



U.S. Department of Energy
Office of River Protection

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

05-ESQ-006

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-04-ESQ-TANKFARM-014 – CH2M HILL HANFORD GROUP, INC. (CH2M HILL) MANAGEMENT AND INDEPENDENT ASSESSMENTS, AND QUALITY IMPROVEMENT, DECEMBER 9 THROUGH 16, 2004

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 during the period of December 9 through 16, 2004.

The assessment team found CH2M HILL had procedures in place to sufficiently implement the Quality Assurance Program Description (QAPD) requirements associated with the Management and Independent Assessment Programs, and with the Quality Improvement Program. These procedures prescribed processes which if implemented properly would produce effective results. The assessment team identified some minor problems with procedure content, but the majority of the problems identified during the assessment were related to inadequate implementation of the processes prescribed in the procedures. The assessment team identified five findings which provided the basis for the assessment team to conclude the Contractor's independent assessment organization was not effective in consistently implementing assessment process procedures and that in some cases the Contractor's Problem Evaluation Request (PER) process was not effective in assuring PERs documenting issues identified during assessment activities were properly corrected.

Of the five findings identified, only three will require a response from CH2M HILL. Corrective actions for two of the findings have already been established and the assessment team leader has concurred they are appropriate. The findings identified during this assessment were:

- **A-04-ESQ-TANKFARM-014-F01: CH2M HILL independent assessment activities did not satisfy QAPD (Derived from American Society of Mechanical Engineers NQA-1) requirements for scheduling and assessing all elements of the Quality Assurance program.** (Captured in CH2M HILL PER 2004-6253);
- **A-04-ESQ-TANKFARM-014-F02: The CH2M HILL organization responsible for independent assessments was not managing assessment activities according to the QAPD; conducting work in accordance with procedures.** The Contractor has concurred with this finding, has initiated PER 2005-0144, and has established appropriate corrective actions. No response will be required;

- **A-04-ESQ-TANKFARM-014-F03: PERs associated with management and independent assessments were inappropriately closed.** (Captured in CH2M HILL PER 2005-0134);
- **A-04-ESQ-TANKFARM-014-F04: Individuals performing management and independent assessments were found without the required training and qualifications in place.** The Contractor has concurred with this finding, has initiated PER 2004-6197, and has established appropriate corrective actions. No response will be required; and
- **A-04-ESQ-TANKFARM-014-F05: PERs generated for the purpose of addressing potential trends were not adequately addressed.** (Captured in CH2M HILL PER 2005-0135).

The assessment team also identified three observations which document potential improvements, and CH2M HILL will not be required to respond to these observations:

- **A-04-ESQ-TANKFARM-014-O01: CH2M HILL should certify all its independent assessors to be NQA-1 Lead Auditors;**
- **A-04-ESQ-TANKFARM-014-O02: CH2M HILL should be consistent with the assignment of severity levels to assure consistent rigor in quality improvement activities and consistent trending data; and**
- **A-04-ESQ-TANKFARM-014-O03: Nonconformance Reports not associated with surveillance/compliance inspection should not be held open for as long as two years without processing to resolution.**

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

- Admission or denial of the findings;
- 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.

Mr. E. S. Aromi
05-ESQ-006

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For Findings 2 and 5, the ORP's expectation is that CH2M HILL address the individual examples provided in the findings as remedial actions, and that the response focus on correcting the causes of the overall process weaknesses associated with the findings.

The assessment observations did not identify any requirement deficiencies, but represent an experience-based observation of a potential for process improvement, or an opportunity to avoid a potential future problem. CH2M HILL should consider these, but is not required to respond to the observations.

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:SAV

Attachment

cc w/attach:

C. E. Anderson, CH2M HILL
R. L. Higgins, CH2M HILL
E. J. Millikin, CH2M HILL
M. L. Sheriff, CH2M HILL
K. Parnell, PAC
C. R. Ungerecht, PAC
Administrative Record

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

ASSESSMENT: CH2M HILL Management and Independent Assessments
and Quality Improvement

REPORT: A-04-ESQ-TANKFARM-014

FACILITY: CH2M HILL Hanford Group, Inc. Tank Farms

LOCATION: Hanford Site

Dates: December 09 through 16, 2004

ASSESSORS: Samuel Vega, Lead Assessor
Paul Hernandez, Assessor
James Adams, Assessor

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

Executive Summary

Introduction

From December 9 through 16, 2004, the U.S. Department of Energy, Office of River Protection conducted an assessment of the Contractor's Management Assessment and Independent Assessment Programs. The assessment scope also included assessing the Quality Improvement activities associated with corrective action management, trending, and non-conformance control. The assessors evaluated the procedural requirements, interviewed those charged with managing and implementing the processes, and examined records pertaining to the assessment subject.

Assessment activities focused on verifying the effectiveness of the Contractor's implementation of procedures which satisfy the Quality Assurance Program Description (QAPD) requirements for Management Assessments, Independent Assessments and Quality Improvement. Assessment efforts focused heavily on assessing the effectiveness of the processes associated with identifying, evaluating and correcting adverse trends/deficiencies.

Significant Conclusions and Issues

The assessment team found the Contractor had procedures in place to sufficiently implement the QAPD requirements associated with the Management and Independent Assessment Programs, and the Quality Improvement Program. These procedures prescribed processes which if implemented properly would produce effective results. The assessment team identified some minor problems with procedure content, but the majority of the problems identified during the assessment were related to inadequate implementation of the processes prescribed in the procedures. The assessment team identified five findings which provided the basis for the assessment team to conclude the Contractor's independent assessment organization was not effective in consistently implementing assessment process procedures and that in some cases the Contractor's Problem Evaluation Request (PER) process was not effective in assuring PERs documenting issues identified during assessment activities were properly corrected:

- **A-04-ESQ-TANKFARM-014-F01: CH2M HILL Hanford Group, Inc. (CH2M HILL) independent assessment activities did not satisfy QAPD (Derived from American Society of Mechanical Engineers NQA-1) requirements for scheduling and assessing all elements of the Quality Assurance program (PER 2004-6253);**
- **A-04-ESQ-TANKFARM-014-F02: The CH2M HILL organization responsible for independent assessments was not managing assessment activities according to the QAPD; conducting work in accordance with procedures.** The Contractor has concurred with this finding, has initiated PER 2005-0144, and has established appropriate corrective actions. No response will be required;
- **A-04-ESQ-TANKFARM-014-F03: PERs associated with management and independent assessments were inappropriately closed (PER 2005-0134);**

- **A-04-ESQ-TANKFARM-014-F04: Individuals performing management and independent assessments were found without the required training and qualifications in place.** The Contractor has concurred with this finding, has initiated PER 2004-6197, and has established appropriate corrective actions. No response will be required; and
- **A-04-ESQ-TANKFARM-014-F05: PERs generated for the purpose of addressing potential trends were not adequately addressed (PER 2005-0135).**

The assessment team also identified three observations which document improvements. The Contractor will not be required to respond to these observations:

- **A-04-ESQ-TANKFARM-014-O01: CH2M HILL should certify all its independent assessors to be NQA-1 Lead Auditors;**
- **A-04-ESQ-TANKFARM-014-O02: CH2M HILL should be consistent with the assignment of severity levels to assure consistent rigor in quality improvement activities and consistent trending data; and**
- **A-04-ESQ-TANKFARM-014-O03: Non-conformance reports not associated with surveillance/compliance inspection should not be held open for as long as two years without processing to resolution**

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List of Acronyms

CH2M HILL	CH2M HILL Hanford Group, Inc.
CRAD	Criteria Review Approach Document
DOE	U. S. Department of Energy
EM/EP	Emergency Management/Emergency Preparedness
NEC	National Electrical Code
ORP	DOE Office of River Protection
PER	Problem Evaluation Request
QA	Quality Assurance
QAPD	Quality Assurance Program Description
RCT	Radiological Control Technician
SSRB	Senior Safety Review Board
TFC	Tank Farm Contractor
TUF	Track Until Finished

Management and Independent Assessments and Quality Improvements

December 9 through 16

Assessment Purpose and Scope

From December 9 through 16, 2004, the U.S. Department of Energy (DOE), Office of River Protection (ORP) conducted an assessment of the Contractor's Management Assessment and Independent Assessment Programs. The assessment scope also included assessing the Quality Improvement activities associated with corrective action management, trending, and non-conformance control. The assessors evaluated the procedural requirements, interviewed those charged with managing and implementing the processes, and examined records pertaining to the assessment subject.

Assessment activities focused on verifying the effectiveness of the Contractor's implementation of procedures which satisfy the Quality Assurance Program Description (QAPD) requirements for Management Assessments, Independent Assessments and Quality Improvement. Assessment efforts focused heavily on assessing the effectiveness of the processes associated with identifying, evaluating and correcting adverse trends and deficiencies. The Contractor's processes assessed included:

- Management Assessments:
 - Scheduling, planning, and conducting;
 - Reporting and dissemination of results;
 - Identification and correcting of problems; and
 - Verification and validation of completed corrective actions;
- Independent Assessments:
 - Qualification of assessment personnel;
 - Scheduling, planning, and conducting;
 - Assessment of subcontractors performing work at the Tank Farms;
 - Identification and correcting of deficiencies; and
 - Verification and validation of completed corrective actions.

- Quality improvement:
 - Deficiency identification;
 - Corrective action management;
 - Trending; and
 - Non-conformance control.

Significant Observations and Conclusions

The assessors determined the Contractor had developed and implemented a management assessment program that met QAPD requirements. The management assessment procedures were adequate and effectively implemented. The scheduling of management assessments was adequate, and with the exceptions noted in Finding A-04-ESQ-TANKFARM-014-F04, those individuals performing management assessments were qualified and had the proper qualification documentation. The Contractor's assessors were found to be knowledgeable of the process and requirements. Issues identified as a result of management assessments were properly documented in problem evaluation requests (PER).

The assessor concluded the Contractor also had an adequate training and qualification process in place for independent assessors which met QAPD requirements. In general, the Contractor staff performing independent assessments was found to be adequately trained and qualified. Exceptions were noted in Finding A-04-ESQ-TANKFARM-014- F04.

The Contractor had adequate procedures in place for conducting independent assessments compliant with QAPD requirements. The Contractor also had adequate procedures in place for implementing Quality Improvement processes and assuring identified problems were documented, tracked, corrected, and trended. The assessor's review of independent assessment activities showed independent assessments were not being performed according to procedure TFC-ESHQ-AP-C-02, "Independent Assessment Program." Issues were identified with inadequate assessment scheduling, and with the assessment planning and other assessment activities not always applying the level of rigor prescribed in the procedure. Issues identified as a result of the Contractor's independent assessment activities were appropriately documented in PERs, but the assessors determined some of those PERs were not appropriately addressed.

The assessors reviewed the Contractor's trending activities and determined an adequate process was in place, and trending efforts were effective in identifying potential adverse trends, but four of the 10 trending evaluations sampled were not properly addressed by those tasked to assess the potential trends.

The assessors also reviewed the Contractor's Non-conformance Report (NCR) process and determined related activities were adequate. Two legacy NCRs were identified as have remained open for over 500 days where the Contractor had not addressed, or had no plans in place to address resolution.

The assessment team concluded the Contractor's independent assessment organization was not effective in consistently implementing assessment process procedures and that in some cases the Contractor's PER process was not effective in assuring PERs documenting issues identified during assessment activities were properly corrected.

Assessment Team Conclusions:

The assessors reviewed program procedures, management and independent assessment reports, assessment schedules, PERs and other supporting documents related to issues identified during assessments, and interviewed contractor personnel to verify that assessments were scheduled to provide adequate program coverage, were performed by individuals properly trained, that assessment results were properly documented and reported to the affected organizations via assessment reports, and that assessment identified issues were documented in PERs and were properly addressed.

Management Assessments

The assessors noted the Contractor assessment schedule was integrated to include all assessment activities, including management assessments. The assessors determined management assessment scheduling activities were adequate and in compliance with the Contractor QAPD.

The assessors reviewed training requirements, training records, reviewed a required web-based training course, and observed an Assessment Techniques Training course in process at the time of the assessment. The assessors found the required training was comprehensive and contained the appropriate level of detail. No issues were identified in regards to the establishment of training requirements.

The assessors did find one minor deficiency related to training and qualification. Two managers had initiated management assessments prior to being qualified as required by the Contractor's qualification card process, outlined in procedure, TFC-ESHQ-AP-C-01. When this compliance issue was discussed with the Contractor, the Contractor stopped work on one management assessment still in progress and initiated PER-2004-6197. Contractor corrective actions proposed in the PER were reviewed and concurred on by the lead assessor (This Issue is identified in assessment Finding A-04-ESQ-TANKFARM-014-F04).

The assessor reviewed several management assessment reports and verified the reports contained adequate information including background information, purpose for the assessment, results, a summary of PERs generated, and the completed criteria, review, and approach documents (CRAD). The assessors verified that assessment results were reported to affected organizations and appropriate levels of management and that identified issues were captured in PERs and placed in the database for correction and tracking. No issues were identified related to the performance and documentation of management assessments.

Independent Assessments

Training and Qualification

The assessors identified activities not in compliance with the certification requirements noted in TFC-ESHQ-AP-C-02, "Independent Assessment Program." These included one case where a manager

other than the Assessment Program Manager certified an assessor, one individual performed an assessment with out certification records, and several cases where assessors performed assessment activities in functional areas where qualification and the subsequent certification had not been established and documented.

In addition, the assessors noted the Contractor was performing “Specialty Assessments” which were not defined in the assessment procedure (TFC-ESHQ-AP-C-02), but were discussed in TFC-PLN-10, “Assessment Program Plan.” Based on the guidelines provided in the Assessment Program Plan, the assessors identified one case where training and certification requirements satisfied by an assessor performing Specialty Assessments. (This issue is also identified in assessment Finding A-04-ESQ-TANKFARM-014-F04).

Assessment Scheduling

The Contractor’s QAPD required “periodic assessments” of all Quality Assurance (QA) program elements. The assessors determined procedures for scheduling and performing independent assessments (TFC-ESHQ-AP-C-02, and TFC-ESHQ-AP-D-05) did not adequately address this requirement because they failed to establish a minimum frequency or cycle for assessing all the QAPD QA program elements. The assessors also determined that for Fiscal Year (FY) 2004 and 2005, the independent assessments scheduled and conducted (with individuals qualified to assess QA) did not provide sufficient coverage of all the QAPD program elements. In addition, The Contractor’s QAPD required the Assessment Program Manager to develop “an independent assessment plan based on the need to assess work processes in an effective manner.” The Contractor’s QAPD, in Section 2.10 required independent assessments of environmental, safety, health, and quality processes to measure performance, compliance, and effectiveness of CH2M HILL Hanford Group, Inc.’s (CH2M HILL) systems and processes based on established requirements. The primary focus of independent assessments was to be on systems and processes (and their products) that are important-to-safety, the environment, and project success. The intent of the requirements to conduct independent assessments was to assure environmental, safety, health, and quality program elements were assessed at a frequency sufficient to allow the Contractor to identify and correct problem areas sufficiently early to avoid adverse impacts to the project. To effectively do this, the contractor was required by the QAPD to have an overall plan in place for assuring all environmental, safety, health, and quality program elements are looked at periodically based on the significance of the various project activities. With the plan as a baseline, schedules should have been established and augmented based on assessment results and other indicators such as trending, occurrences, individual organizational performance, etc. However, the assessors determined the independent assessment organization did not have in place a holistic overall plan (as required by the QAPD) for assuring adequate assessment coverage of all the functional areas in the QAPD. When asked, the contractor was not able show adequate coverage of QA program elements, and the assessors were not able to determine such based on their review. Without an overall comprehensive effort to assure sufficient periodic coverage of the QA program elements, the Contractor not only risks violating DOE requirements, but misses an opportunity to assure performance is sufficiently assessed to allow mitigation of significant problems. (This issue is identified in assessment Finding A-04-ESQ-TANKFARM-014-F01).

The assessors also noted the integrated assessment schedule maintained on the Contractor's web site was not up-to-date as required in TFC-ESHQ-AP-D-05, "Integrated Assessment Schedule Administration." When brought to the Contractor's attention, the issue was corrected during the assessment.

Assessment Planning, Execution, and Reporting

The assessors reviewed seven assessment reports and plans (when plans were available) and determined planning and assessment execution requirements in procedure TFC-ESHQ-AP-C-02, "Independent Assessment Program," were not always followed. Issues identified included team leaders not developing an assessment plan and CRAD, team members not developing a plan for assessing assigned areas, the assessment team not performing the assessments as the CRADs indicated, and not including all the required minimum documentation in the final report. Procedure TFC-ESHQ-AP-C-02 prescribes a process that if followed assured a consistent method for assessment planning and execution which would have resulted in comprehensive documentation indicating the assessment criteria noted in CRADs was assessed. CRADs captured objective evidence supporting the conclusion that assessment criteria were met or not. The assessors could not always determine the specific assessment objectives, the criteria the assessments applied, and if those criteria were met when the procedure specified processes and documentation was not used. (This Issue is identified in assessment Finding A-04-ESQ-TANKFARM-014-F02).

Discussions with contractor management indicated the assessment process had evolved and other assessment methods were being applied, but procedure TFC-ESHQ-AP-C-02 was never updated. Also, management of the Assessment Program organization had recently changed, and the assessment staff was not all made aware of the changing expectations, or trained on the processes currently being used. The Contractor has concurred with this finding, has initiated PER 2005-0144, and has established appropriate corrective actions.

The assessors verified all issues identified as a result of the independent assessment reports reviewed were captured in PERs.

Assessment of Subcontractors

The Contractor's QAPD TFC-PLN-02 Section 2.10.2.2 Item 5 states, "Independent assessments shall include, as needed, work done for the Contractor by subcontractors or by other Hanford contractors and/or their subcontractors." The assessors reviewed the FY 2004 and FY 2005 assessment schedules to determine if the Contractor was performing independent assessments of subcontractors working at Tank Farms. The assessors determined no independent assessments were specifically scheduled to review subcontractor work, but the Contractor identified two assessments where subcontractor work was assessed as part of the assessment scope. The assessors concluded some assessment of subcontractor work had taken place, but the independent assessment organization did not provide any information or evidence of a systematic approach to oversight of the subcontractors. (This Issue is identified in assessment Finding A-04-ESQ-TANKFARM-014-F01)

Issues identified as a result of assessing sub contractor activities were documented in PERs, but the assessors noted that such PERS were given significant levels of “TUF” (Track Until Finished) regardless of the significance of the issue. Discussions with the Contractor indicate this was done to allow the Contractor to only perform tracking of the issues that were to be addressed within the subcontractor’s own corrective action management program. This practice is an exception to the PER process that is not supported by the procedure. (This Issue is identified in assessment Observation A-04-ESQ-TANKFARM-014-O02).

Quality Improvement

Problem Identification and Corrective Action management:

The Assessors reviewed procedures TFC-ESHQ-Q_C-C-01, Revision B-9, “Problem Evaluation Request;” TFC-ESHQ-Q_C-C-11, Revision B-2, “Root and Common Cause Analysis and Corrective Action Planning;” and TFC-ESHQ-Q_ADM-C-12, Revision A-1, “Apparent Cause Analysis and Corrective Action Planning,” and also interviewed the Corrective Action Program Manager to assess the process for documenting and fixing problems identified during assessment activities. The Assessors found the procedures to be adequate in providing a process that meets the QAPD corrective action management criteria originating from 10 CFR 830, Subpart A, and DOE O 414.1B.

The assessors reviewed approximately 80 PERs which documented issues originating from the seven independent assessment reports reviewed (independent assessments, specialty assessments, and Senior Safety Review Board [SSRB] assessments) to assess if they were properly processed and corrected as required in procedure TFC-ESHQ-Q-C-01, “Problem Evaluation Request.” Of the PERs reviewed, 11 of the 80 (approximately 13%) were determined to be inadequately addressed. But, some of the PERs reviewed were one in a chain of recurring PERs attempting to correct the same problem, and others identified issues where PERs should have been written but were not. Taking this into account, there are more examples of the overall issue with PERs than just the 11 discussed in the Finding (A-04-ESQ-TANKFARM-014-O02).

The type of problems identified as a result of the PER review included not addressing the noted problem, inadequate or incomplete corrective actions, and inadequate closure documentation. The impact was missed opportunities to address and correct problems the first time, and the cost and risks associated with having to address issues more than once. (These Issues are identified in assessment Finding A-04-ESQ-TANKFARM-014-F03 and Observation A-04-ESQ-TANKFARM-014-O02).

Trending Analysis Program

Procedure TFC-ESHQ-Q_C-C-02, “PER Tracking Data and Trending Analysis Program,” required an analysis of the PER database to be performed, and those areas which indicated a potential adverse trend were to be documented in a PER. These PERs were sent to the responsible managers to “Determine the significance of issues and problems identified by the trend data...” The assessors reviewed 10 PERs which identified potential trends and requested responsible managers to investigate. The assessors determined four of these PERs were not adequately addressed due to failure to

adequately conduct the investigation or failure to properly address the problem the investigation confirmed. This issue is a repeat of an observation in ORP Assessment A-04-ESQ-TANKFARM-001, “Independent Assessment, Management Assessment, and Quality improvement Program Assessment,” February 9 through 12, 2004; (this issue is identified in Finding A-04-ESQ-TANKFARM-014-F05).

Non-conformance Reporting

The assessor verified NCRs were used to document the description, disposition, action, verification, and closure of non-conforming items, and affected organizations were notified of the circumstances. To accomplish this, the assessors reviewed the Contractor’s NCR Log and inquired about specific NCRs that had been “open” in excess of 500 days. The assessor selected three legacy NCR examples associated with Tank Farms Operations. Interviews with the Contractor indicated two of the three NCRs reviewed were a problem in that there were no efforts or future plans in place for addressing the Non-conforming conditions. The interviews indicated these NCRs were never corrected because they fell out of the management’s attention. (This issue is identified in Observation A-04-ESQ-TANKFARM-014-O03).

The assessors also identified several legacy NCRs associated with the 222-S Laboratory. These had been open from 500 to as many as 3,115 days. The assessor interviewed 222-S Laboratory management and was provided a status with target dates for each NCR item sampled. The ORP assessors identified no issues with the 222-S Laboratory since the problem had been recently self-identified and plans were in place to close out these legacy NCRs.

Items Opened, Closed, and Discussed

Opened Findings

A-04-ESQ-TANKFARM-014-F01: CH2M HILL independent assessment activities did not satisfy QAPD (Derived from American Society of Mechanical Engineers [ASME] NQA-1) requirements for scheduling and assessing all elements of the QA program.

Requirements:

ASME NQA-1 (1989) Basic requirement 18 stated, "Planning and scheduled audits shall be performed to verify compliance with all aspects of the quality assurance program and to determine its effectiveness."

NQA-1 Supplement 18S-1 further stated, "Audits shall be scheduled at a frequency commensurate with the status and importance of the activity."

TFC-PLN-02, Revision B, "Quality Assurance Program Description," captured the NQA-1 requirements noted in the following:

In Section 2.10.2.2, "Schedules shall be developed based on status, complexity, risk, and importance of the activity and coordinated with ongoing activities to be assessed. Assessment/audit schedules shall be reviewed periodically and revised as needed to ensure adequate program coverage or to respond to emergent or changing issues. Regularly scheduled assessments shall be supplemented by additional assessments of specific subjects when necessary to provide adequate coverage."

Section 2.10.3.2, started as one of the Assessment Program Manager's responsibilities; "Develops an independent assessment plan based on the need to assess work processes in an effective manner."

Section 2.10.3.2, stated another Assessment Program Manager's responsibility as "Perform periodic assessments to verify implementation of QA program requirements outlined in Section 2.1 through 2.10."

Section 2.10.2.2 stated, "Independent assessments shall include, as needed, work done for The Contractor by subcontractors or by other Hanford contractors and/or their subcontractors."

Discussion:

The Contractor's QAPD required "periodic assessments" of all QA program elements. The assessors determined procedures for scheduling and performing independent assessments (TFC-ESHQ-AP-C-02, and TFC-ESHQ-AP-D-05) did not adequately address this requirement because they failed to establish a minimum frequency or cycle for assessing all the QAPD QA program elements. The assessors also determined that for FY 2004 and FY 2005, the independent assessments scheduled and conducted (with individuals qualified to assess QA) did not provide sufficient coverage of all the QAPD program elements. In addition, The Contractor's QAPD required the Assessment Program Manager to develop "an independent assessment plan based on the need to assess work processes in an

effective manner.” The Contractor’s QAPD, in Section 2.10 required independent assessments of environmental, safety, health, and quality processes to measure performance, compliance, and effectiveness of CH2M HILL’s systems and processes based on established requirements. The primary focus of independent assessments was to be on systems and processes (and their products) that are important-to-safety, the environment, and project success. The intent of the requirements to conduct independent assessments was to assure environmental, safety, health, and quality program elements were assessed at a frequency sufficient to allow the Contractor to identify and correct problem areas sufficiently early to avoid adverse impacts to the project. To effectively do this, the contractor was required by the QAPD to have an overall plan in place for assuring all environmental, safety, health, and quality program elements are looked at periodically based on the significance of the various project activities. With the plan as a baseline, schedules should have been established and augmented based on assessment results and other indicators such as trending, occurrences, individual organizational performance, etc. However, the assessors determined the independent assessment organization did not have in place a holistic overall plan (as required by the QAPD) for assuring adequate assessment coverage of all the functional areas in the QAPD. When asked, the contractor was not able show adequate coverage of QA program elements, and the assessors were not able to determine such based on their review. Without an overall comprehensive effort to assure sufficient periodic coverage of the QA program elements, the Contractor not only risks violating DOE requirements, but misses an opportunity to assure performance is sufficiently assessed to allow mitigation of significant problems. (This issue is identified in assessment Finding A-04-ESQ-TANKFARM-014-F01).

The QAPD, Section 2.10.2.2 Item 5 states: “Independent assessments shall include, as needed, work done for CH2M HILL by subcontractors or by other Hanford contractors and/or their subcontractors.” The assessors could not establish subcontractor activities were sufficiently assessed, and the same lack of an overall strategy discussed above for assessing subcontractors was also noted by the assessors.

A-04-ESQ-TANKFARM-014-F02: The CH2M HILL organization responsible for independent assessments was not managing assessment activities according to the QAPD; conducting work in accordance with procedures.

Requirements:

FC-PLN-02, Revision B, “Quality Assurance Program Description,” states the following:

In Section 2.5.2, “Management of all CH2M HILL organizations ensures that procedures or other work documents are developed and implemented...”

In Section 2.10.1, “Independent assessment processes shall be established and implemented...”

In Section 2.10.2.2, “Procedures reflecting the following requirements shall be developed by CH2M HILL organizations conducting independent assessments...”

Discussion:

TFC-ESHQ-AP-C-02, “Independent Assessment Program” is the Contractor’s procedure prescribing assessment activities. The assessors reviewed seven assessment reports and their corresponding assessment plans (when available). The assessors determined planning and assessment execution requirements in procedure TFC-ESHQ-AP-C-02 were not always followed by the Assessment Program organization. Examples of the following type were identified:

- Team leads failed, in some cases, to ensure assessment team members were technically qualified (Section 4.2, #6) (Part of Finding A-04-ESQ-TANKFARM-014-F05);
- Assessment team leads did not always develop an assessment Plan formatted as indicated in Attachment A. In addition to identifying the scope, purpose and logistics of an assessment, the plan also required the establishment of CRADs with assessment objectives and approaches for meeting those objectives (Section 4.2, #9);
- Assessment team members failed to develop an assessment plan of assigned areas (Section 4.2, #10);
- Assessments were not always conducted in accordance with developed assessment plans (Section 4.3, Item #2); and
- Failure to include all the minimum required documentation which constituted the assessment report as indicated in 4.4, Item #2; assessment plan, training and qualification of team members, assessment report (Attachment A, Form 1).

Following the procedure activities mentioned above would have assured a consistent method for assessment planning and execution that would have resulted in comprehensive documentation indicating the assessment criteria in the CRADs was assessed. CRADs captured objective evidence supporting the conclusion that assessment criteria were met or not. The assessors could not always establish from reviewing the reports the specific assessment objectives and the criteria the assessments applied.

The Contractor has concurred with this finding and has initiated PER 2005-0144 and has agreed to take the following actions:

1. The independent assessor qualification cards were updated. Actionee: Emily J. Millikin, Acting Assessment Programs Manager; Action completed;
2. Qualifications for all independent assessors were verified to meet procedure requirements. Actionee: Emily J. Millikin, Acting Assessment Programs Manager; Action completed;
3. Revise TFC-ESHQ-AP-C-02, “Independent Assessment Program” to address A-04-ESQ-TANKFARM-014-F02 identified problems and to reflect the current assessment activities. Actionee: Emily J. Millikin, Acting Assessment Programs Manager; Due Date: February 28;

4. Develop internal performance indicators to track for timeliness in issuance of independent assessment reports. Actionee: Emily J. Millikin, Acting Assessment Programs Manager; Due Date: February 28;
5. Performance indicators will include grading of the assessment reports (both management and independent) against compliance and performance metrics. Actionee: Emily J. Millikin, Acting Assessment Programs Manager; Due Date: February 28; and
6. Independent assessment group performance expectations will be clearly addressed in the expectations memorandum. Actionee: Emily J. Millikin, Acting Assessment Programs Manager; Due Date: February 28.

A-04-ESQ-TANKFARM-014-F03: PERs associated with management and independent assessments were inappropriately closed.

Requirements:

ASME NQA-1 (1989), Basic Element 16 states: “Conditions adverse to quality shall be identified promptly and corrected as soon as practical.”

TFC-PLN-02, Revision B, “Quality Assurance Program Description,” in Section 2.3.3.2 states: “The Corrective Action Management system shall be employed for ... Determining the cause of problems and implementing appropriate corrective and preventive actions.”

Procedure TFC-ESHQ-Q_C-C-01, Revision B-9, “Problem Evaluation Request” in Section 4.8 provided the process for closing PERs. This section indicated that the responsible manager was to review the PERs prior to closing and to assure the corrective actions were completed as directed. This section also stated: “When all corrective actions are complete, the PER is closed.”

Discussion:

The assessors reviewed approximately 80 PERs, and of the PERs reviewed, 11 of these PERs (approximately 13%) were determined to be inadequately addressed, but some of these PERs were one in a chain of recurring PERs attempting to correct the same problems, and others identified issues where PERs should have been written and were not. Taking these into account, the overall issue of inappropriate closure is compounded. The impact is missed opportunities to address and correct problems the first time, and the cost and risks associated with having to address issues more than once. Examples include:

- Management assessment FY2004-CP-0037 is an example where a PER was required but not written, but it also identified 21 PERs that were inappropriately addressed and closed (12 PERs with inappropriate or no corrective actions, four PERs with no apparent cause evaluation, two PERs inappropriately closed, three PERs with ineffective corrective actions). Evaluation of each individual PER during the management assessment indicated many of these PERs lacked proper/complete documentation (they were incomplete QA records). A PER to address the

inappropriate closure of PERs was never written because the individual deficiencies noted in the 21 PERs were deemed by the lead of the management assessment to be minor, and as a result, the process failed to recognize and address the more serious programmatic problems of having so many PERs not properly closed;

- PER-2004-1587 (severity level: PER with Resolution) identifies an errors with Engineer Change Notice (ECN) # 721111 where one individual performed the reviews and signed the ECN as the responsible engineer, design verifier, person resolving design verification comments, accepting the resolution, and approving the design verification. The PER was closed without any corrective actions. The extent of condition review stated this specific instance met the procedure criteria and was in agreement with NQA-1 requirements because the architect engineer was a subcontractor and provided independent design checks and the Contractor only performed the independent design verification. The extent of condition failed to determine if the procedure allowed scenarios where NQA-1 requirements would be violated, and if similar issues had been documented in other PERs. Discussions with engineering management indicated other similar PERs existed, and the procedure could allow instances of non-compliance (for example, if the architect engineer activities were performed by the Contractor). The PER was reopened and a procedure change was initiated;
- PER 2004-1872 (significance level: PIE/CIM - this indicated an improvement/recommendation) attempts to readdress the issue in PER 2004-1587 by suggesting the ECN procedure (TFC-ENG-DESIGN-C-06) be revised to clarify the roles of the verification and approval signatures and who can act as such. The procedure was revised and the PER was closed, but the revisions initiated did not adequately address the concern. When discussed with the Contractor, this PER was reopened and procedure changes initiated;
- PERs-2004-1612 and 1613 were written to identify improvements to the Emergency Management Program and the oversight of the Emergency Preparedness Drill Program. The PERs were closed using responses which discussed existing program improvements made in the past, but did not provide corrective action steps to implement the additional suggested improvements. Also, these PERs identified instances where previous shortcomings in Emergency Management/Emergency Preparedness activities failed to write PERs and one instance where a past PER was not properly address. Yet, no actions were documented indicating the missing PERs were written or investigated, and there was mention that the inappropriately closed PER was reopened and addressed. The assessors reviewed the results of the drill program for the last year and identified the following recommendations were not adequately addressed:
 - PER 2004-1612 suggested meeting the procedure TFC-OPS-EP-C-02 Section 4.1.4, which required a management sponsor be part of the minimum drill team. A review of Drill attendance rosters from April 26, 2004, through December 2, 2004, indicated sponsors attended drills only 55% of the time; and
 - Interviews with the Contractor management revealed no oversight by management had been provided to review the results of the program or to determine the effectiveness of the program as required for the closure of PER-2004-1613.

- PER 2004-1776 (03/29/04) addressed a National Electrical Code violation due to not fully implementing an “assured grounding program” for portable equipment greater than 120 volts. This PER was invalidated because this issue was covered in PER 2003-5197. Corrective actions for PER 2003-5197, which included as a remedial action the implementation of an assured grounding program, were completed March 16, 2004, yet the 2004 PER rationale did not address why just a few days later implementation of the assured grounding program was still identified as an issue. PER-2004-1776 is one of a string of related PERs (2002-2512, 2002-23436, 2003-2977, 2003-5197) dating back to May of 2002. In each case, corrective actions were implemented and the PER closed but the issue reappeared. Because of the repetitiveness of the issue, it could be argued that PER 2003-5197 should have been classified as a significant PER instead of a PER with resolution. The evaluation documented with PER 2004-1776 did not address any of these past failures. The assessors determined that based on the objective evidence provided, this PER should not have been invalidated but issued as a significant PER due to the repetitive failure to timely implement electrical code requirements with a potential to cause personnel harm;
- PER-2003-4983 captured recommendations made as a result of a SSRB assessment of the Contractor’s assessment program. Commitments made in the PER were to incorporate the Board’s recommendations. The PER was closed without completion of the commitments;
- PER 2004-4821 identified a SSRB observation that the radiological control safety training program was not effective in incorporating lessons learned into qualification standards for radiological workers and Radiological Control Technician recertification training plans. The evaluation acknowledged the concern and noted the Contractor had already developed required training and Hanford General Employee Training that covered radiological lessons learned. This does not necessarily address the Board’s concern that these lessons learned are not incorporated into training activities. Reviewing and discussing lessons learned is not the same as reformatting training to take advantage of the lessons learned. The evaluation failed to address the specific concern noted by the SSRB;
- PER 2004-4823 documents a SSRB observation which noted inadequate management assessment coverage of personnel training and qualification. The resultant evaluation confirmed the Board’s conclusion and committed to assess training for FY 2005, but no assessment scope or corrective action was established to track the commitment. The assessment also failed to address actions to assure future management assessment planning would ensure personnel training and qualification were adequately assessed;
- PER-2003-1485 classified with significance level of “Track Until Fixed” noted that a transfer procedure required a tank level monitoring frequency higher than what was normally recommended. The Operations Manager directed in the Saltwell logbook a change to the monitoring rate without first verifying with engineering this was an acceptable change even though obtaining verification from engineering was an action noted in the PER. The PER was closed without the required engineering input. The Integrated Safety Management System program requires following procedures to assure safe operations. A manager directing staff to disregard or deviate from a procedure without proper documented verification is a serious violation of this program;

- PER-2003-2877 (significance level: PER With Resolution) was closed September 9, 2003, but the NCR (CH-03-NCR-034, generated July 28, 2003) was still open with the disposition that required the items be sent back to the vendor. The items associated with the NCR were never returned to the vendor, and the documentation reviewed did not indicate the item was held due to a pending Suspect/Counterfeit Item investigation; and
- PER-2004-0424 was closed prior to issuing the required procedure change. Independent assessment FY-2004-CH2M-I-0119 identified this and was corrected as an isolated incident, but still serves as a good example of an inappropriate PER closure.

A-04-ESQ-TANKFARM-014-F04: Individuals performing management and independent assessments were identified without the required training qualifications in place.

Requirements:

TFC-PLN-02, Revision B, “Quality Assurance Program Description,” Section 2.2.3 stated, “Training and Qualification Program: Procedures implementing the training and qualification program shall provide for developing and maintaining worker proficiency commensurate with the scope, complexity, and nature of activities their jobs require. Implementing procedures shall meet the requirements of the remainder of this section and any referenced standards.”

TFC-ESHQ-AP-C-01, Section 3.3 stated the following for Management Assessment Team Leaders:

1. “Read and becomes familiar with the information in Department of Energy (DOE) Guide 414.1A, *Management and Independent Assessments*;”
2. Read and becomes familiar with this procedure;
3. Complete the Contractor’s web-based training course 350318, “CH2M HILL Assessments,” and classroom training course 350322, “Assessment Techniques and Initial;”
4. Complete the qualification card and guide course 350319, “Management Assessment Team Leader Qual Card and Guide.”

TFC-ESHQ-AP-C-02, Revision A-5, “Independent Assessment Program,” Section 3.2 stated as a responsibility of the Assessment Program Director, “Certifies the qualifications of the integrated process assessment team leader using Figure 1.”

TFC-ESHQ-AP-C-02, Revision A-5, “Independent Assessment program,” Section 3.3 provides certification requirement responsibilities:

“3.3 Assessment Team leader and Team Members

- Reads and is familiar with the information in DOE Guide 414.1-1A, “Management and Independent Assessments;”

- Reads and is familiar with this procedure;
- Completes the Contractor’s web-based training course 350318, “CH2M HILL Assessments;”
- Completes Course Number 350322, “Assessment Techniques;”
- Participates in team training just prior to the start of the assessment. Team training topics include: assessment techniques, requirements for conducting integrated process assessments, and methods for enhancing effectiveness of the integrated process assessment; and
- Certifies the qualifications of the integrated process assessment team members using Figure 1.”

Discussion:

Two managers were identified who had started management assessments prior to being qualified as required by the Contractor’s qualification card process, outlined in the Management Assessment Program procedure, TFC-ESHQ-AP-C-01. Following the ORP interview on this subject, the Contractor suspended all further activity on one assessment until the required and certification was completed.

For independent assessment activities, identified training issues included one case where a manager other than the Assessment Program Manager certified an assessor, one individual performed an assessment with missing certification records, and several cases where assessors were performing assessment activities in functional areas where qualification and the subsequent certification had not been established and documented. There was also one case where training and certification requirements were not satisfied by an assessor performing Specialty Assessments.

The Contractor concurred with this compliance Finding, initiated PER-2004-6197 and agreed to take the following corrective actions:

1. Qualification cards for Independent assessment personnel were reviewed and updated. Actionee: Emily J. Millikin, Acting Assessment Programs Manager; Action completed;
2. Expectation memorandum will be issued to all managers explaining roles, responsibilities, and expectations when performing management assessments (including specialty assessments). Actionee: Emily J. Millikin, Acting Assessment Programs Manager; Due Date: February 28; and
3. Revise management assessment review and grading process to include a check that the assessments were performed by individuals with completed qualifications in place. Actionee: Emily J. Millikin, Acting Assessment Programs Manager; Due Date: February 28.

A-04-ESQ-TANKFARM-014-F05: PERs generated for the purpose of addressing potential trends were not adequately addressed

Requirements:

TFC-ESHQ-Q_C-C-02, Revision B, "PER Tracking Data and Trending Analysis Program," in Section 4.2 requires:

- An analysis of the PER database be performed (In Steps #1-3);
- Those areas deemed to have indicated a potential adverse trend to be documented in a PER (Step #4);
- Responsible managers to review the trend PERS for potential issues (Step #6); and
- Requires PERs be generated and processed when potential adverse trends are identified (Steps 8-11).

Discussion:

The assessors reviewed 10 PERs which identified potential trends and requested responsible managers to investigate. The assessors determined four of these PERs were not adequately addressed. This is a repeat of a similar issue identified as an observation in ORP Assessment A-04-ESQ-TANKFARM-001, "Independent Assessment, Management Assessment, and Quality improvement Program Assessment," February 9 through 12, 2004:

- PER 2004-2494 and 2004-3679: These potential trend PERs identified 93 PERs associated with training issues; 30 of which related to training no-shows. The evaluation conducted failed to look at the 93 data points collectively to see if there was any indication of overall adverse trends or programmatic problem. The report dismissed many of these PERs stating the identified issues would be addressed in the individual PERs or because some of the noted PERs were generated by the training organization. As a result, the training organization failed to take advantage of the forewarning trending data could provide. For example, the 30 training no-shows were dismissed because the data was isolated to only one organization without trying to determine the real extent of the problem and if it required attention to improve performance;
- PER 2004-2511: The responsible manager agreed there was a problem identified by the trend which was contributed to "poor conduct of operations," but the responsible manager provided a soft fix (an e-mail asking operations management to assist in reversing the trend). A PER was never written to properly document, assess, and correct this issue of poor conduct of operations; and
- PER 2004- 2506 Identifies 31 failures associated with the use of respirators. The cause was attributed to the problem of increased anxiety due to the increase in work requiring respirator use, the need for information, and the need for a rigorous approach to usage of respirator. No corrective actions were developed or a PER written to correct this issue.

Open Observations:

A-04-ESQ-TANKFARM-014-O01: CH2M HILL should certify all its independent assessors to be NQA-1 Lead Auditors

NQA-1, the implementing standard applied by the Contractor, required all QA program elements be assessed periodically. The Contractor's QAPD required all assessments of QA program elements be performed by certified NQA-1 lead auditors. In addition, independent assessment activities of technical functions and other programs (such as Radiological Control and Safety) were required to be performed by assessors who were qualified to assess those disciplines based on experience and background. Assessment of these functional areas included assessing associated QA program elements, but because these assessors were not certified NQA-1 lead auditors (establishing/obtaining sufficient knowledge, experience, and training of QA requirements and QA auditing), per the QAPD, the Contractor cannot take credit for satisfying QA assessment requirements of DOE O 414.1B and 10 CFR 830.120.

A-04-ESQ-TANKFARM-014-O02: CH2M HILL should be consistent with the assignment of severity levels to assure consistent rigor in quality improvement activities and consistent trending data.

TFC-ESHQ-Q_C-C-01, Revision B-9, "Problem Evaluation Request" is the procedure which describes the process for correcting deficiencies. The grading applied, which determines the rigor required for correcting each PER noted deficiency, is determined by assigning a severity level to each PER. The severity level is assigned based on the criteria in Table 1 of the procedure. Assignment of severity level is primarily based on the significance of the documented issue. The assessor's review of PERs identified practices related to the assignment of severity levels that were not consistent with the overall intent of the procedure. The assessors felt these practices could have an adverse impact on QA related activities:

- Discussions with the Contractor indicated PERs of deficiencies identified by the Contractor against subcontractor's activities were assigned a significance level of TUF regardless of the actual severity to allow the Contractor to just track the issue. Correction of the issue was addressed within the subcontractor's own corrective action management program. This practice not allowed in the PER procedure. The assessors were concerned this practice could impact the validity of some trending data, and extent of condition determination was not required for PERs with a TUF severity level which could cause the Contractor to miss opportunities to identify and correct similar problems within their own company;
- PER 2003-0751 (severity level of Trend Only). The PER was closed, but the NCR was still open (for over 654 days) and not yet assigned a disposition. The assessors investigated and found the NCR procedure required NCR related PERs to be assigned a severity level of Trend Only and closed. This was done to allow trending of NCR issues. This practice removes the ability to track timeliness of actions. In fact, interviews with the Contractor indicated this item fell out of their awareness because there was no driver to resolve; and

- Approximately seven of 20 PERs reviewed had the field titled “Requirement Not Satisfied” left blank. The procedure requires this information, and is necessary to properly assess the more significant severity levels. Even when filled in, 50% of the time the provided information was non-specific. Some only just stated a procedure number or a general standard like “Electrical Safety.” These PER records are QA records and the general practice for QA records is to not have any blank fields (where N/A or the required information is included). Interviews indicated the Contractor’s management was aware of the problem but had not initiated corrective actions.

A-04-ESQ-TANKFARM-014-O03: NCRs not associated with surveillance/compliance inspection should not be held open for as long as two years without processing to resolution

Discussion:

The assessor’s review of open NCRs determined that the Contractor had not always processed the identified non-conforming item(s) to resolution and closure of the NCR. Interviews with the Contractor has indicated that for those NCRs open over 500 days noted in the examples below, no plans were in place to complete processing the NCRs. Even though there was no requirement to address non-conforming items in a timely manner, it is not a good practice to let these items sit to the point of mitigating the possibility of pursuing recompense from the vendor:

- NCR #CH-03-NCR-010 cited a HEPA filter found not suitable for use. The disposition was to reject the HEPA filter, but the filter was never returned to the vendor. The NCR still open in excess of 654 days; and
- NCR #CH-03-NCR-026 ten large electrical breakers where five of contained suspect fasteners. The Contractor did not have a path forward for reworking the breakers, as the disposition indicated. The NCR still open in excess of 553 days.

Closed

A-04-ESQ-TANKFARM-001-F01

Signatures

Samuel Vega,
Assessment Team Leader

Paul Hernandez,
Assessment Team Member

James Adams,
Assessment Team Member