;
- TFC-BSM-TQ_IMP-C-08, Revision A-2, “Training and Management Oversight Program,” dated October 25, 2004;
- TFC-BSM-TQ_MGT-C-01, Revision A-2, “Training Equivalencies and Extensions and Educational and Experience Equivalents,” dated October 25, 2004;
- TFC-BSM-TQ_MGT-C-02, Revision A-3, “Integrated Training Electronic Matrix (ITEM) Administration,” dated February 20, 2004;
- TFC-BSM-TQ_MGT-C-04 Revision A-2, “Training Records Administration,” dated October 25, 2004;
- TFC-BSM-TQ_MGT-C-05, Revision A-4, “Training Material Management System,” dated January 10, 2005;
- TFC-BSM-TQ_MGT-C-06, Revision B-1, “Revoking/Suspending and Reinstating Employee Qualifications,” dated April 27, 2004;
- TFC-BSM-TQ_MGT-CD-08, Revision A, “Training Review Board,” dated April 16, 2004;
- TFC-BSM-TQ_MGT-P-07, Revision A-1, “Training Evaluation,” dated April 27, 2004;
- TFC-BSM-TQ-STD-01, Revision C-2, “Technical Staff Qualification Requirements,” dated March 31, 2005; and
- TFC-BSM-TQ-STD-07, Revision B, “Industrial Hygiene Technicians,” dated March 18, 2005.

The assessors reviewed the listing of positions in the TIM per DOE Order 5480.20A for the CH2M HILL Tank Farm Facility. The assessors compared the TIM listing of positions to the listing of technical staff personnel listed in standard TFC-BSM-TQ-STD-01, Revision C-2, “Technical Staff Qualification Requirements.” The only exceptions were the industrial hygiene technician (IHT) was not considered technical staff in this CH2M HILL standard, but were covered in a different standard TFC-BSM-TQ-STD-07, Revision B, “Industrial Hygiene Technician,” and the radiological control technician, who was not covered in the program standard set. The assessors’ review of the standards (TFC-BSM-TQ-STD-01 and STD-07) and the procedure TFC-BSM-TQ_IMP-C-02, Revision A-1, “Conduct of Qualification Cards and Guides,” determined the training and qualification requirements for both industrial hygiene professional and technician, the industrial safety professional and the engineering technical staff had been captured on qualification cards utilizing the requirements in the standards and procedure. The

assessors' interview with the training staff indicated the Radiological Control Technician did not have a qualification card standard or card and the IHT qualification card did not fully comply with the standard TFC-BSM-TQ-STD-07, Revision B, "Industrial Hygiene Technicians" due to the lack of documentation of education and experience, required course definition, and required reading as required by procedure TFC-BSM-TQ_IMP-C-02, Revision A-1, "Conduct of Qualification Cards and Guides." The assessors' review of the procedure "Conduct of Qualification Cards and Guide" determined qualification was required prior to the start of independent work based on the note in Section 4.0. During interviews with the training staff it was understood the IHTs were being allowed to work without full qualification under a defined corrective action plan due to the needs of the project. These personnel were under the direct supervision of the IH professionals who were fully qualified. The interview with the training staff indicated the Radiological Control Director had requested a waiver to the qualification card requirement for the Radiological Control Technician which had been granted but this waiver was not within the TIM listing of exceptions. This was previously identified as AFI A-05-ESQ-TANKFARM-004-A-01. The assessors concluded the qualification cards for the technical staff complied with the DOE Order TIM with the exception noted in Assessment Follow-Up Item (AFI) A-05-ESQ-TANKFARM-004-A-01.

The assessor reviewed a 3% sampling (total of 22 qualification records were examined) of the technical staff engineering related qualification cards of recently qualified personnel. The sample was based on at least one person from each technical staff position description in the TIM and focused on the most recently qualified personnel. The qualification cards were compared with the standards and found to be current. The sampling review was reviewed to determine if all signatures were in place by the authorized personnel and the ITEM profiles of the personnel were current. No qualification cards were examined for IHTs or Radiological Control technicians because of previously noted issues described in AFI A-05-ESQ-TANKFARM-004-A-01.

The assessors interviewed the engineering management and determined the qualification process was upgraded two years prior to this assessment due to emerging issues at that time. **The process includes an oral interview with the Chief Engineer, which included the Chief Engineer and other engineering technical experts and management. This provided a higher expectation by management and displayed ownership of the technical staff training and qualification process. This was reflected in the documentation provided in the qualification cards. This is considered a Positive Observation.** The assessors concluded the technical staff training and qualification process was both adequate and effective.

Miscellaneous Professional Qualification per QAPD 2.2.2

Documents reviewed included all the procedures in the above list and the following standard:

- TFC-BSM-TQ-STD-05, “Miscellaneous Professional Staff Qualification Requirements,” dated April 19, 2005.

The assessors’ review of the standard TFC-BSM-TQ-STD-05 and procedure TFC-BSM-TQ_IMP-C-02, Revision A-1, “Conduct of Qualification Cards and Guides,” determined the T&Q requirements for Senior Test Director, Joint Test Group (JTG) Member, and Joint Test Working Group Member complied with both the standard and the procedure. The assessor reviewed the standard TFC-BSM-TQ-STD-05 and concluded some of the positions did not adequately reflect the needed education or experience based on the entry requirements listed in this standard. The JTG Members’ job description is to approve results of testing. Senior Test Directors are required to have a four-year degree with at least two years related startup experience, but JTG members, who judge these test results, had no entry requirements. **This inconsistency is documented in AFI Observation A-05-ESQ TANKFARM-004-O03.**

The assessor reviewed a 3% sampling (total of four qualification records were examined) of the miscellaneous professional staff qualification cards of recently qualified personnel. No issues were noted

The assessors interviewed the management and staff of the Startup Test Organization and determined the training and qualification process was being followed, but they did not understand the tie between their qualification cards and the standard STD-05. However, since they were effectively implementing the process, this is only considered an Observation that management needs to understand their program ties to the QAPD 2.2.2.

1.3.3 Conclusions

The CH2M HILL had implemented an adequate and effective T&Q program for both the technical staff as defined by compliance to DOE Order 5480.20A and the miscellaneous professional staff under QAPD Section 2.2.2 with exceptions noted in the below AFIs.

1. The minimum education and experience levels described in CH2M HILL standard TFC-BSM-TQ-STD-05 are sometimes inconsistent. The resolution of this issue is traded as AFI A-05-ESQ TANKFARM-004-O03.

Signed/date _____ Signed/date: _____
Inspector Lead Inspector

List of Personnel Interviewed:

E. Adams
G. Eaton
C. DeFigh-Price
R. Stickney
M. Jones
G. Harvey
E. Kennedy
K. Coffland
C. Phillips
D. Wilczynaski
G. Grant
E. Milliken
M. Elkins
A. McKennon
T. Erickson
J. Cuneo
V. Herndon

ASSESSMENT NOTE

Assessment Note Number: A-05-ESQ-TANKFARM-004-03

Assessor Name(s): J. E. Adams

Date of Assessment: April 25 through May 5, 2005

Item Assessed: Effectiveness of CH2M HILL Hanford Group, Inc. (CH2M HILL) Project Oversight of the Training and Qualification (T&Q) Programs

Scope

This note assesses whether the frequency, scope, and depth of CH2M HILL oversight process was commensurate with the status and importance of work in accordance with Quality Assurance Program Description (QAPD) Section 2.2, "Personnel Training and Qualification" and DOE Order 5480.20A "Training Implementation Matrix for DOE Order 5480.20A." The assessors reviewed CH2M HILL management and independent assessments performed in Fiscal Year (FY) 2005, the Problem Experience Report (PER) reports issued as a result of these assessments, and conducted interviews with the management and staff to determine the ability of the CH2M HILL to identify, document, characterize, and correct problems via the PER system for the overall site training programs.

Observations and Assessments

Frequency, Scope, and Depth of Oversight for the T&Q Program

The following documents were reviewed:

- TFC-BSM-TQ_MGT-P-07, Revision B, "Training Evaluation," dated April 12, 2005;
- CH2M HILL QAPD, Policy Q-02.2, "Personnel Training and Qualification" Section 2.2.3.1;
- DOE Order 5480.20A "Training Implementation Matrix for DOE Order 5480.20A;" and
- FY 2005 Independent Assessment Schedule Revision 5 dated March 16, 2005.

The CH2M HILL QAPD, Policy Q-02.2, Section 2.2.3.1 stated, "The effectiveness of training shall be evaluated, and the evaluation results used for continuous improvement of training systems and processes. The bases for evaluation include feedback from trainees and their management, assessments results, and trend analyses." Additionally, the DOE Order 5480.20A stated, "Perform systematic evaluation of training and qualification programs."

The assessors reviewed the procedure TFC-BSM-TQ_MGT-P-07, Revision B, "Training Evaluation," which was effective April 12, 2005, to determine its compliance to the requirement of DOE Order 5480.20A to perform systematic evaluation of T&Q. The procedure was found to address the requirement to evaluate the CH2M HILL personnel using DOE-STD-1070-94 and contained a schedule for implementation. The initial assessment FY2005-TP-M-0172, "TFC Assessment Report of Training Management Systems, Instructional Staff, & Radiological Control Training," dated March 31, 2005, had been performed; however, the quarterly cycle assessments were not reflected in the FY 2005 Integrated Assessment Schedule. Hence, the complete cycle of the procedure had not been implemented yet to satisfy the implementation of the procedure. The assessors had previously reviewed the FY 2003 and 2004 CH2M HILL Integrated Assessment Schedule in December 2004 and reviewed the FY 2005 Revision 5 "Integrated Assessment Schedule" and determined no systematic training and qualification schedule was in place during this period. However, the U.S. Department of Energy, Office of River Protection (ORP) had recently performed an assessment in December 2004, which did assess a number of training oversight efforts. The assessors concluded the CH2M HILL had conducted a number of training oversight efforts including both management assessment, independent assessment and special assessment, but not had complied with the requirement to periodically assess to the DOE Order 5480.20A, since the other assessments did not use DOE-STD-1070-94 for the basis of the assessment as required by the DOE Order 5480.20A. Although an approved Training Implementation Matrix (TIM) had been in place for three years, the implementation of the systematic evaluation process had only started. The Training and Procedures Manager was interviewed relative to this issue and indicated the organization had identified the issue in the FY2005-TP-M-0172 report and issued the procedure TFC-BSM-TQ_MGT-P-07, Revision B, "Training Evaluation," dated April 12, 2005. The PER-2005-1661 was issued to document the problem. **ORP considered the lack of timely implementation of the Order as an Observation.**

Effectiveness of Oversight to Date

The following documents were reviewed:

- FY2005-WFO-M-0136, "Management Assessment on Waste Feed Operations On-the Job Training," dated March 30, 2005;
- TFC-BSM-TQ-IMP-C-04, "Conduct of On-the-Job Training," dated April 13, 2005;
- FY2005-TP-M-0172, "TFC Assessment Report of Training Management Systems, Instructional Staff, & Radiological Control Training," dated March 31, 2005;
- FY2005-CH2M HILL, "Integrated Assessment Schedule" Revision 5, dated March 16, 2005;
- PER-2005-1377, dated March 31, 2005;
- PER-2005-1378, dated March 31, 2005;

- PER-2005-1380, dated March 31, 2005;
- PER-2005-1381, dated March 31, 2005;
- PER-2005-1382, dated March 31, 2005;
- PER-2005-1328, dated March 29, 2005;
- PER-2005-1329, dated March 29, 2005;
- PER-2005-1330, dated March 29, 2005;
- PER-2004-14491, dated August 12, 2004;
- PER 2005-1475, dated March 31, 2005;
- PER 2005-1599, dated April 19, 2005;
- PER 2005-1634, dated April 21, 2005;
- PER 2005-1644, dated April 21, 2005;
- PER 2005-1645, dated April 21, 2005;
- PER 2005-1646, dated April 21, 2005;
- PER 2005-1649, dated April 21, 2005;
- PER 2005-1661, dated April 22, 2005; and
- PER 2005-1779, dated April 28, 2005.

The assessors reviewed two assessment reports in this report and considered the information obtained on the subject of CH2M HILL T&Q assessments from the last ORP assessment in December 2004, to reach conclusions in this report. The assessors' review of these reports considered: 1) the source of the requirements or criteria; 2) the evaluation results to criteria; and 3) the documenting of the results of the report of evaluation and correction.

The assessors' review of the management assessment FY2005-TP-M-0172, "TFC Assessment Report of Training Management Systems, Instructional Staff, & Radiological Control Training," which was performed by the T&Q Organization, determined the assessment was conducted using lines of inquiry (LOI) from Institute of Nuclear Power Operations (INPO) ACAD 02-001 and DOE-STD-1070-94. The LOI used considered approximately 50% (18 of 36) of the criteria in DOE-STD-1070-94 and added nine

criteria from INPO including a LOI involving whether the corrective action process was effectively being used to identify and correct training issues and provide trending. The results were documented in the series of PERs 2005-1377, 1378, 1380, 1381, and 1382. The results of the FY2005-TP-M-0172 report indicated two significant issues did exist in the T&Q area; however, only one of these was initially captured in a PER. The one significant observation not documented in a PER used a process not provided by procedure (corrected-on-the-spot). The use of this process precluded a rating of significant, extent of condition review, and potential root cause identification. **This failure to document the issue as a PER was a violation of the QAPD Section 2.3.3. This problem was later documented in PER 2005-1661 prior to the entrance of this assessment and is documented in this report as Finding A-05-ESQ-TANKFARM-004-F01.**

The assessors also reviewed the line organization management assessment FY2005-WFO-M-0136, "Management Assessment on Waste Feed Operations On-the Job Training." The assessment was conducted to a series of seven LOIs developed using the procedure TFC-BSM-TQ-IMP-C-04, "Conduct of On-the-Job Training." The report identified issues associated with on-the-job training which were properly documented in the PER series PER 2005-1328-1330. The assessors identified no new issues on the topic.

The assessors did review a series of three assessments in a previous assessment in December 2005. These assessments are discussed in notes for that assessment but did document PERs on T&Q at that time also. The rigor of those reports varies with some not providing requirement criteria based on specific criteria but more of performance based objectives (SSRB report) and some not evaluating the criteria fully (conduct of operations). However, the oversight has been provided and a flow of PERs has been documented with limited results.

The assessors concluded the oversight discussed above was effective in identifying and documenting T&Q issues with the exception of PER 2005-1661. Programmatic change have recently taken place to comply with DOE Order 5480.20A in the area of the T&Q Program in both resources and program change, based on the results of the self-assessment TFC-M-0172, and other oversight processes.

Conclusions

The assessors verified the CH2M HILL had an adequate and effective oversight process which was providing assessment, identifying issues, documenting issues, and tracking them to resolution with the exceptions noted below. The oversight was compliant to QAPD Section 2.2 and DOE Order 5480.20A using DOE STD-1070-94.

1. The failure to document significant observation number two in a PER at the time of discovery precluded a rating of significant, extent of condition review, and potential root cause identification. This failure to document the issue as a PER was a violation of the QAPD Section 2.3.3. This problem was later documented in PER 2005-1661

prior to the entrance of this assessment and is documented in this report as Finding A-05-ESQ-TANKFARM-004-F01.

2. Although an approved TIM had been in place for three years, the implementation of the systematic evaluation process had only started. The PER-2005-1661 was issued to document the problem. ORP considered the lack of timely implementation of the systematic evaluation process as an Observation.

Signed/date: _____ Signed/date: _____
Assessor Lead Assessor

ASSESSMENT NOTE

Assessment Note Number: A-05-ESQ-TANKFARM-004-04

Assessor Name(s): C. A. Blanchard

Date of Assessment: April 25 through May 5, 2005

Item Assessed: Verification of Processes to Systematically Update Training.

Scope

The assessors reviewed the CH2M HILL Hanford Group, Inc. (CH2M HILL) training programs to determine if these programs enhanced the training process and updated training for system and equipment changes.

Observations and Assessments

Training Programs

The following documents were reviewed:

- TFC-BSM-TQ_MGT-C-05, Revision A-5, "Training Materials Maintenance System," dated April 21, 2005;
- TFC-ESHQ-AP_C-03, Revision A-7, "Management Observation Program," dated April 15, 2005;
- TFC-BSM-TQ_MGT-P-07, Revision B, "Training Evaluation," dated April 12, 2005;
- TFC-BSM-TQ_IMP-C-08, Revision A-2, "Training Management Oversight Program," dated October 25, 2004;
- TFC-OPS-OPER-C-33, Revision A-1, "Required Reading," dated March 23, 2005;
- TFC-CHARTER-07, Revision A-1, "Training Steering Council," dated March 10, 2005;
- TFC-BSM-AD-C-01, Revision H-1, "Administrative Document Development and Maintenance," dated January 17, 2005;
- CH2M HILL Quality Assurance Program Description, Policy Q-02.2, "Personnel Training and Qualification" Section 2.2.3.1; and
- DOE Order 5480.20A "Training Implementation Matrix for DOE Order 5480.20A."

The assessors reviewed a number of processes used to enhance and update training including: 1) the training materials maintenance system (TMMS); 2) training management oversight program (MOP); 3) the Training Steering Council (TSC); 4) the administrative document development and maintenance (ADDM) program; and 5) the required reading program.

The TMMS provided the mechanism for scheduling and tracking the training department commitments that affect training programs and/or material. This training program required cognizant training staff to enter information received from engineering, operation, maintenance, procedure revisions, etc. into a computer based system to be processed. The TMMS process then dispositions the entry into one of three categories. The assessors reviewed several current system and equipment changes and interviewed staff trainers. The assessors determined the TMMS was not being used as required by the procedure. There was no update provided by engineering, operations, or maintenance to consistently notify Training of changes in equipment and systems. For example, there was a recent change to the TMMS software that changed the color and format of the display. Training for the operators was not addressed until an operator complained of the omission. Until recently, Trainers have not input changes to the systems as required by Procedure TFC-BSM-TQ_MGT-C-05. The new Training Manager identified this issue in the report FY2005-TF-M-0172, and took steps to re-initiate the TMMS process. However, no Problem Evaluation Request (PER) was generated for this problem. (See Finding A-05-ESQ-TANKFARM-004-F01.)

The training MOP was imposed to demonstrate management's ownership of all training and to provide performance feedback to continually improve training. The assessors reviewed last quarter's monthly training schedule and TSC meeting minutes and determined the requirements of the MOP program were met. Specifically, the training MOP tours scheduled were completed before the required due date and were made available on the training web sight.

The assessors reviewed the TSC (TFC-CHARTER-07). This charter included: 1) the development of a long-term vision and goals for the training department; 2) communicating training issues to all levels of the organization; and 3) providing a forum to ensure line managers were effectively managing their training programs. The meeting minutes for the TSC and the supporting Training Advisory Council (TAC) were reviewed for the second quarter of 2005. Meeting agendas were issued, frequencies of meetings were conducted, and action items were documented as required by TFC-CHARTER-07. The TSC and TAC were focused on performance-based feedback to identify training needs. This initiative included a requirement to perform three training MOPs per month to observe field or on-the-job training activities: Trainers were required to spend additional time with operations personnel to better understand field performance issues; Trainers were also interviewing senior shift managers to identify training needs based on field performance. As previously addressed, the TSC recognized the need to identify training weaknesses before they became a performance issue.

The assessors reviewed the process for ADDM and determined it included an evaluation of training needs. The issuance of administrative procedures was controlled through an administrative document change authorization (ADCA) form. The ADCA form included blocks that addressed training requirement needs and the type of training to meet the needs. Administrative procedures were not effective until the ADCA actions were completed. The assessors' interview with the Standard and Compliance Manager indicated there had been problems with the completion of ADCA identified requirements. Procedure owners were not completing the ADCA form correctly causing a problem with the implementation of required reading. In response to these errors, clearly written directions were added to the ADCA form, requiring the ADCA forms to be evaluated for completeness and accuracy by the administrative procedural group. The evaluation of each ADCA form was recorded, tracked, and trended. The assessors reviewed six randomly selected ADCA forms for procedures with changes other than minor errors. The assessors determined five of these procedures did not require re-training, but one did. ADCA TFC-ESHQ-FP-STD-03, Revision A-1, dated January 19, 2005, required operations and safety and health personnel to receive required reading prior to issuance of the procedure revision. However, this required reading was not developed, performed, or verified complete as identified on ADCA TFC-ESHQ-FP-STD-03, Revision A-1. The Compliance and Standards Manager explained that this ADCA was processed prior to the February 19, 2005, implemented ADCA review process. PER 2005-1805 was issued to address the omission after the assessors' identification. This will be tracked by the Facility Representative follow-up of a PER.

The assessors reviewed the required reading program which was defined by the Procedure TFC-OPS-OPER-C-33, "Required Reading." This program was transferred to the standards and compliance organization recently and was under major revision to address weaknesses in the process. The actions to revise required reading procedure were part of the corrective actions of PER 2005-1647. This will be tracked by the Facility Representative follow-up of a PER.

Conclusions

The Contractor did have a number of programs in place to enhance and update training. Some of these were in the process of being upgraded based on recent identification of issues. These issues included:

1. Continual training to address minor updated system configuration or equipment changes were not systemically occurring as required by the TMMS.
2. Required reading was not performed for one of the six ACDC forms reviewed as required. However, management was aware of a weakness in the ACDC process and had taken steps to correct the weakness and track its effectiveness.

A positive observation was management was engaged in providing updated continual training, direct observations of training efforts, and a proficiency program. Many of

these efforts were not driven by regulatory requirements but by management's commitment to improve craft performance.

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Assessor Lead Assessor

ASSESSMENT NOTE

Assessment Note Number: A-05-ESQ-TANKFARM-004-05

Assessor Name(s): C. A. Blanchard

Date of Assessment: April 25 through May 5, 2005

Item Assessed: Training for operation and maintenance craft provide the knowledge, skills, and abilities to successfully perform the task.

Scope

This note assesses whether the frequency, scope, and depth of CH2M HILL Hanford Group, Inc. (CH2M HILL) training provided operators and maintenance craft with the knowledge, skills, and abilities to perform their work activities safely and efficiently. The assessors reviewed select initial, continuous training, on-the-job-training (OJT), the performance demonstration process, and final exams for training to assess the contractor's training programs.

Observations and Assessments

Training for the Cross-Site Transfer

The following documents were reviewed:

- Course Number 350033, Revision 2, "Replacement Cross-Site System (RCSTS) Initial Training Student Handout," dated March 4, 2005;
- Course Number 350033, Revision 2, "Replacement Cross-Site System OJT Card and Guide," dated March 4, 2005;
- Course Number 350033, Revision 2, "Replacement Cross-Site System Performance Demonstration," dated March 4, 2005;
- Training Bulletin RPP-TB-01-01, "Tank 241-SY-101 High Level Waste Receipt & Cross-Site Transfer System Tie-In," dated May 31, 2001;
- TFC-BSM-TQ_MGT-P-07, Revision B, "Training Evaluation," dated April 12, 2005;
- CH2M HILL Quality Assurance Program Description, Policy Q-02.2, "Personnel Training and Qualification" Section 2.2.3.1; and
- DOE Order 5480.20A "Training Implementation Matrix for DOE Order 5480.20A."

The initial cross-site transfer training material, exams, and OJT records were reviewed and a discussion with the trainer was performed to evaluate the effectiveness of the programs. The initial training included a system overview, discussion and illustrations of major components, step-by-step illustrations of the monitoring control station during operation, safety basis section that was current with the documented safety analysis and described in detail each effected technical safety requirement and administrative control and how to stay within compliance with them. The initial training final exam had 20 questions of which five of the questions pertained to the safety bases, one addressed a past operation lessons learned, and the remainder addressed the operation of the system. The test questions represented a system overview and attested the student understood how to safely and efficiently operate the RCSTS. The OJT card and guide required the operator to perform a valve line-up, check interlocks, valve operation, check route configuration and operate the monitoring and control system. An evaluation was performed as a final OJT activity. The evaluation checked the student for proficiency in understanding the administrative requirements, operating procedures, abnormal response procedures, and emergency procedures. Once the operator had completed the initial training and OJT a performance demonstration was required with their manager.

Continuing and refresher RCSTS training was reviewed. The RCSTS trainer explained that the tie-in of Tank 241-SY-101 was the only RCSTS change that justified a training updated. A training bulletin was issued to all qualified RCSTS operators. The bulletin addressed in detail the RCSTS changes. However, there was no objective evidence that the operators received the bulletin or test to ensure the operators understood the information, or performance demonstration required. The Training Manager understood the concern as well as the RCSTS trainer and committed to corrective actions to address the concern.

Continuing and Re-qualification Training

Re-qualification process was reviewed to ensure operators were kept current on changes to systems and equipment. Every two years operators were required to re-qualify. Operators learn of cognizant systems and equipment changes through quarterly continual training, job planning activities, procedural reviews, training bulletins, pre-job briefings, and maintenance interaction, after the initial qualification training. Their skills for operating systems and equipment were validated through a required quarterly proficiency program. The proficiency program requires operators to perform a minimum of one work activity in each qualified area under management's review. Operation management maintains a computer database of all operators' proficiency status by quarter. In random review of over 30 operators from five managers found all of the operators to be current with their proficiencies. Completing the quarterly proficiencies was not required to maintain the operator's qualification but there was financial benefit in performing them. To successfully complete a re-qualification the operator was required to pass a current initial qualification test, attend continuing training, and pass a written test.

The quarterly continuing training program was reviewed to evaluate if it addressed unique system and equipment changes to specific qualification areas. Each quarter most

CH2M HILL employees were required to attend an eight-hour continuing training course. Management stated that the course was mandatory and attendance had improved to approximately 85 percent. The training topics covered during the course address, corrective actions, conduct of operation expectations, industrial safety issues, radiological issues, and etc. that pertain to all workers at CH2M HILL. There were no break-out sessions by qualification area to address specific system and equipment changes. The quarterly continuing training does not provide a forum to instruct operators in specific qualification areas.

Conclusions

Initial and re-qualification training addressed the knowledge, skills, and attributes required for operators to safely and efficiently operate systems and equipment. The quarterly continual training was inadequate for addressing specific qualification area system and equipment change. Training performed between the two-year qualification was not documented.

The quarterly continuing training was an effective forum in providing information that pertains to all CH2M HILL employees but was not for unique system and equipment changes that affect only some employees. The training used to provide operators with system and equipment changes for specific qualification areas was not evaluated for proficiency nor was there documentation that operator received the training.

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Assessor Lead Assessor

ASSESSMENT NOTE

Assessment Note Number: A-05-ESQ-TANKFARM-004-06

Assessor's Name: L. R. McKay

Dates of Assessment: April 25 through May 5, 2005

Areas/Items Inspected: CH2M HILL Hanford Group, Inc. (CH2M HILL) RadCon Training Program

As a team member in the larger assessment of the whole CH2M HILL Training Program, the U.S. Department of Energy (DOE), Office of River Protection (ORP) assessor evaluated the CH2M HILL Radiological Control (RadCon) Training Program (the Program) against established the requirements of DOE Order 5480.20A. The assessor reviewed a sample of relevant program documentation and interviewed staff members cognizant of, and responsible for, implementation of the Program.

Observations and Assessments

The assessor reviewed the following procedures and other regulatory and guidance documents:

- Code of Federal Regulations, Title 10, Part 835, "Occupational Radiation Protection," November 14, 1998:
 - 835.103 Education, Training, and Skills;
 - 835.704 Administrative Records; and
 - 835.901 Radiation Safety Training (Subpart J).
- DOE Order 5480.20A, "Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities," Change 1, July 12, 2001;
- DOE-STD-1098-99, "Radiological Control," Chapter 6, Part 4, "Radiological Control Technician and RCT Supervisor Qualification," July 1999;
- DOE-HDBK-1122-99, "Radiological Control Technician Training," July 1999;
- HNF-MP-5184, "CH2M HILL Hanford Group, Inc. – Radiation Protection Program," Revision 3, February 28, 2003;
- "Hanford Radiological Health and Safety Document," Revision 1, December 20, 2001, Section I., "Radiation Safety Training;"
- HNF-5183, "Tank Farms Radiological Control Manual (TFRCM)," Revision 1, February 28, 2003, Chapter 6, "Training and Qualification;"

- TFC-BSM-TQ_ADD-C-01, “Training Analysis, Design and Development,” Revision C-1, December 1, 2004;
- TFC-BSM-TQ-IMP-C-01, “Training Equivalencies and Extensions and Educational and Experience Equivalencies,” Revision A-3, March 22, 2005;
- TFC-BSM-TQ_IMP-C-02, “Conduct of Qualification Cards and Guides,” Revision A-2, March 22, 2005;
- TFC-ESHQ-RP_TRN-P-01, “Health Physics Technician/First Line Manager Training and Qualification,” Revision A-4, December 2, 2004;
- TFC-ESHQ-RP_TRN-P-02, “Radiological Control Key Radiation Protection Positions Training Program Description,” Revision A, January 18, 2005;
- “Training Implementation Matrix,” Revision 20A-2a, January 2003;
- “Training Implementation Matrix,” Revision 20A-3, January 2005 (Draft); and
- “CH2M HILL Hanford Group, Inc., RadCon Company and Facility Technical Authorities” (from current CH2M HILL web site).

Interviews

The assessor conducted interviews with four managers and one EnergX consultant, all individuals who were familiar with and responsible for implementation of the Program (CH2M HILL employees unless otherwise parenthetically noted):

- RadCon Company Technical Authority (CTA) – Training;
- Training & Procedures Senior Director;
- Training Manager;
- Consultant (EnergX); and
- Manager, Management & Information Services (Fluor Hanford, Inc., FHI).

Training Implementation Matrix (TIM) --The TIM requires two position classifications to be trained and qualified in accordance with DOE Order 5480.20A: First Line Managers (FLM) and RadCon Technicians (called Health Physics Technicians [HPT] in the CH2M HILL organization).

While Revision 20A-3 (January 2005) is a draft document, the assessor reviewed it because it contained no substantive changes from Revision 20A-2a (January 2003) in the area of interest (RadCon training).

Revision 20A-3 features all CH2M HILL procedure references (Revision 20A-2a includes some references to FHI procedures).

The assessor noted that the TIM for Analytical Technical Services (ATS) had not been incorporated into the CH2M HILL TIM, but existed as a separate document.

Training Process -- The assessor asked an EnergX Consultant to demonstrate, with a current example, how training is systematically analyzed and developed in accordance with DOE Order 5480.20A, Chapter 1 requirements. The consultant selected the Tank Farm Contractor (TFC) CTA/Functional Technical Authority (FTA) Radiological Training Functional Area Qualification to demonstrate.

The training method for CTAs/FTAs employs a Qualification Card. The assessor reviewed the Task Analysis Report; the resulting Qualification Card (356422, Revision 0); and the associated Training Activity Sheet to review details of training content and authorized authenticator lists. Learning objectives were clearly stated and the training was developed in a classical System Approach to Training manner.

CH2M HILL uses “qual cards” for many of its functions requiring qualification (but not HPTs), currently qualifies its HPTs and FLMs using a process detailed in Procedure TFC-ESHQ-RP_TRN-P-01, Revision A-4, “Health Physics Technician/First Line Manager Training and Qualification,” December 2, 2004. Following initial qualification, the requalification process begins on October 1 of even years and must be completed every 24 months. Requalification consists of completing four continuing training sessions and successfully passing a written examination and an oral examination. In the field this process is colloquially termed “cycle training.”

Trainee mastery of the learning objectives during training was accomplished through examination, both written and oral, and by successful performance demonstration of proficiency.

The assessor determined the continuing training program for HPTs and FLMs satisfied the DOE Order 5480.20A continuing training requirements.

HPT Qualification Records -- During interviews, the assessor learned that conventional Qualification Cards (“qual cards”) in common use in the nuclear industry were not being used to record HPT training and qualification (T&Q). “Qual cards” have been drafted for RadCon FLMs. In a follow-on interview, the assessor discussed the process with an EnergX Consultant and reviewing the records for two currently qualified HPTs.

The RadCon Program manager specifies the type, number, and form of training required and enters the information into the Integrated Training Electronic Matrix (ITEM) computer program. Classroom, computer-based, and on-the-job training activities bear “course numbers.” ITEM tracks completion and serves as a database from which training status can be derived. When the student completes a course, he/she completes a Course Completion Roster (CCR), (Site Form A-60021-541). When the CTA-Training has reviewed and approved the form, the ITEM database is updated. However, the system is “hard copy”-based: the paper CCR is the record,

which is usually scanned and copies kept in different locations, consistent with document storage requirements.

During a telephone interview with the FHI Manager, Management & Information Systems, she stated that ITEM has undergone software quality assurance audits both externally and internally and that it meets all the requirements.

After examining the T&Q records for two current CH2M HILL HPTs, the assessor determined this system was employed instead of a conventional "qual card." T&Q records for HPTs were not being kept in "qual card" format, unlike most other CH2M HILL positions. From a flow down of requirements viewpoint, the lack of a "qual card" makes tracing the Order requirements to HPT Training Program implementation more difficult than necessary.

Training Extensions -- CH2M HILL a procedure in place to accommodate requests for extension in the training period, and to specify equivalencies of experience and education: TFC-BSC-TQ-IMP-C-01, "Training Equivalencies and Extensions and Educational and Experience Equivalencies," Revision A-3, March 22, 2005.

Self-Assessments of Training Program -- During the interview, the CTA-Training stated that management assessments of HPT/FLM RadCon Training had begun and were expected to continue.

Note: The assessor evaluated the CH2M HILL RadCon Training Program in March and April 2003 (Surveillance S-03-RADCON-TANKFARM-001, available on the ORP Internet Site). At that time the program was found to be compliant with 10 CFR 835, but several Observations were issued to identify areas for improvement. The RadCon Training Program was not assessed against the requirements of DOE O 5480.20A.

Conclusions:

After completing the interviews, and conducting records and procedure reviews, the assessor identified no Findings nor Observations, and concluded the RadCon Training Program was compliant to the requirements of DOE O 5480.20A and had been significantly improved in the past 12 months, due in large measure to the addition of two EnergX consultants to augment the CH2M HILL RadCon Training staff.

The absence of a Qualification Card for the HPTs is a departure from the usual practice observed in the nuclear industry. The use of an alternative system (using the ITEM database to track training; supervisory review of completed course rosters in hard copy; scanning the hard copy records; and updating ITEM) did not meet the intent of DOE O 5480.20A to provide records, in one place, that the necessary training was being delivered for RadCon FLMs and HPTs.

The assessor offered the following recommendation to CH2M HILL to improve Program performance:

- The TIM for CH2M HILL does not currently include ATS, which maintains its own TIM. For program consistency, incorporate the ATS TIM into the CH2M HILL TIM; and
- Establish a traditional “qual card” system for HPTs.

Key Personnel Contacted:

E. J. Adams, RadCon
G. L. Harvey, Training & Procedures
A. C. McKennon, Training & Procedures
G. L. Eaton, EnergX Consultant
L. M. Livesey, RadCon
J. Brown, FHI Management & Information Services

Submitted by: _____
L. R. McKay Date

Approved by: _____
J. E. Adams Date