



U.S. Department of Energy
Office of River Protection

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

04-ESQ-107

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-012 – RADIOLOGICAL CONTROL (RADCON) ROUTINE SURVEY PROGRAM, NOVEMBER 15 THROUGH 19, 2004

This letter forwards the results of the U.S. Department of Energy, Office of River Protection, assessment of CH2M HILL Hanford Group, Inc. (CH2M HILL) RadCon Routine Survey Program (the Program) during the period November 15 through 19, 2004. The Attachment (Assessment Report A-04-ESQ-TANKFARM-012) documents the details of the assessment.

With the exception of one Finding, the Program complied with regulatory requirements and was functioning properly. In addition, the Program displayed some positive features. See the sections, below, for details.

The assessors identified one Finding and six Observations, including three Program Strengths, and concluded that additional management attention was warranted to correct identified deficiencies in the Program:

- CH2M HILL did not produce objective quality evidence of trending of the Program results (A-04-ESQ-TANKFARM-012-F01);
- CH2M HILL displayed some inconsistencies in Program implementation;
- There was a lack of central direction for the Program; and
- The Program lacked grace periods for surveys and a protocol for changing the survey frequency when results indicated the need.

The Observations dealing with Program Strengths included:

- Routine radiological surveys were conducted despite ongoing tank farm challenges;
- Well-designed radiation survey logs and radiation survey reports for the 222-S Laboratories; and
- Plans to automate routine surveys should minimize omission of routine surveys and routine survey errors.

The Observations do not identify a deficiency, but represent experience-based observations of the assessment team members that CH2M HILL should consider as a source of information for improving its program. CH2M HILL is not required to respond to the Observations.

Within 30 days of receipt of this letter, CH2M HILL should respond to Finding A-04-ESQ-TANKFARM-012-F01. The response should include:

- Admission or denial of the Finding;
- Immediate corrective actions taken or planned to correct the deficiencies identified in the Finding;
- An evaluation of the extent of the conditions identified in the Finding;
- The cause(s) of the Finding;
- The corrective actions that have been taken or will be taken to correct the cause(s); and
- The date when all corrective actions for the Finding will be complete.

If you have any questions, please contact me, or your staff may call Larry R. McKay, Radiological Control Manager, (509) 376-7120.

Sincerely,

Roy J. Schepens
Manager

ESQ:LRM

Attachment

cc w/attach:

E. J. Adams, CH2M HILL
P. B. Brannan, CH2M HILL
K. C. Dorwick, CH2M HILL
J. M. Hobbs, CH2M HILL
E. E. Kennedy, CH2M HILL
T. A. Peterson, CH2M HILL
Administrative Record
CH2M Correspondence Control

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

ASSESSMENT: Routine Survey Program (Radiological Control)

REPORT: A-04-ESQ-TANKFARM-012

FACILITY: CH2M HILL Hanford Group, Inc. Tank Farms

LOCATION: Hanford Site

Dates: November 15 through 19, 2004

ASSESSORS: Larry R. McKay, Lead Assessor
Jeanie L. Polehn, Assessor

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

Executive Summary

Introduction

From November 15 through 19, 2004, the U.S. Department of Energy, Office of River Protection (ORP) conducted an assessment of the Radiological Control (RadCon) Routine Survey Program (the Program) of CH2M HILL Hanford Group, Inc. (CH2M HILL). The assessors evaluated the procedural requirements; interviewed those charged with managing and implementing the Program; and examined records pertaining to the assessment subject.

Significant Conclusions and Issues

The assessment team found the CH2M HILL Routine Survey Program had all the attributes of an adequate program, although implementation in one particular area, trending of results, was inadequate. The assessors identified one Finding:

- **CH2M HILL did not produce objective quality evidence of trending of the Routine Survey Program results.** Trending of Program results was required by the Radiation Protection Program and CH2M HILL implementing procedure.

In addition to the single Finding, the assessment team identified six issues that were classified as observations. Observations are issues based on opinions of the assessment team rather than regulatory or contractual noncompliances. While ORP may request a response from CH2M HILL on observations, responses to these observations are not needed. The six Observations, which included three Program Strengths, addressed the following issues:

- **CH2M HILL conducted routine radiological surveys despite ongoing tank farm challenges (Program Strength).** Despite challenging tank farm issues (routine requirement to wear respirators while in the tank farm, the elimination of dedicated staff, and reductions in workforce) CH2M HILL continued to implement the program as scheduled;
- **For the 222-S Laboratories, CH2M HILL used well-designed radiation survey logs and radiation survey reports (Program Strength).** The survey logs and Radiological Survey Reports (RSR) were clear, aided in assuring routine surveys were completed, and were useful in identifying radiological changes in radiological areas. Displaying current survey results above the last results aided supervisory reviews and trending;
- **Plans to automate routine surveys should minimize omission of routine surveys and routine survey errors (Program Strength).** The Visual Survey Data System, when implemented in January 2006, should minimize omission of routine surveys by alerting the RadCon staff members when surveys are due, and minimize calculational and data entry errors;

- **CH2M HILL displayed some inconsistencies in Program implementation.** The 222-S Laboratories and the balance of CH2M HILL use different procedures for implementing the Program, and two different RSR forms are utilized to record the results;
- **There was lack of central direction for the Program.** No single individual served as the Program focal point, and no Company Technical Authority or Facility Technical Authority had been assigned this responsibility; and
- **The Program lacked grace periods for surveys and a protocol for changing survey frequency when the results indicated the need.** The lack of these two features reduced the operational flexibility of the Program.

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List of Acronyms

ATS	Analytical Technical Services
CH2M HILL	CH2M HILL Hanford Group, Inc.
CPO	Closure Project Operations
CTA	Company Technical Authority
DOE	U. S. Department of Energy
FTA	Facility Technical Authority
HPT	Health Physics Technician
ORP	DOE Office of River Protection
PER	Problem Evaluation Request
RadCon	Radiological Control
RSR	Radiological Survey Report
TD	Task Description
TFC	Tank Farm Contractor
TFRCM	Tank Farms Radiological Control Manual
UMRA	Underground Radioactive Material Area
VSDS	Visual Survey Data System
WFO	Waste Feed Operations

Routine Survey Program (Radiological Control) November 15 through 19, 2004

Assessment Purpose and Scope

During the period of November 15 through 19, 2004, the U. S. Department of Energy (DOE), Office of River Protection), conducted an assessment of the Radiological Control (RadCon) Routine Survey Program (the Program) of CH2M HILL Hanford Group, Inc. (CH2M HILL). The assessors evaluated the procedural requirements; interviewed those charged with managing and implementing the Program; and examined records pertaining to the assessment subject.

Note: CH2M HILL conducted a self-assessment of Program condition immediately prior to the start of this assessment, and documented the results in Problem Evaluation Request System (PERS) 2004-5784 through 2004-5787, 2004-5789, and 2004-5792, all dated November 15, 2004. The assessors purposely did not include these issues in this assessment, opting to monitor CH2M HILL's completion of corrective actions for these issues.

Significant Observations and Conclusions

The requirements and guidance documents governing the organization and implementation of the Program include:

- Code of Federal Regulations, Title 10, Part 835, "Occupational Radiation Protection," November 14, 1998;
- DOE-STD-1098-99, "Radiological Control," Chapter 1, Part 4, "Contractor Radiological Control Organization;"
- HNF-MP-5184, "CH2M HILL Hanford Group, Inc. - Radiation Protection Program," Revision 2, February 28, 2003;
- "Hanford Radiological Health and Safety Document," Revision 1, December 20, 2001;
- HNF-5183, "Tank Farms Radiological Control Manual (TFRCM)," Revision 1, February 28, 2003;
- DOE G 441.1-1A, "Management and Administration of Radiation Protection Programs Guide," October 20, 2003, 4.1.2 Monitoring and Workplace Records;
- CH2M HILL Implementing Procedures; and
- CH2M HILL Charters TFC-CHARTER-01, Revision A-8, "Tank Farm Contractor Charter," May 3, 2004.

The assessors also evaluated:

- CH2M HILL PERS;
- Routine Survey Results; and
- Task Descriptions (TD).

The assessors conducted interviews with 13 CH2M HILL management or technical staff cognizant of and responsible for implementation of the Routine Survey Program:

See Assessment Note A-04-ESQ-TANKFARM-012-01 for details of documents reviewed and staff members interviewed.

Assessment Team Conclusions:

With the exception of the single Finding, which identified the lack of trending of survey results, the program complied with regulatory requirements and was functioning adequately. The assessors identified this finding and six Observations (which included three Program Strengths). See the next section for details.

Items Opened, Closed, and Discussed

Opened Findings

A-04-ESQ-TANKFARM-012-F01 -- CH2M HILL did not produce objective quality evidence of trending of the Routine Survey Program results.

Requirements:

- HNF-MP-5184, Revision 3, February 28, 2003, Page 34 of 109: “The requirements of Section 835.401 are subject to the graded approach through criteria established by CH2M HILL’s monitoring program. The program establishes administrative records for tracking and trending radiological conditions based on routine tasks (radiation survey reports). Task descriptions and work documents specify the frequency of radiological surveys. Workplace air sampling program defines criteria for use of continuous air monitors;” and
- TFC-ESHQ-RP_MON-P-10, Revision B-2, April 29, 2004, Section 4.3 Assess Program and Evaluate Trends, Subsection 4.3.1, Page 5 of 14: “Applicable Radiological Control Manager. Assign a Project Radiological Control health physicist or Radiological Control supervisor to

perform the evaluation and trending assessment of the data from the routine surveillance radiological survey reports.”

Discussion:

The assessors interviewed personnel and requested documentation of trending required by the Contractor’s Radiation Protection Program Requirement 66, Table 4 and the P-10 procedure (Step 4.3.1); the interviewees did not produce any documentation.

The assessors found trending of routine survey results was not being performed; no staff member had been assigned that responsibility. Interviews with Contractor personnel found prior to the Contractor’s reorganization over a year ago, limited trending had been performed for contamination events of sufficient magnitude to trigger the occurrence reporting system, but trending of routine survey results was not performed.

Observations

A-04-ESQ-TANKFARM-012-O01 -- CH2M HILL conducted routine radiological surveys despite ongoing tank farm challenges. (Program Strength)

The Contractor conducted its routine surveys despite challenging tank farm issues (e.g., routine requirement to wear respirators while in the tank farm, the elimination of dedicated staff, reductions in workforce).

The central RadCon organization had substantially rebuilt the technical expertise and served as a model for parallel technical staffing enhancements in the projects (Waste Feed Operations, Closure Operations, Analytical Technical Services).

A-04-ESQ-TANKFARM-012-O02 -- For the 222-S Laboratories, CH2M HILL used well-designed radiation survey logs and radiation survey reports. (Program Strength)

The 222-S survey logs and Radiological Survey Reports (RSR) display periodic results in sequential fashion, which would facilitate trending during supervisory review. Five weeks’ worth of survey results appeared on a single sheet of paper, which facilitated evaluation of the results over time.

A-04-ESQ-TANKFARM-012-O03 -- Plans to automate routine surveys should minimize omission of routine surveys and routine survey errors. (Program Strength)

The Contractor provided a demonstration of the Visual Survey Data System (VSDS) to the assessors earlier in 2004. The demonstration displayed the capabilities of the VSDS which, when implemented, should minimize omission of routine surveys by alerting Contractor staff

when surveys are due. The VSDS also should minimize calculational and data entry errors. The Contractor indicated the VSDS system should be implemented by the January 1, 2006.

A-04-ESQ-TANKFARM-008-004 -- CH2M HILL displayed some inconsistencies in Program implementation.

As a result of incorporation of the 222-S Lab activities into the Contractor's scope of work, two different implementing procedures for the same task were utilized. The 222-S Laboratories used a procedure originally issued by Fluor Hanford, Inc.; the Tank Farms used a CH2M HILL procedure (the P-10 procedure).

In addition, CH2M HILL utilized two different RSR forms to document the results of routine surveys. Some 222-S forms bore form numbers and issue dates; others did not. During an interview, the assessors learned of the plans to revise and consolidate the implementing procedures and supporting forms, including RSR forms, by January 5, 2005.

Of the five Closure Project Operations TDs reviewed, all contained appropriate data to perform routine surveys. Appropriate action levels and notification activities were identified if action levels were exceeded. All five TDs were signed and dated.

Of the seven RSRs reviewed, all clearly reflected the TD activities and were legible. Minor editorial discrepancies were observed on two of the seven RSRs reviewed. Specifically, WC001057, May 12, 2004, had no block checked for "Status Map has been updated? Yes N/A;" WC001431, November 3, 2004, had no block checked for "Status Map has been updated? Yes N/A," and the appropriate supervisor had not signed or dated the RSR.

A-04-ESQ-TANKFARM-012-005 – There was a lack of central direction for the Program.

Based on multiple interviews with cognizant staff members, the assessors concluded the lack of a single individual responsible for the Program increased the potential for duplicated or missing required surveys. No Company Technical Authority for the Program existed at the time of the assessment.

Prior to the Mission Alignment Process in the spring of 2003, this central focal point existed, but in recent years it has dissolved. All the interviewees cited this as the greatest weakness in the program, with no coaching from the assessors.

A-04-ESQ-TANKFARM-012-006 -- The Program lacked grace periods for surveys and a protocol for changing survey frequency when the results indicated the need.

Implementing procedures included no grace periods for conducting the surveys (a recognized industry practice). Discussions with Contractor personnel and review of documents found no clear, documented direction for whether there was a grace period for the specific survey type

(e.g., eight hours plus or minus one hour, or 24 hours plus or minus one hour). The Health Physics Technicians interviewed expressed some confusion over the required time periods for surveys.

Through review of documents and discussion with Contractor personnel, the assessors identified a process was lacking for changing the routine survey frequency when survey results demonstrated the need for frequency adjustment. For example, if a survey of an Underground Radioactive Material Area revealed loose surface contamination, there was no formal process for increasing contamination surveys frequency.

Closed

None

Discussed

None

Signatures

Larry R. McKay
Assessment Team Leader

Jeanie L. Polehn,
Assessment Team Member