**U.S. Department of Energy****Office of River Protection**P.O. Box 450, MSIN H6-60
Richland, Washington 99352**MAY 10 2006**

06-ESQ-036

Mr. M. S. Spears, President
and Chief Executive Officer
CH2M HILL Hanford Group, Inc.
Richland, Washington 99352

Dear Mr. Spears:

CONTRACT NO. DE-AC27-99RL14047 – ASSESSMENT REPORT A-06-ESQ-TANKFARM-002 – CH2M HILL HANFORD GROUP, INC. (CH2M HILL) MANAGEMENT AND INDEPENDENT ASSESSMENTS AND QUALITY IMPROVEMENT, MARCH 13 THROUGH 17, 2006

This letter forwards the results of the U.S. Department of Energy, Office of River Protection (ORP) assessment of the CH2M HILL Management and Independent Assessments and Quality Improvement Programs conducted March 13 through 17, 2006. This assessment evaluated the Contractor's effectiveness in meeting requirements and program expectations as prescribed in the CH2M HILL Quality Assurance (QA) Program Description.

The ORP assessor concluded the CH2M HILL management and independent assessments and the quality improvement programs were adequately implemented. The assessor also concluded that improvement was needed in the implementation of the corrective action management program to ensure resolution of significant conditions adverse to quality and to prevent their recurrence.

The assessor identified two Findings and two Observations. The first Finding noted deficiencies with the implementation of the corrective action management processes, and the second noted deficiencies with the management of training and qualification records of personnel who perform and lead management and independent assessments. The first Observation identified inconsistencies within procedure TFC-ESHQ-Q-AMD-C-11, "Root Cause Analysis and Corrective Action Planning." The second Observation describes a lack of management attention in maintaining the "Assessment Program Review Matrix," which is a CH2M HILL management tool used to assure all required QA and Radiological Control program elements are independently evaluated within the required 36 month cycle.

The first Finding was based on a review of two recent significant Problem Evaluation Requests (PER). The review of these significant PERs identified problems that resulted in incomplete root cause analysis, corrective actions that failed to establish sufficient permanent controls to prevent recurrence, and the incomplete resolution of related deficiencies addressed in other PERs that inadequately presented the documented deficiency. A sample of two PERs was not sufficient to

Mr. M. S. Spears
06-ESQ-036

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MAY 10 2006

determine if the noted problems were isolated or programmatic. Your response should include actions to determine the extent of the conditions noted in the Finding.

Of the two Findings identified, only the first Finding associated with the corrective action management process will require a response from CH2M HILL. CH2M HILL has already issued a PER for the second Finding and corrective actions have already been established and the assessor considered the action appropriate. ORP will monitor the resolution of the PER and perform closure verification when all corrective actions are completed.

Within 30 days of receipt of this letter, CH2M HILL should respond to the assessment Finding. The response should include:

- The cause of the Findings;
- The corrective steps that have been taken to control or remove any adverse impact to identified noncompliance situation(s) (remedial actions), and the results achieved;
- The corrective steps that will be taken to prevent similar Findings; and
- The date when all corrective actions are completed, verified, and compliance to applicable requirements is achieved.

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
Office of River Protection

ESQ:SAV

Attachment

cc w/attach:

C. E. Anderson, CH2M HILL
R. L. Higgins, CH2M HILL
R. M. Millikin, CH2M HILL
M. L. Sheriff, CH2M HILL
CH2M HILL Correspondence Control

Attachment
05-ESQ-036
A-05-ESQ-TANKFARM-002

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

ASSESSMENT: Management and Independent Assessments and Quality Improvements

REPORT: A-06-ESQ-TANKFARM-002

FACILITY: CH2M HILL Hanford Group, Inc.

LOCATION: Hanford Site

DATES: March 13 through 17, 2006

ASSESSOR: Samuel A. Vega, Lead Assessor

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

Executive Summary

The U.S. Department of Energy, Office of River Protection (ORP) conducted an assessment of the CH2M HILL Hanford Group, Inc. (CH2M HILL) Management and Independent Assessments and Quality Improvement Program during the period of March 13 through 17, 2006. The assessment evaluated the Contractor's effectiveness in meeting requirements and program expectations when performing Management Assessments, Independent Assessments, and Quality Improvement activities as prescribed in the CH2M HILL Quality Assurance Program Description (TFC-PLN-N-02, Revision A-3). The assessor sampled Quality Assurance (QA) program activities, reviewed the resulting documentation (assessment reports, problem evaluation reports, training records, etc.), and interviewed key personnel.

The ORP assessor concluded the CH2M HILL management and independent assessments and the quality improvement programs were adequately implemented. The assessor also concluded that improvement was needed in the implementation of the corrective action management program to ensure resolution of significant conditions adverse to quality and to prevent their recurrence.

The assessor identified two Findings and two Observations. The first Finding noted deficiencies with the implementation of the corrective action management processes, and the second noted deficiencies with the management of training and qualification records of personnel who perform and lead management and independent assessments. The first Observation identified inconsistencies within procedure TFC-ESHQ-Q-AMD-C-11, "Root Cause Analysis and Corrective Action Planning." The second Observation describes a lack of management attention in maintaining the "Assessment Program Review Matrix," which is a CH2M HILL management tool used to assure all required QA and Radiological Control program elements are independently evaluated within the required 36 month cycle.

The first Finding was based on a review of two recent significant Problem Evaluation Requests (PER). The review of these significant PERs identified problems that resulted in incomplete root cause analysis, corrective actions that failed to establish sufficient permanent controls to prevent recurrence, and the incomplete resolution of related deficiencies addressed in other PERs that inadequately presented the documented deficiency. A sample of two PERs was not sufficient to determine if the noted problems were isolated or programmatic. ORP expects CH2M HILL to further investigate and determine the extent of condition when resolving the finding.

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List of Acronyms

CH2M HILL	CH2M HILL Hanford Group, Inc.
DOE	U.S. Department of Energy
FY	Fiscal Year
ITEM	Integrated Training Electronic Matrix
QA	Quality Assurance
ORP	Office of River Protection
QAPD	Quality Assurance Program Description
PAAA	Price-Anderson Amendments Act
PER	Problem Evaluation Request
RCA	Root Cause Analysis
TFC	Tank Farm Contractor

CH2M HILL Hanford Group, Inc. (CH2M HILL)

CH2M HILL Management and Independent Assessments and Quality Improvements

Details

The assessor reviewed CH2M HILL assessment and corrective action management processes, reviewed related documents and records, and interviewed management and staff to verify the implementation of program requirements and to determine program effectiveness. The following sections identify the areas reviewed, describe the scope of the assessor's review, and provide assessor's conclusions and observations.

Quality improvement

The assessor evaluated the effectiveness of the quality improvement program by focusing assessment activities on the corrective action management process. This included reviewing procedures TFC-ESHQ-Q-ADM-C-11, "Root and Common Cause Analysis and Corrective Action Planning," TFC-ESHQ-Q-C-C-11, and "Problem Evaluation Request," (PER) interviewing Contractor staff and management, and reviewing documentation that resulted from corrective action management activities. For this portion of the assessment, the assessor focused on two Significant PERs (PER 2005-0923 and PER 2005-3339) and followed them through the entire corrective action management process (PER generation, Root Cause Analysis [RCA], corrective action planning, corrective action implementation, PER closure, and effectiveness verification).

The assessor concluded the CH2M HILL quality improvement program processes were adequate because the procedures associated with corrective action management activities met Quality Assurance Program Description (QAPD) requirements. The assessor made one Observation where Procedure TFC-ESHQ-AMD-Q-AMD-C-11, "Root and Common Cause Analysis and Corrective Action Planning," contained inconsistencies and did not implement the concept of remedial and corrective actions as intended in the U.S. Department of Energy (DOE) Orders and Guides. (This issue is identified as assessment Observation A-06-ESQ-TANKFARM-006-001). Refer to the discussion provided with Observation A-06-ESQ-TANKFARM-006-001 for a more detailed discussion.

The assessor concluded that improvement was needed in the implementation of the corrective action management program to ensure resolution of significant conditions adverse to quality and to prevent their recurrence. Practices observed did not always establish actions to sufficiently correct identified causes, or to prevent recurrence of identified root causes (This issue is identified as assessment Finding A-06-ESQ-TANKFARM-006-F01). Refer to the discussion provided with Finding A-06-ESQ-TANKFARM-006-F01 for a more detailed discussion.

Management Assessments

The assessor evaluated the effectiveness of the management assessment program by reviewing procedure TFC-ESHQ-AP-C-01, "Management Assessment," interviewing Contractor staff and management, and reviewing management assessment reports and the supporting documentation that resulted from management assessment activities.

The assessor reviewed six management assessment reports and concluded the CH2M HILL management assessment program was adequate because the management assessment procedure met QAPD program requirements; assessors were properly trained, management assessments were adequately planned and scheduled; management assessment activities were performed and documented as prescribed in the procedure; results were reported to affected organizations and the appropriate management; and noted deficiencies were captured and processed in the PER system. The assessor determined management assessment program activities were effective by comparing assessment reports with the assessment schedule and the PER database. The assessor found scheduled assessments were performed on time, assessment reports clearly identified assessment results, all findings were adequately captured in PERs, and PERs were properly evaluated and appropriate significance levels were applied.

The assessor identified some issues with the training and qualification process for those performing management assessments that did not meet DOE O 414.1C and 10 CFR 830, Subpart A requirements as incorporated in the CH2M HILL QAPD. These included a lack of continuing training to maintain proficiency, and qualification cards not being maintained current (This issue is identified as assessment Finding A-06-ESQ-TANKFARM-006-F02). The assessor found that once an individual was qualified to perform management assessments, that individual was allowed to perform these assessments without any consideration to maintained proficiency. Procedures did not provide refresher training, requalification, or a reevaluation to assure continued proficiency for individuals qualified to perform management assessments but do not perform these assessments on a regular basis. The assessor found that recent required training and required reading was not documented in the qualification card. The assessor reviewed a sample of six individuals with management assessment qualification cards and verified by looking at individual training records maintained by the training organization, and reviewing the Integrated Training Electronic Matrix (ITEM), the CH2M HILL electronic training record database, that all required training and required reading was completed. The assessor found evidence that, in all cases, all required training was completed, and that the problem with the qualification cards was only administrative. However, the accuracy of these qualification cards is important because they are the record used to demonstrate an individual is qualified to perform assessments.

Independent Assessments

The assessor evaluated the effectiveness of the independent assessment program by reviewing procedures TFC-ESHQ-AP-C-02, "Independent Assessment," TFC-ESHQ-Q-PP-P-02, "Assessment Program Plan," and TFC-ESHQ-AP-D-05, "Integrated Assessment Schedule Administration," Interviewing Contractor management and staff, and reviewing the documentation that resulted from independent assessment activities.

The assessor concluded the CH2M HILL independent assessment program was adequate because the independent assessment procedure and assessment schedule met Quality Assurance Manual program requirements; the assessors and lead assessors were qualified and qualification records were maintained; assessment reports were complete and adequate; and Issues identified were properly documented and tracked in the PER database. The assessor determined the independent assessment program was effective by comparing assessment reports with the assessment schedule and the PER database. The assessor found scheduled assessments were performed on time, assessment reports clearly identified assessment results, all findings were adequately captured in PERs, and PERs were properly evaluated and appropriate significance levels were applied.

The assessor identified an issue with the adequacy of the Assessor and Lead Assessor Qualification record; the record did not satisfy all American Society of Mechanical Engineers NQA-1 training and qualification requirements for auditor and lead auditor qualification. These records were also not maintained by the training organization as required by TFC-BSM-TQ-MGT-C-04, "Training Records Administration," and The Tank Farm Contractors (TFC) Training and Qualification Plan (TFC-PLN-61) (This issue is identified as assessment Finding A-06-ESQ-TANKFARM-006-F02). The assessor reviewed a sample of five individuals with independent assessment qualification records and verified that all required training and required reading was completed by looking at their individual training records maintained by the training organization, and reviewing the ITEM records. All assessment personnel records indicated all required training was completed. No issues other than those already discussed were noted.

Another issue identified by the assessor involved the Assessment Program Review Matrix. This matrix was developed in response to past DOE Office of River Protection (ORP) assessments where ORP could not find evidence that all Quality Assurance (QA) and radiation protection program elements were assessed within a cycle that meets requirements. 10 CFR 835.102, requires for radiological control "all functional elements are reviewed no less frequently than every 36 months." NQA-1-1989, Supplement 18S-1 indicates audits of QA program elements "shall be scheduled at a frequency commensurate with the status and importance of the activity." Non-mandatory guidance and industry practice also suggest an acceptable interval is less than 36 months. The matrix was a planning tool which allowed CH2M HILL to plan and manage the scheduling of assessments to assure all program elements were assessed as required. The current matrix indicated several elements slated to be assessed in 2005 were not scheduled. The matrix had not been updated to account for the missed assessments to assure they will be covered within the required cycle. Several of these program elements will be delinquent if not addressed in Fiscal Year (FY) 2006. To be an effective tool, the matrix needs to be managed (This issue is identified as assessment Observation A-06-ESQ-TANKFARM-006-O01).

Surveillance Program:

The assessor evaluated the effectiveness of the Contractor's surveillance program related to activities that augments the independent assessment activities. This was accomplished by reviewing procedure TFC-ESHQ-PP-P-02, "Quality Assurance Surveillances," interviewing

Contractor staff and management, and reviewing documentation that resulted from surveillance activities.

Two surveillance reports, the surveillance schedules, surveillance planning tools, PERs resulting from surveillance activities, and training records were reviewed by the assessor. The assessor concluded the CH2M HILL QA surveillance activities were adequate because the procedure met QAPD program requirements; surveillances were adequately planned, scheduled, and conducted to a level that assured almost all QA program elements were looked at least annually; surveillance activities were performed and documented as prescribed in the procedure; and noted deficiencies were captured and processed in the PER system.

The assessor concluded the CH2M HILL surveillance program was effective by comparing surveillance reports with the assessment schedule and the PER database. The assessor found scheduled surveillances were performed on time, reports clearly identified surveillance results, all findings were adequately captured in PERs, and PERs were properly evaluated and appropriate significance levels were applied.

Items Opened, Closed, and Discussed

Opened Findings

A-06-ESQ-TANKFARM-006-F01 - Some instances were noted where the implementation of the Corrective Action Management Process did not satisfy DOE requirements and the CH2M HILL QAPD.

Requirements:

TFC-PLN-02, Revision B-4, "Quality Assurance Program Description," In Section 2.3.2:

"Quality improvement processes shall be established and implemented by CH2M HILL organizations to satisfy the requirements of this section in accordance with 10 CFR 830.122(c) and DOE Order 414.1B, Attachment 2, 3.c."

Both the referenced requirements state:

"c. Management/Criterion 3-Quality Improvement.

- 1) Establish and implement processes to detect and prevent quality problems.
- 2) Identify, control and correct items, services, and processes that do not meet established requirements.
- 3) Identify the causes of problems and include prevention of recurrence as a part of corrective action planning."

TFC-ESHQ-Q-C-C-01, "Problem Evaluation Request," States in the introduction:

"This procedure ... establishes the requirements and responsibilities for the timely identification and evaluation of conditions and the correction of deficiencies adverse to quality, safety, health, operability, and the environment. It also ensures the adequate documentation and tracking of corrective actions. Process steps include PER initiation, screening, resolution, corrective action implementation, and closure... The PER process ensures that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective materials and equipment, abnormal occurrences, and non-conformances are promptly identified and corrected."

The procedure then establishes processes for documenting and correcting conditions adverse to quality.

Discussion:

The assessor reviewed two significant PERs (PER 2005-0923 and PER 2005-3339) and followed them through the entire corrective action management process (PER generation, RCA, corrective action planning, corrective action implementation, PER closure, and effectiveness verification). The assessor identified instances where the corrective action management processes described in CH2M HILL procedures were not always followed. As a result, established corrective actions were not always sufficient to prevent recurrence, and some corrective actions were ineffective:

1. RCA for PER 2005-0923 and PER 2005-3339 failed to establish corrective actions for all identified causes sufficient to prevent recurrence (as required in DOE O 414.1C and 10 CFR 830, Subpart A) for the following reasons:
 - Established corrective actions for some of the identified causes were temporary with short term impact; permanent fixes were not established to address or eliminate the cause;
 - In two cases, the corrective actions established were initiated some kind of further evaluation of a determined cause; separate PERs were initiated and evaluations were addressed separate and independent from the original issue. Causes and corrective actions from these evaluations were not tied to the original issue and related to the identified causes of the original issue; and
 - Six PERs (2005-1934, 2005-1935, 2005-2037, 2005-2039, 2005-2124, and 2005-2228) were identified that did not adequately represent the problems noted in the parent reports; reports noted program/process deficiencies, failures to follow procedures, or not implementing QA requirements (all were conditions adverse to quality), but the PERs did not capture the deficiency as noted in the report, instead the PER language identified recommendations for improvements. As such, significance levels assigned to the PERs were inadequate (designated as process improvements) in that they did not require formal evaluation of the reported deficiencies, which included a determination of causes and corrective actions to prevent recurrence as required in DOE O 414.1C, 10 CFR 830, Subpart A, and the CH2M HILL QAPD.

2. A review of work control issues associated with radiological work suggested corrective actions had been ineffective or that CH2M HILL has not sufficiently addressed the work control issue from a programmatic perspective:

The assessor attempted to establish corrective action effectiveness for deficiencies noted in PER 2005-3339 by reviewing several PERs in the PER database related to work control and personnel/equipment contamination. The review of related PERs resulted in finding two additional PERs (PER-2006-0419, and PER 2006-0550) noting four events that the assessor determined most directly related to the event discussed in PER 2005-3339. Each additional event had elements that related to the causes and/or corrective actions of PER 2005-3339. This indicated to the assessor that the corrective actions for PER 2005-3339 were either ineffective, or there were broader programmatic issues CH2M HILL had not yet addressed. For example, the corrective action to address the root cause of PER 2005-3339 (to correct a poor work control practice where work controls applied were not conservative enough; they assumed too low a risk) was to incorporate the direction provided in a standing order into the work control procedures. The standing order was initiated as a remedial action and was to stay in place until the procedure was changed. This standing order, according to the RCA, elevated the level of radiological controls and surveillance expectations that would be applied to any work involving the disconnection, breaching, or opening of system components connected to waste tanks or waste transfer systems. Requiring more rigorous controls in procedures for these type activities was supposed to prevent recurrence. The two PERs discussed above indicate similar work planning issues that the standing order and the procedure changes were supposed to have resolved. The standing order was either too narrowly focused or was disregarded or ignored during the work planning for the work discussed in the more recent PERs. PER 2005-3339 also discussed problems that stemmed from insufficient detail in the work packages and the practice of allowing Field Work Supervisors to make field decisions to augment work package directions (incorrect field decisions contributed to the problem). The more recent PERs discussed above also contained elements of inadequate field decisions that contributed or caused the new condition adverse to quality.

Corrective Actions for PERs 2006-0419 and 2006-0550 were focused only on the individual issues. The assessor found no evidence that CH2M HILL was looking at these PERs collectively to ensure previous corrective actions were effective, or that previous programmatic deficiencies were addressed. Discussions with CH2M HILL management indicated that they believed the causes for each individual issue were not similar enough to consider these as repetitive (indicating ineffective corrective actions) or programmatic. The assessor concluded that CH2M HILL had incorrectly determined the additional deficiencies identified in the PERs were not recurring nor involved potential programmatic weaknesses. The definition for "programmatic" provided in the Price-Anderson Amendments Act (PAAA) Office of Enforcement operating procedure stated in part:

"Several non-NTS reportable noncompliances ... that are related but not identical, indicating a breakdown in a program or program area. These noncompliances might have a common cause indicating a programmatic weakness."

CH2M HILL Desk Instruction TFC-ESHQ-PAAA-D-06, "PAAA Performance Metrics Data Analysis, and Trending," provides an extended definition which meets the intent of the office of enforcement definition. The desk instruction provides guidance and lines of inquiry to use in determining if issues were repetitive, recurring, or programmatic. The assessor reviewed the desk instruction and did not feel it supported the argument CH2M HILL presents for not addressing the issues collectively.

The assessor felt these recent PERs contained issues that were sufficiently related to PER-3339 to indicate CH2M HILL may not have sufficiently resolved its work control issues to stop contamination events associated with the breaching tank boundaries. When discussed with the CH2M HILL PAAA Coordinator, he agreed to initiate a review to relook at these PERs to determine if a repetitive or programmatic issue does exist.

A sample of two PERs was not sufficient to determine if the noted problems were isolated or programmatic. ORP expects CH2M HILL to further investigate and determine the extent of condition when resolving the finding.

A-06-ESQ-TANKFARM-006-F02 - Administrative deficiencies were noted related to training and qualification records associated with management and independent assessments.

Requirements:

TFC-PLN-02, Revision B-4, "Quality Assurance Program Description," In Section 2.2.1:

"Training and qualification programs shall be established and implemented to satisfy the requirements of this section in accordance with 10 CFR 830.122(b), Criterion 2, and DOE 414.1B, Attachment 2, 3.b."

Both the referenced requirements state:

"b. Management/Criterion 2-Personnel Training and Qualification.

- 1) Train and qualify personnel to be capable of performing assigned work; and
- 2) Provide continuing training to personnel to maintain job proficiency."

TFC-PLN-02, Revision C, "Quality Assurance program Description," Section 2.2.3 states in part:

"The need for a formal training program for personnel performing or managing activities affecting quality or safety shall be determined. Training shall be provided, if needed, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, or job responsibilities."

TFC-BSM-TQ-MGT-C-04, "Training Record Administration," states the following about training records in 4.1 under the "record originator" activities, Item 3:

"Records must be legible, accurate, and traceable to the activity being recorded ... Mail or hand-deliver the training related documents to the TFC training records custodian."

Discussion:

The assessor identified the following deficiencies associated with the review of training and qualification records for CH2M HILL Personnel who had performed management and independent assessments:

Management and Independent Assessment training requirements did not include provisions for continuing training to maintain job proficiency. Procedures TFC-ESHQ-AP-02, Revision B-2, "Independent Assessments," and procedure TFC-ESHQ-AP-C-01, Revision C-4, "Management Assessments," included training requirements, but these only identified initial training and did not address continuing training necessary to maintain proficiency as required in DOE O 414.1C, 10 CFR 830, Subpart A, and the CH2M HILL QAPD.

The Management Assessment Team Lead Qualification card (350319) did not capture all required training noted in TFC-ESHQ-AP-C-01, Revision C-4, "Management Assessments." The procedure required completion of training course 350322 but completion of this course was not recorded as required on the qualification card. Also, the Qualification Card required course 350318 which was not mentioned in the procedure. The assessor concluded the Qualification Cards needed updating to reflect the correct courses.

The Independent Assessment Team Leader and Team Member Qualification record did not adequately incorporate NQA-1 Lead Auditor qualification methods. The CH2M HILL qualification process used a point method where 10 points was required to qualify, and points were granted for past work experience and completion of required training. The NQA-1 process also applied a point method, but only to past work experience. Required training was separate and required in addition to work experience. Also, NQA-1 required on-the-job training in the form of audit participation. The CH2M HILL process did not require any audit participation to be qualified. The CH2M HILL qualification process did not meet the intent of NQA-1. All the CH2M HILL qualification records also failed to document completion of required reading identified in Section 3.4 of TFC-ESHQ-AP-02, Revision B-2, "Independent Assessments."

Training and Qualification records for Independent Assessors and Lead Assessors were not maintained by the central records by the TFC or TFC training records custodian as required by TFC-BSM-TQ-MGT-C-04, "Training Records Administration," and the TFC Training and Qualification Plan (TFC-PLN-61). Copies of the lead assessor and assessor qualification record were included in the record file for each assessment, but original copies of training qualification records for independent assessors and lead assessors were not formally maintained. These qualification records were kept within the independent assessment organization, but there was no formal process (procedures) established within that organization to control and manage those records. TFC processes required these records to be maintained by the training organization.

CH2M HILL has assumed responsibility for this issue and initiated PER-2006-0731 to correct this deficiency. CH2M HILL established the following corrective actions, and the assessor has concurred with these corrective actions:

- Develop and implement continuing training requirement for management and independent assessment team leaders and team members;

Completion Date: June 30, 2006

- Revise management and independent assessment team leader qualification card to reference all required training;

Completion Date: June 30, 2006

- Revise Independent Assessment procedure, TFC-ESHQ-AP-C-02, to require that qualification records for Independent Assessment Team Leaders and members be retained by Training Records;

Completion Date: June 30, 2006

- Forward to Training Records those Independent Assessment Team Leader and member qualification records now being retained by the Assessments group; and

Completion Date: June 30, 2006

- Independent assessment team leader/team member qualification cards will be revised to meet QAPD requirements.

Completion Date: June 30, 2006

No additional response to this finding will be required by CH2M HILL.

Open Observations

A-06-ESQ-TANKFARM-006-O01 – Procedure TFC-ESHQ-AMD-Q-AMD-C-11, Root and Common Cause Analysis and Corrective Action Planning, did not implement the concept of remedial and corrective actions as intended in DOE Orders and Guides.

Discussion:

The procedure indicated that remedial actions correct the direct causes and contributing causes. This is not always the case, and is inconsistent with DOE requirements which indicate remedial actions are interim/prompt actions that are to control or stop the condition:

DOE O 226.1, Attachment 2, Appendix A, Section 5.a: “Issues management must include structured processes for: ... (4) identifying root cause (applied to all items using a graded approach based on risk); (5) identifying and documenting suitable corrective actions and recurrence controls, based on analysis, to correct the conditions and prevent recurrence;”

Section 5.b: “Issues management will provide a process for rapidly determining the impact of identified weaknesses and taking timely action to address conditions of immediate concern. For such conditions, interim corrective actions (e.g., stopping work, shutting down activities, or revising procedures) are to be taken as soon as a condition is identified and without waiting until a formal report is issued.

DOE G 414.1-2A, Section 4.3.2.3: “A quality problem resolution process should consist of ... taking prompt corrective (remedial) action and documenting that action ... taking steps to prevent recurrence ... Corrective action is the identification of causes and the effective resolution of a quality problem after its occurrence to prevent recurrence.”

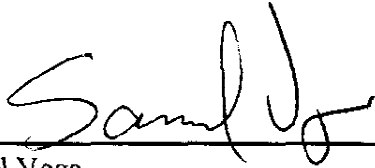
DOE Orders and guides view the establishment of remedial corrective actions and actions to prevent recurrence as separate activities, and there is no indication that remedial actions are intended to address the direct or contributing causes. Remedial actions correct what is broken or correct a condition. They put the plant back in a safe, compliant condition. In many cases these are temporary actions, such as issuing a stop work, or a tag out to isolate a system, and maintain a safe condition until permanent fixes can be initiated. The definition in the CH2M HILL procedure for remedial actions was in line with DOE requirements, but the application explained in the procedure was incorrect and inconsistent with the definition. Direct causes and contributing causes are focused on the factors and/or conditions that allowed the adverse condition to happen. They address “Why” the adverse condition happened and goes beyond the “broke-fix” aspect of a remedial action. At the time remedial actions are identified, the only fact known is the actual adverse condition, and immediate/remedial actions usually require stopping and correcting the condition to make the facility safe. Knowledge of what the direct causes and contributing causes are generally not known when remedial actions are established. These become clear only after analysis of the problem via a root cause or a similar type analysis. Remedial actions rarely intentionally correct the causes of a problem. If they did, a process requiring the identification of causes would be redundant and unnecessary. DOE O 226.1, DOE O 414.1C and 10 CFR 830, Subpart A, and their implementation guide do require the identification and correction of the causes and do not equate them to remedial actions as the noted procedure statements do. CH2M HILL has assumed responsibility for this issue and initiated PER-2006-0586 to correct the procedure.

A-06-ESQ-TANKFARM-006-002 - The Assessment Program Review Matrix, was not being maintained to assure all QA program elements are assessed once every three years as required by TFC-ESHQ-AP-02, Revision B-2, "Independent Assessments."

Discussion:

CH2M HILL had developed an Assessment Program Review Matrix to plan and manage the TFC procedure requirement to assess all QA program elements within a three year cycle. The current matrix indicated several elements slated to be assessed in 2005, were not performed, and some slated for 2006 were not scheduled as planned. The matrix had not been updated to account for the missed assessments to assure they will be covered within the required cycle. Several of these elements will be delinquent if not addressed in FY 2006. To be an effective tool, this matrix needs to be maintained and managed. CH2M HILL agrees with this observation and initiated PER-2006-0732 to update the CH2M HILL assessment schedule to include all assessments not completed in 2005 and those not yet scheduled in 2006 that the assessment program review matrix has been slated to be done.

Signatures



Samuel Vega,
Assessment Team Leader

BACKGROUND
(PLEASE SCAN)

LETTER # 06-ESQ-036

Assessment Plan

A-06-ESQ-TANKFARM-006 CH2M HILL Management and Independent Assessments and Quality Improvements

Dates of Inspection: March 13 through 17, 2006

Inspection Team: Sam Vega, Assessment Team Leader

Planned Meetings: Entrance – 8:00 a.m., March 13, 2006
Exit – 10:00 a.m., March 17, 2006

Management Debriefings – conducted at 8.a. m. each morning and as requested.

Purpose:

The purpose of the assessment will be to assess the Contractor's effectiveness in meeting requirements and program expectations for Management Assessments, Independent Assessments and Quality Improvement as prescribed in the CH2M HILL Hanford Group, Inc. (CH2M HILL) Quality Assurance Program Description (TFC-PLN-N-02, Revision A-3).

Scope:

The assessment will verify the adequate implementation of procedures which satisfy the CH2M HILL Quality Assurance Program Description requirements for Management Assessments, Independent Assessments and Quality Improvement. Assessment efforts will focus heavily on assessing the effectiveness of the processes associated with identifying, evaluating and correcting deficiencies. The assessment will also focus on corrective action effectiveness of issues captured in CH2M HILL Problem Evaluation Reports identified during the 2005 assessment of this topic. The assessment will cover the following specific topics:

- Quality improvement:
 - Corrective action management

- Management Assessments:
 - Scheduling, planning, and conducting
 - Identification and correcting of problems
 - Verification and validation of completed corrective actions
 - Training

- **Independent Assessments:**
 - Training and Qualification of assessment Personnel
 - Scheduling, planning and conducting
 - Assessment of subcontractors performing work at the Tank Farms
 - Identification and correcting of deficiencies
 - Verification and validation of completed corrective actions

Source/Reference Documents:

QUALITY ASSURANCE PROGRAM DESCRIPTION, TFC-PLN-N-02, Revision C

MANAGEMENT ASSESSMENT PROGRAM, TFC-ESHQ-AP-C-01, Revision C-1

INDEPENDENT ASSESSMENT PROGRAM, TFC-ESHQ-AP-C-02, Revision B-2

INTEGRATED ASSESSMENT SCHEDULE ADMINISTRATION, TFC-ESHQ AP-D-05, Revision A-1

MAJOR AUDIT/ASSESSMENT PREPARATION CHECKLIST, TFC-ESHQ-AP-CD-08, Revision A

ROOT AND COMMON CAUSE ANALYSIS AND CORRECTIVE ACTION PLANNING, TFC-ESHQ-Q-ADM-C-11, Revision B-1

APPARENT CAUSE ANALYSIS AND CORRECTIVE ACTION PLANNING, TFC-ESHQ-Q-ADM-C-12, Revision A-1

VERIFICATION AND VALIDATION OF COMPLETION OF CORRECTIVE, TFC-ESHQ-Q-ADM-D-03, Revision A-1

PROBLEM EVALUATION REQUEST, TFC-ESHQ-Q-C-C-01, Revision B-14

QUALITY ASSURANCE SUPPLIER OVERSIGHT, TFC-ESHQ-Q-INSP-C-06, Revision A-5


SUPPLIER QUALITY ASSURANCE PROGRAM EVALUATION, TFC-ESHQ-Q-ADM-C-09, Revision A-1

AUDITOR QUALIFICATION, TFC-ESHQ-Q-PP-C-01, Revision A

General Guidance:

1. CH2M HILL is requested to schedule the entrance and exit meetings;
2. CH2M HILL is requested to provide the name of an individual to act as the point-of-contact for the assessment team;

3. CH2M HILL is requested to provide the assessment team with work space and a conference room to hold daily team meetings and CH2M HILL management briefings;
4. CH2M HILL is requested to provide the Lead Assessor with a list of all contractors that performed work on site or performed work for Tank Farm projects during the past 12 months. Also, provide a list of oversight activities performed on those contractors/suppliers; and
5. Daily assessment activities will begin by 8:00 a.m.

Approved:  4/18/06
~~Verification and Confirmation Official~~ Date

ASSESSMENT NOTE

Assessment Note Number: A-06-ESQ-TANKFARMS-002

Assessor Name: Samuel Vega

Date of Assessment: March 13 through 17, 2006

Item Assessed: Independent Assessment, Management Assessment, and Continuing Improvement Programs

The assessor reviewed the Contractor's procedures for compliance to the "Quality Assurance Program Description," TFC-PLN-02, Revision B-4. The assessor reviewed assessment reports, Problem Evaluation Requests (PER), training records, and other relevant records associated with independent assessments, management assessments, and quality improvement. The assessor also interviewed CH2M HILL Hanford Group, Inc. (CH2M HILL) staff and management about responsibilities and activities performed in relation to assessed activities. From these activities, the assessor was able to assess the effectiveness of program implementation.

Documents Reviewed

- TFC-PLN-02, Revision B-4, "Quality Assurance Program Description;"
- TFC-BSM-TQ-MGT-C-04, Revision B, "Training Record Administration;"
- TFC-ESHQ-Q-PP-C-01, Revision A, "Auditor Qualification;"
- TFC-ESHQ-Q-PP-P-02, Revision D-1, "Quality Assurance Surveillances;"
- TFC-ESHQ-AP-C-02, Revision B-2, "Independent Assessments;"
- TFC-ESHQ-AP-C-01, Revision C-4, "Management Assessments;"
- TFC-ESHQ-AP-D-05, Revision A-1, "Integrated Assessment Schedule Administration;"
- TFC-PLN-61, Revision A-5, "Tank Far Contractor training and Qualification plan;"
- TFC-ESHQ-Q-C-C-01, Revision B-14, "Problem Evaluation Request;"
- TFC-ESHQ-Q-ADM-C-12, Revision A-4, "Apparent Cause Analysis and Corrective Action Planning;"
- TFC-ESHQ-Q-ADM-C-11, Revision B-7, "Root and Common Cause Analysis and Corrective Action Planning;"
- TFC-PLN-10, Revision B, "Assessment Program Plan;"
- FY-2005-PA-M-0170, "Management Assessment on Effectiveness of Corrective Actions for Assessment Program Group Problem Evaluation Requests;"
- Price-Anderson Office of Enforcement and Investigations, "Operational Procedures," June 1998;

- “CH2M HILL Independent Assessment Team Leader and Team Member Qualification Record;”
- Integrated Training Electronic Matrix (ITEM) Course Completion Reports;
- Root Cause Analysis Report; PER 2005-0923, “Failure to Test Leak Detector Alarm at Monitored Location;”
- NTS-RP-CHG-TANKFARM-2005-0001, “TSR Noncompliance During Leak Detection Functional Test;”
- Review Report, June 7, 2005, “Review of Tank Farms technical Safety Requirement Implementation;”
- Root Cause Analysis Report; PER 2005-3339, “C-202 Multi-Personnel Contamination Event Mobile Retrieval System;”
- FY-2005-CH2M-I-0002, “Project W-464 OCRWM;”
- FY-2005-CH2M-I-0006, “Engineering;”
- FY-2005-CH2M-I-0012, “Analytical technical services 222-S Lab Quality Assurance Audit;”
- FY-2005-CH2M-M-0013, “Internal & External Dosimetry;”
- FY-2005-CH2M-I-0014, “Worker Recognition of Workplace Hazards and Controls;”
- FY-2006-CH2M-I-0001, “Inspection and Acceptance Testing;”
- Qualification Card 350319, “Management Assessment Team Leader;”
- Independent Investigation Report, “C-202 Multi-Personnel Contamination Event Mobile Retrieval System,” September 21, 2005;
- FY-2005-CH2M-I-0011, “CH2M HILL Midpoint Assessment of the Integrated Safety Management System Consolidated Corrective Action Plan,” March 1, 2005;
- FY-2006-ACA-0309, “Area Airborne Monitoring and Nuc. Accident Dosimetry;”
- Evaluation of Management Assessment Reports for February 2006;
- FY-2006-TP-M-0141, “Training Program Objectives;”
- FY-2006-ACA-S-0306, “Instrumentation Calibration and Maintenance;”
- FY-2006-POPD-M-0145, “Testing Program;”
- FY-2006-QA-M-0122, “QA Management Assessment of Subcontractor/vendor QA Implementation Plan;”
- FY-2005-CH2M-I-0012, “Quality Assurance Audit of the CH2M HILL Analytical Technical Services, 222-S Laboratory;”
- FY-2006-CH2M-I-0001, “CH2M HILL Independent Assessment of Inspection and Acceptance Testing;”
- Surveillance/PER Summary – Overall (Performance Indicator);
- Surveillance/PER Summary – Vendor;
- Surveillance log/report list (3/01/2005-02/28/2006);
- FY-2004-CP-M-0037, “Management Assessment Closure project Corrective Action Management Effectiveness;”
- Assessment scheduling Management Tool, “Assessment Program Review Matrix;”
- Surveillance Log-Vendor (02/01/05 – 02/28/06);
- CH2M HILL Surveillance Log;
- Qualification Card 350884, “limited Quality Assurance Engineer;”
- Qualification Card 351885, Sampling/Analytical Quality Assurance Engineer;

- Qualification Card 350885, "Quality Assurance Engineer;"
- FY-2006-Integrated Assessment Schedule; and
- Management Assessment Requirements Review Sheet.

PERs Reviewed:

PER-2004-6197	PER-2004-6253	PER-2005-0057	PER-2005-0134
PER-2005-0144	PER-2005-0145	PER-2005-0867	PER-2005-0923
PER-2005-1934	PER-2005-1935	PER-2005-2037	PER-2005-2039
PER-2005-2040	PER-2005-2045	PER-2005-2049	PER-2005-2057
PER-2005-2058	PER-2005-2178	PER-2005-2079	PER-2005-2081
PER-2005-2124	PER-2005-2273	PER-2005-2288	PER-2005-2289
PER-2005-2871	PER-2005-2900	PER-2006-0395	PER-2005-3511
PER-2006-0419	PER-2006-0435	PER-2006-0536	PER-2006-0550
PER-2006-0592	PER-2006-0613	PER-2006-0614	PER-2006-0616
PER-2005-2952			

Observations and Assessments:

Quality improvement

The assessor evaluated the effectiveness of the quality improvement program by focusing assessment activities on the corrective action management process. This included reviewing procedures TFC-ESHQ-Q-ADM-C-11, "Root and Common Cause Analysis and Corrective Action Planning," TFC-ESHQ-Q-C-C-11, and "Problem Evaluation Request (PER)," interviewing Contractor staff and management, and reviewing documentation that resulted from corrective action management activities. For this portion of the assessment, the assessor focused on two Significant PERs (PER 2005-0923 and PER 2005-3339) and followed them through the entire corrective action management process (PER generation, root cause analysis, corrective action planning, corrective action implementation, PER closure, and effectiveness verification).

The assessor noted Procedure TFC-ESHQ-AMD-Q-AMD-C-11, "Root and Common Cause Analysis and Corrective Action Planning," contained inconsistencies and did not implement the concept of remedial and corrective actions as intended in U.S. Department of Energy (DOE) Orders and Guides:

Procedure TFC-ESHQ-AMD-C-11, "Root and Common Cause Analysis and Corrective Action Planning," in Section 4.1.3, states in part:

"Remedial actions restore the plant condition and address direct causes."

The note in Item #1 of the same section states in part:

“Remedial actions address the direct (DC) and contributing cause(s) (CC) and usually restore the plant condition.”

These statements are not in line with the definition of remedial actions in Section 5.0 of this same procedure:

“Remedial corrective action. “Broke-fix” actions designed to fix the broken component or correct the adverse condition.”

Remedial actions fix what is broken or correct a condition. In essence they put the plant back in a safe, compliant condition. In many cases these are temporary actions, such as issuing a stop work (a safe condition because no work is being done), or a tag out to isolate a system (a safe condition because deficient system is not in use), and maintain a safe condition until permanent fixes can be initiated. This definition in the procedure for remedial actions is in line with DOE Guide 414.1-2 which indicates remedial actions are prompt corrective actions, and with DOE O 226.1 which uses the term interim corrective actions.

DCs and CCs are focused on the causes, the factors, and/or conditions that allowed the adverse condition to happen. They address “Why” the adverse condition happened and goes beyond the “broke-fix” aspect of a remedial action. At the time remedial actions are identified, the only fact known is the actual adverse condition, and immediate/remedial actions usually required stopping and fixing the condition. Knowledge of what the DCs and CCs are generally not know when remedial actions are established. These become clear only after analysis of the problem via a root cause or a similar type analysis. So, if a remedial action corrected the causes, it was by coincidence and not intentional. Also, if remedial actions always corrected the DC and CCs, then requiring the process to identify them would be redundant and unnecessary. DOE Orders and guides do require the identification and correction of the causes and do not equate them to remedial actions as the noted procedure statements do. As such, the procedure was incorrect and did not meet the intent of the DOE requirements. CH2M HILL has assumed responsibility for this issue and initiated PER-2006-0586 to correct the procedure. (This issue is identified as assessment Observation A-06-ESQ-TANKFARM-006-O01).

The assessor determined the implementation and the philosophy applied to the processes for determining the causes of identified deficiencies and establishing corrective actions were not always effective and required improvement. The assessor noted instances where the corrective action management processes described in CH2M HILL procedures were not followed, and practices observed did not always establish actions to sufficiently correct identified causes, or to prevent recurrence of an identified root cause as required in DOE O 414.1C and 10 CFR 830, Subpart A. As a result, established corrective actions were not always sufficient or ineffective (This issue is identified as assessment Finding A-06-ESQ-TANKFARM-006-F01):

1. Root Cause Analysis (RCA) for PER 2005-0923 and PER 2005-3339 failed to establish corrective actions for all identified causes sufficient to prevent recurrence

(as required in DOE O 414.1C and 10 CFR 830, Subpart A) for the following reasons:

- Established corrective actions for some of the identified causes were only temporary with short term impact; permanent fixes were never established to address or eliminate the cause.
 - In two cases, the corrective actions established were to initiate some kind of further evaluation of a determined cause; separate PERs were initiated and evaluations were addressed separate and independent from the original issue. Causes and corrective actions from these evaluations were never tied back to the original issue and related back to the identified causes of the original issue. The significant levels of these PERs to initiate additional evaluations were much less than the original Significant PER.
 - Six PERs (2005-1934, 2005-1935, 2005-2037, 2005-2039, 2005-2124, 2005-2228) were identified that did not adequately represent the problems noted in the parent reports; reports noted program/process deficiencies, failures to follow procedures, or not implementing Quality Assurance (QA) requirements (all were conditions adverse to quality), but the PERs did not capture the deficiency as noted in the report, instead the PER language identified recommendations for improvements. As such, significance levels assigned to the PERs were inadequate in that they did not require formal evaluation of the reported deficiencies, which included a determination of causes and corrective actions to prevent recurrence as required in DOE O 414.1C, 10 CFR 830 Subpart A, and the CH2M HILL Quality Assurance Program Description (QAPD).
2. A review of work control issues associated with radiological work suggested corrective actions had been ineffective or that CH2M HILL has not sufficiently addressed the work control issue from a programmatic perspective:

The assessor attempted to establish corrective action effectiveness for deficiencies noted in PER 2005-3339 by reviewing several PERs in the PER database related to work control and personnel/equipment contamination. This resulted in Finding 2 recent PERs (PER-2006-0419, and PER 2006-0550) noting four events that were determined by the assessor to be most directly related. These additional events each seemed to have some elements that relate back to the causes and/or corrective actions of the event noted in PER 2005-3339, indicating the corrective actions for PER 2005-3339 were ineffective, or there were broader programmatic issues CH2M HILL had not yet addressed. For example, the corrective action to address the root cause of PER 2005-3339 (to correct a poor work control practice where work controls applied were not conservative enough; they assumed too low a risk) was to incorporate the direction provided in a standing order into the work control procedures. The standing order was initiated as a remedial action and was to stay in place until the procedure was changed. This standing order, according to the RCA, elevated the level of radiological controls and surveillance expectations that were to be applied to any work involving the disconnection, breaching, or opening of system components

connected to waste tanks or waste transfer systems. Two of the cases in the more recent PERs indicate similar work planning issues that were not corrected by the standing order because the standing order was too narrowly focused, or it was disregarded. PER 2005-3339 also discussed problems that stemmed from insufficient detail in the work packages and the practice of allowing Field Work Supervisors to make field decisions to augment work package directions (incorrect field decisions contributed to the problem). The recent PERs also contained elements of inadequate field decisions that contributed or caused the new incidents.

For the two recent PERs, the individual issues were being addressed, and established corrective actions were informally approved by the DOE Office of River Protection (ORP) facility representatives. But, the assessor found no evidence that CH2M HILL was looking at these collectively for corrective action effectiveness, or for programmatic deficiencies that might not have been addressed. In fact, discussions with CH2M HILL indicated the causes for each individual issue were not similar enough to consider these as repetitive (indicating ineffective corrective actions) or programmatic. CH2M HILL had determined these additional deficiencies not to be recurring or programmatic. The assessor did not fully agree with this determination. The definition for "programmatic" provided in the Price-Anderson Amendments Act (PAAA) Office of Enforcement operating procedure stated in part:

"Several non-NTS reportable noncompliances... that are related but not identical, indicating a breakdown in a program or program area. These noncompliances might have a common cause indicating a programmatic weakness."

The assessor felt these recent PERs contained issues that were sufficiently related to indicate CH2M HILL did not satisfactorily resolve their work control issues sufficiently to stop contaminations associated with the breaching tank boundaries. When discussed with the CH2M HILL PAAA Coordinator, he agreed to initiate a review.

One concern ORP had was that this finding was based on a review of only two significant PERs, which was not sufficient to determine if the concerns noted were isolated to just these two PERs, or if the problem was more extensive. ORP's expectation is for CH2M HILL to seriously evaluate this concern when determining extent of condition.

Management Assessments

The assessor evaluated the effectiveness of the management assessment program by reviewing procedure TFC-ESHQ-AP-C-01, "Management Assessment," interviewing Contractor staff and management, and reviewing documentation that resulted from management assessment activities.

The assessor identified some issues with the training and qualification process for those performing management assessments that did not meet the following CH2M HILL requirements:

TFC-PLN-02, Revision B-4, "Quality Assurance Program Description," in Section 2.2.1:

"Training and qualification programs shall be established and implemented to satisfy the requirements of this section in accordance with 10 CFR 830.122(b), Criterion 2, and DOE O 414.1B, Attachment 2, 3.b."

Both the referenced requirements state:

b. Management/Criterion 2—Personnel Training and Qualification.

- 1) Train and qualify personnel to be capable of performing assigned work; and
- 2) Provide continuing training to personnel to maintain job proficiency.

Procedure TFC-ESHQ-AP-C-01, Revision C-4, "Management Assessments," included training requirements, but these only identified initial training and did not address continuing training necessary to maintain proficiency as required in DOE O 414.1C, 10 CFR 830 Subpart A, and the CH2M HILL QAPD.

The Management Assessment Team Lead Qualification card (350319) did not capture all required training noted in TFC-ESHQ-AP-C-01, Revision C-4, "Management Assessments." The procedure required completion of training course 350322 but completion of this course was not recorded as required on the qualification card. Also, the Qualification Card required course 350318 which was not mentioned in the procedure. Qualification Cards need to be updated (This issue is identified as assessment Finding A-06-ESQ-TANKFARM-006-F02).

The assessor reviewed a sample of six individuals with management assessment qualification cards and verified by looking at individual training records maintained by the training organization, and reviewing the ITEM, the CH2M HILL electronic training record database, that all required training and required reading was completed. No other issues were identified.

The assessor reviewed six management assessment reports and verified that the processes in procedure TFC-ESHQ-AP-C-01, Revision C-4, Management Assessments, were adequately implemented, and that assessment results were properly documented. This review included verifying all deficiencies identified in management assessments were adequately captured in PERs; and that all individuals who performed management assessments were qualified with qualification records in place. The assessor also reviewed the management assessment report grading process used by CH2M HILL and found that all management assessment reports were independently reviewed and graded

on a regular basis. Grading results were provided to the originating organization to implement improvements. This report grading activity verified all required records were included in the report package; all the required activities were performed; the training and qualification requirements were met and properly documented. The assessor identified no issues with these activities.

Independent Assessments

The assessor evaluated the effectiveness of the independent assessment program by reviewing procedures TFC-ESHQ-AP-C-02, "Independent Assessment," TFC-ESHQ-Q-PP-P-02, "Assessment Program Plan," and TFC-ESHQ-AP-D-05, "Integrated Assessment Schedule Administration," interviewing Contractor management and staff, and reviewing the documentation that resulted from independent assessment activities.

The assessor identified some issues with the training and qualification process for those performing independent assessments that did not meet the following CH2M HILL requirements:

TFC-PLN-02, Revision B-4, "Quality Assurance Program Description," in Section 2.2.1:

"Training and qualification programs shall be established and implemented to satisfy the requirements of this section in accordance with 10 CFR 830.122(b), Criterion 2, and DOE O 414.1B, Attachment 2, 3.b."

Both the referenced requirements state:

b. Management/Criterion 2—Personnel Training and Qualification.

- 3) Train and qualify personnel to be capable of performing assigned work; and
- 4) Provide continuing training to personnel to maintain job proficiency.

TFC-BSM-TQ-MGT-C-04, "Training Record Administration," states the following about training records in 4.1 under the "record originator" activities, Item 3:

"Records must be legible, accurate, and traceable to the activity being recorded... Mail or hand-deliver the training related documents to the TFC training records custodian."

Procedures TFC-ESHQ-AP-02, Revision B-2, "Independent Assessment," included training requirements, but these only identified initial training and did not address continuing training necessary to maintain proficiency as required in DOE O 414.1C, 10 CFR 830 Subpart A, and the CH2M HILL QAPD.

Independent Assessment Team Leader and Team Member Qualification record did not adequately capture qualification information (the record emulated the intent of NQA-1 Lead Auditor qualification record which will be a requirement for Lead Assessors when the current version of the CH2M HILL QAPD becomes effective). The record included required training in the assessment of education and experience. This is incorrect, education and experience is to be based on past work experience. The qualification record assigned points to training noted in the procedure as required, but as currently established in this record, it is possible to be qualified (obtain the required 10 point minimum) without taking the required training. According to NQA-1, training is provided after a candidate is deemed having the necessary knowledge and experience. All the qualification records reviewed also failed to capture required reading requirements noted in Section 3.4 of TFC-ESHQ-AP-02, Revision B-2, "Independent Assessments." The record failed to capture work experience in conducting assessments (On-the-job training)

Training and Qualification records for Independent Assessors and Lead Assessors were not maintained by the central records by the Tank Farm Contractor (TFC) training records custodian as required by TFC-BSM-TQ-MGT-C-04, "Training Records Administration," and The TFC Training and Qualification Plan (TFC-PLN-61). Copies of the lead assessor and assessor qualification record were included in the record file for each assessment, but original copies of training qualification records for independent assessors and lead assessors were not formally maintained. These qualification records were kept within the independent assessment organization, but there was no formal process (procedures) established within that organization to control and manage those records. TFC processes indicate record copies of these type records were required to be maintained by the training organization (This issue is identified as assessment Finding A-06-ESQ-TANKFARM-006-F02).

The assessor reviewed a sample of five individuals with independent assessment qualification records and verified that all required training and required reading was completed by looking at their individual training records maintained by the training organization, and reviewing the ITEM records. All assessment personnel records indicated all required training was completed. No issues other training related issues other than those already discussed were noted.

The assessor reviewed the Integrated Assessment schedule and eight independent assessment reports to verify that the processes prescribed in procedure TFC-ESHQ-AP-C-02, "Independent Assessment," were adequately implemented. This review included verifying all deficiencies identified in independent assessments were adequately captured in PERs, and that all individuals who performed management assessments were qualified with qualification records in place. The assessor identified no issues with these activities.

The assessor paid particular attention to the scheduling of assessments and the requirement to periodically assess all QA elements. CH2M HILL procedures identified a 36 month cycle for independently assessing all QA program elements. A management tool was in place in the form of an Assessment Program Review Matrix to demonstrate

CH2M HILL's plan for accomplishing the assessing all QA program elements. This matrix was developed in response to past ORP assessments where ORP could not find evidence that all QA and radiation protection program elements were assessed within a 36 month cycle. The matrix clearly demonstrated the CH2M HILL plan for managing this 36 month cycle. Assessments were to be scheduled as indicated by the matrix to assure all program elements were assessed within the required time period. The assessor conducted a review of the assessment schedule to verify assessments were being scheduled and conducted as indicated in the matrix. The assessor found that the current matrix indicated several QA elements slated to be assessed in 2005 were not performed, and some slated for 2006 were not scheduled. The matrix had not been updated to account for the missed assessments to assure they will be covered within the required cycle. Several of these program elements will be delinquent if not addressed in Fiscal Year (FY) 2006. The matrix seemed to be an excellent planning tool, but to be an effective tool, the matrix needs to be managed and maintained current. (This issue is identified as assessment Observation A-06-ESQ-TANKFARM-006-001).

Surveillance Program:

The assessor evaluated the effectiveness of the Contractor's surveillance program related to activities that augments the independent assessment activities. This was accomplished by reviewing procedure TFC-ESHQ-PP-P-02, "Quality Assurance Surveillances," interviewing Contractor staff and management, and reviewing surveillance logs and other documentation that resulted from surveillance activities.

The assessor concluded the CH2M HILL QA surveillance activities were adequate because the procedure met QAPD program requirements; surveillances were adequately planned, schedule, and conducted to a level that assured almost all QA program elements were looked at least annually; surveillance activities were performed and documented as prescribed in the procedure; and noted deficiencies were captured and processed in the PER system. Surveillance logs provided graphs demonstrating all internal and contractor/vendor surveillances performed on an annual basis, and were broken down by QA program elements. The assessor did not have sufficient time to assess the adequacy of supplier/contractor oversight, but no issues were noted with the portions of surveillance program activities reviewed.

Closure Verification

The assessor performed closure verification of four PERs associated with the findings identified during assessment A-04-ESQ-TANKFARM-014. All PERs were determined to be adequately closed, and no issues related to these PERs were identified:

Conclusions:

The assessor concluded that overall CH2M HILL has implemented processes that adequately capture program requirements. Implementation of management and independent assessment procedures was determined by the assessor to be effective. The assessor concluded that improvement in the implementation and philosophy applied to corrective action management activities was required to assure effective resolution of significant conditions adverse to quality and to prevent recurrence. As such, corrective action management activities were indeterminate because of Finding F01 and the fact that it was based on a review sample size of only two significant PERs. Even though problems were identified with the resolution of both PERs, this sample size was not sufficient to determine if the concerns noted were isolated to just these two PERs, or if the problem was more extensive. ORP's expectation in addressing this finding is for CH2M HILL to seriously evaluate this concern when determining extent of condition.

Personnel Interviewed:

E. J. Milliken, Assessment and Corrective Actions
R. Higgins, Assessment and Corrective Actions
L. Penick, Assessment and Corrective Actions
S. Fox, Training
L. C. Stenzel, PAAA
C. E. Anderson, PAAA
G. M. Grant, Quality Assurance
D. D. Carson, Quality Assurance
T. Maciuca, Quality Assurance

Open Findings:

A-06-ESQ-TANKFARM-006-F01 - Some instances were noted where the implementation of the Corrective Action Management Process did not satisfy DOE requirements and the CH2M HILL QAPD.

Requirements:

TFC-PLN-02, Revision B-4, "Quality Assurance Program Description," In Section 2.3.2:

"Quality improvement processes shall be established and implemented by CH2M HILL organizations to satisfy the requirements of this section in accordance with 10 CFR 830.122(c) and DOE Order 414.1B, Attachment 2, 3.c."

Both the referenced requirements state:

"c. Management/Criterion 3—Quality Improvement.

- 1) Establish and implement processes to detect and prevent quality problems.
- 2) Identify, control and correct items, services, and processes that do not meet established requirements.
- 3) Identify the causes of problems and include prevention of recurrence as a part of corrective action planning.”

TFC-ESHQ-Q-C-C-01, “Problem Evaluation Request,” States in the introduction:

“This procedure ... establishes the requirements and responsibilities for the timely identification and evaluation of conditions and the correction of deficiencies adverse to quality, safety, health, operability, and the environment. It also ensures the adequate documentation and tracking of corrective actions. Process steps include PER initiation, screening, resolution, corrective action implementation, and closure... The PER process ensures that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective materials and equipment, abnormal occurrences, and non-conformances are promptly identified and corrected.”

The procedure then establishes processes for documenting and correcting conditions adverse to quality.

Discussion:

The assessor reviewed two significant PERs (PER 2005-0923 and PER 2005-3339) and followed them through the entire corrective action management process (PER generation, RCA, corrective action planning, corrective action implementation, PER closure, and effectiveness verification). The assessor identified instances where the corrective action management processes described in CH2M HILL procedures were not always followed. As a result, established corrective actions were not always sufficient to prevent recurrence, and some corrective actions were ineffective:

2. RCA for PER 2005-0923 and PER 2005-3339 failed to establish corrective actions for all identified causes sufficient to prevent recurrence (as required in DOE O 414.1C and 10 CFR 830, Subpart A) for the following reasons:
 - Established corrective actions for some of the identified causes were only temporary with short term impact; permanent fixes were never established to address or eliminate the cause;
 - The root cause analysis for PER 2005-0923 was not completed. Instead, in two cases during the process of identifying the causes for this condition, corrective actions were established to initiate some kind of further evaluation of a determined cause; separate PERs were initiated and evaluations were addressed separate and independent from the original issue. Causes and corrective actions

from these additional evaluations were never related back to the original root cause analysis to be considered as a whole with the other identified causes of the original issue. PERs were written to individually address the results of these additional evaluations.

- Six PERs (2005-1934, 2005-1935, 2005-2037, 2005-2039, 2005-2124, and 2005-2228) were identified that did not adequately represent the problems noted in the parent reports; reports noted program/process deficiencies, failures to follow procedures, or not implementing QA requirements (all were conditions adverse to quality), but the PERs did not capture the deficiency as noted in the report, instead the PER language identified recommendations for improvements. As such, significance levels assigned to the PERs were inadequate (designated as process improvements) in that they did not require formal evaluation of the reported deficiencies, which included a determination of causes and corrective actions to prevent recurrence as required in DOE O 414.1C, 10 CFR 830, Subpart A, and the CH2M HILL QAPD.
2. A review of work control issues associated with radiological work suggested corrective actions had been ineffective or that CH2M HILL has not sufficiently addressed the work control issue from a programmatic perspective:

The assessor attempted to establish corrective action effectiveness for deficiencies noted in PER 2005-3339 by reviewing several PERs in the PER database related to work control and personnel/equipment contamination. The review of related PERs resulted in finding two additional PERs (PER-2006-0419, and PER 2006-0550) noting four events that the assessor determined to be most directly related to the event discussed in PER 2005-3339. Each additional event had elements that relate back to the causes and/or corrective actions of PER 2005-3339. This indicated to the assessor that the corrective actions for PER 2005-3339 were either ineffective, or there were broader programmatic issues CH2M HILL had not yet addressed. For example, the corrective action to address the root cause of PER 2005-3339 (to correct a poor work control practice where work controls applied were not conservative enough; they assumed too low a risk) was to incorporate the direction provided in a standing order into the work control procedures. The standing order was initiated as a remedial action and was to stay in place until the procedure was changed. This standing order, according to the RCA, elevated the level of radiological controls and surveillance expectations that would be applied to any work involving the disconnection, breaching, or opening of system components connected to waste tanks or waste transfer systems. Recurrence was to have been prevented by requiring the more rigorous controls required in the standing order to be incorporated into work control procedures. The two PERs discussed above indicated similar work planning issues that the standing order and the procedure changes were suppose to have resolve. The standing order was either too narrowly focused or was disregarded or ignored during the work planning for the work discussed in the more recent PERs. PER 2005-3339 also discussed problems that stemmed from insufficient detail in the work packages and the practice of allowing Field Work Supervisors to make field decisions to augment work package directions (incorrect field decisions contributed to the

problem). The more recent PERs discussed above also contained elements of inadequate field decisions that contributed or caused the new condition adverse to quality.

Corrective Actions for PERs 2006-0419 and 2006-0550 were focused only on the individual issues. The assessor found no evidence that CH2M HILL was looking at these PERs collectively to ensure previous corrective actions were effective, or that previous programmatic deficiencies were addressed. Discussions with CH2M HILL management indicated that they believed the causes for each individual issue were not similar enough to consider these as repetitive (indicating ineffective corrective actions) or programmatic. The assessor concluded that CH2M HILL had incorrectly determined the additional deficiencies identified in the PERs were not recurring nor involved potential programmatic weaknesses. The definition for "programmatic" provided in the Price-Anderson Amendments Act (PAAA) Office of Enforcement operating procedure stated in part:

"Several non-NTS reportable noncompliances... that are related but not identical, indicating a breakdown in a program or program area. These noncompliances might have a common cause indicating a programmatic weakness."

CH2M HILL Desk Instruction TFC-ESHQ-PAAA-D-06, "PAAA Performance Metrics Data Analysis, and Trending," provides an extended definition which meets the intent of the office of enforcement definition. The desk instruction provides guidance and lines of inquiry to use in determining if issues were repetitive, recurring, or programmatic. The assessor reviewed the desk instruction and did not feel it supported the argument CH2M HILL presents for not addressing the issues collectively.

The assessor felt these recent PERs contained issues that were sufficiently related to PER-3339 to indicate CH2M HILL may not have sufficiently resolved its work control issues to stop contamination events associated with the breaching tank boundaries. When discussed with the CH2M HILL PAAA Coordinator, he agreed to initiate a review to relook at these PERs to determine if a repetitive or programmatic issue does exist.

A sample of two PERs was not sufficient to determine if the noted problems were isolated or programmatic. ORP expects CH2M HILL to further investigate and determine the extent of condition when resolving the finding.

A-06-ESQ-TANKFARM-006-F02 - Administrative deficiencies were noted related to training and qualification records associated with management and independent assessments.

Requirements:

TFC-PLN-02, Revision B-4, "Quality Assurance Program Description," In Section 2.2.1:

"Training and qualification programs shall be established and implemented to satisfy the requirements of this section in accordance with 10 CFR 830.122(b), Criterion 2, and DOE 414.1B, Attachment 2, 3.b."

Both the referenced requirements state:

"b. Management/Criterion 2—Personnel Training and Qualification.

- Train and qualify personnel to be capable of performing assigned work; and
- Provide continuing training to personnel to maintain job proficiency. "

TFC-PLN-02, REV C, "Quality Assurance program Description," Section 2.2.3 states in part:

"The need for a formal training program for personnel performing or managing activities affecting quality or safety shall be determined. Training shall be provided, if needed, to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, or job responsibilities".

TFC-BSM-TQ-MGT-C-04, "Training Record Administration," states the following about training records in 4.1 under the "record originator" activities, Item 3:

"Records must be legible, accurate, and traceable to the activity being recorded... Mail or hand-deliver the training related documents to the TFC training records custodian."

Discussion:

The following deficiencies were noted after the assessor reviewed training and qualification records for CH2M HILL Personnel who were performing management and independent assessments:

Management and Independent Assessment training requirements did not include provisions for continuing training to maintain job proficiency. Procedures TFC-ESHQ-AP-02, Revision B-2, "Independent Assessments," and procedure TFC-ESHQ-AP-C-01, Revision C-4, "Management Assessments," included training requirements, but these only identified initial training and did not address continuing training necessary to maintain proficiency as required in DOE O 414.1C, 10 CFR 830, Subpart A, and the CH2M HILL QAPD.

The Management Assessment Team Lead Qualification card (350319) did not capture all required training noted in TFC-ESHQ-AP-C-01, Revision C-4, "Management Assessments." The procedure required completion of training course 350322 but completion of this course was not recorded as required on the qualification card. Also, the Qualification Card required course 350318 which was not mentioned in the procedure. The assessor concluded the Qualification Cards needed updating to reflect the correct courses.

Independent Assessment Team Leader and Team Member Qualification record did not adequately capture qualification information (the record emulated the intent of NQA-1 Lead Auditor qualification record which will be a requirement for Lead Assessors when the current version of the CH2M HILL QAPD becomes effective). The training record included required training in the assessment of education and experience required for qualification. This is incorrect; education and experience was based on past work experience. The qualification record assigned points to training noted in the procedure as required, but as currently established in this record, it is possible to be qualified (obtain the required 10 point minimum) without taking the required training. According to NQA-1, training is provided after a candidate is determined to have the necessary knowledge and experience. All the qualification records reviewed also failed to capture required reading requirements noted in Section 3.4 of TFC-ESHQ-AP-02, Revision B-2, "Independent Assessments." The qualification processes for lead assessors and assessors did not include on-the-job training or past work experience in leading assessments. This is required in the CH2M HILL Lead Auditor Qualification.

Training and Qualification records for Independent Assessors and Lead Assessors were not maintained by the central records by the TFC or TFC training records custodian as required by TFC-BSM-TQ-MGT-C-04, "Training Records Administration," and the TFC Training and Qualification Plan (TFC-PLN-61). Copies of the lead assessor and assessor qualification record were included in the record file for each assessment, but original copies of training qualification records for independent assessors and lead assessors were not formally maintained. These qualification records were kept within the independent assessment organization, but there was no formal process (procedures) established within that organization to control and manage those records. TFC processes required these records to be maintained by the training organization. CH2M HILL has assumed responsibility for this issue and initiated PER-2006-0731 to correct this deficiency. CH2M HILL established the following corrective actions, and the assessor has concurred with these corrective actions:

- Develop and implement continuing training requirement for management and independent assessment team leaders and team members;

Completion Date: June 30, 2006

- Revise management and independent assessment team leader qualification card to reference all required training;

Completion Date: June 30, 2006

- Revise Independent Assessment procedure, TFC-ESHQ-AP-C-02, to require that qualification records for Independent Assessment Team Leaders and members be retained by Training Records;

Completion Date: June 30, 2006

- Forward to Training Records those Independent Assessment Team Leader and member qualification records now being retained by the Assessments group; and

Completion Date: June 30, 2006

- Independent assessment team leader/team member qualification cards will be revised to meet QAPD requirements.

Completion Date: June 30, 2006

No additional response to this finding will be required by CH2M HILL.

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Open Observations:

A-06-ESQ-TANKFARM-006-O01 – Procedure TFC-ESHQ-AMD-Q-AMD-C-11, Root and Common Cause Analysis and Corrective Action Planning, did not implement the concept of remedial and corrective actions as intended in DOE Orders and Guides.

Discussion:

The procedure indicated that remedial actions correct the direct causes and contributing causes. This is not always the case, and is inconsistent with DOE requirements which indicate remedial actions are interim/prompt actions that are to control or stop the condition:

DOE Order 226.1, Attachment 2, Appendix A, Section 5.a: ‘Issues management must include structured processes for: ... (4) identifying root cause (applied to all items using a graded approach based on risk); (5) identifying and documenting suitable corrective actions and recurrence controls, based on analysis, to correct the conditions and prevent recurrence;’

Section 5.b: “Issues management will provide a process for rapidly determining the impact of identified weaknesses and taking timely action to address conditions of immediate concern. For such conditions, interim corrective actions (e.g., stopping work, shutting down activities, or revising procedures) are to be taken as soon as a condition is identified and without waiting until a formal report is issued.

DOE Guide 414.1-2A, Section 4.3.2.3: "A quality problem resolution process should consist of... taking prompt corrective (remedial) action and documenting that action... taking steps to prevent recurrence... Corrective action is the identification of causes and the effective resolution of a quality problem after its occurrence to prevent recurrence"

DOE Orders and guides view remedial corrective actions and corrective actions to prevent recurrence as separate, and there is no indication that remedial actions are intended to address the direct or contributing causes. Remedial actions correct what is broken or correct a condition. They put the plant back in a safe, compliant condition. In many cases these are temporary actions, such as issuing a stop work, or a tag out to isolate a system, and maintain a safe condition until permanent fixes can be initiated. The definition in the CH2M HILL procedure for remedial actions was in line with DOE requirements, but the application explained in the procedure was incorrect and inconsistent with the definition. Direct causes and contributing causes are focused on the factors and/or conditions that allowed the adverse condition to happen. They address "Why" the adverse condition happened and goes beyond the "broke-fix" aspect of a remedial action. At the time remedial actions are identified, the only fact known is the actual adverse condition, and immediate/remedial actions usually require stopping and correcting the condition to make the facility safe. Knowledge of what the direct causes and contributing causes are generally not known when remedial actions are established. These become clear only after analysis of the problem via a root cause or a similar type analysis. Remedial actions rarely intentionally correct the causes of a problem. If they did, a process requiring the identification of causes would be redundant and unnecessary. DOE Order 226.1, DOE Order 414.1C and 10 CFR 830, Subpart A, and their implementation guide do require the identification and correction of the causes and do not equate them to remedial actions as the noted procedure statements do. CH2M HILL has assumed responsibility for this issue and initiated PER-2006-0586 to correct the procedure.

A-06-ESQ-TANKFARM-006-O02 - The Assessment Program Review Matrix, was not being maintained to assure all QA program elements are assessed once every three years as required by TFC-ESHQ-AP-02, Revision B-2, "Independent Assessments."

Discussion:

CH2M HILL had developed an Assessment Program Review Matrix to plan and manage the TFC procedure requirement to assess all QA program elements within a three year cycle. The current matrix indicated several program elements scheduled for assessment in 2005 were not performed. Some assessments scheduled for 2006 were not included in the CH2M HILL 2006 integrated assessment schedule. The matrix had never been updated to account for the missed assessments since it was originally developed in 2005. Assessment planning to update the matrix and assure assessments missed in 2005 and those not scheduled for 2006 will be rescheduled to meet the required 36 month cycle has not been done. Several of these elements will be delinquent if not addressed in FY 2006.

This matrix needs to be maintained and managed in order for the tool to be effective. CH2M HILL agrees with this observation and initiated PER-2006-0732 to update the CH2M HILL 2006 Integrated Assessment Schedule to include all the assessments that were scheduled in the Assessment Program Review Matrix to be completed in 2005 and 2006 that were not done or were missing from the schedule.

Signed/date: Samuel Dye
Assessor

Signed/date: 5/8/06
Lead Assessor (author of this rewrite)