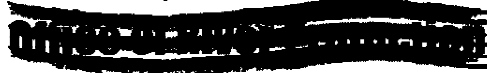


U.S. Department of Energy



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

MAY 11 2006

06-ESQ-038

Mr. M. S. Spears, President
and Chief Executive Officer
CH2M HILL Hanford Group, Inc.
2440 Stevens Center
Richland, Washington 99352

Dear Mr. Spears:

CONTRACT NO. DE-AC27-99RL14047 – ASSESSMENT REPORT A-06-ESQ-TANKFARM-003 – RADIOACTIVE SOURCE CONTROL PROGRAM, MARCH 20 THROUGH 28, 2006

This letter forwards the results (Attachment) of the U.S. Department of Energy, Office of River Protection (ORP) assessment performed from March 20 through 28, 2006, of the CH2M HILL Hanford Group, Inc. (CH2M HILL) Radioactive Source Control Program (the Program).

The assessment team (the Team) evaluated the Program as part of the 10 CFR 835 triennial review process and as ORP follow-up to the CH2M HILL-identified radioactive source control event (Problem Evaluation Report [PER] 2005-1000 and Noncompliance Tracking System Report [NTS] NTS-RP-CHG-TANKFARM-2005-0005). The Team determined the Program met regulatory and contract requirements and functioned effectively. PER 2005-1000 appropriately documented identified radioactive source control corrective actions, the NTS report's corrective actions were consistent with the PER, and the radioactive source control corrective actions were completed effectively.

The assessors noted improvement in the Program condition, had no Findings, found two Good Practices, and made four Observations. The Good Practices included periodic Source Issuer/User requalification and taking photographs of the sources (to aid in retrieval if lost or misplaced). The Observations dealt with the lack of a designated backup Company Technical Authority, labeling practices for some sources, errors in a few source records, and lack of a single Source Custodian for Analytical Technical Services. ORP does not require responses to these Observations.

Mr. M. S. Spears
06-ESQ-038

-2-

MAY 11 2006

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:LRM

Attachment

cc w/attach:

E. J. Adams, CH2M HILL
C. K. Bean, CH2M HILL
P. B. Brannan, CH2M HILL
T. E. Bratvold, CH2M HILL
J. D. Butler, CH2M HILL
F. M. Ito, CH2M HILL
M. S. McGrory, CH2M HILL
K. Parnell, PAC
C. R. Ungerecht, PAC
Administrative Record
CH2M HILL Correspondence

Attachment
06-ESQ-038
A-06-ESQ-TANKFARM-003

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

ASSESSMENT: Radioactive Source Control Program

REPORT: A-06-ESQ-TANKFARM-003

FACILITY: CH2M HILL Hanford Group, Inc. Tank Farms

LOCATION: Hanford Site

DATES: March 20 through 28, 2006

ASSESSMENT TEAM: Larry R. McKay, Team Lead
Jeanie L. Polehn, Team Member

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

Executive Summary

Two U.S. Department of Energy (DOE), Office of River Protection assessors (the Team) evaluated the CH2M HILL Hanford Group, Inc. (CH2M HILL) Radioactive Source Control Program (the Program) against established requirements and guidance from March 20 through 28, 2006. The Team evaluated the Program as part of the 10 CFR 835 triennial review process and as follow-up to a 2005 CH2M HILL-identified source control event (Problem Evaluation Report [PER] PER 2005-1000 and Noncompliance Tracking System Report [NTS] NTS-RP-CHG-TANKFARM-2005-0005 [the NTS Report]). Implementing procedure TFC-ESHQ-RP-MON024, "Sealed Radioactive Source Accountability and Control," Revision C-2, November 23, 2005, described the Program.

The Team reviewed implementing procedures, examined records, interviewed staff members who managed and implemented the Program, and made field observations to determine the adequacy and effectiveness of the Program. The assessment included identification of improvements to the Program and verification of completion of corrective actions for PER, PER 2005-1000, "Instrument Technician Received Elevated Neutron Reading on TLD." The DOE Office of Price-Anderson Enforcement issued an Enforcement Letter on July 8, 2005, and chose to forgo formal enforcement action because of CH2M HILL's prompt and thorough actions to rectify the source control problem.

The Team determined the Program met regulatory and contract requirements and noted several improvements in the Program. The Team verified the corrective actions for PER 2005-1000 and the Root Cause Analysis were consistent, and the corrective actions had been implemented. The Team identified no Findings, two Good Practices, and four Observations. Assessment details are described in this report.

Table of Contents

Executive Summary	ii
Table of Contents	iii
List of Acronyms	iv
Scope.....	5
Details.....	5
Results	6
Open Items.....	8
Closed Items	8
Discussed Items	8
Signatures	8

List of Acronyms

ATS	Analytical Technical Services
CH2M HILL	CH2M HILL Hanford Group, Inc.
CO	Closure Operations
CTA	Company Technical Authority
DOE	U.S. Department of Energy
FTA	Facility Technical Authority
HP	Health Physicist
HPT	Health Physics Technician
LHPT	Lead Health Physics Technician
NTS	Nonconformance Tracking System
PER	Problem Evaluation Request
the Program	Radioactive Source Control Program
RadCon	Radiological Control
RCA	Root Cause Analysis
the Team	assessors
WFO	Waste Feed Operations

Radiological Control (RadCon) Assessment Radioactive Source Control Program

Scope

Two U.S. Department of Energy, Office of River Protection assessors (the Team) evaluated the CH2M HILL Hanford Group, Inc. (CH2M HILL) Radioactive Source Control Program (the Program) against established requirements and guidance from March 20 through 28, 2006. The Team reviewed procedures, examined records, interviewed staff members who managed and implemented the Program, and made field observations to determine the adequacy and effectiveness of the Program. The assessment included verification of completion of the radioactive source control corrective actions for an event identified in the Root Cause Analysis (RCA) Report, Problem Evaluation Request (PER) PER 2005-1000, "Instrument Technician Received Elevated Neutron Reading on TLD," and Nonconformance Tracking System (NTS) Report NTS-RP-CHG-TANKFARM-2005-0005 (the NTS Report). Assessment Note A-06-ESQ-TANKFARM-003-01 contains the requirements, records, field observation, and interview details.

Details

CH2M HILL is organized into three projects: Analytical Technical Services (ATS); Closure Operations (CO); and Waste Feed Operations (WFO). The RadCon Program staff members provide overall guidance for the Project RadCon activities.

CH2M HILL implemented the Program to control accountable and exempt sealed radioactive sources. A radioactive source identified as "accountable" had a half-life of equal to or greater than 30 days and an isotopic activity equal to or greater than the 10 CFR 835 Appendix E value. An "exempt" source was any source not identified as "accountable." See 10 CFR 835.2(a) for details.

The Team interviewed 16 CH2M HILL staff members cognizant of, and responsible for, implementation of the Program:

ATS Project

Source Issuer/User and Health Physics Technician (HPT) - 2
Company Technical Authority (CTA) – Radioactive Source Control
and Source Custodian
Source Custodian

RadCon Program

RadCon Program Director
Source Custodian (Count Room) and Health Physicist (HP)

CO Project

Source Custodian Delegate and Lead HPT (LHPT)
Facility Technical Authority (FTA) – Radioactive Source Control
Source Issuer/User and HPT - 2
C Farm RadCon Manager
Source Custodian and LHPT

WFO Project

Source Issuer/User and HPT - 2
Source Custodian and Senior HP
Source Custodian Delegate and HPT

Results

The Team found the Program effectively controlled sealed radioactive sources and met regulatory and procedure requirements based on the following: procedure and records reviews, interviews, and field inspections of 12 sealed radioactive sources. The Team compared the corrective actions in the RCA, PER 2005-1000, and the NTS Report. The Team found the corrective actions were adequate. The Team verified completion of the radioactive source control corrective actions, identified no Findings, found two Good Practices, and made four Observations, as described below. The Team offered seven minor recommendations for program improvement during the assessment (details in Assessment Note A-06-ESQ-TANKFARM-003-01).

CH2M HILL implemented a number of improvements in the Radioactive Source Control Program: RadCon regained control of sealed radioactive sources, established separate qualification programs for Source Custodians and Source Issuer/Users, improved the quality of source control records, and implemented some innovative source control practices.

CH2M HILL RadCon management reiterated their expectations for source control after the PER 2005-1000 event: when a Source Issuer checked out sources to non-qualified Users on February 24, 2006 (a procedural violation), they took disciplinary action in accordance with CH2M HILL policy. As part of remedial actions, RadCon management had Source Custodians and Issuers physically demonstrate the capability to locate the listing of qualified Source Users. Such actions demonstrated CH2M HILL's commitment to assuring adequate source control on a continuing basis.

During field inspections, the Team found CH2M HILL sources appropriately locked and the keys controlled. Source Custodians applied additional personnel and key controls for accountable sources. The Team considered the controls suitable. CH2M HILL labeled its sources appropriately with the exception of CO (Observation, below) and had leak tested and inventoried its sources within the required six-month periods.

The Team identified the following Good Practices and Observations:

Good Practice: Radioactive Source Issuer/Users Requalified Every Six Months

The CH2M HILL procedure did not require requalification of Source Issuer/Users. ATS requalified its Source Issuer/Users every six months through the use of required reading. The Team considered this a Good Practice because the Team determined, during interviews, some Source Issuer/Users did not issue or use sources frequently. Some issued or used sources less than once per month which could result in knowledge lapses. The other Projects did not require this requalification. The team recommended requalification of all Source Issuer/Users.

Good Practice: Full-color Photographs Taken of Each Radioactive Source

CO Project and RadCon Program Source Custodians took full color photographs of each source, including a ruler to establish physical source size, and filed the photograph in each source file folder. WFO included full color photographs with some of its source file folders; ATS had not adopted this practice. There was no procedural requirement to take photographs of the sources. The Team considered taking color photographs, including source identifying information, description and physical source size, a Good Practice to assist personnel in recovery of the source in the event a source is lost or misplaced.

Observation: No Backup Designated for the CTA – Radioactive Source Control

The Team found no backup identified for the CTA – Radioactive Source Control. Management was in the process of training another individual for the position and planned for the current CTA to become the backup CTA. The current CTA has the additional duties of ATS FTA and ATS Source Custodian. These additional responsibilities diluted the incumbent's attention to CTA duties.

Observation: "Caution – Radioactive Material" Labels Obscured Source Serial Numbers

The Team observed three CO sources where "Caution - Radioactive Material" labels obscured the inscribed source serial number because of the small source size and comparatively large label. The Source Custodian moved the label to another location on the source to uncover the source serial number. WFO sources were also small in size, but WFO Source Custodians applied sufficiently small "Caution - Radioactive Material" labels which did not cover up the source serial numbers.

Observation: Source Checkout Log Sheets Contained Quality Errors

CH2M HILL staff members maintained accurate records and only personnel designated in writing had physical access to the sources. CH2M HILL issued signature verification sheets for its Source Custodians, Delegates, and Issuers. Records were of good quality except for two ATS "TFC Radioactive Source Checkout Log Sheet" forms which had

data write-overs or line-throughs with dates but no initials of the person correcting the erroneous entry. The individual making the errors updated the records to correct this Observation during the assessment.

Observation: CH2M HILL Had Not Designated a Single Source Custodian for Each CH2M HILL Project

The Team found the CO and WFO Projects, and the RadCon Program, had each designated a Source Custodian to centralize source control activities. The ATS Project had not. ATS had designated four Source Custodians. The CTA sited at 222-S Laboratory led ATS source control activities. Designating a single Source Custodian in three of the four CH2M HILL organizations provided some consistency in source control policy and practice. Designating a single ATS Source Custodian would further improve Program consistency.

Conclusions:

The Team concluded CH2M HILL had substantially improved its Source Control Program during the past year, the Program met regulatory and contractual requirements, and it was effectively functioning. The Team verified completion of consistent radioactive source control corrective actions for the radioactive source control problem documented in the RCA, PER 2005-1000, and the NTS Report. The Team identified no Findings, found two Good Practices, and made four Observations. CH2M HILL management agreed with this evaluation of the Program at the assessment exit meeting.

Open Items

None


Closed Items


None

Discussed Items

None

Signatures

 4/20/06
Larry R. McKay, Team Lead Date

 4/20/06
Jeanie L. Polehn, Team Member Date

Task# ORP-ESQ-2006-0040

E-STARS™ Report
 Task Detail Report
 05/12/2006 0858

TASK INFORMATION			
Task#	ORP-ESQ-2006-0040		
Subject	CONCUR:06-ESQ-038; ASSESSMENT REPORT A-06-ESQ-TANKFARM-003 -- RADIOACTIVE SOURCE CONTROL PROGRAM, MARCH 20 - 28, 2006		
Parent Task#		Status	CLOSED
Reference	06-ESQ-038	Due	
Originator	Gano, Becky	Priority	High
Originator Phone	(509) 376-6004	Category	None
Origination Date	04/11/2006 1321	Generic1	
Remote Task#		Generic2	
Deliverable	None	Generic3	
Class	None	View Permissions	Normal
Instructions	<p>Correspondence is being routed for concurrence via hard copy instead of electronically. Once you receive the correspondence, please approve or disapprove electronically via E-STARS and route to next person on the routing/concurrence list.</p> <p>BCC: ESQ OFF FILE ESQ RDG FILE MGR RDG FILE R.C.BARR, ESQ P.P.CARIER, ESQ L.R.MCKAY, ESQ J.L.POLEHN, ESQ C.B.REID, PA T.Z.SMITH, TF</p> <p>RECORD NOTE:</p>		
ROUTING LISTS			
1	Route List	Inactive	
	<ul style="list-style-type: none"> ● McKay, Larry R - Review - Concur - 04/20/2006 1312 <i>Instructions:</i> ● Carier, Patrick P - Review - Concur - 05/10/2006 0754 <i>Instructions:</i> ● Barr, Robert C - Review - Concur - 05/10/2006 0755 <i>Instructions:</i> ● Reid, Clo B - Review - Concur - 05/08/2006 1107 <i>Instructions:</i> ● Smith, Zack - Review - Concur with comments - 05/10/2006 1148 <i>Instructions:</i> ● Schepens, Roy J - Approve - Approved - 05/12/2006 0656 <i>Instructions:</i> 		
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p style="margin: 0;">RECEIVED</p> <p style="margin: 0;">MAY 12 2006</p> </div>			
ATTACHMENTS			
Attachments	<ol style="list-style-type: none"> 1. 06-ESQ-038 Assessment Notes.doc 2. 06-ESQ-038 att Assessment Report A-06-ESQ-TANKFARM-003.doc 3. 06-ESQ-038 CH2M LTR Assessment Report A-06-ESQ-TANKFARM-003.doc 		

DOE-ORP/ORPCC

Task# ORP-ESQ-2006-0040**COLLABORATION****COMMENTS**

Poster	Smith, Zack (George, Marcy) - 05/10/2006 1105
---------------	---

Concur

Chris Bosted concurred for T. Zack Smith on 05-10-06
--

TASK DUE DATE HISTORY

No Due Date History

SUB TASK HISTORY

No Subtasks

-- end of report --

Task# ORP-ESQ-2006-0040

E-STARS™ Report
 Task Detail Report
 04/11/2006 0122

TASK INFORMATION			
Task#	ORP-ESQ-2006-0040		
Subject	CONCUR:06-ESQ-038; ASSESSMENT REPORT A-06-ESQ-TANKFARM-003 -- RADIOACTIVE SOURCE CONTROL PROGRAM, MARCH 20 - 28, 2006		
Parent Task#		Status	Open
Reference	06-ESQ-038	Due	
Originator	Gano, Becky	Priority	High
Originator Phone	(509) 376-6004	Category	None
Origination Date	04/11/2006 1321	Generic1	
Remote Task#		Generic2	
Deliverable	None	Generic3	
Class	None	View Permissions	Normal
Instructions	<p>Correspondence is being routed for concurrence via hard copy instead of electronically. Once you receive the correspondence, please approve or disapprove electronically via E-STARS and route to next person on the routing/concurrence list.</p> <p>BCC: ESQ OFF FILE ESQ RDG FILE MGR RDG FILE R.C.BARR, ESQ P.P.CARRIER, ESQ L.R.MCKAY, ESQ J.L.POLEHN, ESQ C.B.REID, PA T.Z.SMITH, TF</p> <p>RECORD NOTE:</p>		
ROUTING LISTS			
1	Route List		Active
	<ul style="list-style-type: none"> ● McKay, Larry R - Review - Awaiting Response <i>Instructions:</i> SRMC 4/20/06 ● Carrier, Patrick P - Review - Awaiting Response <i>Instructions:</i> PPC 4/20/06 ● Barr, Robert C - Review - Awaiting Response <i>Instructions:</i> RCB 5/5/06 ● Reid, Clo B - Review - Awaiting Response <i>Instructions:</i> CR 5/8/06 ● Smith, Zack - Review - Awaiting Response <i>Instructions:</i> ZS 5/10/06 ● Schepens, Roy J - Approve - Awaiting Response <i>Instructions:</i> RS 5/11 		
ATTACHMENTS			
Attachments	<ol style="list-style-type: none"> 1. 06-ESQ-038 Assessment Notes.doc 2. 06-ESQ-038 att Assessment Report A-06-ESQ-TANKFARM-003.doc 3. 06-ESQ-038 CH2M LTR Assessment Report A-06-ESQ-TANKFARM-003.doc 		

BACKGROUND
(PLEASE SCAN)

LETTER # 06-ESQ-038

Assessment Note Number: A-06-ESQ-TANKFARM-003-01**Assessment Team: Larry R. McKay and Jeanie L. Polehn****Dates of Assessment: March 20 through 28, 2006****Areas/Items Assessed: CH2M HILL Radioactive Source Control Program**

A team of two U.S. Department of Energy (DOE), Office of River Protection (ORP) assessors (the Team) evaluated the CH2M HILL Hanford Group, Inc. (CH2M HILL) Radioactive Source Control Program (the Program) against established requirements and guidance, as described below. The evaluation addressed a functional element specified in the 10 CFR 835 triennial review process and served as ORP follow-up to a CH2M HILL-identified source control event. The Team reviewed relevant program documentation, inspected stored sources, and interviewed staff members cognizant of, and responsible for, implementation of the Program. The assessment included identification of improvements to the Program and verification that corrective actions were consistent for the Root Cause Analysis (RCA), Significant Problem Evaluation Report (PER) PER 2005-1000, and the Noncompliance Tracking System (NTS) Report NTS-RP-CHG-TANKFARM-2005-0005 (the NTS Report). CH2M HILL closed the PER on December 19, 2005.

Observations and AssessmentsBackground

In January 2005, CH2M HILL was notified of a worker's dosimeter results with a higher than expected cumulative neutron dose of 275 mrem for 2004. CH2M HILL issued the Significant PER (2005-1000), the NTS Report, End-Point Assessment (EPA) Report, and performed an RCA. The neutron dose occurred during troubleshooting and repair of failed neutron probes which involved use of a neutron source. To perform these activities, the worker checked out the neutron source but did not return it. Causal analysis identified breakdowns in both work planning and neutron source control. Basic weaknesses included: lack of involvement of Radiological Control in the work control process; use of a General Radiological Work Permit which did not adequately address the hazard; lack of positive control of the sources; lack of clear understanding of Source Custodian, Issuer, and User responsibilities; and failure of management assessments to identify these weaknesses.

The DOE Office of Price-Anderson Enforcement issued an Enforcement Letter on July 8, 2005, and chose to forgo formal enforcement action because of CH2M HILL prompt and thorough actions to rectify the CH2M HILL source control weaknesses.

Assessment Note Number: A-06-ESQ-TANKFARM-003-01Assessment Activities

The Team compared the Program with established requirements and guidance, including 10 CFR 835, the Tank Farms Radiological Control Manual, and CH2M HILL implementing procedures. The Team also compared current and previous CH2M HILL source control practices. The Team evaluated information from the PER, NTS, EPA, and RCA reports and other documents to determine whether the RCA corrective actions were appropriate and completed. The Team conducted interviews with 16 CH2M HILL management and staff employees cognizant of, and responsible for, implementation of the Program. The Team inspected 12 randomly chosen radioactive sources. The Attachment lists the individuals interviewed, documents reviewed, and sources inspected. The Team identified no Findings, found two Good Practices, made four Observations and offered seven recommendations.

The Team verified selected PER 2005-1000 corrective actions were completed. Specifically, the Team observed CH2M HILL had effective control of sources and written access lists for radioactive sources (Corrective Action to Prevent Recurrence, CATPR-01 and CATPR-03, respectively). Each of the Projects issued a formal memorandum which identified Source Custodians and Delegates. Each of the Projects published a "Signature Verification Sheet" which provided the workers' printed names, signatures initials, dates, and Hanford identification and payroll numbers. Closure Operations (CO) Radiological Control (RadCon) managers received a documented briefing which emphasized expectations for process compliance and routine verification of processes implementation (CATPR-02). CH2M HILL developed a "Source Users Briefing Checklist" (Contributing Cause, CC-01-01) and disseminated a Lessons Learned and Training Briefing (CC-02-02) to its staff. The Team found the "Sealed Radioactive Source Accountability and Control" procedure (TFC-ESHQ-RP-MON-C-24) provided adequate roles and responsibilities direction (CC-02-01) and implemented "Verification of Source Users Briefing Checklist" (CC-01-02). The Team compared the corrective actions in PER 2005-1000 with the RCA, found the actions consistent, and verified completion of the actions.

During interviews, the Team found:

- RadCon regained control of radioactive sources from other CH2M HILL groups to facilitate source control and keep doses as low as reasonably achievable;
- Roles and responsibilities clearly identified Source Custodians, with supporting Source Custodian Delegates, as responsible for issue and return of accountable¹ and exempt sealed radioactive sources;

¹ "Accountable sealed radioactive source means a sealed radioactive source having a half-life equal to or greater than 30 days and an isotopic activity equal to or greater than the corresponding value provided in appendix E of this part." 10 CFR 835.2(a)

Assessment Note Number: A-06-ESQ-TANKFARM-003-01

- Source Issuers were responsible for issue and return of exempt sealed sources. Source Users were responsible for appropriate handling, use, and return of sources. The Team determined CH2M HILL trained virtually all Health Physics Technicians as Source Issuer/Users;
- CH2M HILL staff stated there was tighter control of sources and heightened awareness of controlling sources properly since the PER 2005-1000 event;
- Source Custodians, Delegates, Issuers, Users, Facility Technical Authorities (FTA), Company Technical Authorities (CTA), and RadCon management were knowledgeable of source control requirements;
- Analytical Technical Services (ATS) Source Issuers re-check sources periodically to assure appropriate return of sources to storage and the correct storage container. The Team considered this a good worker practice;
- Some FTAs – Radioactive Source Control periodically conduct management assessments and/or Management Observation Program (MOP) radioactive source control tours; and
- CO took disciplinary action for a February 24, 2006, procedural violation when a Source Issuer checked out sources to non-qualified Users. As part of remedial actions, RadCon management required Source Custodians and Issuers to demonstrate the capability to locate the listing of qualified Source Users. Such actions demonstrated CH2M HILL's commitment to assuring adequate source control on a continuing basis.

CH2M HILL management stated it conducted periodic MOP evaluations and had developed and disseminated lines of inquiry (LOI) to assist with management assessments of the source control program. The Team obtained a copy of the LOIs. Project RadCon managers said they performed assessments using the LOIs. The Team randomly inspected a completed Source Control "Management Observation Checklist" dated March 17, 2006.

Results

During field observations the Team found CH2M HILL sources appropriately locked and the keys controlled. Source Custodians applied additional personnel and key controls to accountable sources. The Team considered the controls appropriate. CH2M HILL labeled its sources appropriately with the exception of CO (Observation, below) and had leak tested and inventoried its sources within the required six-month periods.

Assessment Note Number: A-06-ESQ-TANKFARM-003-01

The Team identified the following Good Practices and Observations:

Good Practice: Radioactive Source Issuer/Users Requalified Every Six Months

ATS required its Source Issuer/Users to requalify every six months through the use of required reading. There is no requirement for this requalification. The Team considered this a Good Practice. The Team determined during interviews some Source Issuer/Users did not issue or use sources frequently (some individuals less than once per month) which could result in knowledge lapses. The other CH2M HILL Projects did not require this requalification.

Good Practice: Full-color Photographs Taken of Each Radioactive Source

The CO Project and RadCon Program Source Custodians took full color photographs of the sources, including a ruler to establish physical source size, and placed them in each source file folder. Waste Feed Operations (WFO) had included full color photographs with some of its source file folders. ATS had not adopted this practice. The Team considered taking color photographs, including physical source size, a good practice to assist personnel in recovery of the source in the event a source is lost or misplaced.

Observation: No Backup Designated for the CTA – Radioactive Source Control

The Team found no backup identified for the CTA – Radioactive Source Control. Management stated it was training another individual for the position and planned for the current CTA to become the backup CTA. The current CTA has the additional duties of ATS, FTA, and ATS Source Custodian. These additional responsibilities diluted the incumbent's attention to CTA duties.

Observation: "Caution – Radioactive Material" Labels Obscured Source Serial Numbers

The Team detected a minor labeling problem for some CO sources. The Team observed three CO sources where "Caution – Radioactive Material" label obscured the inscribed source serial number because of the small source size and comparatively large label. The Source Custodian moved the label to another location on the source to uncover the source serial number. WFO sources were equally small in size, but Source Custodians used sufficiently small "Caution Radioactive Material" labels which did not cover up the source serial numbers.

Assessment Note Number: A-06-ESQ-TANKFARM-003-01**Observation: Source Checkout Log Sheets Contained Quality Errors**

CH2M HILL staff members maintained appropriate records and only personnel designated in writing had access to the sources. CH2M HILL issued signature verification sheets for its Source Custodians, Delegates, and Issuers. Records were of good quality except for two ATS "TFC Radioactive Source Checkout Log Sheet" forms which had data write-overs or line-throughs with dates but no initials. CH2M HILL corrected the errors during the assessment.

Observation: CH2M HILL Had Not Designated a Single Source Custodian for Each CH2M HILL Project

The Team found the CO and WFO Projects, and the RadCon Program, had each designated a Source Custodian to centralize source control activities. The ATS Project had not. ATS designated four Source Custodians. The CTA sited at 222-S Laboratory led ATS source control activities. Designating a single Source Custodian in three of the four CH2M HILL organizations provided some consistency in source control policy and practice. Designating a single ATS Source Custodian would further improve Program consistency.

Conclusions:

Based on documents reviewed, personnel interviewed, and sources inspected, the Team found CH2M HILL had made substantial improvements to its radioactive source control program to control access to, and use of, its radioactive sources, and had appropriately identified and completed corrective actions for PER 2005-1000, the RCA, and the NTS Report. The Team identified no Findings, found two Good Practices, made four Observations, and offered seven recommendations, below. The Team determined the Program effectively controlled radioactive sources. CH2M HILL management agreed with this evaluation at the assessment exit meeting.

Recommendations:

During the assessment, the Team provided the following recommendations to CH2M HILL staff for program improvement. Four of those recommendations involved opportunities to improve the "Sealed Radioactive Source Accountability and Control" procedure.

- 1) The procedure allowed "temporary (less than 60 days) removal of radioactive source(s) from the assigned" storage locations (Sections 4.1.12 and 4.8.5), but in another place the procedure stated the expectation was a source to be returned to its storage location "before the end of the shift" (Section 4.7.9). In addition, Source Custodian and Issuer/User training specified return of a source to its storage location before the end of the shift. The procedure's text could confuse the User about returning the source before the end of the shift. Failure to return a source was one PER 2005-1000 issue. The Team recommended clarifying the procedure to clearly state the requirement for Users to return radioactive sources to the approved storage

Assessment Note Number: A-06-ESQ-TANKFARM-003-01

location before the end of shift. In addition, the Team recommended clarifying the provisions for temporary source storage at another approved location to require the User to obtain prior RadCon management approval.

- 2) Integrity testing of accountable sealed sources was not required if the source was located in an area unsafe for human entry or inaccessible, but exempt sources were not included (Section 4.10.1, Bullet 2). The Team recommended the procedural requirement include exempt sources.
- 3) The procedure allowed sealed sources which had failed the leak test to remain in service (Section 4.11.4.c.3). The Team considered this a poor practice which could result in contamination of workers and equipment and recommended deletion of this text.
- 4) Figure 1 provided a flow chart for sealed source activities, but the flow chart did not include the activities for the Source Custodian or User, or identify the requirement for return of the source to storage at the end of the shift. The Team recommended including these activities in the flow chart.
- 5) WFO obtained sufficiently small "Caution Radioactive Material" labels for its sources which did not cover up source serial numbers. CH2M HILL should share the vendor information and labels with other CH2M HILL Projects and verify that none of its labels cover up sources' serial numbers.
- 6) CH2M HILL should follow the ATS Project's lead and requalify its Source Issuer/Users every six months through required reading.
- 7) All CH2M HILL Projects should take color photographs of their sources, including an indication of physical source size (e.g., take the photo with a ruler next to the source). CH2M HILL Projects should maintain those photographs in each source's file folder.

Submitted By: JLPolehn
Jeanie L. Polehn, Team Member

Date: 4/20/06

Approved By: LRMcKay
Larry R. McKay, Team Lead

Date: 4/20/06

Assessment Note Number: A-06-ESQ-TANKFARM-003-01

Attachment to Assessment Note

Documents Reviewed, Personnel Interviewed, Sources Assessed

Personnel Interviewed:

Analytical Technical Services (ATS) Project

J. J. Betzsold, Source Issuer/User and Health Physics Technician (HPT)
J. D. Butler, Company Technical Authority – Radioactive Source Control
and Source Custodian
D. E. Campbell, Source Issuer/User and HPT
J. R. Prilucik, Source Custodian

Closure Operations (CO) Project

P. A. Carlson, Source Custodian Delegate and Lead HPT (LHPT)
W. L. Duffy, Facility Technical Authority – Radioactive Source Control
A. J. Grant, Source Issuer/User and HPT
K. J. Lawing, Source Issuer/User and HPT
S. H. Livesey, C Farm RadCon Manager
K. R. Seely, Source Custodian and LHPT

Radiological Control Program

E. J. Adams, RadCon Program Director
S. R. Godfrey, Source Custodian (Count Room) and Health Physicist (HP)

Waste Feed Operations (WFO) Project

D. A. Anderson, Source Issuer/User and HPT
R. J. Calderon, Source Issuer/User and HPT
S. G. Barrett, Source Custodian and Senior HP
M. R. Murphy, Source Custodian Delegate and HPT

Documents Reviewed:

10 CFR 835, "Occupational Radiation Protection," Subpart M, "Sealed Radioactive Source Control," January 1, 1999

"Tank Farms Radiological Control Manual," HNF-5183, Revision 1, February 28, 2005

DOE G 441.1-13, "Sealed Radioactive Source Accountability and Control Guide," April 15, 1999

"Problem Evaluation Request" (PER 2005-1000), March 7, 2005

Noncompliance Tracking System Report, NTS-RP—CHG-TANKFARM-2005-0005, "Improper Controls Associated with Use of Neutron Test Source," May 27, 2005

Assessment Note Number: A-06-ESQ-TANKFARM-003-01

Letter from S. M. Sohinki, DOE Director of Price-Anderson Enforcement to E. Aromi, "Enforcement Letter – Improper Controls Associated with Use of Neutron Test Source," July 8, 2005

Root Cause Analysis Report PER 2005-1000, "Improper Controls Associated with Use of Neutron Test Source," June 24, 2005

"Source Issue and Use, Requires Course 356430, or 351529/351539," (list of qualified workers), March 14, 2006

"Radioactive Source User Briefing Checklist, Requires Course 356424, or 356430, or 351529/351539," (list of qualified workers), March 14, 2006

"Course # 351529 – Source Custodian and/or course # 351539," (list of qualified workers), March 14, 2006

TFC-ESHQ-RP-MON-C-24, "Sealed Radioactive Source Accountability and Control," Revision C-2, November 23, 2005

"CH2M HILL Hanford Group, Inc., End-Point Assessment of Problem Evaluation Report 2005-1000, Improper Controls Associated with Use of Neutron Test Source," December 2005

"Butler Master Source Inventory Listing," March 20, 2006

DOE G 441.1-13, "Sealed Radioactive Source Accountability and Control Guide," April 15, 1999

TFC-TB-05-004, Training Bulletin, "Sealed Source Control," (Task# CH2M-PER-2005-1001.8), July 26, 2005

IB-05-030, RPP Lessons Learned, "Improper Controls Associated with Use of Neutron Test Source," (Task# CH2M-PER-2005-1001.13), July 11, 2005

Source Control Lines of Inquiry (no formal title, form number, or issue date, RadCon Programs provided to the Projects per E. J. Adams), Team received March 21, 2006

"Designation of Source Custodian(s)," (R. P. French), Form A-6001-301, From C. P. Seilhymer to R. M. Pierson, January 9, 2003

"TFC Radioactive Source Checkout Log Sheet," Form A-6003-019, (ATS) Sources FM-993 (Cs-137) and FM-992 (Cs-137), (no revision or date), Team received March 22, 2006

"Radioactive Source Inventory and Integrity Test Record," Form A-6003-020 (March 2005)

Assessment Note Number: A-06-ESQ-TANKFARM-003-01

Interoffice Memo from Closure Radiological Control to JWH LB/file, 7X600-JWH-05-014, "Completion of ESTARS Action CH2M-PER-2005-1001.2, Expectations for Process Compliance and Routine Verification Implementation of Processes," June 29, 2005

Interoffice Memo from Closure Operations Radiological Control to R. L. Brown, et al, 7X600-KCD-05-029, "Confirmation of Appointment as Closure Operations Radiological Control Source Custodian," October 5, 2005

Interoffice Memo from Radiological Control Program to J. D. Butler, 7B800-SRG-06-014, "Designation of Source Custodian Delegates for Issuing Accountable-Quantity Radioactive Sources," March 7, 2006

CH2M HILL RPP Lessons Learned, General Information, IB-05-030, "Improper Controls Associated with Use of Neutron Test Source," (Task# CH2M-PER-2005-1001.13), July 11, 2005

CH2M HILL TFC RadCon Programs Training Bulletin, TFC-TB-05-004, "Sealed Source Control," July 26, 2005

"Signature Verification for Radiological Control Personnel," (CO), form A-6003-974, (no revision or date), Team received March 23, 2006

"Management Observation Checklist," W. L. Duffy, "Source Control," "Procedural Compliance IAW," TFC-ESHQ-RP-MON-C-24, March 17, 2006

Interoffice Memo from J. J. Davis to L. J. Brown et al, 7X600-JJD-05-007.2, "Designation of Source Custodian Delegates for Accountable Sources and Control of Combination Lock Access," (CO), July 7, 2005

Interoffice Memo from Waste Feed Operations Radiological Control to S. G. Barrett et al, 7TC00-CKB-06-008, "Designation of Source Custodians and Delegates for Accountable Sources at WFO," March 20, 2006

"Signature Verification for Radiological Control Personnel," (ATS), (no revision or date), Team received March 22, 2006

Interoffice Memo from Analytical Technical Services Radiological Control to J. D. Butler et al, 7S600-PBB-05-023, "Transition to the Tank Farm Contractor Radioactive Source Procedure," July 11, 2005

"Jerry Kunkel Accountable Source Checkout Log," (no date or revision number; lists qualified personnel at 222-S to issue these sources; ATS), (no revision or date), Team received March 22, 2006

"Radioactive Source Control Training Plan," 7V100-04-52, Revision 1, (no date), Team received March 23, 2006

Assessment Note Number: A-06-ESQ-TANKFARM-003-01

“TFC Radioactive Source User Briefing Checklist,” 356424, Revision 0b, June 1, 2005

“Radioactive Source Issue and Use,” 356430, Revision 1b, August 11, 2005

CH2M HILL Hanford Group TFC Training, “Source Custodian Trainee Guide,” Course Number 351529/39, Revision 1, (no revision or date), Team received March 23, 2006

“Source Custodian TFC Training,” 351529, overheads, (no revision or date), Team received March 23, 2006

Sources Assessed:

Radiological Control Programs: 2704HV Count Room, serial number: NV-127 (Cs-137)

CO: 2704HV, Room H-100C, serial numbers: S4200 (Sr/Y-90), 93PU4702172 (Pu-239), C317 (Pu-239)

WFO: 272AW, Room 2, serial numbers: C-829 (Sr/Y-90), S-3868 (Tc-99), GC-655 (Cs-137), and GC-656 (Cs-137)

ATS: 222-S, Room 5G, serial numbers: ACS-0239 (Th-230) and ICCS-1018 (Sr-90); Room B-1E Vault, SNs: 1U511 (Co-60) and A-228 (Am-241)