



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

July 23, 2010

Certified Mail

Mr. Tom Carpenter
Hanford Challenge
219 1st Avenue South
Suite 120
Seattle, Washington 98104

Dear Mr. Carpenter:

FREEDOM OF INFORMATION ACT REQUEST (FOI 2010-01517)

You requested, pursuant to the Freedom of Information Act (FOIA), “any and all DOE Surveillance reports generated at or related to the Hanford Site since January 1, 2009, to the present, and any and all responses to such concerns, including but not limited to correspondence, memoranda, emails, corrective actions and proposals.” In letter dated June 4, 2010, you clarified your request to “any and all DOE Surveillance reports generated at or related to the Hanford Site since January 1, 2009, to the present.”

This office provided you with a partial response on July 7, 2010, and notified you additional time would be needed to review the remaining documents. The documents are enclosed with deletions in documents 10-OOD-0004 and 10-OOD-0008 pursuant to Exemption 2 of the FOIA. Exemption 2 protects information on matters that are “related solely to the internal personnel rules and practices of an agency.” This Exemption has been interpreted to encompass two categories of information that may be protected from disclosure. One of the categories is information of “more substantial internal matters, the disclosure of which would risk circumvention of a legal requirement.” Information within this category would principally be of use to persons seeking to violate the law and avoid detection. Information of this nature is referred to as “High 2” information.

The High 2 information that has been deleted from the documents could provide potentially sensitive insight into the operations of the Interim Storage Cask and the Plutonium Finishing Plant. If this information was released, it could be used to educate terrorists (and other individuals or entities seeking to harm the national security) about the sensitive operations of both activities. For this reason, the information has been deleted.

Mr. Tom Carpenter

-2-

July 23, 2010

All releasable information in the documents has been segregated and is being provided to you. The undersigned individual is responsible for this determination. You have the right to appeal to the Office of Hearings and Appeals, as provided in 10 CFR 1004.8, for any information denied to you in this letter. Any such appeal shall be made in writing to the following address: Director, Office of Hearings and Appeals (HG-1), U.S. Department of Energy, L'Enfant Plaza Building, 1000 Independence Avenue SW, Washington, D.C. 20585-1615, and shall be filed within 30 days after receipt of this letter. Should you choose to appeal, please provide this office with a copy of your letter.

If you have any questions regarding your request, please contact me at our address above or on (509) 376-6288.

Sincerely,



Dorothy Riehle
Freedom of Information Act Officer
Office of Communications
and External Affairs

OCE:DCR

Enclosures



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

JAN 04 2010

10-AMSE-0026

Mr. M. N. Brosee, President
Washington Closure Hanford LLC
Richland, Washington 99354

Dear Mr. Brosee:

CONTRACT NO. DE-AC06-05RL14655 – WCH PROCUREMENT ACTIVITIES
SURVEILLANCE (S-09-AMSE-WCH-PRO-002)

The purpose of this letter is to transmit RL Surveillance Report S-09-AMSE-WCH-PRO-002, documenting a surveillance done to verify WCH's implementation of Requirement 4, Procurement Document Control, and Requirement 7, Control of Purchased Items and Services, from ASME NQA-1-2000. This surveillance was conducted in late-September/early-October 2009.

The surveillance report identified two (2) findings and two (2) observations. Based on the results of this surveillance, RL requires Lead Assessor closure of findings S-09-AMSE-WCH-PRO-002-F01 and S-09-AMSE-WCH-PRO-002-F02. When corrective actions on these findings are complete, please notify either me or Al Hawkins, RL Quality Assurance Manager, on (509) 376-9936.

Sincerely,

A handwritten signature in black ink, appearing to read "Jewel J. Short".

Jewel J. Short
Contracting Officer

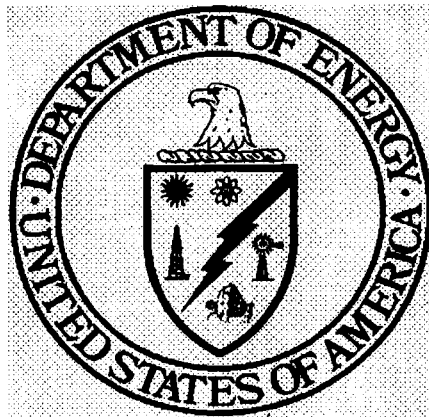
AMSE:ARH

Enclosure

cc w/encl:
C. D. English, NRE
S. L. Feaster, WCH
T. A. Harris, WCH
H. F. Moomey, Jr., NRE

**DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE (RL)
SURVEILLANCE OF
WASHINGTON CLOSURE HANFORD (WCH)
PROCUREMENT PROCESS**

S-09-AMSE-WCH-PRO-002



December 8, 2009

Performed by:

Assistant Manager for Safety and Environment
Quality Assurance Team

Harry Moomey, Navarro Research and Engineering, Inc. (NRE), Surveillance Team Member

Cindy English, NRE, Surveillance Team Member

**DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE (RL)
SURVEILLANCE OF WCH PROCUREMENT PROCESS**

S-09-AMSE-WCH-PRO-002

Harry Moomey, NRE

Harry Moomey

Cindy English, NRE

Cindy English

Steve Chalk, RL Reviewer

Steve Chalk

EXECUTIVE SUMMARY

The surveillance team selected four (4) WCH subcontractors to evaluate WCH's implementation of their Quality Assurance Program Document (QAPD) in the areas of Procurement Document Control and Control of Purchased Items and Services. The four subcontractors were selected based on importance and level of risk of the work activities. Three of the four subcontractors selected were subcontracted to do work under funding by the American Recovery and Reinvestment Act (ARRA) of 2009.

The selected contractors and contracts were:

- Dance Designs, Inc. (Contract No. 0100K-SP-G0002);
- Del Hur Industries, Inc. (Contract No. S010544A00);
- North Wind, Inc. (Contract No. 0600X-SW-S0003); and
- Weaver Boos Consultants, LLC (Contract No. 0600X-SP-W0002).

The WCH program was found to be adequate and effective in meeting Requirement 4, Procurement Document Control, of ASME NQA-1-2000; however, two (2) findings and two (2) observations were identified within Requirement 7, Control of Purchased Items and Services. The surveillance team determined Requirement 7 was not adequately implemented. The contractors selected by the audit team were all for services; none were vendors supplying products. Thus, the surveillance focused on control of procured services. The surveillance team's review did not include requirements from ASME NQA-1-2000 that applied to procurement and acceptance of products.

The two (2) findings were:

1. WCH had not reviewed the "Supplier's current quality records supported by documented qualitative and quantitative information . . ." during the selection and pre-award process. Upon further review, the audit team discovered WCH QA personnel had reviewed the supplier's QA Manual, and considered it a "record". This is apparently a requirement interpretation inconsistency. RL's interpretation of the intention of ". . . current quality records . . ." are documents such as training records, corrective action reports, audit and surveillance reports, etc.
2. There was no documented objective evidence that WCH had reviewed suppliers/ subcontractors' objective evidence for conformance to the procurement document requirements (i.e., ASME NQA-1-2000 quality assurance requirements passed down). Nor was there any indication that WCH planned to review such objective evidence for the four (4) selected subcontractors during FY 2010.

Further details on the findings are available within Section 3.0 of the body of this report.

The two (2) observations were:

1. The surveillance team observed the information recorded on a WCH-QA-055 form, WCH Supplier Quality Assurance Program Evaluation Report, was incomplete.

2. Following the award of the subcontract to Dance Designs, Inc., the availability of key personnel on which the award was based renders the subcontractor's ability to perform questionable.

Further details on the observations are available within Section 3.0 of the body of this report.

1.0 SURVEILLANCE SCOPE

The surveillance scope included comparing the WCH QAPD, WCH-51, Revision 3, Section 7.0, Procurement, with the requirements of DOE O 414.1, Quality Assurance, Criterion 7 – Procurement, and ASME NQA-1-2000, Quality Assurance Requirements for Nuclear Facility Applications, Requirement 4, Procurement Document Control, and Requirement 7, Control of Purchased Items and Services. The contractors selected by the audit team were all for services; none were vendors supplying products. Thus, the surveillance focused on control of procured services. The surveillance team's review did not include requirements from ASME NQA-1-2000 that applied to procurement and acceptance of products.

In addition to comparing the QAPD with the applicable requirements documents, the surveillance scope included verification of implementation of the WCH QAPD by using the following methods to verify effective implementation: 1) interviews with responsible managers, supervisors, and subject matter experts; and 2) reviews of documentation (i.e., procedures and records).

Requirements documents included the following:

- ASME NQA-1-2000, *Quality Assurance Requirements for Nuclear Facility Applications*;
- DOE O 414.1C, *Quality Assurance*, Criterion 7 – Procurement;
- WCH-51, Revision 3, River Corridor Closure Contract, Quality Assurance Program Document, dated October 2008, Section 7.0, Procurement.

2.0 PERSONNEL CONTACTED DURING THE SURVEILLANCE

WCH personnel who attended the entrance and/or exit meeting or were contacted during the surveillance were:

- E. Adamson, Quality Assurance Engineer
- J. Ard, Quality Assurance Engineer
- R. Carter, Field Quality Manager
- P. Ciszak, Quality Assurance Engineer
- R. Harrison, Procurement Manager
- M. Hassell, Quality Assurance Manager
- J. Heard, Subcontract Specialist
- D. Looney, Subcontract Specialist

- S. Palmersheim, Subcontract Specialist
- G. Toolson, Quality Assurance Engineer

3.0 DETAILED DESCRIPTION OF SURVEILLANCE ACTIVITIES

3.1 Procurement Document Control:

Each contract contained a graded level of quality assurance requirements based on the importance and complexity of the work. Each company was required to establish and implement their own quality assurance program to meet the specified requirements of ASME NQA-1-2000.

The surveillance team developed and utilized a checklist based on the applicable requirements listed in Section 1.0, Scope, of this report. The surveillance team observed the subcontracts contained the following required information:

- Basic Procurement Requirements (Section 100);
- Content of the Procurement Documents (Section 200);
 - Scope of Work (Subsection 201),
 - Technical Requirements (Subsection 202),
 - Quality Assurance Program Requirements (Subsection 203),
 - Right of Access (Subsection 204),
 - Documentation Requirements (Subsection 205), and
 - Nonconformances (Subsection 206).
- Procurement Document Review (Section 300); and
- Procurement Document Changes (Section 400).

Each of the subcontracts reviewed adequately included the required information. The Procurement Department maintained the records for active (open) procurements. Records were found to be well organized, easily retrievable, and detailed with the various attachments and exhibits. No conditions adverse to quality were identified.

The surveillance team concluded that the WCH QAPD addressed the requirements from NQA-1-2000, Requirement 4, Procurement Document Control, and was implemented effectively.

3.2 Control of Purchased Items and Services:

The surveillance team developed and utilized a checklist based on the applicable requirements listed in Section 1.0, Scope, of this report. The surveillance team reviewed the following procedures in conducting the surveillance:

- ENG-1-6.1, "Requisition Package Development," and
- QA-100-1.4, "Supplier Quality Assurance Program Evaluations."

Two findings and two observations were identified within this area.

Finding S-09-AMSE-WCH-PRO-002-F01:

Requirement(s):

ASME NQA-1-2000, Requirement 7, Subsection 200, states:

“Prior to award of a contract, the Purchaser shall evaluate the Supplier’s capability to provide items or services in accordance with the requirements of the procurement documents. Supplier evaluation and selection, and the results, therefrom, shall be documented and shall include one or more of the following:

- a) Supplier’s history of providing an identical or similar product that performs satisfactorily in actual use. The Supplier’s history shall reflect current capability.
- b) Supplier’s current quality records supported by documented qualitative and quantitative information that can be objectively evaluated.
- c) Supplier’s technical and quality capability as determined by a direct evaluation of the facilities, personnel, and the implementation of the Supplier’s quality assurance program.”

Condition:

The surveillance team could not identify nor locate documented objective evidence on which of the above evaluation methods WCH used to select the four (4) subcontractors.

Discussion:

WCH had not reviewed the “Supplier’s current quality records supported by documented qualitative and quantitative information . . .” during the selection and pre-award process. Upon further review, the audit team discovered WCH QA personnel had reviewed the supplier’s QA Manual, and considered it a “record”. This is apparently a requirement interpretation inconsistency. RL’s interpretation of the intention of “. . . current quality records . . .” are documents such as training records, corrective action reports, audit and surveillance reports, etc.

AUDITOR CLOSURE REQUIRED? X YES NO

Finding S-09-AMSE-WCH-PRO-002-F02:

Requirement(s):

ASME NQA-1-2000, Requirement 7, Subsection 507, states:

“In cases involving procurement of services only, such as third-party inspection; engineering and consulting services; auditing; and installation, repair, overhaul, or maintenance work, the Purchaser shall accept the service by any or all of the following methods:

- a) Technical verification of data produced;
- b) Surveillance and/or audit of the activity; and
- c) Review of objective evidence for conformance to the procurement document requirements.”

Condition:

The WCH Quality Assurance Manager stated that WHC followed c) above; however, no evidence was provided nor observed to indicate that WCH had reviewed documented objective evidence of conformance to the procurement document requirements (i.e., the subcontractors' QA Manual). WHC required the subcontractor to establish and implement a QA Program in accordance with ASME NQA-1-2000 (using a graded approach), but did not verify the subcontractor had implemented the required QA Program.

Discussion:

The surveillance team reviewed the WCH audit, assessment, and surveillance schedules. No verification activities were planned for QA Program compliance by the subcontractors until summer of 2010.

AUDITOR CLOSURE REQUIRED? X YES NO

Observation S-09-AMSE-WCH-PRO-002-001:

Discussion:

The surveillance team observed information recorded on a WCH-QA-055, WCH Supplier Quality Assurance Program Evaluation Report form was incomplete. The surveillance team brought this to the attention of the author of the form who completed the form. The individual corrected his error during the surveillance and initiated a WCH Issue Form (i.e., #IF-2009-056) to determine the extent of condition (i.e., if there are other WCH-QA-055 forms requiring similar corrections). No further action is required.

Observation S-09-AMSE-WCH-PRO-002-002:

Discussion:

Following award of the subcontract to Dance Designs, Inc., the availability of key personnel on which the award was based was in question. WCH was working to resolve the situation.

4.0 CONCLUSIONS

The surveillance team concluded that the requirements of ASME NQA-1-2000, Requirement 4, Procurement Document Control, were adequately implemented; however, Requirement 7, Control of Purchased Items and Services (services only), was not satisfactorily implemented by WCH.



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-AMSE-0033

JAN 22 2010

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

**CONTRACT NO. DE-AC06-08RL14788 - OPERATING EXPERIENCE/LESSONS
LEARNED (OPEX) PROGRAM IMPLEMENTATION SURVEILLANCE**

The purpose of this letter is to transmit the completed Surveillance S-10-AMSE-CHPRC-001 titled "CHPRC Operating Experience/Lessons Learned Program Implementation." The surveillance was conducted during the week of December 7, 2009, and reviewed the CHPRC program implementation of the requirements of DOE O 210.2, "DOE Corporate Operating Experience Program." The surveillance resulted no findings, one observation, and good practice noted. If you have any questions please contact me, or your staff may contact Ray J. Corey, Assistant Manager for Safety and the Environment, at (509) 376-0108.

Sincerely,


Jan Osso
Contracting Officer

AMSE:SEC

Attachment

cc w/attach:

M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
S. M. Kelley, CHPRC
P. M. McEahern, CHPRC
H. F. Moomey, NRE
V. M. Pizzuto, CHPRC
D. B. Wegner, CHPRC

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Office of the Assistant Manager for Safety and Environment (AMSE)

Surveillance Team: Steve E. Chalk
Harry F. Moomey
David C. Langstaff

Surveillance Number: S-10-AMSE-CHPRC-001

Date Completed: December 15, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: N/A

Title: CHPRC Operating Experience/Lessons Learned (OPEX) Program Implementation

Guide: RIMS Guidance on Technical Surveillances

Surveillance Scope:

The surveillance was performed to evaluate the contractor's implementation of an Operating Experience/Lessons Learned (OPEX) program in accordance with DOE O 210.2, *DOE Corporate Operating Experience Program*. The OPEX program applies to activities funded through the *American Recovery and Reinvestment Act* as well as activities funded through normal channels.

Surveillance Summary:

During the week of December 7, 2009, the U.S. Department of Energy, Richland Operations Office (RL) performed a surveillance of the CHPRC's OPEX program. The criteria review and approach documents (CRADs) developed by the DOE Corporate Operating Experience Committee were used as a guide. These CRADs were developed as a tool to assess site and contractor implementation of DOE O 210.2, *DOE Corporate Operating Experience Program*.

The assessment team reviewed CHPRC procedures, reviewed the Integrated Safety Management System (ISMS) Corporate Phase II report, and interviewed three personnel involved in the program administration and work planning. This surveillance identified no findings, one observation, and good practice, which is discussed in the summary of results section below.

Documents Reviewed:

- 1) PRC-PRO-MS-067, *Lessons Learned*
- 2) PRC-MP-QA-599, *Quality Assurance Program*
- 3) PRC-MP-MS-19361, *CH2M HILL Plateau Remediation Company Project Execution Plan*
- 4) PRC-MP-MS-29238, *Contractor Assurance System*
- 5) ISMS Description
- 6) PRC-PRO-EM-060, *Reporting Occurrences and Processing Operations Information*
- 7) PRC-PRO-WKM-12115, *Work Management*
- 8) PRC-GD-WKM-12116, *Work Planning Guide*
- 9) CHPRC Corporate ISMS Phase II Report dated November 20, 2009
- 10) Condition Report (CR) NUMBER: CR-2009-1200
- 11) CR NUMBER: CR-2009-2128

Summary of Results:

The surveillance team found that in general, the CHPRC OPEX program is adequately implemented. CHPRC personnel are knowledgeable and demonstrate dedication to their program. The OPEX program is adequately integrated with the QA, ISMS, contractor assurance, and occurrence reporting processes. Review of CHPRC OPEX policies, procedures, reports and personnel indicate that a comprehensive program is in place with only minor areas for improvements.

Obtaining administrative rights to the Hanford Information Lessons Learned Sharing (HILLS) database system will significantly improve the CHPRC process. Presently, CHPRC must interface with the Mission Support Alliance, LLC (MSA) HILLS administrator when issuing OPEX documents and performing some searches. The Hanford Operating Experience Committee, on which each contractor is represented, is in the process of developing a charter that includes allowing each prime contractor OPEX coordinator administrative rights to the system once the HILLS system is moved to the internet. The forecast schedule for moving HILLS to the internet is mid Fiscal Year (FY) 2010, which in addition to improving CHPRC's efficiency with the system, will make it accessible to all contractors across the Hanford Site. This issue is not reported as an OFI since CHPRC has no control over the date when administrative rights to the HILLS system will be available.

The Corporate ISMS Phase II review performed in October-November 2009 identified two OFIs. Two Condition Reporting and Resolution System (CRRS) reports were generated to develop the necessary corrective actions. The OFIs concerned a lack of overall awareness of the OPEX program across CHPRC employees. Specifically, only a small number of functional managers or their designees subscribe to the HILLS system even though all functional managers are "responsible for receiving, internalizing and providing feedback for their respective organizations" per the CHPRC procedure. The effectiveness of the two CRRS reports corrective actions associated with the ISMS review will be reviewed as part of the next program implementation evaluation.

PRC-MP-QA-599, *Quality Assurance Program* references the appropriate interfaces with the OPEX program. PRC-MP-MS-19361, *CH2M HILL Plateau Remediation Company Project Execution Plan*, contains the official CHPRC organizational chart but lacks a direct connection to the OPEX program. The lessons learned procedure, PRC-PRO-MS-067, adequately describes the steps for program implementation and individual responsibilities. PRC-MP-MS-29238, *Assurance System Description*, adequately describes the establishment of a lessons learned program to communicate lessons learned during work activities, process reviews, and event analyses to potential users, and apply them to future work activities. Additionally, CHPRC identifies, applies, and exchanges lessons learned with the rest of the DOE complex. Lessons learned by other DOE organizations and external sources are also reviewed to prevent similar occurrences.

PRC-PRO-WKM-12115, *Work Management*, includes instructions related to lessons learned in several places. For work planning it notes DOE O 210.2 requires DOE and contractor lessons learned be incorporated into work planning, identifies DOE and contractor lessons learned databases via HILLS/OPEX, and directs planners to PRC-PRO-MS-067, *Lessons Learned/Operating Experience Program* for more information. Field Work Supervisors (FWS) are required to review pertinent lessons learned information with the work team prior to performing work and for closeout of work. The FWS are required to document feedback or lessons learned for use during post-reviews and the post reviews require that identified lessons learned are documented in the AJHA Activity Level Feedback Database. In addition, as part of the final closeout activities, the FWS is required to formally document lessons learned in accordance with PRC-PRO-MS-067.

PRC-GD-WKM-12116, *Work Planning Guide* includes instructions related to lessons learned in several places. The HILLS/OPEX data base is identified as an information source for work planning. The planning leads shall review lessons learned information in preparation for enhanced work planning sessions. The example work planning checklist includes lessons learned and a list of topical planning topics that includes a link for a specific lessons learned related to heavy equipment use off of paved surfaces. The work package review guide includes a requirement to verify that lessons learned have been incorporated.

The CHPRC website was reviewed to determine if information concerning the lessons learned program was readily available. The links on the website were clear and easy to follow to the HILLS system and users guide. A review of a document in the Issues Management section, called CRRS-Feedback, Tips, and Reminders did not contain any reference to considering lessons learned following an event/issue. The addition of a reminder to contact the PRC OPEX coordinator for lessons learned development would be an improvement.

Observation: S-10-AMSE-CHPRC-001-001: The CHPRC Issues Management Website link to “CRRS Feedback, Tips, and Reminders,” does not include a reminder to contact the CHPRC OPEX coordinator for the development of a lessons learned following an event/issue in the CRRS.



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

APR 28 2010

10-OOD-0046

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

**CONTRACT NO. DE-AC06-08RL14788 – FEEDBACK AND CONTINUOUS
IMPROVEMENT; CORRECTIVE ACTION/ISSUE MANAGEMENT CORE
SURVEILLANCE OF CHPRC FACILITIES AND PROJECTS**

A Feedback & Continuous Improvement; Corrective Action/Issue Management Core Surveillance was performed at various CHPRC Facilities and Projects during the month of January and February. The surveillance resulted in one Concern, 30 Findings, 20 Observations, and two Good Practices.

Multiple issues occurred in the following areas with the first resulting in a Concern:

- Issues/conditions were incorrectly screened or categorized
- Issues/conditions were not entered into the corrective action management(CAM) system or identified actions were inadequate
- Critique/investigation performance issues

Contractor Self-Assessments were also reviewed at the various CHPRC facilities and projects and in general were found to be acceptable. However, based on the number of issues identified in the attached reports it did not appear from a site wide programmatic aspect that Self-Assessments have been fully successful; therefore, actions on your part appear warranted to promote improvement.


CHPRC is directed to process the attached surveillance reports (Concerns, Findings, and Observations) through the CHPRC established CAM system. RL retains closure authority for the Findings and Observations as designated within the attached surveillance reports and Core Surveillance Rollup section. In addition, for the Concern, CHPRC is directed to submit a corrective action plan in accordance with SCDR 470.2B (Supplemented Rev. 2) within 45 days of receipt of this letter. Because of the potential programmatic issues related to S-10-OOD-CHPRC-001-001 and S-10-OOD-CHPRC-001-002, RL is requesting you perform an extent of condition review.

Mr. J. G. Lehew III
10-OOD-0046

-2-

If you have any question, please contact me, or your staff may contact Roger M. Gordon,
Director Operations Oversight Division, on (509) 372-2139.

Sincerely,


Jan Osso
Contracting Officer

OOD:SLD

Attachments

1. Roll-up Evaluation
2. Surveillance S-10-OOD-LWFS-001
3. Surveillance S-10-OOD-SWOC-001
4. Surveillance S-10-OOD-BOS D&D-001
5. Surveillance S-10-OOD-GPP-001
6. Surveillance S-10-OOD-SNF-001
7. Surveillance S-10-OOD-PFP-002

cc w/attachs:

M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
S. M. Kelley, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
S. J. Turner, CHPRC

**Feedback & Continuous Improvement
Corrective Action/Issue Management Core Surveillance
Rollup Evaluation**

Surveillance Scope: The surveillance was performed to verify that the contractor had an integrated process that made use of available feedback information to drive continuous improvement. Specifically, this surveillance evaluated if the contractor was effectively managing environment, safety, quality, and health issues, and if the issues were resolved consistent with the level of importance. The surveillance also examined the effectiveness of the contractor's management/self-assessment process and corrective action management system. The surveillance was performed across CHPRC projects.

Surveillance Summary:

The specific surveillances resulted in 27 Findings, 17 Observations, and 2 Good Practices. The results are summarized in Table 1. The rollup of surveillance report issues and identification of crosscutting issues resulted in one Concern, three Findings, and three Observations.

Concern: S-10-OOD-CHPRC-001-C01

Numerous examples were identified where issues and conditions were not screened or categorized in accordance with established requirements or consistent with the level of importance. The following Findings and Observations support the Concern:

- **S-10-OOD-GPP-001-F01:** Non compliances/failures to meet a requirement were incorrectly screened as Opportunities for Improvements (OFI) or Trend Only.
- **S-10-OOD-LWFS-001-F04:** Non compliance/failure to meet a requirement was incorrectly screened as Opportunities for Improvement (OFI).
- **S-10-OOD-LWFS-001-F05:** Requirements for a Trend Only issue were not met.
- **S-10-OOD-SWOC-001-F01:** Condition Reports with the significance level assigned as "Track until Fixed" or "Opportunity for Improvement" should have been assigned as "Adverse."
- **S-10-OOD-SNF-001-F01:** CR-2009-1893 was incorrectly categorized as a Track Until Fixed CR.
- **S-10-OOD-SNF-001-F02:** Incorrect Significance Level for CRs-2009-0024 and 0412.
- **S-10-OOD-BOS D&D-001-F01:** Significant Condition was incorrectly screened as an Adverse Condition.
- **S-10-OOD-CHPRC-001-F02:** Significant Issues were incorrectly screened as Opportunity for Improvements.

- **S-10-OOD-LWFS-001-004:** Condition Report (CR) Screening Team inappropriately assigned low significance levels to load drop event.

Numerous examples were identified where issues and conditions were not screened or categorized in accordance with established requirements or consistent with the level of importance. Examples were identified where actual deficiencies (i.e., non-compliance with a requirement) and significant issues/events and trends were considered opportunities for improvements; conditions requiring significant investigation, not readily identifiable corrective actions, with the potential for significant injury were identified as “Tack until Fixed.” Without proper screening and categorization of conditions and issues the appropriate level of investigation, review, cause determination, and corrective action development will not occur.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-CHPRC-001-F01

PRC-PRO-QA-052, *Issues Management* and PRC-PRO-EM-060, *Reporting Occurrences and Processing Operations Information*, Appendix D do not implement all CRD M 231.1-2 (Supplemented Rev 7) requirements.

Requirements:

CRD M 231.1-2 (Supplemented Rev 7) Title: *Occurrence Reporting and Processing of Operations Information*, requires in part, “B. Section 2.3, Occurrence Reporting Criteria, • A root cause determination shall be made for all Significance Category 2 ORPS reports rather than an apparent cause.”

10 CFR 830.122, *Quality Assurance Criteria*, requires in part, “(d) Criterion 4— Management/Documents and Records. (1) Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design. . . . (e) Criterion 5— Performance/Work Processes. (1) Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means.”

Discussions:

Contrary to the above, PRC-PRO-QA-052, *Issues Management* does not require that a root cause determination be made for all Significance Category 2 ORPS reports. PRC-PRO-QA-052 stated the following: “Adverse Condition . . . An adverse event or condition in which the cause is not readily identifiable. These are usually associated with a non compliance, or a failure to meet a requirement resulting in actual impacts to project or mission. Examples include: . . . Any Occurrence Report categorized as Significance Category (SC) 3 or SC 2 as defined in PRC-PRO-EM-060.” and “3.3.4. Adverse Condition Reports . . . Assigned Analyst . . . PERFORM the apparent causal analysis and corrective action planning in accordance with PRC-GD-QA-33900,

Causal Analysis Guidance.” By identifying SC-2 Occurrence Reports as Adverse Conditions only an apparent cause is identified to be performed when contractual requirements dictate that a root cause is to be performed. The following example is provided where an apparent cause was identified on a Condition Report instead of the required root cause for a Significant Category 2 ORPS report.

CR-2009-1711, Interim Storage Container Dropped While Attached to Crane during Placement in 200 Interim Storage Area . . . Significance Level: Adverse . . . This condition is screened as Adverse per the requirements of PRC-PRO-QA-052 "Issues Management" section 3.2, table 1, which requires that all SC-2 occurrence reports be screened as Adverse. . . . This condition will require an apparent cause analysis and extent of condition be performed. Corrective actions selected should bear a direct relationship to the causes determined by the causal analysis and should have recurrence prevention as a goal. Extent of condition should be performed based on the complexity of the issue and the results of the apparent cause analysis.”

Likewise, PRC-PRO-EM-060, *Reporting Occurrences and Processing Operations Information*, Appendix D does not appropriately implement the contractual requirement. Specifically, Appendix D indicates that only an apparent cause is required for Significance Category 2 Occurrence Reports.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-CHPRC-001-F02

Contractor submitted Corrective Action Plan (CAP) in response to RL letter 10-OOD-0009, dated November 6, 2009, was found to be inadequate and noncompliant, and was rejected in RL letter 10-OOD-0027. The subsequently submitted Corrective Action Plan was found to have some quality issues.

Requirements:

SCRD O 470.2B (Supplemented Rev 2), *Independent Oversight and Performance Assurance Program*, states in part, “The CAP shall clearly demonstrate the basis for disposition of the identified issues, using a graded approach, and how CAs cited will adequately address the causal factors (apparent or root) and prevent recurrence. If CAs are not established, this shall be justified. . . . For each issue (e.g., Concern, Finding, Observation, etc.), Contractors shall: i. Investigate and document an understanding of the condition(s). This shall include a determination if the issue(s) are isolated or represent a broader programmatic scope or cross-cutting issue. Using a graded approach, identify the cause(s) (apparent or root) and associated causal factors for each issue. The causal analysis methodology used to determine the cause(s) shall be identified. . . . iii. Develop CAs that are written in a clear and concise manner, are executable, and address the cause(s) of the issue. . . . v. Identify what actions will or will not be taken to verify/validate completion of CAs to provide assurance that CAs are appropriate to prevent recurrence.”

10 CFR 830.122, *Quality Assurance Criteria*, states in part, “Establish and implement processes to detect and prevent quality problems. . . . Identify, control, and correct items, services, and processes that do not meet established requirements. . . . Identify the causes of problems and work to prevent recurrence as a part of correcting the problem. . . . Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means.”

Discussion:

Contrary to the above requirements, the CAP provided to RL in response to letter 10-OOD-0009, dated November 6, 2009, was found to be inadequate and noncompliant with SCRD 470.2B (Supplemented Rev. 2), and was rejected. Specifically, the CAP did not adequately discuss the causal factors or show how Corrective Actions (CAs) cited adequately addressed the causal factors. In addition, the CAP did not adequately identify what actions would or would not be taken to verify/validate completion of CAs to provide assurance that CAs were appropriate to prevent recurrence. The CAP submitted subsequent to the RL rejection was also found to have quality issues in some areas.

Based on the submitted CAPs it did not appear that the contractor’s procedure and guidance for Common Cause Analysis/Root Cause Analysis was adequately implemented. Specifically, PRC-GD-QA-33900, *Casual Analysis Guidance*, was found to be an adequate procedure providing good direction for the performance of Common Cause Analysis/Root Cause Analysis. The document provides guidance on format, methods, CAP development, Human Performance Improvement Analysis, and Cause-Action Relationships. In addition, it provides tools such as the Common Cause Matrix (not used in a single CAP), and CAP Matrix with Expected Results column. However, based on the quality of the submitted CAPs it did not appear that the guidance was used effectively. If the guidance provided in the subject procedure was strictly and rigorously followed RL concluded that the CAP probably would have met all requirements and RL expectations. It also appeared based on the rejection, quality issues, time required to generate documents, and number of meetings required to define/explain what constitutes an adequate CAP, that use of outside expertise and resources in Common Cause Analysis/Root Cause Analysis may have been warranted and is potentially warranted in going forward.

Finding: S-10-OOD-CHPRC-001-F03

Significant issues and trends were incorrectly screened as Opportunity for Improvements.

Requirements:

PRC-MP-QA-599, *Quality Assurance Program*, Section 3.3.1, Conditions Management, states in part, “The system shall be implemented using the graded approach such that the issue with the highest demonstrated risk receives the rigor, resources, management attention, and degree of verification commensurate with the risk. . . . issues with significant demonstrated impact receiving the highest level of rigor and subsequent verification. “

PRC-PRO-QA-052, *Issues Management* stated the following, “CR Screening Team DETERMINE significance level using the criteria in TABLE 1 as appropriate. . . . Table 1 – Condition Report Significance Criteria” and “PRC-PRO-QA-052, *Issues Management*, stated in part, “Significant Issue An event or condition that is intolerable to project or mission, and requires significant investigation, causal factors and corrective action development to reduce the likelihood of recurrence. . . . A repetitive issue; i.e., an adverse event, condition, or trend determined to be of sufficient importance to warrant an in-depth analysis in order to develop corrective action to prevent recurrence. . . . A programmatic breakdown of a Safety Management Program. . . . An adverse event or condition triggering the need for complex corrective actions with broad impacts to operations, maintenance, projects, programs, training, and/or quality processes. . . . “Processes Table . . . Significant Trend Code Application Root Cause Analysis Corrective Action Development Schedule Effectiveness Review Cause Code Application Extent of Condition, ESRB Presentation (as applicable) Verification (if required) Closure”

Discussion:

Contrary to the above requirements, significant issues identified in CHPRC-0900639, *CHPRC Continuing Safety Improvement Action Plan* and explained to RL as being significant were screened as an Opportunity for Improvement. Specifically, the document identified that the subject events did not meet the safety performance expectations of CHPRC, that the pattern of events indicated weakness in the ability to recognize conditions outside of analyzed hazards, targeted areas needed improvement (e.g., Conduct of Operations, Elevated Work, Hazardous energy Control, Hoisting and Rigging/Documented Safety Analysis Compliance), and that programmatic improvements were required. In addition, the report stated, “The focus areas selected show an increase in events that warrant additional attention to correct. The selected corrective actions were developed by considering the population of events, both individually and collectively to better understand commonalities and apparent cause.” Furthermore, the contractor expressed that significant effort was required to investigate the issues and perform necessary analysis to determine corrective actions. The Condition Report (CR-2009-1962) identified for the letter (CHPRC-0900639) identified significant corrective actions (approximately 32). Many of the actions were programmatic in nature such as the initiation of new programs, revision of site wide procedures and processes, initiation of addition causal analysis and reviews, and the performance of site wide training.

Contrary to the above, CHPRC-0900639 *CHPRC Continuing Safety Improvement Action Plan* was screened as an Opportunity for Improvement when it met the definition of a Significant Issue. Specifically, the following PRC-PRO-QA-052 criteria for a Significant Issue were met:

- “An event or condition that is intolerable to project or mission, and requires significant investigation, causal factors and corrective action development to reduce the likelihood of recurrence” – The letter provided by the contractor and numerous discussion with the contractor indicated that performance did not meet safety performance expectations and that there were programmatic weaknesses that required significant investigation, casual factors and corrective action development. Additional time was required and requested on several occasions to fully understand problem areas.

- “A repetitive issue; i.e., an adverse event, condition, or trend determined to be of sufficient importance to warrant an in-depth analysis in order to develop corrective action to prevent recurrence” – The contractor in CHPRC – 0900639 identified a set of problem areas where there were repetitive issues. Based on the complexity of the issues in depth analysis was required to develop corrective actions to prevent recurrence. In addition, the contractor expressed to RL that the issues were significant and that they needed attention.
- “An adverse event or condition triggering the need for complex corrective actions with broad impacts to operations, maintenance, projects, programs, training, and/or quality processes.” - The Condition Report (CR-2009-1962) identified for the letter (CHPRC-0900639) identified significant corrective actions (approximately 32). Many of the actions were programmatic in nature such as the initiation of new programs, revision of site wide procedures and processes, initiation of additional causal analysis and reviews, and the performance of site wide training.

RL Lead Assessor Closure Required: **YES [X]** **NO []**

Observation: S-10-OOD-CHPRC-001-001

Numerous examples were documented where identified corrective actions were inadequate or where issues were not entered into the management system to ensure they were tracked, trended, and systematically addressed to correct and prevent recurrence. The condition potentially represents a broader programmatic issue.

Discussion:

The below Findings and Observations were identified where corrective actions were inadequate or where issues were not entered into the management system to ensure they were tracked, trended, and systematically addressed to correct and prevent recurrence. Because the surveillance was only a sampling of issues it is not clear as to if the conditions represents a broader programmatic issue. An extent of condition review appears appropriate given the number of issues identified in the sampling size.

- **S-10-OOD-GPP-001-F02:** Non-compliances identified in Operational Awareness (OA) reports being provided to the contractor were not consistently being entered into the Conditioning Reporting and Resolution System (CRRS) to assure deficiencies were being tracked, trended, and systematically addressed to correct and prevent recurrence. (ISSUES NOT ENTERED)
- **S-10-OOD-SWOC-001-F02:** Issues or abnormal events were not entered into the CRRS system. (ISSUES NOT ENTERED)
- **S-10-OOD-SWOC-001-F03:** Fall protection issues associated with the annual Preventive Maintenance on the Waste Receiving and Processing Facility (WRAP) TRUPACT crane were not adequately addressed in the Condition Report.

- **S-10-OOD-SWOC-001-F04:** Corrective actions for a deficiency identified in July 2009 in which containers were not being stored in accordance with documented container management requirements were not effective to prevent recurrence of the deficiency. The Discrepant Container Management Program (DCMP) documentation was not corrected to reflect the current storage conditions.
- **S-10-OOD-BOS D&D-001-F03:** Causal Analysis and Corrective Actions did not prevent recurrence.
- **S-10-OOD-BOS D&D-001-F04:** Ineffective corrective actions taken for 212-N/P/R Sampling issues.
- **S-10-OOD-BOS D&D-001-O02:** Corrective action closed out with an open item remaining
- **S-10-OOD-SNF-001-O04:** No corrective actions were documented in CR-2009-1893 that would prevent or mitigate a recurrence of the event.
- **S-10-OOD-PFP-002-O01:** Review of recent CRRS and OA reports identified several opportunities for improvement.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-CHPRC-001-O02

Several examples were identified where the Critique/Investigation process needs improvement and weaknesses were noted. The condition potentially represents a broader programmatic issue.

Discussion:

The below Findings and Observations were identified where the Critique/Investigation process needs improvement and weaknesses were noted. Because the surveillance was only a sampling of issues it is not clear as to if the conditions represents a broader programmatic issue. An extent of condition review appears appropriate given the number of issues identified in the sampling size.

- **S-10-OOD-PFP-002-F06:** Event reports were not complete.
- **S-10-OOD-PFP-002-F07:** One event investigation did not include applicable laboratory analysis results.
- **S-10-OOD-LWFS-001-O01:** The load drop critique report incorporated conflicting statements.

- **S-10-OOD-LWFS-001-002:** The critique report did not accurately describe personnel positions during the drop event.
- **S-09-OOD-GPP-002-002:** Several discrepancies were identified in Critique/Investigation Reports S&GRP-2009-005 and 007.
- **S-10-OOD-SNF-001-002:** The determination to not conduct a formal critique was contrary to the guidance provided in Appendix A to PRC-PRO-EM-058.
- **S-10-OOD-SNF-001-003:** The 100K Project, subsequent to the determination not to hold a formal critique, did not document all of the information required by PRC-PRO-EM-058, Section 3.1.7.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-CHPRC-001-003

Corrective Action Management Core Surveillance - Closure of RL Closure Authority Required issues was not being adequately managed.

Discussion:

As RL issues designated as requiring RL closure were entered into CRRS, they were being annotated with a DOE Verification flag. Presumably because this flag existed, the suite of corrective actions designated for the issue did not normally include an action to obtain RL closure approval. Therefore, when the final designated corrective action completed, contractor action appeared complete in CRRS data reports when this was not necessarily the case. In some instances (e.g., CR-2009-0569 and CR-2009-0589), CHPRC verification activities were determining CRs were not yet ready to submit for RL closure and CHPRC verifiers were either putting the CR on hold, or returning the CR to the project for further actions. However, the action of putting the CR on hold or returning it to the project, was not being accompanied by designation of a new corrective action or an equivalent. This resulted in a condition where CRRS data reports did not indicate who had actions on the CRs or when they were due, and further indicated the item was at RL for closure.

RL Lead Assessor Closure Required: YES NO

Table 1: Summary of Surveillance Report Findings, Observations, and Good Practices

FINDINGS:

S-10-OOD-GPP-001-F01: Non compliances/failures to meet a requirement were incorrectly screened as Opportunities for Improvements (OFI) or Trend Only.

S-10-OOD-GPP-001-F02: Non-compliances identified in Operational Awareness (OA) reports being provided to the contractor were not consistently being entered into the Conditioning Reporting and Resolution System (CRRS) to assure deficiencies were being tracked, trended, and systematically addressed to correct and prevent recurrence.

S-10-OOD-GPP-001-F03: SGRP CRRS Extent of Condition Evaluations were often inadequately documented and/or conducted for Adverse Conditions and Significant Conditions.

S-10-OOD-GPP-001-F04: SGRP could not demonstrate which personnel had conducted apparent cause analyses for CRRS Adverse Conditions and could not demonstrate for those instances where the apparent cause analyst was known that the individual met designated training requirements.

S-10-OOD-GPP-001-F05: Not all fields of Event Reports (Site Form A-6004-756, Rev 2) reviewed had been completed as directed.

S-10-OOD-SWOC-001-F01: Condition Reports with the significance level assigned as “Track until Fixed” or “Opportunity for Improvement” should have been assigned as “Adverse.”

S-10-OOD-SWOC-001-F02: Issues or abnormal events were not entered into the CRRS system.

S-10-OOD-SWOC-001-F03: Fall protection issues associated with the annual PM on the WRAP TRUPACT crane were not adequately addressed in the Condition Report.

S-10-OOD-SWOC-001-F04: Corrective actions for a deficiency identified in July, 2009 in which containers were not being stored in accordance with documented container management requirements were not effective to prevent recurrence of the deficiency. The Discrepant Container Management Program (DCMP) documentation was not corrected to reflect the current storage conditions.

S-10-OOD-SNF-001-F01: CR-2009-1893 was incorrectly categorized as a Track Until Fixed CR.

S-10-OOD-SNF-001-F02: Incorrect Significance Level for CRs-2009-0024 and 0412

S-10-OOD-BOS D&D-001-F01: Significant Condition was incorrectly screened as an Adverse Condition.

S-10-OOD-BOS D&D-001-F02: Injury Event Report Missing Required Information and Signatures.

S-10-OOD-BOS D&D-001-F03: Causal Analysis and Corrective Actions did not prevent recurrence.

S-10-OOD-BOS D&D-001-F04: Ineffective corrective actions taken for 212-N/P/R Sampling issues.

S-10-OOD-LWFS-001-F01: CHPRC failed to meet notification time requirements.

S-10-OOD-LWFS-001-F02: CHPRC failed to accurately report the events immediately after the load drop.

S-10-OOD-LWFS-001-F03: ORPS report writer used passive voice in the Notification and Update reports.

S-10-OOD-LWFS-001-F04: Non compliance/failure to meet a requirement was incorrectly screened as Opportunities for Improvement (OFI).

S-10-OOD-LWFS-001-F05: Requirements for a Trend Only issue were not met.

S-10-OOD-PFP-002-F01: Inadequate work control and planning has led to adverse conditions at PFP.

S-10-OOD-PFP-002-F02: Permanent installation of an all season water supply for the decontamination trailer was not timely.

S-10-OOD-PFP-002-F03: An initial workability walk down was not recorded in a work record.

S-10-OOD-PFP-002-F04: Job hazard analysis information was not included a work package.

S-10-OOD-PFP-002-F05: Incomplete job hazard analysis was noted in event reports.

S-10-OOD-PFP-002-F06: Event reports were not complete.

S-10-OOD-PFP-002-F07: One event investigation did not include applicable laboratory analysis results.

OBSERVATION:

S-09-OOD-GPP-002-001: Opportunities for Improvement were available for Track Until Fixed issue extent of condition evaluations.

S-09-OOD-GPP-002-002: Several discrepancies were identified in Critique/Investigation Reports S&GRP-2009-005 and 007.

S-10-OOD-SWOC-001-001: PRC-PRO-QA-052, "Issues Management" does not adequately define the significance level "Adverse Condition".

S-10-OOD-SWOC-001-002: Individual users of the PRC-PRO-QA-052, "*Issues Management*" CRRS database requires additional training in manipulating the search functions.

S-10-OOD-SWOC-001-003: The PRC-PRO-QA-052, "Issues Management" database (CRRS) Broader Scope search function does not provide a method to easily search for Condition Reports related to a specific facility or activity versus the entire project.

S-10-OOD-SNF-001-001: There was significant time delay between the event and initial investigation.

S-10-OOD-SNF-001-002: The determination to not conduct a formal critique was contrary to the guidance provided in Appendix A to PRC-PRO-EM-058.

S-10-OOD-SNF-001-003: The 100K Project, subsequent to the determination not to hold a formal critique, did not document all of the information required by PRC-PRO-EM-058, Section 3.1.7.

S-10-OOD-SNF-001-004: No corrective actions were documented in CR-2009-1893 that would prevent or mitigate a recurrence of the event.

S-10-OOD-BOS D&D-001-001: Overdue Corrective Action.

S-10-OOD-BOS D&D-001-002: Corrective action closed out with an open item remaining

S-10-OOD-BOS D&D-001-003: Corrective Actions do not meet 60 day performance goals.

S-10-OOD-LWFS-001-001: The load drop critique report incorporated conflicting statements.

S-10-OOD-LWFS-001-002: The critique report did not accurately describe personnel positions during the drop event.

S-10-OOD-LWFS-001-003: Human Performance Improvement (HPI) investigation not performed.

S-10-OD-LWFS-001-O04: Condition Report (CR) Screening Team inappropriately assigned low significance levels to load drop event.

S-10-OD-PFP-002-O01: Review of recent CRRS and OA reports identified several opportunities for improvement.

GOOD PRACTICE:

- Increased emphasis on management oversight and CRRS process use allows project management to better trend issues being identified on the project.
- The internal database used for PFP injury reports is a useful tool.

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: CH Gunion

Surveillance Number: S-10-OOD-LWFS-001

Date Completed: January 27, 2010

Contractor: CH2M HILL Plateau Remediation Contractor (CHPRC)

Facility: Liquid Waste and Fuel Storage (LWFS)

Title: Corrective Action / Issue Management

Guide: MSS 1.3

Surveillance Scope:

The objective of this surveillance was to verify CHPRC had an integrated process that made use of available feedback information to drive continuous improvement with the eventual goal of institutionalizing the attributes of a High Reliability Organization. Specifically, this surveillance will evaluate if CHPRC personnel are effectively managing environment, safety, quality, and health issues. The surveillance will also examine the effectiveness of CHPRC's management/self-assessment process and corrective action management system. The activities included in this surveillance help determine whether issues identified through internal and external evaluation programs are resolved consistent with the level of importance. The surveillance further verifies continuous improvement programs are in place and functional.

Surveillance Summary:

The CHPRC had established, on paper, a comprehensive operational assurance program with an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing and assessing work. Procedurally, all the right words have been documented which were necessary to represent a compliant-to-contract

system. In practice however, as demonstrated by the examples below, CHPRC appeared to minimize event severity, lose much of the opportunity presented for effective corrective action resulting in diminished transparency for issues management. Also demonstrated by the example below was contractor performance in issues management, event reporting, assessments, and safety culture.

The FR reviewed the cask drop event which occurred at the Interim Storage Area (ISA) on October 8, 2009, and the CHPRC's Condition Reports database as part of this surveillance (Operational Awareness (OA) Reports #26523, 26556, 26956). The FR evaluated immediate and follow on actions related to the cask drop event which involved personnel from CHPRC and Mission Support Alliance, LLC (MSA). Both performed issues management tasks for portions of the investigation and subsequent corrective actions.

The FR recorded the following findings and observations related to this surveillance:

- **S-10-OOD-LWFS-001-F01** - CHPRC failed to meet notification time requirements.
- **S-10-OOD-LWFS-001-F02** - CHPRC failed to accurately report the events immediately after the load drop.
- **S-10-OOD-LWFS-001-F03** - ORPS report writer used passive voice in the Notification and Update reports.
- **S-10-OOD-LWFS-001-F04** - Non compliance/failure to meet a requirement was incorrectly screened as Opportunities for Improvement (OFI).
- **S-10-OOD-LWFS-001-F05** - Requirements for a Trend Only issue were not met.
- **S-10-OOD-LWFS-001-O01** - The load drop critique report incorporated conflicting statements.
- **S-10-OOD-LWFS-001-O02** - The critique report did not accurately describe personnel positions during the drop event.
- **S-10-OOD-LWFS-001-O03** - Human Performance Improvement (HPI) investigation not performed.
- **S-10-OOD-LWFS-001-O04** - Condition Report (CR) Screening Team inappropriately assigned low significance levels to load drop event.

Surveillance Results:

Finding: S-10-OOD-LWFS-001-F01

CHPRC failed to meet notification time requirements.

Requirement(s):

DOE M 231.1-2 Section 5.3.2 a. states, "The Facility Manager must notify the DOE Facility Representative (in a manner determined locally) and the DOE Headquarters Operations Center (DOE HQ OC), as required, of the following reportable occurrences as

soon as practical (i.e., promptly), but no later than 2 hours after categorization: 2) All Significance Category 2 occurrences require a prompt notification to the Facility Representative and, if directed by the Facility Representative, to the DOE HQ OC."

Discussion:

The documented time of notification to the RL Facility Representative (FR) in the Occurrence Reporting and Processing System (ORPS) was at 2:30 p.m. on October 8, 2009. The time of event categorization was 12:25 p.m. on the same date. This did not meet the 2-hour requirement in DOE 231.1-2 or the 30 minute threshold (established locally) for DOE notification to EM Headquarters.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-LWFS-001-F02

CHPRC failed to accurately report the events immediately after the load drop.

Requirement(s):

DOE M 231.1-2 Section 5.4.1 a. states, the report should enable the general reader to understand the basic "what, who, when, where, how" of the event, the safety issues involved, and the actions taken."

And

Group 10 - Management Concerns / Issues (2) 1-4 "An event, condition, or series of events that does not meet any of the other reporting criteria, but is determined to be of safety significance or of concern to other facilities or activities in the DOE complex."

Discussion:

After the cask was dropped, the crane and rigging crew picked and repositioned the load approximately 10-20 seconds later with no one stopping work. The ORPS report (EM-RL-CPRC-CSB-2009-0003) and Condition Reports (CR-2009-1711, CR-2009-1932, CR-2009-1933) all stated that "Work was stopped, and placed into a safe configuration. All personnel exited the ISA Pad." These statements are inaccurate at best and imply that involved personnel did the right thing. They did not. The decision to pick the load back up was unsafe in itself as was the presence of numerous unauthorized personnel near the load. These additional circumstances, while not directly related to why the cask was dropped, were part of a series of unsafe events clearly reportable and as worthy of investigative efforts as the load drop itself.

The FR recognized that corrective actions were assigned to each of the above conditions in addition to the load drop. However, ORPS and issues management documentation should accurately reflect the series of unsafe actions taken during and after the load drop.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-LWFS-001-F03

ORPS report writer used passive voice in the Notification and Update reports.

Requirement(s):

DOE M 231.1-2 Section 5.4.1 h. states, "Use active rather than passive voice whenever possible. For example, write, 'the electrician severed the conduit' rather than 'the conduit was severed'."

Discussion:

The report title states the "Interim Storage Cask Dropped While Attached to Crane During Placement..." and Field 15 states, "...the ISC was approximately 12 inches off the pad when the crane dropped the load..."

Both of these statements are passive and imply that the crane itself was at fault.

RL Lead Assessor Closure Required: YES NO

FR review of Condition Reports further demonstrated the CHPRC practice of minimizing event or condition severity.

Finding: S-10-OOD-LWFS-001-F04

Non compliance/failure to meet a requirement was incorrectly screened as Opportunities for Improvement (OFI).

Requirement(s):

PRC-PRO-QA-052, Issues Management stated the following, "CR Screening Team DETERMINE significance level using the criteria in TABLE 1 as appropriate. . . . Table 1 – Condition Report Significance Criteria" and "Trend Only A condition which individually is of minor consequence. The condition has been corrected via the stated immediate actions or the condition will be corrected through the work control process and has an active work package number assigned. Due to the nature of the condition, no further resources are being expended; however, screening and trending of these conditions is necessary to allow for the detection of similar events so that they can be addressed before they escalate into more significant issues."

And

“OFI A suggestion or report identifying process improvements, program enhancement, Lessons Learned, or continued quality improvements or recommendations.” and “Track Until Fixed A condition that meets one of the following:

- Requires simple actions that are readily identifiable, and the cause is easily understood and represents low risk or consequence to the project or activity.
- The issue was documented on a CR to track completion of an action only.
- Non compliance with requirements that did not result in an adverse condition.”

And

“Adverse Condition An adverse event or condition in which the cause is not readily identifiable. These are usually associated with a non compliance, or a failure to meet a requirement resulting in actual impacts to project or mission. Examples include:

- Any Occurrence Report categorized as Significance Category (SC) 3 or SC 2 as defined in PRC-PRO-EM-060.
- Trend Analysis showing a negative trend.
- Procedure non-compliance with demonstrated adverse effects upon project or facility operations.
- A lock and tag condition that could have resulted in unidentified hazardous energy being present in the work location if subsequent controls (i.e., technical review, installation, verification, safe condition check, safe-to-work check) inherent to the hazardous energy control process were not performed.”

Discussion:

CR-2009-1309, OFI: PPE Not Being Used stated in part, “WESF personnel in cell at catwalk not wearing hearing protection as required by room posting. . . . Brief WESF personnel about the importance of following posting for wearing PPE.” Contrary to the above requirements the noted Condition Report was screened as and OFI when a non-compliance, or failure to meet a requirements existed (i.e., failed to follow room posting).

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-LWFS-001-F05

Requirements for a Trend Only issue were not met.

Requirement(s):

PRC-PRO-QA-052, Issues Management stated the following, "Trend Only, A condition which individually is of minor consequence. The condition has been corrected via the stated immediate actions or the condition will be corrected through the work control process and has an active work package number assigned. Due to the nature of the condition, no further resources are being expended; however, screening and trending of these conditions is necessary to allow for the detection of similar events so that they can be addressed before they escalate into more significant issues. Positive or noteworthy practices may be processed as Trend Only for operational awareness and feedback."

Discussion:

CCR-2009-1310, OFI: Scaffolding Inspection stated in part, "Personnel in ETF accessed scaffolding prior to having daily inspection performed by competent person, self-corrected by having competent person inspect scaffold prior to second use of scaffold. . . . Immediate Action(s) Taken: Access inspection performed prior to second use. . . . Trend-only . . . The condition has been corrected via the stated immediate actions.

Contrary to the above requirements, the condition was not corrected via the stated immediate actions. Specifically, the "inspection performed prior to second use of scaffold" did not ensure that all personnel in Effluent Treatment Facility (ETF) that accessed the scaffolding without the required daily inspection were aware of their mistake or were aware of scaffolding requirements. In addition, others in ETF might have had the same lack of knowledge. A more appropriate action would have been to train/brief ETF personnel on scaffold use.

RL Lead Assessor Closure Required: YES [X] NO []

Observation: S-10-OD-LWFS-001-O01

The load drop critique report incorporated conflicting statements.

Discussion:

The Critique Investigation Report, LWFS-09-06, contained two statements which appeared to conflict. Section 10 recorded this statement immediately after the timeline: "A rigger was positioned so that he could see the wire rope drum spool. He reported that the crane was making some noises as the wire rope spooled, which was normal. He said that he heard a thud and saw the wire rope birdcage when the load was dropped." Section 13 contained this statement: "Based upon eye witness account and pictures of the wire rope spool, it appears that the wire rope birdcaged as the load was being lowered."

Both statements speak to when the birdcage effect occurred; one described it after, one before the load drop. The statements were not reconciled in the report.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-LWFS-001-O02

The critique report did not accurately describe personnel positions during the drop event.

Discussion:

The critique report (LWFS-09-06) stated in Section 14 Positive Aspects, "Personnel located within the ISA were positioned well away from the load, except for the riggers that needed to be there."

Video of the event showed numerous personnel near the load and immediate area that did not need to be there or have a function to perform related to handling of the cask.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-LWFS-001-O03

Human Performance Improvement (HPI) investigation not performed.

Discussion:

HPI investigative methods were not employed by the CHPRC even though expert conclusions pointed to human error in the load drop and subsequent personnel actions after the load drop.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-LWFS-001-004

Condition Report (CR) Screening Team inappropriately assigned low significance levels to load drop event.

Discussion:

The initial screening was decided by the team to be an "Adverse Condition" (CR-2009-1711) followed by two "Track Until Fixed" (CR-2009-1932 and CR-2009-1933) CRs to track corrective and follow on actions. PRC-PRO-QA-052 appeared to present a much stronger case for assigning a level of "Significant Issue;" "An event or condition that is intolerable to project or mission, and requires significant investigation, causal factors and corrective action development to reduce the likelihood of recurrence." A cask loaded with slightly irradiated fuel dropped in the DOE complex should be considered "intolerable."

RL Lead Assessor Closure Required: YES [] NO [X]

Contractor Self-Assessment:

Approximately over the past year the CHPRC had performed several self-assessments related to issues management. Much of the assessment content was focused on the performance of Effectiveness Reviews, Lessons Learned, and miscellaneous issues management subjects. There was one assessment which looked at the "Trend Only" significance level but not if the issue was appropriately categorized rather, were deadlines of submittal to the system compliant. None of the issues identified above were assessed during the submitted assessments. For the areas of self-assessment completed by the CHPRC, the effort was adequate. The FR recommends looking at the above findings and observations for future planning of assessments.

Contractor Self-Assessment Adequate: YES [X] NO []

**Management Debriefed:
Monica Kembel, CHPRC**

**Department of Energy
Richland Operations Office (RL)
Surveillance Report**

Division: Operations Oversight Division (OOD)

Surveillants: JE Trevino, BL Wallace, PL Hapke

Surveillance Number: S-10-OOD-SWOC-001

Date Completed: January 31, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Solid Waste Operations Complex (SWOC)

Title: Feedback & Continuous Improvement; Corrective Action/Issue Management.

Guide: MSS 1.3

Surveillance Scope:

The objective of this surveillance was to verify the contractor has an integrated process that makes use of available feedback information to drive continuous improvement with the eventual goal of institutionalizing the attributes of a High Reliability Organization. The surveillance evaluated if contractor personnel are effectively managing environment, safety, quality, and health issues. The surveillance also examined the effectiveness of the contractor's management/self-assessment process and corrective action management (CAM) system and verified that continuous improvement programs are in place and functional.

Surveillance Summary:

The Facility Representatives (FRs) reviewed Occurrence Reports, Condition Reports, OA's and issues for effective management of corrective actions. Four Findings and three Observations were identified:

- **S-10-OOD-SWOC-001-F01:** Condition Reports with the significance level assigned as "Track until Fixed" or "Opportunity for Improvement" should have been assigned as "Adverse."

- **S-10-OOD-SWOC-001-F02:** Issues or abnormal events were not entered into the Condition Reporting and Resolution System (CRRS).
 - **S-10-OOD-SWOC-001-F03:** Fall protection issues associated with the annual Preventive Maintenance on the Waste Receiving and Processing Facility (WRAP) TRUPACT crane were not adequately addressed in the Condition Report.
 - **S-10-OOD-SWOC-001-F04:** Corrective actions for a deficiency identified in July 2009 in which containers were not being stored in accordance with documented container management requirements were not effective to prevent recurrence of the deficiency. The Discrepant Container Management Program (DCMP) documentation was not corrected to reflect the current storage conditions.
 - **S-10-OOD-SWOC-001-O01:** PRC-PRO-QA-052, "Issues Management" does not adequately define the significance level "Adverse Condition."
 - **S-10-OOD-SWOC-001-O02:** Individual users of the PRC-PRO-QA-052, "*Issues Management*" CRRS database requires additional training in manipulating the search functions.
 - **S-10-OOD-SWOC-001-O03:** The PRC-PRO-QA-052, "Issues Management" database (CRRS) Broader Scope search function does not provide a method to easily search for Condition Reports related to a specific facility or activity versus the entire project.
-

Surveillance Results:

Finding: S-10-OOD-SWOC-001-F01

Condition Reports with the significance level assigned as "Track until Fixed" or "Opportunity for Improvement" should have been assigned as "Adverse". [OA 28428]

Requirements:

PRC-PRO-QA-052, *Issues Management*, lists the following definitions in Table 1, *Condition Report Significance Criteria*, (in part):

Adverse Condition: An adverse event or condition in which the cause is not readily identifiable. These are usually associated with a non-compliance, or a failure to meet a requirement resulting in actual impacts to project or mission. Examples include:

- Any Occurrence Report categorized as Significance Category (SC)-3 or SC-2 as defined in PRC-PRO-EM-060.
- Trend analysis showing a negative trend.
- Procedure non-compliance with demonstrated adverse effects upon project or facility operations.
- A lock and tag condition that could have resulted in unidentified hazardous energy being present in the work location if subsequent controls (i.e., technical review, installation, verification, safe condition check, safe-to-work check) inherent to the hazardous energy control process were not performed.

Discussion:

Several issues entered into the CRRS met the requirements to be categorized as Adverse Conditions but were instead categorized at a less significant level. These issues were:

Condition Report CR-2009-1936 documented issues related to fall protection analysis and application for preventative maintenance on the WRAP TRUPAC bay crane. This issue was categorized as Track until Fixed. Since this issue reflected weakness in implementation of Integrated Safety Management Systems relative to fall protection, it met the requirement to be categorized as an Adverse Condition.

Condition report CR-2009-0288 discussed an issue wherein excessive braking of a forklift caused a Teamster to hit his head on the windshield with enough force to break the windshield. This issue was categorized as Track until Fixed. Problems identified with the sticky forklift brakes and a broken seat resulted in putting the operator at risk of injury. The cause of the event was not easily understood and the corrective actions were not simple. The event met the requirements to be categorized as an Adverse Condition.

Condition Report CR-2009-1399 discussed an issue in which a Criticality Prevention Specification (CPS) drum type had to be redesignated from Type D to Type E after re-assay. This resulted in the development of several significant corrective actions. This was originally categorized as an Opportunity for Improvement, but met the requirements be categorized as an Adverse Condition.

Condition Report CR-2009-2008 identified a Criticality Prevention Specification discrepancy which involved storage of criticality type A containers which did not meet the requirements from the applicable Criticality Safety Evaluation Report. This issue was originally categorized as Track until Fixed but met the requirements be categorized as an Adverse Condition as a non-compliance.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-SWOC-001-F02

Issues, events, or adverse conditions were not entered into the Condition Reporting and Resolution System (CRRS). [OA 28428]

Requirements:

PRC-MP-QA-599, *Quality Assurance Program*, states in Part, "Quality improvement processes shall be established and implemented to satisfy the requirements of this section in accordance with 10 CFR 830.122 (c), "Criterion 3-Management/Quality Improvement," and DOE O 414.1C CRD, Attachment 2, 3.c, "Management/Criterion 3-Quality Improvement," which state:

- "Establish and implement processes to detect and prevent quality problems."

- “Identify, control and correct items, services, and processes that do not meet established requirements.”
- “Identify the causes of problems, and include prevention of recurrence as a part of corrective action planning.”
- “Review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement.”

Discussion:

In September 2009 RL questioned Waste Retrieval Project (WRP) use of combustible materials to strengthen damaged TRU Fiberglass Reinforced Plywood waste boxes for retrieval and also use of combustible materials in fabrication of enclosure structures placed around damaged boxes. RL reviewed requirements associated with use of combustibles and asked WRP to evaluate their current use of combustibles. An issue resolution meeting was conducted, a causal analysis performed, and corrective actions were assigned, however the issue was not entered in the CRRS System.

In July 2009 WRAP Supervision identified a waste drum that should have been changed from a criticality safety Type D container to a Type E container (after being assayed) and stored accordingly. The drum was later found to be stored as Type D which was then a Criticality Prevention Specification (CPS) discrepancy. WRAP Operations initiated recovery actions to control the new Type E drum as a single isolated container as required by CPS-SWOC-001. This was accomplished by use of existing WRAP operating procedures, rather than writing a recovery plan. WRAP failed to replace the CPS Type sticker as part of the recovery action. A magnetic label was placed on the drum identifying it as a Type E drum, however the sticker on the drum still showed the drum as a Type D drum. This deficiency was corrected by replacing the sticker. These sequence of events were not entered into the CRRC system

In December 2009 RL facility representatives and subject matter experts toured the 200W/Burial Ground Area and discussed worker safety support. During the tour crushing hazards from a poorly sloped/benched excavation in burial ground 218-W-3AE were noted. The excavation had evidence of significant sloughing in some areas. Vehicle tracks were visually evident along the toe of the slope. At the request of RL the project agreed to barricade the area along the toe of the excavation to prevent vehicles from entering. RL agreed that this excavation needed further sloping, benching or shoring to bring it into compliance with OSHA 29 CFR 1926 Subpart P. Corrective actions were taken by Central Waste Complex/Low Level Burial Ground Management to barricade the area of the improper slope so that access was not possible. Initially no Condition Report was issued to track further corrective actions. However after further discussion with RL this issue was entered into the CRRS system and additional corrective actions identified.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-SWOC-001-F03

Fall protection issues associated with the annual Preventive Maintenance on the Waste Receiving and Processing Facility (WRAP) TRUPACT crane were not adequately addressed in the Condition Report. [OA 28126]

Requirements:

10 CFR 830.122, *Quality Assurance Criteria*, states in part, “(c) Criteria 3, Management/Quality Improvement, (1) Establish and implement processes to detect and prevent quality problems. (2) Identify, control, and correct items, services, and processes that do not meet established requirements. (3) Identify the causes of problems and work to prevent recurrence as a part of correcting the problem. (4) Review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement.”

PRC-MP-QA-599, Quality Assurance Program, states in part, “Quality improvement processes shall be established and implemented to satisfy the requirements of this section in accordance with 10 CFR 830.122 (c).

Criterion 3, Management/Quality Improvement, and DOE O 414.1C CRD, Attachment 2, 3.c, Management/Criterion 3, Quality Improvement, state:

- “Establish and implement processes to detect and prevent quality problems.”
- “Identify, control and correct items, services, and processes that do not meet established requirements.”
- “Identify the causes of problems, and include prevention of recurrence as a part of corrective action planning.”
- “Review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement.”

The following were used in the development of the requirements for this section:

- ASME NQA-1-2008, Requirements 2, 15, and 16 guidance in DOE G 414.1-2A[A-1]

Discussion:

RL identified a number of fall protection issues associated with performance of annual preventive maintenance on the WRAP TRUPAC Bay Crane. The issues related to 1) identifying the engineering calculations performed to ensure adequacy of fall protection tie-off point on the crane; 2) a worker standing on the middle rail of the man-lift basket; and 3) identification of the procedure to which the Fall Hazard Evaluation was written.

In response, Condition Report CR-2009-1936, “Potential Fall Protection Analysis Inadequacy of WRAP Crane Maintenance Activities” was issued. This CR did not address all the actions that were taken with respect to the issue, including 1) building a scaffold to accomplish the work

instead of using a man-lift; 2) identifying new fall protection tie-off points above the crane; and 3) reissuing the Fall Hazard Evaluation. The CR only described the initial actions to stop work and suspending the work package. The only corrective action detailed in the CR was an extent of conditions to ensure that workers are properly using elevated work platforms.

The CR did not capture any lessons learned or detail actions for ensuring that the next performance of the preventive maintenance on the crane would contain the revised Fall Hazard Evaluation. In addition, no causal analysis was documented in the CR. In the Significance Level Justification the condition was screened as a Track Until Fixed instead of an Adverse Condition. The Justification stated: "This CR will require actions to address the engineering calculation and conclusions made concerning the associated fall protection for this activity. This CR will track to closure the associated actions for addressing the subject condition." These actions were not identified or tracked in the CR.

In addition, the responsibility for CR was assigned on December 30, 2009, which amounts to 56 days after the screening date of November 3, 2009. The procedure performance goal is 45 days.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-SWOC-001-F04

Corrective actions for a deficiency identified in July 2009 in which containers were not being stored in accordance with documented container management requirements were not effective to prevent recurrence of the deficiency. The Discrepant Container Management Program (DCMP) documentation was not corrected to reflect the current storage conditions. [OA 28396]

Requirements:

10 CFR 830.122, Quality Assurance Criteria, states in part, "(c) Criteria 3, Management/Quality Improvement, (1) Establish and implement processes to detect and prevent quality problems. (2) Identify, control, and correct items, services, and processes that do not meet established requirements. (3) Identify the causes of problems and work to prevent recurrence as a part of correcting the problem. (4) Review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement."

PRC-PRO-QA-052, Issues Management Procedure states, "The Issues Management process, as implemented by the Condition Report and Resolution System (CRRS), provides a mechanism to ensure that conditions adverse to quality (such as failures, malfunctions, deficiencies, deviations, abnormal occurrences) are promptly identified and corrected." Section (3.1) states, "A performance goal of 5 working days to submit a Condition Report from the identification date to the CRRS will be monitored on a monthly basis. The identification date is the date the event or condition was first discovered."

Discussion:

On July 1, 2009, during a walk down of the 243-T area (3), the RL FR found five drums (ID numbers 0038739, 0032176, 0039675, 0039546, 0043196) that were not being managed as required by the paper work attached to the drums. The Solid Waste Information and Tracking System paper work (U307 DCMP) gave direction under its "Immediate Actions Taken" to place the drums on a spill pallet. The five drums were not on spill pallets. This issue was documented in OA 24369, the Environmental Compliance Officer was contacted and said the drums were not required to be on spill pallet since they were over packed in 85 gallons drums. The focus of the concern then changed to desensitizing individuals to immediate actions/statements and operations taking necessary actions to correct and report deficiencies.

On January 25, 2010, the FR was reviewing CHPRC Condition Reports and came upon report (CR-2010-0126) which was generated on January 20, 2010. The Condition Report indicated that he found five drums with "Immediate Actions Taken" attached paper work that was not being followed. The drum documentation issues were almost identical to those found at 243-T on July 2, 2009, by the FR.

In report (CR-2010-0126) under the initiators comments he states: "When information is left on the drums and we are being told to disregard this information instead of removing it, this would tend to show a gap in the hazards communication program." Corrective actions were not taken for the July 1, 2009, deficiency to prevent recurrence of the deficiency.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-SWOC-001-001

PRC-PRO-QA-052, *Issues Management*, does not adequately define the significance level "Adverse Condition". [OA 28126]

Discussion:

PRC-PRO-QA-052, *Issues Management*, requires screening and proper determination of significance level for identified issues. The term "Adverse Condition" is not adequately defined and therefore the meaning is subjective. The "Track until Fixed" significance criteria level refers to non-compliances that "did not result in an Adverse Condition" but there is minimal definition of what an Adverse Condition is. The "Adverse Condition" significance criteria level provides a description but simply reuses the term "Adverse Condition" versus providing a definition of what an adverse condition is. As a result Condition Reports are inconsistently categorized as "Adverse Conditions" or as "Track Until Fixed"

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-SWOC-001-002

Individual users of the PRC-PRO-QA-052, "Issues Management" CRRS database requires additional training in manipulating the search functions.

Discussion:

Discussions with personnel who routinely use the CRRS system for inputting issues and searching for trends indicate that additional training is required. Personnel are not familiar with the Broader Search function or have not been trained to search by Issues Management Trending Codes.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-SWOC-001-003

The PRC-PRO-QA-052, "Issues Management" database (CRRS) Broader Scope search function does not provide a method to easily search for Condition Reports related to a specific facility or activity versus the entire project.

Discussion:

Reviewing CRs for individual facility issues for tracking/trending purposes (e.g., radiological issues) requires inefficient manual sorting. CRs currently may be sorted by project (e.g., Liquid Waste & Fuels Storage) but sorting by an individual facility within a project (e.g., CSB, ETF, or WESF) generally requires a sort by the responsible manager's name. Since these facilities have multiple managers, manual sorting is difficult.

RL Lead Assessor Closure Required: YES [] NO [X]

Contractor Self-Assessment:

The last management assessment covering Corrective Action Management was conducted by Waste Services Division in the fourth quarter of FY 2008. The assessment, WSD-TS-08-MA-13, "Management Assessment of Corrective Action Management" resulted in one Finding and one Observation. The assessment was conducted on FH procedures and document. The next planned Management Assessment of Corrective Action Management will be conduct by Waste and Fuels Management Operation Assurance in the third quarter of FY 2010.

Contractor Self-Assessment Adequate: YES [X] NO []

Management Briefing:

Stuart Mortensen
Carroll Phillips
Daniel Saucedo
Todd Synoground
Tom Brown

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Operations Oversight Division (OOD)

Surveillants: RV Johnson, C Richins

Surveillance Number: S-10-OOD-BOS D&D-001

Date Completed: January 31, 2010

Contractor: CH2M HILL Plateau Remediation Contractor (CHPRC)

Facility: Balance of the Site Deactivation & Decommissioning (BOS D&D)

Title: Corrective Action Management (CAM) Core Surveillance

Guide: MSS 1.3

Surveillance Scope:

The scope of this surveillance is to verify that the contractor is adequately implementing CAM processes specifically focusing on Issues Management and Event Reporting at facilities and work activities.

Surveillance Summary:

This surveillance incorporated Activities 4 and 5 as outlined in the surveillance guide.

The Facility Representative (FR) and Governmental Supplemental Service Contractor (GSSC) Safety Representative performed the following activities in order to evaluate BOS D&D organization:

- Work activities involving investigative reports:
 1. CR-2009-1649 (Date 9/29/2009), Inadequate radiological work planning and engineering controls during intrusive work activities leads to elevated air & lappel samples resulting in workers being exposed to airborne uranium oxide.

2. CR-2009-2077 (Date 11/19/2009), Worker splashed with glycol at 6652-H (ALE) on 11/18/2009.
 3. CR-2009-1648 (Date 10/1/2009), Exposed Electrical Hazard.
 4. CR-2009-1053 (Date 8/7/2009), 224-U Loose Tube Scaffolding-ARRA.
- Work activities involving Root Cause Analysis reports:
 1. CR-2009-1648 (Date 10/1/2009), Exposed Electrical Hazard.
 2. CR-2009-1053 (Date 8/7/2009), 224-U Loose Tube Scaffolding-ARRA.
 - Work activities involving Injury reports:
 1. Event Report 20449 (Date 9/1/2009)
 2. Event Report 20509 (Date 10/7/2009)
 3. Event Report 20515 (Date 10/15/2009)
 4. Event Report 20445 (Date 9/1/2009)
 - Reviewed the following support procedures and programs:
 1. PRC-PRO-QA-052, *Issues Management*. Rev.1, Date 8/14/2009.
 2. PRC-PRO-SH-077, *Reporting, Investigating, and Managing Health, Safety and Property/Vehicle Events*. Rev.1, Date 12/28/2009.
 3. PRC-PRO-EM-058, *Event Initial Investigation and Critique Process*. Rev.0, Date 6/9/2009.
 4. PRC-GD-QA-33900, *Causal Analysis Guide*. Rev. 0, Date 9/17/2009.
 5. Condition Reporting & Resolution System (CRRS) for reports (Projects PFP and BOS D&D) dated from 7/1/2009 – 1/29/2010.
 6. Operational Awareness Data Base from 7/1/2009 – 1/29/2010.
 - Reviewed Recent Operational Awareness' (OAs) with CRRS:
 1. OA 28144, 212 N/P/R Sampling and Condition Report Form (CR-2010-0180).
 2. OA 28115, 212 N/P/R Sampling.
 3. OA 28109, Scaffold work involving two AJHAs and Condition Report Form (CR-2010-0081).
 4. OA 27500, U-Plant work package discrepancies and Condition Report Form (CR-2009-2297).
 5. OA 28185 Procedural violation at U-Plant and Condition Report Form (CR-2010-0121).
 - Reviewed 10 recent Condition Reports:
 1. CR-2009-1688, Contamination found in 6652C Upper ALE
 2. CR-2009-1694, Contamination found in 6652G Lower ALE
 3. CR-2009-1916, Asbestos Work at U Ancillaries
 4. CR-2009-2139, Upgrade of worker protection guards for excavation
 5. CR-2009-2188, RSR review 224-U
 6. CR-2009-2203, RSR review U Canyon
 7. CR-2009-2077, Worker splashed glycol at 6652H
 8. CR-2009-2049, Chemical Exposure to UO3
 9. CR-2009-2217, Insufficient Work Instruction Detail for breaching UO3 System
 10. CR-2009-1649, Inadequate radiological work planning and engineering controls

Activity 4 involved a review of existing OA reports related to the BOS D&D organization for events over the last six months looking for any abnormal trends. The review also comprised of four investigation reports (fact finding, critique), four injury reports, and two root cause analysis reports for compliance with procedural requirements.

OA Analysis:

A review of the Operational Awareness Data Base for OA reports dated from July 2009 to January 2010 time frame was performed for the BOS D&D organization. Purpose of the review was to track the existing OAs submitted for the BOS D&D organization for any potential trends. Analysis revealed 319 operational awareness reports which were recorded for BOS –D&D with 10 specific MOP reviews, 11 assessments, 23 surveillances, and 49 ARRA related reports.

As would be expected of a D&D program the dominate category for findings and observations fell within the Integrated Safety Management System Work function (46%) with a strong emphasis on industrial safety as a trend code (48%). The four principle causal codes covered by the OAs were: Management Responsibility, Identification of Hazards, Tailored Controls, and (working with a) Safe Attitude. Although there is a small scattering of other codes in the data, the distribution of events within these four casuals was fairly even at ~15-20% of total.

Investigative Reports:

The review consisted of a representative sample of four investigative reports for compliance with established procedures. Two reports were identified as “Adverse,” for a significance level whereas one report was listed as, “Significant” and the last report was identified as “Track until Fixed.”

Reports CR-2009-1649 and 1053 showed a significance level of “Adverse” and only one report appeared to meet the procedural guidelines as stated in PRC-PRO-QA-052 Section 3.3.4. Analysis results for CR-2009-1649 showed four apparent causes leading to ten corrective actions. Of the ten actions listed five were completed on time with one action over due (Observation 1).

Report CR-2009-1053 involved a worker erecting scaffolding losing his balance with the potential to fall 40 feet. A review of Table 1 for type of significant criteria in PRC-PRO-QA-052 showed the report met the criteria to be classified as a Significant Issue (Finding 1).

Report CR-2009-2077 showed a significance level of “Track until Fixed” and appeared to meet the procedural guidelines as stated in PRC-PRO-QA-052 Section 3.3.2. Eight actions were identified and completed with Corrective Action #8 requiring a final calculation for the glycol volume due on 1/4/2009 (Observation 2).

Report CR-2009-1648 showed a significance level of “Significant” and appeared to meet the procedural guidelines as stated in PRC-PRO-QA-052 Section 3.3.5.

Root Cause analysis

There were two events in the last six months that warranted a root cause analysis in BOS D&D projects (Condition Reports, CR-2009-1648 and CR-2009-1053). Both reports were assigned to

responsible parties within the 5 day window required by PRC-PRO-QA-052 with all analysis completed within the 45 day requirement. Actions were assigned and completed within the 120 day allotment with the exception of long term items such as follow-up review for effectiveness (set at ~ 6-9 months) and actions crosscutting other site contracts. No discrepancies against PRC-PRO-QA-052 were found.

Injury reports

Four event reports were selected at random from the BOS D&D subset. Each of these incidents represented a minor first aid case each with a different initiating condition (insect bite, slip on gravel, scratched arm, potential asbestos exposure). The incident involving the bee sting/bite was lightly treated on the event reporting form (Case #20449) with single sentence statements about the event and potential solutions to the problem. No effort was made to provide a causal analysis as required on page 1 of the event report, and a Safety Professional signature was found missing (Finding 2).

The remaining three event reports (cases 20509, 20515, and 20445) were complete and thorough, meeting the requirements of PRC-PRO-SH-077.

Activity 5 involved a representative sample of the Contractor CAMs process. This involved reviewing CAM entries for proper processing per procedure, screening and identification of issue, identified cause, alignment of actions with causes, adequacy of objective evidence, consideration of broader scope/extent of condition, checks/balances for more significant issue closure, overall CAM documentation.

Recent Events:

A review of 10 recent events being tracked through the CAM process of PRC was conducted. The review centered on activities performed within the BOS D&D projects. Four of the ten Condition Reports reviewed identify issues with the breeching of closed, contaminated systems. In each of these events, personnel were exposed to a chemical hazard. BOS D&D strategy for approaching the breeching of closed, contaminated systems was found to be lacking (Finding 3).

The review identified the dates for completion for several corrective actions were set outside the performance expectation of 60 days as specified in PRC-PRO-QA-052 (Observation 3).

Issues Related to OAs:

A review was performed on five recently submitted OAs in order to confirm the contractor was processing issues appropriately through CAM to resolve the issues. Out of the five OAs selected, the contractor inputted four OAs into the CRRS while only addressing three OAs through CAM process (Finding 4).

In summary, this FR considers the CAM implementation for BOS D&D to be satisfactory and the activities appeared to meet requirements with only some minor exceptions.

Four Findings and three Observations were generated:

- **S-10-OOD-BOS D&D-001-F01** - Significant Condition was incorrectly screened as an Adverse Condition.
- **S-10-OOD-BOS D&D-001-F02** - Injury Event Report Missing Required Information and Signatures.
- **S-10-OOD-BOS D&D-001-F03** - Causal Analysis and Corrective Actions did not prevent recurrence.
- **S-10-OOD-BOS D&D-001-F04** - Ineffective Corrective Actions taken for 212-N/P/R Sampling issues.
- **S-10-OOD-BOS D&D-001-001** – Overdue Corrective Action.
- **S-10-OOD-BOS D&D-001-002** – Corrective Action closed out with an open item remaining.
- **S-10-OOD-BOS D&D-001-003** – Corrective Actions do not meet 60 day performance goals.

Surveillance Results:

Finding: S-10-OOD-BOS D&D-001-F01

Significant Condition was incorrectly screened as an Adverse Condition. [OA 28504]

Requirements:

PRC-PRO-QA-052, *Issues Management* stated the following, “CR Screening Team DETERMINE significance level using the criteria in TABLE 1 as appropriate. . . . Table 1 – Condition Report Significance Criteria” and

“PRC-PRO-QA-052, *Issues Management*, stated in part, “Significant Issue, An event or condition that is intolerable to project or mission, and requires significant investigation, causal factors and corrective action development to reduce the likelihood of recurrence. An event or condition that is determined to be significant based on adverse impact on personnel safety . . . A stop work condition determined to be of sufficient importance to warrant an in-depth analysis in order to develop corrective action to prevent recurrence. . . . An adverse event or condition triggering the need for complex corrective actions with broad impacts to operations, maintenance, projects, programs, training, and/or quality processes.”

Discussion:

Contrary to the above, CR-2009-1053, 224-U Loose Tube Scaffolding - ARRA was screened as an Adverse Condition when it met the definition of a Significant Issue. Specifically, the following PRC-PRO-QA-052 criteria for a Significant Issue were met:

- “Requires significant investigation, causal factors and corrective action development to reduce the likelihood of recurrence” – The event was a near miss requiring extensive investigation, a root cause analysis, and the development of 15 detailed corrective actions.
- “An event or condition that is determined to be significant based on adverse impact on personnel safety” – The event was a near miss where an individual could have fallen approximately 40 feet with the potential for significant injuries.
- “A stop work condition determined to be of sufficient importance to warrant an in-depth analysis in order to develop corrective action to prevent recurrence” – The event was a near miss where all scaffold erection and disassembly was stopped at BOS D&D, and all elevated work under the contractor’s control was stopped. Work was stopped to allow for the development and implementation of corrective action.
- “An adverse event or condition triggering the need for complex corrective actions with broad impacts to operations, maintenance, projects, programs, training, and/or quality processes” – The event was a near miss with corrective action impacting the entire site (e.g., stopping all elevated work, changing site wide procedures, hiring new individuals, performing training needs analysis, addressing training requirements).

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-BOS D&D-001-F02

Injury Event Report Missing Required Information and Signatures. [OA 28538]

Requirements:

PRC-PRO-SH -077, *Reporting, Investigating, and Managing Health, Safety and Property/Vehicle Events*, states the following:

Section 4.1.18 which states in part, “Work with the employee to complete an Event Report as soon as possible but no later than 5 days incorporating information obtained during the investigation process (see note below).”

Section 4.1.24 which states in part, “Assist the employee and supervisor in completing the Event Report, obtain required signatures and submit to CMS.”

Section 7.1, Item # 7 in Table states in part, “An Event Report form (A-6004-756) (Event Report Instructions) shall be completed as soon as possible but no later than 5 business days of the event (including self-treats). Both pages of this form are required.”

Discussion:

Injury event report #20449 involved a worker injury due to a sweat bee bite/sting. The event took place at upper ALE facilities on 9/1/2009. A review of the Event report shows the section entitled, “Causes” missing required information related to the event and the Occupational Safety and Health review signature was also found missing from the document.

Section 4.1 Steps 6, 18, and 24 of procedure PRC-PRO-SH -077 requires the employee, supervisor and finally a safety professional to fill out and review the event report for completeness. Table listed under Section 7.1, Item # 7 states in part:

“An Event Report form (A-6004-756) (Event Report Instructions) shall be completed as soon as possible but no later than 5 business days of the event (including self-treats). Both pages of this form are required.”

RL Lead Assessor Closure Required: YES [] NO [X]

Finding: S-10-OOD-BOS D&D-001-F03

Causal Analysis and Corrective Actions did not prevent recurrence. [OA 28551]

Requirements:

PRC-PRO-QA-052, *Issues Management* stated the following, “Corrective actions selected should bear a direct relationship to the causes determined by the causal analysis and should have recurrence prevention as a goal.”

Discussion:

The BOS D&D strategy for approaching the breeching of closed, contaminated systems is inadequate.

Four of the ten Condition Reports reviewed identify issues with the breeching of closed, contaminated systems. Although the sample size is small, 40% represent a significant adverse trend. Three of the four events occurred at U-Plant; however, the one outlying event was identical in nature. In each of these events, personnel were exposed to a chemical hazard during work in which a contaminated system was breeched.

Causal analysis was performed in each case. With the exception of the glycol event (CR-2009-2077), the causes assigned and the actions taken fall short of a strong appropriate fix to the issue. The causal analysis and the related corrective actions address secondary issues. The direct cause of this event is penetration of a system containing a mobile chemical contaminate without an appropriate engineered solution (such as bagging the point of penetration) or appropriate use of Personnel Protective Equipment (PPE).

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-BOS D&D-001-F04

Ineffective Corrective Actions taken for 212-N/P/R Sampling issues. [OA 28554]

Requirements:

PRC-MP-QA-599, *Quality Assurance Program*, Section 3.2 third bullet states: "Identify the causes of problems and include prevention of recurrence as a part or corrective action planning." and Section 3.3.1, states in part: "This process will also identify appropriate corrective and prevention actions and track the conditions to closure."

Discussion:

Two recently submitted OAs were reviewed for Contractor effectiveness in tracking issues into CAM. OA 28144 identified two issues and OA 28115 captured seven issues related to recent soil sampling at 212-N/P/R; out of the nine issues captured between the two OAs five were cited as Findings and the remaining four as Observations.

The nine issues identified the following:

- No Spotter was used during the activity.
- Sever slope condition of the western wall was greater than 1 to 1.5.
- Competent person did not identify the slope during the pre-job walk down.
- Hazards identified in the AJHA were not implemented in the work document.
- Inadequate communications during initial sample activity.
- PPE footwear was not sized appropriately for the workers.
- Items carried into the excavation site increased potential hazards.
- An expired Excavation permit was used for the work package.

- Forms to identify a Confined Space or potential Confined Space were not used.

A review of the CHPRC Condition Reports (CR-2010-0179 and 180) submitted to address the nine issues shows the contractor treated the issues lightly and did not recommend any corrective actions.

Five of the issues (Findings) were violations against procedural requirements which should have raised the Condition Report (CR-2010-0179 and 180) to the level of "Track Until Fixed" instead of "Trend Only."

Procedure PRC-MP-QA-599, *Quality Assurance Program*, Section 3.2 states: "Quality improvement processes shall be established and implemented to satisfy the requirements of this section in accordance with 10 CFR 830.122 (c)..." Third bulleted step, states in part, "Identify the causes of problems and include prevention of recurrence as a part of corrective action planning." and Section 3.3.1, Conditions Management, states in part, "This process will also identify appropriate corrective and prevention actions and track the conditions to closure."

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-BOS D&D-001-001

Overdue Corrective Action. [OA 28535]

Discussion:

During a review of CHPRC Condition Report Form (CR-2009-1649) relating to inadequate radiological work planning and controls for intrusive work at U-Ancillaries; one corrective action was found to be overdue.

Action #3 addresses management expectations with radiological work planning documents and ensuring appropriate hazard controls are implemented. This action has a due date of 12/30/2009, but it is still not completed.

Per procedure PRC-PRO-QA-052, Issues Management, Section 3.5 states in part, "Corrective actions should be completed within the originally allotted time."

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-BOS D&D-001-002

Corrective Action closed out with an open item remaining. [OA 28535]

Discussion:

During a review of CHPRC Condition Report Form (CR-2009-2077) relating to worker splashed with glycol at 6652-H (ALE); all Corrective Actions were found to be closed out thereby allowing closure of the condition report. Corrective Action #8 addresses calculating the remaining volume in the system and provides initial calculation values. This corrective action also requests final calculation values which is stated in the action taken field as being made available on 1/4/2010. The corrective action was completed on 12/21/2009, but no final value is listed. By looking at the two dates an observer is prejudiced into believing an action was closed out with an open item still in existence.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-BOS D&D-001-O03

Corrective Actions do not meet 60 day performance goals. [OA 28551]

Discussion:

Corrective actions derived from CR-2009-1688 and CR-2009-1694 were assigned completion dates in excess of the 60 day performance goals specified by PRC-PRO-QA-052 for "Track Until Fixed" events.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

The FR reviewed the Integrated Evaluation Plan (IEP) for FY 2009 and FY 2010 for any Management Assessments (MA) performed in the CAM area. No MA was performed on CAM within the BOS D&D organization during FY 2009. The next scheduled MA is due on the 4th quarter of FY 2010.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Robert Wilkinson, Director BOS D&D
Mike Stevens, BOS D&D Project Manager
Harv Harville, BOS S&M
Chris Lucas, Director BOS C&D

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant(s): KM Schierman, JE Spets

Surveillance Number: S-10-OOD-GPP-001

Date Completed: February 1, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Soil and Groundwater Remediation Project (SGRP - Occurrence Reporting and Processing of Operations Information code GPP)

Title: Feedback and Continuous Improvement; Corrective Action/Issues Management

Guide: MSS 1.3

Surveillance Scope:

The objective of this surveillance was to verify the contractor has an integrated process that makes use of available feedback information to drive continuous improvement with the eventual goal of institutionalizing the attributes of a High Reliability Organization. Specifically, this surveillance evaluated if contractor personnel are effectively managing environment, safety, quality, and health issues. The surveillance also examined the effectiveness of the contractor's management/self-assessment process and corrective action management system. The activities included in this surveillance helped determine whether issues identified through internal and external evaluation programs are being resolved consistent with the level of importance. The surveillance further verified continuous improvement programs are in place and functional.

Surveillance Summary:

The Facility Representative (FR) and FR Team Lead reviewed a number of areas as specified in the core surveillance guide (MSS 1.3) and expanded as deficient conditions were identified:

The FR evaluated SGRP's use of the CHPRC Condition Reporting and Resolution System (CRRS) for documentation, evaluation, and response to conditions adverse to quality, improvement suggestions, and lessons learned, since April 2009. One Good Practice was identified for SGRP's improving use of the CRRS process and management team reviews of CRRS entries for trending purposes (see below). [Operational Awareness Report (OA) 28541]

The FR and FR Team Lead reviewed Condition Report (CR) significance categorizations. One finding was documented in this area (see below). [OA 28316, 28475, 28506]

The FR reviewed the CRRS database to determine if the last six OAs containing Findings (non-compliance with requirements), but not associated with Occurrences, had been entered into CRRS, had been assigned appropriate significance criteria, and were processed consistently with significance criteria requirements. One finding was identified (see below). [OA 28316]

OA trends were reviewed. No trends were identified that were not already reflected in the FR's Master Oversight Plan (MOP). CRs entered to address issues related to the MOP-identified problem areas were specifically reviewed. An opportunity for improvement was identified on extent of condition actions for Track Until Fixed issues (see below observation). [OA 28316]

While reviewing CRs associated with OAs, the FR identified a CR that had been categorized as an Adverse Condition that identified a deficiency that could have application beyond SGRP, but the CR did not identify a similar condition could occur on other projects in the Extent of Condition Evaluation. Based on this the FR reviewed the twelve CRs categorized and processed as Adverse Conditions since July 1, 2009, for similar discrepancies. The FR also reviewed the four CRs categorized and processed as Significant Issues. One finding was identified (see below). [OA 28316]

The FR verified that all (7) SC-3 Occurrence Reports issued since July 1, 2009, had been entered into CRRS as Adverse Conditions or Significant Issues. No issues were identified. [OA 28316]

The FR attempted to verify causal analyses performed for Adverse Conditions were performed by trained personnel. One finding was identified (see below). [OA28316]

The FR reviewed the last four critique/investigation reports documented on the project: S&GRP-2009-004, S&GRP-2009-005, S&GRP-2009-006, and S&GRP-2009-007. All four associated critique/investigation meetings had been attended by (three different) FRs, and in each case the FR documented conclusions on the meeting content/effectiveness. Three of the four critique meetings were considered adequate by the FRs attending them (documented in OA 26014 for Critique Report S&GRP-2009-004, OAs 26222 and 26254 for S&GRP-2009-006, and OA 27702 for S&GRP-2009-007). The fourth (S&GRP-2009-005) was not. This conclusion was documented in an Observation in OA 26221 and provided to the contractor informally at the time of issue.

The Observation stated, "The critique meeting conducted for a KX/KR-4 Pump and Treat hazardous energy control event did not provide sufficient information to adequately understand why the event happened or understand the context and possible error precursors and failed defenses leading to the event." A second meeting with the Pump and Treat Operations and Maintenance Manager and two Construction managers was necessary to obtain the missing information. In reviewing the approved critique report for S&GRP-2009-005 it appeared some of the information from the second meeting was included in the final critique report. The FR concluded each of the critiques was conducted by an adequately trained critique leader and each of the critiques was documented on CHPRC Critique/Investigation Report Form, A-6004-900, or an equivalent (two of the reports were documented on Critique/Investigation Report Form, BD-6001-320). The forms were adequately populated with information from the critiques/investigations to fulfill field requirements, but several issues were identified (see Observation below). [OA 28264]

Note: Reviews of the approved critique/investigation meeting reports had not been previously documented, however, each of the events also corresponded to a reportable Occurrence for which the Final Occurrence Reports had been reviewed and approved by FRs with the results of the reviews also documented in OAs.

The FR determined the last two CR entries to have been screened as Significant Conditions were CR-2009-1673, Worker Fall from Scaffolding, and CR-2009-1674, Exposed Energized 480V Electrical Cable Discovered at Well Head. Per PRC-PRO-QA-052, Section 3.3.5.3, a root cause analysis was required for each. The FR verified root cause analyses had been completed, each root cause analysis report (EM-RL--CPRC-GPP-2009-016 and EM-RL--CPRC-GPP-2009-015, respectively) had been prepared consistently with the guidelines of PRC-GD-QA-33900, was credible in content, and each had been reviewed and approved by the CHPRC Executive Safety Review Board. No issues were identified with either report. [OA28264]

The FR selected five first aid events from the November and December 2009 Safety Analysis Center (SAC) log that were from a variety of type, severity, and employee work groups/supervisors and requested to review the case files. The Safety Manager was readily able to produce the files (cases 20524, 20535, 20551, 20594, and 20596). Each was neatly filed in a folder and contained an A-6004-756 form completed for the event. Other information was included in the files as the Safety organization considered appropriate. The files contained adequate information to match the SAC log-described events, understand how the injuries had occurred and in most cases determine what corrective actions to prevent recurrence were recommended and/or performed. One finding (see attached) was documented for incomplete data on the A-6004-756 forms. [OA28169]

In total, one good practice, five findings and two observations were documented:

Good Practice:

Increased emphasis on management oversight and CRRS process use allows project management to better trend issues being identified on the project.

S-10-OOD-GPP-001-F01

Non compliances/failures to meet a requirement were incorrectly screened as Opportunities for Improvements (OFI) or Trend Only.

S-10-OOD-GPP-001-F02

Non-compliances identified in Operational Awareness (OA) reports being provided to the contractor were not consistently being entered into the Conditioning Reporting and Resolution System (CRRS) to assure deficiencies were being tracked, trended, and systematically addressed to correct and prevent recurrence.

S-10-OOD-GPP-001-F03

SGRP CRRS Extent of Condition Evaluations were often inadequately documented and/or conducted for Adverse Conditions and Significant Conditions.

S-10-OOD-GPP-001-F04

SGRP could not demonstrate which personnel had conducted apparent cause analyses for CRRS Adverse Conditions and could not demonstrate for those instances where the apparent cause analyst was known that the individual met designated training requirements.

S-10-OOD-GPP-001-F05

Not all fields of Event Reports (Site Form A-6004-756, Rev 2) reviewed had been completed as directed.

S-09-OOD-GPP-002-001

Opportunities for Improvement were available for Track Until Fixed issue extent of condition evaluations.

S-09-OOD-GPP-002-002

Several discrepancies were identified in Critique/Investigation Reports S&GRP-2009-005 and 007.

Surveillance Results:

Finding: S-10-OOD-GPP-001-F01

Non compliances/failures to meet a requirement were incorrectly screened as Opportunities for Improvements (OFI) or Trend Only. [OA 28316, 28475, and 28506]

Requirement:

PRC-PRO-QA-052, *Issues Management*, Section 3.2, states in part, the CR Screening Team shall “DETERMINE significance level using the criteria in TABLE 1 as appropriate.”

Table 1 – Condition Report Significance Criteria, defines significance levels as follows:

- “Trend Only A condition which individually is of minor consequence. The condition has been corrected via the stated immediate actions or the condition will be corrected through the work control process and has an active work package number assigned. Due to the nature of the condition, no further resources are being expended however, screening and trending of these conditions is necessary to allow for the detection of similar events so that they can be addressed before they escalate into more significant issues...”
- OFI A suggestion or report identifying process improvements, program enhancement, Lessons Learned, or continued quality improvements or recommendations.
- Track Until Fixed A condition that meets one of the following:
 - Requires simple actions that are readily identifiable, and the cause is easily understood and represents low risk or consequence to the project or activity.
 - The issue was documented on a CR to track completion of an action only.
 - Non compliance with requirements that did not result in an adverse condition.
- Adverse Condition An adverse event or condition in which the cause is not readily identifiable. These are usually associated with a non compliance, or a failure to meet a requirement resulting in actual impacts to project or mission. Examples include:
 - Any Occurrence Report categorized as Significance Category (SC)-3 or SC-2 as defined in PRC-PRO-EM-060.
 - Trend Analysis showing a negative trend.
 - Procedure non compliance with demonstrated adverse effects upon project or facility operations.
 - A lock and tag condition that could have resulted in unidentified hazardous energy being present in the work location if subsequent controls (i.e., technical review, installation, verification, safe condition check, safe-to-work check) inherent to the hazardous energy control process were not performed.”

Discussion:

Contrary to the above requirements the noted Condition Reports were screened as OFIs when a non-compliance or a failure to meet a requirement existed.

- CR-2009-1980, Weakness noted in management review of records including Out of Service Logbook, round sheets. Specifically, CR-2009-1980 stated: “The P&T ‘Out-of-Service’ logbook was not reviewed for over six months and narrative logs and round sheets were not reviewed on a periodic basis that complied with PRC-PRO-OP-40120.” In addition, the document states, “First line managers have not been reviewing all of the P&T logbooks on a daily basis [PRC-PRO-OP-24382 requirement]. The operations manager has not reviewed all of the P&T logbooks every week [PRC-PRO-OP-24382 requirement]. The requirements in the Logkeeping procedure PRC-PRO-OP-24382 were reviewed with qualified Pump and Treat managers.”
- CR-2009-1981, Weakness in performing of shift routines related to log keeping and log/record review identified deficiencies where procedure requirements were not met. Specifically, CR-2009-1981 stated, “At GWS Operations, the FWS reviewed the logs approximately every four to six weeks, contrary to PRC-PRO-OP-40120, Section 3.4.5. - Within the P&T organization, some ‘red circled’ readings were not explained as required by PRC-PRO-OP-40120, Section 3.4.3.c.” In addition, the document stated as a corrective action, “Incorporate a weekly reminder into the S&GRP tickle file system that reminds FWS and/or delegates to review the logbooks on a weekly basis.”
- CR-2009-1326, OFI: General Safety Improvements stated in part, “Description of Issue: Opportunities for improvement related to general safety were observed at 6004-KW. Two drum Over-pack containers were observed obstructing access to electrical disconnect DS-W8. The eyewash adjacent to the safety shower was noted to have two isolation valves; V-WS2 and V-WS4. . . . Immediate Action(s) Taken: The process area requires safety glasses which is documented in applicable facility safety documents however, posting related entry points would be prudent. One individual was in the area without safety glasses which was quickly corrected by a coworker. These issues were discussed with the maintenance supervisor. . . . Trend Codes: OS0103 - Facility/Building/Working Area MS09 - ISM – Feedback and Improvement.” In addition, the trend code failed to identify OS16 – Personnel Protective Equipment potentially because the issue was not properly captured in the “Description of Issue.”
- CR-2009-2250, from OA 26590, which stated, “Field Work Supervisors (FWS) had not documented work package reviews directed by PRC-MD-WKM-40214,” had been classified as a “Trend Only” entry, despite a non-compliance with requirements being identified.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-GPP-001-F02

Non-compliances identified in Operational Awareness (OA) reports being provided to the contractor were not consistently being entered into the Conditioning Reporting and Resolution System (CRRS) to assure deficiencies were being tracked, trended, and systematically addressed to correct and prevent recurrence. [OA 28316]

Requirement:

PRC-MP-QA-599, Section 3.2, states in part, "Quality improvement processes shall be established and implemented to satisfy the requirements of this section in accordance with 10 CFR 830.122 (c), 'Criterion 3-Management/Quality Improvement,' and DOE O 414.1C CRD, Attachment 2, 3.c, 'Management/Criterion 3-Quality Improvement,' which state... 'Identify, control and correct items, services, and processes that do not meet established requirements.'"

Discussion:

The FR reviewed the CRRS database to determine if the last six OA reports that contained Findings (non-compliance with requirements), but were not associated with Occurrences, had been entered into CRRS, had been assigned appropriate significance criteria, and were processed consistently with significance criteria requirements. The six OA reports were 27405, 27354, 26909, 26590, 26343 and 25591, and included eight Findings. Five of the eight (62.5%) Findings had been entered into CRRS. The three Findings that could not be identified in CRRS were:

- OA 25591 – "A number of discrepancies with SGRP's implementation of PRC-RD-SH-11258, Confined Space, were identified."
- OA 26343 (second finding) – "PRC-FMP-09-42242-R0 had not been incorporated into Essential Drawings H-2-833482, Sheets 1 and 2, and H-2-833493, Sheets 1 and 2, within 30 calendar days of completion of the FMP." The FR considers the corrective actions implemented for the first finding in the report would have also addressed this finding, but this finding or its correction were not documented in any way.
- OA 26909 – "Portions of the dump truck that cross the CA boundary were not surveyed prior to removal."

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-GPP-001-F03

SGRP CRRS Extent of Condition Evaluations were often inadequately documented and/or conducted for Adverse Conditions and Significant Conditions. [OA 28316]

Requirement:

PRC-PRO-QA-052, Appendix B, Extent of Condition Evaluation, states in part, "For Adverse Conditions, evaluate the following: Could this identical condition occur (or be occurring) in another part of the affected project, facility or process?...Could a similar condition occur (or be occurring) in another CHPRC project, facility, or process?...A summary statement of the evaluation in the 'Extent of Condition' text field is sufficient. For Significant Issues and/or DOE 470.2B CRs: Provide an answer to each bullet used for the Adverse Conditions extent of condition evaluation in the 'Extent of Condition' field and identify the person making the evaluation. A management assessment may be utilized for the extent of condition review; in such cases attach the assessment."

Discussion:

While reviewing CRs associated with OA reports the FR identified a CR that had been categorized as an Adverse Condition and identified a deficiency that could have application beyond SGRP, but did not identify a similar condition could occur on other projects in the Extent of Condition Evaluation. Based upon this the FR reviewed the twelve SGRP CRs (CR-2009-0798, 0848, 0882, 1323, 1325, 1677, 1997, 2200, 2246, 2251, 2319 and 2345) categorized and processed as Adverse Conditions since July 1, 2009, for similar discrepancies. The following discrepancies were identified:

- CR-2009-0848 identified a condition where the SGRP operating procedure restricted use validation process being implemented via PRC-PRO-WKM-12115 processes compromised conduct of operations requirements. The project adequately identified a potential extent of condition issue on their own project and addressed it in their corrective action(s). However, other CHPRC projects also potentially perform restricted use validations for operating procedures. Therefore the potential existed that other projects could have the same or similar deficient condition. Yet neither the extent of condition evaluation discussion, nor the CR corrective actions identified any potential issue or action at other projects.
- CR-2009-0882 identified a condition where Modification Impact Reviews were not being placed in work packages as required by PRC-PRO-WKM-12115. The project adequately identified a potential extent of condition issue on their own project and addressed it in their corrective action(s). However, most CHPRC projects perform modifications and associated Modification Impact Reviews. Therefore the potential existed that other projects could have the same or similar deficient condition. Yet neither the extent of condition evaluation discussion, nor the CR corrective actions identified any potential issue or action at other projects.

- CR-2009-1323 identified a condition where vehicle racks failed during use. The project adequately identified a potential extent of condition issue on their own project and addressed it in their extent of condition review (although not specifically in their designated corrective action). However, it is probable that other CHPRC projects use the same truck racks (as well as MSA and other Hanford Site contractors). Therefore the potential existed that other projects could have the same or similar deficient condition. Although the Analysis Results stated the issue was discussed with Hanford Site Motor Carrier Services personnel neither the extent of condition evaluation discussion, nor the CR corrective actions identified any potential issue or action at other projects.
- CR-2009-2246 identified a condition where an inadequate extraction well drawing led to identification of energy in the work area during a lockout/tagout safe condition check. The extent of conditions review stated the same condition existed for other HR-3 extraction well drawings, but made no mention of reviews of extraction well drawings for any of the other SGRP Pump and Treat facilities. Corrective actions designated did not extend beyond HR-3 either.
- CR-2009-2251 identified a condition where SGRP Essential Drawings were not being maintained current per CHPRC requirements. The project adequately identified a potential extent of condition issue on their own project and addressed it in their corrective action(s). However, most CHPRC projects perform modifications that require drawing revisions. Therefore the potential existed that other projects could have the same or similar deficient condition. Yet neither the extent of condition evaluation discussion, nor the CR corrective actions identified any potential issue or action at other projects.

The FR also performed a review of the four CRs (0711, 1669, 1673, and 1674) categorized as Significant Issues for similar discrepancies. One issue was identified:

- CR-2009-0711 identified an event where hot soil was ejected from a drilling core barrel. Although the condition had minimal application to other Hanford work groups/activities a lesson learned was submitted to the site lessons learned system (HILLS). However, the extent of condition review documented did not discuss whether the issue had application elsewhere at SGRP or CHPRC.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-GPP-001-F04

SGRP could not demonstrate which personnel had conducted apparent cause analyses for CRRS Adverse Conditions and could not demonstrate for those instances where the apparent cause analyst was known that the individual met designated training requirements. [OA 28316]

Requirement:

PRC-PRO-QA-052, Section 1.3, states in part, "Personnel facilitating Apparent and/or Root Cause Analyses are required to take the following courses, as applicable, before performing analyses: Note: The Issues Management organization can grant equivalencies in accordance with PRC-PRO-TQ-179, Obtaining Training Equivalencies, Waivers, and Extensions...Apparent Cause Analysis, 604216 Acceptable Equivalent courses are: Understanding Apparent Cause Analysis (#004215) and Implementing Apparent Cause (#004216) OR Apparent Cause Analysis and Corrective Action Development (#357011)."

Discussion:

The FR reviewed SGRP's twelve Adverse Condition CRs (2009-0798, 0848, 0882, 1323, 1325, 1677, 1997, 2200, 2246, 2251, 2319, and 2345) processed since July 1, 2009, to determine whether personnel conducting associated apparent cause analyses had completed training designated as necessary to perform the function. The following discrepancies were identified:

- The individual(s) who conducted the causal analysis was not designated on the CR form. An assignee was listed, but it could not be determined if the assignee was who conducted the causal analysis, and therefore adequate training of the analyst could not be verified. For eight of the twelve CRs reviewed, training records indicated assigned personnel had not completed required analysis training.
- A record of SGRP personnel who had been granted training equivalencies could not be readily produced by personnel responsible to assure trained individuals were conducting causal analyses.
- In one instance (CR-2009-2246) the causal analysis method utilized was not documented.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-GPP-001-F05

Not all fields of Event Reports (Site Form A-6004-756, Rev 2) reviewed had been completed as directed. [OA 28169]

Requirement:

CHPRC Instructions for Completing the Event Report (Site Form A-6004-756 Rev 2) states, "All fields on the Event Report are to be completed except the Case No. which will be completed by your case management specialist (CMS)."

Discussion:

The FR reviewed five Event Reports (Case Numbers 20524, 20535, 20551, 20594, 20596) from November and December 2009. The content of each report was adequate to understand the injury, how and why it occurred, and in most cases what actions were recommended and/or performed to prevent recurrence, but several of the site form fields (primarily associated with cause and prevention) were not completed:

- “Accident Causes: A. Conditions (Causing and/or Contributing to Event)” was not completed on Report 20596.
- “Accident Causes: C. Factors or Error Precursors Influencing A or B” was not completed on Reports 20551, 20594 and 20596.
- “Prevention - Action taken (Describe measure taken to prevent a similar event)” was not completed on Report 20594.
- “Prevention - Actions recommended (Describe corrective actions that are planned)” was not completed on Reports 20524 and 20594.
- “Planned Completion Date” was not completed on Reports 20524, 20535, 20551 and 20594.
- “Was AJHA or other form of hazard analysis performed on the job?” was not completed for Report 20596.
- “Apparent Cause Code (See DOE M 231.1-2, Section 11, Occurrence Reporting Model and Causal Analysis Tree)” was not completed for Reports 20524, 20551, and 20596.
- An Occupational Safety and Health signature was not present on Report 20551.
- A Witness signature was not present on Report 20524 when a witness had been identified in the “Witnesses Names” field.

RL Lead Assessor Closure Required: YES [X] NO []

Observation: S-10-OOD-GPP-001-001

Opportunities for Improvement were available for Track Until Fixed issue extent of condition evaluations. [OA 28316]

Discussion:

Since August 25, 2009, the FR has either rejected or withheld approval of four closure packages for issues identified by RL that required RL closure. To their credit SGRP identified the negative trend and submitted a CR (2009-1824) to identify it. SGRP developed and implemented corrective actions that have led to success in obtaining RL closure approval since that time. However, the actions designated centered on providing special handling to CRs requiring RL closure rather than addressing what was causing the rejections and what wider-scope CRRS weaknesses the rejections may have been indicating. For instance the FR noted a common theme that adequate extent of condition evaluations/actions were not being documented and/or performed for deficient conditions identified. In looking at the four rejected CRs the FR determined they were all categorized as Track Until Fixed issues. Per PRC-PRO-QA-052, Section 3.3.2, an Extent of Condition field entry was not required, but that did not relieve the project of the responsibility to correct deficient conditions and prevent their recurrence. The FR looked at SGRP Track Until Fixed issues that had recently been analyzed and reviewed corrective actions specified. The following examples of opportunities for improvement in addressing extent of conditions were identified:

- CR-2009-2243 identified an instance of hot work permit requirements not being followed at a drill site. The corrective action addressed only the specific instance although each drill site conducts work in accordance with hot work permits.
- CR-2009-2241 identified an instance where an ion exchange vessel resin change-out activity at KX was not conducted strictly in accordance with the operating procedure. The corrective action addressed only modifying the KX procedure, and did not evaluate other Pump and Treat operating procedures.
- CR-2009-2015 identified an instance where a Radiological Control Technician (RCT) missed a training cycle because it had been left off his training plan. The corrective action had the RCT take the training and updated only the specific RCTs training plan. It did not document consideration of other like instances.

The FR recognizes more may have been done than specified on the CR, but if so, the additional actions were not being documented.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-ODD-GPP-001-002

Several discrepancies were identified in Critique/Investigation Reports S&GRP-2009-005 and 007. [OA 28264]

Discussion:

The following discrepant conditions were identified in Critique/Investigation Reports:

- PRC-PRO-EM-058, Section 3.3.7, states in part, “Document the following information on the Critique/Investigation Report Form...Critique Meeting Date and Time...” Critique/Investigation Report S&GRP-2009-005 erroneously documented the critique meeting/report date as September 26, 2009. The critique occurred on September 28, 2009. Critique/Investigation Report S&GRP-2009-007 erroneously documented the critique meeting/report date as December 9, 2009. The critique occurred on December 14, 2009.
- PRC-PRO-EM-058, Section 3.3.10, states, “Issue the Critique/Investigation Report within five working days of the conclusion of the meeting.” Critique/Investigation Report S&GRP-2009-005 was approved/issued on October 15, 2009, eleven working days after the conclusion of the meeting.

RL Lead Assessor Closure Required: YES NO

Good Practice: Increased emphasis on management oversight and CRRS process use allows project management to better trend issues being identified on the project. [OA 28541]

For the past approximately four months the FR has identified an increased emphasis on management oversight of work processes and activities (including increased instances of field oversight) and utilization of CRRS to aid SGRP senior managers in identifying issues and trends on the project. In April-June 2009, the project averaged approximately 9 CRs being screened per month. In July-September 2009, the average increased to 22 CRs screened per month, and in October-December 2009, the entries again increased to an average of approximately 33 CRs screened per month. Although this represents more deficiencies being identified on the project, it also indicates a more aggressive identification, analysis, and correction environment that should accelerate arrival at best in class performance levels.

In addition, in November 2009, the SGRP senior management team instituted a biweekly meeting that concentrates specifically on continuous improvement. OAs, ORPS reports, SAC reports, CRs, NCRs, employee concerns/communications, Integrated Evaluation Plan (IEP) assessment activities, and training issues since the last meeting are reviewed and their contribution to overall trends discussed.

Contractor Self-Assessment:

In addition to the self-assessment process discussed in the above Good Practice, the FR reviewed other specific oversight activities directed at continuous improvement processes. The following were identified:

- Voluntary Protection Program annual assessment of July 2009 (Letter CHPRC-0900548), reviewed limited aspects of safety data trending and analysis and safety and health program self-evaluation.
- The Phase II ISMS Readiness activity (CHRPC Letter NBG-LTR-017, dated November 20, 2009) looked at the use of CRRS and trending and analysis processes at a company level, but reviewed individual project activities also.
- A project requested Independent Assessment (CHPRC-PO-IA-09-09 from September 2009) specifically reviewed Issues Management and identified no significant issues.
- QPA-PO-SURV-09-008 of May 2009, evaluated the effectiveness of corrective actions implemented from previous reviews in the area of Conduct of Operations.
- Work Site Assessment (WSA) SGRP-2009-WSA-016 also performed an effectiveness review of corrective actions to address issues identified in a 2008 conduct of operations review.
- SGRP-2009-WSA-14 reviewed management systems at SGRP, in preparation for the ISMS Phase II reviewed. Issues management was minimally addressed in that review.
- Each project is evaluated and graded frequently with metrics measuring their adherence to PRC-PRO-QA-052 process deadlines. The project was graded “Yellow” (5-10% delinquent) per a February 1, review of the CRRS project scorecard and “Blue” (no delinquencies) on the 45-day cycle time scorecard. A number of quantitative analyses were available and updated on an ongoing basis.

No other planned or performed IEP activities specifically address corrective action/issues management, but as discussed in the Good Practice ongoing analysis and tracking was occurring for the biweekly continuous improvement meetings. It appeared adequate numbers of reviews were occurring, but based upon the issues identified in this report, it appears opportunities for improvement in identifying issues were available.

Contractor Self-Assessment Adequate: YES [X] NO []

Management Debriefed:

B Barmettlor, CHPRC
A Foster, CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: DC Humphreys, DH Splett

Surveillance Number: S-10-OOD-SNF-001

Date Completed: January 27, 2010 (Revised Feb 4, 2010)

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: 100K (100K Min Safe and 100K Area Decommissioning & Demolition (D&D))

Title: Feedback & Continuous Improvement Corrective Action Management

Guide: Lines of Inquiry Established in Core Surveillance Guide MSS 1.3, Feedback & Continuous Improvement Corrective Action Management (CAM)

Surveillance Objective/Scope:

The objective of this surveillance is at the Project level, to verify the contractor has implemented an integrated process that makes use of available feedback information to drive continuous improvement with the eventual goal of institutionalizing the attributes of a High Reliability Organization. Specifically, this surveillance will evaluate if contractor personnel are effectively managing environment, safety, quality, and health issues. The surveillance will also examine the effectiveness of the contractor's management/self-assessment process and corrective action management system. The activities included in this surveillance help determine whether issues identified through internal and external evaluation programs are resolved consistent with the level of importance. The surveillance further verifies continuous improvement programs are in place and functional.

The scope of this surveillance as described in Surveillance Guide MSS 1.3 is:

Activity 4 - Event Reporting

This activity will verify contractor management implemented programs and processes to identify, investigate, report, and respond to operational events and incidents, injuries and

illnesses, and quality problems. This activity will also verify the contractor identifies, controls, and corrects items, services, and processes that do not meet requirements.

Activity 5 - Issue Management

This activity will verify the contractor implemented a formal process to evaluate the quality and usefulness of feedback, and track to resolution performance, quality, and safety issues and associated corrective actions. This activity will also verify the contractor identifies causes of problems to prevent recurrence.

This surveillance includes the KE D&D (D4) and 100K Minimum Safe organizations along with the applicable D&D Project support organizations such as Engineering, Radcon, and Safety/Health/Quality Assurance (100K Project).

Surveillance Summary:

The FRs conducted a CAM (Issues Management) core specific for the 100K Project. Overall no major issues were identified with process implementation. However, there were significant issues identified relating to one event. The following provides more information relative to the surveillance.

Activity 4 – Event Reporting:

100K has implemented and follows CHPRC Level 1 procedures (listed below) for issue identification and reporting, analyzing and addressing operational events, accidents, and injuries.

- PRC-PRO-QA-05, *Issues Management*,
- PRC-PRO-EM-058, *Event Initial Investigation Critique Meeting Process*,
- PRC-PRO-EM-060, *Reporting Occurrences and Processing Information*,
- PRC-PRO-SH-077, *Reporting, Investigating, and Managing Health, Safety, and Property/Vehicle Events*.

The Facility Representatives (FRs) reviewed Operational Awareness reports (OAs) covering July 1, 2009, through January 21, 2010. Issues (findings and observations) were identified in nineteen of the OAs generated during that period. The 100K Project issued a corresponding Condition Report (CR) for eighteen of the nineteen OAs (attached to this surveillance). The FRs reviewed the corresponding CRs and determined:

- Sixteen of nineteen conditions promptly identified
- Eighteen of nineteen corrected as soon as practicable
- Two of nineteen have open items; only one is overdue (Action #2, CR-2009-2087).
The action has been completed but the CR has not been updated

The one OA (OA 27293, dated 11/19/2009) was conducted by an FR not assigned to the 100K Project during a Work Control and Planning Core Surveillance and resulted in an

observation relating to a lack of Corrective Actions regarding extent of condition. The 100K Project FR discussed this single occurrence with the Facilities Operations Manager and an Operations Specialist.

The FR analyzed the reports covering the period from July 1, 2009, through January 21, 2010 for trends. Other than the issues identified in the Master Oversight Plan there were no significant trends identified.

The FR reviewed the following reports, associated CRs, and associated investigation/critique reports (including the causal analysis where applicable):

- Occurrence Reporting and Processing System (ORPS) Reports:
 - EM-RL—CPRC-SNF-2009-0007 – Contaminated material discovered outside of contamination area at 1706KE.
 - EM-RL—CPRC-SNF-2009-0008 – Load Securement (PVC pipe) event at 1706-KEL Facility at 100K Area.
 - EM-RL—CPRC-SNF-2009-0009 – Contamination found at 118-K-1 Waste Load-out Queue at 100K Area.
 - EM-RL—CPRC-SNF-2009-0011 – Discovery of contamination on Boot of Worker Performing Surveys at 105 KE RBA.

- Critique/Investigation Reports:
 - 09-100K-IR001- Stop Work Issued by Electrical Utilities (EU) Regarding Dumping of Gravel Near 230KV Line.
 - 09-100K03-0008 – Load Securement event at 1706-KEL Demolition Site.
 - 100K Project Event Initial Investigation Report – D4 High Pressure Pump Failure.
 - Human Performance Improvement (HPI) Event Report – D&D Project - Respirator Flow Manipulation at 105KW.

- Injury Reports
 - Insect Bite – Self Treat
 - Paper cut – Self Treat
 - Scratch on arm – Self Treat
 - Thumb strain – Sent to AMH for evaluation
 - Minor head wound – Sent to AMH for evaluation

No issues with the ORPS events; all events were promptly reported and investigated following the process described in PRC-PRO-EM-058 and 060. CRs were generated for all four ORPS events reviewed.

No issues with the critique/investigation reports for the EU Stop Work or Load Securement Event. The associated events were promptly reported and investigated and captured in a CR.

No issues with the causal analysis performed for the OPRS events or the EU Stop Work and Load Control events.

The D4 High Pressure Pump Failure event was captured in a CR and an initial investigation conducted. A review of the initial investigation indicates that a thorough investigation was conducted. No issue with the investigation and results. However, there was significant time delay between the event and initial investigation which was not addressed in the investigation. (S-10-OOD-SNF-001-O01)

The FR reviewed the HPI Event Review Report and the CR (CR-2009-1893) for the Respirator Manipulation Event. The HPI report was inclusive as to the apparent cause of the event. The apparent cause of the event is a key piece in determining if 1) the immediate actions were sufficient and 2) the recommended opportunities for improvement or corrective actions. In fact the only corrective action generated was the action to conduct the HPI event review. Subsequent to the HPI event review, 100K Project Management determined that a formal critique was not required. The report though detailed regarding the discovery and notification; provided little information concerning the events preceding the discovery and was unable to determine an apparent cause. Essentially information obtained from the HPI event review (initial investigation) was not sufficient to fully understand the event, and/or determine if the immediate actions were adequate. As a result the determination to not conduct a formal critique was contrary to the guidance provided in Appendix A to PRC-PRO-EM-058 (S-10-OOD-SNF-001-O02). The 100K Project, subsequent to the determination not to hold a formal critique, did not document all of the information required by PRC-PRO-EM-058, Section 3.1.7 (S-10-OOD-SNF-001-O03). PRC-PRO-EM-058, section 3.1.7 describes the steps to take regarding the determination not to conduct a formal critique and provides the listing of the minimum information required. The CR appears to be document chosen to capture the above required information however, without the apparent cause not all of the required information was provided.

No issues with the injury reports. All reports reviewed met the requirements of PRC-PRO-SH-077.

Activity 5 – Issue Management:

The FR reviewed eleven CRs covering a period of time from October 28, 2009, through January 12, 2010. Each CR was evaluated to determine compliance with CR processing requirements as contained in PRC-PRO-EM-052. Below is a list with results of the CRs reviewed:

- CR-2010-0080 – Actions 4 and 5, due 1/15/2010, are not complete.
- CR-2010-0076 – CR assigned on 1/15/2010, screened as Opportunity for Improvement (OFI); as of 1/26/2010 no determination or made as to actions needed.
- CR-2010-0050 – CR assigned on 1/11/2010, screened as OFI; no determination made as to actions needed.

- CR-2010-0039 – CR assigned on 1/11/2010, screened as OFI, no determination made as to action needed.
- CR-2010-0026 – No issues.
- CR-2010-0024 – CR assigned 1/6/2010, screened as Track Until Fixed (TUF); issue with significance level. See discussion below
- CR-2010-0018 – No issues.
- CR-2009-2433 – No issues.
- CR-2009-2417 – No issues.
- CR-2009-2410 – No issues.
- CR-2009-2009 – No issues.
- CR-2009-1893 – See the following discussion.

CR-2009-1893 captured an event concerning the discovery of two MSA Optim Air TL Powered Air Purifying Respirators (PAPRs) with the combination cartridge switch taped in the down position. The CR significance level was determined to be Track Until Fixed. The CR stated in Significant Level Justification the following: “The stated condition represents a non compliance with the requirements of PRC-PRO-SH-120 *“Respiratory Protection Program”* section 6.1.2 which states, “Only NIOSH certified respirators may be used and they must be used in compliance with the conditions of their certification (29CFR1910.134. (d)(1)(ii).” The subject condition for this usage did not result in an adverse condition. The condition will require corrective actions be taken to address. This CR will track to closure the associated actions for addressing the subject condition.” The decision to use the TUF designation appears to be based on one of the three bullets which states “Non compliance with requirements that did not result in an adverse condition.” However, even though in this case the result was not adverse to the individuals wearing the tampered PAPR this type of event is adverse to good conduct of operations and the cause was not readily identifiable, therefore should have been reported as an adverse condition. Tampering with Personnel Protective Equipment is a serious event which is above a Track Until Fixed CR (**S-10-OOD-SNF-001-F01**). Significance Level of Adverse Condition would have required an apparent cause determination.

As described in the “Significant Level Justification” and the Action #1, “Action Taken or Closure Requirements” sections there was an expectation that actions would be generated and captured based on the results of the investigation (HPI event review) this did not take place. As a result no corrective actions were documented in CR-2009-1893 that would prevent or mitigate a recurrence of the event (**S-10-OOD-SNF-001-O04**).

A recent issue identified at U-Plant regarding the use of receptacles that negate their 3R weatherproof rating. This issue was related to Spider Box issues identified at 100K. A re-evaluation of the associated spider box CRs led to the following:

Both CRs addressed an issue related to the use of Spider Boxes that negate their 3R Rating. The CRs were both identified as Significance Level “Track Until Fixed” and both identified an issues that did not represent a non-compliance. The use of the devices that invalidates or negates their 3R rating is a NEC non-compliance (406.8, Receptacles in Damp or Wet Locations and 551.78 (A)). The identified issues are also non-

compliance with 29 CFR 1910.303 (b)(2) which states, "Listed or labeled equipment shall be installed and used in accordance with any instructions included in the listing or labeling." There is a potential shock issue related to using devices such as plugs and receptacles in a wet or damp environment when their weather rating has been negated. This is the identification of a condition that could be considered an adverse condition. As a minimum as defined in PRC-PRO-QA-052; these two CR should have been given at least a significance level of "adverse condition." Both issues were conditions of non-compliance. (S-10-OOD-SNF-001-F02)

The FR as stated in Activity 4 evaluation reviewed nineteen OAs that identified issues in the form of findings and/or observations. As stated previously the 100K Project generated a corresponding CR for all but one. The FR evaluated the associated CRs to determine if the contractor was processing the CRs in accordance with the requirements as set forth in PRC-PRO-EM-052. No issues noted.

This surveillance resulted in the following finding and four observations:

S-10-OOD-SNF-001-F01	CR-2009-1893 was incorrectly categorized as a Track Until Fixed CR.
S-10-OOD-SNF-001-F02	Incorrect Significance Level for CRs-2009-0024 and 0412
S-10-OOD-SNF-001-O01	There was significant time delay between the event and initial investigation.
S-10-OOD-SNF-001-O02	The determination to not conduct a formal critique was contrary to the guidance provided in Appendix A to PRC-PRO-EM-058.
S-10-OOD-SNF-001-O03	The 100K Project, subsequent to the determination not to hold a formal critique, did not document all of the information required by PRC-PRO-EM-058, Section 3.1.7.
S-10-OOD-SNF-001-O04	No corrective actions were documented in CR-2009-1893 that would prevent or mitigate a recurrence of the event.

Surveillance Results:

Finding: S-10-OOD-SNF-001-F01

CR-2009-1893 was incorrectly categorized as a Track Until Fixed CR.

Requirement:

PRC-PRO-QA-052, Table 1: Adverse Condition - An adverse event or condition in which the cause is not readily identifiable. These are usually associated with a non-compliance, or a failure to meet a requirement resulting in actual impacts to project or mission.

Discussion:

The CR stated in Significant Level Justification the following: "The stated condition represents a non-compliance with the requirements of PRC-PRO-SH-120 "*Respiratory Protection Program*" section 6.1.2 which states, "Only NIOSH certified respirators may be used and they must be used in compliance with the conditions of their certification (29CFR1910.134 (d)(1)(ii)." The subject condition for this usage did not result in an adverse condition. The condition will require corrective actions be taken to address. This CR will track to closure the associated actions for addressing the subject condition." The decision to use the TUF designation appears to be based on one of the three bullets which states, "Non compliance with requirements that did not result in an adverse condition." However, even though in this case the result was not adverse to the individuals wearing the tampered PAPR this type of event is adverse to good conduct of operations and the cause was not readily identifiable, therefore should have been reported as an adverse condition. Tampering with PPE is a serious event which is above a Track Until Fixed CR. Significance Level of Adverse Condition would have required an apparent cause determination.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-SNF-001-F02

Incorrect Significance Level for CRs-2009-0024 and 0412.

Requirement:

PRC-PRO-QA-052, Table 1: *Adverse Condition* - An adverse event or condition in which the cause is not readily identifiable. These are usually associated with a non-compliance, or a failure to meet a requirement resulting in actual impacts to project or mission.

Discussion:

Both CRs addressed an issue related to the use of Spider Boxes that negate their 3R Rating. The CRs were both identified as Significance Level "Track Until Fixed" and both identified an issues that did not represent a non-compliance. The use of the devices that invalidates or negates their 3R rating is a NEC non-compliance (406.8, Receptacles in Damp or Wet Locations and 551.78 (A)). The identified issues are also non-compliance with 29 CFR 1910.303 (b)(2) which states, "Listed or labeled equipment shall be installed and used in accordance with any instructions included in the listing or labeling." There is a potential shock issue related to using devices such as plugs and receptacles in a wet or damp environment when their weather rating has been negated. This is the identification of a condition that could be considered an adverse condition. As a minimum as defined in PRC-PRO-QA-052; these two CR should have been given at least a significance level of "adverse condition". Both issues were conditions of non-compliance.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-SNF-001-001

There was significant time delay between the event and initial investigation.

Discussion:

The initial investigation report identified Friday, 7/10/09, as the pump failure date. Management was notified of the event on Monday, 7/13/09. It was not until 7/20/09, that a trained investigator was assigned and the initial investigation meeting was not convened until 7/23/09. This amounted to a 13 day delay. The expectation is that the initial investigation will be conducted as soon as possible following event discovery.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-SNF-001-002

The determination to not conduct a formal critique was contrary to the guidance provided in Appendix A to PRC-PRO-EM-058.

Discussion:

The HPI report was inclusive as to the apparent cause of the event. The apparent cause of the event is a key piece in determining if 1) the immediate actions were sufficient and 2) the recommended opportunities for improvement or corrective actions. In fact the only corrective action generated was the action to conduct the HPI event review. Subsequent to the HPI event review 100K Project Management determined that a formal critique was

not required. The report though detailed regarding the discovery and notification; provided little information concerning the events preceding the discovery and was unable to determine an apparent cause. Essentially information obtained from the HPI event review (initial investigation) was not sufficient to fully understand the event and/or determine if the immediate actions were adequate. As a result the determination to not conduct a formal critique was contrary to the guidance provided in Appendix A to PRC-PRO-EM-058.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-SNF-001-O03

The 100K Project, subsequent to the determination not to hold a formal critique, did not document all of the information required by PRC-PRO-EM-058, Section 3.1.7.

Discussion:

Section 3.1.7 requires the following listed minimum information if a formal critique is determined not to be required:

- What happened
- Date and Time
- Location
- How did it happen (apparent cause)
- Immediate actions taken
- Current Conditions
- Path forward
- Point of Contact

PRC-PRO-EM-058, section 3.1.7 describes the steps to take regarding the determination not to conduct a formal critique and provides the listing of the minimum information required. The CR appears to be document chosen to capture the above required information however, without the apparent cause not all of the required information was provided.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-SNF-001-O04

No corrective actions were documented in CR-2009-1893 that would prevent or mitigate a recurrence of the event.

Discussion:

As described in the “Significant Level Justification” and the Action #1, “Action Taken or Closure Requirements” sections there was an expectation that actions would be generated and captured based on the results of the investigation (HPI event review) this did not take place. As a result no corrective actions were documented in CR-2009-1893 that would prevent or mitigate a recurrence of the event.

RL Lead Assessor Closure Required: YES [] NO [X]

Contractor Self-Assessment:

The FRs reviewed the IEP for the 100K Project/Decommissioning and Demolition Project for FY 2009 and FY 2010. The actual period of concern is the last quarter in FY 2009 and the first and second quarter of FY 2010. In FY 2009 there was one CAM Management Assessment (100K-MGT-09-MA-03) performed in the first quarter. No CAM (Issue Management) self assessments were conducted during the period of concern. There were several related assessments conducted between the last quarter of FY 2009 and the first/second quarters of FY 2010 listed below:

- 100K-2009-WSA-003
- 100K-2009-WSA-008
- 100K-2010-WSA-018
- D&D-2010-WSA-121
- D&D-2010-WSA-122

There are several CAM/Issue Management feedback and improvement assessments scheduled for FY 2010. There was an independent assessment conducted for the D&D Project in FY 2010 (CHPRC-PO-IA-10-01). Based on the above the FRs consider the self-assessment adequate.

Contractor Self-Assessment Adequate: YES [X] NO []

Management Debriefed:
S.P. Burke

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillants: SL Dickinson, ED MacAlister and SL Trine

Surveillance Number: S-10-OOD-PFP-002

Date Completed: March 5, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Plutonium Finishing Plant (PFP)

Title: Corrective Action/Issue Management

Guide: Management Systems Surveillance 1.3

Surveillance Scope:

The objective of the 2010 corrective action management (CAM) surveillance was to verify the contractor has an integrated process that makes use of available feedback information to drive continuous improvement with the eventual goal of institutionalizing the attributes of a High Reliability Organization. Specifically, this surveillance evaluated if contractor personnel are effectively managing environment, safety, quality, and health issues. The surveillance will also examine the effectiveness of the contractor's management/self-assessment process and system. The activities included in this surveillance help determine whether issues identified through internal and external evaluation programs were resolved consistent with the level of importance. The surveillance further verified continuous improvement programs are in place and functional. Many of the surveillance activities described in the January 2010 version of Surveillance Guide MSS 1.3 Feedback & Continuous Improvement Corrective Action/Issue Management were performed by personnel other than the PFP Facility Representatives (FRs). This surveillance report covers the activities performed by the PFP FRs.

Surveillance Summary:

The FRs determined that when viewed broadly, implementation of the CAM process at PFP was compliant with requirements. During the surveillance period the FRs observed the conduct of critiques and post job reviews. The FRs also observed a number of causal analysis/corrective action development meetings. No surveillance issues were identified about investigations or causal analysis.

The surveillance included a qualitative evaluation of PFP operational awareness (OA) reports to look for trends. One finding about work planning/work management was identified from the evaluation. An evaluation of injury reports was completed. Three findings and one good practice were identified from the injury report review. The FRs evaluated the application of the CAM process to OA reports and significant events. Two findings and two opportunities for improvement (OFIs) were identified. A third finding not directly related to the CAM review was identified during a work package review related to a significant event and an OA report. Records in the CHPRC Condition Reporting and Resolution System (CRRS) were reviewed with an emphasis on compliance with requirements, adequacy of information, broader scope/extent of condition reviews and verification that issues were being processed through the system. One compiled observation was identified based on review of CRRS and the OA database. The seven findings, one compiled observation and one good practice identified are summarized in bullets below.

- **S-10-OOD-PFP-002-F01** – Inadequate work control and planning has led to adverse conditions at PFP.
- **S-10-OOD-PFP-002-F02** – Permanent installation of an all season water supply for the decontamination trailer was not timely.
- **S-10-OOD-PFP-002-F03** – An initial workability walk down was not recorded in the work record.
- **S-10-OOD-PFP-002-F04** – Job hazard analysis information was not included in a work package.
- **S-10-OOD-PFP-002-F05** – Incomplete job hazard analysis was noted in event reports.
- **S-10-OOD-PFP-002-F06** – Event reports were not complete.
- **S-10-OOD-PFP-002-F07** – One event investigation did not include applicable laboratory analysis results.
- **S-10-OOD-PFP-002-O01** – Review of recent CRRS and OA reports identified several opportunities for improvement.
- **Good Practice** – The internal database used for PFP injury reports is a useful tool.

Surveillance Results:

Finding: S-10-OOD-PFP-002-F01

**Inadequate work control and planning has led to adverse conditions at PFP.
(MAINT-PLNG, ISMS-WORK & QA- WORKPR)**

Requirement(s):

DOE Order 414.1C Attachment 2 Section 3.c. (3) states, "Identify, control and correct items, services, and processes that do not meet established requirements."

DOE Order 414.1C Attachment 2 Section 3.e. (1) states, "Perform work consistent with technical standards, administrative controls, and hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc."

Discussion:

A review of the OA database for the past six months found the following adverse conditions that were associated with weaknesses in work planning/work management. The compilation of these was judged by the FRs to be a negative work management trend.

A continuous air monitor (CAM) alarm sounded while removing cabinets from room 174. This CAM alarm caused the entire backside of 234-5Z to become an Airborne Radioactivity Area (ARA). Most Decommissioning & Demolition (D&D) work teams lost a day of work because of the CAM Alarm. During removal of the second of eight cabinets, high levels of radioactive contamination were exposed. This contamination exposure caused the CAM to alarm. A recovery plan was developed to clean up the contamination, remove two blanks from E-4 ducting and installation of High-Efficiency Particulate Air (HEPA) filters to get better air flow in room 174. Following installation of the HEPA filters the room dampers were adjusted to get air flow into room 174 from corridor 6. Per the OA report, a PFP D&D manager stated he believed the planning for the cabinet removal had failed to comprehensively address the hazards associated with removal of the cabinets. See OA-25848 for more information.

OA-26394 was associated with not maintaining ZSP-006 consistent with existing facility configuration. The OA author judged the ZSP-006 configuration control problem to be a significant safety issue. The OA documented that it was the third time in less than a six month period that the FR had been aware of errors in ZSP-006. Work planning had not captured changing facility configuration at PFP.

On October 30 the 234-5Z ventilation system shut down unexpectedly during execution of an annual breaker maintenance Preventive Maintenance. A planned transfer from normal to back-up power caused an interruption in power supplied to the seismic shut-down system relays. The Uninterrupted Power Supply (UPS) system that normally would have prevented the power interruption was in the bypassed position. The bypass had been put in place and left in anticipation of completion of the deactivation of the seismic shut-down system. Deactivation of the seismic shut-down required a ventilation outage. Some engineering or operations personnel may have been aware that bypass of the seismic shut-down system UPS during the transfer from normal to back-up power would cause the loss of the ventilation system. However, this was not comprehensively communicated. As a result workers and managers on shift that day did not expect the

ventilation outage and required procedure revisions had not been made. See OA-26824 and OA-27799 for more detail about the loss of ventilation event.

OA-27828 documented the loss of 234-5Z supply fans during the removal of an abandoned steam turbine control panel. A critique was conducted and follow-up investigation found that a sensing line associated with the new turbine control panel had been connected to the old control panel, which was not shown on facility drawings and was not picked up during walk down conducted during work planning. Drawings from 1991 indicated the old steam turbine control panel had been removed from the facility, which was not the case. When it was recognized the current configuration did not reflect the most recent drawings, more diligence and attention to detail during planning should have been practiced to verify there were no cross connections between the active control panel and the one to be removed.

OA-28801 records an attempt to use temporary power non-compliantly at PFP. Temporary power was going to be used as part of an electrical upgrade to supply multiple receptacles for charging PAPR batteries in the new mask issue room at 234-5Z (room 209). A temporary load center was going to be used to provide power to permanently installed receptacles. The use of temporary power was questioned by PFP electricians and was casually evaluated by a Hanford Site National Electrical Code (NEC) inspector. The inspector verbally informed PFP management that the use of temporary power was not compliant with the NEC. Subsequently, the Facility Modification Package covering work package (2Z-09-5946) was revised remove the temporary load center.

OA-28647 briefly documents issues that were identified per assessors during the Integrated Safety Management System (ISMS) Phase II Assessment. A review of the work package (2Z-09-00918) coupled with discussions with engineering, identified that the "wiring list trolley cable" page that was referenced by the package to provide the specific terminal connections is an informal table that is not controlled formally via engineering requirements, nor the work package. In addition, a marked-up vendor drawing and lead lift/land logs are being used to support the work, but are not incorporated as part of the approved work package. These informal documents were not accurate during the initial connections of wiring of the new trolley cable reel, which led to five wires being incorrect connected to the wrong terminal points. It was only after review of video taken during initial disconnecting of old wires in comparison to recorded data on lift/land logs was the discrepancy discovered. Lack of rigor in engineering control documents appears to have caused an additional entry into the highly hazardous Plutonium Reclamation Facility (PRF) canyon to make required repairs.

When compiled together the above adverse conditions indicate a lack of rigor and attention to detail during development of work packages and control of work documents during conduct of work activities. All of the conditions were fairly significant in nature and appear to have been preventable with more attention to detail during work planning activities. Each adverse condition was provided to PFP management individually via OA reports. Actions were taken in response to the adverse conditions. Two of the conditions described above were included in a ventilation system corrective action management plan

(CAP) provided to RL in January 2010. The corrective action evaluation completed in response to this finding should not be focused on the individual conditions. The evaluation should be focused on the collection of adverse conditions and how to improve the work management process to prevent the recurrence of similar conditions.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-PFP-002-F02

Permanent installation of an all season water supply for the decontamination trailer was not timely.

(QA-IMPRV, MAINT-WINTER & ISMS-WORK)

Requirement(s):

DOE O 414.1C Attachment 2, Section 3.c. (2) states, "Identify, control and correct items, services, and processes that do not meet established requirements."

DOE O 414.1C Attachment 2, Section 3.c. (3) states, "Identify the causes of problems, and include prevention of recurrence as a part of corrective action planning."

Discussion:

Concerns about the usability of the PFP decontamination trailer were identified several times in the last four years. Some examples include during a drill in 2005 (See Drill Evaluation Report – EP150), following the CAM alarm in PRF in July 2009, and subsequent Stop Work (see OA-24909 and OA-24662) and in September 2009 (see OA-26224). While not having the decontamination trailer ready for use was an issue prior to June 2009, the loss of use of the decontamination room in 234-5Z following posting nearly all of the backside areas as a contamination area intensified the importance of making the decontamination trailer ready for use in all weather conditions.

During the winter season of 2009-2010, prior to the all season water supply installation, a hose was kept in the decontamination trailer. This hose was to be used to obtain warm water from the shower area in the men's change room in 234-5ZA. The water supply was not permanently winterized until January 2010. The non-compliance identified by this finding is focused on the long time period to complete the permanent winterization. See OA-29006 for more information.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-PFP-002-F03

An initial workability walk down was not recorded in the work record. (QA-DOC, MAINT-ACT & ISMS-WORK)

Requirement(s):

Step 5.2.1.3 in the work instructions for work package 2Z-09-04861 states, “Conduct a workability walk down with personnel performing the work to ensure that the scope of work is understood and that the work package can be worked, as written. Document the initial and each subsequent workability walk down in the Work Package Work Record located in Appendix 1 of this WD (Mandatory).”

Discussion:

Contrary to the requirement in the work instructions, when the FR reviewed the work record she could not find a workability walk down entry. She asked the first line managers (FLMs) who had been assigned to the work package about the entry and was told that a work record entry was not required for the initial walk down. When she read the work requirement quoted below with one of the FLMs, he agreed that the wording did not explicitly exclude the initial walk down. The FR continued to research the workability walk down requirement and was reminded that it was a corrective action for occurrence report EM-RL—CPRC-PFP-2009-0001. This was the occurrence categorized in response to the recognition that an inconsistent understanding of the safe work boundary resulted in the preparation of an inadequate tagout for work in a panel at PFP. One of the closure documents for this corrective action was an email from the planner manager dated July 15, about workability walk downs and post work reviews. See OA-29006 for more information.

This may not be an isolated problem. The FR has noted it at least one time before. There was no workability walk down in the work record for 2Z-09-5238 4100 Manitowoc Crane Assembly. Step 5.2.1 in work instructions for that package had a requirement similar to the one quoted above. This deficiency was not recorded in an OA provided to PFP management. It is mentioned here to communicate the potential for a more widespread misunderstanding about the expected record for the workability walk down.

RL Lead Assessor Closure Required: **YES [X]** **NO []**

Finding: S-10-OOD-PFP-002-F04

Job hazard analysis information was not included in a work package. (QA-DOC, MAINT-HAZID & ISMS-IDHAZ)

Requirement(s):

Section 3.2.1 and Appendix B of PRC-PRO-WKM-079 facilitate the decision to use a Worksite Hazards Analysis or an Automated Job Hazard Analysis for all field work.

DOE O 414.1C Attachment 2 Section 3.d. Management/Criterion 4 – Documents and Records (2) states, “Specify, prepare, review, approve, and maintain records.”

Discussion:

There was a blank form identified as a Work Site Hazard Analysis (WHA) in work package 2Z-09-04861. Based on discussions with a FLM, the analysis was completed but was not inserted into the work package. More information about the work package review is included in OA-29006.

Since issuing OA-29006 to PFP management the FR has become aware that the WHA is not required by CHPRC procedures to be in the work package. However, PFP FRs have previously been told that having WHAs in work packages was a PFP management expectation. The use of the WHA by CHPRC workers was identified as an issue in the ISMS Phase I Verification report. Use of the WHA is included as an opportunity for improvement (HAZ.1-OFI-3) in the draft ISMS Phase II Verification report.

Hazard identification and control information is of limited value if not readily available. Thus, not having the WHA in the work package was judged by the FR to be inconsistent with the ISMS core functions to identify hazards and requirements and to analyze hazards and implement controls. In addition, not requiring a record of the hazard analysis was judged to be inconsistent with quality assurance requirements. Based on ISMS and quality assurance requirements, not including the job hazard analysis information in the work package was identified as a finding.

RL Lead Assessor Closure Required: **YES [X]** **NO []**

Finding: S-10-OOD-PFP-002-F05

Incomplete job hazard analysis was noted in event reports. (QA-DOC, ISMS-IDHAZ)

Requirements(s):

PRC-PRO-SH-077, *Reporting, Investigating and Managing Health, Safety and Property/Vehicle Events*, step 4.1.19 states, "Review and revise as applicable any related Automated Job Hazard Analysis (AJHA) for injuries/illnesses incurred while performing work under the AJHA to ensure controls are established to prevent future injuries or illnesses."

Discussion:

Job hazard identification numbers were not documented in the event reports. No other information was available to demonstrate review of the applicable job hazard analysis. No corrective actions were identified and there were no updated job hazard analysis referenced. Consequently, the FR could not verify that the review for job hazard analysis review and revision was being met. See OA-28616 for more information.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-PFP-002-F06

Event reports were not complete. (QA-DOC, ISMS-WORK & MAINT-HAZID)

Requirement

PRC-PRO-SH-077, *Reporting, Investigating and Managing Health, Safety and Property/Vehicle Events*, step 4.1.24 states, "Assist the employee and supervisor in completing the Event Report, obtain required signatures and submit to CMS."

Event Report form A-6004-756 (Rev2), CHPRC Instructions for Completing the Event Report, states in part, " All fields on the Event Report are to be completed..."

Discussion:

All fields in the Event Reports reviewed were not completed. Examples include AJHA numbers when applicable, employee statements, prevention, and others. See OA-28616 for additional information.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-PFP-002-F07

One event investigation did not include applicable laboratory analysis results. (QA-DOC, QA-WORKPR & ISMS-WORK)

Requirement:

PRC-PRO-SH-077, *Reporting, Investigating and Managing Health, Safety and Property/Vehicle Events*, step 4.1.17 states, "Investigate the event as soon as possible using the graded approach based on severity, complexity, and/or other factors."

Discussion:

During the record review the FR talked with multiple people within the Industrial Safety organization. Based on these discussions, there was no conclusive evidence that if lab work was required in response to the worker injury, the follow through about lab analysis results would be included in the case file. See OA-28616 for more information.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-PFP-002-001

Review of recent CRRS and OA reports identified several opportunities for improvement. (QA-IMPRV, RADCON-RADPRC & ISMS-FEEDBK)

Discussion:

On November 12, during work activities in room 262, the Radiological Work Permit in use was voided when 6000 dpm/100 cm² was found on scaffolding above filter box 9AB. This issue was submitted to CRRS (See CR-2010-0309) on February 9. Discussion with the radiological control manager concluded that the issue had accidentally been overlooked. Submittal of the issue to CAM was not timely and was identified as an OFI.

Review and discussions about filter box 9AB contamination reminded the FR that the PFP FRs were no longer receiving PFP Radiological Problem Reports (RPRs). Since transition to the CRRS system in February 2009, RPRs are inputted directly into CRRS. The FR informed the PFP radiological control manager that the PFP FRs would like to receive the CR reports that were based on RPR information. The radiological control manager and a FR worked out an informal method to provide the report numbers to the FRs. Since the FRs received RPRs prior to implementation of CRRS in February 2009, not providing the FRs the information was considered an OFI. The informal method of distribution implemented by the radiological control manager was judged to be adequate. Thus, PFP management's response to this OFI was considered adequate.

Review of CRRS items identified that findings and OFIs from the PFP management oversight program (MOP) were not consistently being inputted into the CAM system. Specifically, CR-2010-0417 and CR-2010-0099 inputted conditions noted during performance of management oversight. However, management observation worksheets for January 14, and January 19, identified multiple observations and these could not be found in CRRS. Consistent use of CRRS for management oversight is considered an OFI. This is the third time in about two years that application of the CAM process to management oversight activities has been identified as an OFI (see OA-27695 and finding two in S-08-OOD-PFP-001).

On October 7, the FR attended a meeting to discuss circumstances that allowed ZSP-006 Control of Airborne Radioactivity Area Posting to not be updated after openings were cut into the wall between rooms 145A and 146 and between rooms 145 and 146. A significant amount of time during the meeting was used to talk about air flow in the A-Labs area in 234-5Z. Removal of hoods and glove boxes and subsequent blanking off of E-4 ducts had resulted in decreased air flow in the A-Labs area. The FLMs and workers assigned to the A-Labs area requested that PFP engineering determine if vents could be added to some of the blanked off E-4 ducts to improve airflow. Based on walk throughs of A-Labs area and discussions with workers, the vents have not been added. During a recent review of CRRS the FRs were unable to find a corrective action item tracking completion of this request. Based on the level of interest and time devoted to this topic at

the meeting, CRRS follow through on the airflow improvement request was identified as an OFI.

On July 21, there was a Continuous Air Monitor (CAM) Alarm at the PRF during an overtime evolution. Eighteen workers were in PRF at the time of the CAM alarm. One worker had radioactive contamination on their personal clothing and skin. The contaminated worker was also experiencing heat stress related symptoms during the response to the CAM alarm. CR-2009-0999 and OA-24909 contain detailed information about the event. On July 22, workers declared a STOP WORK because they were not confident that PFP was ready to provide emergency response to workers. One of the actions identified to improve future emergency responses was to perform operational upset drills. Discussions and planning were conducted; however, drills were not performed. In February 2009 the FR discussed the non-performance of the drills with the radiological control manager. The manager acknowledged that the drills were not performed. The manager also identified that conditions similar to those anticipated for the drills were routine with the D&D work in the standards labs (221-C, D & E) and suggested that this made performance of the operational upset drills less important. Conduct of at least one emergency preparedness drill with a scenario that requires response to contaminated workers with circumstances similar to July 21, was recommended as an OFI.

A search of CRRS was completed to determine how many out of tolerance conditions were found during the previous six months. The search determined there were seven. The seven occurred within the three month period between mid-November and mid-February. The seven conditions were for radiological instruments. Four were CAMs, two were for hand held instruments to detect radioactive contamination, and one was for a flow meter. Each one of the seven out of tolerance instrument conditions was determined to be trend only. The FR reviewed PRC-PRO-QA-052 to determine when or if the procedure required review of data base content for trends. The FR did not find a requirement for a review. Identification of a process to look for potential trends for similar CR reports was considered an OFI.

Review of items recent inputted into CRRS revealed that a few self-assessments and independent assessments had been completed. Prior to transition, the FRs were provided with assessments as they were finalized. The FRs believe continuing the practice of providing assessments is an OFI. The non-receipt of self-assessments was discussed with PFP management at the RL interface on February 24. A commitment was made to provide the final assessments to the FRs in the future. This OFI is considered closed by the FRs.

RL Lead Assessor Closure Required: YES [] NO [X]

Good Practice:

The internal database used for PFP injury reports is a useful tool. (CONOPS-ADMIN, QA-WORKPR & ISMS-WORK)

Discussion:

PFP uses an internal database for tracking and informational purposes with an at-a-glance function included. When the FR requested information regarding Injury Reports at PFP, the information was quickly retrieved and provided all needed information. Minimal follow on questions were required. This database is a very nice tool and is maintained by the PFP administrator.

Contractor Self-Assessment:

PFP quality assurance personnel provided the FRs three self -assessments identified as covering CAM activities. These assessments were completed in FY 2008 and FY 2009. The FRs were also informed that an assessment covering quality assurance and quality processes is planned for the third quarter of FY 2010.

One of the assessments provided was QA-QAP-SURV-08-111 Evaluation of the Fluor Hanford independent assessment process. This assessment was not reviewed by the FRs because the CHPRC self-assessment program will be evaluated as part of activity two in the surveillance guide in use (MSS 1.3 Feedback & Continuous Improvement Corrective Action/Issue Management January 2010). In addition, the surveillance did not directly include an evaluation of PFP corrective action management processes.

Assessment PA-IM-WSA-09-006 evaluated implementation of issues management within the CHPRC following implementation of the CRRS. The assessment was scoped to cover all CHPRC facilities and organizations. The assessment identified nine positive aspects for CRRS and three opportunities for improvement. The assessment was scoped to review CRRS at the CHPRC level and did not identify facility specific activities.

One assessment, PFP-CAM-09-MA-002, evaluated implementation of the corrective action process at PFP. This assessment was conducted in December 2008. No issues or noteworthy practices were identified.

Since a self-assessment of the CAM process was conducted in FY 2009 and an assessment that may include CAM activities is planned for FY 2010, CHPRC self-assessment of CAM for PFP was judged to be adequate. PFP-CAM-09-MA-002 was conducted prior to the implementation of CRRS. Consequently, the PFP FRs recommend that an assessment of PFP CAM following implementation of CRRS be conducted if the assessment planned for the third quarter of FY 2010 does not include CAM.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

John M. Carranco, CHPRC
David C. Del Vecchio, CHPRC



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

APR 21 2010

10-OOD-0045

Mr. F. A. Figueroa, President
and General Manager
Mission Support Alliance, LLC
Richland, Washington 99352


Dear Mr. Figueroa:

CONTRACT NO. DE-AC06-09RL14728 – TRANSMITTAL OF SURVEILLANCE REPORT
S-10-OOD-MSA-001, CORRECTIVE ACTION MANAGEMENT (CAM)

During January and February, RL conducted oversight of MSA CAM processes and implementation. MSA was found to have an established CAM program with some individual non-compliances and opportunities for improvement that should be considered as MSA develops processes to support the combined Integrated System Management System Phase I/II verification. The surveillance resulted in the identification of two findings and five observations. You are directed to process the attached surveillance report through the MSA established CAM system. RL retains closure authority for the findings as identified in the attached surveillance.

If you have any questions, please contact me, or your staff may contact Roger M. Gordon, Director, Operations Oversight Division, at (509) 372-2139.

Sincerely,


Alan E. Hopko
Contracting Officer

OOD:RMI

Attachment

cc w/attach:

J. M. Armstead, MSA
P. W. Kruger, MSA
E. C. Lugo, MSA
M. L. Sheriff, MSA

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Operations Oversight Division (OOD)

**Surveillants: Mike Berkenbile, Steve Chalk, Larry Earley, Rob Gohd, Mat Irwin,
and Krishna Vadlamani**

Surveillance Number: S-10-OOD-MSA-001

Date Completed: February 26, 2010

Contractor: Mission Support Alliance, LLC (MSA)

Facility: Mission Support Project Facilities

Title: Feedback & Continuous Improvement; Corrective Action/Issue Management

Guide: MSS 1.3

Surveillance Scope:

The scope of this surveillance was to verify the contractor had an integrated process that makes use of available feedback information to drive continuous improvement with the goal of institutionalizing the attributes of a high reliability organization. Specifically, this surveillance evaluated if contractor personnel effectively managed environment, safety, quality, and health issues. The surveillance examined the effectiveness of the contractor's management/self-assessment process and corrective action management (CAM) system. The activities performed in this surveillance helped to determine whether issues identified through internal and external evaluation programs were resolved consistent with their level of importance. The surveillance further verified continuous improvement programs were in place and functional.

Surveillance Summary:

On July 14, 2009, the Department of Energy Richland Operations Office (RL) approved (RL letter 09-AMSE-0050) the MSA adapted (blue sheeted) Quality Assurance Program Description (QAPD), HNF-MP-599, Revision 21. In November 2009, the MSA incorporated the blue sheeted changes in the QAPD (MSC-MP-599, Revision 0) and the

RL review did not identify any comments (RL letter 10-AMSE-003, dated December 30, 2009). On January 19, 2010, in accordance with Contract DE-AC06-09RL14728, Section C.3.5.1, the MSA submitted its contract deliverable QAPD, MSC-MP-599, Revision 1, for RL review and approval. This document was prepared to comply with 10 CFR 830, Subpart A, Section 830.121 "Quality Assurance," Contractor Requirements Document DOE O 414.1C "Quality Assurance," and RL Requirement Document RRD-008, Revision 1.

In support of this Surveillance, the QAPD Section 3 "Quality Improvement" was reviewed. The review indicated that issues identification, CAM, Price-Anderson Amendments Act (PAAA) reporting, non-conformance control, performance of data analysis, feedback & improvement, and corresponding responsibilities within MSA Management, Projects, Performance Assurance, and Functional organizations were addressed. The review did not identify any issues with the quality improvement process prescribed.

RL performed the following activities:

- Evaluated Operational Awareness (OA) reports for events over the last six months for any trends
- Reviewed the ten most recently closed Action Request (AR) CAM reports
- Followed recent OA reports identifying deficiencies to ensure issues were appropriately processed through the CAM system
- Attended event critique and fact finding meetings
- Reviewed several investigation reports and critique reports
- Reviewed several recent injury reports
- Reviewed final occurrence reports
- Reviewed causal analyses reports
- Reviewed two root causal analysis (RCA) reports
- Evaluation of MSA significant issue processing
- Review of MSA QAP status
- CAM training and qualifications
- Review of DTS reports and actions for EMS and Integrated Safety Management System (ISMS)
- Review of sampling of self-assessment information

Surveillant discussions with MSA CAM staff indicated that at present there are four significant issues (SIs) logged in the CAMS for corrective action tracking and closure. The Corrective Action Report Files (CARF) are as follows:

CARF # 20090130, Fire Extinguisher Discharge in Moving Vehicle, July 2009;
CARF # 20090138, Accidental Discharge of a Law Enforcement Officer's Weapon during Pacific Northwest National Laboratory class at HAMMER, August 2009;
CARF # 20090140, Fallen Light Fixture, September 2009; and
CARF # 20090176, Interim Storage Cask (ISC) Drop at the Interim Storage Area (ISA) located in the 200E Area, October 2009.

Each of the above SIs were reviewed for implementation of MSA procedure MSC-PRO-052, Corrective Action Management, Revision 0, dated January 6, 2010: Section 5.3 "Issue Processing Time," Section 5.4 "Screening Process," Section 5.6 "Perform Causal Analysis for Significant Issues," Section 5.7 "Corrective Action Development for Significant Issues," Section 5.8 "Document Causal Analysis Results for Significant Issues," Section 5.12.2 "Significant Issue Extent of Condition Review," Section 5.9 "Revisions of Evaluation Results," Section 5.13 "Effectiveness Reviews for Significant Issues," Section 5.14 "Tracking and Reporting," and Section 5.10 "Action and Issue Closure."

The review identified that processing of the SI samples conformed to the above procedure requirements as indicated below:

CARF # 20090230 identified a total of eight (8) corrective actions of which six (6) were completed on time and two (2) are on schedule for completion. The corrective action development, tracking and completion are satisfactory;

CARF # 20090138 identified a total of thirty one (31) corrective actions of which twenty six (26) were completed on time and five (5) are on schedule for completion. The corrective action development, tracking and completion are satisfactory;

CARF # 20090140 identified a total of seven (7) corrective actions of which five (5) were completed on time and two (2) are on schedule for completion. The corrective action development, tracking and completion are satisfactory; and

CARF # 20090176 identified a total of twenty one (21) corrective actions of which one (1) was cancelled, thirteen (13) were completed on time, two (2) appeared complete but completion dates are incorrect (CA # 8 & 20), one (1) is overdue since 12/31/09 (CA # 4) with no status updated and five (5) are on schedule for completion. The corrective action development are satisfactory, however, the tracking and indication of status is unsatisfactory for one (1) item.

Based on the review it is concluded that the MSA corrective action process with respect to the aforementioned significant issues is satisfactory with the exceptions as noted.

In support of this surveillance, the team reviewed procedure, MSC-PRO-052, *Corrective Action Management*, and the guidance document, MSC-GD-33900, *Causal Analysis Guidance*. The team observed that the procedure provides direction to management and employees in meeting quality improvement requirements through the performance of CAM activities as outlined in MSC-MP-599, *Quality Assurance Program Description, Section 3.0, Quality Improvement*. The guidance document, MSC-GD-33900, *Causal Analysis Guidance* provides recommendations for investigating, analyzing, and documenting causes of problems and for determining appropriate corrective actions. The guidance document is intended to provide information useful to the trained causal analyst to support achieving the requirements and goals of MSC-PRO-052, *Corrective Action Management*. The MSA procedure MSC-PRO-052, and associated guide, MSC-GD-

33900, contain adequate information and detail necessary for a trained causal analyst to perform apparent or root cause analysis. The CAM process satisfies the basic fundamentals from the Quality Assurance (QA) criteria expressed in 10 CFR 830.122(c).

A review of MSA issues management data (provided by contractor) for the period September 2009 – February 2010, (90 issues) indicated that MSA issue significance determination decisions would result in causal analysis (Root or Apparent) of approximately 47% of the total issues submitted.

- **S-10-OOD-MSA-001-F01:** Deficiencies and opportunities for improvement identified by RL Facility Representatives (FRs) to MSA Management were not entered into the CAM process.
- **S-10-OOD-MSA-001-F02:** MSA CAM procedure is not fully compliant with requirements
- **S-10-OOD-MSA-001-O01:** AR 29027933, CARF 20090204 closure documentation was not adequate to ensure all personnel had completed the assignment.
- **S-10-OOD-MSA-001-O02:** RCA for Interim Storage Cask (ISC) Drop at the Interim Storage Area (ISA) contained technical deficiencies
- **S-10-OOD-MSA-001-O03:** Inadequate statusing of MSA Corrective Action Report File (CARF) # 20090176-Action Items 4, 8, and 20.
- **S-10-OOD-MSA-001-O04:** The MSA CAM process did not include consideration of potential impacts or consequence requiring immediate action
- **S-10-OOD-MSA-001-O05:** CAM program and procedure elements/requirements likely to discourage issue identification, and may create chilling effect.

RL considers the CAM Processes to be satisfactory and the activities observed appeared to generally meet requirements. Two findings and five observations were identified, many of which should support quality improvement of the process as MSA prepares for the combined ISMS Phase I/II verification.

Surveillance Results:

Finding: S-10-OOD-MSA-001-F01

Deficiencies and opportunities for improvement identified by RL Facility Representatives (FRs) to MSA Management were not entered into the CAM process. (QA-IMPRV)

Requirements:

MSC-PRO-052, Rev. 0, Paragraph 4.1.3.2 states "Managers at all levels are responsible for ...Correcting identified deficiencies."

MSC-PRO-052, Rev. 0, Paragraph 4.1.3.4 states "Managers at all levels are responsible for ... Acting upon identified quality improvement opportunities."

MSC-PRO-052, Rev. 0, Paragraph 4.1.3.5 states "Managers at all levels are responsible for ... Using and supporting implementation of the Corrective Action Management system."

MSC-PRO-052, Rev. 0, Paragraph 4.2.2 states in part, "A corrective action management system shall be developed for:

- a. Evaluating deficiencies, potential deficiencies, and opportunities for improvement for the purpose of establishing priorities and corrective actions.
- b. Determining cause(s) of problems and implementing appropriate corrective and preventive actions.
- c. Independently verifying completion of actions.
- d. Tracking the status of actions from initial reporting to closure.
- e. Determining the effectiveness of corrective actions for significant quality issues utilizing management or independent assessments or surveillances."

Discussion:

Contrary to the requirements above, several deficiencies and opportunities for improvement identified by FRs to MSA Management were not entered into the MSA CAM processes. The FR requested DTS packages from the MSA CAM Manager for six OA reports that identified issues with MSA programs or processes. Several of the OA deficiencies could not be located in the CAM system. The FR questioned the MSA CAM Manager regarding the OA reports and it was confirmed by the CAM Manager that four of the six OAs were never entered into the CAM process. All of the OAs were provided to MSA Management. The OAs and the date provided to MSA Management are as follows:

- OA 25475 provided to MSA Management 8/31/09. Not entered into CAM system
- OA 27334 provided to MSA Management 12/7/09. Not entered into CAM system
- OA 27343 was entered into CAM system
- OA 27512 provided to MSA Management 12/7/09. Not entered into CAM system
- OA 27628 provided to MSA Management 12/10/09. Not entered into CAM system
- OA 28130 provided to MSA Management 1/13/09 10. Information was not available since it was recently submitted

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-MSA-001-F02

MSA CAM procedure is not fully compliant with requirements

Requirements:

American Society of Mechanical Engineers (ASME) NQA-1-2008, Quality Assurance Requirements for Nuclear Facility Application. Requirement 5, 100 BASIC, states in part...Activities affecting quality and services shall be prescribed by and performed in accordance with documented instructions, procedures, or drawings that include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactorily accomplished. The activity shall be described to a level of detail commensurate with the complexity of the activity and the need to assure consistent and acceptable results. The need for, and level of detail in, written procedures or instructions shall be determined based upon complexity of the task, the significance of the item or activity, work environment, and worker proficiency and capability (education, training, experience).

American Society of Mechanical Engineers (ASME) NQA-1-2008, Quality Assurance Requirements for Nuclear Facility Application. Requirement 17, Quality Assurance Records, 100 BASIC, states in part...Quality assurance records shall furnish documentary evidence that items or activities meet specified quality requirements.

SCRD O 470.2B Rev.1, Section C, item 1.c, contractor corrective action (CAP items) completion due date revisions are to be communicated to RL when RL is the closure authority.

Discussion:

The following noncompliances were identified:

- MSA procedure on CAM procedure, MSC-PRO-052, Step 5.11 "DOE O 470.2B Corrective Action Plans, does not clearly relay RL SCR D 470.2B, Section C, item 1.c for communication to RL regarding corrective action completion due date revisions when RL is the closure authority.
- Although stated by interviewees to be required and performed, the procedure does not require analysis of adverse conditions lesser than those determined to be Significant.
- MSA procedure MSC-PRO-052, does not prescribe issue classification criteria and examples. Screening criteria is limited to definitions only. Criteria were not stated nor exemplified in a manner or form which would permit consistent application, review, evaluation, and verification of the results of the activities.
- The issue screening process does not require documentation of the basis when an issue is screened out.
- Several sections of the procedure require users to obtain concurrence or approval but does not indicate what action is to be taken if approval or concurrence is not obtained (e.g., elevating to management or a Difference of Professional Opinion (DPO) process).
- The procedure indicates that effectiveness review of action taken to prevent recurrence of SIs, is optional.

- The process for issue extensions is not clearly detailed. Extensions for SIs were not elevated to senior management.
- Section 5.14 "Tracking & Reporting" and Section 8.2 "Working References," made reference to MSC-RD-7372 "Deficiency Tracking System" that has been cancelled.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-MSA-001-001

AR 29027933, CARF 20090204 closure documentation was not adequate to ensure all personnel had completed the assignment. (QA-IMPRV)

Discussion:

The AR 29027933, CARF 20090204 finding indicated there was an inadequate understanding by staff relating to safety controls and emergency procedures, specifically some employees did not understand the building Occupant Emergency Plans (OEP). The finding went on to state there was no formal mechanism for issue and initial briefing on building emergency procedures. The finding also stated the problem was complicated by some employees maintaining two work areas and therefore had different procedures.

The corrective actions specified on the Issue Identification Form were as follows:

1. "Issue OEP to employees for all facilities where (sic) work is performed."
2. "Conduct a formal briefing of the OEP for each facility with the employee."

The closure verifications consist of one e-mail stating "All Actions have been completed. Please find attached the requested closure statements and date closed." The closure statements attached contained the following:

"OEPs for both the Federal Building and 2430 have been issued to all PFM employees based on their assigned office space."

And

"A formal briefing of the OEP for both the Federal Building and 2430 has been provided to all PFM employees based on their assigned office space."

The closure verification information appears to lack a completed roster for the briefing and also does not explain why only personnel in 2430 and the Federal Building were applicable.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-MSA-001-O02

RCA for Interim Storage Cask (ISC) Drop at the Interim Storage Area (ISA) contained technical deficiencies. (QA-IMPRV)

Discussion:

The RCA for the ISC Drop at the ISA was reviewed by the FR. The deficiencies below were identified:

1. The "Description of Event" states "Notifications were made and the facility was placed in a safe configuration following the incident." This is an inaccurate statement since following the event and prior to notifications being made, the cask was lifted (the 2nd lift began approximately 20 seconds after the drop) and the load was moved into its final storage location. Therefore, contrary to the statement that the facility was placed in a safe configuration following the incident, the facility was actually placed at risk since work was not stopped and an evaluation performed prior to resuming operations.

Furthermore, it could be argued that the resumption of the lifting operation was outside of the facility's safety basis since the cause of the drop was unknown and a lift was then performed without adequate safety analysis.

2. The Management Problem identified in the third bullet of the "Apparent Causes/Contributing Causes" states the Field Work Supervisor and the MSA DL were "lax in command and control of the operational scene" which does not appear to be addressed in the corrective action plan. The example given for the lack of command and control was the number of personnel within the crane parameter. Corrective Action (CA) #6 indicates it addresses this cause; however, CA #6 only action is to revise the field work checklist for the DL to ensure the work area is clear of unnecessary personnel during the lifting. There does not appear to be a corrective action for a lack of command and control and CA #6 appears to only address the symptom identified.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-MSA-001-O03

Inadequate statusing of MSA Corrective Action Report File (CARF) # 20090176-Action Items 4, 8, and 20. (OA 28660)

Discussion:

Discussions with MSA CAM staff indicated that at present there are four SIs logged in the CAMS for corrective action tracking and closure. These Corrective Action Report Files (CARF) are as follows: CARF # 20090130, Fire Extinguisher Discharge in Moving Vehicle, July 2009; CARF # 20090138, Accidental Discharge of a Law Enforcement Officer's Weapon during Pacific Northwest National Laboratory class at HAMMER, August 2009; CARF # 20090140, Fallen Light Fixture, September 2009; and CARF # 20090176, Interim Storage Cask (ISC) Drop at the Interim Storage Area (ISA) located in the 200E Area, October 2009.

Each of the above SIs were reviewed for implementation of MSA procedure MSC-PRO-052, Corrective Action Management, Revision 0, dated January 6, 2010: Section 5.3 "Issue Processing Time," Section 5.4 "Screening Process," Section 5.6 "Perform Causal Analysis for Significant Issues," Section 5.7 "Corrective Action Development for Significant Issues," Section 5.8 "Document Causal Analysis Results for Significant Issues," Section 5.12.2 "Significant Issue Extent of Condition Review," Section 5.9 "Revisions of Evaluation Result," Section 5.13 "Effectiveness Reviews for Significant Issues," Section 5.14 "Tracking and Reporting," and Section 5.10 "Action and Issue Closure."

A review of CARF # 20090176, status dated February 2, 2010, identified a total of twenty one (21) corrective actions have been entered and tracked in the CAM data base. Of these 21 actions: two (2) appeared complete but completion dates are incorrect (CA # 8 & 20) and one (1) is overdue since 12/31/09 (CA # 4) for which the status was not updated. The tracking and indication of completion status is inadequate.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-MSA-001-004

The MSA CAM process does not include consideration of potential impacts or consequence requiring immediate action

Discussion:

MSA CAM procedure does not prescribe that issues are to be evaluated for potential impact or consequence, including stop work implications. As a result, MSA significance determination decisions appear to be primarily based upon actual consequences rather than actual and potential consequences.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-MSA-001-005

CAM program and procedure elements likely to discourage issue identification, and may create chilling effect.

Discussion:

The following process and procedure elements are likely to discourage issue identification, may create an unintended chilling effect.

- The MSA CAM process does not provide a means for issue initiators to submit issues anonymously or confidentially.
- MSC-PRO-052, CAM procedure indicates that prior to submittal; the issue initiator must first identify the responsible manager, then review and discuss the issue with the responsible manager for clarification and concurrence. This may discourage personnel from submitting issues.
- MSC-PRO-052, CAM procedure states that the issue initiator is required to participate in the causal analysis process. This may discourage identification of issues by personnel who do not desire to participate in the analysis activity.

RL Lead Assessor Closure Required: YES [] NO [X]

Contractor Self-Assessment:

MSA is currently working to FHI blue sheeted procedures and processes while the MSA ISMS description is developed and MSA processes are established. Although a formal assessment of CAM has not occurred since MSA contract transition, feedback and improvement was evaluated by the corporate ISMS review that was completed in early 2010, a management assessment is scheduled by MSA for the 4th quarter of FY-2010, and the combined ISMS Phase I/II verification is scheduled for the end of FY-2010. Based upon the current transition status of CHPRC, this is considered adequate.

Contractor Self-Assessment Adequate: YES [X] NO []

Management Debriefed:
Marnelle Sheriff, MSA



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

1000001 A
MSA Recd: 12/21/2009

10-MGR-0022

DEC 21 2009

Mr. F. A. Figueroa, President
and General Manager
Mission Support Alliance, LLC
2490 Garlick Blvd.
Richland, Washington 99352

Dear Mr. Figueroa:

CONTRACT NO. DE-AC06-09RL14728 – TRANSMITTAL OF SURVEILLANCE REPORT
S-10-SCO-MSA-ECP-0001

Enclosed is the U.S. Department of Energy, Richland Operations Office, Office of Special Concerns (SCO) Surveillance Report of the Mission Support Alliance, LLC (MSA), Employee Concerns Program (ECP). The purpose of the surveillance was to evaluate and verify that MSA ECP is properly implemented so that concerns raised by contractor or subcontractor employees are addressed and employees are not subject to reprisal/retaliation.

The reviews conducted in this surveillance determined the MSA ECP needs improvement in a manner consistent with CRD 442.1A, Supplemented Rev.2. The review identified 5 Findings and 16 Observations. Within 30 days of the receipt of this letter, you are required to submit a corrective action plan addressing the Findings and other issues identified in this report.

If you have any questions please contact Stan Branch, SCO on (509) 376-9450.

Sincerely,

A handwritten signature in black ink that reads "Alan E. Hopko".

Alan E. Hopko
Contracting Officer

MGR:SOB

Enclosure

cc w/encl:
S. B. Lamson, MSA

**U.S. Department of Energy (DOE)
Richland Operations Office (RL)
Surveillance Report**

Division: Office of Special Concerns (SCO)

Surveillants: Stan Branch, Bonnie Lazor, SCO; and Sabra Zaro, Assistant Manager for Mission Support (AMMS)

Surveillance Number: S-10-SCO-MSA-ECP-0001

Date Completed: December 15, 2009

Contractor: Mission Support Alliance (MSA)

Facility: 2430 Stevens Avenue, Richland, WA 99354

Title: Effectiveness Review – MSA Employee Concerns Program (ECP)

Guide: DOE O 442.1A *Department of Energy Employee Concerns Program*, DOE G 442.1-1, *Department of Energy Employee Concerns Program Guide*, and DOE *Contract Requirements Document (CRD) 442.1A, Rev. 2*

Surveillance Scope:

The purpose of this surveillance was to verify that the contractor MSA ECP is properly implemented.

1. Is MSA in compliance with CRD 442.1A, Rev.2?
 2. What is the MSA span of control for concern intake?
 3. How do you ensure no conflict of interest?
 4. How does ECP communicate/report cases to management?
 5. How does ECP interface with HR, LR, and Legal?
 6. Are all updated/revised MSA ECP procedures signed and approved?
 7. How are procedure changes disseminated?
 8. Has the MSA ECP database been changed or enhanced?
 9. How are referred or transferred corrective actions managed?
 10. How does the ECP procedure manage corrective actions?
 11. What is the corrective action feedback process?
 12. What is the concern closure process and how is information relayed to the concerned individual?
 13. How is the DPO process implemented?
-

Surveillance Summary:

The surveillance was conducted in part by interviewing the MSA ECP Manager, ECP Coordinator, and Human Resource (HR) staff on December 7-8, 2009. The surveillance also included the review of case files, referral responses, ECP database, training records, procedures, forms, organizational charts, and recent self-assessment (SA). MSA *Employee Concern Resolution* (HNR-PRO-410) is currently being revised to incorporate CRD changes and is expected to be signed and approved no later than January 31, 2010. On August 24, 2009, MSA transitioned with Fluor Hanford Incorporated (FHI). RL SCO revised the CRD and on September 16, 2009, MSA responded with no cost or schedule impacts. As a result, on September 22, 2009, the RL Contracting Officer directed MSA to implement and be compliant with CRD 442.1A, Rev. 2 within 60 days. Since the MSA contract transition on August 24, 2009, the MSA ECP transitioned seven (7) FHI ECP cases and received 16 new MSA concerns.

Surveillance Results:

This surveillance established through interviews and document reviews that the MSA ECP is operating in a somewhat compliant manner and working toward meeting the needs of employees to provide products and services as required by the DOE Order and regulations; and CRD. The MSA ECP Manager is in the process of establishing an effective, service-related program. Currently, the ECP Manager reports to the President's Office and day-to-day administrative activities are addressed with the MSA Chief of Staff who also reports to the MSA President. The review identified five (5) Findings and 16 Observations.

The Surveillants observed the following from the Lines of Inquiry:

1. The following (1 a through q) represent compliance with CRD 442.1A, Rev.2:
 - a. **Discussion:** The surveillance concluded MSA ECP has not formally informed subcontractors of the availability to the ECP and their rights to raise concerns. The surveillance concluded MSA employees receive annual ECP training through Hanford General Employee Training-HGET and MSA ECP conducts ECP training for all new hires.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, states the Contractor and subcontractor personnel shall be annually informed of the availability of the ECP, their rights to raise concerns relating to the environment, safety, health, or management of DOE-related activities through the contractor or departmental ECP programs, and to do so without any fear of harassment or reprisal.

Finding: S-10-ECP-F01: MSA is not in compliance with CRD O 442.1A, Supplemented Rev. 2.

RL ECP Closure Required YES [X] NO []

- b. **Discussion:** The surveillance concluded MSA ECP offers Alternative Dispute Resolution (ADR) as a technique in resolving concerns. However, the draft ECP procedure (MSA-PRO-410) does not discuss or define the criteria or process as to when ADR is administered. Additionally, MSA’s *Legal Resources Management Plan* (HNF-MP-002, Rev.4) also addresses ADR and/or negotiation usage.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 2, states the Contractor shall evaluate and attempt to resolve employee concerns in a manner that protects the health and safety of both employees and the public, ensure effective and efficient operation of programs, and use ADR techniques whenever appropriate.

Observation: S-10-ECP-O01: MSA ECP procedure does not discuss or define criteria for ADR.

RL ECP Closure Required YES [] NO [X]

- c. **Discussion:** The surveillance concluded MSA has not conducted an ECP SA. A review of the MSA Integrated Evaluation Plan (IEP) Assessment Report indicates MSA ECP will conduct a SA on July 1, 2010. While still under FHI, a SA was conducted from June 3-22, 2009. The SA was signed by the MSA ECP Manager on September 22, 2009. All corrective actions (CA) from the FHI ECP SA have been completed.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 3, states the Contractor shall conduct an annual self assessment to measure the effectiveness of the ECP. Problems that hinder the ECP from achieving its objectives shall be corrected.

Observation: S-10-ECP-O02: MSA ECP has scheduled a SA for July 2010 (fourth quarter of the fiscal year) and is listed on the MSA IEP Assessment Report. However, MSA ECP should consider conducting the SA in the second quarter of the fiscal year in order to assess the status and completion of CAs identified from this surveillance.

RL ECP Closure Required YES [] NO [X]

- d. **Discussion:** The surveillance concluded MSA ECP provides timely notification of significant staff concerns, allegations of retaliation, or harassment to SCO ECP.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 4, states the Contractor shall provide timely notification to the Department of any significant staff concerns or allegations of retaliation or harassment. The Contractor shall cooperate with any Departmental actions including requests for documentation or information involving employee concerns.

- e. **Discussion:** The surveillance concluded MSA ECP is in compliance with CRD O 442.1A, Supplemented Rev. 2. MSA ECP currently reports to the MSA President and day-to-day administrative activities are addressed with the MSA Chief of Staff who also reports to the MSA President. However, all organization charts reviewed during this surveillance reflects MSA ECP reports to the Chief of Staff.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 5, states the Contractor ECP Manager shall report to either the President or Vice President. The Contractor ECP shall not report to, but interface with organizations such as HR, EEO, Legal, Labor Relations, Safety, etc., regarding the resolution of employee concerns.

Observation: S-10-ECP-O03: All organization charts reviewed during this surveillance reflects MSA ECP reports to the Chief of Staff.

RL ECP Closure Required YES [X] NO []

- f. **Discussion:** The surveillance concluded MSA ECP staff is trained in ECP policies, procedures, and processes. However, Subject Matter Experts (SME) or other MSA staff assisting MSA ECP have not been trained in ECP policies, procedures, or processes. MSA ECP has utilized HR staff and safety organization staff to assist with investigations.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 6, states the Contractor ECP Manager, staff and representatives, at a minimum, must be trained in ECP policies, procedures and processes (for example, ADR, Mediation, Fact Finding, Price Anderson Amendment Act, Corrective Action Management, Root Cause Analysis, Interviewing Techniques, Safety Conscious Work Environment, Hostile Work Environment, Freedom of Information Act/Privacy Laws, Equal Employment Opportunity, Program/Project Management, etc.).

Observation: S-10-ECP-O04: SMEs or other MSA staff assisting MSA ECP has not been trained in ECP policies, processes or procedures.

RL ECP Closure Required YES [] NO [X]

- g. **Discussion:** The surveillance concluded that since the start of the MSA contract, MSA ECP has not received any concerns from SCO ECP.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 7, states the Contractor ECP shall retain responsibility and conduct independent investigations of concerns referred or transferred from DOE ECP. Referred concerns require a response back to DOE ECP.

- h. **Discussion:** The surveillance concluded MSA ECP has a 24-hour hotline. The number identified on the web site and flyers are consistent with the hotline number. However, the hot line message should be updated to: 1) provide guidance related to imminent or dangerous conditions and, 2) reflect the actual number versus CARE as some cell phones have varying keypad numbers and are not universal.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 8, states the Contractor ECP must maintain a 24-hour hotline that ensures confidentiality is maintained.

Observation: S-10-ECP-O05: The MSA ECP hot line message should be updated to provide guidance related to imminent or danger conditions.

RL ECP Closure Required YES [X] NO []

- i. **Discussion:** The surveillance concluded MSA ECP is not processing concerns consistent with DOE O 442.1A and DOE G 442.1-1. In some instances, reviewed case files did not contain contact, detailed intake, or checklist closure information. Some cases were closed without adequate closure documentation. During the investigation, in one case, a CA identified was not entered into a formal tracking system. Additionally, some closed case files contained hand written notes and it was not clear if the notes were captured in the case file (records of events) documentation.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 9, states the Contractor Employee Concerns must be processed consistent with DOE O 442.1A and DOE G 442.1-1.

Finding: S-10-ECP-F02: MSA ECP is not processing concerns consistent with DOE O 442.1A and DOE G 442.1-1.

RL ECP Closure Required YES [X] NO []

- j. **Discussion:** The surveillance concluded MSA ECP has a draft program plan (MSA-PRO-410). The draft plan has been submitted for review with final approval and implementation no later than January 31, 2010. However, the draft plan should be updated to incorporate improvements from this surveillance. Until the draft plan has been finalized, MSA ECP utilizes MSA *Employee Concern*

Resolution (HNF-PRO-410, Revision 7), dated June 28, 2007, Blue Sheet date July 8, 2009.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 10, states the Contractor ECP must establish a program description or implementing documentation.

Observation: S-10-ECP-O06: The surveillance concluded MSA ECP has a draft program plan (MSA-PRO-410). The draft plan should be updated to incorporate improvements from the SCO surveillance.

RL ECP Closure Required YES [] NO [X]

- k. **Discussion:** The surveillance concluded MSA ECP utilizes Fluor Hanford *Confidentiality Understanding for Access to Employee Concerns Program Information*, as a confidentiality agreement form. The form is signed by a SME prior to assisting MSA ECP and approved by the MSA ECP Manager. However, the surveillance team concluded that HR staff members who previously assisted MSA ECP during an investigation did not sign a confidentiality agreement prior to assisting MSA ECP.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 11, states the Contractor ECP Manager must approve “need to know” access to ECP records.

Observation: S-10-ECP-O07: MSA ECP did not obtain a signed confidentiality agreement form or an approved need-to-know access to records form regarding a HR staff member assisting in an ECP investigation.

RL ECP Closure Required YES [] NO [X]

- l. **Discussion:** The surveillance concluded MSA ECP utilizes Fluor Hanford *Confidentiality Understanding for Access to Employee Concerns Program Information*, as a confidentiality agreement form. The form was signed by the SME staff that assisted MSA ECP. However, the surveillance team concluded the HR staff member who assisted the MSA ECP during an investigation did not sign a confidentiality agreement.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 12, states the Contractor ECP Representatives and or SMEs assisting ECP must sign a confidentiality agreement.

Finding: S-10-ECP-F03: MSA ECP is not in compliance with CRD O 442.1A, Supplemented Rev. 2.

RL ECP Closure Required YES [X] NO []

- m. **Discussion:** The surveillance concluded MSA ECP has not provided consistent written receipt and closure documentation to Concerned Individuals (CI) regarding their concern(s). Some case files contained copies of receipt E-mails corresponding with and case initiation and closure documentation. Currently, MSA ECP is only utilizing E-mail to document written receipt and closure to the CI.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 13, states the Contractor ECP must notify a CI in writing once a concern is received and when a concern is closed.

Finding: S-10-ECP-F04: MSA ECP has not notified CI’s in writing once a concern is received or closed.

RL ECP Closure Required YES [X] NO []

- n. **Discussion:** The surveillance concluded MSA ECP closed three cases since the beginning of the contract. In these cases, the CI’s did not receive a closure letter or any documentation notifying them of their rights.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 14, states the Contractor ECP must notify CIs in writing of their rights (i.e., 10 CFR 708, Department of Labor, Washington State Human Rights Commission, and other applicable avenues).

Finding: S-10-ECP-F05: MSA ECP did not provide closure documentation or notify a CI of their rights in writing.

RL ECP Closure Required YES [X] NO []

- o. **Discussion:** The surveillance concluded MSA ECP has identified a CA associated with an ECP investigation. However, ECP CA was not captured into a formal tracking system.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 15, states the Contractor ECP must identify, with input from a SME, CAs on employee concerns substantiated and partially substantiated.

Observation: S-10-ECP-O08: MSA ECP did not enter a CA from an HR investigation into a formal tracking system.

RL ECP Closure Required YES [] NO [X]

- p. **Discussion:** The surveillance concluded that although the CA was not entered into a formal tracking system, MSA ECP did receive E-mail notification from the

HR investigator the CA had been completed. However, the investigation team did have concerns regarding the independence of the investigation conducted by the HR investigator. During the interview with the HR investigator, the HR investigator indicated a decision was made between HR and the Manager of employee the allegations were against, and concluded the employee in question should only receive a verbal counseling. A review of MSA *Standards of Conduct* (HNF-POL-11385) dated August 6, 2002, Blue Sheet date July 7, 2009, was conducted and the surveillant could not find any language regarding a verbal counseling. The surveillant concluded the disciplinary action was not documented in the employee’s personnel file. MSA *Employee Discipline*, MSC-PRO-033, dated November 30, 2009, Section 6.0, Item 7, states, if a disciplinary action is warranted, then ... c, prepare a letter of verbal reprimand, written reprimand, disciplinary suspension or termination on company letter head, to include the following

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 16, states the Contractor ECP must verify closure and effectiveness of CAs associated with substantiated or partially substantiated employee concerns.

Observation: S-10-ECP-O09: MSA ECP should have verified the effectiveness of the CA identified in MSA ECP case number 10-007. In addition, MSA ECP should have evaluated the independence and objectivity of the investigation conducted by the HR investigator.

RL ECP Closure Required YES [] NO [X]

- q. **Discussion:** The surveillance concluded MSA ECP maintains ECP case files and a database. However, the database currently being used is an antiquated, stand alone, Access system. Only one ECP staff member can utilize the system at any given time. Insofar as system enhancements, approximately a month ago, Lockheed Martin Services Incorporated loaded the DOE RL ECP database for MSA use and aid in meeting DOE O 442.1A requirements and MSA ECP needs; however, MSA ECP has not started to use the new database.

Requirement: CRD O 442.1A, Supplemented Rev. 2, Section D – General Supplemental Requirements, 17, states the Contractor ECP must maintain an ECP case file and database.

Observation: S-10-ECP-O10: The ECP database currently used by MSA ECP is outdated.

RL ECP Closure Required YES [] NO [X]

- 2. The MSA ECP span of control is optimal. ECP retains responsibility for all concern intakes, investigations, CAs, training, and process decisions. Only the Manager and Coordinator execute concern intake and employ the ECP process. Currently, MSA

ECP offers mediation as an ADR or conflict resolution process. MSA ECP recognizes ADR is a viable method to resolve various types of concerns or conflicts.

Observation: S-10-ECP-O11: MSA ECP has not developed an ADR process (see 1c).

RL ECP Closure Required YES [] NO [X]

3. The ECP Manager and Coordinator discuss potential conflicts of interest regarding case assignment. Currently, based on their previous positions, the only potential conflicts of interest could involve the ECP Manager with Radiological issues and the ECP Coordinator with the Legal Office; however, both take due diligence ensuring no conflict of interest arises. If a conflict of interest arises, a mitigation plan is discussed and the concern can be externally outsourced, if needed. As of the date of this surveillance no conflicts have occurred. Organizationally, after MSA transition, all incumbent employees were required to re-submit a MSA *Conflict of Interest Disclosure* (Form A-6005-266); and, all new hires must also complete a Form A-6005-266. MSA Legal Office reviews all A-6005-266 Forms for potential conflicts of interest as set forth in MSA *Legal and Ethical Conduct* (HNF-RD-10348), dated April 28, 2006, Blue Sheet date July 7, 2009.
4. Depending on the nature and level of concern, safety concerns are investigated in accordance with time-established requirements and sensitive issues are communicated and/or reported to the MSA President or coordinated with the Legal Office, if necessary. Although the nature of the concern is communicated, the identity of the CI is kept confidential. The ECP Manager provides a quarterly ECP Report to the President which provides an overview of ECP activities; however, currently the ECP Manager does not attend all weekly Directors' Meetings.
5. The MSA ECP occasionally uses SMEs from HR, Industrial Relations (IR), and Legal Office as it relates to policy, practice, and liability questions. The four functional areas appear to have a good working relationship. MSA ECP has not received any concern referrals from HR, IR, or Legal Office. Currently, the ECP does not have direct access to HR personnel records information. ECP is required to have an HR records representative retrieve information for them. Although the HR records representative has signed an ECP confidentiality agreement, in the interest of efficiency, confidentiality, independence, and minimizing conflicts of interest, the ECP should have direct access to MSA personnel E-files and/or hard files.

Observation: S-10-ECP-O12: MSA ECP does not have direct access to HR personnel records information.

RL ECP Closure Required YES [] NO [X]

6. The MSA ECP implements *Employee Concern Resolution* (HNF-PRO-410) dated June 28, 2007. HNF-PRO-410 was Blue sheeted on July 8, 2009. HNF-PRO-410 is

currently being revised to MSA-PRO-410 to incorporate CRD 442.1 Rev. 2 and the final procedure is expected to be signed and approved by the ECP Manager no later than January 31, 2010.

- 7. The MSA Website contains all MSA procedures. All employees have access to the MSA Website. The ECP Manager is copied on all relevant procedures for review and comment. *Mission Support Contract Management Systems Documents* (MSC-PRO-589) dated November 3, 2009, defines the process for the preparation, review, approval, and use of MSA procedures.
- 8. The MSA ECP currently uses an antiquated, stand alone, Access database system (see 1q). Insofar as system enhancements, approximately a month ago, Lockheed Martin Services Incorporated installed an Access ECP database system similar to the RL SCO ECP system to aid in meeting DOE O 442.1A and MSA ECP case database needs.

Observation: S-10-ECP-O13: MSA ECP has not implemented the newly installed Access ECP database.

RL ECP Closure Required YES [] NO [X]

- 9. MSA *Corrective Action Management* (HNF-PRO-052) dated August 2, 2007, Blue Sheet date July 8, 2009, is an issues management process that provides instruction for the use of the Condition Report and Resolution System (CRRS) which documents CAs as well as recommendations for improvement to current activities and processes. The MSA Corrective Action Management System (CAMS) provides a means for evaluating performance improvement suggestions and lessons learned reports, including initiation and tracking of any actions taken. The draft MSA ECP Procedure (MSA-PRO-410) interfaces with CAMS.
- 10. MSA ECP does not currently have an internal ECP CA database. Future plans are to use the Electronic Suspense Tracking Routing System-ESTARS tracking system to input and track CAs not tracked in CAMS. Additionally, ECP CAs are documented in the respective ECP case file.

Observation: S-10-ECP-O14: MSA ECP has not defined a tracking system for ECP CAs that are not tracked in CAMS.

RL ECP Closure Required YES [] NO [X]

- 11. The MSA ECP CA feedback process is an informal, verbal process. CAs are communicated to the CI either by telephone or in a face-to-face meeting with either the MSA ECP Manager or Coordinator. All meetings, discussions, events, and outcomes with the CI are documented in the respective case file.

12. Throughout the concern process, the CI is kept verbally appraised by either the ECP Manager or Coordinator, as necessary. The closure of a case is discussed with the CI either by telephone, E-mail, or in a face-to-face meeting with either the ECP Manager or Coordinator. With the exception of specific investigation details and other confidentiality requirements, all issues, findings, and CA actions are discussed with the CI.

13. The MSA *Resolving Dissenting Technical Opinions* (HNF-PRO-EN-14616) dated March 25, 2003, Blue Sheet date June 21, 2009, is a formal process administered by the MSA Engineering Program to resolve dissenting opinions and is an integral part of peer and management review.

Additional Observations:

Discussion: The MSA ECP is located in Building 2430, Rooms 184 and 189. The ECP offices align the left side of the building and are centered between other occupied offices. Entrance to the ECP currently requires CIs to walk by other occupied offices which could compromise confidentiality. There is no waiting area for CIs.

Observation: S-10-ECP-O15: Logistics of the MSA ECP office area is not conducive to confidentiality. Currently a plan exists to construct a wall between the ECP offices and MSA Legal Office. Construction is scheduled to begin in late January 2010 with completion by end of February 2010.

RL ECP Closure Required YES [] NO [X]

Discussion: Currently, MSA ECP staffing does not appear to be adequate to ensure efficiency. MSA ECP does not have an administrative assistant to conduct in day-to-day case file management and data entry. Currently, MSA ECP has over 15 open cases, some over 12 months. A CI intake form is not utilized. Development and usage of an intake form would improve initial case assessment and timely determine the appropriate course of action to be taken (i.e., investigate, refer, or transfer). Also developing ECP case priority criteria would help prioritize cases to be investigated. Use of an intake form and case priority criteria during the ECP intake process, combined with using the new Access ECP database would streamline the ECP process and assist in timely resolving cases.

Observation: S-10-ECP-O16: MSA ECP staffing does not appear to be adequate to ensure program efficiency. Development and utilization of an ECP intake form and case priority criteria, combined with using the new Access ECP database would help in timely resolving cases.

RL ECP Closure Required YES [] NO [X]

Documents Reviewed:

MSA *Employee Concern Resolution* (HNF-PRO-410, Revision 7), dated June 28, 2007, Blue Sheet date July 8, 2009;

MSA *Open Door and Zero Tolerance for Retaliation* (MSC-POL-11388) dated November 23, 2009;

MSA *Stop Work Responsibility* (HNF-PRO-3468, Revision 6, dated April 29, 2008, Blue Sheet date July 8, 2009

MSA *Corrective Action Management* (HNF-PRO-052) dated August 2, 2007, Blue Sheet date July 8, 2009;

MSA *Legal and Ethical Conduct* (HNF-RD-10348), dated April 28, 2006, Blue Sheet date July 7, 2009;

MSA *Employee Discipline*, MSC-PRO-033, dated November 30, 2009;

MSA *Standards of Conduct* (HNF-POL-11385) dated August 6, 2002, Blue Sheet date July 7, 2009;

MSA *Conflict of Interest Disclosure* (Form A-6005-266);

MSA *Intellectual Property Agreement* (Form A-6005-267);

Fluor Hanford *Confidentiality Understanding for Access to Employee Concerns Program Information*, undated;

MSA *Legal Resources Management Plan* (HNF-MP-002, Rev. 4) dated October 31, 2003, Blue Sheet date July 7, 2009:

MSA *Mission Support Contract Management Systems Documents* (MSC-PRO-589) dated November 3, 2009;

MSA *Resolving Dissenting Technical Opinions* (HNF-PRO-EN-14616) dated March 25, 2003, Blue Sheet date June 21, 2009;

MSA *Resolution of Dissenting Technical Opinions* (Form A-6003-645);

MSA *Special Provisions-On Site Services*, SP-5, dated August 14, 2009; and

MSA Organizational Charts dated October 20, 2009, and printed from MSA Website on December 7, 2009.

Management Debriefed:

D. A. Hovley, MSA
S. B. Lamson, MSA
J. L. Ward, MGR
S. O. Branch, RL



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

APR 22 2010

10-OOD-0052

Mr. M. N. Brosee, President
Washington Closure Hanford LLC
Richland, Washington 99354

Dear Mr. Brosee:

CONTRACT NO. DE-AC06-05RL14655 – TRANSMITTAL OF SURVEILLANCE S-10-OOD-RCP-001, FEEDBACK & CONTINUOUS IMPROVEMENT CORRECTIVE ACTION/ISSUE MANAGEMENT

This letter transmits the subject core surveillance which was conducted jointly by the RL Operations Oversight Division and Quality Assurance. Overall, the review found that the Corrective Action Management process is being implemented, but improvement is needed in the interface between events, fact findings, and processing of issue forms. WCH is requested to process these findings and observations through the WCH Corrective Action Management System, and to submit a Corrective Action Plan in accordance with SCR 470.2B for Findings 07 and 08 within 30 days of receipt of this letter. RL retains closure authority for all Findings and Observation 06.

If you have any questions, please contact me or your staff may contact Roger M. Gordon, Director, Operations Oversight Division, on (509) 376-0108.

Sincerely,

A handwritten signature in black ink, appearing to read "Jewel J. Short".

Jewel J. Short
Contracting Officer

OOD:AKW

Attachment

cc w/attach:

K. C. Christensen, WCH
B. C. Covert, WCH
R. A. Dodd, WCH
S. L. Feaster, WCH
T. A. Foster, WCH

T. A. Harris, WCH
H. M. Hassell, WCH
R. J. Skwarek, WCH
B. D. Smith, WCH

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant(s): Mike Berkenbile, Steve Chalk, Mat Irwin, Deanna McCranie, Kyle Rankin, Joe Waring, Allison Wright

Surveillance Number: S-10-OOD-RCP-001

Date Completed: February 19, 2010

Contractor: Washington Closure Hanford LLC (WCH)

Facilities: 100N/300 Area Deactivation, Decommissioning, Decontamination, and Demolition (D4) Facilities; Environmental Restoration Disposal Facility (ERDF); and Field Remediation Closure

Title: Feedback & Continuous Improvement Corrective Action/Issue Management

Guide: MSS 1.3

Surveillance Scope:

The objective of this surveillance was to verify the contractor has an integrated process that makes use of available feedback information to drive continuous improvement. Specifically, this surveillance evaluated if contractor personnel are effectively managing environment, safety, quality, and health issues. The surveillance also examined the effectiveness of the contractor's management/self-assessment process and corrective action management system. The activities included in this surveillance helped determine whether issues identified through internal and external evaluation programs are being resolved consistent with the level of importance. The surveillance further verified whether continuous improvement programs are in place and functional.

Surveillance Summary:

The Facility Representatives (FRs), FR Team Lead, and RL Quality Assurance staff and General Support Service Contractor support conducted a review of WCH's Quality Assurance Program, with a emphasis on the issues management program. The review focused on how issues identified in investigation reports, root cause analyses,

abnormal/emergency events, Operational Awareness (OA) reports, and management assessments were managed through the Corrective Action Management System (CAMS).

Documents Reviewed:

- QA-1-1.2, Corrective Action Management (Revision 9)
- SEM-3-2.2, Event Management
- QA-1-1.7, Surveillances
- FFR-2010-0002, (IF-2009-0663), "During demolition north of 105N, a utility concrete chase was breached thus allowing concrete dust to travel down Corridor #5 affecting workers getting ready to enter the 105N Fission Product Trap"
- FFR-2009-0009, (IF-2009-0589), "Fall Hazard Prevention Analysis (FHPA 105N-WDC-102609.1) used to erect the warning line on the 105N roof was deficient in that all of the roof access hazard controls were not documented or followed"
- FFR-2009-0010, (IF-2009-0634), "Fact finding held for possible high air sample results"
- FFR-2009-014, (IF-2009-0645 and IF-2009-0646), "Contamination of Dummy Multi-Detector and Work Glove"
- FFR-2009-0012, (IF-2009-0643), "Subcontractor Employee Trips and Falls Due to Tripping Hazard"
- FFR-2009-0008, (IF-2009-585), "Equipment Window Broken During 105N Waste Load-out"
- IF-2010-0046, Failure to Use Seatbelt
- IF-2009-0401, No USQ for Rigging Ops at 324
- IF-2009-0549, Personnel not checking in/out of HRA
- IF-2009-0637, Red Locks in B324
- IF-2010-0064, Walking on an Unprotected edge greater than 6 foot while assembling an excavator
- IF-2009-0596, 327 Inadequate PPE in Contamination Area
- IF-2009-0342, Respiratory Equipment not in Controlled Area
- IF-2009-0603, D4 revise "open ended" or boundless scope craft work packages
- IF- 2009-0651, Evaluation of Confined Space
- IF-2010-0037, 327 - Contamination on Boot
- IF-2009-0507, Poor Quality of Boom Hoist
- IF-2009-0518, Gauges for tool testing not calibrated
- IF-2009-0528, IF to track NCR-2009-019
- IF-2009-0551, D4 Shift Instruction procedure duplicates standing order procedure
- IF-2009-0553, Bowling Ball Cask JHA/Ladder Use
- IF-2009-0563, Failure to Implement IHWP Requirements
- IF-2010-0058, 300 Area Sanitary Sewer Exceeds pH Level Allowed in the Discharge Permit
- IF-2010-0097, Transformer oil release during downsizing
- IF-2009-0598, Contaminated Wrench
- IF-2009-0639, Injured Finger 327 Elevator
- DOE M 231.1-2, *Occurrence Reporting and Processing of Operations Information*.

- Root Cause Analysis for IF-2009-0110, Building 327 Waste Box-Near Miss, dated March 16, 2009.
- Surveillance Reports FR-09-S020 and FR-2009-S014.
- Adverse condition Issue Forms (IFs), including implementation of CAM process.

Activities Observed:

- Attended numerous Fact Finding Meetings
- Screening of IFs

Personnel Contacted:

- WCH Quality Assurance Manager
- WCH CAM Subject Matter Expert (SME)
- D4 Performance Assurance Manager
- 300 Area D4 Manager
- Price-Anderson Amendments Act Coordinator
- Conduct of Operations (CONOPS) Lead
- Occurrence Reporting Point of Contact

A review of IF data for WCH was performed against the WCH CAM procedure (QA-1-1.2, rev. 9). In general, the balance of screen out (8), trend only (~50), OFI (~250), and adverse condition (~300) for 2009 appear reasonable for a mature issues management system. The only anomaly would be the fact that WCH had only 2 significant issues throughout all of 2009, with one of them being the 336 accident investigation. The significant IF for the Building 336 accident investigation was not reviewed based upon the extensive RL and WCH attention on this topic.

The FRs identified numerous minor deficiencies with the implementation of corrective actions from events and issues documented in OA reports. Overall, the review found that the requirements in the program are being met, but more rigor is needed in documenting the issues identified and actions taken. One area where improvement is needed is in the identification and tracking of the corrective actions from investigations (e.g., fact findings). The issues screening process observed by RL QA staff was compliant with the procedure, and was conducted in a professional manner with a multi-disciplinary team.

The following 8 findings, 7 observations, and a good practice resulted:

- **S-10-OOD-RCP-001-F01:** Several fact finding reports were not issued within the required seven working days following the fact finding meeting.
- **S-10-OOD-RCP-001-F02:** In some cases WCH issues management process did not fully comply with DOE O 226.1A.
- **S-10-OOD-RCP-001-F03:** Some IFs are not being analyzed within the 30 day expectation.
- **S-10-OOD-RCP-001-F04:** Failure to perform a Root Cause Analysis and an end point assessment for a Significant Issue (IF-2009-0371)

- **S-10-OOD-RCP-001-F05:** The WCH definition is not aligned with the definition of an Adverse Condition provided in the NQA-1 Standard.
- **S-10-OOD-RCP-001-F06:** Resolution of 327 building radiological control negative issues was not performed in compliance with WCH issues management.
- **S-10-OOD-RCP-001-F07:** WCH Processing of Adverse Conditions do not consistently result in corrective actions that address the identified causes or extent of condition.
- **S-10-OOD-RCP-001-F08:** Actions not always incorporated into IF corrective action field, despite actions being taken.
- **S-10-OOD-RCP-001-O01:** Applicable documentation not provided in some IF reports.
- **S-10-OOD-RCP-001-O02:** Action completion dates are not accurately documented in several IFs.
- **S-10-OOD-RCP-001-O03:** Corrective Action identified in IF-2009-0118 not adequately implemented as evidenced by IF-2009-0549.
- **S-10-OOD-RCP-001-O04:** Inadequate information provided in the description and follow up of two issue forms.
- **S-10-OOD-RCP-001-O05:** Lack of procedure clarity may result in unreported issues.
- **S-10-OOD-RCP-001-O06:** Opportunities exist to improve significant issue screening and leverage WCH resources to enhance continuous improvement.
- **S-10-OOD-RCP-001-O07:** Issue Forms are still assigned to Responsible Managers who are no longer employed by WCH.

Based upon the significance of the individual issues, WCH will be requested to provide a corrective action plan for Findings F07 and F08. RL lead assessor closure will be requested for each of the Findings, as well as Observation 006.

Surveillance Results:

Finding: S-10-OOD-RCP-001-F01

Several fact finding reports were not issued within the required seven working days following the fact finding meeting. (OA 28471, 29247)

Requirement:

SEM-3-2.2, Rev 5, Step 6.2.10 states in part, "The report is required to be issued within 7 working days following the fact finding meeting."

Discussion:

The following fact finding reports were not issued within the required seven working days following the fact finding meeting:

- FFR-2009-009: Fact finding meeting held on 11/16/09; report issued on 12/9/09.

- FFR-2009-0012: Fact finding meeting held on 12/8/09; report issued on 12/29/09.
- FFR-2010-0002: Fact finding meeting held on 12/21/09; report issued on 1/15/10
- FFR-2010-0011, Fact finding meeting held on 1/7/10; report signed 2/3/10.
- FFR-2010-0012, Fact finding meeting held 1/14/10; report signed 2/2/10.
- FFR-2010-0013, Fact finding meeting held 1/19/10; report signed 2/3/10
- FFR-2009-0017, Fact finding meeting held 12/17/2009; report signed 1/11/10.
- FFR-2010-0003, Fact finding meeting held 1/20/2009; report signed 2/3/10.
- FFR External Contaminated Container at 212-P, held 9/16/2009, report issued 10/15/2009.
- FFR Container 0982 Transport Inconsistencies, held 6/22/2009, report issued 9/28/2009.

The examples span across the WCH projects (e.g., WO, FR, D4) indicating a better system for tracking report issuance would be beneficial. The WCH Environment Safety Health & Quality Manager provided feedback to the FR Team Lead that WCH plans to start tracking their performance on issuing investigation reports.

RL Lead Assessor Closure Required: **YES [X]** **NO []**

Finding: S-10-OOD-RCP-001-F02

In some cases WCH issues management process did not fully comply with DOE O 226.1A. (OA 28888)

Requirement:

DOE O 226.1A, *IMPLEMENTATION OF DEPARTMENT OF ENERGY OVERSIGHT POLICY*, states in part, “5. ISSUES MANAGEMENT. Contractors must ensure that a comprehensive, structured issues management system is in place. This system must provide for the timely and effective resolution of deficiencies, and be an integral part of effective contractor assurance system...a. Program and performance deficiencies, regardless of their source, must be captured in a system or systems that provide for effective analysis, resolution, and tracking. Issues management must include structured processes for—... (5) identifying and documenting suitable corrective actions and recurrence controls, based on analyses, to correct the conditions and prevent recurrence;...”

Discussion:

Several Fact Finding Reports and IFs were reviewed by the FR. In most cases, the fact finding report contained a list of actions to be taken. Some of these actions were to further evaluate conditions, processes, etc., while others were immediate actions to return to work and/or long term corrective actions. An IF was generated at the time of the fact finding and the FR found that at times the IF stated a corrective action that was simply an action to take an action.

For example, IF-2009-0643 (FFR 2009-0012) corrective action stated, "Conduct fact finding meeting. Determine corrective actions and implement items necessary to prevent recurrence of injury." This is contrary to DOE O 226.1A requirements of "identifying and documenting suitable corrective actions and recurrence controls, based on analyses, to correct the conditions and prevent recurrence." Another example of an action to take an action is in IF-2009-0589 (FFR 2009-0009), whereby the action states, "Review subcontractor documents to determine if Roof Analysis documentation was requested by subcontractor. Determine actions to prevent future failure of document requests and transmittal to subcontractor. Add actions to weekly WCH/WM Dickson schedule and action meeting."

Additionally, in many cases the FR found the actions stated in the fact finding report were not tracked in CAMS, so it is not clear the breadth of the corrective actions taken in response to the event/condition and whether these additional actions were completed (e.g., FFR 2009-0009 and FFR 2009-0012). However, one example where an IF generated in response to a fact finding meeting that did provide adequate closure documentation was IF-2009-0585, which contained objective evidence in CAMS of the fact finding actions that were completed. This may have been because it was also associated with an Occurrence Reporting & Processing System (ORPS) report.

Lastly, in some cases the corrective actions listed in the IF do not align with the cause codes or were too generic to objectively verify the corrective action(s) would prevent recurrence of similar events. For example, cause codes and the corrective action in IF-2009-0589 do not align. Also, in IF-2009-0643, the corrective action taken of "corrected unsafe walking areas" was generic while the fact finding report identified specific actions to take to correct unsafe walking areas.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-RCP-001-F03

Some IFs are not being analyzed within the 30 day expectation. (OAs 28867 and 28888)

Requirements:

QA-1-1.2 Corrective Action Management, Rev 9, 6.3.4 states, "Analysis for adverse condition IFs should be performed within 30 days of the IF categorization or reassignment."

Discussion:

Three IFs exceeded the 30 day apparent cause and corrective action completion requirements identified for adverse conditions in QA-1-1.2. IF-2009-0637 (assigned 12/8/09, completed 1/14/10), IF-2009-0553 (assigned 11/5/09, completed 12/14/09), and

IF-2009-0589 (assigned 11/23/09, completed 12/29/09). Furthermore, a review of the most recent WCH performance indicators (January 2010) indicate a time to issue analysis of 51 days which is well above the established goal of 15 days.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-RCP-001-F04

Failure to perform a Root Cause Analysis and an end point assessment for a Significant Issue (IF-2009-0371) (OA 28288)

Requirement:

Procedure QA-1-1.2, Corrective Action Management, 6.3.5 Significant IFs states: Investigation, Root Cause Analysis (RCA), and corrective action plan development of Significant IFs should be completed within 30 days of the IF categorization, re-screen to significant, or reassignment.

QA-1-1.4, Causal Analysis, Section 6.2, Root Cause Analysis, Step 9, "Ensure the last corrective action is to perform an end point assessment to measure effectiveness of the actions taken.

Discussion:

As part of the surveillance process the RL SME reviewed the WCH actions dealing with the two Significant IFs that had been inputted into the system over the past year to ensure the IFs were addressed in accordance with WCH procedure QA-1-1.2, Corrective Action Management. During this review the SME identified one Significant IF in which WCH did not perform a root cause analysis as specified in their CAMS procedure. In follow up discussions with the WCH CAMS Coordinator, the SME learned that the issue was initially screened as an Adverse Condition IF, but had recently been upgraded due to a Price Anderson Amendments Act (PAAA) Review Committee decision that this issue was reportable to the DOE HQ Noncompliance Tracking System. In accordance with WCH procedure QA-1-1.2, Attachment 1, any PAAA reportable event or condition shall be a Significant IF. A review of the IF, IF-2009-0371, identified that the last corrective action was completed and approved on 10/15/09 and verified by a QA Engineer on 10/20/09. The corrective actions listed in IF-2009-0371 were developed during the apparent cause analysis of the event. The SME learned that the IF was upgraded to Significant on 12/11/09, and on 12/17/09, the PAAA Coordinator contacted members of the WCH Environment, Safety, and Quality Review Board (ESQRB) to review and accept the apparent cause analysis as the root cause analysis for the newly Significant IF. There is no provision in the QA procedures for obtaining ESQRB approval for not conducting a Root Cause Analysis (RCA).

According to the PAAA Review Committee meeting minutes and a follow on discussion with the WCH CAMS Coordinator, WCH reopened the IF to document the apparent cause analysis as the RCA and subsequently assigned a QA Engineer for verification. The actions that WCH has taken, with respect to IF-2009-0371, have failed to follow their procedures. According to WCH procedure QA-1-1.2 all Significant IFs require a RCA in accordance with QA-1-1.4. As WCH personnel follow procedure QA-1-1.4 for RCA development, they are directed to ensure the last corrective action is an end point assessment to check the effectiveness of the corrective actions. In working the issue represented in IF-2009-0371, WCH failed to perform an end point assessment of the corrective actions thereby failing to follow WCH procedure QA-1-1.4, Causal Analysis.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-RCP-001-F05

The WCH definition is not aligned with the definition of an Adverse Condition provided in the NQA-1 Standard. (OA 28934)

Requirement:

American Society of Mechanical Engineers (ASME) ASME NQA-1b, 2007, Quality Assurance Requirements for Nuclear Facility Application, Part 1, 400, states in part, "Condition Adverse to Quality: an all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, and nonconformances."

Discussion:

QA-1-1.2, Corrective Action Management, Rev. 9, Effective Date: 07/23/2009 Section 3.0 DEFINITIONS, states in part; Adverse Condition: A collective term for a deficiency or OFI where corrective action is taken to resolve a condition, issue, or event adverse to Nuclear, Personnel, Equipment, or Environmental safety. OFI: An OFI provides information to Project/Function management for their consideration as an area for improvement. An OFI is usually associated with a condition where efficiencies may be realized, or in the case of "observations" associated with assessment activities, where no requirement violation is identified. However, the condition may lead to a deficiency in the future if left unchanged.

The definition provided for Adverse Condition is not consistent with the definition of the NQA-1 Consensus Standard.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-RCP-001-F06

Resolution of 327 building radiological control negative issues was not performed in compliance with WCH issues management. (OA 28281)

Requirement:

QA-1-1.2, Attachment 1, Significant issue criteria: "A stop work condition determined to be of sufficient importance to warrant an in depth analysis in order to develop corrective action to prevent recurrence. A repetitive issue; i.e., adverse event, condition, or trend determined to be of sufficient importance to warrant an in-depth analysis in order to develop corrective action to prevent recurrence. Escalating issues or events, including chemical or radiological exposures, which generate (or have the potential to generate) a high level of concern..."

DOE O 226.1a, Attachment 1, Appendix A, Section 5.a: states "program and performance deficiencies, regardless of their source, must be captured in a system or systems that provide for effective analysis, resolution, and tracking."

Discussion:

In the months of May and June, WCH had three separate contamination related events at the 327 building. These events resulted in a red designation for WCH performance indicator in the area of Radiological Control performance for May 2009. A review of the WCH CAM database identified that IF-2009-219 was identified for the most significant event (ORPS WCH-DND-2009-003) and IF-2009-216 (personnel hair contamination). The ORPS report was an SC-4 management concern and met minimum ORPS requirements. The discussion below provides specifics on the issues related to how these issues were processed through issues management per QA-1-1.2.

The IF was screened as an adverse condition. This is contrary to the QA-1-1.2 as described in the requirements section for a significant issue. Work was suspended for a significant period of time, extensive efforts were taken by radiological control to develop a CAP (WCH-389) that was initiated June 23, and completed on November 3, 2009. The IF process was not followed relative to significance and associated requirements.

The single corrective action identified for IF-2009-216 was to "complete a corrective action management plan." Individual actions were not developed, identified and tracked in accordance with QA-1-1.2 Attachment 2. Individual actions to address the causes were not addressed in IF per Issues Management requirements.

Review of IF-2009-216 does not identify verification of corrective actions as would be required for a significant issue. It should be noted that a self-assessment (RC-2009-SA-011) was performed and identifies an OFI (IF-2009-672) that closure documentation was not provided for the CAP (WCH-389). This supports the conclusion that this issue should have been significant.

Processing the IF as significant issue properly and tracking the individual actions included in the CAP would have required the rigor described above that was subsequently not documented or completed.

RL Lead Assessor Closure Required:

YES [X] NO []

Finding: S-10-OOD-RCP-001-F07

WCH Processing of Adverse Conditions do not consistently result in corrective actions that address the identified causes or extent of condition. (OA 29125)

Requirement:

DOE O 226.1a, Attachment 1, Appendix A, Section 5.a, states (1) "evaluating the scope and extent of the condition or deficiency (e.g., applicability to other equipment, activities, facilities or organizations)", "identifying and documenting suitable corrective actions and recurrence controls, based upon analyses, to correct the conditions and prevent recurrence."

Discussion:

Recent discussions between RL and WCH has illustrated examples of issues that are processed through the WCH process where adverse condition corrective actions do not address all of the associated causal factors identified. The discussion below provides three examples that were specifically requested for additional analysis by RL correspondence (10-OOD-005)

- **Surveillance Finding S-09-OOD-RCP-004-F05** – The results of this analysis are based upon a review of Surveillance Finding F05 from the RL Surveillance S-09-OOD-RCP-004A, the OA #25370 issued for this incident, the fact finding report "Lift Station #12 Excavation," the WCH Issue Form IF-2009-0428, and the WCH PAAA Compliance Determination WCH-PAAA-2009-0067, Rev 0. There were a number of causes which contributed to this event, including failure of the Subcontract Technical Representative (STR) and Subcontractor to configure the excavation in a manner that met OSHA requirements, the Project Safety Representative's (PSR) availability, and work package controls. WCH management concluded that the failure to properly configure the excavation was limited to personal performance- not programmatic issues. As a result of that conclusion, it was decided to remove the individual from the role of STR and to send a letter to the Subcontractor critical of their performance and emphasizing their responsibilities for maintaining OSHA compliance. The letter required actions that would demonstrate their commitment to compliant excavation work. Restart of their work was based on the completion of these actions. WCH also recognized there was a need to add continual oversight to the excavation process in the form of both the PSR and the STR. This was accomplished immediately by using standing orders until the requirement was embedded into WCH work control procedures (not part of the corrective actions for this event). The work package was revised to include the PSR/STR requirements and to include the recommendations of an engineering review of the excavation conducted just prior to the event. Originally, the recommendations were to be implemented via the STR's verbal direction to the Subcontractor.

The issues analysis identified the following causal factors: A3B2C02 Signs to stop were ignored and step performed incorrectly, and A4B1C09 Corrective action for previously identified problem or event was not adequate to prevent recurrence. The following corrective actions were identified in IF-2009-0629 to address this Surveillance Finding:

1. Issue letter to Fowler subcontractor for corrective actions. COMPLETED
2. Obtain further engineering analysis of lift station 12, excavation and revise work plans as necessary. COMPLETED

RL evaluation: The corrective actions identified address the direct cause and subcontractor contribution to the event, but do not address the failure of previous actions to prevent recurrence, or the failure of WCH to self-identify and resolve the problem. Discussions with WCH will result in identification of actions performed in response to the 336 building accident related to stop work and the observations of the mid-point assessment, however, actions to preclude recurrence are not clearly identified.

- **RL Letter 10-00D-0005 Issue 1** – The interviewed injured D&D worker stated the activity being performed was a normal procedure, done daily, and that some heat had been experienced in the past. However, the amount of hot water in this case was unexpected and had never been encountered in the past. The Fact Finding determined that changes to the equipment were required to prevent recurrence and must be performed before continued use of the equipment. Corrective actions were identified in the Fact Finding. In conclusion, interviews found that the equipment provided for this activity is less than adequate and should be modified or replaced.

The issues analysis identified the following causal factor: A4B2C08 – Means not provided for assuring adequate equipment quality, reliability, or operability. The following corrective actions were identified in IF-2009-0430 to address this issue:

1. Redesign and install a "Y" or "Splitter" on the 107N pump system to eliminate that burn hazard before system re-use. COMPLETED
2. Install "Y" or "splitter" on similar pump systems used by D4 before any use. COMPLETED
3. Issue a "Dodge the Bullet" for this event to notify other River Corridor Contract organizations of this condition. COMPLETED
4. Complete review of "Skill of the Craft" and "OJT" related tasks being performed by the 107N D4 Crew to identify potential hazards not currently identified in the Job Hazard Analysis and Work Package. COMPLETED

RL Evaluation: Although replacement of the equipment addresses the direct cause, no actions are taken to provide a means for assuring adequate equipment quality, reliability or operability. Furthermore, no evaluation of similar equipment at 100-N

or elsewhere across WCH was performed to determine if additional similar conditions exist elsewhere.

- **RL Letter 10-OOD-0005 Issue 2** – The original work package for demolition of the 1112-NA microwave tower was completed several months before demolition started. Subsequently, a decision was made to request an engineering structural analysis of the demolition activity. The structural analysis report identified several controls that were needed in the work package. When the work package was changed to incorporate the structural analysis into the document, the planner failed to carry forward the controls into the task instructions. Therefore, the planning was not adequate to perform work.

The issues analysis identified the following causal factors: A4B3C06 – Planning not coordinated with inputs from walk downs/task analysis, A4B3C08 – Job scoping did not identify special circumstances and/or conditions, and A4B3C11 – Inadequate work package preparation.

The following corrective actions were identified in IF-2009-0636 to address this issue:

1. Revise the work package to incorporate changes identified in the pre-evolution briefing. COMPLETED
2. Brief workers on changes, and revise JHA to support new scope hazards and controls. COMPLETED

RL evaluation: The action to revise this specific work package and brief workers was performed the day the issue was involved. No actions are identified that address the causes identified in the IF. No action was taken to determine if the same issue exists elsewhere or actions to mitigate this condition for future planned work.

Multiple instances of this behavior were observed in the WCH IF system, but these issues are summarized to illustrate the issue.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-RCP-001-F08

Actions not always incorporated into IF corrective action field, despite actions being taken. (OA 29125, 28867)

Requirement:

DOE O 226.1a, Attachment 1, Appendix A, Section 5.1(5), states "identifying and documenting suitable corrective actions and recurrence controls, based on analyses, to correct the conditions and prevent recurrence", and (9) "verifying that corrective actions are complete" and (10) "validating that corrective actions are effectively implemented"

and accomplish their intended purposes, using a graded approach based upon risk, and (11) ensuring that individuals and organizations are accountable...."

Discussion:

A review of completed IFs identified the following examples of IFs where analysis was performed and actions taken, but actions were not loaded into IF and closed per the IF process. Since objective evidence was loaded into the IF, this is identified as an observation versus a Finding.

1. In response to assessment QA&S-2008-003, IF-2008-0549 was generated to address issues with monitoring and surveillance of subcontractors. The IF was properly screened as an adverse condition and an extensive discussion is provided in the IF issue analysis to discuss the issue and procedure revisions and actions that were taken. QA verification was performed on 3/3/09 identifying that no objective evidence was provided to support closure. Objective evidence was subsequently provided and the IF closed, however, no actions were ever identified for the IF.
2. IF-2010-0002 was originated in response to contamination found on Environmental Restoration Disposal Facility container #2941. The IF was properly screened as an adverse condition and extensive efforts have been taken to perform isotopic analysis, research the history of the container, and perform a fact finding. Although supporting files were loaded into the IF, none of the actions were identified in the IF because the actions did not conclusively identify a source and no further action was recommended. The actions taken to convince WCH no actions were warranted are the actions taken to address the issue.
3. IF-2010-0010 was originated in response to observed Multi-Detector Probe voltage fluctuations at 618-10 and concerns related to whether the condition affects the results. The vendor was contacted with an evaluation of the results, QA performed verification of the vendor action and an SDR was issued related to the topic, however no actions are captured in the IF.
4. IF-2010-0025 was originated to address a waste profile question to determine how to document all required certifications have been met as part of the profile approval process. The IF was properly screened as an adverse condition. The issues analysis is not particularly clear, but implies a waste stream that was not approved by the regulator that the regulator planned to now approve. The analysis states "there is no way to prepare a checklist in the level of detail needed to ensure items not normally required to be added to the approval process" and then has an action to have a waste services representative at the weekly regulator meeting. The analysis ends by stating "close this IF as trend only. No other corrective actions are assigned." The IF appears to acknowledge that an adverse condition exists, but no action is taken or possible to resolve the condition. The action identified in the analysis is not captured as a corrective action.

5. IF-2010-0037 was originated in response to contamination discovered on a boot during a 327 building exit survey. The issue analysis summarizes actions to decon the boot, perform isotopics, consider sticky material, and monitor. None of these actions are identified as actions in the IF.
6. IF-2009-0342, Respiratory equipment not controlled, identified CA 4 and CA5 as completed in the analysis section, but no corrective actions are listed in the Corrective Action Item section. The issue form contained no objective evidence demonstrating completion. CAs 1, 2, and 3 are not listed on the issue form. The issue form references a Draft Fact Finding Report, but it is not provided in the objective evidence. With the information provided, the adequacy of the issue form evaluation cannot be validated.

Discussions with WCH indicate that not identifying the actions in the IF corrective action field if they are already completed is an acceptable practice. It is recognized that documenting of immediate remedial actions would not be expected to be captured in the corrective action field of the IF, however, actions to address the identified causes resulting from the issue analysis would. The failure to capture all corrective actions within the IF corrective action field fails to meet requirements to document the actions, verify the corrective actions, validate the actions accomplish their intended purpose, and ensure individuals are assigned the actions and accountable. The ability to consistently trace the issue through the causes and actions to prevent recurrence is compromised by this practice.

RL Lead Assessor Closure Required: YES [X] NO []

Observation: S-10-OOD-RCP-001-O01

Applicable documentation not provided in some IF reports. (OA 28867)

Discussion:

A significant number of IFs reports do not include the relevant initiating documentation. Fact finding minutes, OA reports, or lessons learned were often not downloaded into the IF, making evaluation and analysis of the issue limited to the information in the description. As this information is not always readily available to the designated assignees, complete evaluation of the issue and adequacy of any identified corrective actions can not be confirmed. Examples include: IF-2009-0639; IF-2009-0342; IF-2009-0401, IF-2009-0598; IF-2010-0058; IF-2010-0097; IF-2009-0633.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-RCP-001-O02

Action completion dates are not accurately documented in several IFs. (OA 28867)

Discussion:

The documented completion dates for several IFs are not accurately reflected. Due to time delays in the IF process, actions completed a month earlier are documented as completed on the date when the confirmatory paperwork is received by the assigned analyst, not when the action was actually completed. Additionally, the information dates as to when events occurred are based on when the IF was initiated, not on the date of the actual event. Examples include:

- IF-2009-0639 – The due dates appear to be late based on the submitted paperwork, but completion was conducted a month earlier.
- IF-2009-0401 – The event occurred on 8/28, but the IF documents the date as 9/2.
- IF-2009-0549, Issue was identified in the field on 10/9, OA sent on 10/13. Date identified on the IF is the 10/13 date.
- IF-2009-0598, Action to notify 100B completed on 11/29/09, but e-mail to the assigned analyst was dated 1/5, with the 1/5 date being identified as the action completion date. Based on this date, the action was completed late.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-003-O03

Corrective Action identified in IF-2009-0118 not adequately implemented as evidenced by IF-2009-0549. (OA 28867)

Discussion:

IF-2009-0549, Personnel not checking in/out of High Radiation Areas (HRA). The corrective actions associated with a previous event, IF-2009-0118, were not referenced in this issue form but were directly applicable. This IF indicated a failure of the corrective actions from the previous event. Additionally, the briefing to the workers for IF-2009-0549 was different from the IF-2009-0118 event brief, and required less conservative action. Specifically, the checking of personnel in and out of HRA was not performed as required by the previous corrective actions in IF-2009-0118.

RL Lead Assessor Closure Required: YES NO

Observation: S-09-OOD-RCP-003-O04

Inadequate information provided in the description and follow up of two IFs. (OA 28867)

Discussion:

IF-2009-0563, Failure to Implement Industrial Hygiene Work Plan Requirements did not provide an adequate description of the event/situation. Without information related to the work activity, postings, contaminants of concern, or how the situation was identified, verification of the adequacy of the actions taken could not be performed. Additionally, the trend code identified that wiping down equipment is an infrequently performed step. However, Industrial Hygiene Technicians frequently perform this activity although at other locations than 327. The FR questions the approval of this trend code. Additionally, failure to perform a step is not equivalent to performing the step incorrectly.

IF-2009-0651, Evaluation of Confined Space. The information provided in the IF is not sufficient to identify what actions were inadequate. Based on the information provided the issue form appears to be a procedural noncompliance and therefore an adverse condition rather than an opportunity for improvement.

Observation: S-10-OOD-RCP-001-O05

Lack of procedure clarity may result in unreported issues. (OA 28934)

Discussion:

QA-1-1.7, Surveillances, Rev. 3, Section 6.2.2., Note states in part, "Issues identified and corrected during the course of a surveillance may or may not warrant documenting on an IF, depending on the significance of the issue." This procedure note can be interpreted to indicate that assessors are empowered to exclude identified issues from entry into the WCH issues management system. If not addressed the condition may result in a condition where issues are identified but not captured in the issues management system, and as such, would represent non-compliance to DOE O 226.1A. Specifically, DOE O 226.1A, *Implementation of DOE Oversight Policy*, dated 7-31-07, Attachment 1, Appendix A., Paragraph 5.a (Program and performance deficiencies, regardless of their source, must be captured in a system or systems that provide for effective analysis, resolution, and tracking. Issues management must include structured processes...).

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-RCP-001-O06

Opportunities exist to improve significant issue screening and leverage WCH resources to enhance continuous improvement (OA 28456)

Discussion:

Review of IF data for 2009 and 2010 indicate that only 2 (336 fall and 100-N finger cut) of the over 600 IF processed by WCH in 2009 were screened as significant issues. So far

in 2010 only 1 (bioremediation diesel spill) of almost 200 has been designated as significant. It is expected that only a small percentage of issues warrant the rigor and investment of a significant issues as defined in WCH issues management procedures, however, it appears that there have been multiple conditions that arguably meet the significant issue criteria and resolution of underlying root causes would further improve overall WCH performance. Examples of events that meet the criteria include:

- 327 Negative Trend in Radiological Control performance (See OA 28281)
- 336 Building Mid-point Assessment Less than Adequate issues (WCH did assemble a team and perform a Value Engineering session with recommended actions to the Adverse condition)
- Repeat issues with compliant excavations in the 300 area for lift station work
- Steel Cable and D-ring assembly break rear window of haul truck (IF-2009-0272)
- 100-N subcontractor related fall protection issues
- 100-N related Dickson issues (Heat Stress IF-2010-0151, Nonconformance reporting IF-2010-0154, QA implementation IF-2010-0156).

Failure to consistently apply the significant issue criteria, challenges WCH compliance with the requirements of CRD 226.1A for "identifying root causes (applied to all items using a graded approach based upon risk)" and "identifying and documenting suitable corrective actions and recurrence controls, based upon analyses, to correct the conditions and prevent recurrence."

RL Lead Assessor Closure Required: YES [X] NO []

Observation: S-10-ODD-RCP-001-007

Issue Forms are still assigned to Responsible Managers who are no longer employed by WCH (OA 29274)

Discussion:

A CAMS does not prevent assigning actions to individuals who are no longer employed by WCH. Examples include: IF-2010-0052 was assigned to Mark Tavelli on 1/20/2010, and IF-2010-0048 was assigned to Darren Boone on 1/13/2010.

RL Lead Assessor Closure Required: YES [] NO [X]

Good Practice:

WCH Radiological Control Proactive Decision to Use Corrective Action Plan format for 327 Radiological Trend Resolution - The WCH Radiological Control decision to provide additional analysis and capture the analysis and resulting corrective actions in a detailed plan (WCH-389) is considered to be a good practice. Failure to use the WCH issues management system to track, close, and capture objective evidence is captured in the Finding above, but the CAP and associated analysis are considered to be a good practice.

Contractor Self-Assessment:

WCH management assessment for corrective action management was completed in May 2008. The assessment found CAM to be fully implemented with improvements in how the web based tool is used, the RL/WCH interface, causal analysis, and maturity of trend analysis. The CAMS was reviewed as part of the Mid-point Assessment. A WCH independent assessment is scheduled for Fiscal Year 2010. Based upon the information reviewed, the WCH self-assessment is marginally adequate.

Contractor Self-Assessment Adequate: YES [X] NO []

Contractors Debriefed:

K. C. Christensen, WCH
H. M. Hassell, WCH



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0015

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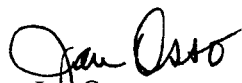
Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

CONTRACT NO. DE-AC06-08RL14788 – TRANSMITTAL OF SURVEILLANCE REPORT
AIRBORNE RADIOACTIVITY CONTROLS (S-10-SED-CHPRC-001)

The purpose of this letter is to forward the subject surveillance report. The surveillance identified four findings and one observation which are documented in the attached report and require RL Lead Assessor closure. These results have been discussed with appropriate members of your staff. No formal response to this letter is required. If you have any questions, please contact me, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,


Jan Osso
Contracting Officer

SED:BMP

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
B. Oldfield, CHPRC
V. M. Pizzuto, CHPRC
DNFSB

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillance Team: Brenda Pangborn, Joe DeMers, Richard Jansons

Surveillance Number: S-10-SED-CHPRC-001

Date Completed: October 14, 2009

Contractor: CH2M Hill Plateau Remediation Company (CHPRC)

Facility: The Waste Retrieval Project within Waste and Fuels Management Project

Title: Airborne Radioactivity Controls

Guide: 10 CFR 835

Surveillance Scope:

The objective of this surveillance is to ensure adequate implementation of airborne radioactivity controls and monitoring at the Waste Retrieval Project (formerly known as the TRU Retrieval Project).

Surveillance Summary:

Operational work activities, including excavation, retrieval and transportation of TRU packages, were observed by the surveillance team during September 2009. In addition, the team reviewed work instructions, procedures and technical basis documents developed to support and direct the observed work activities. In general, the TRU Retrieval work teams followed their procedures and the observed work was performed safely.

The team found some deficiencies in air monitoring and sampling practices. Work place air monitoring was observed not being performed when handling potentially damaged TRU containers in a radiological buffer area (RBA) outside of a contamination area (CA), high contamination area (HCA) or airborne radioactivity area (ARA). The facility work place air sampling technical basis document didn't address airborne monitoring requirements for handling of potentially damaged TRU containers in a radiological buffer area. In addition, the workplace

air monitoring technical basis document requires clarification regarding the need for real time air monitoring for TRU Retrieval activities.

The team found technical work documents and emergency response procedures governing selection of respiratory protection equipment during emergency response activities were not fully consistent with 29 CFR 1910.120(q)(3)(iv). The technical basis for use of a Powered Air Purifying Respirator (PAPR) during some emergency situations needs improvement. This issue was also identified in the WRAP facility, and is included in this surveillance.

In addition, the team found contamination controls employed during observed work were not always commensurate with potential radiological hazards. The procedures governing these TRU excavation and retrieval activities did not adequately direct workers to consider potential radiological hazards.

The surveillance resulted in four findings and one observation.

- **S-10-SED-CHPRC-001-F01:** Work place air monitoring was not performed as necessary for TRU retrieval activities where hands-on work with damaged or potentially damaged TRU packages was performed outside of a contamination or airborne radioactivity area.
- **S-10-SED-CHPRC-001-F02:** Technical Evaluation TE-SWSD-08-002-001, "SWSD Workplace Air Monitoring Technical Basis Document" does not adequately address the need for real-time air monitoring for TRU retrieval activities.
- **S-10-SED-CHPRC-001-F03:** Solid Waste Operations Complex technical evaluation and emergency response procedures do not adequately address 29 CFR 1910.120(q)(3)(iv) requirements for employees engaged in emergency response and exposed to hazardous substances presenting an inhalation or potential inhalation hazard.
- **S-10-SED-CHPRC-001-F04:** TRU Retrieval procedures and technical work documents do not adequately address the controls for potential radiological hazards, and as a result the radiation protection measures employed for TRU Retrieval work were not always commensurate with the existing and potential hazards;
- **S-10-SED-CHPRC-001-O01:** Opportunities for improvement of procedures were identified.

Surveillance Results:

Finding: S-10-SED-CHPRC-001-F01

Work place air monitoring was not performed as necessary for TRU retrieval activities where hands-on work with damaged or potentially damaged TRU packages was performed outside of a contamination or airborne radioactivity area.

Requirements:

10 CFR 835.403(a)(1) states, "Monitoring of airborne radioactivity shall be performed: Where an individual is likely to receive an exposure of 40 or more Derived Air Concentration Hours (DAC-hours) in a year."

10 CFR 830.122 (e) (1) states: "Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means."

CHPRC-00072, "CHPRC Radiation Protection Program," Appendix A, Requirement 91, Policy and Commitment Basis states,

"Article 555.2 (excerpt)

Monitoring of airborne radioactivity shall (835.403(a)) be performed:

a. Where an individual is likely to receive an exposure of 40 or more DAC-hours in a year, or'

Note: For the purpose of this RPP, the requirements of section 835.403 are met through the workplace air sampling program, which defines criteria for air sampling, including continuous air monitoring, record air sampling, and grab air samples.

Note: '...an individual is likely to receive' recognizes that professional judgment and experience will be used in making decisions in specific circumstances."

Discussion:

On September 20, 2009, work was performed in Trench 11 of Burial Ground 218-W-4b, in Trench 17 in Burial Ground 218-W-3A and in an equipment lay down area (ELA) around Box 79 in Burial Ground 218-W-3A. The surveillance team present at the work site did not observe work place air sampling during the course of these work activities, nor did the work procedures require them.

The CHPRC workplace air sampling program is documented in PRC-0904-CDMP-0011, "CHPRC Work Place Air Monitoring Technical Basis Document," for CHPRC projects and facilities. This document is derived from NUREG-1400 guidance. Criteria 1-4 of NUREG-1400 are used to determine the need for air sampling.

Technical Evaluation TE-SWSD-08-002-000, "SWSD Workplace Air Monitoring Technical Basis Document," dated September 11, 2008, documented the decision-making process for determining air sampling. During the surveillance a minor revision to the technical evaluation (TE-SWSD-08-002-001), dated September 17, 2009, was made, which did not impact the deficiencies identified below, and will be referenced for the remainder of the surveillance report.

PRC-0904-CDMP-0011, CHPRC Workplace Air Monitoring Technical Basis Document specifies “[Criterion 1] estimates the quantity of unencapsulated radioactive material that is available to be inhaled by a worker during one year... in a work location...” TE-SWSD-08-002-001 did not evaluate Criteria 1 and 2 to determine the need for air sampling because “The degree of degradation cannot typically be predicted prior to retrieving waste packages, so it is not possible to estimate how much of the material may be considered unencapsulated at the time of actual retrieval.” PRC-0904-CDMP-0011, specifies “Regulatory Guide 8.25 (NRC 1992) recommends that the need for air sampling be *considered* when the quantity Q_A (uCi) of radioactive material that is processed in a year in unsealed or loose form exceeds 10,000 times the Annual Limit on Intake (ALI)... For Class W Pu-239... [10,000 times the ALI results in a quantity of] 60 μ Ci/year”.

In the case of TRU retrieval, many of the containers are no longer intact, and the quantity of radioactivity available for exposure to the worker greatly exceeds 60 μ Ci/year. For example, the surveillance team observed three TRU packages being handled on two days, two of which individually exceeded the criteria. Box 10 contained 0.781 Ci of Pu-239, Box 11 contained 52 μ Ci of Pu-239, and Box 79 contained 0.3124 Ci of Pu-239. Thus, the requirements of Criterion 1 were clearly met.

PRC-0904-CDMP-0011 discusses how Criterion 2 takes into account modifying factors for evaluating the potential for intake (I_p) once Criterion 1 requirements are exceeded. The potential intake is modified by three factors: Release Fraction (R); Confinement Factor (C); and Dispersibility (D). For TRU retrieval activities with breached or damaged boxes, using an example of an $R = 0.01$ for nonvolatile powders, a $C = 1.0$ for open work areas, and a $D = 1$ for non-energetic operations would indicate a quantity of 6 mCi/year, which would result in work place air sampling criteria being met.

PRC-0904-CDMP-0011, Section 2.2.1.2 specifies “The facility should use professional judgment and experience, along with this analysis, to determine the need for air sampling. As a rule of thumb, if the I_p is >0.02 ALI [1.2 nCi] it would be prudent to perform air sampling.” The quantity of radioactivity available for intake to the workers involved in the work activity was significantly greater than 0.02ALI.

The project also did come to the conclusion that air monitoring was required at the boundary of airborne radioactivity areas using Criteria 3 and 4. Criteria 3 is an analysis of DAC-hr based on existing data (see PRC-0904-CDMP-0011, 2.2.1.3). Technical Evaluation TE-SWSD-08-002-001 states, “Since the potential exists for exceeding the airborne radioactivity area (ARA) posting trigger level of 0.2 DAC for alpha at ARA boundaries, air monitoring is essentially required in the RBA/ELA areas to identify and control potential sources of individual exposure in accordance with 10 CFR 835.401(a)(6).” This conclusion was based upon actual positive air sample results found in the RBA/ELA during work evolutions in an ARA. No results have been documented for air sampling in RBAs when the activity does not occur in a Contamination Area or ARA, such as the work observed on September 20, 2009, in Trenches 11 and 17.

Criterion 4 is an evaluation of removable surface contamination data to determine if work areas exceed requirements for work place air sampling (see PRC-0904-CDMP-0011, 2.2.1.4).

Technical Evaluation TE-SWSD-08-002-001 concluded work place air sampling was required for areas posted as a CA and ARA. However, the Technical Evaluation assumed because RBAs and ELAs are maintained below Criterion 4 contamination levels that work place air sampling was not required there.

Technical Evaluation TE-SWSD-08-002-001 did not take into account Criteria 1 and 2 to determine work place air sampling requirements in RBA and ELA when work is being conducted on and around potentially damaged TRU containers. The methodologies contained in PRC-0904-CDMP-0011 for Criteria 1 and 2 should easily have led to the conclusion that air sampling was required.

Subsequent to communicating this issue to the SWSD Radiological Control Manager, Memo 3C800-09-050, "Management Guidance for Air Sampling and Lapels in Radioactive Material Area (RMA) Radiological Buffer Area (RBA) During Retrieval Operations," dated October 1, 2009, was issued. This memo defined minimum air sampling of one sample in the immediate work area, one sample downwind, and lapel air samples for 50% of the workers performing container retrieval operations within a posted RMA/RBA.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-CHPRC-001-F02:

Technical Evaluation TE-SWSD-08-002-001, "SWSD Workplace Air Monitoring Technical Basis Document" does not adequately address the need for real-time air monitoring for TRU retrieval activities."

Requirements:

10 CFR 835.403(b) states, "Real-time air monitoring shall be performed as necessary to detect and provide warning of airborne radioactivity concentrations that warrant immediate action to terminate inhalation of airborne radioactive material."

10 CFR 830.122 (e) (1) states: "Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means."

CHPRC-00072, "CHPRC Radiation Protection Program," Appendix A, Requirement 91, Policy and Commitment Basis states,

"Article 555.2 (excerpt)

Monitoring of airborne radioactivity shall (835.403(a)) be performed:

a. Where an individual is likely to receive an exposure of 40 or more DAC-hours in a year, or'

Note: For the purpose of this RPP, the requirements of section 835.403 are met through the workplace air sampling program, which defines criteria for air sampling, including continuous air monitoring, record air sampling, and grab air samples.

Note: ‘...an individual is likely to receive’ recognizes that professional judgment and experience will be used in making decisions in specific circumstances.”

Discussion:

On September 10, 2009, work was performed to uncover and remove Box 79 from Trench 17 in Burial Ground 218-W-3A. On September 20, 2009, work was performed to uncover Boxes 10 and 11 in Burial Ground 218-W-3A. Box 11 was picked up and removed from the trench, and Box 10 was lifted to determine structural integrity. The surveillance team present at the work site did not observe use of real-time air monitors (i.e., continuous air monitors) during the course of these work activities, nor did the work procedures require them.

10 CFR 835.403(b) requires, “Real-time air monitoring shall be performed as necessary to detect and provide warning of airborne radioactivity concentrations that warrant immediate action to terminate inhalation of airborne radioactive material.” This provision is met through the workplace air sampling program, according to CHPRC-00072, “CHPRC Radiation Protection Program,” Appendix A, Requirement 91.

The CHPRC workplace air sampling program is documented in PRC-0904-CDMP-0011, “CHPRC Work Place Air Monitoring Technical Basis Document,” for CHPRC projects and facilities. This document is derived from NUREG-1400 guidance. Eight evaluation criteria (four for air sampling and four for real-time air monitoring) are used to determine the need for air sampling and whether real-time air monitoring is required. This technical basis document was used to evaluate the decision by TRU Retrieval Project personnel not to utilize real-time air monitoring for TRU retrieval activities.

Technical Evaluation TE-SWSD-08-002-001, “SWSD Workplace Air Monitoring Technical Basis Document,” dated 9/17/2009, documented the decision-making process for determining air sampling and real-time air monitoring requirements for TRU retrieval activities at the time of the surveillance. The Technical Evaluation requires clarification of its analysis of Criteria 5 through 8 that real-time air monitoring is not required for TRU retrieval activities.

The technical evaluation did not evaluate Criteria 5 and 6 because “The degree of [package] degradation cannot typically be predicted prior to retrieving waste packages, so it is not possible to estimate how much of the material may be considered unencapsulated at the time of actual retrieval.”

A review of HNF-14741, “Master Documented Safety Analysis (MDSA) for the Solid Waste Operations Complex (SWOC),” Revision 5A, dated October, 2008, Section 2.4.1.3 states, in part, “The fiberglass reinforced plywood (FRP) boxes buried in this burial ground were not designed for the burial loads and some have collapsed.” The box observed by the surveillance team (Box 79) was a FRP and had, in fact, been penetrated with smearable contamination

detected on the outside of the container. Box 10 was observed to be structurally degraded with holes in the container allowing workers to see the contents of the box. Box 11 appeared to be old but intact.

PRC-0904-CDMP-011, section 2.2.2.1, Criterion 5 specifies "Real-time air monitoring should be considered when the quantity, Q_D , of radioactive material being processed/handled in a day (8-hour shift) is approximately 4,000 times the ALI for inhalation." For Pu-239, 4,000 times the ALI for inhalation is 24 μ Ci. In the case of TRU retrieval, handling quantities of radioactive material exceeding this limit is a frequent occurrence. Box 79 contained 0.3124 Ci of Pu-239, Box 10 contained 0.781 Ci of Pu-239, and Box 11 contained 52 μ Ci of Pu-239. Any one of these packages alone exceeded the Criterion 5 quantity limits.

PRC-0904-CDMP-011, Section 2.2.2.2, Criterion 6, then specifies calculation of a modified daily intake, taking into account factors such as release fractions, confinement factors and dispersibility. PRC-0904-CDMP-0011 section 2.2.2.2, Criterion 6 – Potential Intakes, specifies "If the modified daily intake I_d is greater than 4 E-03 ALI, then real time air monitoring is required."

In the case of TRU retrieval, assuming unencapsulated material (confinement factor or 1) and movement or disturbance of the package for retrieval activities (such as lifting/shifting the unencapsulated load during retrieval), calculations appear to indicate real-time air monitoring was required.

The calculation is:

$$I_d = Q_D \times 10^{-6} \times R \times C \times D$$

where:

- Q_D is the quantity of material handled daily
- R is the Release Fraction (0.01 for nonvolatile powders)
- C is the Confinement factor (1.0 for open work)
- D is the Dispersibility (1.0 for non-energetic operations)

Thus, for Box 10, the Q_D was 0.781 Ci:

$$I_d = 0.781 \text{ Ci} \times 10^{-6} \times 0.01 \times 1.0 \times 1.0 = 7 \text{ nCi of Pu-239}$$

For Pu-239, the ALI for inhalation is 6 nCi, thus for Box 10, 7 nCi \gg 4 E-03 ALI and real-time air monitoring appears to be required.

For Box 79, the Q_D was 0.3124 Ci:

$$I_d = 0.3124 \text{ Ci} \times 10^{-6} \times 0.01 \times 1.0 \times 1.0 = 3 \text{ nCi of Pu-239}$$

For Pu-239, the ALI for inhalation is 6 nCi, thus for Box 79, 3 nCi >> 4 E-03 ALI and real-time air monitoring appears to be required.

PRC-0904-CDMP-0011, Section 2.2.2.3 specifies “We must also analyze [in Criteria 7 and 8] for the likelihood that an individual will be exposed to unexpected increases in airborne radioactivity levels based upon the expectation of discrete events or accident scenarios.”

Criterion 7 was not adequately evaluated by the SWSD project, and concluded real-time air monitoring was not required. Specifically:

- Work in a Contamination Area (CA) with degraded TRU waste was not evaluated. The Technical Evaluation stated, in part, “The TRU retrieval worker locations to be assessed are RBAs, ELAs, and ARAs. Support workers in RBAs and ELAs do not wear respirators. However, all TRU retrieval work performed in ARAs requires use of a powered air purifying respirator with a protection factor of 1000. It should be noted that procedure HNF-13536, Section 5.2.1, Workplace Air Monitoring Program, permits respiratory protection factors to be factored into real-time air monitoring evaluations when all workers in a given area are wearing respiratory protection devices.”

Contrary to this statement, workers were observed physically handling and moving an 8' x 8' x 16' TRU burial box that was breached (Box 79) with contamination detected in two places within a posted Contamination Area without utilizing respiratory protection. This situation is not evaluated in the Technical Evaluation.

- The Technical Evaluation used an event that occurred on May 31, 2007 and concluded, based on the event data results, that real-time air monitoring was not required.

PRC-0904-CDMP-001 specifies evaluation of Criterion 7 based on “the likelihood that an individual will be exposed to unexpected increases in airborne radioactivity levels based upon the expectation of discrete events or accident scenarios.” The case evaluated by SWSD project personnel was described in the Technical Evaluation to be “not truly considered an upset event or accident.”

This event was used to calculate the maximum exposure for an unprotected worker in the RBA/ELA (workers in the ARA were credited with respirator protection factors). The Technical Evaluation calculated a worst case value of 0.6 DAC-hours. However, the maximum actual DAC-hours received by a RBA/ELA worker was 4.44. In this case, the calculated value for Criterion 7 was nearly an order of magnitude lower than the actual value resulting from the event.

- Accident scenarios involving TRU burial boxes were not adequately evaluated for real-time air monitoring per Criterion 7.

The Technical Evaluation stated, “The other scenario that must be evaluated to satisfy criterion 7 is the occasional package drop, leaking package, or fork-lift puncture. The analysis performed for CWC can also be applied here, resulting in potential DAC-hour

exposures well less than the criterion 7 trigger of 8 DAC-hours. So, real-time air monitoring is not required at TRU retrieval operations in support of the drum deformation/puncture accident scenario.” The calculation in TE-SWSD-08-002-001 (indicating an exposure of 0.1 DAC-hr) appears to be inconsistent with the calculations performed in other project documents.

Airborne calculations for a spill from a dropped drum containing 7.1 DE-Ci, performed by the project (to support use of PAPR in an emergency response to a spill for procedure SW-ERP-003) indicated an exposure of 1.6×10^7 DAC-hr in ten minutes.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-CHPRC-001-F03

Solid Waste Operations Complex technical evaluations and emergency response procedures do not adequately address 29 CFR 1910.120(q)(3)(iv) requirements for employees engaged in emergency response and exposed to hazardous substances presenting an inhalation or potential inhalation hazard

Requirements:

29 CFR 1910.120(q)(3)(iv), states, “Employees engaged in emergency response and exposed to hazardous substances presenting an inhalation hazard or potential inhalation hazard shall wear positive pressure self-contained breathing apparatus while engaged in emergency response, until such time that the individual in charge of the ICS determines through the use of air monitoring that a decreased level of respiratory protection will not result in hazardous exposures to employees.”

10 CFR 830.122 (e) (1) states: “Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means.”

Discussion:

The surveillance team reviewed Solid Waste Operations Complex Emergency Response Procedures, and associated technical basis documents.

- **TRU Retrieval and WRAP emergency response procedures for a spill/release authorize response with a PAPR under some circumstances (below 1 DE-Ci).**

Solid Waste Storage and Disposal Emergency Response Procedure SW-ERP-003, “Respond to Spill/Release,” Revision F, Change, 4, Attachment 1, step 2.b states, in part, “2 RCTs/2 NCOs and an IH as directed to obtain PAPR and wear 2 sets of PPE and report to FOS to conduct mitigation activities....”

WRAP Facility Emergency Response Procedure WRP-ERP-014, "Respond to Spill/Release," Revision C, Change 5, Attachment 1, Step 2.b states, in part, "2 RCTs/2 NCOs to obtain PAPR with hood, or equivalent and don 2 sets disposable PPE and report to FOS to conduct mitigation activities...."

- **The technical basis for the use of PAPR for response to a spill below 1 DE-Ci needs to be formally incorporated into the records system for ready retrieval and needs improvement to justify the assumptions.**

The contractor provided an e-mail message dated August 29, 2002 that included an attachment containing a calculation of dose equivalence resulting from a dropped drum during TRU Retrieval Operations. Immediate dose (based on 10 minute exposure) was 1.6E+7 DAC-hr. The basis for emergency response activities being completed within 10 minutes is not explained.

This value is then reduced by a factor of 100, using a resuspension factor for hands off activities or for use of misting/soil cement. Misting/wetting has a reduction factor for airborne radioactivity of a maximum of 10. The technical basis for applying a reduction factor of 100 for misting/soil cement is not provided.

An adequate technical basis has not been developed to support use of PAPRs for emergency response.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-CHPRC-001-F04:

TRU Retrieval procedures and technical work documents do not adequately address the controls for potential radiological hazards, and as a result the radiation protection measures employed for TRU Retrieval work were not always commensurate with the existing and potential hazards.

Requirements:

10 CFR 835.501(d) states: "Written authorizations shall be required to control entry into and perform work within radiological areas. These authorizations shall specify radiation protection measures commensurate with the existing and potential hazards."

CHPRC-00073, "CHPRC Radiological Control Manual," Rev. 0, Article 316.1 states,

"1. Individuals shall [835.1102(e)] wear protective clothing during the following activities:

- a. Handling of contaminated materials with removable contamination in excess of Table 2-2 levels
- b. Entry to areas in which removable contamination exists at levels exceeding the removable surface contamination values specified in Table 2-2. [RPP # 225]

c. Personnel should use radiological PPE based on job hazard analysis, and as prescribed by the Technical Work Document, RWP or the Radiological Control Organization.”

CHPRC-00073, “CHPRC Radiological Control Manual,” Rev. 0, Article 317 states, in part,

“The potential for changes in radiological conditions during work, including the spread of contamination, should be evaluated during work planning in accordance with the job hazard analysis process.”

Discussion:

On September 20, 2009, the surveillance team observed a pre-job briefing and work at Burial Ground 218-W-3A, Trench 17, and at Burial Ground 218-W-4B, Trench 11. Several examples were noted where the radiation protection measures employed were not commensurate with the existing and potential hazards.

Example 1:

On September 20, 2009, the surveillant attended the pre-job brief and observed work to place bands around a failing burial box (Box 79) that had been retrieved from Burial Ground 218-W-3A, Trench 17 the previous week.

During the pre-job briefing, the Radiological Control Supervisor stated there were holes in the box that had been patched, thus the potential for contamination was low and the work would be conducted in a Radiological Buffer Area.

Contrary to this information, the surveillant had observed Box 79 being retrieved and placed in the containment sack the previous week, and did not observe patch installation over the contaminated holes in the box. Box 79 was placed into the containment sack inside a Contamination Area, and did not receive a complete removable contamination survey.

After the meeting, the surveillant informed the Radiological Control Supervisor of the additional radiological hazards. The Radiological Control Supervisor investigated the allegations with Operations personnel present for Box 79 retrieval and found the information provided by the surveillant to be correct. The inside of the containment sack was contaminated and the holes had not been patched.

However, the job plan did not change based upon the new hazard information. The work to remove the bag occurred in a Radiological Buffer Area. Upon opening the bag, the RCT found removable contamination later verified to be Pu and the work team had to respond to the spill, including conducting whole body surveys of potentially contaminated workers. The job was forced to be stopped and re-planned.

Example 2:

In Burial Ground 218-W-3A, Trench 17, workers uncovered two wooden burial boxes (Boxes 10 and 11) by hand digging against a TRU container whose side was crushed in. No radiological PPE was worn by the workers. The assigned RCTs performed continuous coverage (both contamination and dose rate surveys were performed with no loose surface contamination detected).

One wooden package (Box 11) was picked up and lifted from the trench and into a waiting burial box. No radiological PPE was worn. A second burial box (Box 10) was then hand dug out. This box was broken and degraded to point that the workers could observe the contents of the box through the holes in the box. This container was authorized by engineering to be “test lifted” to ensure the box remained intact. This test lift was done with personnel without radiological PPE still in the trench next to the box.

Example 3:

In Burial Ground 218-W-4B, Trench 11, workers were observed hand digging amidst jumbled, degraded TRU waste containers. The assigned RCT was performing intermittent contamination monitoring, with no loose surface contamination detected, and dose rate surveys (including neutron). The workers did not wear radiological PPE.

In addition, a review of TRU Retrieval procedures identified a weakness in providing guidance for addressing potential radiological hazards during TRU retrieval. Solid Waste Storage and Disposal Operating Procedure SW-100-157, “Uncovering TRU Waste from 218-W-3A, 4B & 4C,” Revision C, Change 12, does not account for potential radiological hazards when performing work. The Note preceding step 5.1.5 states, in part, “While removing trench overburden and sides, potential contamination (i.e., degradation of drums, tarps, or boxes) may be evident. If contamination is evident, team lead/RC Supervisor will need to determine whether to establish a contamination area (CA) before hand digging can continue.” Although this Note addresses potential contamination hazards, it does not require additional controls unless contamination is “evident.” Similarly, step 5.4.3.a.2 requires notification of FWS, RadCon, and IH if container degradation is discovered during excavation, and they will “determine whether to establish a contamination area before continuing hand digging.” The procedure does not direct the area to be posted or controlled based upon potential contamination.

Solid Waste Storage and Disposal Operating Procedure SW-100-163, “Retrieval of TRU Waste Containers in 218-W-3A, 4B, & 4C,” Revision D, Change 13 does not address or account for potential radiological hazards when performing work.

Observation: S-10-SED-CHPRC-001-001:

Opportunities for improvement of procedures were identified.

Discussion:

Solid Waste Storage and Disposal Radiological Control Procedure SW-150-044, “Perform WRP Radiological Surveys,” Revision A, Change 12, step 2.14 states, “Radiological posting is based

on contamination levels, quantitative dry smear, or transferability test survey results”. This does not take into account posting based on likely contamination levels, such as when encountering radioactive waste packages that are damaged (see definition of contamination area in 10 CFR 835).

Radiation Protection Technical Evaluation TE-SWSD-07-002-005, “SWSD/WRP Radiological Area Posting and Exclusion Areas Set-up Supporting TRU Waste Retrieval,” dated August 10, 2009, states, “During retrieval work, the levels of contamination encountered dictate the work area posting and controls as either a Contamination Area, High Contamination Area, and/or Airborne Radioactivity Area until decontaminated/mitigated. PPE, air sampling and other radiological controls are prescribed by RWPs and AMWs with limitations that consider anticipated or existing dose and contamination levels.” This does not take into account posting based on likely contamination levels, such as when retrieving or working near radioactive waste packages that are damaged (see definition of contamination area in 10 CFR 835). TE-SWSD-07-002-005 does not appear to address TRU Waste Retrieval work in a RBA, only in a CA, High Contamination Area (HCA) and/or ARA.

TE-SWSD-07-002-005, also states, “The size of the ARA (e.g., 30 ft. radius) is based on 0.1 to 11 mph wind speeds. Atmospheric conditions may require a larger ARA.” However, no written guidance is provided to determine ARA boundary size based on atmospheric conditions.

RL Lead Assessor Closure Required: YES[X] NO []

Contractor Self-Assessment:

Since contract transition, no specific assessments of airborne radioactivity control have been performed. Two assessments in the area of airborne radioactivity control have been scheduled in 2010. A CHPRC management assessment of contamination control was performed in September 2009, noting a favorable trend in contamination control events at the Waste and Fuels project.

Contractor Self-Assessment Adequate: YES [] NO [X]

Management Debriefed:

Ken McLain, CHPRC
Brian Oldfield, CHPRC
Mark Higbee, CHPRC



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0066

APR 12 2010

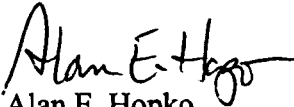
Mr. F. A. Figueroa, President
and General Manager
Mission Support Alliance, LLC
Richland, Washington 99352

Dear Mr. Figueroa:

**CONTRACT NO. DE-AC06-09RL14728 – TRANSMITTAL OF SOFTWARE QUALITY
ASSURANCE (SQA) SURVEILLANCE REPORT (S-10-SED-MS-011)**

The purpose of this letter is to transmit Surveillance Report S-10-SED-MS-011 that addresses issues with the MSA SQA program for management of safety software. Three findings and two observations are documented in the surveillance report. MSA is directed to process the attached surveillance report through the MSA corrective action management system and provide a corrective action plan for Finding F01 in accordance with SCRD 470.2B (Supp. Rev. 2) within 45 days of receipt of this letter. If you have any questions, please contact me, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,


Alan E. Hopko
Contracting Officer

SED:CAA

Attachment

cc w/attach:
J. M. Amstead, MSA
F. K. Butz, MSA
S. W. Green, MSA
E. C. Lugo, MSA
DNFSB

Department of Energy Richland Operations Office Surveillance Report

Division: Safety & Engineering Division (SED)

Surveillant: Cliff Ashley

Surveillance Number: S-10-SED-MSA-011

Date Completed: March 18, 2010

Contractor: Mission Support Alliance LLC (MSA)

Facility: Cross Cutting

Title: Software Quality Assurance (SQA) Surveillance

Guide: DOE G 414.1-4

Surveillance Scope:

The surveillance was performed by the DOE-RL SQA Subject Matter Expert (SME) to determine the contractor's ability to address all the necessary corrective actions to close out previous surveillance finding S-09-SED-FHI-005-F01. This finding states, "The FHI Chief Information Officer (CIO), Software Owners, and Software Subject Matter Experts (SME) have not adequately maintained an accurate list of their safety software applications."

Surveillance Summary:

The surveillant performed the following activities for Level A safety software:

- Reviewed Hanford Information System Inventory (HISI) entries for HLAN, RFAR, ACES, MSA RSP Tool, MSDS, iClient, HSDRS, and HTIDSD
- Reviewed MSA closure documentation for S-09-SED-FHI-005-F01 (CARF 20090068/ AR 2902773600)
- Reviewed the current MSA inventory list of safety software
- Reviewed adequacy of Safety Software Management Procedures
- Interviewed MSA SQA Management and Staff

In summary, the following issues with the MSA SQA Program were identified. These issues are discussed and documented in detail within surveillance findings and observations.

1. The MSA safety software inventory and associated HISI entries inappropriately categorized three applications, listed three other applications that should have been retired, and listed one application as "operational" when it was not authorized for use.
- MSA 2. The MSC extent of condition performed in August 2009 to validate their safety software to close finding S-09-SED-FHI-005-F01 was inadequate.
3. The MSC Corrective Action Plan (CAP) schedule for actions was changed several times without the approval of RL.
4. MSA has not effectively taken ownership and management of safety software that will be used by other Hanford Prime Contractors.
5. The communications between the MSA SQA Program Management and safety software owners could be improved.

The surveillance identified three findings, and two observations.

- **S-10-SED-MSC-011-F01** The MSA SQA program does not effectively ensure that their safety software is appropriately categorized and operational status is correct.
- **S-10-SED-MSC-011-F02** The MSA extent of condition review of MSA SQA Program corrective actions was not adequate.
- **S-10-SED-MSC-011-F03** MSA did not communicate to RL planned corrective action completion date changes as required.
- **S-10-SED-MSC-011-O01** MSA has not effectively taken ownership and management of safety software that will be used by other Hanford Prime Contractors.
- **S-10-SED-MSC-011-O02** The communications between the MSA SQA Program Management and safety software owners could be improved.

Surveillance Results:

Finding: S-10-SED-MSC-011-F01

The MSA SQA program does not effectively ensure that their safety software is appropriately categorized and operational status is correct.

Requirement:

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 5, paragraph b. states, "Identify, document, and maintain safety software inventory." Paragraph d. states in part, "Using the grading levels established and

approved above, select and implement the applicable software QA work activities from the following list to ensure that safety software performs its intended functions.”

MSC-PRO-309 Rev. 0, Controlled Software Management, Section 5.6, Approval for Use, Step 1, Step 3, and Step 5 for Software Owner, Software SME, and MSA CIO, respectively, state, “Review the following for completeness, consistency, and adequacy.

- HISI registration
- Software application documentation, as listed in HISI.”

Discussion:

On February 22, 2010, MSA provided their safety software inventory list to the SME. From this list the SME elected to conduct surveillance field interviews with the MSA safety software owners of HLAN, RFAR, ACES, MSA RSP Tool, MSDS, iClient, HSDRS, and HTIDSD. The following issues were observed:

1. HLAN (HISI 2025) was identified as safety software on the MSA Software Inventory List. Also within HISI, HLAN was categorized as safety software, based upon Software Grading Checklist questions S2, 4, and 11, being answered as “yes.” In fact the positive answer to question 4 caused HLAN to be categorized as Level A safety software. During a surveillance field interview the HLAN Owner verified to the SME that HLAN is not software and should not be listed as safety software on the MSA Safety Software Inventory and HISI. The Owner explained that HLAN only consists of network hardware and does not have any software. Subsequently, the MSA SQA Program Manager met with the HLAN Owner to remove HLAN from HISI and their safety software inventory.
2. RFAR (HISI 1048) was categorized as Level A safety software, which was based upon the Software Grading Checklist questions S1 and 1 being answered as “yes.” However, the RFAR owner informed the SME that if a RFAR software failure occurred, it would not impact a Limiting Condition of Operation (LCO) for any Hanford Nuclear Facility. According to the Owner, PFP once had a LCO that could have been impacted if RFAR failed; however, according to the RL SME the PFP authorization basis (AB) documentation that supported this was modified in the 1990’s. In each annual update to the AB since then, RFAR is considered as important to safety and no longer associated with any LCO. Subsequently, the MSA SQA Program Manager committed to meet with the RFAR Owner to change the answers to questions S1, S3, and 1, which will cause this software to be re-categorized as Level C.
3. MSDS (HISI 2139) was categorized as Level C safety software, which was supported by the Software Grading Checklist questions S3 and 12 being answered as “yes.” However during a surveillance field interview, the SME was informed by the Owner that the MSDS software does not perform nuclear material, hazardous chemical, or waste inventory tracking and/or accountability. The SME could not find any supporting evidence or guidance (such as DOE G 414.1-4) that would justify the MSDS software to be managed as safety software. Subsequently, the MSA SQA Program Manager met with the MSDS Owner to

change the answers to questions S2 and 12, which caused this software to be re-categorized as Level D, non-safety software.

4. During the surveillance period the MSA SQA Program Manager and safety software owners to iClient (HISI 1483), HSDRS (HISI 1456), and HTIDSD (HISI 1455) retired these software, and as a result field interviews with owners of these software were cancelled. It was not apparent as to why HSDRS and HTIDSD were not retired much earlier, as these software were replaced by HASMAS on November 11, 2009 when HASMAS (HISI 2340) became operational. Similarly, it was not apparent as to why iClient was not retired when MSA took over the MSC contract.
5. MSA RSP Tool (HISI 2015) was identified by MSA as “operational” safety software within the HISI database, and was on the MSA safety software inventory list. However during the duration of the MSA contract, this software is not authorized by its Owner and the MSA SQA Program Manager for use because of lack of supporting documentation. Also, the MSA RSP Tool should not be identified within MSA's safety software inventory list as it is not used, lacks supporting documentation, and is not supported in regard to problem reporting or configuration control by CHPRC.

Based upon the above, it is apparent that the MSA SQA program does not effectively ensure that their safety software is appropriately categorized and operational status is correct.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-SED-MSC-011-F02

The MSA extent of condition review of MSA SQA Program corrective actions was not adequate.

Requirement(s):

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 3. Quality Assurance Criteria, c. Management/Criterion 3-Quality Improvement, paragraph (4) states, “Review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement.”

Discussion:

In August 2009, the MSC CIO conducted an extent of condition review to validate their safety software and determine that the ownership, category level and operational status are correct (reference MSA closure documentation CARF 20090068/AR 2902773600 Action DTS-06).

During this review the CIO questioned why HLAN was categorized as Level A Safety Software, however no follow up corrective actions were taken. As a result HLAN continued to reside on the MSA safety software inventory list and HISI as Level A safety software.

Based upon the above, and issues discussed within finding F01, the SME concluded that the MSA extent of condition review to close out surveillance finding S-09-SED-FHI-005 was inadequate.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-MS-011-F03

MSA did not communicate to RL planned corrective action completion date changes as required.

Requirement(s):

CRD O 470.2B (Supplemented Rev. 2) Independent Oversight and Performance Assurance Program, Section C, Supplemental Requirements, Paragraph 1.c. states, "Corrective Actions (CAs) and due dates are established for issues that require RL closure verification. This notification shall provide the detailed CAs and respective due dates. Any subsequent changes to the CAs and/or due dates shall also be communicated."

Discussion:

Within the response (FH-0901025A R1) to RL surveillance finding S-09-SED-FHI-005-F01, a Scheduled Corrective Action Plan outlined eight actions numbered DTS-01 to -08. Each DTS Action had a planned completion date assigned.

MSA closure documentation CARF 20090068/AR 2902773600 has copies of internal correspondence showing when dates for three DTS actions (DTS-03, -05, and -06) were changed; however, the changes were not communicated to RL.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-SED-MS-011-O01

MSA has not effectively taken ownership and management of safety software that will be used by other Hanford Prime Contractors.

Discussion:

As discussed within Finding F01, MSA owns and manages a safety software application identified as MSA RSP Tool (HISI 2015). However, MSA has not authorized its use due to lack of supporting documentation that CHPRC possesses. According to the Owner of MSA RSP Tool, this software is a copy of FH RSP Tool that CHPRC currently owns and manages by the name of CHPRC RSP Tool (HISI 2554).

Since the RSP Tool software is needed by several Hanford Contractors and MSA is tasked by DOE contract to be the mission support contractor for RL and ORP, it would seem more appropriate for MSA to own and manage the primary copy of FH RSP Tool and provide copies to all the other Hanford Contractors as authorized users.

Currently, seven months into the MSC contract, MSA and CHPRC are continuing to sort out the appropriate ownership management of the RSP Tool software and other safety software that is also needed by other Hanford Contractors, such as RadCalc 4.1, Microshield, SAL Tool and CFAST.

On a positive note, MSA has taken over ownership/management of RadCalc 4.1 for CHPRC and other Hanford Contractors as a "beta test." However there is no documented schedule as to when this test is complete, or test criteria that could determine if the test was a success or failure. When this was brought to the attention of the MSA SQA Program Manager, she committed to recommending completion and success of this beta test at the next Hanford Site Contractors Monthly SQA meeting.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-SED-MSC-011-002

The communications between the MSA SQA Program Management and safety software owners could be improved.

Discussion:

During the field interviews with the MSA safety software owners of HLAN, RFAR, ACES, MSA RSP Tool, it became apparent that one of the primary reasons why the owners did not correctly categorize their software (reference discussion within finding F01), was because of inadequate communication between the MSA SQA Program Manager and the owners. For example, the communications that the SME had with the owners that resulted in the discovery of five issues described in F01, could have taken place much earlier between the Program Manager and the owners during or soon after the MSC contract transition to MSA, and again in August 2009 between the MSC CIO and owners during the CIO's extent of condition review (reference discussion within finding F02).

RL Lead Assessor Closure Required: YES [] NO [X]

Contractor Self-Assessment:

MSA had an independent extent of condition review of safety software, which was completed in August 2009. The SME determined that this review was not adequate (reference finding F02).

Contractor Self-Assessment Adequate: YES [] NO [X]

Management Debriefed:

F.K. Butz, MSA
T.G. Ibsen, MSA
K.K. Friday, MSA



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0025

JAN 04 2010

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352


Dear Mr. Lehew:

**CONTRACT NO. DE-AC06-08RL14788 – OVERSIGHT SURVEILLANCE OF CHPRC
INDEPENDENT ASSESSMENT (IA)-PLUTONIUM FINISHING PLANT HEATING
VENTILATION AND AIR CONDITIONING (HVAC) AND MICON VITAL SAFETY
SYSTEMS (S-10-SED-PFP-002)**

The purpose of this letter is to transmit RL Surveillance Report S-10-SED-PFP-002 addressing the effectiveness of CHPRC's implementation of the IA process in the subject independent assessment. The report identifies one concern supported by three findings and two observations. Based on the results of this Surveillance Report, you are requested to process the concern and findings through the CHPRC corrective action management process and provide a corrective action plan for the findings in accordance with CRD 0 470.2B3 (Supplemented Rev. 2), Independent Oversight and Performance Assurance Program, within 60 days of receipt of this letter.

If you have any questions, please contact us, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,


Jan Osso
Contracting Officer

SED:CAA

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
K.A. Dorr, CHPRC
C.M. Kronvall, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
DNFSB

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillants: Burt Hill, Mark Hahn, Cliff Ashley

Surveillance Number: S-10-SED-PFP-002

Date Completed: December 4, 2009

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Plutonium Finishing Plant (PFP)

Title: Oversight Surveillance of CHPRC Independent Assessment-PFP Heating, Ventilation, and Air Conditioning (HVAC) and MICON Vital Safety Systems

Surveillance Scope:

The objective of this surveillance was to validate the effectiveness of CHPRC's Central Engineering (CE) implementation of Independent Assessment (IA) review of the System Engineer (SE)/Vital Safety Systems (VSS) program implementation at the Plutonium Finishing Plant (PFP). The VSSs selected for this surveillance were the Confinement Ventilation System (CVS) PFP System 25 and the MICON system. Area of HVAC system focus was the CVS serving the 234-5Z building.

Surveillance Summary:

The CHPRC IA team performed a review of the PFP CVS and MICON safety systems, including support systems and interfaces. The review consisted of document reviews, interviews (with the SEs and interface organizations), and a system walk-down.

The RL surveillants performed a concurrent in-field review of the contractor's IA of the VSS at the PFP to validate the effectiveness of CHPRC's implementation of the IA process including the adequacy and appropriateness of the IA criteria and contractor's plan of action used to evaluate the SE/VSS program. This field review included a walk-down of portions of the PFP CVS and MICON system for configuration and material condition. The RL surveillants also participated in the IA interviews with the respective

system engineer (SE) and various interface specialists. The RL surveillants also reviewed the following: PFP safety basis documents; the IA assessment plan and CHPRC vital safety system procedures and processes; the PFP System Engineer's Notebook, including the most recent assessment of the VSS; facility drawings; 21 PRC procedures; 5 PRC requirement documents; and other miscellaneous documents to validate the contractor's implementation of an effective facility VSS assessment and independent review of the CVS at the PFP. Additionally, the RL surveillants reviewed the IA final report (CHPRC-CE-IA-09-05 issued on October 31, 2009).

Summary of results

The CHPRC VSS IA of CVS at PFP lacked sufficient rigor to adequately assess VSS operability. The IA assessment team appeared limited in size and makeup, was not well prepared, and had insufficient time to adequately assess the operability of a complex safety system. The limited assessment results support this conclusion. Only four Opportunities for Improvement (OFI) were reported, one of which (OFI-2) the surveillant considers a finding, and the three remaining OFI's were minor in nature. Significant issues have been identified by each of the previous major VSS reviews of the PFP CVS since the inception of the VSS program and lack of any is particularly notable. This resulted in a concern supported by three findings.

The RL surveillants concur with the IA Report that there has been significant improvement in the implementation of the CVS SE/VSS program at the PFP. However this conclusion could not be made based solely upon the IA Report. Instead this conclusion was reached in part due to many data points taken by the RL CVS SSO over the last year. The RL surveillants did agree with one Noteworthy Practice (NP-1), the CVS trending at PFP is a notable achievement and should be used as a model for other facilities.

Although RL does not believe that the integrity of the IA was ever compromised, the team composition, organizational relationship of CHPRC Central Engineering to the projects, and the SE/VSS procedures provide the appearance that an objective assessment of all aspects of the effectiveness of implementing the SE/VSS program may be compromised. This appearance is due to the fact that the Technical Authorities for engineering procedures, including the System Engineer Program procedure, are in the Central Engineering organization. Additionally, the overall responsibility for the SE Program belongs to Central Engineering as the System Engineer Program Manager is a member of the Central Engineering organization.

The following concern, three findings, and two observations resulted from this surveillance effort:

- **S-10-SED-PFP-002-C01:** The CHPRC VSS IA process was not implemented with sufficient rigor for the IA assessment at PFP.
- **S-10-SED-PFP-002-F01:** The CHPRC VSS IA of CVS at PFP lack sufficient rigor to adequately assess VSS operability.

- **S-10-SED-PFP-002-F02:** The CHPRC VSS IA process did not establish sufficient authority and independence to provide an effective independent measure of the adequacy of their VSS program.
- **S-10-SED-PFP-002-F03:** CHPRC VSS IA team did not adequately evaluate the effectiveness of timely corrective actions for previously identified RL surveillance findings that are over a year old.
- **S-10-SED-PFP-002-O01:** The CHPRC System Engineer Program Manager (SEPM) did not issue an adequate SEPM annual report.
- **S-10-SED-PFP-002-O02:** The CHPRC IA team did not issue a timely assessment report.

Conclusions

The CHPRC VSS IA process was not effective at evaluating the effectiveness of implementing the SE/VSS program for CVS and MICON system at PFP. Regarding the IA process and implementation, it appeared to lack the rigor that RL expects for an IA of VSS(s). The team appeared not well prepared and had insufficient time to adequately assess the operability of a complex safety system. The limited assessment results support this conclusion. Additionally the IA team appeared to lack appropriate independence to give the PFP a thorough and objective assessment of all aspects of the effectiveness of implementing the SE/VSS program.

Previously these assessments were performed by an independent group with adequate authority and preparation, and performed by a dedicated, highly qualified, and effective team. This assessment team appeared to be staffed as a collateral duty and unprepared for rigorous VSS assessment. The RL surveillants recommend that CHPRC should reassess PFP CVS and MICON VSS with a stronger and independent team in the next six to twelve months.

As this review was focused on the assessment process and effectiveness, an independent conclusion of VSS/SSE effectiveness is difficult. With the limited observations and data points it is clear that the implementation of VSS/SE program has much improved since previous assessments; however, the issues identified within this report are an indicator that further improvement is needed in the area of CHPRC independent assessments and VSS annual reports.

Surveillance Results:

Concern S-10-SED-PFP-002-C01

The CHPRC VSS IA process was not implemented with rigor for the IA assessment at PFP.

Discussion:

This concern is supported by findings F01, F02, F03, O01 and O02. The primary purpose for documenting this concern is to communicate RL's expectation for increased CHPRC management attention to the implementation of the VSS assessment program. It is believed that increased management attention will result in a robust independent assessment process for identifying and correcting deficiencies in the VSS. This allows RL oversight staff to leverage the IA program to provide more focused and more effective oversight.

RL Lead Assessor Closure Required: YES [X] NO []

Finding S-10-SED-PFP-002-F01

The CHPRC VSS IA of CVS at PFP lack sufficient rigor to adequately assess VSS operability.

Requirement:

10CFR830 Paragraph 122 (c) (1) states, "Establish and implement processes to detect and prevent quality problems." Paragraph 122 (j) (1) states, "Plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance and to promote improvement."

PRC-PRO-QA-9662 Rev. 1 Change 1, Independent Assessment Process, Section 4.0, First Paragraph states in part, "Independent Assessments (IAs) are planned and conducted to measure the adequacy of work performed against defined requirements and to determine the effectiveness of requirements implementation. IAs evaluate: defined requirements against applicable codes and standards sets; the quality of items and processes to identify deviations from the assigned requirements; and opportunities for improvements in the work activities being assessed."

Discussion:

The primary intent of the Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2000-2 (VSS) and DOE's Implementation Plan (IP) was to improve operational readiness of the VSS. A key component of the VSS program is the independent assessment of the VSS. The purpose of the independent assessment is to validate that the SE and VSS programs are adequately implemented to ensure reliable performance of systems and equipment providing safety functions. Elements of operability include definition of safety functionality, configuration management, surveillance and testing, and maintenance. The CVS serving PFP is the oldest and most complex CVS at Hanford. There are multiple indications that the assessment was not performed with sufficient rigor to fully determine operability and reliability of the PFP CVS. These indications include:

1. Limited assessment duration: While two weeks were allotted for the infield portion of this review, the review started the second day of the first week and the second week was only a three day week. Typical assessments in this facility have taken three weeks. To exacerbate the limited time, there was not a facility location for the team to work. Therefore, the team had to work from their offices, which were located downtown. Also the daily team meetings were held downtown, which compounded the already insufficient review duration, with time lost by the team members during their commute.
2. Minimal team size: In addition to the team lead only two team members were assigned to assess the CVS. (There was a third member on the team whose assignment was the distributed control system). In the past, team sizes have been three or more members dedicated to the CVS. It is worth noting that related to team size and composition, the only significant ventilation experience was a consultant brought in who was not knowledgeable of CHPRC procedures and processes. The other CVS team member was also fairly new to the CHPRC procedures and IA assessment process.
3. A detailed configuration walkdown was not conducted. A superficial walkdown was conducted with only a schematic of the CVS. It is normally expected that a portion of the system is walked down thoroughly with at least a detailed P&ID. Also, while a few issues were identified during the walkdown, they did not make it into the final IA report.
4. Assessment team not adequately prepared: Typically the team is assembled at least the week before the field portion of the assessment to perform the document review portion of the assessment. This did not appear to have happened. Additionally, one of the key assessment team members had not even had access to the information until after the first few days of the review and had not even seen the facility safety basis until the middle of the last week of the assessment.
5. Lack of issues consistent with previous reviews: Past reviews have identified numerous issues with VSS/SE implementation in PFP CVS. The two most recent reviews (FY 2005 & 2007) resulted in a total of 12 findings and 17 observations with a couple of RL concerns. This assessment resulted in only four CHPRC OFIs which, except for OFI-2, were considered relatively minor. While much improvement has been made in the VSS/SE program implementation in PFP CVS during the recent year, this is not considered sufficient to have resulted in such a drastic improvement so quickly, especially when the surveillants know that noncompliance to contractual requirements continue to exist.

RL Lead Assessor Closure Required: YES [X] NO []

Finding S-09-SED-PFP-002-F02

The CHPRC IA VSS assessment process did not establish sufficient authority and independence to effectively measure the adequacy of their VSS program.

Requirement:

10CFR830 Paragraph 122 (j) (1) states, "Plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance and to promote improvement." Paragraph j.(2), states "Establish sufficient authority and freedom from line management for independent assessment teams."

Discussion:

The primary intent of the DNFSB Recommendation 2000-2 (VSS) and DOE's Implementation Plan (IP) was to improve operational readiness of the VSS. A key component of the VSS program is the independent assessment of the VSS. The purpose of the independent assessment is to validate that the SE and VSS programs are adequately implemented to ensure reliable performance of systems and equipment providing safety functions. The RL oversight of CHPRC VSS Program activities leverages heavily on the effectiveness of the CHPRC independent assessment process as a highly effective self-assessment process. This specific facet of the VSS program has been specifically identified in the contract SCRD 420.1 stating "In addition to the annual CSE assessment, each vital safety system shall be assessed by an independent team at a minimum every three years. The independent assessment team shall include an engineering discipline functional area subject matter expert (e.g. confinement ventilation) appropriate for the VSS assessed. The independent assessment shall not only examine the elements in CRD Chapter V, section 3.c.5, but also examine the CSE qualifications and CSE performance of the annual CSE assessment process." While no specific instances were identified by the RL surveillants where... the assessment team failed to detect any inadequacies in the PFP VSS program implementation, several observations were made during the assessment which questions the "authority and independence" of the team. Among these include:

1. The assessment was sponsored, formed and led by CHPRC Central Engineering (CE). CE Reports to the Engineering, Project Management, and Construction (EPC) VP and no longer directly reports to the CHPRC president. Although this assessment was conducted on a facility in another project, reporting through a project may influence the independence of the review and reporting of the results.
2. The VSS/SE procedures (including the engineering and system configuration management) are managed by the CE organization. As issues may be identified with the procedures themselves, the CE organization is clearly part of the target of the review and cannot provide objectiveness and maintain full independence.
3. While unique to this facility, one of the SEs is an employee of the same sub-contractor as one of the assessors. It provides the appearance that the assessment team (at least one key member) has a vested interest in the success on the SE and cannot be viewed as independent.

RL Lead Assessor Closure Required: YES [X] NO []

Finding S-10-SED-PFP-002-F03

CHPRC VSS IA team did not adequately evaluate the effectiveness of timely corrective actions for previously identified RL surveillance findings that are over a year or two old.

Requirement:

10CFR830 Paragraph 122 (c) (2) states, "Identify, control and correct items, services, and processes that do not meet established requirements."

PRC-MP-QA-599 Rev. 0 Change 2, Quality Assurance Program, Section 3.4.1 states in part, "Managers at all levels are responsible for the following:

- Correcting issues in a timely manner
- Ensuring corrective actions are effective
- Ensuring the identification and control of nonconformances."

Discussion:

The CHPRC Vital Safety System (VSS) Independent Assessment (CHPRC-CE-IA-09-05) which began in May 2009, had within its scope to "evaluate the effectiveness of corrective actions for previously identified issues." The Assessment team was advised by DOE-RL of several open PFP VSS findings that were over two years old. One finding had been open since 2004. The assessment team did not adequately review these findings so as to measure the timeliness and effectiveness of PFP corrective actions. As a result, the assessment team did not identify or report any issue with PFP work performance in the area of corrective action management, which could have promoted improvement in this area.

Inadequate Corrective Action Management for PFP MICON VSS Surveillance/Assessment Findings

When CHPRC was transitioning into their PHMC responsibilities, they perceived that all safety software was adequately managed, however, the RL Instrument & Control SSO advised them several times (beginning in November 2008) that RL safety software related surveillance findings S-07-SED-FHI-002-F01, S-05-SED-FHI-016-F01, and SQA assessment finding A-04-SED-FHI-009-F06 were still considered open, and all these findings are related to continued configuration control issues with the PFP MICON system safety software. To date, these findings are still considered open. The remaining action by CHPRC PFP for closing out these findings was to "Revise MICON requirements document."

During the Independent Assessment the PFP MICON Primary SE was asked for a copy of a white paper that could close out S-07-SED-FHI-002-F01 (and other related previous findings mentioned above); however, the SE did not know if this white paper was formally approved by his management, and if necessary/appropriate communication to

the CHPRC action tracking organization was made. As a result the SE informed the assessment team that he would follow up on the white paper. The draft white paper mandated that there would be no more changes to the MICON software, and that a secondary SME for the MICON would be fully qualified. Later the SSO advised the Independent Assessment Team Lead that close out of S-07-SED-FHI-002-F01 was still inadequate as the white paper was not finalized nor provided to RL. These deficiencies were not discussed within the "Effectiveness of Corrective Actions for Previously Identified issues" write up of the assessment report.

Inadequate Corrective Action Management for PFP HVAC VSS Surveillance/Assessment Findings

The RL CVS SSO had conducted a closure review for CR-2008-4818, Implementation of SE Program for PFP CVS VSS, and determined that this CR inadequately documented the corrective actions for F-05, F-10 and O-1 of FH-OA-IA-07-01, Independent Assessment of the HVAC VSS at PFP Closure Project. During the closure review, an agreement was discovered, resulting from a concern expressed during review and approval of the Corrective Action Plan (CAP), to address the issues identified in FH-OA-IA-07-01. The concern was that the CAP should not combine F-5 & F-10. F-10 was viewed as a "roll-up" of all of the findings/observations and should be addressed separately. In response an agreement was reached (reference OA reports 13981 and 14151) to perform the effectiveness review for F-10 after all of the findings and individual effective reviews have been completed. At the time of finalizing this surveillance report, two findings (F-1 and F-2) have not yet been completed. CR 2008-4797 shows a completion date of 6/30/2010 for findings F-1 and F-2. As there are remaining open findings, concurrence could not be given for CR-2008-4818.

RL Lead Assessor Closure Required: YES [X] NO []

Observation S-10-SED-PFP-002-001

The CHPRC System Engineer Program Manager (SEPM) did not issue an adequate SEPM annual report.

Discussion:

The SEPM annual report for fiscal year 2009 included a copy of the PFP Project Chief Engineer (PCE) Annual VSS Report which identified the five VSS's at PFP. The PFP PCE report; however, failed to identify the corrective actions needed to adequately close out open findings for the HVAC and MICON VSS.

The PCE Annual VSS Report mentioned that the PCE had been provided a close out briefing by the CHPRC VSS Independent Assessment Team from the assessment of the PFP HVAC and MICON VSS conducted in May and June 2009. However, neither the SEPM nor PCE annual report mentioned any action, improvements, upgrades, or changes

to address the four “Opportunities for Improvement,” as documented within assessment report CHPRC-CE-IA-09-05. Listed below are the OFI’s identified,

- OFI-1: Define a process to maintain Vital Safety System functions of the HVAC System during D&D activities.
- OFI-2: Identify/document the Passive Confinement Torturous Path Design Features within Engineering documentation which support PFP Documented Safety Analysis (DSA) 0.1 Leak Path Factor (LPF) Requirements.
- OFI-3: Update System Notebook, System Design Description, etc. which changes resulting from contract translation. Allow for use of electronic based System Notebooks.
- OFI-4: Upgrade/Expand Critical Characteristics Identified for Commercial Grade Item Procurements.

Additionally the SEPM or PCE annual reports did not self identify any of the other HVAC VSS issues outlined within this RL surveillance report, or self identify any action, improvements, upgrades, or changes to address these issues.

Last of all, the cited requirement calls for the following items, however these items could not be found within the SEPM annual report.

- The annual VSS reports transmitted by the PCE’s and the SE’s were not sufficiently compiled as the one page SEPM annual report did not mention, identify, or reference the three PCE annual VSS reports or all the SE reports by name. From the SEPM report it was not clear that the PCE annual VSS reports were attachments. More specifically, the SEPM annual report did not reference any of the attached annual VSS PCE reports, and instead simply reported that “Each System Engineer and Project Chief Engineer provided status reports..”.
- List of VSS’s and SE’s was not adequately identified/referenced by the SEPM annual report. Also this list was not complete, as not all of the SE’s were listed, (i.e. PFP System 26 and System 93 each have three SE’s, but the list only identifies 2 SE’s for each system).
- Qualification Status of SE’s was not adequate (PFP MICON VSS, all Waste Stabilization and Disposition Project VSS, and all 100K Project VSS SE qualification statuses were not provided in either SEPM or PCE annual reports).
- The SEPM annual report was not dated, and as a result the surveillants could not determine if this report was completed on or before October 31, 2009.

RL Lead Assessor Closure Required: YES [X] NO []

Observation S-10-SED-PFP-002-O02

The CHPRC IA team did not issue a timely assessment report.

Discussion:

The final assessment report was not issued for nearly three and a half months after completion of the field work. The assessment kick off meeting occurred on May 19, 2009, and field work was completed May 28, 2009, however the assessment report (CHPRC-CE-IA-09-05) was not issued as a final until September 15, 2009 and provided to RL on October 15, 2009. It was noted that the CHPRC procedure for conducting independent assessments (PRC-PRO-QA-9662 Rev. 1 Change 1), did not require timely issuance of assessment reports. Timely reporting of issues is necessary to ensure timely corrective actions are taken to avoid recurrence. In addition, the final IA report was issued as an "inter-office Memorandum" as allowed by PRC-PRO-EN-16331 and not distributed to, or readily retrievable by RL as implied in SCRD 420.1B Rev 4.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment: The IA team conducting the review of the CVS at PFP performed a very quick review of the safety system including support systems and interfaces allowing time only for a surface review of SE/VSS implementation of PFP CVS. The IA assessment was inadequate to confidently validate the adequacy of SE/VSS implementation of PFP CVS.

Contractor Self-Assessment Adequate: YES NO

Management Briefing:

S. Spencer, CHPRC
C. Kronvall, CHPRC



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0052

APR 20 2010


Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company LLC
Richland, Washington 99352

Dear Mr. Lehew:

CONTRACT NO. DE-AC06-08RL14788 – TRANSMITTAL OF SOFTWARE QUALITY
ASSURANCE (SQA) SURVEILLANCE REPORT (S-10-SED-PRC-004)

The purpose of this letter is to transmit Surveillance Report S-10-SED-PRC-004 that addresses issues with the CHPRC SQA program management of safety software. Three findings and three observations are documented in the surveillance report. CHPRC is directed to process the attached surveillance report through the CHPRC established corrective action management system and provide a corrective action plan for the all findings in accordance with SCRD 470.2B (Supp. Rev. 2) within 45 day of receipt of this letter. If you have any questions, please contact me, or your staff may contact Pete J. Garcia Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,


Jan Osso
Contracting Officer

SED:CAA

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
R. L. Nelson, CHPRC
V. M. Pizzuto, CHPRC
DNFSB

Department of Energy Richland Operations Office Surveillance Report

Division: Safety & Engineering Division (SED)

Surveillant: Cliff Ashley

Surveillance Number: S-10-SED-PRC-004

Date Completed: February 17, 2010

Contractor: CH2M Hill Plateau Remediation Company LLC (CHPRC)

Facility: Cross Cutting

Title: Software Quality Assurance (SQA) Surveillance

Guide: DOE G 414.1-4

Surveillance Scope:

The surveillance was performed by the DOE-RL SQA Subject Matter Expert (SME) to determine the contractor's effectiveness in managing their safety software.

Surveillance Summary:

The surveillant performed the following activities for Level A safety software:

- Reviewed extent of condition reports;
- Reviewed traceability matrices;
- Reviewed adequacy of HISI Listing
- Reviewed adequacy of Safety Software Management Procedures
- Reviewed supporting documentation;
- Interviewed CHPRC SQA Management and Staff

In summary, the CHPRC SQA Program Manager and staff were very responsive to resolve specific issues identified during the surveillance, however, improvement is needed to develop processes, or improve existing processes, for the following:

1. Communication with Software Owners and SMEs so as to ensure (a) required supporting documents exist and are adequate, (b) extent of condition actions are completed, (c) requirements traceability matrices are completed to meet or exceed the expectations outlined within the associated CHPRC template, (d) software no longer needed is retired in a timely manner, and (e) software checklist questions are understood and appropriately completed.
2. Improving the software inventory system such that the SQA Program Manager and Staff are automatically notified whenever a software application is (a) upgraded in categorized level from non-safety software to safety software, (b) upgraded in categorized level of safety software (such as level C to level B, etc), (c) downgraded in categorized level from safety software to non-safety software, and (d) downgraded in categorized level of safety software.
3. Improving the responsiveness of software owners and SMEs to request(s) made by the SQA Program Manager.
4. Improving the use of PRC-PRO-IRM-309 (Controlled Software Management procedure) such that it is applied to all CHPRC safety software. Background: When this procedure was revised from the blue sheeted HNF-PRO-309, CHPRC safety software used for (a) control or analysis of safety Structures, Systems, and Components (SSC), (b) Transuranic (TRU) Waste Management program, or (c) OCRWM were inappropriately exempt. As a result the supporting documentation needed to manage this safety software during its entire life cycle is inadequate.

The surveillance identified three findings and three observations.

- **S-10-SED-PRC-004-F01** CHPRC Management has not ensured that all safety software is consistently managed to adequate procedures.
 - **S-10-SED-PRC-004-F02** CHPRC Management has not ensured that an independent extent of condition review of safety software accurately measures the adequacy of SQA work performed for safety software.
 - **S-10-SED-PRC-004-F03** The CHPRC safety software inventory process needs to be improved to detect changes made to software status.
 - **S-10-SED-PRC-004-O01** CHPRC procedure PRC-PRO-IRM-309 does not provide adequate instructions on how to consistently complete a Requirements Traceability Matrix.
 - **S-10-SED-PRC-004-O02** The CHPRC SQA Program lacks a process of ensuring legacy software owners fully comply with procedures by March 31, 2010.
 - **S-10-SED-PRC-004-O03** Improvement is needed in the responsiveness of software owners and SMEs to request(s) made by the SQA Program Manager.
-

Surveillance Results:

Finding: S-10-SED-PRC-004-F01

CHPRC Management has not ensured that all safety software is consistently managed to adequate procedures.

Requirement:

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 3, Quality Assurance Criteria, e. Performance/Criterion 5-Work Processes, Paragraph (1) states, "Perform work consistent with technical standards, administrative controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc."

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 5, Safety Software Quality Requirements, paragraph d. states in part, "Using the grading levels established and approved above, select and implement the applicable software QA work activities from the following list to ensure that safety software performs its intended functions....

- (1) Software project management and quality planning
- (2) Software risk management
- (3) Software configuration management
- (4) Procurement and supplier management
- (5) Software requirements identification and management
- (6) Software design and implementation
- (7) Software safety
- (8) Verification and validation
- (9) Problem reporting and corrective action
- (10) Training of personnel in the design, development, use, and evaluation of safety software."

Discussion:

Currently PRC-PRO-IRM-309 (Controlled Software Management procedure) is not applied to all CHPRC safety software. When this procedure was revised from the blue sheeted HNF-PRO-309, CHPRC safety software used for (a) control or analysis of safety SSCs, (b) Transuranic (TRU) Waste Management program, or (c) Office of Civilian Radioactive Waste Management (OCRWM) were inappropriately exempted from minimum requirements to manage safety software. As a result the supporting documentation needed to manage 14 of 52 CHPRC owned safety software (27%) is inadequate in that applicable work activities as listed in the cited requirement and the discussion below are not appropriately addressed.

Currently safety software for control system and data acquisition of configuration managed SSCs are managed in accordance with PRC-PRO-EN-20050 Rev. 0 Change 1,

Engineering Configuration Management. The surveillant reviewed this document and determined that it does not adequately address the management of software for basic life cycle phases such as quality planning, risk management, configuration management, procurement, requirements identification and management, design and implementation, verification and validation, problem reporting and corrective action. Currently CHPRC is managing 11 safety software using this inadequate procedure.

Safety Software used for the TRU Waste Management program is managed in accordance with WMP-400, Section 6.1.1, TRU Software Quality Assurance. The surveillant reviewed this document and determined that it lists the basic life cycle phases for safety software by title, but does not adequately describe how the items mentioned above are implemented. Currently CHPRC is managing two safety software using this inadequate procedure.

Safety Software used to support or describe items or activities on the Hanford "Q" list, HNF-SD-SNF-RPT-007, Application of OCRWM QA Requirements to the Hanford SNF Program, is managed in accordance with the 100K Area Project procedures included in the CM-Software Configuration Management manual. The surveillant reviewed this document and determined that it does not adequately cover the management of safety software for the risk management, procurement, and requirements identification and management phases. Currently CHPRC is managing one safety software using this partially inadequate document in conjunction with PRC-PRO-EN-200050.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-SED-PRC-004-F02

CHPRC Management has not ensured that an independent extent of condition review of safety software accurately measured the adequacy of SQA work performance for safety software.

Requirement(s):

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 3. Quality Assurance Criteria, c. Management/Criterion 3-Quality Improvement, paragraph (4) states, "Review item characteristics, process implementation, and other quality-related information to identify items, services, and processes needing improvement."

Discussion:

In a corrective action response to two previous DOE-RL findings (S-09-OOD-CHPRC-001-CC-F02 and -F03), CHPRC had an independent Extent of Condition (EOC) review of safety software performed in June 2009. These findings respectively stated, "The CHPRC SQA program had not ensured that PRC-MD-001 was adequately implemented for their safety software," and "The implementation of HNF-PRO-309 Rev. 6 by the

CHPRC Chief Information Officer, Software Owners, and Software SMEs is inadequate.”

The CHPRC SQA Program manager and the SME reviewed the EOC checklists for all Level A safety software and found the findings involve:

1. The EOC review checklists for Level A safety software show that a "Requirements Traceability Matrix" is required, however numerous checklists indicate that a matrix did not exist.
2. Some of the EOC review checklists show that a Requirements Traceability Matrix exists; however, they are vaguely identified. For example, ZB-OCW (HISI #1165), PFPALIC (HISI #1076), HVAC DCS (HISI #1863), MCS-CVD (HISI #1724), SuperHENC (HISI #2096), ZB-THERMAL (HISI #1163) do not clearly state the specific document number/location of the Requirements Traceability Matrix. Later as a performance test, the SQA Manager and SME reviewed the Requirements Traceability Matrix for HVAC DCS (managed via PRC-PRO-EN-20050) and MCS-CVD (managed using OCRWM procedure) safety software and determined that these matrixes do not meet base CHPRC expectations.
3. The CHPRC procedure for Controlled Software Management (PRC-PRO-IRM-309) requires a Functional Requirements Document (FRD), Software Management Plan (SMP), and Software Requirements Specification (SRS), prior to developing and designing software. However the EOC review of CritView (HISI #2476) and MCNP5 (HISI #2474) discovered that both safety software (which are currently being developed) did not have an adequate FRD, SMP, and SRS.
4. A CHPRC Software Inventory Status sheet was used to monitor/track adequacy of "Document Status," for all safety software based upon the EOC review. However the status of the software described above were assigned as "Adequate" when in fact the status should have been "Inadequate."
5. The Software Inventory Status sheet needed to be updated to adequately describe the actions listed within the extent of conditions for level A, B, and C software. For example, on SWITS-Proj (HISI #267), the EOC checklist identified 6 actions; however, the status of these actions are not tracked on the mentioned status sheet.
6. An EOC was performed for RADAC (HISI #1742), but it was not referenced on the CHPRC Software Inventory Status Sheet.

Based upon the above issues, the SME could not use the EOC review of CHPRC safety software as the basis for closure of DOE-RL Findings S-09-OOD-CHPRC-001-CC-F02 and -F03.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-004-F03

The CHPRC safety software inventory process needs to be improved to detect changes made to software status.

Requirement(s):

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 3. Quality Assurance Criteria, d. Management/Criterion 4-Documents and Records, paragraph (1) states, "Prepare, review, approve, issue, use and revise documents to prescribe processes, specify requirements, or establish design." Section 5. Safety Software Quality Requirements, paragraph b. states, "Identify, document, and maintain safety software inventory."

Discussion:

The safety software PTW (HISI #1076) and RADCALC (HISI #1700) had been in existence, but were only added to the CHPRC Safety Software inventory after the EOC's were performed in June 2009. As a result no EOC review/checklist was completed for these software.

The EOC checklists for ZB THERMAL (HISI #1163), ZB-OCW (HISI #1165), and ZB-LEAK (HISI #1166) states that these software programs are out of operation and due for retirement. However the CHPRC SQA Program organization had not yet updated their Software Inventory Status list to facilitate getting these applications retired.

After further review, the SME determined that the CHPRC SQA Program does not have an effective process to detect changes to their inventory of software. Without this process, CHPRC will be unable to perform the necessary reviews and coaching with the software owner, as to ensure timely completion of required supporting documentation per PRC-PRO-IRM-309.

More specifically, improvement to the CHPRC software inventory system (currently identified as the Hanford Information System Inventory-HISI), such that the CHPRC SQA Program Manager and staff are automatically notified whenever a software application is (a) upgraded in categorized level from non-safety software to safety software, (b) upgraded in categorized level of safety software (such as level C to level B, etc), (c) downgraded in categorized level from safety software to non-safety software, and (d) downgraded in categorized level of safety software. This notification will enable the SQA Program Manager to update the safety software inventory so as to keep it current.

RL Lead Assessor Closure Required: YES [X] NO []

Observation: S-10-SED-PRC-004-001

CHPRC procedure PRC-PRO-IRM-309 does not provide adequate instructions on how to consistently complete a Requirements Traceability Matrix.

Discussion:

PRC-PRO-IRM-309 requires in Section 3.3.1 the Software Owner to "Prepare and initiate use of a Requirements Traceability Matrix." However, it is not clear from this procedure as to how this matrix is to trace software requirements through definition, design, and testing. CHPRC has a Requirements Traceability Matrix template; however, it is not referenced or attached to this procedure.

In order for Software Owners to consistently develop an adequate matrix, additional instructions, templates, etc. are necessary to clearly describe the CHPRC SQA Project Management expectation for this matrix.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-SED-PRC-004-002

The CHPRC SQA Program lacks a process of ensuring legacy software owners fully comply with procedures by March 31, 2010.

Discussion:

PRC-PRO-IRM-309, Section 3.1.2.4 requires legacy software applications to be in compliance with this section no later than March 31, 2010, however there does not appear to be a process by which CHPRC SQA Program is tracking the progress of legacy safety software owners to ensure that they comply by this date. The SME asked what the percentage complete was for each applicable safety software, and this information could not be provided by CHPRC.

When this issue was brought to the attention of the CHPRC SQA Program Manager, action was taken during the week of February 8, 2010, where the Manager sent a communication to each of the nine safety software owners listing required documentation for their software.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-SED-PRC-004-003

Improvement is needed in the responsiveness of software owners and SMEs to request(s) made by the SQA Program Manager.

Discussion:

As a indirect result of CHPRC having up to four procedures to manage TRU, OCRWM, SSC (control system and data acquisition), and all other safety software (reference finding F01 discussion), software owners have been slow to unresponsive to requests made by the CHPRC SQA Program Manager.

More specifically, software owners of TRU, OCRWM, and SSC safety software believe that they operate under their respective program procedure that they mistakenly believe is adequate to manage their software. As a result, they do not feel obligated to adequately respond to requests by the SQA Manager to provide equivalent supporting documentation that meets or exceed the required supporting documentation for PRC-PRO-IRM-309.

RL Lead Assessor Closure Required: **YES [X]** **NO []**

Contractor Self-Assessment:

CHPRC had an independent extent of condition review of safety software, which was completed in June 2009. The SME determined that this review was not adequate (reference finding F02).

Contractor Self-Assessment Adequate: **YES []** **NO [X]**

Management Debriefed:

Suzanne M. Young, CHPRC
Ronald L. Nelson, CHPRC



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0044

FEB 08 2010

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company LLC
Richland, Washington 99352

Dear Mr. Lehew:

CONTRACT NO. DE-AC06-08RL14788 – TRANSMITTAL OF SCAFFOLD
SURVEILLANCE REPORT (S-10-SED-PRC-003)

The purpose of this letter is to transmit a Surveillance Report S-10-SED-PRC-003 that address hazards to workers associated with the implementation of your Scaffold Program. One concern and seven findings are documented in the surveillance report. CHPRC is directed to process the attached surveillance report through the CHPRC established corrective action management system and provide a corrective action plan for the concern and all findings in accordance with SCRD 470.2B (Supp. Rev. 2) within 45 day of receipt of this letter. If you have any questions, please contact me, or your staff may contact Pete J. Garcia Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in black ink, appearing to read "Jan Osso".

Jan Osso
Contracting Officer

SED:JF

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
DNFSB

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillant: J. Flack (SED) and R. Johnson (OOD)

Surveillance Number: S-10-SED-PRC-003

Date Completed: January 12, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: 200 West, Building 224-U, D-Cell

Title: Near Miss Fall from Scaffolding

Guide: 10 CFR 851 Worker Safety and Health Program
29 CFR 1926 Subpart L, Scaffolds

Surveillance Scope:

The surveillance was performed to determine contractor effectiveness in meeting Department of Energy/Occupational Safety and Health Administration (DOE/OSHA) worker protection standards for erection and use of scaffolding. The surveillance was initiated when an employee experienced a near miss fall during the erection of complex tube and coupler scaffolding.

Surveillance Summary:

This surveillance was initiated when an employee experienced a near miss 40 foot fall while erecting complex tube and coupling scaffold at the U Plant, Bldg 224. The following is a summary of the near miss event taken from the contractors critique and DOE interviews with management, union and competent person. Also included in this report is a DOE Facility Representative (FR) observation of scaffolding that had not been assembled correctly, misuse of the tagging process and other lapses in the implementation of the contractor scaffold program. The inconsistencies in the contractor implementation of the tagging process were addressed in several Operational Awareness (OA) reports.

1. NEAR MISS EVENT

On August 7, 2009, at approximately 6:45 hours a rigger (the competent person on the job) performed an inspection of a partially built complex tube and coupler scaffold without fall protection. The riggers' balance was upset when an unsecured horizontal brace rotated away and the forward momentum caused him to step onto a concrete parapet wall where he was able to grab a secured vertical scaffold member to halt his momentum. The concrete parapet wall separates the C and D Cells and is 20 feet above ground on the D-Cell side, and approximately 40 feet above ground on the C-Cell side.

Immediately after the near miss fall, the rigger/competent person instructed the rest of the rigging crew to add two additional horizontal members to the scaffold. After instructing the crew, the rigger/competent person left the scene to inform the field work supervisor and management of the incident. The rigging crew added the two additional horizontal members to the scaffold without fall protection and without the presence of a competent person.

2. MOBILE SCAFFOLD ASSEMBLY, SCAFFOLD TAGGING AND FALL PROTECTION

On numerous occasions (Ref. OA 25901, 25411, and 25556) the DOE FR observed scaffolding activity that was inconsistent with the red or green tag. According to CHPRC procedure PRC-PRO-SH-095, scaffolding with an attached green tag means it is complete and ready for use. Competent Person/Rigger Iron Workers erect/alter/modify scaffolding on the Hanford site and the competent person inspects and approves the scaffolding for use by signing and hanging a green tag. A red tag is used when the scaffolding is not ready for use and can only be accessed upon approval by the competent person.

Recently, there have been several observed instances when scaffolding has been modified and/or altered despite the scope of work indicated by the scaffold tag. For example, a scaffold with a green tag was modified by a rigger and in another situation, a red tagged scaffold was accessed and erection continued even though the Competent Person, as designated on the scaffold red tag was not present for a two week time period. In addition, other serious safety violations of the OSHA standards were observed. The observed instances include the following:

- A rigger modified scaffolding by removing and re-attaching the access gate to the other side of the opening. The scaffolding was green tagged and at least one insulator who was working from the scaffold at the time of the modification was exposed to an approximate 16 foot fall when the gate was removed. In addition, the rigger that was modifying the scaffold did not have fall protection and his helper stood on a horizontal cross brace while assisting with the gate modification. (Ref. OA 25901)
- A second instance, involved a rigger removing a top guard rail on mobile scaffolding and replacing it with another scaffold piece. The mobile scaffold had a green inspection tag signed by a competent person. However, the green tag was not signed by the rigger involved in altering the scaffold. In addition, access to the four foot platform was not provided. (Ref. OA 25411)

- In a third instance, the competent person for erecting the scaffold was away for two weeks and a scaffold red tag was installed that stated, "Only employees authorized by the competent person-erection may access this scaffold." Work proceeded on the scaffold while the competent person was away. (Ref. OA 25556)

3. FALL FROM FREE STANDING MULTI-BAY SCAFFOLDING

September 29, 2009 – Worker fell 7 feet, 9 inches from scaffolding located at Soils and Groundwater Remediation project at 100K. (Ref. OA 26936)

Each side of a truck, transporting an ERDF container, is accessed by workers on free standing multi-bay frame scaffolding with stair units. The workers stand on the scaffold platforms, on each side of the truck and secure a tarp over the top of the ERDF container with bungee cords. The bungee cord is looped over hooks on the sides and rear of the container. To reach the middle rear hook the worker must lean over the scaffold guardrails, apply pressure to the end of the bungee cord and loop over the hook. The worker lost his balance and fell when leaning over to reach the middle rear hook. Leaning over the guardrails negates the protection offered.

A company film crew (not media) was filming the work and the event was captured on video. A review of the video showed the worker catching himself by hanging onto the top rail as he went over falling feet first, to the ground and landing on his side.

In conclusion, the surveillants found that many of the operating practices were not performed in accordance with OSHA scaffold regulations and the surveillance resulted in the identification of the following concern and seven findings:

- **Concern: S-10-SED-PRC-003-C01** The CHPRC Scaffolding program lacks rigor, formality, and discipline.
- **Finding: S-10-SED-PRC-003-F01** The contractor allowed a wrong sized component to be used for a top rail and used wire to attach the rail to the post for the mobile scaffolding located in 224 UA Electrical Switchgear room.
- **Finding: S-10-SED-PRC-003-F02** The contractor did not provide safe access to all mobile scaffolds and tube and coupler scaffolds in the U Plant.
- **Finding: S-10-SED-PRC-003-F03** The contractor has not defined the qualifications and scope of authority for the competent person.
- **Finding: S-10-SED-PRC-003-F04** The contractor did not ensure a competent person, qualified in scaffold erection, moving, dismantling and alteration provided supervision and direction as required.
- **Finding: S-10-SED-PRC-003-F05** A rigger and two insulators were exposed to a fall hazard of approximately 16 feet during the removal and reinstallation of an access gate for scaffolding located in the 224-UA, "L" Calciner Room.
- **Finding: S-10-SED-PRC-003-F06** The fall protection offered by the guardrail was negated when a worker leaned over a 36.5 inch guardrail to perform an assigned task.

- **Finding: S-10-SED-PRC-003-007** The Scaffolding Administrative Procedure PRC-PRO-SH-95, dated August 14, 2009, is less effective than the OSHA requirements in 29 CFR 1926, Subpart L.
-

Surveillance Results:

Concern: S-10-SED-PRC-003-C01

The CHPRC Scaffolding program lacks rigor, formality, and discipline.

Discussion:

The lack of management oversight and accountability has resulted in a program deficient in proper scaffold erecting and use. This is evidenced by the findings in this report (S-10-SED-003) and previous Operational Awareness reports (OA 25070, 25411, and 25901.) The OA's reported the lack of adherence to specific scaffold tagging issues as required by Administrative Procedure PRC-PRO-SH-095, and a general misunderstanding of the scope of work that may be performed under a red or green tag.

The findings in this report (S-10-SED-PRC-003) indicate significant programmatic weaknesses in the scaffolding program. The lack of management oversight and accountability has resulted in a program deficient in proper scaffold erecting and use. This has increased the risk of defective scaffold being put into service and serious injury and/or death during scaffold erecting and use.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-SED-PRC-003-F01

The contractor allowed a wrong sized component to be used for a top rail and used wire to attach the rail to the post for the mobile scaffolding located in 224 UA Electrical Switchgear room.

Requirement(s):

29 CFR 1926.451(b)(10) Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force and the scaffold's structural integrity is maintained by the user. Scaffold components manufactured by different manufacturers shall not be modified in order to intermix them unless a competent person determines the resulting scaffold is structurally sound.

Discussion:

ThyssenKrupp Safway mobile scaffolding located in 224 UA Electrical Switchgear room was cleared and ready for use per the attached green tag. However, the top rail for the guardrail was the wrong sized component. Because the component did not fit, the proper coupler could not be used. Therefore wire was used to attach the top rail to the post.

The FR observed a rigger pull him onto the scaffolding platform. The rigger replaced the top rail with the proper sized component and clamped it into place. The green tag was not removed nor signed off on by the rigger during the scaffold modifications.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-003-F02

The contractor did not provide safe access to all mobile scaffolds and tube and coupler scaffolds in the U Plant.

Requirement(s):

29 CFR 1926.451(e)(1) When scaffold platforms are more than 2 feet (0.6 m) above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/towers), stairway-type ladders (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface shall be used. Cross braces shall not be used as a means of access.

29 CFR 1926.451(e)(9)(iv) Cross braces on tubular welded frame scaffolds shall not be used as a means of access or egress.

Discussion:

ThyssenKrupp Safway mobile scaffolding located in 224 UA Electrical Switchgear room was cleared and ready for use per the attached green tag. However, an access ladder for the four foot high platform had not been provided. The FR observed a rigger crawl onto the scaffolding platform and modify the scaffold by replacing a top rail with the proper sized component. The green tag was not removed nor signed off on by the rigger during the scaffold modifications. In addition, the lack of safe access, such as a portable or attachable ladder was not included in the modifications.

On August 7, 2009, at approximately 6:45 hours, the competent person on the job performed an inspection of a partially built complex tube and coupler scaffold without fall protection. The rigger nearly fell when an unsecured horizontal brace rotated and gave way as he was traversing a lower horizontal section of the scaffold for access. The rigger lost his balance when an upper horizontal brace rotated away. He was able to avoid falling by stepping onto a concrete parapet wall and grabbing a secured vertical scaffold member. The concrete parapet wall separates the C and D Cells and is 20 feet above ground on the D-Cell side, and approximately 40 feet above ground on the C-Cell side.

A FR also observed Insulators and two Riggers on a scaffold in the 224-UA, "L" Calciner Room. The scaffold had a "green" scaffold inspection tag. The Riggers were observed removing/repositioning/reinstalling the safety access gate. One of the riggers used a horizontal scaffold brace to access the area and perform work.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-003-F03

The contractor has not defined the qualifications and scope of authority for the competent person.

Requirement(s):

DOE O 414.1C, Attachment 2, 3.d(1) Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design.

10 CFR 851.3 and 29 CFR 1926.450(b) "Competent person" means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.

29 CFR 1926.451(e)(9)(i) The employer shall provide safe means of access for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. The employer shall have a competent person determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.

29 CFR 1926.451(f)(3) Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift, and after any occurrence which could affect a scaffold's structural integrity.

29 CFR 1926.451(f)(7) Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.

29 CFR 1926.451(g)(2) Effective September 2, 1997, the employer shall have a competent person determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. Employers are required to provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

Discussion:

The contractor scaffold program procedures have not defined the qualifications and the scope of authority and responsibilities of a competent person. The current training program for "competent person" ensures the qualifications for "skill of the craft" have been met but not for "competent person." The competent person must have "skill of the craft" along with knowledge

and understanding of how to comply with all applicable OSHA standards and have the authority and responsibility to ensure the scaffold is erected in accordance with standards and work procedures.

The role, qualifications, and responsibilities of a "competent person" as defined by OSHA has been upheld in a number of OSHA contested cases and repeatedly clarified in interpretation letters. For example, in a letter dated February 1, 1993, OSHA clarified that a "person who does not have a thorough knowledge of the requirements, regulations and standards governing his/her direct duties cannot be considered a competent person." An interpretation letter dated February 21, 1986, states a "competent person must have the authority to take prompt measures to eliminate hazards at the work site and have the experience to be capable of identifying these hazards.

An acceptable method to meet the intent of the DOE and OSHA standard at the Hanford site is to first establish the qualifications for a competent person. This will provide assurance that the competent persons are technically qualified, including a thorough knowledge of the OSHA and American National Standards Institute standards and the scaffolding manufacturer requirements. In addition, this person must have applicable Hanford site and scaffold hazard recognition skills and be given the authority to restrict scaffold erection or use until he/she has verified that significant safety issues have been addressed. Currently the CHPRC scaffolding program does not address the qualifications and responsibilities of a person that meets the above criteria.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-003-F04

The contractor did not ensure a competent person qualified in scaffold erection, moving, dismantling and alteration provided supervision and direction as required.

Requirement(s):

10 CFR 851 Appendix A.1.(a)(1)(iv) Identify competent persons required for workplace inspections of the construction activity, where required by OSHA standards.

29 CFR 1926.451(f)(7) Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.

Discussion:

The contractor has not ensured a competent person as defined by the DOE/OSHA standards is assigned, present, and provides supervision and direction during all scaffold erections. The current program for "competent person" ensures the qualifications for "skill of the craft" have been met but not for "competent person."

In addition to “skill of the craft,” the competent person must have knowledge and understanding of how to comply with the applicable OSHA standards and be given the authority to ensure the scaffold is erected in accordance with the applicable standards and work procedures. The following examples of scaffold erection and modification indicate significant weaknesses in the assigning, qualifications and/or authority of the competent person:

- ThyssenKrupp Safway mobile scaffolding, located in 224 UA Electrical Switchgear room was cleared and ready for use per the attached green tag. However, safe access for the four foot high platform had not been provided, the top rail for the guardrail was the wrong sized component and wire had been used to attach the rail to the post.
- On August 7, 2009, at approximately 6:45 hours a rigger (the “competent person” on the job) performed an inspection of a partially built scaffold without fall protection and nearly fell when an unsecured horizontal brace gave way and rotated as he was traversing a lower horizontal section of the scaffold. Immediately after the near miss fall, the rigger/competent person instructed the rest of the rigging crew to add two additional horizontal members to the scaffold and left to inform the field work supervisor and management of the incident. The rigging crew added the two additional horizontal members to the scaffold without fall protection and without the presence of a competent person.
- FR observed Insulators and two Riggers on scaffold located in the 224-UA, “L” Calciner Room. The scaffold had been inspected earlier in the day and was “green” tagged indicating it was safe to use. Insulators were on platforms at elevated heights at approximately 10 and 16 feet. The Riggers were observed removing and reinstalling the safety access gate located on the 16 foot platform (to allow the gate to swing in a different direction.) Rigger #1 was performing the safety access gate remount was positioned at the gate entrance on the 16 foot platform. Rigger #2 was observed assisting the first Rigger by standing on an outside horizontal scaffold brace while holding the scaffold ladder with one hand. Neither the riggers nor insulators were wearing fall protection when the scaffold gate was removed.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-SED-PRC-003-F05

A rigger and two insulators were exposed to a fall hazard of approximately 16 feet during the removal and installation of an access gate for scaffolding located in the 224-UA, “L” Calciner Room.

Requirement(s):

29 CFR 1926.451(g)(1) Each employee on a scaffold more than 10 feet (3.1 m) above a lower level shall be protected from falling to that lower level. Paragraphs (g)(1)(i) through (vii) of this section establish the types of fall protection to be provided to the employees on each type of

scaffold. Paragraph (g)(2) of this section addresses fall protection for scaffold erectors and dismantlers.

Discussion:

FR observed two Riggers access the ladder to the scaffold located in the 224-UA, "L" Calciner Room. The scaffold was inspected earlier in the day and "green" tagged with a scaffold inspection tag. Insulators were working on scaffold platforms approximately 10 and 16 feet high. The Riggers were observed removing/repositioning/reinstalling the safety access gate located on the 16 foot platform (to allow the gate to swing in a different direction). This action was done with two other workers performing insulating work from the 16 foot platforms. The Rigger #1 performing the safety access gate remount was positioned at the gate entrance on the 16 foot platform. The Rigger #2 was observed assisting the first Rigger but he was not using the scaffold ladder for support. Instead, he stood on the outside horizontal scaffold bracing while holding the scaffold ladder with one hand. The riggers and the other two employees performing insulating work on the 16 foot scaffold platform were not wearing fall protection during the gate changes.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-003-F06 The fall protection offered by the guardrail was negated when a worker leaned over a 36.5 inch guardrail to perform an assigned task.

Requirement(s):

10 CFR 851.10(a)(1) The contractor must provide a place of employment that is free from recognized hazards that are causing or have the potential to cause death or serious physical harm to workers.

Discussion:

On September 29, 2009, a worker fell from a scaffold when the assigned task required leaning over a 36.5 inch guardrail. Leaning over the rail caused the workers' center of gravity to shift and the worker fell 7 feet, 9 inches. The scaffold was located at Soils and Groundwater Remediation project at 100K. The hazard is the high risk of falling when leaning over the guardrails.

The assigned task required workers to stand on free standing multi-bay frame scaffolding, located beside an Environmental Restoration Disposal Facility transport truck, and secure a tarp over the top of the container. The tarp is secured with bungee cords looped over hooks on the sides and rear of the container. To reach the middle rear hook the worker must lean over the scaffold guardrails, apply pressure to the end of the bungee cord and loop over the hook. A worker lost his balance and fell when leaning over the scaffold guardrail to reach the middle rear hook. (Ref. OA 25568 and 26936.)

Requirements for guardrails on scaffolding less than 10 feet is addressed in the OSHA interpretation letter dated March 11, 1983 to Stanley Elliot, "Guardrails are not required for scaffold for heights under 10 feet, except for adjacent dangerous equipment and similar hazards." The free standing scaffolding at 100K is less than 10 feet, however, guardrails are required to protect from dangerous equipment/hazards such as falling into the container of potential radioactive material or into the pathway of a moving vehicle.

Feasible and useful methods to correct the hazard may include:

- Perform the task when standing on the ground.
- Provide additional fall protection, i.e. fall arrest, when task performance requires leaning over guardrail.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-003-007 Scaffolding Administrative Procedure PRC-PRO-SH-95, dated August 14, 2009, is less effective than the OSHA requirements in 29 CFR 1926, Subpart L.

Requirement:

DOE O 414.1C, Attachment 2, 3.d(1) Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design.

Discussion:

The following references and comments provide examples of where the procedure is less effective than the OSHA requirements:

2.0 Scope, NOTE 1: Taking one of more training courses does not ensure a person is competent as defined by 29 CFR 1926.450(b). The OSHA interpretation letter, dated May 21, 1999, states a person must be capable, demonstrate knowledge about the requirements of the scaffold standard and have the authority to correct hazards.

4.3 Scaffold Use, 1.c. Scaffold inspections at a frequency determined and justified by the project or operations manager is less effective than required by the OSHA construction standard 29 CFR 1926.451(f)(3). This standard requires inspections before each work shift.

5.1 General, #6. Same comment as paragraph above. Scaffold inspections are required before each work shift.

5.4 Scaffold Erection, #8. The use of crossbraces to access scaffold is prohibited by 29 CFR 1926.451(e)(9)(iv).

5.6 Scaffold Training, #3. The provision that employees will be retrained when "deemed necessary" is less effective than the OSHA standard 29 CFR 1926.454(c). This standard requires an employee to be retrained when the employees work indicates the requisite proficiency has not been retained.

RL Lead Assessor Closure Required: **YES [X]** **NO []**

Good Practice:

1. After the fall from the multi-bay scaffolding at 100K and upon request from the contractor, Safway Scaffolding returned to the site and installed an additional bar to raise the top rail height to 38 inches. NOTE: The Safway 1998 prefabricated scaffold frames limit the height of the guardrails.
2. All scaffolding used by the contractor was re-evaluated, and if needed, corrective actions were taken to increase all scaffolding guardrail heights between 38 to 45 inches.
3. The practice of leaning over guardrails was discontinued and all employees involved in tarping were reminded of the hazards.
4. The practice of attaching the bungee to the middle hooks from the scaffolding was discontinued. This job is now performed from the ground level.
5. Procedures have been modified to require Competent Person refresher training every three years.
6. The contractor is working together with the Hanford site prime contractors, Washington Closure Hanford and Mission Support Alliance to reach consensus on scaffolding procedures.

Contractor Self-Assessment:

At the time of the above mentioned events, contractor self assessment of scaffolding work had not been done.

Contractor Self-Assessment Adequate: **YES []** **NO [X]**

Management Debriefed:

Mark Hughey, CHPRC
Chris Thursby, CHPRC
Dennis Wiatrak, CHPRC
Robert Wilkinson, CHPRC



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

APR 16 2010

10-SED-0053

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company LLC
Richland, Washington 99352

Dear Mr. Lehew:

CONTRACT NO. DE-AC06-08RL14788 – TRANSMITTAL OF CHPRC AMERICAN RECOVERY AND REINVESTMENT ACT (ARRA) PROJECT ELECTRICAL SAFETY SURVEILLANCE REPORT (S-10-SED-PRC-009)

The purpose of this letter is to transmit Surveillance Report S-10-SED-PRC-009 that addresses issues with the CHPRC ARRA electrical safety program. Seven findings and two observations are documented in the surveillance report. CHPRC is directed to process the attached surveillance report through the CHPRC corrective action management system and provide a corrective action plan for the all findings in accordance with SCRD 470.2B (Supp. Rev. 2) within 45 days of receipt of this letter. If you have any questions, please contact me, or your staff may contact Pete J. Garcia Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in cursive script that reads "Sally A. Sieracki".

Sally A. Sieracki
Contracting Officer

SED:CAA

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
K. A. Dorr, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
DNFSB

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Safety & Engineering Division (SED)

**Surveillant: Cliff Ashley, SED
Kerry Schierman, OOD
Ron Johnson, OOD**

Surveillance Number: S-10-SED-PRC-009

Date Completed: February 22, 2010

Contractor: CH2M Hill Plateau Remediation Company (CHPRC)

Facility: Cross Cutting

**Title: CHPRC American Recovery and Reinvestment Act (ARRA) Project
Electrical Safety Surveillance**

Guide: Electrical Safety OSS 19.2

Surveillance Scope:

The surveillance was performed by the RL Electrical Subject Matter Expert (SME), and two RL Facility Representatives (FRs) who reviewed the CHPRC self identified issues and actions from an ARRA Project electrical safety event that occurred on December 14, 2009. This report documents findings and observations discovered during this review.

Surveillance Summary:

During the surveillance the SME noted that CHPRC ARRA Project management had conducted a timely, sufficiently rigorous "Fact Finding" meeting involving appropriate management and staff to identify issues associated with the December 14, 2009 electrical safety event. Several corrective actions were identified, one of which was a Generator Start-Up Checklist. However, the surveillance review identified the following issues:

- The Generator Start-Up Checklist was not adequately supported or implemented by use of written instructions or procedures.

- The ARRA Work Package continues to lack adequate detail instruction or procedure to perform electrical work.
- Six ARRA trailers were installed and one trailer planned to be installed that did not have the required Design Change Notice (DCN).
- Hazardous energy control/configuration management of engine-driven-generators during National Electrical Code (NEC) inspections and prior to initial start up needed improvement.
- Records management needed significant improvement, especially with regard to tracking status of ARRA Trailers, records storage, maintaining complete records, ability to retrieve records/supporting documents.
- A field work supervisor who oversaw the installation of the ARRA Trailers was allowed to conduct a partial NEC inspection, when it was apparent that he lacked adequate independence to do so.

The surveillance identified seven findings and two observations.

- **S-10-SED-PRC-009-F01** CHPRC projects do not have an adequate instruction or procedure for start up of engine-driven-generators.
 - **S-10-SED-PRC-009-F02** CHPRC has not adequately established Conduct of Operations applicability for Engineering, Procurement, and Construction (EPC) activities.
 - **S-10-SED-PRC-009-F03** CHPRC Management at the 200E ARRA Project site did not ensure that an approved Design Change Notice (DCN) was completed prior to installing six trailers.
 - **S-10-SED-PRC-009-F04** Hazardous energy control/configuration management of engine-driven-generators is not consistent with recognized practices.
 - **S-10-SED-PRC-009-F05** CHPRC ARRA Project Management continues to allow electrical work to be performed without an adequate work package that sufficiently outlines the electrical work to be performed.
 - **S-10-SED-PRC-009-F06** CHPRC ARRA Project Management did not adequately ensure that planned corrective actions were fully implemented to avoid recurrence of a December 14, 2009 electrical event at the 200E ARRA Construction Site.
 - **S-10-SED-PRC-009-F07** Temporary Electrical Generator with potential for hazardous energy exposure to unqualified persons.
 - **S-10-SED-PRC-009-O01** CHPRC Electrical Safety Program Requirements document (PRC-RD-SH-11827) does not clearly require that the NEC Inspector be independent of the electrical equipment being inspected.
 - **S-10-SED-PRC-009-O02** The 200E CHPRC ARRA Project work site lacked adequate records management.
-

Surveillance Results:

Finding: S-10-SED-PRC-009-F01

CHPRC projects do not have an adequate instruction or procedure for start up of engine-driven-generators.

Requirement:

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 3. Quality Assurance Criteria, e. Performance/Criterion 5-Work Processes, paragraph (1) states, "Perform work consistent with technical standards, administrative controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc."

Discussion:

During the surveillance period the SME observed that CHPRC ARRA Project had created a "Generator Start-Up Checklist," as to avoid recurrence of a December 14, 2009 electrical safety incident where a engine-driven-generator was initially started without the generator voltage output selector switch being in the correct position. However, based upon interviews with the Project Field Work Supervisors it was not apparent how this checklist was implemented within the work control process, consistently used for initial start-ups and restarts, and how associated records are maintained. Because of the significance of the electrical safety incident, where 480/277 V was applied to a ARRA trailer instead of 240/120 V, it is important that the mentioned checklist be effectively and consistently used.

During a meeting on January 12, 2010, ARRA Project Management and staff said that a work document now requires use of the "Generator Start-Up Checklist" every time any trailer is energized initially or re-energized thereafter. Later the SME determined that a "work document" did not exist, and was not being used as described. On approximately January 25, 2010, Project Management verified this, and committed to issuing a management directive for the checklist.

Later in the surveillance the SME observed that other CHPRC projects used similar engine-driven-generators where no specific start-up check list and/or procedures of any kind were used. When this was brought to the attention of CHPRC ARRA Project management, corrective action was immediately initiated that resulted in issuance of a CHPRC Management Directive (MD) (PRC-MD-CN-40273), Energization of Generators, 15 work days later. CHPRC Management recognized that this MD should be applied to all CHPRC projects and took immediate action to do this.

The SME will conduct follow-up walkthroughs of all CHPRC project work sites, to ensure adequate implementation of this MD. The SME will also verify that this MD is renewed as necessary or replaced by a CHPRC procedure.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-009-F02

CHPRC has not adequately established Conduct of Operations applicability for Engineering, Procurement, and Construction (EPC) activities.

Requirement(s):

DOE O 5480.19, Section 5.c, states, "Conformance with the requirements of this Order shall be documented. However, it is not necessary to develop a separate manual or plan. As a minimum, a document (e.g., a matrix) shall be prepared in coordination with the head of the Field Element and the cognizant Program Secretarial Officer(s) that: (1) indicates whether a specific guideline applies to a facility; (2) Indicates where and how each of the guidelines (Attachment I) of this Order are applied within the contractor's existing policies and procedures; and (3) Identifies any deviations or exemptions from the guidelines. This document shall, as a minimum be approved by the Head of the Field Element."

DOE 5480.19, Attachment I, Chapter XVI, Section C.1, states in part, "Procedures should be developed for all anticipated operations, evolutions, tests, and abnormal or emergency situations."

Discussion:

Finding -F01 (above) identified a condition where procedures were not available for operating equipment. Review of the issue identified that CHPRC had not adequately identified Conduct of Operations applicability for EPC activities. PRC-PRO-OP-696, *Conduct of Operations*, Section 1.3, states, "This procedure applies to CH2M HILL Plateau Remediation Company (CHPRC) Projects." Section 1.2, states, "CHPRC operating facilities, projects, or programs shall prepare and utilize a Conduct of Operations Applicability Matrix (Appendix A) to document the scope, breadth and depth of implementation for DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*. The extent and scope of application is as identified in the facility specific Conduct of Operations Applicability Matrix (Appendix A)."

CHPRC had not established Conduct of Operations applicability for the Engineering, Procurement, and Construction Project.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-009-F03

CHPRC Management at the 200E ARRA Project site did not ensure that an approved Design Change Notice (DCN) was completed prior to installing six trailers.

Requirement(s):

PRC-PRO-CN-14990 Rev. 0, Change 2: Construction Management, Section 3.2.2.1, Process of Initiating a Formal Contract Modification, states in part, "No deviation will be permitted from the engineering design, specification, or contract technical requirements without a contract change request. Any change in the design shall be based on an approved Design Change Notice (DCN) (PRC-PRO-EN-8016, Design Change Notice Process).... which meets PRC-RD-EN-1819, CHPRC Engineering Requirements), once the original design has been turned over to and approved by CHPRC."

Discussion:

During several surveillance walkthroughs the SME made note of all the trailers installed at the 200E ARRA Project Site. On January 27, 2009 the SME meet with ARRA Project Management and discussed how several ARRA trailers were not named on the Statement of Work that was provided. Also, since the original design was based upon normal electrical power, and temporary power was used for each trailer installed at this site, each trailer had to be covered by a DCN. Based upon documents provided, the SME questioned if each trailer was covered by a DCN.

On February 2, 2010 the SME met again with ARRA Project Management and they provided documentation to show that all the trailers installed and planned for installation at this statement were covered by two Statement of Work documents. However Management verified that six ARRA trailers (MO-2220, MO-2219, MO-2221, MO-2229, MO2231, and MO2327) were installed and energized with temporary electrical power without an approved DCN. One other ARRA trailer (MO-2329) planned for installation at this site also did not have an approved DCN. Management took timely action to generate and issue DCN-ARRA-085 (for MO-2220), and DCN-ARRA-089 (for all the other trailers mentioned) which were dated January 26, 2010, and February 2, 2010 respectively.

During the February 2 meeting, management also stated that they have reviewed the cited CHPRC procedure, other referenced procedures and requirement documents, and assured the SME that this finding will not recur.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-SED-PRC-009-F04

Hazardous energy control/configuration management of engine-driven-generators is not consistent with recognized practices.

Requirement(s):

DOE-0336, Hanford Site Lockout/Tagout, Section 2.0 states, "The use of this procedure prevents unexpected start-up or release of stored energy that could result in injury or hazardous material exposure.

- This procedure shall be used whenever workers are performing servicing or maintenance activities, including construction, on facility equipment or systems, where there is any possibility of personnel injury as a result of an unexpected release of energy or hazardous materials."

Discussion:

On February 9, 2010 the SME and two FRs saw MO-2328 and its engine-driven-generator (Serial #7302766) had not yet received its final NEC Inspection, nor had the initial generator start-up checklist been complete. Yet only a hand-written, manila tag was found placed on a switch that provides no control function inside the control panel to warn personnel to avoid starting the unit. The tag was not consistent with either DOE-0336 or PRC-PRO-OP-23749 tagging programs. RL personnel questioned its use and requested the contractor's DOE-0336 Technical Authority review the application. It appeared at a minimum locks/tags installed per DOE-0336 were appropriate during diesel generator installation and inspection activities where limited approach boundaries were to be entered by personnel, and some form of configuration control tag (DOE-0336 or PRC-PRO-OP-23749) to identify operating hazards was appropriate during times limited approach boundaries were not being entered but installation inspection had not yet been completed.

On February 12, 2010 the two FRs, the RL and CHPRC Electrical Safety SMEs, the contractor DOE-0336 Technical Authority, and the CHPRC 200E mobile office Construction Superintendent met at the 200E trailers to review tagging controls. The contractor's DOE-0336 Technical Authority, utilizing DOE-0336 and NFPA 70E, provided the Construction Superintendent the following recommendations for controls that would be adequate for controlling hazardous energy and configuration control within the requirement bases of each reference:

- Personnel entering limited approach boundaries to perform work or inspections must have Authorized Worker Locks in place in accordance with DOE-0336.
- Tags should be used as the method for equipment control to protect equipment from damage and maintain integrity of physical boundaries during the period of time after diesel generator installation work has been completed and NEC inspections have been completed and documented. Providing the equipment is left in a configuration where

a hazard to personnel is not accessible, the Technical Authority recommended the use of Caution Tags over Danger or Danger-Do-Not-Operate Tags during this period.

- In each instance the tags should be placed in a location where the tag(s) would be encountered when attempting to access control switches/breakers or reinstall power cables that could start the diesel generator.

In addition, on February 17, 2003, the Construction Superintendant authorized an engine-driven-generator electrical power cable to be disconnected from a ARRA trailer at the 200E site without ensuring that the exposed cable conductors were adequately isolated in accordance with DOE-0336. This unsafe configuration was left this way from February 17 - 24, 2010, at which time CHPRC subcontractor electricians observed the unsafe condition and took action to isolate the hazard.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-SED-PRC-009-F05

CHPRC ARRA Project Management continues to allow electrical work to be performed without an adequate work package that sufficiently outlines the electrical work to be performed.

Requirement(s):

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 3. Quality Assurance Criteria, e. Performance/Criterion 5-Work Processes, paragraph (1) states, "Perform work consistent with technical standards, administrative controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc."

Discussion:

On January 20, 2010 the SME conducted a walkthrough, and reviewed a recent work package involving electrical work. The work package did not adequately outline the electrical work to be performed, such as hold point for an NEC inspection prior to initial engine-driven-generator start up. The work package also did not clearly state that the Generator Start-Up checklist be used and completed during the initial start up. Performing work without an adequate approved instruction, procedure, etc. is a violation of the cited requirement. Because of the similarities to assessment finding A-09-SED-CHPRC-018-F02, this issue is considered a repeat finding.

On February 17, 2003, the Construction Superintendant authorized a engine-driven-generator electrical power cable to be disconnected from a ARRA trailer at the 200E site, without ensuring that the exposed cable conductors were adequately isolated in accordance with DOE-0336. The workers were previously provided a pre-job briefing, however all work was performed based upon verbal instruction from the Superintendent

and skill of the craft. No written instruction was provided to ensure the electrical hazard was adequately isolated and controlled.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-009-F06

CHPRC ARRA Project Management did not adequately ensure that planned corrective actions were fully implemented to avoid recurrence of a December 14, 2009 electrical event at the 200E ARRA Construction Site.

Requirement(s):

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 3. Quality Assurance Criteria, c. Management/Criterion 3, paragraph (3) states, "Identify the cause of problems, and include prevention of recurrence as a part of corrective action planning."

Discussion:

During the surveillance the SME noted that CHPRC ARRA Project management had conducted a timely, sufficiently rigorous "Fact Finding" meeting involving appropriate management and staff to identify issues associated with the December 14, 2009 electrical safety event. Several corrective actions were identified, however based upon findings F01 and F05 above, it was apparent that ARRA Project Management failed to ensure adequate implementation and verify effectiveness of corrective actions. This is in violation of the cited requirement.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-009-F07

Temporary Electrical Generator with potential for hazardous energy exposure to unqualified persons.

Requirement(s):

National Fire Protection Association-NFPA 70E, Standard for Electrical Safety in the Workplace, Section 130.2 (D), Approach by Unqualified Persons states in part: "Unqualified persons shall not be permitted to enter spaces that are required under 400.16(A) to be accessible to qualified employees only, unless the electric conductors and equipment involved are in an electrically safe work condition."

Discussion:

During a walk down performed on February 9th, 2010 an electrical panel door was found partially open on a portable Diesel Powered Generator Set (Serial Number 7350038 near MO2228). This enclosure panel door is normally left slightly open on all portable Diesel Powered Generator Sets to allow electrical load cables to be installed. But, on this particular unit an electrical Start Relay rated at 600 volts AC was found hidden behind the open panel door with exposed copper ends that someone could inadvertently touch. There is no warning message for the potential electrical hazard (other generating units have a hazard warning on the door) and the area is not roped off to prevent someone from possible contact.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-SED-PRC-009-001

CHPRC Electrical Safety Program Requirements document (PRC-RD-SH-11827) does not clearly require that the NEC Inspector be independent of the electrical equipment being inspected.

Discussion:

On December 14, 2009, a CHPRC Field Work Supervisor conducted an NEC inspection of electrical equipment that was installed under his control and direct supervision. When this was discussed with the CHPRC NFPA 70 Authority Having Jurisdiction, he agreed that the Supervisor lacked independence to conduct the NEC inspection, and that the RD needed to be revised accordingly to avoid recurrence.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-SED-PRC-009-002

The 200E CHPRC ARRA Project work site lacked adequate records management.

Discussion:

This work site's record management needed significant improvement, especially with regard to tracking status of ARRA Trailers, records storage, maintaining complete records, and ability to retrieve records/supporting documents. When this was brought to the attention of CHPRC ARRA Project Management, immediate corrective action was

taken to have the Lead Field Work Supervisor maintain a construction site notebook that maintained a running status/log of ARRA trailers. Also forms (such as the Generator Start-Up Checklists, etc.), are now maintained for each trailer.

RL Lead Assessor Closure Required: YES [] NO [X]

Contractor Self-Assessment:

CHPRC had not conducted a similar self assessment in any of the areas covered by the RL surveillance.

Contractor Self-Assessment Adequate: YES [] NO [X]

Management Debriefed:

Kent A. Dorr, CHPRC
Jhivaun Freeman-Pollard, CHPRC



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0063

APR 14 2010

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company LLC
Richland, Washington 99352

Dear Mr. Lehew:

CONTRACT NO. DE-AC06-08RL14788 – TRANSMITTAL OF CHPRC DEACTIVATION & DECOMMISSIONING (D&D) PROJECT ELECTRICAL SAFETY SURVEILLANCE REPORT (S-10-SED-PRC-13).

The purpose of this letter is to transmit Surveillance Report S-10-SED-PRC-013 that addresses issues with the CHPRC D&D electrical safety program. Three findings are documented in the surveillance report. No formal response to this letter is necessary. However, please note that RL is requesting closure authority for the findings. If you have any questions, please contact me, or your staff may contact Pete J. Garcia Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in cursive script that reads "Sally A. Steracki".

Sally A. Steracki
Contracting Officer

SED:CAA

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
K. A. Dorr, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
DNFSB

Department of Energy Richland Operations Office Surveillance Report

Division: Safety & Engineering Division (SED)

Surveillant: Cliff Ashley, SED

Surveillance Number: S-10-SED-PRC-013

Date Completed: March 9, 2010

Contractor: CH2M Hill Plateau Remediation Company (CHPRC)

Facility: Cross Cutting

Title: CHPRC Deactivation & Decommissioning (D&D) Project Electrical Safety Surveillance

Guide: Electrical Safety OSS 19.2

Surveillance Scope:

The surveillance was performed by the DOE-RL Electrical Subject Matter Expert (SME) who reviewed critique documentation (Report Number 10-BOS-002-0002), and conducted a field walkthrough of the 272E building, where an electrical safety event occurred in mid-January 2010. This event involved a D&D crew who elected to cut two electrical conduits (on one of which the associated wire/cables were also cut) prior to complete validation of isolation of all electrical hazardous energy sources.

Surveillance Summary:

During the surveillance the SME noted that CHPRC D&D had conducted a timely, sufficiently rigorous critique involving appropriate management and staff to identify issues associated with the January 2010 electrical safety event. However, the surveillance review identified the following issues:

- Workers failed to follow written instructions.
- D&D workers are authorized to enter D&D facilities that have apparent electrical safety hazards that are unguarded prior to verification that all potential electrical hazardous energy sources are isolated.

- D&D Field work supervisors and workers did not appear to be adequately trained to recognize an electrical safety hazard and take appropriate action to protect themselves from that hazard.

The surveillance identified three findings.

- **S-10-SED-PRC-013-F01** Workers failed to follow written instructions incorporated into work procedures.
- **S-10-SED-PRC-013-F02** CHPRC D&D project management routinely authorizes demolition preparation and asbestos abatement activities in D&D facilities prior to verifying electrical energy sources are isolated.
- **S-10-SED-PRC-013-F03** CHPRC D&D field work supervisors and workers did not appear to be adequately trained to recognize an electrical safety hazard and take appropriate action to control this hazard.

Surveillance Results:

Finding: S-10-SED-PRC-013-F01

Workers failed to follow written instructions incorporated into work procedures.

Requirement:

DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 3. Quality Assurance Criteria, e. Performance/Criterion 5 -Work Processes, paragraph (1) states, "Perform work consistent with technical standards, administrative controls adopted to meet regulatory or contract requirements using approved instructions, procedures, etc."

Discussion:

D&D workers identified electrical conduits in building 272E that posed a safety hazard to any personnel walking near the vicinity. Workers were looking at the conduits/piping as an impalement hazard to any one walking on the slippery surfaces and not as a potential electrical hazard.

During the pre-job brief, one D&D worker brought up the fact that the current work package was written to not allow any intrusive work (i.e. cutting electrical conduits and certain piping systems) per a letter from the D&D organization which was incorporated into the work package.

The Field Work Supervisor decided that it would be more prudent to cut the conduits down to the floor elevation level, thus eliminating a safety hazard, and he was able to convince the other D&D workers to perform the work outside the bounds of the work package.

The above is contrary to the cited requirement.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-013-F02

CHPRC D&D project management routinely authorizes demolition preparation and asbestos abatement activities in D&D facilities prior to verifying electrical energy sources are isolated.

Requirement:

PRC-PRO-DD-40013 Rev. 2, Change 0, Electrical and Mechanical Isolation of Facilities to Support D&D Work. Section 1.1 states in part, "This procedure will be used by site and project Deactivation & Decommissioning (D&D) organizations to ensure the electrical and mechanical hazardous energy sources, as well as environmental release paths to a defined scope are being isolated (i.e., Cold & Dark) in a consistent and repetitive manner that will protect the workers and the environment."

Discussion:

On January 6, 2010, and February 16, 2010, CHPRC authorized demolition preparation and asbestos abatement activities in 272E, MO-405, MO-104, MO-840, 253, 2734E, 2701M, and 2716E by Balance of Site (BOS) D&D workers without adequately verifying all electrical hazardous energy sources were isolated.

In mid-January 2010, D&D workers were performing the limited (non-electrical) work authorized at 272E, when three electrical conduits were found to be in the way of the workers and considered to be a safety hazard by the field work supervisor. The supervisor authorized the workers to have the conduits and electrical cables cut flush to the floor without verifying that no hazardous electrical energy source existed. From this incident, it is apparent that the workers and supervisors were not adequately informed of the potential electrical hazards that existed at this facility.

According to the CHPRC D&D Project Manager, the primary power source to 272E had been isolated several years ago and documented accordingly; however, verification that all possible electrical hazardous energy sources were isolated per PRC-PRO-DD-40013 had not yet been completed.

This work did not qualify as being an "assessment" activity which would have otherwise been allowed by the cited procedure, provided that all electrical hazards were adequately guarded.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-013-F03

CHPRC D&D field work supervisors and workers did not appear to be adequately trained to recognize an electrical safety hazard and take appropriate action to control this hazard.

Requirement(s):

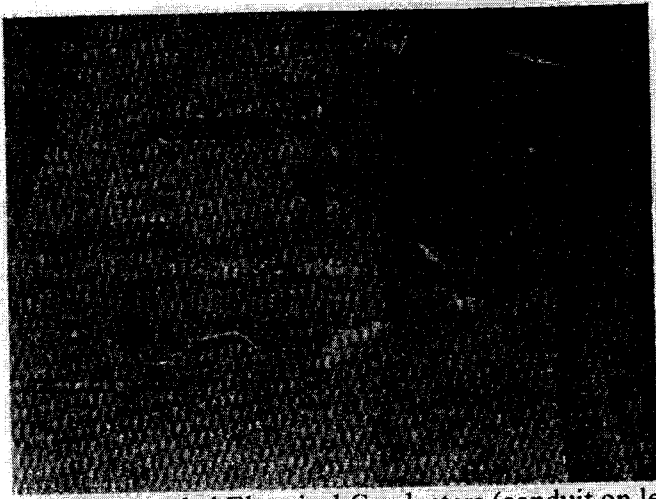
DOE O 414.1C, Quality Assurance, Attachment 2, Contractor Requirements Document, Section 3. Quality Assurance Criteria, c. Management/Criterion 2, paragraph (a) states, "Train and qualify personnel to be capable of performing assigned work."

Discussion:

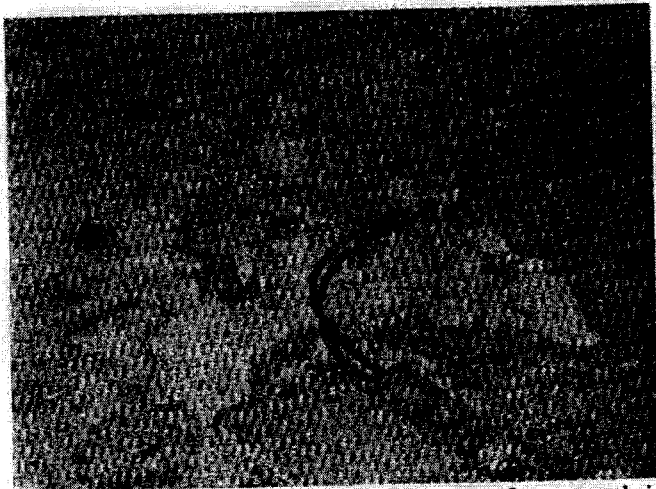
Shown below are pictures of two conduits that were cut. As illustrated, electrical wires/conductors were exposed and not adequately guarded. Based upon what the SME was told by the D&D Superintendent, the uncut end was the condition of the conduits and wires prior to the opposite end being cut.

It is understood by the SME that the primary electrical power to Building 272E was isolated (via air gapping) prior to mid January 2010; however, CHPRC D&D project management had not yet verified total isolation of all other possible electrical power sources in accordance with PRC-PROI-DD-40013. This being the case, all workers who enter this building should "consider all electrical conductors are energized and dangerous" based upon their electrical safety training (HAMMER Course # 044480, OSHA Power Tools & Electrical Cord Safety class). Further training of affected field work supervisors and workers will prepare them to effectively recognize and control potential exposure to electrical hazards for D&D work scope. Also, all electrical hazards (including but not limited to those shown below) should have been isolated or barriers installed as to avoid contact with the electrical conductors in accordance with NFPA 70E.

Further, it was apparent based upon the above facts that D&D workers did not adequately maintain a safe distance to potential electrical power sources, which according to Course #044480 is "10 feet". Despite the training and experience that the Field Work Supervisor and D&D workers had, D&D workers cut two electrical conduits, which the supervisor believed was less of a hazard then leaving the conduits there as a tripping hazard.



272E Unguarded Electrical Conductors (conduit on left)



272E Unguarded Electrical Conductors (from conduit in previous picture on right)

RL Lead Assessor Closure Required: YES [X] NO []

Contractor Self-Assessment:

CHPRC had not conducted a similar self assessment in any of the areas covered by the RL surveillance.

Contractor Self-Assessment Adequate: YES [] NO [X]

Management Debriefed:

Kurtis L. Kehler, CHPRC

Robert E. Wilkinson, CHPRC

Earl R. Lloyd, CHPRC

Robert M. Legard, FFS/ HAMMER Training



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington, 99352

MAY 25 2010

10-SED-0088

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

**CONTRACT NO. DE-AC06-08RL14788 - TRANSMITTAL OF SURVEILLANCE REPORT
RADIOLOGICAL SURVEY RECORDS AT THE PLUTONIUM FINISHING PLANT
(S-10-SED-PRC-015)**

The purpose of this letter is to forward the subject surveillance report. The surveillance identified five findings and three observations which are documented in the attached report and require RL Lead Assessor closure. These results have been discussed with appropriate members of your staff. Due to the number of deficiencies identified in the radiological survey records, CHPRC is requested to provide a corrective action plan in accordance with CRD O 470.2B (Supplement Rev. 2) within 45 days of receipt of this letter. If you have any questions, please contact me, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in cursive script that reads "Jenise C. Connerly".

Jenise C. Connerly
Contracting Officer

SED:BMP

Attachment

cc w/attach:
M. V. Bang, CHPRC
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Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillance Team: Brenda Pangborn (lead), Rick Jansons, Ed Parsons

Surveillance Number: S-10-SED-PRC-015

Date Completed: March 26, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Plutonium Finishing Plant (PFP)

Title: Radiological Survey Records at PFP

Guide: 10 CFR 835

Surveillance Scope:

The purpose of this surveillance was to assess adequate generation and maintenance of radiological survey records. The scope of the surveillance included review of radiological survey techniques, the instructions for performing routine surveys and the technical accuracy of the radiological survey records.

Surveillance Summary:

The surveillance team performed a surveillance of radiological survey records (RSRs) at PFP. The surveillance team:

- observed radiological surveys being performed at PFP;
- reviewed radiological survey task instructions;
- reviewed weekly survey tracking logs; and
- reviewed a sample of RSRs.

The surveillance team performed a detailed review of eighty-three radiological survey reports from January 1-7, 2010. Some additional records from September and November 2009 were reviewed with respect to verification of completion of the surveys specified in task instructions. The surveillance resulted in five findings and three observations.

- **S-10-SED-PRC-015-F01:** The PFP process for detection and prevention of quality problems in radiological survey records was less than adequate.
- **S-10-SED-PRC-015-F02:** The process used to implement the PFP Radiological Surveillance Program did not ensure completion of all the specific surveys identified in the task instructions.
- **S-10-SED-PRC-015-F03:** Seventy-five percent of the radiological survey records reviewed contained technical errors such as incorrect data documented, math errors, or radiological survey data not appropriately recorded per instructions.
- **S-10-SED-PRC-015-F04:** Seventy-two percent of the records had deficiencies in meeting administrative requirements in radiological survey records.
- **S-10-SED-PRC-015-F05:** Some records contained information that was unclear.
- **S-10-SED-PRC-015-O01:** An incorrect portable alpha meter (PAM) probe serial number was documented in one survey record.
- **S-10-SED-PRC-015-O02:** Six out of twelve Radiological Control Smear Sample Analysis Records did not document actual measured sample activity for counts greater than the decision level (DL).
- **S-10-SED-PRC-015-O03:** The weekly radiological survey tracking log at PFP was not effectively used to ensure all routine tasks had been completed.

Due to the number of deficiencies found in radiological survey records, a corrective action plan is being requested.

Surveillance Results:

Finding: S-10-SED-PRC-015-F01:

The PFP process for detection and prevention of quality problems in radiological survey records was less than adequate.

Requirements:

10 CFR 830.122 Quality Assurance Criteria (c) specifies "Criterion 3 Management/Quality Improvement (1) Establish and implement processes to detect and prevent quality problems. (2) Identify, control, and correct items, services, and processes that do not meet established requirements. (3) Identify causes of problems and work to prevent recurrence as a part of correcting the problem. (4) Review item characteristics, process implementation, and other quality related information to identify items, services, and processes needing improvement."

DOE/RL-2002-12, *Hanford Radiological Health and Safety Document*, section J, Radiological Records, paragraph 2, specifies "The contractor shall ensure that permanent radiological records are accurate and legible...."

PRC-PRO-RP-40030, *Documentation of Radiological Surveys*, section 2.5 Review and Approval, specifies "Monitoring results should be reviewed by the cognizant radiological

supervisor. The review should ensure that all required surveys have been performed and that the documentation is accurate and complete.”

Discussion:

The surveillance team performed a comprehensive review of each RSR in one binder (contained eighty-three RSRs from January 1-7, 2010). Ninety-six percent of the radiological survey reports reviewed had one or more deficiencies in the record. Sixty-two out of eighty-three survey records (seventy-five percent) contained technical errors such as incorrect data documented, math errors, or radiological survey data not appropriately recorded per instructions. Sixty out of eighty-three (seventy-two percent) contained administrative errors. Although the records were reviewed by a radiological control supervisor, few corrections were documented in the record. The surveillance team also reviewed two other binders of radiological surveys from September and November of 2009 and found similar types of deficiencies in those records.

The data above indicates the contractor’s process for detection and prevention of quality problems in RSRs was less than adequate.

Discussions with the CHPRC radiological control manager (RCM) and PFP RCM indicated the CHPRC was aware of some of the deficiencies in RSRs identified in this report. The RCMs indicated there has been an ongoing radiological improvement project to purchase software for radiological survey records to eliminate some of the current errors identified. The CHPRC RCM indicated CHPRC would evaluate if the software could be programmed to eliminate some of the other deficiencies identified by the surveillance team.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-PRC-015-F02:

The process used to implement the PFP Radiological Surveillance Program did not ensure completion of all the specific surveys identified in the task instructions.

Requirements:

10 CFR 835.401, General requirements, states:

- (a) Monitoring of individuals and areas shall be performed to:
- demonstrate compliance with the regulations in this part;
 - document radiological conditions;
 - detect changes in radiological conditions;
 - detect the gradual buildup of radioactive material;
 - verify the effectiveness of engineered and administrative controls in containing radioactive material and reducing radiation exposure; and
 - identify and control potential sources of individual exposure to radiation and/or radioactive material.

CHPRC-00072, CH2M HILL Plateau Remediation Company Radiation Protection Program, Appendix A, Policy and Commitment Basis for 10 CFR 835.401(a) specifies "*Article 551.10* 'Survey frequencies shall [835.401(a) and 835.1102(a)] be established based on potential radiological conditions, probability of change in conditions, and area occupancy factors.' Note: The requirements of Section 835.401 are subject to the graded approach through criteria established by CHPRC monitoring program. The program establishes administrative records for tracking and trending radiological conditions based on routine tasks (radiological survey reports). Task descriptions and work documents specify the frequency of radiological surveys...."

10 CFR 830.122 (e)(1) specifies: "Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements, using approved instructions, procedures, or other appropriate means."

Discussion:

A review of the completion of three sets of weekly routine surveys and one week of daily routine surveys showed some routines were incomplete. Documentation did not provide evidence of completion of some surveys required by the survey task instruction. Examples include:

- **Records indicated a weekly radiation survey was not performed in room 221C and 221D.**

Task W-10 specifies a weekly radiation survey be performed in contamination areas. The weekly radiation survey performed on 1/6/2010 specified for rooms 221 C and 221 D "No access – Be Controlled." However, on 1/7/2010 work was performed in 221C and 221D. No radiation surveys were documented as being performed to complete the weekly survey requirement when the area became accessible for work. See RSRs Z-100106020 and Z-100107011.

- **Some surveys for task Z-D-003 did not document technical smear results in the contamination area (CA) corridors 3, 5, 6, 7, 242B.**

Task Z-D003 specifies "Smear survey at [Radiological Buffer Area (RBA)] contamination points, Room 111 [Step Off Pad (SOP)] area, contamination corridors 3,5,6,7,242B and RBA rooms 183, 185 instrument shop." Completion of task Z-D003 did not always include smear surveys (technical smears) of the CA corridors. Only a large area wipe (LAW) was performed in the CA corridors during some Z-D003 surveys (see Z-100106005 and Z-100107008). If a LAW is adequate for inside a CA, the task sheet should be updated to specify performance of LAWs in the CA with follow-up technical smears if detectable contamination is found with the LAW.

- **Some surveys for task Z-W-001 did not document that boundary contamination technical smears were performed in the RBA adjacent to the CA boundary.**

Task Z-W-001, *Smear survey of routinely occupied RBA's established for the control of contamination*, specifies "1. Perform random 100 cm² technical swipes in [RBAs]. 2. Ensure that surveys include areas adjacent to [CA] boundaries... 4. Document the survey results on a

[RSR]. Include all radiological boundaries and postings on the RSR map....” Several surveys documenting completion of Z-W-001, did not include documentation of technical smears of the RBA/CA boundaries (see RSR Z-100106014 (page 7, LAWs were performed, but no technical smears were documented on map for either inside the RBA or at the RBA/CA boundary at corridor 7A), Z-090909004 and Z-090909006 (LAWs were marked on the survey map, but no technical swipes were documented on the map), and Z-090909012 (No CA/RBA boundary technical smear or LAWs were documented on the map for room 221B)). Some RSRs did not document all of the radiological boundaries and postings (see Z-100103002 - The CA and RBA was not labeled and the RBA/CA boundary was not shown).

- **Some RSRs for task Z-W004 did not document performance of technical smears at the CA/High Contamination Area (HCA) boundary.**

Task Z-W-004 specifies “Verify HCA boundary by performing technical smears in the CA adjacent to the HCA boundary.” RSR Z-100104016 and Z-100106020 specified completion of Z-W004. However, no technical smears were documented to verify the HCA boundaries (see Z-100104016 room 143 HCA and corridor 4 HCA near room 134 and Z-100106020 room 235-A2 Mezzanine).

- **Some RSRs did not document performance of both LAWs and technical smears per task Z-W-003.**

Task Z-W003, *Smear survey of Radioactive Material Areas (RMAs)*, specifies “1. Perform random technical swipes. 2. Perform random large area wipes 3. Document the survey results on a [RSR]. Include all radiological boundaries and postings on the RSR maps....” RSR Z-091120011 and Z-100103003 did not document completion of LAWs on either the map or in the contamination measurements table. Additionally, the RSRs did not document on the map completion of technical smears within each posted RMA. One RMA (RSR Z-091120011) was identified as inaccessible due to crane operations. A review of the surveys for this week did not identify any other surveys performed to complete the task. RSR Z-100103006 did not document completion of technical smears on either the contamination measurements table or survey map.

- **Criticality drains, patches and Band Aids surveys were not marked on some RSRs to document performance of the contamination surveys.**

Task instruction Z-W004, *Perform smear surveys in CAs and upon entry in HCAs*, specifies “Pay special attention to Crit. Drains, patches and Band Aids.” A review of some RSRs for Building 234-5Z Duct Level, where Criticality Drains, patches and Band Aids are located, indicated the completion of these surveys was not documented (see RSR-090909007, Z-091119014, and Z-100103002).

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-PRC-015-F03:

Seventy-five percent of the radiological survey records reviewed contained technical errors such as incorrect data documented, math errors, or radiological survey data not appropriately recorded per instructions.

Requirements:

DOE/RL-2002-12, Hanford Radiological Health and Safety Document, section J, Radiological Records, paragraph 2, specifies "The contractor shall ensure that permanent radiological records are accurate and legible...."

Discussion:

The surveillance team performed a comprehensive review of each RSR in one binder, containing eighty-three RSRs from January 1-7, 2010. Sixty-two out of eighty-three RSRs contained technical errors. Examples of deficiencies included:

- **Incorrect dose rate data was documented on some radiological survey records.**

Six out of fourteen weekly radiation survey records reviewed contained errors in transcribing dose rates from the radiological survey map to the table of dose rate measurements (see RSR Z-100107014 (item no. 4 Window Closed (WC)), Z-100104015 (item no. 3 neutron and item no. 5 WC), Z-100104016 (item no. 5 neutron and item no. 9 WC (see room 152)), Z-100103004 (item no. 7), and Z-100106020 (item 1 and 5 neutron dose rates). Additional transcription errors were identified in some job specific surveys.

- **Gamma dose rates and neutron dose rates from separate locations were added to get a deep dose value.**

Five out of eight survey records with both measurable gamma and neutron radiation dose rates added gamma dose rates and neutron dose rates from different locations to calculate deep dose (see Z-100103006, Z-100103002, Z-100107014, Z-100104015, and Z-100106020). Radiological survey procedure PRC-PRO-RP-40030, *Documentation of Radiological Surveys*, specifies deep dose rate is equal to $(WC \times CF_{\gamma}) + 0$, where WC = window closed reading, CF_{γ} = gamma (deep) correction factor, and 0 = neutron dose rate. The procedure does not specify the measurements of gamma and neutron to be at the same location. Adding the highest gamma dose rate found in a room or floor of a building with the highest neutron found, not at the same location, is not an accurate measure of the highest deep dose in the area.

- **Neutron dose rates and gamma dose rates not added correctly to obtain recorded deep dose.**

Four out of twenty-two surveys with work area gamma and neutron dose rates recorded were found to contain simple math errors. For example, Z-100103006 documented gamma WC dose rate of 15 mR/hr, a neutron dose rate of 0.4 mrem/hr, and in adding the two documented a deep

dose of 0.4 mrem/hr. See Z-100104015 (no. 7), Z-100106020 (no. 7), and Z-100105015 (no. 5) for additional examples of math errors.

- **Documentation showed one technical smear was used to release multiple items out of a contamination area.**

Five out of eleven Radiological Control Smear Sample Analysis Records documented one technical smear for release of multiple items. Examples include six waste bags of low level waste being released based on one technical smear (RSR Z-100107003) and 4 portable alpha meters (PAMs) (0167, 0052, 0308, and 0115) being evaluated for release based on one technical smear (RSR Z-100103010). The PFP radiological control manager indicated the discussions with the radiological control technicians (RCTs) revealed more technical smears were taken, but not appropriately documented. The records in this case do not adequately document compliance with 10 CFR 835 requirements for release of materials out of a contamination area.

- **Sixteen out of thirty-six total contamination survey records documented incorrect direct gross counts per minute (cpm)/probe area (PA) or incorrect total disintegrations per minute (dpm)/100 cm² values.**

Errors included documenting 0 Total dpm/100cm², which was not possible to detect at that level (e.g., RSR Z-100102002, Z-100106001, and Z-100107001), documenting a total contamination value of <100 dpm/100cm² or <500 dpm/100cm² with N/A marked in the direct gross cpm/PA block (e.g., RSR , Z-100104017, Z-100105016, and Z-100107005) and direct gross cpm documented as <100 cpm/PA (see RSR Z-100107008 and Z-100106005).

- **One RSR incorrectly documented dose rates with a micro rem meter as <0.1 mrem/hr, a value greater than the action level in the task instruction.**

Task instruction Z-W010 specifies an action level for a radioactive material area outside a radiological buffer area at a dose rate greater than 50 urem/hr (0.05 mrem/hr). The dose rates documented on RSR Z-100103003 were <0.1 mrem/hr, a value that exceeds the action level of the task instruction. From this survey record, it is not clear that action to adjust the posting was not required.

- **Survey data recorded for a room marked as “No entry”.**

RSR Z-100104006 recorded radiation and contamination survey data for room 500. However, the map indicates “No entry” for room 500.

- **One dose rate survey incorrectly documented a WC dose rate (with no window open reading taken) as a shallow dose rate and marked the deep dose rate as “NA”.**

Shallow dose includes open window (unshielded) dose rate measurements that are indicative of dose to the skin above that which is received by the whole body (deep dose). RSR Z-100104017 incorrectly recorded a WC reading, with no open window reading taken, as a shallow dose measurement. The WC reading should have been recorded as a deep dose measurement.

- **One contamination survey documented <2 dpm/smear, a value that can not be seen by the instrument used.**

RSR Z-100106013, page 3, recorded one reading as <2 dpm/smear. This appears to be a hand typo, since all other readings were marked <20 dpm/smear, a value that can be measured with the instrument used.

- **One survey record incorrectly documented "<" in front of each measurement.**

RSR Z-100104007 incorrectly placed a < in front of each dose rate measurement (e.g., <3mR/hr and <2 mR/hr).

- **An erroneous task number was specified on an RSR.**

Although RSR Z-100104001 indicated it completed Z-D003, it did not show contamination surveys performed in the CA corridors or any of the rooms identified in Z-D003.

- **An erroneous serial number was documented for a Staplex air sampler.**

RSR Z-100106007 contains conflicting serial numbers for the Staplex. One form specified "AS22694R", while the other form specified "ASA22644R".

- **Not all area dose rate surveys were appropriately marked on a map and identified in the dose rate measurements table.**

PRC-PRO-RP-40030, *Documentation of Radiological Surveys*, section 2.4, Completing a Radiological Survey Report, step 2 specifies "Record data on the RSR form (A-60040663)...." Step 6, specifies "Draw or attach a map/sketch or photograph to the RSR, when applicable, containing the following information: Specific locations where dose rate measurements were made...." Eighteen (18) out of forty-two (42) RSRs with area dose rate surveys were not both appropriately marked on a map and included in the dose rate measurements table. Deficiencies included: Area dose rate information was not documented on each survey map (e.g., RSR Z-100107004, Z-100107007, and Z-100107020). Gamma and neutron dose rates were not marked separately on some survey maps (see RSR Z-100103004 and Z-100104014). Dose rates identified on some survey maps were not recorded on RSR table of measurements (see RSR Z-100103002 (room 320 neutron), Z-100107015, and Z-100107018).

- **Not all contamination surveys were appropriately marked on a map and identified in the contamination measurements table.**

PRC-PRO-RP-40030, *Documentation of Radiological Surveys*, section 2.4, Completing a Radiological Survey Report, step 2 specifies "Record data on the RSR form (A-60040663)...." Step 6, specifies "Draw or attach a map/sketch or photograph to the RSR, when applicable, containing the following information: Specific ... swipe/smear locations...." Thirty-two out of seventy-one work area removable contamination surveys were not both appropriately marked on

a map and included in the contamination measurements table. Deficiencies included: The location of some technical smears were not shown on the survey map (e.g., RSR Z-100105015, Z-100105006 (No. 2), and Z-100106014 (see CA boundary corridor 7)). The results of some LAWs and technical smears identified on the map for one RSR were not documented in the table of measurements (See RSR Z-100107013 (See LAW 9, 10, 11 on map)). The results of some technical smears were not documented (see RSR Z-100107008 (corridor 242b, 3,5,6,and 7) and Z-100106005 (corridor 242b, 3,5,6, and 7). The location of some large area wipes were not documented (e.g., RSR Z-100104003, Z-100105002 (see no 1-4), and Z-100105017. Some RSRs did not have a survey map attached to show the location of contamination surveys (e.g., RSR Z-100104012, Z-100104019, and Z-100106004). Some Z-D003/Z-D004 routines did not include a map to show the location of contamination surveys (e.g., RSR Z-100102002, Z-100106001, and Z-100106013).

- **Location of air samplers were not shown on some survey maps.**

PRC-PRO-RP-40030, *Documentation of Radiological Surveys*, section 2.4, Completing a Radiological Survey Report, step 6, specifies "Draw or attach a map/sketch or photograph to the RSR, when applicable, containing the following information: Specific locations... air sample...." Some RSRs did not show the location of the air samplers (see RSR Z-100103007, Z-100104008, Z-100106015, Z-100107004, Z-100107009, and Z-100107012).

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-PRC-015-F04:

Seventy-two percent of the records had deficiencies in meeting administrative requirements in radiological survey records.

Requirements:

DOE/RL-2002-12, Hanford Radiological Health and Safety Document, section J, Radiological Records, paragraph 5, specifies "The contractor shall ensure that monitoring and workplace records include sufficient information to clearly identify the location of the facility, purpose, results, individual, and contractor performing the monitoring."

PRC-PRO-RP-40030, *Documentation of Radiological Surveys*, 2.4, Completing a Radiological Survey Report, specifies "Appendix B contains detailed instructions for CHPRC Radiological Survey Report completion." Appendix B specifies "Record the survey report number, including the facility code... Record the appropriate Scheduled Radiological Surveillance Task Description Task number(s) controlling the survey/work activity when applicable... Record the appropriate technical work document/work package/Job Control Package/JSA number(s) controlling the work activity, when applicable... For <D measurements, list survey speed or number of static measurements, % of area surveyed, and count times." "Results of LAWs are recorded in units of <D/LAW or dpm/LAW if LAWs are used." "Map/Sketch... Draw, copy, or otherwise produce a

map, sketch or photograph of the area surveyed. Include appropriate symbols, letters, and numbers as indicated by the legend... Use symbols as indicated on the legend.”

PRC-PRO-RP-40035, Analyzing Smear, Air and Lapel Samples, section 2.4 Smear Sample Analysis, step 7. D specifies “Document the input data, calculated data, and other requested items, as appropriate, on the RC Smear Sample Analysis Record worksheet or A-6005-377 and 378.”

Discussion:

The surveillance team reviewed eighty-three radiological survey records. Seventy-two percent of the records contained administrative deficiencies such as documentation of incorrect units, incorrect use of symbols on radiological survey maps, blocks for information in records not filled in, records not signed, and more.

- **Twenty-one out of sixty-nine records containing results of LAWs did not correctly record the units for LAW results.**

PRC-PRO-RP-40030, Documentation of Radiological Surveys, Appendix B specifies “Results of LAWs are recorded in units of <D/LAW or dpm/LAW if LAWs are used.” A variety of incorrect documentation was used including <d or <D (e.g., RSR Z-100102002 and Z-100103001), <LAW (see Z-100104003), <DLAW (e.g., RSR Z-100103004, Z-100103009, and Z-100104014), and dpm LAW (see RSR Z-100104011, Z-100106019, and Z-100106020). An additional two records had <D corrected by the reviewer.

- **Twenty-six out of fifty-six surveys did not use the correct symbols for radiological survey results as specified in the legend.**

PRC-PRO-RP-40030, Documentation of Radiological Surveys, Appendix B specifies “Include appropriate symbols, letters, and numbers as indicated by the legend... Use symbols as indicated on the legend.”

Example of errors in use of symbols include: Field dose rates were not underlined per the legend in some RSRs (e.g., RSR Z-100103006, Z-100104018, and Z-100107013). Some RSRs used a square for contact dose rate surveys when the legend indicates a square is a direct reading contamination survey measurement, and an asterisk is used for contact dose rate measurements (e.g., RSR Z-100105007, Z-100105016, and Z-100107015). Some RSRs did not use the diamond on dose rate survey for neutron (see Z-100107015 and Z-100103006). Some RSRs did not use the symbol L with survey description number to designate LAWs (e.g., Z-100105016 and [Z-]100106007). An asterisk was not used in some RSRs to indicate contact dose rates (see Z-100105012, and Z-100106014). The combined symbol for LAW and tech smear was used in some RSRs where technical smears were not documented as having been performed (i.e., no results were documented). Examples include RSRs Z-100106006, Z-100106009, and Z-100107011. One RSR specified 1<0.1 (see [Z-]100106007).

- **Three RSRs had deficiencies in reviewer or radiological control technician (RCT) signature data.**

PRC-PRO-RP-40030, Documentation of Radiological Surveys, section 2.5 Review and Approval, specifies “Monitoring results should be reviewed by the cognizant radiological supervisor. The review should ensure that all required surveys have been performed and that the documentation is accurate and complete.”

One PFP Alpha spectrum analysis was not signed by a reviewer (see RSR Z-100107004). The same RSR (Z-100107004) did not have the reviewer sign off on the radiological control air analysis record- individual sample or Radiological control lapel air sample analysis records. One RSR had two RCT Signature and Payroll Number lines not filled in (see RSR Z-100106013). One RSR did not have the review date, payroll number, and reviewer’s name printed in the appropriate boxes (see RSR Z-100103002).

- **Sixteen out of eighty-three radiological survey records did not document the associated work package or task number.**

PRC-PRO-RP-40030, Documentation of Radiological Surveys, 2.4 Completing a Radiological Survey Report, specifies “Appendix B contains detailed instructions for CHPRC Radiological Survey Report completion.” Appendix B specifies “Record the appropriate technical work document/work package/Job Control Package/JSA number(s) controlling the work activity, when applicable....” Some RSRs did not document the work package or task number when applicable (e.g., RSR Z-100103011, Z-100104004, and Z-100106011).

- **The RSR number was not recorded or incorrectly recorded on some pages for some RSR records.**

The RSR forms have a block for the RSR number to be recorded on each page to ensure integrity of the record should the pages get separated. Not all RSR records had the RSR number recorded on each page (e.g., RSR Z-100107014 (page 4, 5, and 6)). In some cases, the wrong RSR numbers were recorded (RSR Z-100105004, page 3 specifies survey no. Z-100105005 and RSR Z-100104002 on page 17 and 18 specify survey no. Z-091231002).

- **Missing data in airborne radioactivity monitoring records.**

Sixteen out of sixteen RSRs associated with airborne radioactivity monitoring had missing information on the form. Examples included: Air sample log numbers were not documented in the RSR table (e.g., RSR Z-100105009, Z-100105017, and Z-100106008). Supervisor notified block was not filled in (e.g., RSR Z-100105006, Z-100106007, and Z-100107009). Sample numbers were not filled in for any of the airborne radioactivity monitoring RSRs reviewed. The “sample sent to lab” block was not filled in for RSR Z-100106007 and Z-100104007. Model and ID number of air samplers were not specified in some “Radiological control air analysis record – individual sample” records (see RSR Z-100104007, Z-100103007, and Z-100104011). RSR Z-100105017 documented two airborne radioactivity surveys. The record has the results of only one of the airborne radioactivity samples attached. Note page 3 and 4 were missing.

- **One RSR had an incomplete description of the survey performed.**

Z-100103010 specifies "Direct Surveys," but documents results for both direct and removable surveys in contamination measurements table.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-PRC-015-F05:

Some records contained information that was unclear.

Requirements:

DOE/RL-2002-12, Hanford Radiological Health and Safety Document, section J, Radiological Records, paragraph 3, specifies "The contractor shall ensure that completed records contain sufficient detail to be understandable to those that may utilize the record in the future (i.e. intelligible to a person with training and experience equivalent to that of a person with a [Bachelor of Science] in health physics; for the life of the record)."

Discussion:

In addition to technical and administrative errors, some radiological survey records contained information that was conflicting or otherwise unclear.

RSR Z-100102002 and Z-100103001, Required Task D003 and D004, specify in description No. 2, "Item 1 to 10" and document removable dpm/100cm² as "<d". Item 1 to 10 is not explained and <d is not defined. From the information provided, an individual can not determine what was performed.

RSR Z-100106005 and Z-100107008 description number 5 specifies "Room 171," however, the radiological survey map shows #5 as a technical smear on a laundry bag. What survey had been performed for room 171 can not be deduced.

RSR "Z1001030008," specifies verification surveys were performed in the description of work. However, the details on scan speeds, etc., for the verification survey was marked NA, and the record documented survey results indicative of a release survey.

RSR Z-100105001 specifies in description 1 "Water sample bag LAW." However, a window closed mR/hr value is recorded in the dose rate measurements table and <D is recorded under removable dpm/100 cm². Dose rates on LAWs are not performed unless the contamination levels are off scale and then an open widow reading is taken. It is unclear if the survey was actually performed or if it is an error in the table.

RSR-100103006 potentially showed radiation area level dose rates (greater than 5 mr/hr) in room 41 which was not shown as a posted radiation area. Since field dose rates and contact dose rates were not appropriately differentiated, it is not clear if there is a posting violation shown by the survey results. The RSR also has LAW numbers that do not correspond to the description in the table of measurements. A review of RSR Z-100107014 also showed dose rates greater than 5 mR/hr in room 41, without the area being shown as a posted radiation area. This survey showed the dose rates were in fact field dose rates greater than 5 mr/hr. Either the area is an unposted radiation area or the survey records incorrectly indicated CA only posting.

RSR Z-100104017 documents technical smears 1-4 on the map, but documents 1-2 on the contamination measurements table. RSR Z-100107015 item numbers and the numbers on the associated map do not match.

RL Lead Assessor Closure Required:

YES **NO**

Observation: S-10-SED-PRC-015-O01: Incorrect PAM probe serial number documented in one survey record.

Discussion:

Portable Alpha Meters (PAMs) are calibrated with its probe as a unit. One survey record documented a different probe being used for PAM ACBC1-0153, than that for which it was calibrated. RSR Z-100105003 documented PAM ACBC1-0153 being used with probe DTHN3-0830. Other survey records documented DTHN3-0850 as the serial number for the probe used with PAM ACBC1-0153 (See RSR Z-100103002, Z-100104018, Z-100105002, and Z-100105015).

RL Lead Assessor Closure Required:

YES **NO**

Observation: S-10-SED-PRC-015-O02: Six out of twelve Radiological Control Smear Sample Analysis Records did not document actual measured sample activity for counts greater than the decision level (DL)

Discussion:

PRC-PRO-RP-40035, *Analyzing Smear, Air and Lapel Samples*, section 2.4 Smear Sample Analysis, specifies "7. IF computer access to the SAL-Tool is not feasible, THEN do the following... c. Use the formulae in Appendix B to calculate R_b , DL, MDA, R_n , sample activity, and counting error. D. Document the input data, calculated data and other requested items, as appropriate, on the [Radiological Control] Smear Sample Analysis Record worksheet...."

The surveillance team reviewed twelve (12) RSRs that included Radiological Control Smear Sample Analysis Records. Six (6) out of twelve (12) records did not calculate the sample activity from the measurements and record the calculated values greater than the decision level

(DL)(See RSR Z-100104002, Z-100104013, Z-100105004, Z-100106013, Z-100107002, and Z-100107019. Hand filled in records should be documented in the same manner as the computer generated record as specified in the CHPRC procedure.

RL Lead Assessor Closure Required:

YES[X] NO []

Observation: S-10-SED-PRC-015-O03:

The weekly radiological survey tracking log at PFP was not effectively used to ensure all routine tasks had been completed.

Discussion:

The surveillance team reviewed one year of weekly survey tracking logs (calendar year 2009). The PFP radiological control organization used the weekly survey tracking form to document completion of routine radiological surveys. The surveillance team reviewed survey task instructions for the routine surveys and a sample of RSRs that indicated the completion of these radiological survey tasks.

The surveillance team found insufficient documentation existed on the weekly survey tracking form to demonstrate all required daily, weekly, or monthly routine surveys were performed as required by the PFP survey task descriptions. Fifty two out of fifty two weekly survey tracking forms were incompletely filled in, indicating one or more surveys were either not performed or were not appropriately documented as completed. Date performed and RSR numbers were not filled in on the log for each required survey. The documentation did not provide an explanation for missing surveys.

A review of a sample of the RSRs documenting completed routine surveys demonstrated there were errors in the weekly survey tracking form. Errors included not documenting the performance of the survey when it was actually performed (see RSR Z-090909004, Z-090909006, and Z-090909007) and logging an RSR as performing a routine survey when that RSR was in fact a job specific survey that did not include completion of the task instruction (see Z-091119006).

CHPRC procedure PRC-PRO-RP-40029, *Required Radiological Surveillances*, provides instructions for performance of routine surveys. The procedure mentions use of survey lists, but does not provide any requirements or guidance on how project radiological control organizations should use this tool, or any other tool, to manage the radiological routine survey program. The current survey list at PFP does not demonstrate the flexibility to document partial completion of routines or to track individual areas inaccessible for survey during routines to ensure the routines are performed when these areas are made accessible for work. Finding S-10-SED-PRC-015-F02 demonstrates the process for managing the radiological routine survey program at PFP is less than adequate to ensure routines are fully completed per task instructions.

RL Lead Assessor Closure Required:

YES[X] NO []

Contractor Self-Assessment:

The CHPRC 10 CFR 835 tri-annual assessment of radiological records has not yet occurred. The number of RSRs identified with deficiencies indicates less than adequate review and correction of quality problems.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Steve Snyder, PRC
Mark Welling, PRC
Ken McLain, PRC



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0071

APR 13 2010


Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

**CONTRACT NO. DE-AC06-08RL14788 – TRANSMITTAL OF CHPRC WELDING
PROGRAM SURVEILLANCE REPORT (S-10-SED-PRC-017)**

The purpose of this letter is to transmit Surveillance Report S-10-SED-PRC-017 that addresses issues with the CHPRC Welding Program. Five findings and three observations are documented in the surveillance report. The findings will require RL Lead Assessor closure approval. No formal response to this letter is necessary. If you have any questions, please contact me, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,


Sally A. Sieracki
Contracting Officer

SED:LTN

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
DNFSB

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division

Surveillant: Tom Nirider

Surveillance Number: S-10-SED-PRC-017

Date Completed: March 23, 2010

Contractor: CHPRC

Facility: Crosscutting

Title: CHPRC Welding Program

Guide: N/A

Surveillance Scope:

Since the contract transition from Fluor Hanford, two site contractors have responsibility for welding activities on the Hanford site. Both MSA and CHPRC employ welders, welding inspectors, and welding supervisors at various levels. CHPRC employs a Welding Engineer in the Central Engineering Organization who writes, maintains, and manages the welding procedures and programs for all site welding activities. CHPRC also retains responsibility for construction welding on the site, while MSA retains responsibility for maintenance welding. This surveillance covers only those welding activities under the CHPRC welding program. The surveillance addresses three specific areas:

- 1) Welding Program Implementation
- 2) Control of Filler Materials
- 3) Welding Inspection

The surveillant conducted interviews with the CHPRC Welding Engineer, field welding supervisors, quality assurance inspectors, welding inspectors, and welders. Field activities supporting this surveillance included; attendance at the Hanford Site Welding Committee Meeting, various interviews in the field, a tour of the 200W Weld Shop including inspection of storage of Filler Materials.

Surveillance Summary:

Welding Program Implementation:

The CHPRC Welding Program is “a centralized site function providing welding and materials engineering services. CHPRC Engineering is responsible for the program’s technical oversight, procedures and specifications, and control of the site legacy Procedure Qualification Records (PQRs).” The CHPRC Welding Engineer retains the technical authority, maintains the CHPRC Welding Manual and the administrative programmatic procedures, conducts welding procedure specification development/qualification, and maintains welder certifications. The latter are now available on the Central Engineering website, a significant convenience to the field supervisor and Distribution Center Attendants who are tasked with verifying welder qualifications prior to conduct of welding.

The CHPRC Procedure, HNF-42884, “Administrative Control of Welding” contains the requirements for the Hanford site welding programs. This procedure establishes responsibilities of CHPRC Engineering, Construction Services, MSA Facility Support Organizations, and specifies requirements for welding activities. The procedure also invokes Quality Assurance requirements and it contains specific requirements for the conduct of welding activities. The procedure is fairly comprehensive, refers to other associated procedures where necessary and defines qualification requirements for welders, weld inspectors, filler materials, work packages, and nondestructive examination of welds.

The HNF-42884 procedure is silent however, with regard to management self assessment of the welding program itself. The surveillance revealed no evidence of any management assessments of program implementation or of field welding activities including; welder qualification, weld inspection, control of filler materials, or conduct of welding activities. HNF-42884, section 4.2.5 states that the Construction Services organization shall, “Ensure welding activities comply with requirements specified in the CHPRC Welding Manual”, but here again, no formal process is provided. Thus, there is no formal active process to assess implementation of the program. Section 5.5.4 of the procedure does assign responsibility for “in-process verifications for compliance to Hanford Welding Program requirements” to a Quality Assurance Inspector. Interviews with Quality Assurance inspectors in the CHPRC indicated that they are, in general, following the procedures and responsibilities assigned to them. Quality Assurance personnel review procedures, drawings and work packages, perform quality measurements (rod oven temperature), participate in the Welding Committee and generally remain connected to the program. However, they do not conduct implementation assessments and no specific programmatic oversight plan or procedures exist. Thus, the program has only an internally self-regulating compliance process that is not formally defined or evaluated.

HNF-42884, section 4.2.4 states that a responsibility of the CHPRC Construction Services is to; “Perform maintenance and calibration of welding equipment.” No procedures addressing the maintenance or calibration appear to exist. Also, no formal Preventive Maintenance program for welding equipment has been implemented. Some welding equipment in the 200W area is stored outside with no cover or protection from the elements and has been stored in that manner for many years. A new shop facility is being constructed in 200E, and once operations are moved

there some of the welding equipment presently stored outside will be replaced. However, this shop will not be ready to occupy for several months.

Section 6.7 of HNF-42884, Revision 0 contains a requirement that nondestructive examination (NDE) be conducted in accordance with design requirements. However, no procedural reference is provided. Specific requirements should be developed and documented so that NDE activities may be performed in accordance with industry standard specifications including quality assurance, training/qualification, procurement, reporting of results, record retention, etc.

Control of Filler Materials:

Control of weld filler materials is addressed through a separate procedure applicable to all welding activities and shops on the Hanford site, HNF-42892, Revision 0, "Procurement and Control of Weld Filler Material". The procedure is comprehensive, and contains all the specific requirements for procurement, storage, and use of weld filler materials. At the 200W shops, all weld filler materials are procured as Quality Class/Quality Level-1 materials. This eliminates confusion and issues of segregation when two Quality Class/Quality Level filler material types are procured and used. The rod is stored in locked cabinets. Low-hydrogen electrodes are stored in a locked, heated storage oven. Key control is maintained by the approved Distribution Center Attendants. Specific responsibilities for Distribution Center Attendants are specified within Section 5.0 of HNF-42892. These include; segregating filler material by size and type, storage requirements for rod, wire feed and brazing materials, container control, and disposal of unused material and stubs. The distribution center does not however, contain a copy of the procedure. However, it did appear that the distribution center attendants are correctly recording the checkout and use of filler materials, managing disposal of stubs appropriately and keeping proper records as required by the procedure.

When checking out filler material from the distribution center, weld filler material is placed in a plastic holding container for transport to the job-site. Section 5.1.7 requires that electrode holding ovens be marked with an identifying number required for identification and traceability. Typically, this is a heat number and rod type identifier. However, when new rod is procured, the containers must be relabeled prior to use in order to comply with the procedure. This requires the support of the paint shop personnel, remaking of a specific label, and is cumbersome and a setup for a noncompliance. This system could be improved as there is significant confusion present in the existing process.

Most common types of low-hydrogen electrodes (i.e., E7015, E7016, E7018 and the E308, E309, and E316 types) are permitted to be out of the holding oven for up to 4-hours. After that time if the rod is not returned to the distribution center, it must be disposed of. Because of this 4-hour window, a portable rod holding oven is not utilized at the 200W shops.

A quality assurance deficiency was noted with regard to storage requirements for low-hydrogen electrodes. HNF-42892, Section 5.1.10 requires, "Perform a daily verification of the electrode holding oven temperature. Verification shall be performed using a calibrated temperature measuring instrument and documented in accordance with facility management requirements." A check of this requirement revealed that the quality assurance staff is in fact, performing this

daily temperature check and recording it in a logbook kept at the distribution center. The holding oven does not have any external indication of temperature or operability. Thus, this check is the only verification that filler materials are being stored according to quality assurance requirements. Quality assurance personnel are using a properly calibrated infrared thermometer for this measurement. Only small variations in temperature were indicated on the logbook. However, this measurement is not conducted over the weekends, or on holidays as at those times no quality assurance personnel are present. The shops work the 8x9 hour shifts so every other weekend is a 3-day weekend with no verification conducted. There is also no indication of power continuity to the oven. If there were a power outage and subsequent power restoration while the facility was unoccupied over a weekend, there is no method to verify that the oven did not drop below the acceptable temperature range of +300 F +/-50F for longer than 4 hours. Without daily measurement this storage requirement cannot be adequately verified. This appears to be a direct consequence of the new requirements imposed by procedure HNF-42892 which was issued in November, 2009. The procedure imposed requirements without an implementation period during which the facilities could have identified and corrected these types of problems.

Welding Inspection:

CHPRC retains several Certified Welding Inspectors (CWI). One resides in the quality assurance office at the 200W shops and his CWI is current. Another is a support contractor to Central Engineering who also qualifies welders. CWI certifications are verified by the Quality Assurance staff. Recertification is the responsibility of the individual and must be completed every 9-years.

Hanford Site Welding Committee Meeting:

On March 3rd, the surveillant attended the Hanford Site Welding Committee Meeting at the 2425 Stevens Building. The meeting is chaired by the CHPRC Welding Engineer who reports to the CHPRC Chief Engineer in Central Engineering. The CHPRC Welding Engineer manages the site welding procedures and program and is the central point of contact on welding programmatic issues for the site. The committee consists of members from all the Hanford site contractors having welding activities. The members however, are not organized as a Center of Expertise (COE). That is, they are not voting members of a committee charged with establishing site policy and procedure. This authority is retained by Central Engineering within CHPRC. The Committee could be improved by moving from a simple meeting format to that of a Center of Expertise. In spite of this weakness, the committee appears to operate effectively as a communication forum between individuals in CHPRC and between contractors. There seems to be a fairly good level of cooperation, and reasonable agreement on the division of responsibility. The meeting was well organized and the discussions were relevant and informative.

This surveillance contains five findings and three observations as follows:

Surveillance Results:

Finding: S-10-SED-PRC-017-F01

The CHPRC site welding procedure, HNF-42884, Rev.0, "Administrative Control of Welding", does not contain a requirement to conduct management self-assessments of the welding program.

Requirement(s):

DOE Order 414.1(C), Section 4.b(9), "Management Assessment" states, "Ensure that managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives."

Discussion:

The surveillance revealed no evidence of any management assessments of program implementation or of field welding activities including welder qualification, weld inspection, control of filler materials, or conduct of welding activities. Section HNF-42892, Section 4.2.5 states that the Construction Services organization shall, "Ensure welding activities comply with requirements specified in the CHPRC Welding Manual"; however, no formal process to accomplish this is defined.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-017-F02

The CHPRC does not meet welding procedure requirements, or quality assurance requirements for storage of low-hydrogen covered arc welding electrodes.

Requirement(s):

DOE Order 414.1(C), Section 4.b(5)(c), "Work Processes" states, "Maintain items to prevent their damage, loss, or deterioration."

HNF-42892, Section 5.1.10, states, "Perform a daily verification of the electrode holding oven temperature. Verification shall be performed using a calibrated temperature measuring instrument and documented in accordance with facility management requirements."

Discussion:

Low-Hydrogen filler materials in the CHPRC 200W shops are procured to Quality Class/Quality Level-1 requirements. However, temperature measurements of the low-hydrogen welding rod storage oven is not conducted as required in procedures and standards. During weekends, and on holidays no measurements are taken as at those times no quality assurance personnel are present. There is no external indication of oven temperature or of power continuity to the oven. If there were a power outage and subsequent power restoration while the facility was unoccupied over a weekend, there is no method to verify that the oven did not drop below the acceptable temperature range of +300 F +/-50F for longer than 4 hours. Without daily measurement this storage requirement cannot be adequately verified.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-017-F03

CHPRC does not have a procedure defining the quality control and acceptance requirements for Nondestructive Examination (NDE) of welds.

Requirement(s):

DOE Order 414.1(C), Section 4.b(4)(a), "Documents and Records", "Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design."

Discussion:

Section 6.7 of HNF-42884, Revision 0 contains a requirement that NDE be conducted in accordance with design requirements. However, no procedural reference is provided. Specific requirements should be developed and documented so that NDE activities may be performed in accordance with industry standard specifications including quality assurance, training/qualification, procurement, reporting of results, record retention, etc.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-017-F04

A formal Preventive Maintenance program for welding equipment has not been implemented.

Requirement(s):

DOE Order 414.1(C), Section 4.b(5)(c), "Work Processes", states, "Maintain items to prevent their damage, loss, or deterioration."

DOE Order 414.1(C), Section 4.b(4)(a), "Documents and Records", "Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design."

Discussion:

HNF-42884, Revision 0, Section 4.2.4, states as a responsibility of Construction Services, "Perform maintenance and calibration of welding equipment." No procedures or processes addressing welding equipment maintenance or calibration appear to exist. Also, no formal Preventive Maintenance program for welding equipment has been implemented.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-SED-PRC-017-F05

Preventive maintenance is not being performed on welding equipment.

Requirement(s):

DOE Order 414.1(C), Section 4.b(5)(c), "Work Processes", states, "Maintain items to prevent their damage, loss, or deterioration."

Discussion:

HNF-42884, Revision 0, Section 4.2.4, states, as a responsibility of Construction Services, "Perform maintenance and calibration of welding equipment." No procedures or processes addressing welding equipment maintenance or calibration appear to exist. Also, no formal Preventive Maintenance program for welding equipment has been implemented and no documented preventive maintenance is being performed.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-SED-PRC-017-O01

The 200W welding shop Distribution Center does not contain a copy of Section 5.0 of HNF-42892, which specifies responsibilities for welding rod Distribution Center Attendants.

Discussion:

Welding filler materials are stored in locked cabinets. Low-hydrogen electrodes are stored in a locked, heated storage oven. Key control is maintained by the approved Distribution Center Attendants. Specific responsibilities for Distribution Center Attendants are specified within Section 5.0 of HNF-42892. These include: segregating filler material by size and type; meeting storage requirements for rod, wire feed and brazing materials; container control; and disposal of

unused material and stubs. During the conduct of the surveillance it was observed that the distribution center did not contain a copy of the procedure.

Observation: S-10-SED-PRC-017-O02

The process for checking out field containers of weld filler materials from the Distribution Center in 200W requires support from organizations external to the welding program, and thus is cumbersome, confusing, and a setup for a noncompliance.

Discussion:

When checking out filler material from the distribution center, weld filler material is placed in a plastic holding container for transport to the job-site. Section 5.1.7 of HNF-42892 requires that electrode holding containers be marked with an identifying number required for identification and traceability. Typically, this is a heat number and rod type identifier. However, when new rod is procured, the containers must be relabeled prior to use in order to comply with the procedure. This requires the support of the paint shop personnel, remaking of a specific label, and is cumbersome and a setup for a noncompliance. This system could be improved as there is significant confusion present in the existing process.

Observation: S-10-SED-PRC-017-O03

The Hanford Site Welding Committee is not organized as a Center of Expertise as are similar organizations and groups within Radiation Protection, Criticality Safety, and Engineering.

Discussion:

The Hanford Site Welding Committee meeting is chaired by the CHPRC Welding Engineer who reports to the CHPRC Chief Engineer in Central Engineering. The CHPRC Welding Engineer manages the site welding procedures and program and is the central point of contact on welding programmatic issues for the site. The committee consists of members from all the Hanford site contractors having welding activities. There are presently 9 members. The committee meets every two months to discuss issues of importance to welding activities on the site, obtain procedure interpretation, discuss technical and quality assurance issues, and talk about training, program updates, procedures, etc. The members however, are not organized as a Center of Expertise. That is, they are not voting members of a committee charged with establishing site policy and procedure. This authority is retained by Central Engineering within CHPRC. The Committee could be improved by moving from a simple meeting format to that of a Center of Expertise.

Contractor Self-Assessment:

Management self-assessment of the Welding Programs is not being conducted. See Finding 01 above.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Gary R. Cannell
Manager, Welding and Materials Engineering
CHPRC Engineering
March 17, 2010



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0045

FEB 09 2010

Mr. M. N. Brosee, President
Washington Closure Hanford LLC
Richland, Washington 99354

Dear Mr. Brosee:

CONTRACT NO. DE-AC06-05RL14655 – SURVEILLANCE OF WCH INJURY/ILLNESS
RECORDKEEPING (S-10-SED-WCH-005)

The purpose of this letter is to transmit the attached report documenting surveillance S-10-SED-WCH-005, "Injury/Illness Recordkeeping." The report identifies two observations. No formal response to this letter is necessary; however, please note that RL is requesting closure verification for the observations. If you have any questions, please contact me, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in black ink, appearing to read "Jewel J. Short".

Jewel J. Short
Contracting Officer

SED:JF

Attachment

cc w/attach:
S. L. Feaster, WCH
T. A. Harris, WCH
R. J. Skwarek, WCH

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillant: J. Cavanaugh and J. Flack (SED)

Surveillance Number: S-10-SED-WCH-005

Date Completed: January 20, 2010

Contractor: Washington Closure Hanford LLC (WCH)

Facility: Records of Recordable Injuries and Illnesses

Title: Injury/Illness Recordkeeping

Guide: 29 CFR 1904 Recording and Reporting Occupational Injuries and Illnesses
10 CFR 851 Worker Safety and Health Program
EM-61 Occupational Injury and Illness Recordkeeping and Reporting Oversight Assessment dated February 19, 2009 with attached Criteria and Review Approach Document

Surveillance Scope: The surveillance was performed to determine the contractor's effectiveness in recording and reporting of occupational injuries and illnesses.

Surveillance Summary:

The WCH Injury/Illness Recordkeeping surveillance was conducted in accordance with the guidance in Department of Energy (DOE) Office of Environmental Management, (EM-61) Occupational Injury and Illness Recordkeeping and Reporting Oversight Assessment and attached Criteria and Review Approach Document (CRAD) dated February 19, 2009. The assessors interviewed the WCH Computerized Accident/Incident Reporting System (CAIRS) Point of Contact (POC) and AdvanceMed Hanford Health Information Team Leader. In addition, year to date occupational injury and illness records and applicable medical records were reviewed.

The WCH CAIRS POC has recordkeeping responsibilities for 1000 -1200 employees. This includes workers compensation, data collection for injury, illness and first aid events for the

CAIRS system and DOE/Occupational Safety and Health Administration (OSHA) recordkeeping requirements, coordination of annual and new hire physical exams and Employee Job Task Analysis. She also ensures the WCH internal management "Safety Flash Reports" are developed and issued (usually within 24 hours of the incident) for significant injuries/illnesses.

The assessors reviewed WCH employee year to date 2009 reports of injury/illness. WCH currently uses a recordkeeping system that includes the following: CAIRS program and data entry of the DOE Form 5484.3 (equivalent to the OSHA 301 form), OSHA 300 log and an in house recordkeeping system based on the old, outdated OSHA Form 200. The OSHA Form 200 was required to be replaced with OSHA Form 301 or equivalent by January 2003.

The DOE Form 5484.3 (used by the CAIRS system) is equivalent. However, the CAIRS database cannot be accessed by most managers and persons with access find it difficult to retrieve employee specific information. Management and safety representatives rely on the in house, outdated OSHA 200 form data. The WCH CAIRS POC explained that her request for an updated software program, containing the OSHA 301 format, had been denied by management.

The assessors found, with one minor exception, recordkeeping and operating practices for employee work related injuries and illnesses were performed in accordance with procedures and standard requirements. The minor exception involved an incomplete location description on the OSHA 300 log. The surveillance did result in the identification of the following two observations:

- **S-10-SED-WCH-005-001:** The contractor did not complete the OSHA 300 log in the detail provided on the DOE F 5484.3 form.
- **S-10-SED-WCH-005-002:** The contractor internal system used for OSHA recordkeeping forms and data collection is outdated and does not provide detailed injury and illness information.

Surveillance Results:

Observation: S-10-SED-WCH-005-001

The contractor did not complete the OSHA 300 log in the detail provided on the DOE F 5484.3 form.

Discussion:

The 2009 year to date OSHA 300 log was reviewed for the WCH contractor, Eberline Services Hanford Inc. At the time, there was one entry, Case No. 505 on the form. The location of the injury could not be determined by the description on the OSHA 300 log. In addition, the description 100D/DR, documented in OSHA 300 Log, Column (E) was different than the location documented on line (20) of the DOE F 5484.3 form. The DOE form documents the location as; 116-DR5/100D. Records of injuries/illnesses must be completed in detail and is required by 10 CFR 851.26(a)(3) and 29 CFR 1904.29(b)(1) and (4).

RL Lead Assessor Closure Required: YES NO

Observation: S-10-SED-WCH-005-O02

The contractor internal in-house system used for OSHA recordkeeping forms and data collection is outdated and does not provide detailed injury and illness information.

Discussion:

The WCH uses several systems/methods to collect/report OSHA recordable injuries and illnesses. The systems used include: an old internal data system, Excel spreadsheet, DOE CAIRS database, word processing file and if needed, handwritten OSHA 301 forms. The old, internal data system uses OSHA Form 200 for incident reporting. The OSHA Form 200 is outdated and was required to be replaced with OSHA Form 301 or equivalent by January 2003.

The DOE Form 5484.3 (used by the CAIRS system) is equivalent to the OSHA Form 301. However, the CAIRS database cannot be accessed by most managers and persons with access find it difficult to retrieve employee specific information. Management and safety representatives rely on the in-house outdated OSHA 200 form data. The WCH CAIRS POC explained that her request for an updated software program, containing the OSHA 301 format, had been denied by management.

The following summarizes the deficiencies' with the outdated form:

- The OSHA 200 form used the name, Bechtel Hanford, Inc. as the name of the employer and an incorrect address.
- The OSHA 200 form does not provide the employee years of experience.
- The OSHA 200 form does not document date of death (when applicable.)
- The OSHA 200 form does not include addresses of facility used for treatment, emergency room, and/or overnight hospitalization.
- The OSHA 200 form does not include time employee began work.

The WCH CAIRS POC explained that her request for an updated software program, containing the OSHA 301 format, had been denied by management. The use of so many different systems creates a high risk for error (see the observation above) especially when new information comes in and/or the primary WCH CAIRS POC is away from the office.

RL Lead Assessor Closure Required: YES NO

Good Practices:

1. WCH continues to provide timely submission of injury/illness reports and work hours. Records verify that the WCH CAIRS Lead had sent all injury and illness reports (including First Aid cases) and work hours to the CAIRS web site each quarter within the specified time frame. Subcontractor data is also submitted timely.

2. The narratives by WCH and their subcontractors is complete and contains the required information.
 3. WCH maintains a separate organizational code for the WCH workforce and the combined subcontract organizations. This is acceptable practice and authorized by HSS CAIRS Manager.
 4. WCH has a primary CAIRS Program Manager who maintains the accident/injury data and inputs necessary data into the CAIRS database, as well as providing injury/illness data to the RL CAIRS Manager on a weekly basis.
 5. Currently, there is a trained backup CAIRS assistant and ongoing training for another WCH employee to ensure accurate and timely data is submitted into the CAIRS system.
-

Contractor Self-Assessment:

During the progression of this surveillance, the contractor reported that more emphasis had been placed in assuring that project safety representatives and supervisors of affected workers are aware that AMH needs to be included in the injury/recovery process.

No other self assessments have been conducted.

Contractor Self-Assessment Adequate: YES [] NO [X]

Management Debriefed:

Darlene McClure, CAIRS Point of Contact
Stacey Thursby, WCH
Ken Jenkins, Safety and Health Manager



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0067

APR 07 2010

Mr. M. N. Brosee, President
Washington Closure Hanford LLC
Richland, Washington 99354

Dear Mr. Brosee:

CONTRACT NO. DE-AC06-05RL14655 – TRANSMITTAL OF SURVEILLANCE REPORT AS LOW AS REASONABLY ACHIEVABLE (ALARA) WORK PLANNING AND EXECUTION FOR FISSION PRODUCT TRAP PREPARATIONS FOR DEMOLITION (S-10-SED-WCH-008)

The purpose of this letter is to forward the subject surveillance report. The surveillance identified seven findings and three observations which are documented in the attached report. No formal response to this letter is required. However, please note that RL is requesting closure authority for the findings and observations. If you have any questions, please contact me, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in black ink, appearing to read "Jewel J. Short", with a long horizontal flourish extending to the right.

Jewel J. Short
Contracting Officer

SED:BMP

Attachment

cc w/attach:
S. L. Feaster, WCH
T. A. Harris, WCH
R. J. Skwarek, WCH

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

Surveillance Team: Joe DeMers, Brenda Pangborn (Lead), Ed Parsons, Joe Waring

Surveillance Number: S-10-SED-WCH-008

Date Completed: March 18, 2010

Contractor: Washington Closure Hanford (WCH), LLC

Facility: N Reactor

Title: As Low As Reasonably Achievable (ALARA) Work Planning and Execution for Fission Product Trap Preparations for Demolition

Guide: 10 CFR 835

Surveillance Scope:

The objective of this surveillance was to ensure adequate implementation of ALARA Work Planning for the N Reactor Fission Product Trap preparations for Demolition. This was a vertical audit (oversight of a job from planning through completion of work, October, 2009, through March, 2010) that included work planning and execution for containment installation, fixative application, preparation of 12 inch and 24 inch lines for demolition, removal of the cyclone separator, and grouting of the fission product trap.

Surveillance Summary:

The surveillance team performed a vertical audit of the ALARA work planning and implementation for N Reactor Fission Product Trap preparations for demolition. The surveillance team observed:

- ALARA work planning sessions including pre-job ALARA reviews, in-progress ALARA reviews, and the post-job ALARA review;
 - Senior Management Review Team reviews of work packages;
 - pre-job briefings associated with field work observed;
 - containment installation;
-

- removal of the Fission Product Trap enclosure cover;
- personnel egress (donning and doffing of personal protective clothing and personnel surveys);
- radiological postings;
- removal of the cyclone separator from the fission product trap enclosure; and
- reinstallation of the Fission Product Trap enclosure cover after grouting was completed.

As a result of heightened awareness of personnel injuries associated with falls, the surveillance team also observed:

- personnel use of ladders and
- use of fall protection.

Overall, the ALARA work planning and implementation for preparing the N Reactor Fission product Trap enclosure and associated piping for demolition went well. The project used good work practices to reduce overall dose to the workers. As an example, a mock-up was performed for the removal of the cyclone separator from the fission product trap enclosure. Special tools were used to keep the workers physically away from the cyclone separator (3.5 rem/hr on contact at one end, 100-200 mrem/hr general area radiation field). Remotely monitored electronic dosimetry was used for personnel entry into the fission product trap enclosure. The special dosimetry was used to monitor both the dose rates where individuals were physically locating themselves during work and the individual cumulative dose. Personnel monitoring the individual's dose were in radio contact to provide continuous monitoring and allow prompt feedback should an individual inadvertently access a high dose rate area.

Good ALARA work planning resulted in actual exposures being below the exposure estimate.

Accrued Exposure Versus Estimated Exposure

Planned Tasks	Estimated Dose (person-mrem)	Actual Dose (person-mrem)
Mobilize, Fixative, Air Barrier	1096	846.3
Tap & Drain Piping, Fixative Application	840	689.3
Remove Cyclone Separator	494.5	161.7
Total	2430.5	1697.3

Lessons learned from the last entry into the Fission Product Trap (see S-06-OOD-RCP-006) were generally incorporated into the ALARA work planning, resulting in significantly improved

airborne radioactivity control. Engineering controls were used to reduce airborne radioactivity. A temporary High Efficiency Particulate Air (HEPA) filtered ventilation unit was installed to maintain appropriate air flow. Containment walls were placed in the tunnels to the fission product trap enclosure to ensure appropriate air flow patterns and to improve contamination control. Fixatives were used to reduce airborne radioactivity generation.

Two in-progress ALARA work reviews were performed when the limiting conditions in the Radiological Work Permit (RWP) for Derived Airborne Radioactivity Concentration (DAC) values were exceeded. The response to the first event included revising the RWP to increase the DAC limiting condition. When the RWP limits for DAC were exceeded a second time, investigation revealed the area had not been wetted down with fixative using a bug sprayer type applicator prior to using the airless paint sprayer. This practice was discussed but not formally incorporated into the procedure. The paint application was finished with the bug sprayer applicator, reducing airborne generation.

A contributing factor to exceeding the limiting conditions of the RWP for airborne radioactivity levels was the less than adequate airborne radioactivity estimate for use of the airless paint sprayer. Lessons learned from this work did not appear to have been adequately communicated throughout WCH. Another radiological engineer similarly underestimated the airborne radioactivity generation from an airless paint sprayer for the Load Out Station work at Bldg 324, resulting in an unposted airborne radioactivity area and low level intake of airborne radioactivity to workers.

Doffing of contaminated protective clothing (PCs) after exiting the airborne radioactivity area leading to the fission product trap enclosure resulted in generation of low level airborne radioactivity outside the posted airborne radioactivity area. This should have been expected since higher airborne radioactivity concentrations for personnel assisting in doffing of PCs were also observed during the previous entries into the fission product trap (see S-06-OOD-RCP-006). The project took immediate action to change the doffing procedure to prevent recurrence.

The surveillance resulted in seven (7) findings and three (3) observations. Three of the findings and one observation were associated with deficiencies in safety.

- **S-10-SED-WCH-008-F01:** The requirement for using a hand pump to apply fixative prior to use of an airless paint sprayer was not flowed down into the procedure, resulting in failure to perform the step and exceeding the airborne radioactivity limiting condition in the RWP for DAC value (OA 27587).
- **S-10-SED-WCH-008-F02:** WCH procedures did not provide adequate guidance on resuspension factors for an airless paint sprayer on a contaminated surface, resulting in an underestimate of the airborne radioactivity levels at two projects.
- **S-10-SED-WCH-008-F03:** Personnel were observed not wearing all of the PCs specified in the RWP (OA 26854).
- **S-10-SED-WCH-008-F04:** Survey scan speeds for personnel and release of equipment were significantly greater than 2 inches per second for some of the surveys observed (OA26854).
- **S-10-SED-WCH-008-F05:** Poor work practice was observed that could result in greater than six feet of free fall (OA 28636).

- **S-10-SED-WCH-008-F06:** Worker climbed on a ladder without the safety locks that hold the front and back sections in the open position being engaged (OA 26854).
 - **S-10-SED-WCH-008-F07:** The fire extinguisher (not a wheeled type) in the containment tent was not properly secured (OA 26902).
 - **S-10-SED-WCH-008-O01:** All personnel in the containment tent were not accounted for prior to lifting the Fission Product Trap cover plate (OA 26902).
 - **S-10-SED-WCH-008-O02:** A field change to not use a retractable lanyard for a work step was counter to the pre-evolution briefing and was initially made without the Project Safety Representative (PSR) input (OA 26902).
 - **S-10-SED-WCH-008-O03:** Low level airborne radioactivity was generated outside the posted airborne radioactivity area during doffing of outer contaminated protective clothing.
-

Surveillance Results:

Finding: S-10-SED-WCH-008-F01:

The requirement for using a hand pump to apply fixative prior to use of an airless paint sprayer was not flowed down into the procedure, resulting in failure to perform the step and exceeding the airborne radioactivity limiting condition in the RWP for DAC value (OA 27587).

Requirements:

10 CFR 835.104 specifies "Written procedures shall be developed and implemented as necessary to ensure compliance with this part, commensurate with the radiological hazards created by the activity and consistent with the education, training, and skills of the individuals exposed to the hazards."

10 CFR 835.501(d) specifies "Written authorizations shall be required to control entry into and perform work within radiological areas. These authorizations shall specify radiation protection measures commensurate with the existing and potential hazards."

RC-1, Radiation Protection Procedures, Procedure No. RC-1-10.1, Rev 4, 6.3 Technical Work Documents (TWDs) Review, specifies "1. Develop TWDs to ensure the workers performing their assigned tasks have been provided enough detail and instruction to accomplish their tasks safely."

Discussion:

On November 23, 2009, during application of fixative using an airless paint sprayer, two workers exceeded the radiological work permit limiting condition of 100 DAC for airborne concentrations. The lapel air samples for the two workers indicated airborne radioactivity levels of 170 and 180 DAC. During the investigation it was determined that the workers had not pre-wetted the area using a hand pump (the bug sprayer).

The main exposure control method specified in the ALARA document to reduce airborne radioactivity was the use of a hand pump (lower pressure/higher volume) to apply fixative prior to the use of an airless sprayer (higher pressure), which had not been done when the 170/180 DAC airborne levels were encountered. The surveillance team asked if the work package specified this approach of using a hand pump first. After review of the work package at the ALARA review meeting, WCH stated it did not specify using the hand pump sprayer. The procedure was revised to do so.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-WCH-008-F02

WCH procedures did not provide adequate guidance on resuspension factors for an airless paint sprayer on a contaminated surface, resulting in an underestimate of the airborne radioactivity levels at two projects.

Requirements:

10 CFR 835.104 specifies "Written procedures shall be developed and implemented as necessary to ensure compliance with this part, commensurate with the radiological hazards created by the activity and consistent with the education, training, and skills of the individuals exposed to the hazards."

Discussion:

Airborne radioactivity generation for use of an airless paint sprayer was underestimated at two separate projects.

RC-100-4.2 specifies various methods of estimating airborne radioactivity for the purpose of work planning. Section 6.2.2 provides a formula for estimating airborne radioactivity levels based on average contamination levels and selection of an appropriate resuspension factor. The resuspension factor for use of an airless paint sprayer was not included in the procedure.

Initial airborne estimates for use of the airless paint sprayer (and all other activities for mobilization and fixative application for the fission product trap work) was 1.6×10^{-2} DAC based on selecting the resuspension factor for "Mechanical cutting, Maintenance, Jack hammer, Drilling, and General contamination levels (1×10^{-6} , m-1).

Entry into the fission product trap was made on November 6 and November 9, 2009. The airborne radioactivity levels were significantly higher than estimated (20-40 DAC compared to the estimate of 1.6×10^{-2} DAC). Personnel wore power operated air purifying respirators (PAPR), so there was no significant exposure to personnel. The DAC value limiting condition in the RWP was revised and increased to 100 DAC. The use of fixative using a bug sprayer prior to use of the airless paint sprayer was specified.

On November 23, 2009 the DAC limiting condition in the RWP was exceeded again (170/180 DAC airborne radioactivity generated). The project radiological engineer determined that an inadequate resuspension factor was applied for use of the airless paint sprayer. The resuspension factor was upgraded to that for Cutting torch, Welder, High Pressure Air; Powders (1×10^{-3}).

When the higher than estimated DAC values were found during airless paint spraying at N reactor fission product trap, the lessons learned did not appear to have been adequately disseminated or the procedures for making airborne estimates updated to prevent recurrence. The resuspension factor for the use of an airless paint sprayer was again underestimated for work at Building 324 for painting the load out station.

Radiological Work Screening Number 324PS-10-0005, Rev 00 specified a resuspension factor of $1.00E-07$ Mechanical Cutting, Maintenance, Jack Hammering, Drilling, Solids, Spotty Contamination, Fixed Contamination. The airborne radioactivity estimate based on 20,000 dpm/100cm² beta-gamma, 20 dpm/100 cm² alpha, average contamination levels and the selected resuspension value was "0.000 DAC". Actual airborne radioactivity values based on lapel air samples were as high as 7.4 DAC. The area was not posted as an airborne radioactivity area, but the worker exposed to airborne radioactivity concentrations above 1 DAC was wearing PAPR for industrial hygiene purposes. Some individuals not wearing respiratory protection were exposed to low levels of airborne radioactivity.

WCH procedures need to provide appropriate guidance for resuspension factors for airless paint sprayers.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-WCH-008-F03:

Personnel were observed not wearing all of the PCs specified in the RWP (OA 26854).

Requirements:

RWP 100N-09-014, Rev. 0, specified for high contamination area (HCA) entries, "Two full sets of PCs."

Discussion:

The surveillance team observed the doffing of PCs. Overall doffing procedures were performed satisfactorily. However, one individual was found to have only one set of footwear, shoe cover and rubber booties, vice those required for two full sets of PCs. This was not sufficient to get out of the two stage doffing area. The radiological control technician (RCT) surveyed the bottom of the booties for the individual to go to the next undressing area. The RCT indicated there were others that did not have the appropriate PCs. It appears the meaning of two full sets of PCs as specified in the RWP may not have been clear to all the workers. Some had two booties and one shoe cover, several had two booties and two shoe covers (4 total). The doffing instructions

accounted for one shoe cover and two sets of booties. The meaning of the two full sets of PCs was specified in the RWP. However, since wearing two sets of PCs is not covered in radiological worker training, it appears facility specific training may have been warranted. The facility implemented corrective actions including briefing of personnel at the pre-evolution meeting. Additionally, the meaning of two full sets of PCs was clarified through posting in the change trailer (see OA 26902).

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-WCH-008-F04:

Survey scan speeds for personnel and release of equipment were significantly greater than 2 inches per second for some of the surveys observed (OA26854).

Requirements:

10 CFR 835.1102(d) specifies "Individuals exiting contamination, high contamination, or airborne radioactivity areas shall be monitored as appropriate, for the presence of surface contamination."

10 CFR 835.401(a) specifies "Monitoring of individuals and areas shall be performed to: (1) demonstrate compliance with the regulations in this part...."

RC-200-4.2 Radiological Surveys, section 6.3, Contamination Surveys, specifies "4. Perform Survey for total beta-gamma and alpha contamination in accordance with Table 2." Table 2, Total Contamination Survey Criteria, specifies for the 100 cm² probe for personnel surveys beta-gamma scan speeds \leq 2 inches per second and alpha scan speed of \leq 2 inches per second.

RC-200-4.4 Material Release, section 6.5, Survey for Total Contamination, specifies "1. Perform survey for total beta-gamma and alpha contamination in accordance with Table 2." Table 2, Total Contamination Survey Criteria – Material Release, specifies for the 100 cm² probe, beta-gamma scan speed of \leq 2 inches per second and an alpha scan speed of \leq 0.75 inches per second.

Discussion:

The surveillance team observed one RCT performing surveys of personnel. The individual did not pause for five seconds at the nose, throat and mouth and used scan speeds that were at times significantly greater than two inches per second. The same RCT, releasing PAPR parts from the HCA, used scan speeds significantly greater than two inches per second. When asked, the radiological control supervisor brought out the procedure that indicated, due to the use of the dual monitoring for alpha, the required equipment release survey scan speed was \leq 0.75 inches per second for the release of materials. The supervisor briefed the RCTs on the procedure and scan speeds were slowed down accordingly.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-WCH-008-F05:

Poor work practice was observed that could result in greater than six feet of free fall (OA 28636).

Requirements:

10 CFR 851.23 (a) specifies "Contractors must comply with the following safety and health standards that are applicable to the hazards at their covered workplace...(7) Title 29 CFR, Part 1926, "Safety and Health Regulations for Construction."

29 CFR 1926.502(d)(16) specifies "Personal fall arrest systems, when stopping a fall, shall... be rigged such that an employee can neither free fall more than 6 feet (1.8 m), nor contact any lower level...."

Discussion:

The surveillance team observed the removal of the cyclone separator from the fission product trap enclosure. A retractable fall arrest system (TriRex) was used for fall protection to prevent a fall into the fission product trap enclosure. The surveillance team observed twice, an individual gathering about five feet of line in their hands. This potentially defeats the retractable fall protection system. Should the individual holding the slack in the line fall, they would likely free fall more than 6 feet.

This is a repeat issue, previously documented in OA 20096 on October 24, 2008, during work on the 107N roof.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-WCH-008-F06:

Worker climbed on a ladder without the safety locks that hold the front and back sections in the open position being engaged (OA 26854).

Requirements:

10 CFR 851.23 (a) specifies "Contractors must comply with the following safety and health standards that are applicable to the hazards at their covered workplace...(7) Title 29 CFR, Part 1926, "Safety and Health Regulations for Construction."

29 CFR 1926.1053(a)(8) A metal spreader or locking device shall be provided on each step ladder to hold front and back sections in an open position when the ladder is being used."

Discussion:

The surveillance team observed removal of the cover of the fission product trap enclosure and installation of a Plexiglas cover with holes in it for spray nozzle entry to apply fixatives and HEPA filtered ventilation trunk entry for negative pressure ventilation system installation.

When preparing for rigging the fission product trap enclosure cover out of the tent, a worker climbed onto a step ladder with the safety latches not fully engaged. The surveillance team pointed this out and the field work supervisor had the person get down, fix the ladder, and then get back on to complete the task of opening the tent roof hatch.

RL Lead Assessor Closure Required:

YES[X] NO []

Finding: S-10-SED-WCH-008-F07

The fire extinguisher (not a wheeled type) in the containment tent was not properly secured (OA 26902).

Requirements:

10 CFR 851.23 (a) specifies "Contractors must comply with the following safety and health standards that are applicable to the hazards at their covered workplace...(3) Title 29 CFR, Part 1910 "Occupational Safety and Health Standards"... (7) Title 29 CFR, Part 1926, "Safety and Health Regulations for Construction."

29 CFR 1910.157(c)(1) specifies "The employer shall provide portable fire extinguishers and shall mount, locate and identify them so that they are readily accessible to employees without subjecting the employees to possible injury".

29 CFR 1926.150(c)(1)(viii) specifies "Portable fire extinguishers shall be inspected periodically and maintained in accordance with Maintenance and Use of Portable Fire Extinguishers, NFPA No. 10A-1970"

Appendix A to Part 851 "Worker Safety and Health Functional Areas", section 2. Fire Protection, paragraph (b) specifies "An acceptable fire protection program must include those fire protection criteria and procedures, analysis, hardware and systems, apparatus and equipment, and personnel that would comprehensively ensure that the objectives in paragraph 2(a) of this section is met. This includes meeting applicable building codes and National Fire Protection Association codes and standards."

NFPA 10, 1.5 General Requirements specifies "...1.5.7 Portable fire extinguishers other than wheeled extinguishers shall be installed securely on the hanger, or in the bracket supplied by the extinguisher manufacturer, or in a listed bracket approved for such purpose, or placed in cabinets or wall recesses...1.5.10 Fire extinguishers having a gross weight not exceeding 40 lb (18.14 kg) shall be installed so that the top of the fire extinguisher is not more than 5 ft (1.53 m) above the

floor. Fire extinguishers having a gross weight greater than 40 lb (18.14 kg) (except wheeled types) shall be so installed that the top of the fire extinguisher is not more than 3 ft (1.07 m) above the floor. In no case shall the clearance between the bottom of the fire extinguisher and the floor be less than 4 in. (10.2 cm)....”

SH-1, Safety and Health Portable Fire Extinguishers, 6.0 PROCEDURE, specifies “1. The location and type of portable fire extinguishers shall be in accordance with the requirements of National Fire Protection Association (NFPA) 10, *Standard for Portable Fire Extinguishers*... 3. Portable fire extinguishers shall be mounted on hangers or stored in cabinets (except for wheeled types).”

Discussion:

The surveillance team noted that the fire extinguisher near the north wall of the containment (not a wheeled type) was not secured per requirements. The work lead and work supervisor were aware of the issue and were waiting on support from the carpenters to mount the fire extinguisher.

RL Lead Assessor Closure Required:

YES[X] NO []

Observation: S-10-SED-WCH-008-001:

All personnel in the containment tent were not accounted for prior to lifting the Fission Product Trap cover plate (OA 26902).

Discussion:

Prior to lifting the Fission Product Trap cover plate, an RCT went down under the stairs of the southeast (SE) corner of the containment tent to the high contamination area anti-room. While the RCT was in the anti-room, the rigger told everyone to move to the north side of the containment tent out of the swing path of the cover plate. The anti-room in the SE corner was not in the swing path. As the cover plate was being lifted off the cribbing, the RCT emerged from the anti-room and went up the steps. The RCT initially stayed in the SE corner area and then was waved over to the north side of the tent by the lead worker. The RCT did not walk under the load, but did walk under the boom of the crane during the pick.

The lead worker did the right thing in his mind since he believed the RCT would be under the swing path of the load if the RCT stayed in place. In hindsight, the pick should have been delayed until the RCT emerged from the anti-room so the RCT could have gathered with the rest of the work crew on the north side of the tent. Alternatively, the RCT should have been told the pick would commence and to stay in the anti-room until it was completed.

RL Lead Assessor Closure Required:

YES[X] NO []

Observation: S-10-SED-WCH-008-002:

A field change to not use a retractable lanyard for a work step was counter to the pre-evolution briefing and was initially made without the Project Safety Representative (PSR) input (OA 26902).

Discussion:

The step to secure the cyclone separator square tubing located below the cover plate was briefed at the pre-evolution meeting to include use of fall protection (retractable lanyard). Rather than have the lid completely removed and then perform the work step, it was suggested during the pre-evolution briefing that the cover plate be moved about one foot to the side to gain enough room for the worker to secure the square tubing, but not have a large hole exposed. The work supervisor stated during the pre-evolution briefing that this work step would still be performed using a retractable lanyard, as planned, because the moved cover plate would not be considered a fall protection barrier.

During the field work, the cover plate was moved and rotated as discussed in the pre-evolution briefing to perform the next step of securing the square tubing. The cover plate rested on the four inch by four inch cribbing on the northeast and southeast corners, on a raised manhole cover on the northwest corner, and not on anything in the southwest corner due to the raised manhole cover being higher than the cribbing. Rigging was secured to the cover plate and to the crane. At this time the work supervisor decided that a retractable lanyard was not required for the worker to secure the tubing (no hole big enough to fall through). The PSR was not at the job site since he was covering another job. A surveillance team member, knowing how the job was briefed at the pre-evolution meeting, and noticing one corner of the cover plate in the air, paused the work to state the PSR should make the decision on relaxing the retractable lanyard use since now the cover plate in its current position was the fall protection barrier. The concern wasn't as much the adequacy of the fall protection barrier, but rather the change in how the work was briefed at the pre-evolution meeting and ensuring the appropriate personnel were involved in the decision to relax requirements. The PSR is the person who provides technical oversight of fall prevention and fall protection requirements and provides guidance for implementing the requirements.

During the work pause, the work supervisor contacted the PSR via phone, who gave approval to perform the work without a retractable lanyard after the work supervisor described the situation. This situation should not recur once all work packages are written and performed in accordance with Rev 5 or 6 of PAS-2-1.1, since in this case the PSR would have been a critical resource and would have been present at the job site.

RL Lead Assessor Closure Required:

YES[X] NO []

Observation: S-10-SED-WCH-008-O03:

Low level airborne radioactivity was generated outside the posted airborne radioactivity area during doffing of outer contaminated protective clothing.

Discussion:

Airborne radioactivity levels (0.23 DAC) were identified outside the posted airborne radioactivity area at the fission product trap work exit. The investigation concluded that airborne radioactivity was generated during doffing of the outer pair of PPE. The outer pair of PCs and respiratory protection were being doffed outside the posted airborne radioactivity area. The doffing procedure was modified by the project to prevent recurrence.

During previous work in the fission product trap enclosure, the lapel air samplers for individuals assisting in doffing personal protective clothing of individuals exiting the fission product trap enclosure showed higher DAC values from airborne radioactivity generated during the doffing process. The lessons learned did not appear to have been incorporated into the set-up for doffing of PCs and establishment of the airborne radioactivity boundary for the current work.

The airborne radioactivity levels did not exceed the posting criteria of 10 CFR 835, but were higher than expected.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment: No self-assessments for radiation protection were performed involving the N Reactor fission product trap project preparations for demolition. However, there were many radiological control field visits by management which identified radiological deficiencies for corrective actions. No surveillances from the safety and health organization were provided as requested.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Bob Smith, WCH
G. Simiele, WCH
R. Skwarek, WCH
M. Welling, WCH



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0056

APR 05 2010

Mr. M. N. Brosee, President
Washington Closure Hanford LLC
Richland, Washington 99354

Dear Mr. Brosee:

CONTRACT NO. DE-AC06-05RL14655 – SURVEILLANCE OF COMPLIANCE OF WASHINGTON CLOSURE HANFORD (WCH) MOTOR CARRIER OPERATIONS TO U.S. DEPARTMENT OF TRANSPORTATION (DOT) REGULATIONS (S-10-SED-WCH-010)

The purpose of this surveillance was to determine if WCH Motor Carrier Operations other than the Drug and Alcohol Misuse Program are compliant with DOT Federal Motor Carrier Safety Regulations. RL has identified 13 findings and 3 observations as documented in the attached surveillance report. No formal response to this surveillance is required. However, please note that RL concurrence for closure of findings and observations is required as indicated in the attached report.

RL is not confident that WCH's commercial motor carrier operations would not receive a "satisfactory" rating by DOT based on the current state of the program. RL expects that effective corrective actions will be taken to address the identified issues prior to the DOT inspection which has been scheduled for the week of April 19, 2010. The content of this report has previously been provided to your staff.

If you have any questions, please contact me, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in black ink, appearing to read "Jewel J. Short", written over a horizontal line.

Jewel J. Short
Contracting Officer

SED:DWC

Attachment

cc w/attach:
S. L. Feaster, WCH
R. E. Fillmore, WCH
T. A. Harris, WCH
W. F. Johnson, WCH
J. F. Saskowsky, WCH
I. L. Siddoway, WCH
R. J. Skwarek, WCH

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Safety and Engineering Division (SED)

Surveillant: Dennis W. Claussen

Surveillance Number: S-10-SED-WCH-010

Date Completed: February 9, 2010

Contractor: Washington Closure Hanford (WCH)

Facility: Washington Closure Hanford, Motor Carrier Operations at 2620 Fermi Avenue

Title: Review of Washington Closure Hanford, Motor Carrier Operations to US Department of Transportation (DOT) Regulations

Surveillance Scope:

This surveillance is a compliance review of DOT WCH Motor Carrier (MC) Operations against requirements of 49 CFR except for Controlled Substances and Alcohol Misuse Program. WCH's Controlled Substances and Alcohol Misuse Program was reviewed last year (See S-09-SED-WCH-006).

Surveillance Summary:

Documents Reviewed:

- Drivers' time sheets
- Drivers' Vehicle Inspection Reports (DVIR)
- Drivers' Qualification Files
- Commercial Motor Vehicles' (CMV) Maintenance Files
- Inspection of 8 CMV for required documentation and emergency equipment, including the fuel/lube CMV
- Procedure SEM 3-1.2, Rev. 4, Occurrence Categorization and Reporting
- Procedure SEM 3-2.1, Rev. 3, Accident/Incident Investigating and Reporting Requirements
- Procedure SEM 3-2.2, Rev. 6, Event Management
- Procedure SEM 3-2.4, Rev. 0, WCH Type A/B Accident Investigation Plan

Interviews conducted with:

- Labor Relations Manager and Administrative Assistant
- WCH Transportation Subject Matter Expert
- Environmental Restoration Disposal Facility (ERDF), Drivers' Supervisor
- D4-100 Area, Drivers' Supervisor
- D4-300 Area, Drivers' Supervisor
- WCH Training staff member

The surveillant has documented findings and observations in the Operational Awareness (OA) Data Base and informally transmitted these OA reports to WCH earlier.

The surveillance resulted in the identification of the following thirteen findings and three observations.

- **Finding: S-10-SED-WCH-010-F01:** WCH did not have the required insurance and associated documentation to operate as a motor carrier.
- **Finding: S-10-SED-WCH-010-F02:** WCH program documentation does not address Federal Motor Carrier accident recordkeeping requirements.
- **Finding: S-10-SED-WCH-010-F03:** WCH drivers are not filling out driver's logs when required, and WCH supervisors are not reviewing drivers' time sheets to determine if a driver needs to fill out a drivers' log.
- **Finding: S-10-SED-WCH-010-F04:** CMV defects identified in the DVIR and corrected are not always being entered into the CMV maintenance file.
- **Finding: S-10-SED-WCH-010-F05:** One of the three DVIR forms that WCH uses does not require inspection of parts and/or accessories mandated by DOT regulations, nor does this form contain required signatures to document corrective actions for a defective part/accessory identified in a DVIR.
- **Finding: S-10-SED-WCH-010-F06:** WCH is not conducting CMV annual inspections.
- **Finding: S-10-SED-WCH-010-F07:** A current WCH Certificate of Registration issued by the Pipeline and Hazardous Material Safety Administration (PHMSA) was not on board each straight truck and truck tractor used to transport hazardous material.
- **Finding: S-10-SED-WCH-010-F08:** WCH supervisors of drivers do not receive DOT security training or DOT hazardous material training.
- **Finding: S-10-SED-WCH-010-F09:** The WCH diesel cargo tank has an exposed MC 406 cargo tank name plate; however, the required test markings are not displayed.
- **Finding: S-10-SED-WCH-010-F10:** Drivers' applications are missing information required to comply with 49 CFR 391.21.
- **Finding: S-10-SED-WCH-010-F11:** WCH has not maintained documentation of attempts to obtain a driver's previous motor carrier safety performance or determine whether the driver violated a DOT alcohol and controlled substance program.
- **Finding: S-10-SED-WCH-010-F12:** WCH has allowed drivers to operate commercial vehicles with an expired medical card.

- **Finding: S-10-SED-WCH-010-F13:** WCH's annual reviews of Drivers' Qualification Files and inquiries into previous year drivers' history are not conducted in a timely manner.
- **Observation: S-10-SED-WCH-010-O01:** WCH uses 3 different types of DVIR.
- **Observation: S-10-SED-WCH-010-O02:** The WCH personnel have the misconception that Federal Motor Carrier Safety Regulations do not apply to onsite activities.
- **Observation: S-10-SED-WCH-010-O03:** WCH's motor carrier operations need to operate under a single set of procedures.

Surveillance Results:

Finding: S-10-SED-WCH-010-F01

WCH did not have the required insurance and associated documentation to operate as a motor carrier.

Requirements:

49 CFR 387.7(a) states "No motor carrier shall operate a motor vehicle until the motor carrier has obtained and has in effect the minimum levels of financial responsibility as set forth in §387.9 of this subpart."

49 CFR 387.7(a) states "Proof of the required financial responsibility shall be maintained at the motor carrier's principal place of business. The proof shall consist of:

- (1) "Endorsement(s) for Motor Carrier Policies of Insurance for Public Liability Under Sections 29 and 30 of the Motor Carrier Act of 1980" (Form MCS- 90) issued by an insurer(s);
- (2) A "Motor Carrier Surety Bond for Public Liability Under Section 30 of the Motor Carrier Act of 1980" (Form MCS-82) issued by a surety; or
- (3) A written decision, order, or authorization of the Federal Motor Carrier Safety Administration authorizing a motor carrier to self-insure under §387.309, provided the motor carrier maintains a satisfactory safety rating as determined by the Federal Motor Carrier Safety Administration under Part 385 of this chapter."

49 CFR 387.9 states:

The minimum levels of financial responsibility referred to in §387.7 of this subpart are hereby prescribed as follows:

(1) For-hire (In interstate or foreign commerce, with	Property (nonhazardous)	\$750,000

a gross vehicle weight rating of 10,001 or more pounds).		
(2) For-hire and Private (In interstate, foreign, or intrastate commerce, with a gross vehicle weight rating of 10,001 or more pounds).	Hazardous substances, as defined in 49 CFR 171.8, transported in cargo tanks, portable tanks, or hopper-type vehicles with capacities in excess of 3,500 water gallons; or in bulk Division 1.1, 1.2, and 1.3 materials, Division 2.3, Hazard Zone A, or Division 6.1, Packing Group I, Hazard Zone A material; in bulk Division 2.1 or 2.2; or highway route controlled quantities of a Class 7 material, as defined in 49 CFR §173.403	\$5,000,000
(3) For-hire and Private (In interstate or foreign commerce, in any quantity; or in intrastate commerce, in bulk only; with a gross vehicle weight rating of 10,001 or more pounds).	Oil listed in 49 CFR 172.101; hazardous waste, hazardous materials, and hazardous substances defined in 49 CFR 171.8 and listed in 49 CFR 172.101, but not mentioned in (2) above or (4) below	\$1,000,000
(4) For-hire and Private (In interstate or foreign commerce, with a gross vehicle weight rating of less than 10,000 pounds).	Any quantity of Division 1.1, 1.2, or 1.3 material; any quantity of Division 2.3, Hazard Zone A, or Division 6.1, Packing Group I, Hazard Zone A material; or highway route controlled quantities of a Class 7 material as defined in 49 CFR 173.403	\$5,000,000

Discussion

WCH could not provide proof (a completed MCS-90) of the required financial responsibility. Nor did WCH have insurance that addressed motor carrier operation. WCH voluntarily shut down motor carrier operations in commerce until the required amount of insurance and associated documentation per 49 CFR 387.9 was obtained. No further action is necessary regarding this issue.

RL Lead Assessor Closure Required:

YES

No

Finding: S-10-SED-WCH-010-F02

WCH program documentation does not address Federal Motor Carrier accident recordkeeping requirements.

Requirements:

49 CFR 390.15 states: “(a) A motor carrier must make all records and information pertaining to an accident available to an authorized representative or special agent of the Federal Motor Carrier Safety Administration, an authorized State or local enforcement agency representative or authorized third party representative, upon request or as part of any investigation within such time as the request or investigation may specify. A motor carrier shall give an authorized representative all reasonable assistance in the investigation of any accident including providing a full, true and correct response to any question of the inquiry.

(b) For accidents that occur after April 29, 2003, motor carriers must maintain an accident register for three years after the date of each accident. For accidents that occurred on or prior to April 29, 2003, motor carriers must maintain an accident register for a period of one year after the date of each accident. Information placed in the accident register must contain at least the following:

(1) A list of accidents as defined at §390.5 of this chapter containing for each accident:

(i) Date of accident.

(ii) City or town, or most near, where the accident occurred and the State where the accident occurred.

(iii) Driver Name.

(iv) Number of injuries.

(v) Number of fatalities.

(vi) Whether hazardous materials, other than fuel spilled from the fuel tanks of motor vehicle involved in the accident, were released.

(2) Copies of all accident reports required by State or other governmental entities or insurers.

(Approved by the Office of Management and Budget under control number 2126-0009)”

Discussion

When the surveillant requested a copy of the WCH accident register, WCH could not provide an accident register. Upon further discussions with WCH personnel and review of security and emergency response procedures, the surveillant determined that none of the WCH procedures required maintaining an accident register or documents associated with accidents (law enforcement reports, insurance document).

Fortunately, WCH has not had an accident in commerce (defined in 49 CFR.5) that required meeting 49 CFR.15.

RL Lead Assessor Closure Required:

YES [X]

No []

Finding: S-10-SED-WCH-010-F03

WCH drivers are not filling out driver's logs when required, and WCH supervisors are not reviewing drivers' time sheets to determine if a driver needs to fill out a drivers' log.

Requirements:

49 CFR 395.8(a) states: "Except for a private motor carrier of passengers (nonbusiness), every motor carrier shall require every driver used by the motor carrier to record his/her duty status for each 24 hour period using the methods prescribed in either paragraph (a)(1) or (2) of this section."

49 CFR 395.1(e) states: "Short-haul operations—

- (1) 100 air-mile radius driver. A driver is exempt from the requirements of §395.8 if:
- (i) The driver operates within a 100 air-mile radius of the normal work reporting location;
 - (ii) The driver, except a driver-salesperson, returns to the work reporting location and is released from work within 12 consecutive hours;
 - (iii)[A] A property-carrying commercial motor vehicle driver has at least 10 consecutive hours off duty separating each 12 hours on duty; ...
 - (iv)[A] A property-carrying commercial motor vehicle driver does not exceed 11 hours maximum driving time following 10 consecutive hours off-duty; or ...; and
 - (v) The motor carrier that employs the driver maintains and retains for a period of 6 months accurate and true time records showing:
 - [A] The time the driver reports for duty each day;
 - [B] The total number of hours the driver is on duty each day;
 - [C] The time the driver is released from duty each day; and
 - [D] The total time for the preceding 7 days in accordance with §395.8(j)(2) for drivers used for the first time or intermittently.

Discussion

When a driver operates beyond the 100 mile radius driver exemption (example: driver is on duty for longer than 12 hours), the driver needs to fill out a record of duty status (commonly called driver's log) in accordance with 49 CFR 395.8. WCH could not provide any evidence that drivers are filling out driver's logs when operating beyond the 100-mile radius driver exemption. In addition, there is no evidence that WCH drivers' supervisors review driver's timesheets to verify that drivers are operating in accordance with the 100 mile radius driver exemption. A driver's log must be filled out for each day a driver operates beyond 100 mile radius driver exemption.

Time records for 10 out of 53 ERDF drivers for the month of January 2010 were reviewed. None of drivers exceeded 12 hours of on duty time.

Time records for 5 out of 18 drivers assigned to N-Reactor for the month of January 2010 were reviewed. Three of five drivers exceeded 12 hours on duty time, thus requiring each

driver to complete a driver's log for that day. WCH could not provide any completed drivers' logs. The drivers' supervisor was unaware of this requirement.

Time records for four out of six drivers assigned to 300 Area for the month of January 2010 were reviewed. Two of four drivers exceeded 12 hours on duty time, thus requiring the drivers to complete a driver's log for that day. WCH could not provide any completed drivers' logs. The drivers' supervisor was unaware of this requirement.

RL Lead Assessor Closure Required: YES [X] No []

Finding: S-10-SED-WCH-010-F04

CMV defects identified in the DVIR and corrected are not always being entered into the CMV maintenance file.

Requirements:

49 CFR 396.3 states: (a) General. Every motor carrier shall systematically inspect, repair, and maintain, or cause to be systematically inspected, repaired, and maintained, all motor vehicles subject to its control.

(1) Parts and accessories shall be in safe and proper operating condition at all times. These include those specified in Part 393 of this subchapter and any additional parts and accessories which may affect safety of operation, including but not limited to, frame and frame assemblies, suspension systems, axles and attaching parts, wheels and rims, and steering systems.

(2) Pushout windows, emergency doors, and emergency door marking lights in buses shall be inspected at least every 90 days.

(b) Required records. For vehicles controlled for 30 consecutive days or more, except for a private motor carrier of passengers (nonbusiness), the motor carriers shall maintain, or cause to be maintained, the following record for each vehicle:

(1) An identification of the vehicle including company number, if so marked, make, serial number, year, and tire size. In addition, if the motor vehicle is not owned by the motor carrier, the record shall identify the name of the person furnishing the vehicle;

(2) A means to indicate the nature and due date of the various inspection and maintenance operations to be performed;

(3) A record of inspection, repairs, and maintenance indicating their date and nature; and

(4) A record of tests conducted on push out windows, emergency doors, and emergency door marking lights on buses.

(c) Record retention. The records required by this section shall be retained where the vehicle is either housed or maintained for a period of 1 year and for 6 months after the motor vehicle leaves the motor carrier's control.

Discussion

ERDF CMV number 034 identified a "shifting problem" on a DVIR. The CMV was taken to maintenance the morning of 10/15/09. The CMV was returned to service on swing shift on the same day. The DVIR was completed correctly, meaning that a

mechanic and subsequent driver both signed the DVIR. However, an inspection of the 034 vehicle maintenance file did not contain a record of what repair was performed.

RL Lead Assessor Closure Required: YES No

Finding: S-10-SED-WCH-010-F05

One of the three DVIR forms that WCH uses does not require inspection of parts and/or accessories mandated by DOT regulations, nor does this form contain required signatures to document corrective actions for a defective part/accessory identified in a DVIR .

Requirements:

49 CFR 396.11 states: (a) Report required. Every motor carrier shall require its drivers to report, and every driver shall prepare a report in writing at the completion of each day's work on each vehicle operated and the report shall cover at least the following parts and accessories:

- Service brakes including trailer brake connections
- Parking (hand) brake
- Steering mechanism
- Lighting devices and reflectors
- Tires
- Horn
- Windshield wipers
- Rear vision mirrors
- Coupling devices
- Wheels and rims
- Emergency equipment

(b) Report content. The report shall identify the vehicle and list any defect or deficiency discovered by or reported to the driver which would affect the safety of operation of the vehicle or result in its mechanical breakdown. If no defect or deficiency is discovered by or reported to the driver, the report shall so indicate. In all instances, the driver shall sign the report. On two-driver operations, only one driver needs to sign the driver vehicle inspection report, provided both drivers agree as to the defects or deficiencies identified. If a driver operates more than one vehicle during the day, a report shall be prepared for each vehicle operated.

(c) Corrective action. Prior to requiring or permitting a driver to operate a vehicle, every motor carrier or its agent shall repair any defect or deficiency listed on the driver vehicle inspection report which would be likely to affect the safety of operation of the vehicle.

(1) Every motor carrier or its agent shall certify on the original driver vehicle inspection report which lists any defect or deficiency that the defect or deficiency has been repaired or that repair is unnecessary before the vehicle is operated again.

(2) Every motor carrier shall maintain the original driver vehicle inspection report, the certification of repairs, and the certification of the driver's review for three months from the date the written report was prepared.

(d) Exceptions. The rules in this section shall not apply to a private motor carrier of passengers (nonbusiness), a driveaway-towaway operation, or any motor carrier operating only one commercial motor vehicle.

49 CFR 393.95 states: "Emergency equipment on all power units.

Each truck, truck tractor, and bus (except those towed in driveaway-towaway operations) must be equipped as follows:

(a) Fire Extinguishers.

(1) Minimum ratings:

(i) A power unit that is used to transport hazardous materials in a quantity that requires placarding (See §177.823 of this title) must be equipped with a fire extinguisher having an Underwriters' Laboratories rating of 10 B:C or more.

(ii) A power unit that is not used to transport hazardous materials must be equipped with either:

[A] A fire extinguisher having an Underwriters' Laboratories rating of 5 B:C or more; or

[B] Two fire extinguishers, each of which has an Underwriters' Laboratories rating of 4 B:C or more.

(2) Labeling and marking. Each fire extinguisher required by this section must be labeled or marked by the manufacturer with its Underwriters' Laboratories rating.

(3) Visual Indicators. The fire extinguisher must be designed, constructed, and maintained to permit visual determination of whether it is fully charged.

(4) Condition, location, and mounting. The fire extinguisher(s) must be filled and located so that it is readily accessible for use. The extinguisher(s) must be securely mounted to prevent sliding, rolling, or vertical movement relative to the motor vehicle.

(5) Extinguishing agents. The fire extinguisher must use an extinguishing agent that does not need protection from freezing. Extinguishing agents must comply with the toxicity provisions of the Environmental Protection Agency's Significant New Alternatives Policy (SNAP) regulations under 40 CFR Part 82, Subpart G.

(b) Spare fuses. Power units for which fuses are needed to operate any required parts and accessories must have at least one spare fuse for each type/size of fuse needed for those parts and accessories.

(c) [Reserved]

(d) [Reserved]

(e) [Reserved]

(f) Warning devices for stopped vehicles. Except as provided in paragraph (g) of this section, one of the following options must be used:

(1) Three bidirectional emergency reflective triangles that conform to the requirements of Federal Motor Vehicle Safety Standard No. 125, §571.125 of this title; or

(2) At least 6 fusees or 3 liquid-burning flares. The vehicle must have as many additional fusees or liquid-burning flares as are necessary to satisfy the requirements of §392.22.

(3) Other warning devices may be used in addition to, but not in lieu of, the required warning devices, provided those warning devices do not decrease the effectiveness of the required warning devices.

(g) Restrictions on the use of flame-producing devices. Liquid-burning flares, fusees, oil lanterns, or any signal produced by a flame shall not be carried on any commercial motor vehicle transporting Division 1.1, 1.2, 1.3 (explosives) hazardous materials; any cargo tank motor vehicle used for the transportation of Division 2.1 (flammable gas) or Class 3

(flammable liquid) hazardous materials whether loaded or empty; or any commercial motor vehicle using compressed gas as a motor fuel.

(h) [Reserved]

(i) [Reserved]

(j) Requirements for fuses and liquid-burning flares. Each fuse shall be capable of burning for 30 minutes, and each liquid-burning flare shall contain enough fuel to burn continuously for at least 60 minutes. Fuses and liquid-burning flares shall conform to the requirements of Underwriters Laboratories, Inc., UL No. 912, Highway Emergency Signals, Fourth Edition, July 30, 1979, (with an amendment dated November 9, 1981). (See §393.7(c) for information on the incorporation by reference and availability of this document.) Each fuse and liquid-burning flare shall be marked with the UL symbol in accordance with the requirements of UL 912.

(k) Requirements for red flags. Red flags shall be not less than 12 inches square, with standards adequate to maintain the flags in an upright position.”

Discussion

The D-4 Project at N-Reactor and 300 Area use an “Equipment Department Safety Inspection Sheet” (see attachment 2). This form does not document inspection of windshield wipers, coupling devices, wheels and rims, and emergency equipment (the form does document a check for a fire extinguisher but does not document a check for the other required emergency equipment).

If a part/accessory is discovered defective during the driver’s vehicle inspection, the driver indicates the part/accessory on the DVIR. It must be repaired prior to the CMV being operated. In addition, the mechanic who performs the repair must sign the DVIR. This signature serves as certification that the defect was repaired. The subsequent driver would review the DVIR and inspect the repair. If the driver agrees that defect was repaired, the driver also signs the DVIR as required by 49 CFR 396.13. The “Equipment Department Safety Inspection Sheet” does not provide a place for the mechanic and subsequent driver to sign.

RL Lead Assessor Closure Required: YES No

Finding: S-10-SED-WCH-010-F06

WCH is not conducting CMV annual inspections.

Requirements:

49 CFR 396.17 states: “Periodic inspection.

(a) Every commercial motor vehicle shall be inspected as required by this section. The inspection shall include, at a minimum, the parts and accessories set forth in Appendix G of this subchapter.

NOTE: The term commercial motor vehicle includes each vehicle in a combination vehicle. For example, for a tractor semitrailer, fulltrailer combination, the tractor, semitrailer, and the fulltrailer (including the converter dolly if so equipped) shall each be inspected.

(b) Except as provided in §396.23, a motor carrier shall inspect or cause to be inspected all motor vehicles subject to its control.

(c) A motor carrier shall not use a commercial motor vehicle unless each component identified in Appendix G has passed an inspection in accordance with the terms of this section at least once during the preceding 12 months and documentation of such inspection is on the vehicle. The documentation may be:

(1) The inspection report prepared in accordance with paragraph 396.21(a), or

(2) Other forms of documentation, based on the inspection report (e.g., sticker or decal), which contains the following information:

(i) The date of inspection;

(ii) Name and address of the motor carrier or other entity where the inspection report is maintained;

(iii) Information uniquely identifying the vehicle inspected if not clearly marked on the motor vehicle; and

(iv) A certification that the vehicle has passed an inspection in accordance with §396.17.”

Discussion

An inspection of 8 CMV at N-Reactor and 300 Area revealed that 6 of the CMV had expired annual inspections. WCH put all 6 six CMV out of service until the inspection was performed.

The 2 CMV license plates numbers inspected at the N-Reactor Area are E-38035 and E-37896. The six CMV license plates numbers inspected at the 300 Area are E-37731, leased straight truck for roll-on-roll-off boxes without license plates, E-201440, G82-0271D, G82-0275D and E-37910.

RL Lead Assessor Closure Required: YES No

Finding: S-10-SED-WCH-010-F07

A current WCH Certificate of Registration issued by the Pipeline and Hazardous Material Safety Administration (PHMSA) was not on board each straight truck and truck tractor used to transport hazardous material.

Requirements:

49 CFR 107.620(b) states: “After January 1, 1993, each motor carrier subject to the requirements of this subpart must carry a copy of its current Certificate of Registration issued by PHMSA or another document bearing the registration number identified as the “U.S. DOT Hazmat Reg. No.” on board each truck and truck tractor (not including trailers and semi-trailers) used to transport hazardous materials subject to the requirements of this subpart. The Certificate of Registration or document bearing the registration number must be made available, upon request, to enforcement personnel.”

Discussion

Six of the eight CMV that were inspected are used to transport placarded hazardous material. None of the six CMV had this PHMSA Certificate of Registration.

RL Lead Assessor Closure Required: YES No

Finding: S-10-SED-WCH-010-F08

WCH supervisors of drivers do not receive DOT security training or DOT hazardous material training.

Requirements:

49 CFR 172.704 states: “(a) Hazmat employee training must include the following:

(1) General awareness/familiarization training. Each hazmat employee shall be provided general awareness/familiarization training designed to provide familiarity with the requirements of this subchapter, and to enable the employee to recognize and identify hazardous materials consistent with the hazard communication standards of this subchapter.

(2) Function-specific training.

(i) Each hazmat employee must be provided function-specific training concerning requirements of this subchapter, or exemptions or special permits issued under Subchapter A of this chapter, that are specifically applicable to the functions the employee performs.

(ii) As an alternative to function-specific training on the requirements of this subchapter, training relating to the requirements of the ICAO Technical Instructions and the IMDG Code may be provided to the extent such training addresses functions authorized by subpart C of part 171 of this subchapter.

(3)...

(4) Security awareness training. No later than the date of the first scheduled recurrent training after March 25, 2003, and in no case later than March 24, 2006, each hazmat employee must receive training that provides an awareness of security risks associated with hazardous materials transportation and methods designed to enhance transportation security. This training must also include a component covering how to recognize and respond to possible security threats. After March 25, 2003, new hazmat employees must receive the security awareness training required by this paragraph within 90 days after employment.

(5) In-depth security training. By December 22, 2003, each hazmat employee of a person required to have a security plan in accordance with Subpart I of this part must be trained concerning the security plan and its implementation. Security training must include company security objectives, specific security procedures, employee responsibilities, actions to take in the event of a security breach, and the organizational security structure.”

49 CFR 172.704 (d) states: “Recordkeeping. A record of current training, inclusive of the preceding three years, in accordance with this section shall be created and retained by each hazmat employer for as long as that employee is employed by that employer as a hazmat employee and for 90 days thereafter. The record shall include:

- (1) The hazmat employee's name;
- (2) The most recent training completion date of the hazmat employee's training;
- (3) A description, copy, or the location of the training materials used to meet the requirements in paragraph (a) of this section;
- (4) The name and address of the person providing the training; and
- (5) Certification that the hazmat employee has been trained and tested, as required by this subpart.”

49 CFR 171.8 states: “Hazmat employee means: ...

- (2) This term includes an individual, employed on a full time, part time, or temporary basis by a hazmat employer, or who is self-employed, who during the course of employment:
 - (i) Loads, unloads, or handles hazardous materials;
 - (ii) Designs, manufactures, fabricates, inspects, marks, maintains, reconditions, repairs, or tests a package, container or packaging component that is represented, marked, certified, or sold as qualified for use in transporting hazardous material in commerce.
 - (iii) Prepares hazardous materials for transportation;
 - (iv) Is responsible for safety of transporting hazardous materials;
 - (v) Operates a vehicle used to transport hazardous materials.”

Discussion

According to the training requirements listed in WCH document PosID 946, DOT Driver Supervisor, these supervisors are not required to take training on the WCH transportation security plan or the DOT hazardous material regulations.

RL Lead Assessor Closure Required: YES [X] No []

Finding: S-10-SED-WCH-010-F09

The WCH diesel cargo tank has an exposed MC 406 cargo tank name plate; however, the required test markings are not displayed.

Requirements:

49 CFR 1180.415 states: “Test and inspection markings.

- (a) Each cargo tank successfully completing the test and inspection requirements contained in §180.407 must be marked as specified in this section.
- (b) Each cargo tank must be durably and legibly marked, in English, with the date (month and year) and the type of test or inspection performed, subject to the following provisions:
 - (1) The date must be readily identifiable with the applicable test or inspection.
 - (2) The markings must be in letters and numbers at least 32 mm (1.25 inches) high, near the specification plate or anywhere on the front head.
 - (3) The type of test or inspection may be abbreviated as follows:
 - (i) V for external visual inspection and test;
 - (ii) I for internal visual inspection;
 - (iii) P for pressure test;
 - (iv) L for lining inspection;

(v) T for thickness test; and
(vi) K for leakage test for a cargo tank tested under §180.407, except §180.407(h)(2); and
(vii) K-EPA27 for a cargo tank tested under §180.407(h)(2) after October 1, 2004.
Examples to paragraph (b). The markings "10-99 P, V, L" represent that in October 1999 a cargo tank passed the prescribed pressure test, external visual inspection and test, and the lining inspection. The markings "2-00 K-EPA27" represent that in February 2000 a cargo tank passed the leakage test under §180.407(h)(2). The markings "2-00 K, K-EPA27" represent that in February 2000 a cargo tank passed the leakage test under both §180.407(h)(1) and under EPA Method 27 in §180.407(h)(2)."

Discussion

Inspection of the CMV with the MC 406 tank showed no marking of tests and dates.

RL Lead Assessor Closure Required: YES No

Finding: S-10-SED-WCH-010-F10

Drivers' applications are missing information required to comply with 49 CFR 391.21.

Requirements:

49 CFR 391.21 states: "(b) The application for employment shall be made on a form furnished by the motor carrier. Each application form must be completed by the applicant, must be signed by him/her, and must contain the following information:

- (1) The name and address of the employing motor carrier;
- (2) The applicant's name, address, date of birth, and social security number;
- (3) The addresses at which the applicant has resided during the 3 years preceding the date on which the application is submitted;
- (4) The date on which the application is submitted;
- (5) The issuing State, number, and expiration date of each unexpired commercial motor vehicle operator's license or permit that has been issued to the applicant;
- (6) The nature and extent of the applicant's experience in the operation of motor vehicles, including the type of equipment (such as buses, trucks, truck tractors, semitrailers, full trailers, and pole trailers) which he/she has operated;
- (7) A list of all motor vehicle accidents in which the applicant was involved during the 3 years preceding the date the application is submitted, specifying the date and nature of each accident and any fatalities or personal injuries it caused;
- (8) A list of all violations of motor vehicle laws or ordinances (other than violations involving only parking) of which the applicant was convicted or forfeited bond or collateral during the 3 years preceding the date the application is submitted;
- (9) A statement setting forth in detail the facts and circumstances of any denial, revocation, or suspension of any license, permit, or privilege to operate a motor vehicle that has been issued to the applicant, or a statement that no such denial, revocation, or suspension has occurred;
- (10)(i) A list of the names and addresses of the applicant's employers during the 3 years preceding the date the application is submitted,

(ii) The dates he or she was employed by that employer,
(iii) The reason for leaving the employ of that employer,
(iv) After October 29, 2004, whether the
[A] Applicant was subject to the FMCSRs while employed by that previous employer,
[B] Job was designated as a safety sensitive function in any DOT regulated mode subject to alcohol and controlled substances testing requirements as required by 49 CFR Part 40;
(11) For those drivers applying to operate a commercial motor vehicle as defined by Part 383 of this subchapter, a list of the names and addresses of the applicant's employers during the 7-year period preceding the 3 years contained in paragraph (b)(10) of this section for which the applicant was an operator of a commercial motor vehicle, together with the dates of employment and the reasons for leaving such employment; and
(12) The following certification and signature line, which must appear at the end of the application form and be signed by the applicant:
This certifies that this application was completed by me, and that all entries on it and information in it are true and complete to the best of my knowledge.

(Date) (Applicant's signature)"

Discussion

The previous contractor, Bechtel Hanford, Inc. (BHI), maintained Driver's Qualification Files (DQF) which included driver's applications. BHI had a standard application for hiring all employees. This application did not contain all the required information necessary to satisfy 49 CFR 391.21. BHI developed a supplement for drivers. The combination of the standard application and the driver's supplement would provide all required information.

After BHI turnover to WCH, WCH subcontracted motor carrier operations to Integrated Logistics Services, Inc. (ILSI). WCH supplied drivers to ILSI. For drivers that transitioned from BHI to WCH, WCH accepted the BHI DQF which included the BHI application and driver's supplement. WCH also continued the practice of using a WCH standard application with a driver's supplement. In July of 2008, WCH became a Commercial Motor Carrier and ended the contract with ILSI.

The inspection of 6 Driver's Applications revealed that the application and supplement have the following issues:

- Application and supplement are missing the Motor Carrier Address.
- Some supplements to the application are missing in the DQF. Without the supplement the following information is not present:
 - The past 3 years previous addresses
 - Date of Birth
 - Driver's license information
 - Motor vehicle accidents for the past 3 years
 - List of violations of motor vehicle laws that resulted convicted for the past 3 years
- The certification statement is missing from the BHI and WCH applications. (Note: it is on the supplement).

RL Lead Assessor Closure Required:

YES [X]

No []

Finding: S-10-SED-WCH-010-F11

WCH has not maintained documentation of attempts to obtain a driver's previous motor carrier safety performance or determine whether the driver violated a DOT alcohol and controlled substance program.

Requirements:

49 CFR 391.239(c) states: "(1) Replies to the investigations of the driver's safety performance history required by paragraph (a)(2) of this section, or documentation of good faith efforts to obtain the investigation data, must be placed in the driver investigation history file, after October 29, 2004, within 30 days of the date the driver's employment begins. Any period of time required to exercise the driver's due process rights to review the information received, request a previous employer to correct or include a rebuttal, is separate and apart from this 30-day requirement to document investigation of the driver safety performance history data.

(2) The investigation may consist of personal interviews, telephone interviews, letters, or any other method for investigating that the carrier deems appropriate. Each motor carrier must make a written record with respect to each previous employer contacted, or good faith efforts to do so. The record must include the previous employer's name and address, the date the previous employer was contacted, or the attempts made, and the information received about the driver from the previous employer. Failures to contact a previous employer, or of them to provide the required safety performance history information, must be documented. The record must be maintained pursuant to §391.53.

(3) Prospective employers should report failures of previous employers to respond to an investigation to the FMCSA following procedures specified at §386.12 of this chapter and keep a copy of such reports in the Driver Investigation file as part of documenting a good faith effort to obtain the required information.

(4) Exception. For drivers with no previous employment experience working for a DOT regulated employer during the preceding three years, documentation that no investigation was possible must be placed in the driver history investigation file, after October 29, 2004, within the required 30 days of the date the driver's employment begins."

49 CFR 391.239(e) states: "In addition to the investigations required by paragraph (d) of this section, the prospective motor carrier employers must investigate the information listed below in this paragraph from all previous DOT regulated employers that employed the driver within the previous three years from the date of the employment application, in a safety-sensitive function that required alcohol and controlled substance testing specified by 49 CFR Part 40."

Discussion

For a driver with the BHI DQF, there is no documentation regarding investigations or inquiries regarding the driver's safety performance history or violations of a DOT alcohol and/or substance abuse program. WCH needs to maintain written records of mailing and

phones calls to previous employers. In addition, WCH did not request or retain copy of each driver's record from the appropriate state agency.

RL Lead Assessor Closure Required: YES No

Finding: S-10-SED-WCH-010-F12

WCH has allowed drivers to operate commercial vehicles with an expired medical card.

Requirements:

49 CFR 391.45

Except as provided in §391.67, the following persons must be medically examined and certified in accordance with §391.43 as physically qualified to operate a commercial motor vehicle:

- (a) Any person who has not been medically examined and certified as physically qualified to operate a commercial motor vehicle;
- (b)(1) Any driver who has not been medically examined and certified as qualified to operate a commercial motor vehicle during the preceding 24 months;

Discussion

In two of six DQF, the photocopies of medical cards have shown periods of time (3 days and 12 days) where the drivers did not have a valid medical card.

RL Lead Assessor Closure Required: YES No

Finding: S-10-SED-WCH-010-F13

WCH's annual reviews of Drivers' Qualification Files and inquiries into previous year drivers' history are not conducted in a timely manner.

Requirements:

49 CFR 391.51

General requirements for driver qualification files.

- (4) The response of each State agency to the annual driver record inquiry required by §391.25(a);
- (5) A note relating to the annual review of the driver's driving record as required by §391.25(c)(2);
- (6) A list or certificate relating to violations of motor vehicle laws and ordinances required by §391.27;

Discussion

Five of the six DQF reviewed failed to document an annual review within 12 months for at least one of these required annual reviews. In some cases, the time between reviews were 18 months.

RL Lead Assessor Closure Required: YES No

Observation: S-10-SED-WCH-010-001

WCH uses 3 different types of DVIR.

Discussion

During the inspections at ERDF, N-Reactor, and 300 Area, the surveillant discovered that WCH is using three different DVIR forms. It is suggested that WCH use a single standard DVIR form to assure consistency and adequacy.

RL Lead Assessor Closure Required: YES No

Observation: S-10-SED-WCH-010-002

The WCH personnel have the misconception that Federal Motor Carrier Safety Regulations do not apply to onsite activities.

Discussion

During the course of these inspections, several WCH personnel stated that Federal Motor Carrier Safety Regulations to not apply on the Hanford site in controlled areas. The Hanford Sitewide Transportation Safety Document (DOE/RL-2001-36, Rev.1-C0), Chapter 13 requires compliance with specific sections of the Federal Motor Carrier Safety Regulations. Thus, these sections are contractually required to be followed for onsite operations.

RL Lead Assessor Closure Required: YES No

Observation: S-10-SED-WCH-010-003

WCH's motor carrier operations need to operate under a single set of procedures.

Discussion

It appears that each project with motor carrier operations implements their own set of policies, procedures, and approach to motor carrier operations. WCH may want to consider implementation a single set of operating instructions for WCH motor carrier operation to assure consistency and adequacy.

RL Lead Assessor Closure Required: YES No

Contractor Self-Assessment:

WCH conducted assessments of the WCH Drug and Alcohol Misuse Program and Driver's Qualification Files. An independent review Of WCH motor carrier operation was initiated on March 1, 2010.

Contractor Self-Assessment Adequate: YES NO

Management Briefing:

Robinson Fillmore, WCH
J. F. Saskowsky, WCH



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

MAY 26 2010

REISSUE

10-AMSE-0069

Mr. M. N. Brosee, President
Washington Closure Hanford LLC
Richland, Washington 99354

Dear Mr. Brosee:

CONTRACT NO. DE-AC06-05RL14655 – WASHINGTON CLOSURE HANFORD LLC
(WCH) PROCUREMENT AND RECORDS MANAGEMENT ACTIVITIES SURVEILLANCE
(S-10-AMSE-WCH-QA-002)

The purpose of this letter is to transmit RL Surveillance Report S-10-AMSE-WCH-QA-002, documenting a surveillance done to verify WCH's implementation of Requirement 4, Procurement Document Control, Requirement 7, Control of Purchased Items and Services, and Requirement 17, Quality Assurance Records, from ASME NQA-1-2000. The surveillance report identified six Findings and one Observation. RL requires Lead Assessor closure of the findings. If you have any questions, please contact me, or your staff may contact Al Hawkins on (509) 376-9936.

Sincerely,

A handwritten signature in black ink, appearing to read "Jewel J. Short", written over a horizontal line.

Jewel J. Short
Contracting Officer

AMSE:ARH

Enclosure

cc w/encl:
S. L. Feaster, WCH
T. A. Harris, WCH

**Department of Energy
Richland Operations Office (RL)
Surveillance Report**

Division: Assistant Manager Safety and Environment (Quality Assurance)

Surveillants: Steve Chalk, Cindy English, Harry Moomey

Surveillance Number: S-10-AMSE-WCH-QA-002

Date Completed: April 29, 2010

Contractor: Washington Closure Hanford LLC (WCH)

Facility: WCH QA GENERAL

Title: Control of Procured Items and Services; Records Management

Guide: QAS 2.3 – Procurement; QAS 2.6 – Quality Assurance Records

Surveillance Scope:

This surveillance focused on the areas of Procurement (i.e., evaluation and selection of subcontractors and Suppliers) and Quality Assurance Records. The objective of this surveillance was two-fold:

- 1) to compare the contractor's QA program document [WCH-51] to the requirements from NQA-1b-2007, Requirement 7, Control of Purchased Items and Services, and Requirement 17, Quality Assurance Records, to verify requirements were addressed; and
 - 2) to verify the contractor had adequately implemented the requirements.
-

Surveillance Summary:

The surveillance was performed as a follow-up to previous verification activities (i.e., S-09-AMSE-WCH-PRO-002, WCH Control of Procured Items and Services, and OA 29929, WCH Records Management). This surveillance was performed in accordance with RL *Oversight Performance, Technical Surveillance* (December 2008).

Six findings and one observation were identified during this surveillance. These findings and observation included the following:

S-10-AMSE-WCH-QA-002-F01 - WCH could not provide documented objective evidence to substantiate adequate evaluation of the Supplier's capability to provide items or services in accordance with the NQA-1b-2007-specified methods used for evaluating and selecting two subcontractors [i.e., Dance Design (DDI) and North Wind (NWI)].

S-10-AMSE-WCH-QA-002-F02 - WCH could not provide documented objective evidence to support the decision to accept the services of DDI and NWI.

S-10-AMSE-WCH-QA-002-F03 - WCH did not require the supplier to have a Suspect/Counterfeit Item (S/CI) program, and did not check for S/CI on receipt inspection. WCH is relying solely on a statement the material was not S/CI, which does not meet the intent of the DOE O 414.1C requirement.

S-10-AMSE-WCH-QA-002-F04 - WCH Quality Assurance Program Description (QAPD) [WCH-51, Revision 5] did not address the NQA-1b-2007 requirements for the classification, storage, and maintenance of records.

S-10-AMSE-WCH-QA-002-F05 - The WCH Records Inventory and Disposition Schedule (RIDS) did not include the classification of lifetime and nonpermanent as required by NQA-1b-2007.

S-10-AMSE-WCH-QA-002-F06 - The WCH QAPD [WCH-51, Revision 5] did not contain requirements for the maintenance and storage of electronic records.

S-10-AMSE-WCH-QA-002-O01 - The WCH on-site evaluation of RULE Steel which was provided as documented objective evidence of Supplier evaluation and selection was inadequate to defend assessment of DOE O 414.1C Criteria and NQA-1 Requirements. See Surveillance Results for details on the inadequacies.

Surveillance Results:

Control of Purchased Items and Services

The Surveillants reviewed several items of documented objective evidence provided by WCH to support the WCH QA interpretation of the requirements for evaluation and selection of subcontractors and Suppliers. Surveillance Report S-09-AMSE WCH-PRO-002 focused on four subcontractors: DDI, DelHur, NWI, and Weaver Boos. The Surveillants elected to continue with two of the four subcontractors: DDI and NWI for this surveillance.

The Control of Procured Items and Services portion of the surveillance was conducted to follow-up on the two findings identified and documented in previous Surveillance Report S-09-AMSE-WCH-PRO-002. During the factual accuracy check phase of the RL surveillance process, the Surveillants attended several meetings with the WCH QA Manager to understand the WCH QA interpretation of the NQA-1b-2007 requirements for evaluation and selection of subcontractors

and Suppliers. The WCH interpretation of the NQA-1b-2007 requirement for evaluation is a review of the Supplier's QA Manual constitutes "review of current quality records." RL's position is "review of current quality records" refers to review of records such as audit reports, corrective action reports, certificates of calibration, training records, etc., and any other documented objective evidence confirming that the subcontractor's QA program had been implemented. The RL position is standard within the industry, as well as the other Hanford Contractors and Office of River Protection (ORP).

The two findings identified during the previous surveillance, S-09-AMSE-WCH-PRO-002, remain the same. Since S-09-AMSE-WCH-PRO-002 was closed pending performance of this follow-up surveillance, the two new finding numbers are S-10-AMSE -WCH-QA-002-F01 and S-10-AMSE-WCH-QA-002-F02.

Finding S-10-AMSE-WCH-QA-002-F03 was identified when the Surveillants reviewed the WCH evaluations of Suppliers of items. WCH did not require the Suppliers to have a (S/CI) Program, but instead they required the Supplier to warranty that the items were not S/CI. WCH receipt inspections did not include review for S/CIs, but just review for the warranty statement. Since WCH did not require the Supplier to have an S/CI program, the warranty statement is not valid.

Quality Assurance Records

For the Quality Assurance Records portion of the surveillance, the Surveillants performed a gap analysis of Requirement 17, Quality Assurance Records, of NQA-1b-2007 to the WCH QAPD, WCH-51, Revision 5, and identified requirements that were not addressed. These missing requirements are listed in Finding S-10-AMSE-WCH-QA-002-F04 below.

In addition, the Surveillants conducted an on-site evaluation for implementation of the WCH records management requirements. In some cases, the requirements were missing from the QA Plan; however, there was objective evidence that the requirements were implemented in the records management process. Where there was no implementation, the Surveillants referenced it specifically in Findings S-10-AMSE-WCH-QA-002-F05 and S-10-AMSE-WCH-QA-002-F06.

Finding: S-10-AMSE-WCH-QA-002-F01

WCH could not provide documented objective evidence to substantiate evaluation of the Supplier's capability to provide items or services in accordance with the NQA-1b-2007-specified methods used for evaluating and selecting two (2) subcontractors [i.e., Dance Design (DDI) and North Wind (NWI)].

Requirement(s):

"Prior to award of a contract, the Purchaser shall evaluate the Supplier's capability to provide items or services in accordance with the requirements of the procurement documents. Supplier evaluation and selection, and the results, there from, shall be documented and shall include one or more of the following:

- a) Supplier's history of providing an identical or similar product that performs satisfactorily in actual use. The Supplier's history shall reflect current capability.
- b) Supplier's current quality records supported by documented qualitative and quantitative information that can be objectively evaluated.
- c) Supplier's technical and quality capability as determined by a direct evaluation of the facilities, personnel, and the implementation of the Supplier's quality assurance program." (ASME NQA-1-2000, Requirement 7, Subsection 200)

Discussion:

The Surveillants reviewed evidence of WCH evaluation and selection of NWI and were told the subcontractor was selected on the basis of past performance [i.e., selection a) above]. However, when questioned further, WCH produced a WCH Non-Competitive (Sole Source) Justification Form that stated, "WCH has been directed by DOE in modification A071 to Contract DE-AC06-05RL14655 to obtain a Subcontractor to conduct non-intrusive sampling of the 618-10 Burial Ground." NWI was selected based on the statement, "Minimum needs can only be satisfied by unique supplies/services available from this source. No other Suppliers or services will satisfy requirements (Includes: unique capability, recognized expert, compatibility)." The Surveillants noticed that the WCH form was missing the explanation of "... the Supplier's unique qualification or nature of this purchase action."

When questioned further concerning DDI, the Surveillants were told the basis of selection was past performance. Since WCH could not claim past performance was the basis for selection of DDI for their first contract, the Surveillants requested to review the records from the evaluation and selection prior to the first DDI contract. The Surveillants found that the QA Manual was reviewed for inclusion of the requirements of NQA-1 [i.e., selection b) above].

WCH's QA basis for using selection b) above is review of the subcontractor's QA Manual complies with the NQA-1b-2007 requirement, "Supplier's current quality records supported by documented qualitative and quantitative information that can be objectively evaluated." RL's position is the statement, "current quality records" refers to review of records such as audit reports, corrective action reports, certificates of calibration, training records, etc. and any other documented objective evidence confirming that the subcontractor's QA program has been implemented. In the case of a small contractor who may not have implemented their NQA-1b-2007 QA Program on the Hanford Site, implementation for any project would suffice as complying with the requirement.

The RL position is standard within the industry, as well as the other Hanford Contractors and ORP.

RL Lead Assessor Closure Required

YES [X]

NO []

Finding: S-10-AMSE-WCH-QA-002-F02

WCH could not provide documented objective evidence to support the decision to accept the services of (DDI) and (NWI).

Requirement(s):

“In cases involving procurement of services only, such as third-party inspection; engineering and consulting services; auditing; and installation, repair, overhaul, or maintenance work, the Purchaser shall accept the service by any or all of the following methods:

- a) Technical verification of data produced;
- b) Surveillance and/or audit of the activity; and
- c) Review of objective evidence for conformance to the procurement document requirements.”
(ASME NQA-1-2000, Requirement 7, Subsection 507)

Discussion:

During the initial surveillance (S-09-AMSE-WCH-PRO-002), the WCH QA Manager stated WCH reviewed objective evidence for conformance to the procurement document requirements [i.e., selection c) above] for acceptance of services. When the Surveillants followed up on the WCH surveillance responses, the Surveillants were told the project Quality Engineers were required to conduct surveillances on each of the NQA-1b-2007 requirements passed down in the contract during the project duration, whether it is 6 months or 18 months [i.e., selection b) above], in order to assess implementation of the subcontractor’s QA Program. The Surveillants asked to review some of these surveillances.

The Surveillants were provided and reviewed the following documentation in order to evaluate WCH’s methods for accepting services, as required by NQA-1b-2007:

- QA&S-2009-S018, Environmental Restoration Disposal Facility (ERDF)/Waste Operations/DelHur, May 18, through June 11, 2009, Verification of Subcontractor Quality Assurance Plan (QAP) Implementation – this surveillance stated that the following DOE O 414.1C criterion were evaluated: Criterion 3, Quality Improvement; Criterion 4, Documents and Records; Criterion 5, Work Processes; Criterion 7, Procurement; Criterion 8, Inspections and Acceptance Testing; Criterion 10, Independent Assessments. The Surveillants were unable to identify the requirements from each of the Criteria that were evaluated. Also, there was no notation as to which NQA-1 requirements were evaluated. The surveillance was considered to be Satisfactory by WCH.
- QA&S-2009-S035, 618-10, Quality Assurance Oversight (ARRA), dated November 2, 2009, Cone Penetrometer Installation at Trenches within the 618-10 Burial Site (ARRA) – this surveillance was conducted on NWI. Section 9, Results, of the report stated, “QA&S oversight activities performed in accordance with NWI Quality Assurance Program Criterion

1. "Program," planning, scheduling, and providing resources, and stop work authority; Criterion 5, "Work Processes," instructions, procedures, and drawings. The Surveillants could not tell by the text in Section 10, Description of Surveillance, what elements of the subcontractor's program were verified for implementation. In other words, the surveillance was strictly technical in nature, and reported only the Cone Penetrometers installed that day, and at what depth they were installed.

- QA&S-2009-S040, 618-10 Quality Assurance Oversight, dated December 7, 2009, Multi-Detector Probe (MDP) and Associated MDP Performance Test Data (Criterion 1, Program, and Criterion 5, Work Processes) – The WCH Surveillance Report results were determined to be "Satisfactory" in spite of the Surveillant identifying five multi-part observation/concerns. The observations/concerns included: 1) insufficient objective evidence that neither the NWI QA Program nor the 618-10 Project QA Plan were implemented; 2) no management assessments on the project had been performed; and 3) lack of project and QA oversight on a daily basis at the project site.
- FR-2009-S052, Field Remediation Project – 100-K, dated October 27, through December 2, 2009, DDI QA Program (Section 2 – QA Program; Section 6 – Document Control), this surveillance was performed on DDI's QA Program with the objective of verifying randomly selected DDI QAP requirements for assurance of implementation. The random selection of requirements included only four sentences related to NQA-1, Requirement 2 (QA Program-Training) and one sentence related to NQA-1, Requirement 6 (Document Control). The surveillance did not provide adequate documented objective evidence that DDI had implemented those two NQA-1 Requirement areas. The surveillance was considered to be Satisfactory by WCH.
- QA&S-2009-S010, ERDF/Waste Operations/S.M. Stoller & DelHur, dated March 19, 2009, S.M. Stoller and DelHur Suspect Counterfeit Program Implementation – this surveillance was based on the requirements of DOE O 414.1C for SC/I Program, and did not confirm implementation of the subcontractor's QA program. There was no notation as to which NQA-1 requirements were evaluated. The surveillance was considered to be Satisfactory by WCH.
- QA&S-2010-S013, 618-10 Non-Intrusive Characterization (ARRA), dated February 23, 2010, Subcontractor (NWI) use of procedures to perform daily functional tests of Industrial Hygiene (IH) equipment (ARRA) – this surveillance had no notation of any subcontractor QA Program implementation elements. The surveillance was considered to be Satisfactory by WCH.

The Surveillants determined the level of subcontractor oversight WCH had conducted was less than adequate, and did not provide RL with confidence that WCH had mitigated vulnerabilities with its subcontractors QA Program implementation. In addition, the documented objective evidence provided did not show a thorough evaluation of implementation of the Subcontractor's QA Programs.

RL Lead Assessor Closure Required

YES [X]

NO []

Finding: S-10-AMSE-WCH-QA-002-F03

WCH did not require the supplier to have a Suspect/Counterfeit Item (S/CI) program, and did not check for S/CI on receipt inspection. WCH is relying solely on a statement the material was not S/CI, which does not meet the intent of the DOE O 414.1C requirement.

Requirement(s):

“An S/CI prevention process must be developed and implemented as a part of the organization’s quality assurance program (QAP) and commensurate with the facility/activity hazards and mission impact. The QAP must be applied to identifying and analyzing S/CIs, removing them, and preventing S/CIs from being supplied to DOE/ National Nuclear Security Administration and its contractors.” (DOE O 414.1C, Attachment 3, Item 2)

Discussion:

In conducting this follow-up surveillance, the Surveillants broadened the sample to include procurements of fabricated items. The sample included the following Suppliers and items:

- Kennewick Industrial, PO10282A00, Scale House and Reader Board, ordered June 4, 2009;
- Chesapeake Nuclear, PO13116A00, Crater System for 618-10, ordered December 29, 2009;
- Monarch Machine, PO14309A00, Aluminum Sampler/Source Jig Per Drawing, ordered January 13, 2010;
- Advanced Measurement Technology, PO13428A00, Ortec Detective Accessories, ordered December 15, 2009;
- Ametek, PO13425A01, Ortec Detective, ordered December 15, 2009;
- GE Inspection Technologies, PO13316A00, Video Probe System for 618-10, ordered 02/08/10;
- Identec Solutions, PO13425A01, 24 Volt Industrial Power Supply and GPS Tags for 618-10, ordered December 28, 2009;
- MGP Instruments, PO14725A00, Electronic Dosimeter, ordered March 1, 2010;
- SAYLA-TEC, PO14891A00, Ion Chamber P/N RO-20AA and Microrim Survey Tissue Meter, ordered February 17, 2010;
- Sky West, Inc., PO14613A00, Impinger, ordered February 23, 2010;
- Progressive Machine, Inc., PO10766A00, Turnbuckles, ordered September 28, 2009; and
- RULE Steel, PO07000A01, 150 IP-1 Containers, ordered June 16, 2009.

The Suppliers who did not have QA requirements flowed down required the Supplier to write the following statement on letterhead signed by an authorized individual, "*Company Name* warrants that all items furnished under this purchase order, *Purchase Order Number*, are genuine (i.e., not counterfeit) and match the quality, markings, and fitness for use required by the purchase order." The Special Instructions on the purchase order included the following statement, "Suspect/Counterfeit Items (S/CIs) – all materials furnished as part of this purchase order that have been previously found to be suspect/counterfeit by the U.S. Department of Energy shall not be accepted by WCH. Any cost incurred due to the rejection of such items shall be borne by the Supplier."

In addition, the Surveillants learned from interviews with WCH QA personnel and review of the documented evidence that QA requirements were only flowed down to one Supplier within our sample (i.e., RULE Steel). The Surveillants reviewed the onsite evaluation of RULE Steel and found inconsistencies and less than adequate documentation of the objective evidence reviewed during the evaluation. See Observation S-10-AMSE-WCH-QA-002-O01.

RL Lead Assessor Closure Required YES NO

Finding: S-10-AMSE-WCH-QA-002-F04

WCH Quality Assurance Program Description (QAPD) [WCH-51, Revision 5] did not address the NQA-1b-2007 requirements for the classification, storage, and maintenance of records.

Requirement(s):

- "Records shall be classified as *lifetime* or *nonpermanent* by the Owner, or his agent when authorized, in accordance with the general criteria given in paragraphs 401 and 402 of this requirement and consistent with applicable regulatory requirements. Nonpermanent records shall be maintained for the identified retention period." (NQA-1b-2007, Requirement 17, Section 400)
- "Receipt controls shall provide a method for identifying the records received, receipt and inspection of incoming records, and submittal of records to storage." (NQA-1b-2007, Requirement 17, Section 500)
- "Records shall be stored in a predetermined location(s) in facilities, containers, or a combination thereof, constructed and maintained in a manner which minimizes the risk of damage or destruction from . . . 4) dust or airborne particles." (NQA-1b-2007, Requirement 17, Section 601.a)
- "Activities detrimental to the records shall be prohibited in the storage area." (NQA-1b-2007, Requirement 17, Section 601.b)

- “Access to the processing, storage, and retrieval of records shall be limited to authorized personnel.” (NQA-1b-2007, Requirement 17, Section 601.c)
- “Single storage consists of a storage facility, vault, room, or container(s) with a minimum two-hour fire rating. The design and construction of a single storage facility, vault room, or container shall be reviewed for adequacy by a person competent in fire protection or contain a certification or rating from an accredited organization.” (NQA-1b-2007, Requirement 17, Section 602.1)
- “Facilities used for dual storage are not required to satisfy the requirements of paragraph 602.1, but shall meet the requirements of paragraph 601.” (NQA-1b-2007, Requirement 17, Section 602.2)
- “When temporary storage of records (such as for processing, review, or use) is required, the storage facility or container shall provide a one-hour fire rating, unless dual storage requirements of paragraph 602.2 are met.” (NQA-1b-2007, Requirement 17, Section 603)
- “Provisions shall be established to ensure that no unacceptable degradation of the electronic record media occurs during the established retention period.” (NQA-1b-2007, Requirement 17, Section 800.d)
- “Provisions shall be made to ensure that records remain retrievable after hardware, software, or technology changes.” (NQA-1b-2007, Requirement 17, Section 800.e)
- “Provisions shall be established to ensure the following when records are duplicated or transferred to the same media or to a different media for the purposes of maintenance or storage:
 - a. Duplication or transfer is appropriately authorized; and
 - b. Record content, legibility, and retrievability are maintained.” (NQA-1b-2007, Requirement 17, Section 800.f)

Discussion:

The Surveillants provided the WCH QA Manager with a gap analysis/requirements review conducted as the first step of this OA during the pre-assessment meeting. The QA Manager agreed during the surveillance that the above requirements were not addressed in the QAPD.

RL Lead Assessor Closure Required

YES [X]

NO []

Finding: S-10-AMSE-WCH-QA-002-F05

The WCH Records Inventory and Disposition Schedule (RIDS) did not include the classification of lifetime and nonpermanent as required by NQA-1b-2007.

Requirement(s):

“Records shall be classified as *lifetime* or *nonpermanent* by the Owner, or his agent when authorized, in accordance with the general criteria given in paragraphs 401 and 402 of this requirement and consistent with applicable regulatory requirements. Nonpermanent records shall be maintained for the identified retention period.” (NQA-1b-2007, Requirement 17, Section 400)

“PERMANENT RECORDS. Those that the National Archives and Records Administration (NARA) determined to have sufficient value to warrant its preservation in the National Archives. Permanent records include all records accessioned by NARA’s Office of the National Archives and later increments of the same records and records for which the disposition is “permanent” on Standard Form 115, Request for Records Disposition Authority, approved by NARA on or after 5-14-73.” (DOE O 243.1, CRD, Glossary)

“TEMPORARY RECORDS. Those determined by the Archivist of the United States to have insufficient value (on the basis of current standards) to warrant preservation by the National Archives and Records Administration (NARA). This determination may take the form of (1) an Agency records disposition schedule approved by NARA (SF 115, Request for Records Disposition Authority), or (2) a general records schedule issued by NARA.” (DOE O 243.1, CRD, Glossary)

“VITAL RECORDS. Those that are essential to the continued functioning or reconstitution of an organization during and after an emergency including those records essential to protecting the rights and interests of that organization and of the individuals directly affected by its activities. Vital records are sometimes called essential records. Vital records considerations are part of DOE’s continuation of operations program.” (DOE O 243.1, CRD, Glossary)

Discussion:

Several RL discussions with the WCH QA Manager provided the WCH interpretation that classification of records as “lifetime” or “nonpermanent” conflicted with DOE O 243.1 CRD, and RL does not share this interpretation.

RL Lead Assessor Closure Required YES NO

Finding: S-10-AMSE-WCH-QA-002-F06

The WCH QAPD [WCH-51, Revision 5] did not contain requirements for the maintenance and storage of electronic records.



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0096

JUN 08 2010

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

CONTRACT NO. DE-AC06-08RL14788 - RL SURVEILLANCE OF U-PLANT
TRANSITIONAL FACILITY FIRE PROTECTION REQUIREMENTS (S-10-SED-PRC-016)

The purpose of this letter is forward the subject surveillance report. This surveillance identified four findings and one observation which are documented in the attached report. CHPRC shall process the attached surveillance report through the CHPRC corrective action management system and provide a corrective action plan for all findings in accordance with SCRD 470.2B (Supp. Rev. 2) within 45 days of receipt of this letter. If you have any questions, please contact me, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in cursive script that reads "Jenise C. Connerly".

Jenise C. Connerly
Contracting Officer

SED:DCW

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
DNFSB

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Safety and Engineering Division (SED)

**Surveillant: Dale West, RL Fire Protection Engineer (Lead)
Dave Evans, PAI Corp, Team Member**

Surveillance Number: S-10-SED-PRC-016

Date Completed: March 30, 2010

Contractor: CH2M HILL PLATEAU REMEDIATION COMPANY (CHPRC)

Facility: U-Plant

Title: Review of U-Plant Transitional Facility Fire Protection Requirements

Guide: FPS12.2

Surveillance Scope:

The objective of this surveillance was to evaluate the contractor's effectiveness in the application of Fire Protection Requirements, particularly Life Safety Code (LSC), pertaining to the U-Plant transition from the Surveillance and Maintenance (S&M) mode to occupying the building for recurring Deactivation and Decommissioning (D&D) work activities. The surveillance was initiated after concerns were shared with the contractor, but recurring D&D work activities continued for several months in the building without re-analysis of building occupancy or resolution of identified LSC concerns.

Surveillance Summary:

This surveillance reveals that the contractor is not implementing fire protection program requirements addressing the fire protection impacts of transitioning the U-Plant facility from the S&M mode, where the facility is entered infrequently to look for water intrusion, varmint control, or minor maintenance, to the D&D mode, where workers occupy the facility on a recurring basis. The surveillance activities resulted in the identification of the following four findings and one observation.

- **S-10-SED-PRC-016-F01** The CHPRC occupied the U-Plant Facility to perform recurring D&D work activities without meeting the minimum provisions of National Fire Protection Association (NFPA) 101.
 - **S-10-SED-PRC-016-F02** The CHPRC did not identify hazards, work activities, and required building features per contractual requirements in the U-Plant Health and Safety Plan (HASP).
 - **S-10-SED-PRC-016-F03** The CHPRC did not update the S&M U-Plant Fire Hazards Analysis to identify Fire Protection requirements prior to transition of the facility to D&D for recurring work activities.
 - **S-10-SED-PRC-016-F04** The CHPRC exceeded their authority by issuing a Hanford Fire Marshal Permit for U-Plant Occupancy that enforced less than the minimum criteria allowed by NFPA 101 requirements.
 - **S-10-SED-PRC-016-O01** Combustible materials controls need to be reviewed and updated for U-Plant, prior to further work in the Canyon and Galleries.
-

Surveillance Results:

Finding: S-10-SED-PRC-016 -F01

The CHPRC occupied the U-Plant Facility to perform recurring D&D work activities without meeting the minimum provisions of NFPA 101.

Requirement(s):

1. CRD O 420.1B, Supplemented Rev 4 (SCRD), Section B.1, states, "Chapter II, Section 3.a.3 of the HQ CRD states that fire protection for DOE facilities will meet or exceed applicable building codes for the region and National Fire Protection Codes and Standards."
2. CRD O 420.1B, Supplemented Rev 4 (SCRD), Section D.12, states, "Existing facilities transitioning from S&M to D&D shall be re-evaluated per DOE G 420.1-3 and Chapter 8 of NFPA 801 in a graded approach to address life safety, fire hazards, and the potential release of hazardous and radiological materials to the environment during D&D activities."
3. DOE G 420-1.3, Section 4.16 (3.k) Transitional Facilities, states, "Safeguards to assure D&D worker and emergency responder safety and health are expected to conform to the requirements in 10 CFR Part 851, and the requirements for buildings under construction or demolition, as provided in NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*, unless relief has been granted by the Authority having jurisdiction. In buildings where regular tours and inspections are conducted, adequate exits and lighting must be provided as a minimum as required by NFPA 101. Compensatory measures should be established whenever routine surveillance is being performed in these facilities. These measures

should be approved by the site fire authority. Locked and abandoned facilities where there is no human occupancy do not need to maintain emergency egress features.”

4. NFPA 801, Standard for Fire Protection for Facilities Handling Radioactive Materials, Chapter 8, Fire Protection during Permanent Facility Shutdown and Decommissioning, Section 8.4.1, Means of Egress Features, which states, “Facility means of egress features shall be maintained consistent with the requirements for facilities under construction as required by the fire hazards analysis (FHA).” Appendices A.8.4.1 further explains, “Locked and abandoned facilities where there is no human occupancy need not maintain emergency means of egress features. Changing facility configurations during the course of permanent shutdown and decommissioning should consider the impact on emergency lighting, exit marking, and evacuation alarm requirements.”
5. NFPA 101, LSC:
 - a. Section 4.6.10.1, Conditions for Occupancy, states, “No new construction or existing building shall be occupied in whole or in part in violation of the provisions of this *Code*, unless the following conditions exist:
 - (1) A plan of correction has been approved.
 - (2) The occupancy classification remains the same.
 - (3) No serious life safety hazard exists as judged by the authority having jurisdiction.”
 - b. Section 4.6.6, Time Allowed for Compliance, states, “A limited but reasonable time, commensurate with the magnitude of expenditure, disruption of services, and degree of hazard, shall be allowed for compliance with any part of this *Code* for existing buildings.”
 - c. Section 7.2.1.1.3.1, states, “For the purposes of Section 7.2, Means of Egress Components, a building shall be considered to be occupied at any time it meets any of the following criteria: (1) It is open for general occupancy; (2) It is open to the public, or (3) It is occupied by more than 10 persons.” “The LSC Handbook further explains that, “Many industrial, storage, and business occupancy buildings are never open to or accessible to the public; the only occupants are employees and authorized visitors. Therefore, the term *occupied* in 7.2.1.1.3.1 also includes the condition of being *open for general occupancy*. That is, the facility is *operating* or *functioning*.”
 - d. Section 7.6.5, Measurement of Travel Distance to Exits, states, “The travel distance in any occupied space to not less than one exit, measured in accordance with 7.6.1 through 7.6.4, shall not exceed the limits specified in this *Code*. (See 7.6.6.)”
 - e. Section 40.2.6, Travel Distance to Exits, states, “Travel distance, measured in accordance with Section 7.6, shall not exceed that provided by Table 40.2.6. Table 40.2.6 provides the following requirements for exits in Special-Purpose Industrial Occupancies; maximum travel distance to exits 300’.”

- f. Section 40.2.5, Arrangement of Means of Egress, states, “Means of egress, arranged in accordance with Section 7.5, shall not exceed that provided by Table 40.2.5. Table 40.2.5 provides the following requirements for exits in Special-Purpose Industrial Occupancies; maximum dead-end corridor distance 50’.”
- g. Section 40.2.8, Illumination of Means of Egress, states, “Means of egress shall be illuminated in accordance with Section 7.8 or with natural lighting that provides the required level of illumination in structures occupied only during daylight hours.”
- h. Section 7.8.1.1 states, “Illumination of means of egress shall be provided in accordance with Section 7.8 for every building and structure where required in Chapters 11 through 43. For the purposes of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways, and exit passageways leading to a public way.”
- i. Section 40.2.9.1 states, “Emergency lighting shall be provided in accordance with Section 7.9, except as otherwise exempted by 40.2.9.2.”
- j. Section 40.2.9.2 states, “Emergency lighting shall not be required for the following: 1) Special-purpose industrial occupancies without routine human habitation; (2) Structures occupied only during daylight hours, with skylights or windows arranged to provide the required level of illumination on all portions of the means of egress during such hours.”
- k. Section 7.9.1.1 states, “Emergency lighting facilities for means of egress shall be provided in accordance with Section 7.9 for the following: (1) Buildings or structures where required in Chapters 11 through 43.”
- l. Section 7.9.1.2 states, “For the purposes of 7.9.1.1, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of 7.9.1.1, exit discharge shall include only designated stairs, ramps, aisles, walkways, and escalators leading to a public way.”
- m. Section 40.2.10, Marking of Means of Egress, states, “Means of egress shall have signs in accordance with Section 7.10.”
- n. Section 7.10.1.2.1 states, “Exits, other than main exterior exit doors that obviously and clearly are identifiable as exits, shall be marked by an approved sign that is readily visible from any direction of exit access.”

- o. Section 7.10.5.1 states, “Every sign required by 7.10.1.2, 7.10.1.5, or 7.10.8.1, other than where operations or processes require low lighting levels, shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be legible in both the normal and emergency lighting mode.”
- 6. NFPA 1, Uniform Fire Code
 - a. Section 13.6.1, Portable Fire Extinguisher General Requirements, states, “The selection, installation, distribution, inspection, maintenance, and testing of portable fire extinguishers shall be in accordance with NFPA 10 and Section 13.6.”
 - b. Section 13.6.2, Where Required, states, “Fire extinguishers shall be provided where required by this *Code* as specified in Table 13.6.2 and the referenced codes and standards listed in Chapter 2.” Table 13.6.2 indicates that fire extinguishers are required in Industrial Occupancies.

Discussion:

Contrary to the above requirements, the contractor occupied the U-Plant facility to perform recurring D&D work activities without meeting the minimum provisions of the LSC. On April 9, 2009, Contract Modification A037 was signed by RL and the CHPRC, modifying the CHPRC Contract. WBS-040, Nuclear Facility D&D, directed the CHPRC to demolish five remaining ancillary facilities at U-Plant, disposition canyon cell 30 tank contents, and to clear the canyon deck and grout-fill the cells. The technical evaluation-Mod 37 states, “The proposed scope is to achieve demolition readiness of the U-Plant canyon on or before 9/30/11. This includes efforts to mobilize and set up a project infrastructure, complete disposition of the Cell 30 tank material, prepare the canyon for demolition by clearing the deck of all equipment, void filling canyon galleries (electrical, pipe, and operating), canyon cells (40) and 271-U basements. Applying fixatives to the canyon and completing other demolition prep items including characterization of 271-U, and 276-U, removing asbestos and turnover of the facility to the demolition crews.”

Prior to the contract modification, the U-Plant facility was cold and dark and was accessed on an infrequent basis to perform periodic surveillances and minor facility maintenance. Fire Marshal Permit 2009-031, Occupancy Permit for U-Plant, written on February 9, 2009, allowed minimal access to the facility per MSC-RD-9717, Fire Prevention for Construction/Occupancy/Demolition Activities, section 2.3.14. After contract modification A037 was issued by RL on April 9, 2009, the CHPRC was given specific performance objectives and completion criteria for work elements for the demolition of U-Plant. The contractor began performed re-occurring work activities in support of identified work elements at U-Plant resulting in general occupancy of the facility. The occupancy permit was not re-issued by the contractor to reflect the change in general occupancy of the facility in the performance of defined work activities.

RL toured the U-Plant facilities in September 2009, to observe the Contractor’s work activities. Four Operational Awareness (OA) entries were generated (25994, 26006,

26050, and 26098) between 9/16/09 and 9/24/09, identifying concerns with the lack of implementation of the LSC at U-Plant. A debriefing meeting to discuss RL/SED concerns was held on October 7, 2009, and was attended by the U-Canyon Deactivation Manager, the U-Canyon Operations Manager, and the CHPRC Fire Protection Program Manager. On October 8, 2009, RL issued OA#26463, which included a finding that compliance with the LSC was not being met at U-Plant. The OA states, "The U-Plant Facility is using the Fire Marshal Permitting System for allowing access into the facility without full LSC compliance. The 10-man rule exception to the LSC applies to surveillance activities in cold and dark facilities where entries are made to look for water intrusion, varmint control, etc. The "pre-demolition" activities taking place in U-Plant exceeds the application of the 10-man rule and will require the evaluation of additional LSC features. This also applies to future activities in other Plateau S&M facilities." The contractor continued to perform recurrent work activities clearing the deck of the U-Plant Canyon after LSC concerns were raised by RL. The FHA and HASP continued to refer to the 10-man rule for cold and dark facilities even after RL identified the misuse of this exception to the LSC.

RL re-visited the U-Plant on February 3, 2010, to verify the Contractor's progress on resolving the identified LSC concerns (OA 28649). Very little had been done to resolve the identified LSC concerns. CHPRC personnel attended the walkdown with RL and gathered initial information at that time for a LSC evaluation of U-Plant activities. Subsequently, a LSC evaluation (CP-44893) of U-Plant performed by the Contractor was not completed until February 18, 2010. The evaluation was performed 4 months after the LSC concerns were raised by RL to the CHPRC Management. The LSC evaluation determined that a less than adequate means of egress was available to occupants in the building. Travel distances from the west end of the canyon and the Crane Gallery both exceeded 300' requirement of the LSC. Dead end distances were also exceeded. Additionally, area lighting in normally occupied areas was inadequate, emergency lighting was not installed, exit signage was not installed, and portable fire extinguishers were not installed as required. During the walkdown, two of the credited exits from the canyon were found either to be blocked by the "bubble" viewing area or obstructed by debris and a ladder in the stairwell (OA #28649). In addition, one of the credited exits from the gallery was blocked by lighting equipment, many of the exit doors leading out of the galleries were found to be jammed at the bottom of the door, exit access doors were not identified with lighted exit signs, nor were stairwells equipped with emergency lighting.

The LSC evaluation performed by the CHPRC revealed that the Fire Protection/LSC requirements in U-Plant are inadequate. The LSC evaluation of U-Plant should have been conducted previous to the general occupancy of the building to perform recurring work activities (i.e. cell loading, size reduction, painting of fixatives, etc). Additionally, the FHA should have been revised to capture the re-occupancy of the building, identifying the appropriate LSC requirements, and providing the HASP with the appropriate controls.

RL Lead Assessor Closure Required: YES [x] NO []

Finding: S-10-SED-PRC-016 -F02

The CHPRC did not identify hazards, work activities, and required building features per contractual requirements in the U-Plant HASP.

Requirement(s):

1. 10 CFR 1910, Section B.4.i, General, states, “The site safety and health plan, which must be kept on site, shall address the safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection.”
2. Same Requirements References listed under F01.
3. 10 CFR 851, Section 851.21(a) states, “Contractors must establish procedures to identify existing and potential workplace hazards and assess the risk of associated workers injury and illness. Procedures must include methods to: (5) Evaluate operations, procedures, and facilities to identify workplace hazards.”
4. 10 CFR 851, Section 851.22(a) states, “Contractors must establish and implement hazard prevention and abatement to ensure that all identified hazards are prevented or abated in a timely manner.”
5. MSC-RD-9717, Fire Prevention for Construction/Occupancy/Demolition Activities. This procedure document is endorsed by the CHPRC and is available from MSA Docs Online.
 - a. Section 2.2, Use and Occupancy Fire Prevention Requirements, Building Exit Requirements (7), states,
 - “a. Exits and means of egress shall comply with the requirements of NFPA 101, LSC. **EXCEPTION:** *The exit and means of egress requirements for deactivated/unoccupied facilities may be established on a case-by-case basis as work is performed in these facilities. These exit and means of egress requirements will be documented as appropriate in a safety plan of the work package and must be formally approved by the facility or project Fire Protection Engineer (FPE).*
 - b. Every building exit and path to an exit shall be kept clear and unobstructed.
 - c. Exits shall not be locked in any way that prevents an individual from using the exit to leave the building.
 - d. Exterior building stairs shall be kept clean and unobstructed.
 - e. Exit doors shall not require more than one action to open.
 - f. Emergency exit markings must be maintained operable.
 - g. Facilities used by persons with impaired mobility must have accessible exits designed to accommodate those persons. These facilities must have the same number of exits designed to accommodate persons with impaired mobility as are required for the unimpaired by NFPA 101, LSC.

NOTE: *In general, most new facilities must provide access for persons with impaired mobility, but there could be cases where a facility's operation would pose a direct threat to persons with specific disabilities. In these cases, it may not be reasonable to design the facility for accessibility where a direct threat exists. Existing facilities must have accessible exits according to NFPA 101 if a person with impaired mobility is assigned to a building or must enter a building to perform their job.*

- b. Section 2.3, Demolition/Deactivation/Decommission Requirements (14) states, "For large windowless facilities no longer occupied as defined in NFPA 101 and in long term shutdown with periodic minimum surveillance and maintenance activities, life safety features shall be maintained to a level that meets the intent of DOE G 420.1-3. NFPA 101. Life safety features to consider should include but not be limited to installed lighting (temporary or permanent) sufficient to light the surveillance areas and egress paths, a 10 person maximum entry limit, a flashlight for each person, exit signs along the surveillance paths, remote unlocked egress paths, and a means of communication. **NOTE:** *Occupied is defined as any time a facility is occupied by more than 10 persons or any time the facility is open to general occupancy or the public.*"

Discussion:

CP-40329, Revision 0, dated 2/11/2009, "Site-Specific Health and Safety Plan for the 221-U Facility, Balance of Site Surveillance and Maintenance Project", is the HASP identified in the DSA and FHA for the 221-U facility and is written for a facility that is in the S&M mode. Hence, the fire protection requirements implementing the LSC are centered on an unoccupied Facility. The LSC requirements outlined in MSC-RD-9717, Fire Prevention for Construction/Occupancy /Demolition Activities, Section 2.2, Use and Occupancy Fire Prevention Requirements, Building Exit Requirements, provides some relief to full compliance with the LSC where cold and dark facilities are entered on an infrequent basis to perform surveillances and inspections for water intrusion, varmint control, or minor maintenance activities. The HASP title indicates that it is for S&M as well as identifying S&M management and in chapter 5, where work activities are described as S&M. However, section 1.0 states that the "Work activities include, but are not limited to, those described in the U-Plant Remedial Design / Remedial Action Work Plan (RD/RAWP), DOE/RL-2006-21, or associated Comprehensive Environmental Response, Compensation, and Liability Act of 1980." Among other activities, this document describes work activities that include size reduction of equipment on the canyon deck, moving that equipment by crane into the cells, and grouting the cells when full. The document also states that during the demolition phase of the 221-U Facility remedial action, canyon cells will be grouted, the railroad tunnel will be dispositioned, interior canyon building surface contamination will be addressed, and the external area surrounding the canyon will be prepared to provide access to canyon demolition equipment.

The 221-U facility transitioned from S&M management to Disposition management, then D&D Management, but the HASP and related fire protection controls did not track with the transition. The D&D work teams continue to perform recurring work activities (general occupancy) as if the building were unoccupied, using controls for infrequent habitation. When these concerns were brought up to U-Plant Management in September 2009, no activity took place until February 2010. After an evaluation of the LSC requirements was performed in February, resolution of all identified issues was still not completed as of April 2010.

The HASP was re-written in September 2009, and issued on 10/14/2009 as revision 1. This HASP was identified as for the "Balance of Site U Canyon Disposition Project." This HASP is not available on the CHPRC website. The HASP identified work activities in Section 5 now identify, "Specific work activities include installation of additional portable ventilation systems, as needed; dispositioning the contents of the D-10 tank in canyon cell 30; railroad tunnel reactivation; reactivation of access rollup doors; applying fixative for contamination control; and reactivation or augmentation of electrical, water, and sewer systems needed to support work activities.

Subsequently, the HASP was re-written on 3/22/2010, for the "U-Canyon Deactivation Project", CP-40329, as Revision 1. This was confusing, as the October 14, 2009, edition of the HASP has the same revision number. The HASP identified the same work activities as the earlier revision with the exception of "grouting below canyon deck areas/voids and galleries" However, site controls for building occupancy remain the same as the previous S&M HASPs which state, "Hanford Fire Marshal's Permit 2000-031 was written for occupancy of the 221-U and 271-U Buildings. Under the following conditions, these buildings may be occupied by more than ten people without calling the Hanford Fire Department dispatch.

- Each person must have a flashlight.
- Each person must have access to emergency communications.
- Each person is responsible to act as a fire watch while in the building.
- Buddy System is required for entry into areas not normally traveled/manned, for routine canyon entry activities or do not have sufficient lighting.
- A minimum of two emergency exits must be maintained available while the building is occupied.

The Hanford Fire Marshal Permit for Occupancy and U-Plant HASP do not meet the minimum requirements of NFPA 101, LSC, for occupied facilities. The LSC evaluation of U-Plant should have been conducted previous to the general occupancy of the building to perform recurring work activities (i.e. cell loading, size reduction, painting of fixatives, etc). Additionally, the FHA should have been revised to capture the re-occupancy of the building, identifying the appropriate LSC requirements, and providing the HASP with the appropriate controls.

RL Lead Assessor Closure Required: **YES [x]** **NO []**

Finding: S-10-SED-PRC-016-F03

The CHPRC did not update the S&M U-Plant FHA to identify Fire Protection requirements prior to transition of the facility to D&D for recurring work activities.

Requirement(s):

1. CRD O 420.1B, Attachment II, Section 3.b.5.c.2, states, "FHA using a graded approach for all hazard category 1, 2, and 3 nuclear facilities, significant new facilities, and facilities that represent unique fire safety risks. The FHA must be; (a) performed under the direction of a qualified fire protection engineer; (b) reviewed every 3 years; and (c) revised when; 1) changes to the annual DSA updates impact the contents in the FHA, and 2) a modification to an associated facility poses a significant new fire safety risk."
2. CRD O 420.1B, Supplemented Rev 4 (SCRD), Section B.2.i, states, "Maintenance of FHA. FHA for nuclear facilities or other hazardous facilities that require a FHA, as determined by the DOE Authority Having Jurisdiction, shall be maintained at the frequency required by DOE O 420.1B to ensure that facility, operations, and hazards are accurately depicted in the FHA."
3. CRD O 420.1B, Supplemented Rev 4 (SCRD), Section D.12, states, "Existing facilities transitioning from S&M to D&D shall be re-evaluated per DOE G 420.1-3 and Chapter 8 of NFPA 801 in a graded approach to address life safety, fire hazards, and the potential release of hazardous and radiological materials to the environment during D&D activities."
4. DOE G 420.1-3, Section 4.16 (b) states, "Fire hazards within these facilities may change over time, such as an increase in combustible loading during abatement activities. The FHA together with updated pre-incident plans should account for this either through a phasing schedule, or be revised as appropriate when significant changes in occupancy or hazard occur that affect fire safety."
5. NFPA 801, Standard for Fire Protection for Facilities Handling Radioactive Materials, Chapter 8, Fire Protection during Permanent Facility Shutdown and Decommissioning, Section 8.3, Fire Hazards Analysis, which states, "the evaluation of fire hazards, fire risks, and the requirement of fire protection and life safety systems and features shall be documented in a fire hazards analysis." Appendices A.8.3 further explains, "Fire protection and life safety systems deemed no longer necessary during permanent shutdown and/or decommissioning of the facility should be justified and documented in the FHA. Fire hazards within these facilities during this portion of their life cycle may change over time. Fire protection and life safety systems and features must be adequate to deal with these changes. The FHA should be reviewed and revised when appropriate if significant changes in occupancy, hazard, or activity occur that affect fire safety."

Discussion:

This U-Plant FHA is currently embedded in the U-Plant DSA, HNF-13829, Rev 3A, as an appendix. The current FHA describes S&M type activities and the corresponding fire protection controls.

The FHA should have been revised when the contract was modified and identified work scope required occupancy of the facility for recurring work activities. The current FHA and HASP contain requirements for infrequent S&M type activities. The CHPRC failed to revise the FHA, identifying new work scope, activities, and related hazards, previous to occupying the facility for recurring D&D activities.

RL Fire Protection reviewed the U-Plant FHA on October 8, 2009 and issued OA 26463. The OA states that; "Section C.1.3 of the FHA says that, 'The building is not constructed with fire-separations between major floors and corridors, but meets the general intent of the LSC requirements.'" This statement is not correct. Facility general lighting, exit signs, and emergency egress lighting are just a few of the basic components of the LSC that are not being met. The FHA must evaluate the requirements for LSC (NFPA 101) in D&D facilities as applied by NFPA 801, NFPA 241, and DOE G 420.1-3."

To date, the U-Plant Fire Hazards Analysis has not been revised or re-issued.

RL Lead Assessor Closure Required: YES [x] NO []

Finding: S-10-SED-PRC-016 -F04

The CHPRC exceeded their authority by issuing a Hanford Fire Marshal Permit for U-Plant Occupancy that enforced less than the minimum criteria allowed by NFPA 101 requirements.

Requirement(s):

1. Same Requirements References listed under F01.
2. MSC-RD-8589, Rev. 0, Hanford Fire Marshal Permits. This procedure document is endorsed by the CHPRC and is available from MSA Docs Online.
 - a. Section 1.0, PURPOSE AND SCOPE, states, "This Level 1 Requirements Document provides the requirements for obtaining Fire Marshal permits for activities described within. This document implements requirements from SCR D O 420.1B, Rev. 4 *Facility Safety*, and the National Fire Protection Association, (NFPA) 1, *Uniform Fire Code*. The purpose of the permits is to ensure the fire protection/prevention objectives and goals of the fire protection program are achieved and to serve as a tool for notifying the Hanford Fire Department of changing conditions and hazards on the Hanford Site."

- b. Section 2.3, Permit Requirements for New/Existing Activities, (6) Occupancy, states, “The use and occupancy of a facility, and the re-occupancy or change of use and occupancy of an existing facility including portable structures. NOTE: See Appendix B for checklist of items to consider. The checklist includes, but is not limited to, the following; Construction, Portable Fire Extinguishers, Fire Protection Systems, Fire Doors, Fire Walls, Exit signs, Exit path obstructions, Exit path illumination, Exit discharge stairs, Emergency lighting, Pre-Incident Plans, and Emergency Building Access.”

- 3. MSC-RD-9717, Section 2.3.14, which identifies S&M activities and life safety features for large windowless facilities, states, “For large windowless facilities no longer occupied as defined in NFPA 101 and in long term shutdown with periodic minimum surveillance and maintenance activities, life safety features shall be maintained to a level that meets the intent of DOE G 420.1-3. NFPA 101. Life safety features to consider should include but not be limited to installed lighting (temporary or permanent) sufficient to light the surveillance areas and egress paths, a 10 person maximum entry limit, a flashlight for each person, exit signs along the surveillance paths, remote unlocked egress paths, and a means of communication. NOTE: *Occupied is defined as any time a facility is occupied by more than 10 persons or any time the facility is open to general occupancy or the public.*” The section further references Source documents as NFPA 101, Chapter 4, and DOE G 420.1-3, Section 4.16.k. This procedure document is endorsed by the CHPRC and is available from MSA Docs Online.

- 4. MSC-RD-8589, rev. 0, Hanford Fire Marshal Permits. This procedure document is endorsed by the CHPRC and is available from MSA Docs Online.
 - a. Section 2.1.1 states, “The responsible manager (facility, building, project) or supervisor-in-charge must ensure that a request for a permit is communicated to the responsible Fire Protection Engineer (FPE) for the activities listed in Sections 2.2 and 2.3 of this Requirements Document (RD). The communication may be through the generation of a (*Hanford Fire Marshal Permit Request Form*) or an e-mail by the requester to the responsible FPE. Verbal requests are acceptable when agreed to by the responsible FPE. The permit shall be obtained from the responsible FPE for the activities listed in Sections 2.2 and 2.3, before these activities commence.”
 - b. Section 2.1.3 states, “The responsible manager (facility, building, project) and the Fire Marshal or an authorized representative designated as a Deputy Fire Marshal shall approve the fire marshal permit.”

Discussion:

The U-Plant Operations Manager and Deputy Fire Marshal approved Hanford Fire Marshal Occupancy Permit Number 2009-031, dated February 9, 2009, for 271-U/221-U with the following Description:

“This permit allows for occupancy of the 271-U/221-U buildings. Under the following conditions, these buildings may be occupied by more than 10 people without calling the Hanford Fire Department Dispatch Office.

- Each person must have a flashlight for emergency use.
- Each person must have access to emergency communications.
- Each person is responsible to act as a fire watch while in the building.
- A minimum of two emergency exits must be maintained available while the building is occupied.
- A review of the conditions of this permit is required for all personnel entering the building.”

The permit was issued in February 9, 2009, when the facility was actually in the S&M Mode. Subsequently, the facility transitioned to the D&D mode and occupied the building for re-occurring work activities, beyond the scope of this permit. However, the FHA and HASP continue to reference this permit as justification for having less than required LSC features in an occupied facility.

The issued permit goes beyond the code by allowing more than 10 persons in the facility without LSC features. Procedure MSC-RD-9717 allows relaxed LSC features “for large windowless facilities no longer occupied as defined in NFPA 101 and in long term shutdown with periodic minimum surveillance and maintenance activities.” The procedure also states that; “Life safety features to consider (in S&M facilities) should include but not be limited to installed lighting (temporary or permanent) sufficient to light the surveillance areas and egress paths, a 10 person maximum entry limit, a flashlight for each person, exit signs along the surveillance paths, remote unlocked egress paths, and a means of communication.” The procedure also quotes NFPA 101 in stating; “*Occupied is defined as any time a facility is occupied by more than 10 persons or any time the facility is open to general occupancy or the public.*”

The CHPRC has overstepped their authority in approving the occupancy of more than 10 persons in an S&M facility. Additionally, they violated NFPA 101, LSC, requirements by applying an occupancy permit enforcing S&M (unoccupied) criteria to a D&D (occupied) operation. This misapplication puts building occupants in situation where exiting the facility in an emergency condition would have a higher potential of personal harm or injury.

RL Lead Assessor Closure Required: YES [x] NO []

Observation: S-10-SED-PRC-016 -O01

The U-Plant Facility lacks combustible material controls that comply with CHPRC endorsed procedures.

Discussion:

It was noted during the Fire Protection Tour of 221-U & Canyon Area and 271-U on February 2, 2010, that one of the purposes was to observe general fire protection and combustible loading in the facility, particularly the canyon area. Cell 2 was open and excess contaminated equipment had been loaded into the cell along with miscellaneous metal junk materials and a few wood planks that appeared to be possibly scaffolding planks. The latter were contaminated and the few wood materials that were observed were not of sufficient quantity to raise any fire protection concerns of combustible loading. The only combustibles noted on the canyon deck were a few metal frame/wood deck pallets and a few plastic buckets, again these were not of sufficient quantity to raise any fire protection concerns of combustible loading. A copy of the combustible materials/chemical inventory of the canyon area was requested. Access to or copies of previous videos taken of the canyon deck were also requested. The Operating Gallery, Pipe Gallery, and Electrical Gallery were all walked down and found to be little changed from deactivation of U-Plant, being stripped out and generally devoid of combustibles. Other items were noted that need attention. This included a portable electric heater in the 271-U second level room for storage of temperature sensitive materials personal protection equipment contamination control rubber and hood materials, powered air purifying respirator high-efficiency particulate air filter, etc.) that needed better clearance controls on it to keep cardboard box materials at least 3 feet away from it. Other portable electric heaters in the facility should also be evaluated for similar clearance concerns. Another concern was the introduction of wood materials back into the stripped out 271-U areas where a wood wall had been built across a hallway for temperature control, wood shelving has been installed in the tool crib area, and a storage pile of extra plywood that was apparently to be used for similar applications. Any additional combustible loading is a concern in this unsprinklered building.

It was reported to the CHPRC FPE the day after this tour that plant management was already planning to remove the wooden hallway separation wall near the change room and replace it with fire retardant wood, and replace the wood shelving with metal shelves.

However, viewing of the CHPRC work progress videos and pictures that were taken over the last several months indicated periods of extensive sheet plastic usage for contamination control on working surfaces and excessed equipment. It could not be determined from the pictures if the clear plastic sheeting used was fire retardant or not (it appeared to be not fire retardant). During the tour a different type of sheet plastic material was in use that was clearly marked as fire retardant as required by MSC-RD-9717, Section 6.b.4 through 6.b.7.

The U-Plant FHA discusses the amounts and types of combustibles that were located in the plant during the S&M mode. The only controls for combustible materials in the FHA are mentioned in Section C.5.1, Combustible Loading – All Fire Areas, which states, “Work planning and access control procedures require that combustibles be minimized and removed as much as possible at the completion of the work activity. These combustibles are maintained as low as reasonably achievable and include protective clothing, respirators, step-off pads, cloth rags, swipes, flexible cords, etc.” The

FHA is lax on specific requirements for combustible loading, not mentioning the general requirements of MSC-RD-9717, Fire Prevention for Construction/Occupancy/Demolition.

During the walkdown of U-Plant (discussed above) it was revealed that plastics used and wood construction observed may have exceeded the basic principles of procedure MSC-RD-9717, Fire Prevention for Construction/Occupancy/Demolition.

Similarly, the clearances for the location of portable heaters in the facility do not appear to be adequate based on the guidance of MSC-RD-9717. The FHA does not mention the use of portable heaters by occupants. The HASP states that, "heating/cooling units for employee comfort can be supplemented by the use of off-the-shelf portable air movers and spot cooler/heat pumps to supplement the canyon ventilation."

Any further work in the U-Plant facility, including the Galleries, must control combustibles and the use of portable heaters to the minimum requirements of MSC-RD-9717 along with identified FHA requirements. These specific controls should be known and understood by U-Plant management, and identified during planning and performance of future work activities.

RL Lead Assessor Closure Required: YES [x] NO []

Contractor Self-Assessment: U-Plant LSC Issues (CP-44893, Rev 0) analysis was completed by the CHPRC on February 18, 2010. The Contractor's assessment was not completed until four months after the LSC concerns were raised by RL SED.

Contractor Self-Assessment Adequate: YES [] NO [x]

Management Debriefed:

Director, Nuclear Safety
Manager, Fire Protection Program



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

JUN 10 2010

10-OOD-0067

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

**CONTRACT NO. DE-AC06-08RL14788 - ELEVATED WORK, CONFINED SPACE,
HOISTING AND RIGGING, TRENCHING AND EXCAVATION - OCCUPATIONAL
SAFETY AND HEALTH CORE SURVEILLANCES**

During March and April, RL conducted oversight of a number of CHPRC Occupational Safety and Health Programs. The scope of the surveillance included elevated work, confined space, hoisting and rigging, trenching and excavation. The surveillances resulted in 17 Findings, 10 Observations, and one Good Practice as summarized in Attachment 1.

The Findings and Observations identified are minor in nature and severity but reflect performance errors, field discrepancies, and opportunities to improve in a number of areas throughout CHPRC facilities.

Contractor self-assessments were reviewed at the various CHPRC facilities. In general, it appears that an adequate Self Assessment Program is in place for the majority of these areas. One exception is the Confined Space Program. Aside from the annual reviews conducted by the safety/industrial hygienist responsible, no management assessments of the Confined Space Program were conducted.

CHPRC is directed to process the attached surveillance reports (Findings and Observations) through the CHPRC established corrective action management system. RL retains closure authority for the Findings and Observations as designated within the attached surveillance reports.

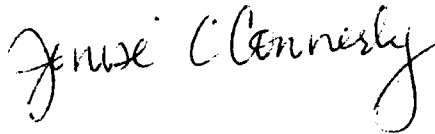
Mr. J. G. Lehew III
10-OOD-0067

-2-

JUN 10 2010

If you have any questions, please contact me, or your staff may contact Roger M. Gordon,
Director, Operation Oversight Division, on (509) 372-2139.

Sincerely,



Jenise C. Connerly
Contracting Officer

OOD:JJW

Attachments:

1. Roll-up Evaluation
2. Surveillance S-10-OOD-LWFS-002
3. Surveillance S-10-OOD-SWOC-002
4. Surveillance S-10-OOD-BOS D&D-002
5. Surveillance S-10-OOD-GPP-002
6. Surveillance S-10-OOD-SNF-002
7. Surveillance S-10-OOD-PFP-003

cc w/attachs:

M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
G. M. Grant, CHPRC
S. M. Kelley, CHPRC
M. R. Kembel, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
S. J. Turner, CHPRC

**Elevated Work, Confined Space, Hoisting and Rigging, Trenching and Excavation –
Occupational Safety and Health Core Surveillance
Roll-up Evaluation**

Elevated work, confined space, hoisting and rigging, trenching, and excavation – Occupational Safety and Health Core Surveillances were performed at various CHPRC Facilities and Projects from March through April. The objective of the surveillance was to verify that the contractor is complying with the appropriate standards when conducting the following activities:

- 1) Project activities that include elevated work such as roof work, aerial lifts, scaffold work, erection/dismantling of scaffolds, and scaffold railings/openings.
- 2) Project activities that include confined space or permit confined space entries.
- 3) Project activities that include hoisting and rigging. The focus was on forklift trucks, wire ropes, slings, rigging hardware, hoists, jibs cranes, monorail systems, and mobile cranes as appropriate for your project.
- 4) Trenching/excavation.

The surveillances resulted in the identification of 17 Findings, 10 Observations, and one Good Practice. Overall, the surveillances indicated satisfactory performance and knowledge relative to the activities observed, but with several deficiencies and opportunities for improvement. Six surveillances are attached.

Below is a listing of the Findings, Observations, and Good Practices. These are broken down into the various activities reviewed during the surveillance:

Elevated Work:

- | | |
|-------------------------------------|--|
| S-10-OOD-SWOC-002-F02 | Contrary to the requirements of PRC-PRO-WKM-12115, Work Management, Worksite Hazard Analysis (WHA) was not used for the skill-based activity of man-lift operations. |
| S-10-OOD-GPP-002-F01 | Personnel operating and supporting mobile elevated work platform work activities were in some instances observed to use less than adequate safety practices. |
| S-10-OOD-BOS D&D-002-F01 | Workers neglect safety guard chains when accessing permanent elevated work platforms. |

- S-10-OOD-BOS D&D-002-F02** Worker observed using an eight foot ladder with an expired safety inspection sticker.
- S-10-OOD-BOS D&D-002-F03** During U-Canyon crane collector ring/wheel replacement, a worker was observed not wearing fall arrest equipment.
- S-10-OOD-SWOC-002-001** Work release of the activity to photograph Trench 11 from a man-lift was not consistently understood by the Field Work Supervisor or the Shift Duty Officer and was incorrect on the Plan of the Day.
- S-10-OOD-BOS D&D-002-001** Work instructions were not followed to completion.
- S-10-OOD-BOS D&D-002-002** Several safety concepts were not universally understood.
- S-10-OOD-BOS D&D-002-003** Hands on training provided far greater retention values than computer base approaches.
- S-10-OOD-PFP-003-002** A JLG may have been in use when the wind limit was exceeded.

Confined Space:

- S-10-OOD-GPP-002-F02** Discrepancies were identified with Soil and Groundwater Remediation Project confined space records.
- S-10-OOD-SNF-0020-F01** Culvert east of Cold Vacuum Drying Facility (CVDF) not entered into Permit Required Confined Space Program.
- S-10-OOD-SNF-002-F02** Confined spaces at 166KW and 166KE are not posted with clearly legible danger signs.
- S-10-OOD-SNF-002-F03** Confined spaces in 100K area turned over to Deactivation, Decommission, Decontamination, and Demolition (D4) were not assigned to a facility manager as an operational landlord.

S-10-OOD-SNF-002-F04

Completed 100K Confined Space Hazard Identification Forms were not available in the Integrated Data Management System.

S-10-OOD-SNF-002-O01

Confined Space Identification Forms in the CVDF Confined Space Logbook were out of date.

Hoisting and Rigging:

S-10-OOD-SWOC-002-F01

Multiple non-compliances were identified while conducting work using a Minor Work Ticket, including constructing and using a makeshift forklift attachment.

S-10-OOD-SWOC-002-F03

Non-compliances were found with T-Plant forklifts.

S-10-OOD-SNF-002-F05

CHPRC D4 Project did not correctly identify the appropriate clearance requirements for work under energized electrical power lines.

S-10-OOD-PFP-003-F01

Checks for broken wire rope strands were not completed as specified in the Hostile Environment Plan for Plutonium Reclamation Facility (PRF) Canyon Crane.

S-10-OOD-PFP-003-F02

Drip pans were not installed on PRF crane as required in HNF-27281.

S-10-OOD-PFP-003-F03

Blocking to protect ports was not in place when glovebox was moved to Solid Waste Operations (SWO) area.

S-10-OOD-PFP-003-O01

Planning for Industrial Package-2 (IP2) loading was poor.

S-10-OOD-PFP-003-O03

Wind speed limits were not identified in the critical lift plan.

S-10-OOD-PFP-003-O04

End loading of the large hood was awkward.

S-10-OOD-PFP-003-O05

The procedure for loading IP2s (ZO-170-320) continues to be unclear or incorrect about loading actions.

S-10-OOD-SNF-002-GP01

Repositioning the mobile crane to increase clearance distance to overhead lines.

Trenching/Excavation:

S-10-OOD-BOS D&D-002-F04

The excavation permitting process did not adequately identify and control hazards to and from utility services within the project scope.

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Operations Oversight Division (OOD)

Surveillant(s): Jack George

Surveillance Number: S-10-ODD-LWFS-002

Date Completed: April 19, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Liquid Waste & Fuels Storage

**Title: Elevated Work/Confined Space/Hoisting and Rigging/Trenching and
Excavation – Occupational Safety and Health (OSH)**

Guide: Uniquely developed for this Core Surveillance

Surveillance Scope:

The objective of this surveillance was to verify the contractor has processes and implements them to control Elevated Work, Confined Spaces, Hoisting and Rigging activities, and Trenching and Excavation.

Surveillance Summary:

Due to resource restrictions, not all criteria of the surveillance guide were evaluated. The Facility Representative (FR) used the criteria for Elevated Work, and Trenching/Excavation. Also, the criteria for record keeping for Confined Space were used. The FR did not evaluate Hoisting & Rigging or field work associated with Confined Space.

The FR performed the following oversight activities:

Elevated Work

- Observed work from scaffolding at East Tank Farm (ETF) [OA 30718].

Confined Space

- Performed an audit of project records [OA 30718].

Trenching and Excavation

- Observed ETF construction site road crossing work [OA 30718].

There were no Findings or Observations.

Contractor Self-Assessment:

No reports with Confined Space reviews specifically identified could be located. The Waste Receiving and Processing Facility Confined Space Logbook and the associated Hazard Identification Sheets were reviewed and updated by the facility safety/ industrial hygiene professional annually as required by procedure.

No elevated work assessments were performed. A CHPRC program level review was performed. PRC-RD-SH-10972 was revised to include additional clarity and expectations for the use of Enhanced Work Plans.

Hoisting and Rigging was reviewed in Q&PA-PO-SURV-10-004, Implementation of Corrective Actions Relating to ISC Critical Lifts at ISA (CR-2009-1932)-Final Report.

No completed specific trenching and excavation assessment activities were identified.

The FR considered contractor self-assessment levels in these areas were adequate.

Contractor Self-Assessment Adequate: YES [X] NO []

Management Debriefed:

M.R. Kimble, CHPRC

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillants: JE Trevino, BL Wallace, PL Hapke

Surveillance Number: S-10-OOD-SWOC-002

Date Completed: April 23, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Solid Waste Operations Complex (SWOC)

Title: Elevated Work/Confined Space/Hoisting & Rigging – Occupational Safety and Health (OSH)

Surveillance Scope:

The objective of this surveillance was to verify that the contractor is complying with the appropriate standards when conducting the following activities:

1. Project activities that include elevated work such as roof work, aerial lifts, scaffold work, erection/dismantling of scaffolds, and scaffold railings/openings.
 2. Project activities that include confined space or permit confined space entries.
 3. Project activities that include hoisting and rigging. Focus on forklift trucks, wire ropes, slings, rigging hardware, hoists, jibs cranes, monorail systems, and mobile cranes as appropriate for your project.
 4. Trenching/excavation.
-

Surveillance Summary:

The Facility Representatives (FRs) reviewed contractor procedures, work documents, site standards and Occupational Safety and Health Administration (OSHA) regulations. Work activities were observed that included the activities in the scope of the surveillance. Facility documentation and implementation of the Confined Space Program were reviewed.

Three Findings and one Observation were identified:

- **S-10-OOD-SWOC-002-F01:** Multiple non-compliances were identified while conducting work using a Minor Work Ticket (MWT), including constructing and using a makeshift forklift attachment.
 - **S-10-OOD-SWOC-002-F02:** Contrary to the requirements of PRC-PRO-WKM-12115, Work Management, a Worksite Hazard Analysis (WHA) was not used for the skill-based activity of man-lift operation.
 - **S-10-OOD-SWOC-002-F03:** Non-compliances were found with T-Plant forklifts.
 - **S-10-OOD-SWOC-002-O01:** Work release of the activity to photograph Trench 11 from a man-lift was not consistently understood by the Field Work Supervisor (FWS) or the Shift Duty Officer (SDO) was incorrect on the Plan of the Day (POD).
-

Surveillance Results:

Finding: S-10-OOD-SWOC-002-F01

Multiple non-compliances were identified while conducting work using a MWT, including constructing and using a makeshift forklift attachment.

Requirements:

PRC-PRO-WKM-12115, *Work Management*, Section: 3.2.4 Schedule Work

Item: 13

Prepare a Daily Release Sheet (DRS) as determined in step four. Daily, deliver to the Release Authority (RA) the DRS, any work documents to be released, and work that shall be considered for No Release Required (NRR).

PRC-PRO-WKM-12115, Section: 3.2.3 Plan Work

Step: 18 (3rd bullet)

"State the precise scope of the work, including the methods of performing the work. Ensure that the work team knows exactly what is included in the work activity and scope that is not to be included. The scope description must be detailed enough to support the development of effective and accurate hazard controls for the proposed work activity."

DOE/RL-92-36, *Hanford Site Hoisting and Rigging Manual*

Section: 6.4, Attachments, Modifications, and Free Rigging from Tines.

- **Item (6.4.1) Attachments:**
Attachments almost always affect rated capacity of the truck. When a forklift truck is equipped with an attachment, the rated capacity of the truck attachment combination shall be established by the truck manufacturer. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.

CAUTION: Use of after-market attachments requires written approval from the truck manufacturer.

- **Item (6.4.2) Modifications:**
Modifications or additions which affect capacity or safe operation shall not be performed by the customer or user without the manufacturer's prior written approval. Employers must seek written approval from powered industrial truck manufacturers when modifications and additions affect the capacity and safe operation of powered industrial trucks. When approval has been granted the capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly. However, if no response or a negative response is received from the manufacturer, OSHA will accept a written approval of the modification/addition from a qualified Registered Professional Engineer. A qualified Registered Professional Engineer must perform a safety analysis and address any safety or structural issues contained in the manufacturer's negative response prior to granting approval. When approval has been granted, machine data plates must be changed accordingly.

Code of Federal Regulations

- 29 CFR 1910.178(a) (4) Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturer's prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.
- 29 CFR 1910.178(a)(5) If the truck is equipped with front-end attachments other than factory installed attachments, the user shall request that the truck be marked to identify the attachments and show the approximate weight of the truck and attachment combination at maximum elevation with load laterally centered.

Discussion:

The facility was performing work utilizing a MWT. The work scope of the MWT states: "Clean area in front of dock, remove wood and screening, fill gravel in under dock to level of asphalt, install new wood framed screens." The work was being performed at the northwest loading dock of 271-T. Work had started on Monday, April 5, 2010, utilizing teamsters to shovel gravel under the loading dock as well as clean out debris. Carpenters were also supporting the work by removing old wood panels/metal screen and building new panels/screens.

In order to facilitate work and reach to the back of the loading dock (approximately nine feet), the workers modified a T-Plant forklift's intended use/purpose by building a forklift attachment out of a pallet and additional lumber. The purpose of the attachment was to utilize the forklift in a manner that resembles a bulldozer and push the gravel under the loading dock, instead of shoveling it. The crew completed the displacement of gravel from the asphalt area under the loading dock utilizing the forklift/attachment on April 7, 2010. The FR discovered the forklift and bulldozer attachment on Wednesday, April 7, 2010, late afternoon next to the loading dock; the workers had just completed the displacement of the gravel. The FR spoke with the forklift custodian of his concerns and the investigation then started.

Upon investigation of the work the following areas of non-compliance were found:

1. The FWS failed to document the following items per MWT instructions/MWT.
 - a) The MWT document prerequisites were not all checked off as completed (items 2, 5) of MWT.
 - b) The Radiological Work Permit number was not filled in (item 2).
 - c) The MWT RA signature was not signed.
2. The RA acknowledged that he had never seen the MWT.
3. The MWT scope of work was exceeded.
4. The FWS was not aware of and did not provide direction to the crew to build a bulldozer attachment for the forklift. The FWS also did not prevent the crew from using the attachment when he saw it. (The FWS at the time was unsure if the attachment would be actually viewed as an attachment.)
5. DOE/RL-92-36, *Hanford Site Hoisting and Rigging Manual*, was not consulted for compliance prior to building or using the forklift bulldozer attachment.
6. The Integrated Safety Management System (ISMS) process was not fully implemented.
7. Engineering was not consulted in the bulldozer attachment creation utilized on the forklift.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-SWOC-002-F02

Contrary to the requirements of PRC-PRO-WKM-12115, Work Management, a WHA was not used for the skill-based activity of man-lift operation.

Requirements:

PRC-PRO-WKM-12115, *Work Management*, Section 3.2.3, Plan work Step 2.a, "Work instructions that utilize only documents that are previously approved (e.g., Periodic Maintenance Procedures, Operations Procedures) do not require an additional review and approval if hazards have remained the same as described in the approved document, or since the last performance of the work activity if a hazards analysis was performed at that time. For skill-based work, ensure a WHA exists or has been performed."

Discussion:

The activity to take photographs of LLBC 218-W-4B, Trench 11 was performed as skill-based work by Nuclear Chemical Operators (NCOs). A Grove man-lift was used to position the NCOs at a height of 60 feet to take the photographs. The work was performed under an administrative procedure for Low-level burial ground (LLBG) access that has no associated Automated Job Hazard Analysis. The Position Specific Job Hazard Analysis for NCOs includes aerial lifts and raised platforms. A WHA is required to be performed or to exist for the area.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-SWOC-002-F03

Non-compliances were found with T-Plant forklifts.

Requirements:

DOE/RL-92-36, *Hanford Site Hoisting and Rigging Manual*:

6.3.1 Truck Marking by the Manufacturer:

Every truck shall have a durable, corrosion resistant nameplate, legibly inscribed with the following information:

- a. Truck model and serial number.
- b. Truck weight.
- c. Designation of compliance with the mandatory requirements of ASME B56.1, "Safety Standard for Low and High Lift Trucks," applicable to the manufacturer.
- d. Type designation to show conformance with the requirements, such as those prescribed by Underwriters Laboratories, Inc., and Factory Mutual Research Corporation.
- e. Rated capacity.

In addition to these requirements, additional information is required (and allowed) on nameplates on high-lift trucks, electric trucks, and trucks intended for use in hazardous locations (see ASME B56.1, "Safety Standard for Low and High Lift Trucks," Section 7.5, "Nameplates and Markings").

Discussion:

Three of the forklifts reviewed for compliance were found to be missing information on the required "corrosion resistant nameplates".

1. HO-75-04997
Problem: No Truck weight is listed on the corrosion resistant name plate per section (6.3.1)
2. HO-75-4718
Problem: Underwriters Laboratories or Factory Mutual Research Corporation Conformance not listed per section (6.3.1).
3. HO-75-4869
Problems:
 - a) No Truck weight is listed on the corrosion resistant name plate per section (6.3.1).
 - b) No statement declaring compliance with ASME B56.1 per section (6.3.1).
 - c) Underwriters Laboratories or Factory Mutual Research Corporation Conformance not listed per section (6.3.1).

RL Lead Assessor Closure Required:

YES [X]

NO []

Observation: S-10-OOD-SWOC-002-001

Work release of the activity to photograph Trench 11 from a man-lift was not consistently understood by the FWS or the SDO and was incorrect on the POD.

Discussion:

The work release for this activity was not clearly or consistently understood. The POD schedule listed a MWT. The FWS stated that the work was skill based. The SDO stated that it was performed under an administrative procedure for LLBG access, WMP-342, Section 4.1 "Controlling Facility Access & Waste Movement" and that a pre-job briefing had been conducted. The SDO stated that the MWT had been listed in error on the POD.

RL Lead Assessor Closure Required: YES [] NO [X]

Contractor Self-Assessment:

- Elevated Work – No Solid Waste Storage and Disposal (SWSD) specific assessments were performed. A CHPRC program level review was performed. PRC-RD-SH-10972, was revised to include additional clarity and expectations for the use of Enhanced Work Plans (EWPs), including; daily visual inspection and test operation of an EWP must be performed by a qualified person, use of any device to achieve additional height on the platform is prohibited, added an additional prerequisite (follow manufacturer guidelines or instructions) when planning a work evolution that includes the entering or exiting of an EWP platform from an elevated position, precautionary language added to avoid "leaning or extending" body position to negate the protection provided by the engineered guard railing.
- Hoisting & Rigging – No SWSD specific assessments were performed, however, an extensive review of all work packages containing critical lifts (at both Central Waste Complex (CWC) /LLBG and Waste Retrieval Project (WRP)) was performed by the CHPRC Performance Oversight organization. This review resulted in the development of a Critical Lift Template which was institutionalized throughout Waste and Fuel Management Project.
- Confined Space – No CWC/LLBG specific assessments were performed. The CWC/LLBG facilities do not have any managed confined spaces. The Waste Receiving and Processing Facility Confined Space Logbook and the associated Hazard Identification Sheets were reviewed and updated by the facility safety/industrial hygiene professional annually as required by procedure.

Contractor Self-Assessment Adequate: YES [X] NO []

Management Briefing:

**Carroll Phillips
Todd Synoground
Daniel Saucedo
Don Moak
Stu Mortensen**

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: Ron Johnson, Craig Richins

Surveillance Number: S-10-OOD-BOS D&D-002

Date Completed: April 19, 2010

Contractor: CH2M HILL Plateau Remediation Contractor (CHPRC)

Facility: Balance of the Site Deactivation & Decommissioning (BOS D&D)

Title: Elevated Work/Confined Space/Hoisting& Rigging - Occupational Safety and Health (OSH) Surveillance

Guides: CSG-6.5, CPS 8.1-8.2, OSS 19.3, OSS 19.13-16

Surveillance Scope:

The scope of this surveillance was to verify that the contractor is adequately implementing safety processes specifically focusing on Elevated Work/Confined Space/Hoisting& Rigging/Excavations and Trenching work activities.

Surveillance Summary:

The Facility Representative (FR) and Government Support Service Contractor (GSSC) Safety Representative performed the following activities in order to evaluate BOS D&D organization:

- Work activities observed:
 1. 200 East Area Work (OAs 29843, 29613, 29089 and 29078).
 2. 212-N,P and R excavation work (OAs 29602, 30246, 29649, 29639,29606 and 29539).
 3. Fire Protection Surveillance at Fast Flux Test Facility (FFTF) (OA 29454).

4. Maintenance and Storage Facility (MASF) Work Activity (OA 29321 and 29139).
 5. B-Plant Ventilation Startup and Shutdown (OA 29272).
 6. Electrical Tour of Building 272-E (OA 29238).
 7. U-Canyon Crane Work (OA 29169).
- Interviewed the following personnel:
 1. Operation's Manager (1) - Date April 1, 2010
 2. Field Work Supervisors (FWSs) (5) - Dates March 31, April 6 and April 7, 2010
 3. Nuclear Chemical Operators (NCOs) (2) – Date March 31, 2010
 4. Cold & Dark Electrician (1) – Date April 1, 2010
 5. Safety Professional (1) – Date April 6, 2010
 6. D&D Workers (2) – Date April 6, 2010
 7. Radiological Control Technicians (2) - Date April 6, 2010
 8. Insulator (1) – Date April 7, 2010
 9. Crane Operator (1) – Date April 6, 2010
 - Reviewed the following support procedures and programs:
 1. PRC-RD-SH-11258, Confined Space Rev.0, Date August 18, 2009
 2. DOE/RL-92-36, *Hanford Site Hoisting and Rigging Manual*:
 - a. Chapter 8, Wire Rope, Rev.1, Date September 28, 2004
 - b. Chapter 9.0, Slings, Rev.1, Date January 19, 2009
 - c. Chapter 10.0, Rigging Hardware, Rev.1, Date January 19, 2009
 - d. Chapter 12.0, Hoists, Jib Cranes, and Monorail Systems, Rev.1, Date January 19, 2009
 3. PRC-PRO-SH-095, Scaffolding, Rev. 1, Date December 21, 2009
 4. PRC-PRO-SH-090, Excavating, Trenching, and Shoring, Rev.0, Date June 17, 2009
 5. DOE-0344, *Hanford Site Excavating, Trenching and Shoring*, Rev.0, Date February 1, 2010
 6. PRC-RD-SH-24243, Portable Ladders, Rev.0, Date May 27, 2009
 7. PRC-RD-SH-10972, Elevating Work Platforms, Rev.1, Date March 18, 2010
 8. PRC-RD-SH-8801, Fall Protection, Rev.1, Date December 9, 2009
 - Reviewed the following work documents:
 1. CP-09-05541, Erect/Dismantle/Modify/Inspect Scaffold -2E.
 2. CP-09-05540, Demo Prep 200 East Buildings.
 3. 4A-09-05231, MASF Vertical Lift Doors Inspections.
 4. 2U-10-01233, Repair/Replace Crane 480 VAC Collector Assemblies.
 5. DAN-3663 Excavation Permit 212NPR
 6. ECN-192081
 7. BOS-CD-VFD-121P-09, Verifications of Hazardous Energy Isolations for 212P
 8. AJHA FS-793 212NPR

9. SP-BOS-09-002-01 Guidance for performing and documenting the down posting of outdoor Contamination Areas at 212 NPR
10. WP 10A00801 272E Lift
11. CP-08-06535, 212-N,P,R Demolition

This surveillance concentrated on three different focus areas. The main area of focus was in observing work activity. Work was selected within the D&D organization based on personnel involvement with elevated areas (i.e., ladders, platforms, scaffolding or lifts), crane and rigging, confined space, and or excavation areas. The second focus area involved interviewing personnel selected randomly by the contractor in order to validate worker skill level in the areas of elevated work, crane and rigging, confined space and excavation. The third area involved a detail review of randomly selected work packages to ensure the hazards and controls for those specific hazards were in place and that the work activity was adequately covered in sufficient detail.

Interviews:

Personnel were interviewed from March 31 to April 7, 2010, at various work locations across the Hanford site. The interviewees included one safety professional, one second level supervisor, five first line supervisors, and nine workers representing a broad spectrum across the craft lines. Eight of the personnel interviewed, were newly hired within one year to work at Hanford, although some individuals worked on the site as a sub to the prime contractor.

In general, all personnel were candid and interviewed well. Supervisors provided more details to substantiate their answers to miscellaneous questions asked of them. The majority of personnel felt Hanford has an excellent program with regards to industrial safety. Critical issues, such as the recent 300 area fall event was recalled by all interviewees either through plan of the day briefs, safety topics, and or lessons learned.

Newer personnel (i.e., American Recovery and Reinvestment Act (ARRA) cohort) were found weaker in certain topical areas (i.e., ladder use, scaffold tags, confined space, etc.) covered by training, this is due to some of the areas have not been encountered on the job by the individuals. Minor comments are captured related to Competent Person, safety chain use on elevated platforms, three contact rule and working with subcontractors (Observation 2). Some interviewees expressed their concern with training that is computer based over other methods (i.e., class room, on the job), referring to the computer based model as an inferior teaching option (Observation 3).

Work Observed:

The FR and GSSC observed work out in the field beginning on February 23 and ending on March 30, 2010. Field work involved 200 East area demolition prep, 200 North area water line break and excavation, FFTF surveillance, MASF modifications in the high bay, B-plant ventilation startup, building 272-E tour/hoisting and high lift activities, and U-Canyon crane work. During this period of time the majority of the work involved workers needing access to higher elevated areas. Two instances were found related to improper use of a safety guard chain while personnel were working off the platforms

(Finding 1). One instance at FFTF involved the use of a temporary ladder with an expired safety inspection (Finding 2). During U-Canyon crane collector ring/wheel replacement a worker was observed not wearing fall arrest equipment (Finding 3).

During a work activity that allows the use of various man lifts (i.e., JLG, scissor lift, etc.) the personnel were found to be wearing the appropriate fall arrest equipment and were knowledgeable with the use and control of the equipment.

During back fill work at 212-P a Heavy Equipment Operator hit a pressurized water line that was not clearly identified during the excavation process. The excavation permitting process did not adequately identify and control hazards to and from utility services within the project scope (Finding 4).

Work touching on the threshold of confined spaces was limited to the valve isolations to the 200 north area and MASF high bay floor modifications. In both cases a permit required confined space was not necessary. No issues were found in either instance.

Work Packages Reviewed:

Work Package CP-09-05541, Erect/Dismantle/Modify/Inspect Scaffold - 2E work instructions was reviewed for workability and step completion. Work instructions required safety and competent persons involved with scaffolding in 284-E to be captured in the work record. There were instances where the competent person was not clearly identified in the work record as required by the procedure (Observation 1).

FR and GSSC found no other items of note in review of the other randomly selected work packages.

In summary, the FR and GSSC support consider the Elevated Work/Confined Space/Hoisting & Rigging/Excavations and Trenching for BOS D&D organization to be satisfactory and the activities appeared to meet requirements with only some minor exceptions.

Four Findings and three Observations were generated from this surveillance report:

- **S-10-OOD-BOS D&D-002-F01** – Workers Neglect Safety Guard Chains When Accessing Permanent Elevated Work Platforms.
- **S-10-OOD-BOS D&D-002-F02** – Worker Observed using an eight Foot Ladder with an expired safety inspection sticker.
- **S-10-OOD-BOS D&D-002-F03** – During U-Canyon crane collector ring/wheel replacement, a worker was observed not wearing fall arrest equipment.

- **S-10-OOD-BOS D&D-002-F04** - The excavation permitting process did not adequately identify and control hazards to and from utility services within the project scope.
 - **S-10-OOD-BOS D&D-002-001** – Work Instructions not followed to completion.
 - **S-10-OOD-BOS D&D-002-002** – Several safety concepts were not universally understood.
 - **S-10-OOD-BOS D&D-002-003** – Hands-on training provided far greater retention values than computer based approaches.
-

Surveillance Results:

Finding: S-10-OOD-BOS D&D-002-F01

Workers Neglect Safety Guard Chains When Accessing Permanent Elevated Work Platforms. [OAs 29454 and 29169].

Requirements:

Did not meet the requirements of the following regulations:

- 29 CFR 1926.502 (b) (13) which states in part:
 “When guardrail systems are used around holes which are used as points of access (such as ladder ways), they shall be provided by a gate, or be so offset that a person cannot walk directly into a hole.”
- 29 CFR 1926.1053 (b) (8) which states in part:
 “Ladders placed in any location where they can be displaced by work place activities or traffic, such as in passageways, doorways, or driveways shall be secured to prevent accidental displacement, or a barricade shall be used to keep the activities or traffic away from the ladder.”
- 29 CFR 1926.1053 (b) (9) which states in part:
 “The area around the top and bottom of the ladder shall be kept clear.”

Discussion:

During observation of elevated at work at U-Canyon and at FFTF the safety guard chain was left in the open position while personnel were working from the platform.

U-Canyon:

The FR observed two instances where the safety chain (i.e., guard rail) was left unattached at a ladder access area onto the upper crane platform area. In one instance a worker entered a congested area centered within the proximity of an exposed fall hazard (ladder opening) and the worker choose to stand in the area with his back turned towards the fall hazard. A second instance involved a worker lowering radiological equipment through the opening in a body position (bent over at the waist) that would break the vertical plane of where the safety chain use to be once it is attached.

FFTF:

The FR observed a Hanford Fire Department (HFD) worker use a permanent ladder leading up to a platform area in order to gain access up to the mezzanine space in the Fan Equipment Room (R-3 and R-4). The safety guard chain was noted to be left unattached at the top of the ladder (i.e. entry point onto the platform) while the worker was accessing the platform. The worker never reinstalled the guard chain while he performed work on the elevated platform. Once he completed work activity on the platform the HFD worker was observed leaving the elevated area via the permanent ladder without properly installing the safety guard chain in its proper place.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-BOS D&D-002-F02

Worker observed using an eight foot ladder with an expired safety inspection sticker [OA 29454].

Requirements: Did not meet the following requirements as stated in Code of Federal Regulations 29 CFR 1926.1053 (b) (15) which states in part:

“Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.”

Discussion:

The FR observed a HFD worker use a portable ladder in the Control Room in order to smoke test one ionic fire detector located above the false ceiling area. After completing his task the HFD worker returned the ladder to the south side of the Relay Room in its designated storage location. The FR and the person in charge inspected the ladder and found an annual safety inspection sticker attached to the ladder dated for July 30, 2007.

• Code of Federal Regulations 29 CFR 1926.1053 (b) (15) states:

“Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.”

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-BOS D&D-002-F03

During U-Canyon crane collector ring/wheel replacement, a worker was observed not wearing fall arrest equipment [OA 29169].

Requirements:

Did not meet the requirements of 29 CFR 1926.501 (b) (1) which states in part:

Unprotected sides and edges:

“Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by use of guardrail systems, safety nets, or personal fall arrest systems.”

Discussion:

FR observed two electricians working on the cranes 480 VAC collector ring assemblies. One electrician was working off a wooden scaffold platform (situated higher than the walking surfaces of the catwalk) and he was required to wear fall protection. The second electrician was standing on a piece of equipment ~ 1.5 feet lower than the other worker, but he was not required to wear fall protection equipment. The closest guardrail was about three feet away and the top of that rail would be at the same elevation as where the second electrician was standing (on top a piece of equipment).

The FR pointed his observation out to an assigned NCO who mentioned that he too was uncomfortable with observing the second electrician not wearing fall protection while he was standing on top of a piece of equipment.

Later, the NCO went down to the lower catwalk to talk to the electrician who then stepped off the equipment onto the permanent catwalk. The second electrician was observed staying on the walking surface area of the catwalk during the rest of the work activity.

After completion of the work activity the Design Authority (DA) was observed climbing on top of the equipment to gain a better view of the collector assemblies. The DA was subjected to the same potential fall hazard experienced by the second electrician earlier during the work activity.

Code of Federal Regulations 29 CFR 1926.501 (b) (1) Unprotected sides and edges

states:

“Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level shall be protected from falling by use of guardrail systems, safety nets, or personal fall arrest systems.”

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-BOS D&D-002-F04

The excavation permitting process did not adequately identify and control hazards to and from utility services within the project scope [OA 29606].

Requirements:

DOE-0334 *Hanford Site Excavation, Trenching and Shoring*, Section 5.2 Steps f and g, Section 5.3 Step 3e, and Appendix D which states in part:

Step f:

“Request refreshed ground markings during excavation activities, as required.”

Step g:

“Geophysical evaluation or scanning information must be made available to workers at the excavation site for reference use, and are a part of the applicable work package.”

Step 3.e:

“Obtain or prepare a composite sketch (or line-crossing list with facility drawings) of the intended excavation area, including excavation boundaries, identifying existing buried utilities/systems within a given area. Identify the location and ownership of utilities (e.g., electrical, water, sewer, etc.)...”

Further Appendix D states in part:

Appendix D – Water Utilities (Block 15):

“The site water utilities or facility-specific utilities group reviews all excavations that are within 5 feet (1.5 meters) horizontally or vertically of water utility lines. A map with coordinates or a sketch clearly showing the excavation location and geophysical scan data (if applicable) will be provided in areas where a water utilities review is required.”

Discussion:

The Field Work Supervisor and all other D&D team members questioned indicated that they believed the 12 inch line to be deactivated. The heavy equipment operator was not generally associated with the project and had been given no indication that any line existed in that area.

Review of the work package (CP-08-06535) at the site revealed that the Verifications of

Hazardous Energy Isolations for 212P (BOS-CD-VFD-121P-09, Feb 24, 2009) indicated that the mechanical services had been “removed and isolated by Water Utilities for a previous contractor” under ECN-192081 (circa 1994 to 1997) and included a schematic from that ECN indicating that the work included removing a tee from the 12 in line at 212P. It is only upon close examination of the ECN itself (also included in the work package) that it becomes clear that the tee was replaced with a straight section of pipe. Isolation to the building is verified in both cases but there is no indication in the 2009 document that the 12 in line remains active.

Section 9 of the Excavation Permit (DAN-3663) is titled: “List Facilities, Services, Utilities and Groundwater Wells Affected by Excavation” Under this section, DAN-3663 recognizes the presence of the 12 inch line as well as 30” and 2 “ lines but is concerned with road crossings rather than excavation work per se. The Water Utilities representative signed block 15 but included a caveat in section 8 (special instructions) that excavation is permitted but wheel loading over the export lines must receive further review and that hand digging within 5 feet of the water lines is required.

Ground scans were conducted on January 6, 2006 and January 16, 2009. The 2009 scan indicates that the 12 inch line is 50 feet north of the 212-P wall and was marked with pink paint. No markings indicating the presence of the 12 inch line can be seen on the soil surface at any of the 212 facilities. It is not apparent whether this is due to weathering/traffic or the lack of application.

The Engineering Evaluation for 212-P, indicates that the excavation would reach depths of 30 feet. It was noted at several points during the excavation work conducted last year that the foundations of the facilities were thicker than anticipated. Additionally, the footings flared at the base from the vertical of the facility approximately 6 to 12 inches. With the required 1 to 1.5 slope, a minimum setback of 45 feet would have resulted and provided for a nominal 5 foot buffer. Although the Engineering Evaluation mentions the 12 inch water line as being north of the facility, no measurements are provided nor cautions cited.

Information provided by a representative of the CHPRC “Cold and Dark” organization at the fact finding on March 23 indicated that the 12 inch line was disabled and inert at both the 212N and 212R facilities which flank 212 P. The active section of the line runs from the 30 inch export water line (running north/south between 212 P and 212R) west to ~ 100 yards short of the 212N excavation where a two inch junction runs south to the 251 Substation.

Although information about the 12 inch line exists within the work package, there is no clear indication that the line was pressurized and in use in any of the principle documents including the Job safety analysis and Work Instructions. There is no documentation reflecting the fact that this line actively supported the 251 facility.

RL Lead Assessor Closure Required: **YES [X]** **NO []**

Observation: S-10-OOD-BOS D&D-002-O01

Work Instructions not followed to completion [OA 30301].

Discussion:

Work package CP-09-05541, Erect/Dismantle/Modify/Inspect Scaffold -2E work instructions was reviewed for workability and step completion. Work instructions required the safety and competent persons involved with scaffolding in 284-E to be captured in the work record. There were instances where the competent person was not clearly identified in the work record as required by procedural Steps 6.4 – 6.7.

During erection of scaffolding at 284-E the work package requires documentation of the Safety Professional and Competent Persons in the work record as required by working steps 6.4 – 6.7. The Competent Person is clearly identified in the work record with the exception of days March 30, 31, and April 13.

A new scaffold was started inside building 284-E on 4/13/10 but the Safety professional review per steps 6.4 and 6.5 is missing for the new scaffold.

RL Lead Assessor Closure Required: **YES []** **NO [X]**

Observation: S-10-OOD-BOS D&D-002-O02

Several safety concepts were not universally understood [OA 30318].

Discussion:

In general, the interviewees' understanding was exceptional. However, the following concepts were not universally understood:

- There was no clear or consistent understanding of how to treat safety chains on permanent platforms.
 - Personnel recognized that the chain had to be in place when someone was on the platform but responses varied when discussing placement of the chain when descending from the platform. This was true regardless of Hanford experience or longevity.
- The application of yellow tags for scaffolding is not well understood.

- Personnel understood well the use of green and red tags and the need for daily inspection and signatures but most could not verbalize the use of yellow scaffold tags.
- Interviewees were unsure how rigorously subcontractors must comply with site safety standards.
 - When asked whether they could stop a subcontractor from using an uninspected ladder, several people were not sure that they had the authority to do so.
- The roles and responsibilities of “competent persons” is not clearly understood.

A number of interviewees placed their reliance on the FWS to be the competent person but could not describe the roles and responsibilities of a “competent person” whether for scaffolding or excavation.
- The three point contact rule for ladder use is not fully understood.
 - All personnel interviewed could describe the three point rule for ladder use for ascending or descending a ladder but responses were scattered when asked whether an individual could use both hands when stationary and working off a ladder.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-BOS D&D-002-O03

Hands-on training provided far greater retention values than computer based approaches [OA 30318].

Discussion:

The general level of knowledge varied considerably between individuals but was generally found to be good with many individuals having some understanding of all focus areas explored even when those individuals had no work experience in a particular area. Those individuals who had hands-on training consistently had an easier time answering the questions and were surer in their answers. Generally, newer employees expressed feeling overwhelmed by the condensed training they had received and their responses did not reflect a high level of retention of concepts from these training.

RL Lead Assessor Closure Required: YES [] NO [X]

Contractor Self-Assessment:

The FR reviewed the Integrated Evaluation Plan (IEP) for FY-2009 and FY-2010 for any Management Assessments (MA) or Work Site Assessments (WSA) performed in the OSH area. MA/WSAs were performed in the areas of scaffolding and securing loads within the BOS D&D organization during FY 2009. FY-2010 shows WSAs for heavy equipment operation and Deactivation, Decommission, Decontamination, and Demolition overhead line issues; contractor surveillances are listed to cover hoisting & rigging, and crane & hoist requirements.

Contractor Self-Assessment Adequate: YES [X] NO []

Management Debriefed:

Mike Swartz Wilkinson, Acting Director BOS D&D
Mike Stevens, Acting BOS D&D Project Manager
Harv Harville, BOS S&M Manager
Chris Lucas, Director BOS C&D

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant(s): Craig Richins, Kerry Schierman

Surveillance Number: S-10-OOD-GPP-002

Date Completed: April 19, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Soil and Groundwater Remediation Project (SGRP) – (Occurrence Reporting and Processing of Operations Information code GPP) and Engineering, Procurement, and Construction work to support SGRP

Title: Elevated Work/Confined Space/Hoisting and Rigging/Trenching and Excavation – Occupational Safety and Health (OSH)

Guide: Uniquely developed for this Core Surveillance

Surveillance Scope:

The objective of this surveillance was to verify the contractor has processes and implements them to control elevated work, confined spaces, hoisting and rigging activities, and trenching and excavation.

Surveillance Summary:

The Facility Representative (FR) and Government Support Service Contract personnel performed the following oversight activities:

Elevated Work

- Observed work from scaffolding at 216-N-4 [OA 29370, 29638];
- observed work from an elevated work platform at well drilling sites C7577 and C7576 in 200W (one Finding was documented below) [OA 29374, 29952, 30256];

- observed work from elevated work platforms at the Unsecured Core Area construction site in 200E (one issue was identified and documented in the same Finding, below [OA 29375, 29530, 30258];
- observed work from an elevated work platform at 216-N-4 [OA 29827]; and
- observed work from and inspected elevated work platforms, scaffolds, and ladders at the 100-DX construction site [OA 29312, 29580, 30198].

Confined Space

- Performed an audit of project records (one Finding was documented below) [OA 29483];
- observed contractor response to confined spaces identified during investigative walkdowns for remediation activities [OA 29537, 30255]
- observed a ModuTank #2 confined space entry and space classification downgrade [OA 29694]; and
- verified closure of issues identified in OA 29483 [OA 30300].

Hoisting and Rigging

- Observed iron work at the Unsecured Core Area construction site in 200E [OA 29375, 29530, 30258];
- observed response to self-imposed stop work for sling at ModuTank #2 [OA 29695]; and
- observed installation of pipe liners in a 200W road crossing [OA 30012].

Trenching and Excavation

- Observed sampling and soil remediation work requiring excavation permits at 216-A-25, 600-118, 216-N-4, 216-S-16 and 17, 600-40, 200-W-33, 200-E-127, and 100K [OA 29359, 29362, 29363, 29371, 29534, 29583, 29638, 29679, 30206];
- observed 100-DX construction site road crossing work [OA 29550, 29580]; and
- observed 200W pump and treat road crossing work [OA 29880].

In total, two Findings were documented:

S-10-OOD-GPP-002-F01	Personnel operating and supporting mobile elevated work platform work activities were in some instances observed to use less than adequate safety practices.
S-10-OOD-GPP-002-F02	Discrepancies were identified with SGRP confined space records.

Surveillance Results:

Finding: S-10-OOD-GPP-002-F01

Personnel operating and supporting mobile elevated work platform work activities were in some instances observed to use less than adequate safety practices.
[OA 29374, 29375]

Requirement:

PRC-RD-SH-10972, Section 3.2.14, states, "Equipment shall be set-up and operated in accordance with the safe work practices prescribed by the manufacturer and the job hazard analysis."

Discussion:

Several instances of less than adequate safety practices associated with boom-supported aerial lift work were observed at 200W Pump and Treat well drilling work sites in March 2010:

- A worker on the ground tossed a wrench up to the worker on the work platform. The Field Work Supervisor (FWS), present during the work activity gave the work crew a verbal warning for the practice.
- An aerial lift worker extended his foot between the upper and middle rails to attempt to force the seal farther down the line. The FWS immediately stopped work and reviewed elevated work safety with the three man crew. The issue was also discussed with the sub-contract lead at the job site within 10 minutes of the event.
- A third worker was sometimes stationed under the work platform inappropriately.
- A fall protection safety line that was overlong for the job was used. At various points in the work process, the worker would have reached the ground or equipment surfaces before the line would have become taut, and at any point the worker would have struck the basket with his head or neck in a fall condition. After a work pause, the workers reconfigured the approach of the elevated work platform to the task area, which allowed the tie-off point to change, thus precluding the individual from being able to fall. Additionally, the repositioning allowed the worker to apply the necessary force from shoulder height rather than trying to work through the rails of the cage. Additionally, a line was added to the basket rigging for use in raising and lowering equipment.

An individual was also observed tossing a tool or material up to one of the elevated work platforms at the Unsecured Core Area on March 9, 2010.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-GPP-002-F02

Discrepancies were identified with SGRP confined space records. [OA 29483]

Requirement:

PRC-RD-SH-11258, Section 3.1.3, states, "Line management shall ensure that a Confined Space Hazard Identification Form (CSHIF) (Site Form A-6004-727) is completed and maintained as the hazard evaluation documentation for each identified confined space such that a current inventory of existing PRCs and non-permit confined space (NPCS) is available for each facility/operation."

Discussion:

On March 16, the FR performed a review of the project listing of confined spaces and CSHIF (Site Form A-6004-727). The FR also performed a walkdown of confined spaces at KX Pump and Treat Facility and the PurgeWater Storage and Treatment Facility. The following discrepancies were identified:

- CSHIFs were not available for KX Pump and Treat Facility tanks T-X1, T-X2, T-X3, and T-X5, although the FR verified each of the tanks was posted as a confined space. CSHIFs were not available for PurgeWater Storage and Treatment Facility ModuTanks (MT-1, MT-2, and MT-3), although the confined space data custodian demonstrated an awareness of the condition and stated preparation of the CSHIFs was in progress. The FR verified each of the ModuTanks was posted as a confined space.
- Two CSHIFs (T-K02 at K2 Transfer and T-H01 at HR-3) had not been signed.
- Three CSHIFs (UP1-A, UP1-5, and UP1-6) had been prepared for UP-1 spaces. All three of the CSHIFs identified the areas were not posted, but they actually were posted.

The FR did not consider the issues identified demonstrated programmatic issues. Closure of the identified deficiencies was verified on April 19, in OA Report 30300.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

Fiscal Year 2010 Management Observation Program (MOP) reports MOP-004, MOP-031 and MOP-075 looked specifically at elements of elevated work, such as mobile ladder stands, man lifts, ladders, scaffolds, and fall protection equipment. Work Site Assessment (WSA) SGRP-2010-WSA-033 looked at portable ladders.

No reports with confined space reviews specifically identified could be located, but per the PRC-RD (SH-11258) an annual review of the program is required. SGRP's annual review was completed and documented April 1, 2010.

Hoisting and rigging was reviewed in WSA SGRP-2010-WSA-038, SGRP-2010-WSA-029, and SGRP-2010-WSA-013. Forklift operations were also observed in other assessment activities.

No completed specific trenching and excavation assessment activities were identified, but a WSA is scheduled in that topical area for the current quarter and oversight activities for a number of activities that required excavation permits to perform were present in the various assessment databases.

The FR considered contractor self-assessment levels in these areas were adequate.

Contractor Self-Assessment Adequate: **YES [X]** **NO []**

Management Debriefed:

- M. T. Bachand, CHPRC
 - R. B. Barmettlor, CHPRC
 - D. P. Capelle, CHPRC
 - J. A. Charboneau, CHPRC
 - M. J. Cherry, CHPRC
 - D. W. Clark, CHPRC
 - A. L. Foster, CHPRC
 - D. J. Tollefson, CHPRC
-

Department of Energy Richland Operations Office Surveillance Report

Division: Operations Oversight Division (OOD)

Surveillant: Dale Splett, Gordon (Gus) Gossell, Cliff Ashley

Surveillance Number: S-10-ODD-SNF-002

Date Completed: April 24, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: 100K (100K Min Safe and 100K Area Deactivation and Decommissioning (D&D))

Title: Elevated Work/Confined Space/Hoisting & Rigging (H&R) – Occupational Safety and Health (OSH)

Guide: Guide for Elevated Work/Confined Space/H&R – OSH

Surveillance Objective/Scope:

The objective of this surveillance was to review project activities that included elevated work such as roof work, aerial lifts, scaffold work, erection/dismantling of scaffolds, and scaffold railings/openings. In addition, the surveillance performed a review of Competent and Qualified Persons on the 100K project in order to ascertain if they were formally identified by management. The surveillance also reviewed project activities that include confined space or permit confined space entries and reviewed administration of the permit required Confined Space Program. The surveillance reviewed H&R activities, with a focus on forklift trucks, wire ropes, slings, rigging hardware, hoists, jibs cranes, monorail systems, and mobile cranes.

Surveillance Summary:

The surveillants observed excavation activities associated with trenching for water line installation and reviewed competent and qualified personnel for construction project excavations. No negative issues were identified in these areas.

The surveillants also observed operation of mobile equipment, forklifts, cranes, dump trucks and other equipments under or near energized electrical power lines. Several issues were noted concerning identification of limited approach boundaries and control of equipment with the ability to lift loads or otherwise encroach upon the boundary. This resulted in one Finding, however a Good Practice was also observed in the 151KE switchyard.

The main focus of this surveillance was the Confined Space Program being implemented at the 100K area. The administration of the Confined Space Program at the 105KW Basin and the Cold Vacuum Drying Facility (CVDF) was generally good. However, there was a marked difference noted in the program at the 100K Areas which had been turned over to Deactivation, Decommission, Decontamination, and Demolition (D4) for decommissioning and demolition and the Balance of Plant. Issues included poor confined space signage, control of confined space identification forms and management ownership and responsibility for the D4 areas. Confined space issues may have been due in part to recent reductions in the staffing level for 100K Industrial Safety.

This surveillance resulted in the following five Findings, one Observation and one Good Practice:

- S-10-OOD-SNF-002-F01** Culvert east of CVDF not entered into permit required Confined Space Program.
- S-10-OOD-SNF-002-F02** Confined spaces at 166KW and 166KE are not posted with clearly legible danger signs.
- S-10-OOD-SNF-002-F03** Confined spaces in 100K areas turned over to D4 were not assigned to a facility manager as an operational landlord.
- S-10-OOD-SNF-002-F04** Completed 100K Confined Space Hazard Identification Forms were not available in the Integrated Data Management System (IDMS).
- S-10-OOD-SNF-002-F05** CHPRC D4 Project did not correctly identify the appropriate clearance requirements for work under energized electrical power lines.
- S-10-OOD-SNF-002-O01** Confined Space Identification Forms in the CVDF Confined Space Logbook were out of date.
- S-10-OOD-SNF-002-GP01** Repositioning mobile crane to increase clearance distance to overhead lines.

Surveillance Results:

Surveillance Findings, Observation and Good Practice are entered in the Operational Awareness database as OA 30431. RL lead assessor closure was identified for each of the Findings, but not for the Observation.

Finding: S-10-OOD-SNF-002-F01

Culvert East of CVDF Not Entered Into Permit Required Confined Space Program

Requirement:

PRC-RD-SH-11258; *Confined Space*, 3.0 Requirements Section 3.1, Identification of Confined Spaces

Item 1

Line management shall ensure that each facility and work area identifies confined spaces, which must have all the following characteristics:

- a) Large enough and so configured that an employee can bodily enter and perform assigned work; and
- b) limited or restricted means for entry or exit; and
- c) not designed for continuous employee occupancy.

Discussion:

A large vertical culvert permanently installed in the parking lot east of the CVDF meets the requirements of PRC-RD-SH-11258; *Confined Space*, to be identified as a permit required confined space but is not. The culvert is approximately 10 feet tall, six feet in diameter, open at the top and according to CVDF facility management was installed in order to protect a French drain when the parking lot was paved over during CVDF construction. This drain is an identified Waste Information Data System (WIDS) site. Personnel who needed to access the drain would have to enter the culvert from the top using a ladder or similar device and would be isolated in the bottom of the culvert with no way of escape except up the ladder.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-SNF-002-F02

Confined Spaces at 166KW and 166KE Are Not Posted With Clearly Legible Danger Signs

Requirement:

PRC-RD-SH-11258; *Confined Space* 3.0 Requirements Section 3.3, Posting/Labeling of Confined Spaces

Item 1

Line management shall ensure that Permit Required Confined Spaces are labeled or posted with a clearly legible danger sign at potential entry points, stating DANGER - PERMIT REQUIRED CONFINED SPACE, DO NOT ENTER, or other similar language.

Discussion:

Several confined space entry signs located on manhole covers and entry doorways at the 166KW and 166KE bunker fuel storage facilities adjacent to the 165KW and KE oil fired electrical generator buildings are posted with confined space warning signs which are extremely faded, in some instances illegible. At 166KE the confined space warning sign on the entry doorway is missing entirely, the outline can be seen on the door where the sign was once attached.

Numerous confined space locations in the KE reactor Deactivation and Decommissioning Area are also posted with warning signs which are very faded or illegible.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-SNF-002-F03

Confined Spaces in 100K Areas Turned Over to D4 Were Not Assigned To a Facility Manager as Operational Landlord

Requirement:

PRC-RD-SH-11258; *Confined Space* 3.0 Requirements Section 3.1, Identification of Confined Spaces

Item 4

Identified confined spaces shall be assigned to a facility manager as an operational landlord with responsibilities for the space classification, labeling, inventory, and related recordkeeping requirements.

Discussion:

Confined spaces in those areas of the 100K site which have been turned over to the D4 organization for decommissioning and demolition were not assigned to a facility manager

as an operational landlord with responsibility for the space classification, labeling, inventory, and related recordkeeping requirements. These are confined spaces which are located outside of the 105KW Basin area, CVDF and Balance of Plant areas. As of the date of this surveillance, custodianship and responsibility of certain 100K area buildings were transferred to the D4 organization by interoffice memorandums (CHPRC-100K-TLH-09002 and CHPRC-100K-TLH-10002). These memorandums did not assign responsibility for maintaining the Confined Space Program in or around these buildings to the D4 manager. Discussions with 100K operations management indicated that responsibility for those confined spaces had indeed not been given to D4.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-SNF-002-F04

Completed 100K Confined Space Hazard Identification Forms Not Available In the IDMS.

Requirement:

PRC-RD-SH-11258; *Confined Space* 3.0 Requirements Section 3.1, Identification of Confined Spaces

Item 9

Completed confined space hazard identification forms shall be stored in the project specific sub-folders which have been created in the "Confined Space" folder in the "Industrial Hygiene" section of the IDMS.

Discussion:

Completed 100K Area confined space hazard identification forms were not available in the Confined Space folder in the "Industrial Hygiene" section of the IDMS. The folder contained five completed forms, all of which were from the 100K D4 project. The majority of the completed forms for 100K were located on the K-Basin Closure (KBC) shared drive, which is not linked to IDMS.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-SNF-002-F05

CHPRC D4 Project Failed To Adequately Plan Work Under Energized Electrical Power Lines.

Requirement:

29 CFR 1919.333(c)(3)(iii)(A): “Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 ft. (305 cm) is maintained. If the voltage is higher than 50 kV, the clearance shall be 4 inch (10 cm) for every 10 kV over that voltage.”

Richland Requirements Document RRD 005, *General Contractor Requirements*, 5. *Work Planning for Work Near Electrical Lines*: The work planning requirements listed below shall be used for all work conducted near the limited approach boundary of electrical overhead lines.

b. The facility electrical maintenance or engineering organization or Electrical utilities (EU) shall be involved in planning work included in the scope of this SCRD. EU will complete an EU Site Visit Form and determine line voltage, clearance requirements, help determine effective controls, and provide standby support for work involving their electrical equipment/electrical lines or as deemed necessary by facility electrical maintenance for work involving non EU electrical equipment/electrical lines. Except in the case of an emergency event, EU shall be notified at least 48 hours prior to any work that requires their involvement.

Richland Requirements Document RRD 005, *General Contractor Requirements*, 6. *Work Near Energized Electrical Overhead Lines*: All work near the limited approach boundary of overhead transmission and distribution lines, other than by EU personnel, including use or movement of vehicular and approved mechanical equipment, shall be performed in accordance with National Fire Protection Association 70E. For the purpose of maintaining the minimum standoff distance, contractors are required to utilize the control outlined in paragraph a. (mandatory control) and one of the other controls listed below.

a. Trained spotters shall have direct emergency communication with the equipment operator. The method of communication must take into account needs for enhanced spotter visibility and potentially high noise levels common with heavy equipment operation. A spotter shall not perform spotting duties for more than one operator at a time. In addition to this control, the spotter’s use of reflective materials to enhance their visual identification by the equipment operators is recommended.

(Controls b – h omitted for brevity)

Discussion:

On April 13, 2010, CHPRC D4 work activities were being conducted underneath power lines within the 100K fence. D4 was moving plastic containers filled with gelled glycol onto a flatbed truck using a forklift underneath the 230kV west transmission line in the lay down area south of the 151W switchyard.

When asked, D4 personnel working under the 230kV line stated that the minimum distance was 13.5 feet for that line. This response was incorrect. OSHA (29 CFR 1919.333(c)(3)(iii)(A)) requires “Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a

clearance of 10 ft. (305 cm) is maintained. If the voltage is higher than 50 kV, the clearance shall be 4 inch (10 cm) for every 10 kV over that voltage.” Based on this requirement the correct distance would be 16 feet.

D4 personnel thought that the clearance distance was 13.5 feet; this was contrary to the cited OSHA requirement, as the calculated clearance distance should have been 16 feet. It is understood that National Fire Protection Association 70E Table 130.2(C) requires a Limited Approach Boundary of 13 feet for 230 kV (exposed movable conductor), however the cited OSHA requirement is a Federal Regulation that takes precedence.

CHPRC did not fully comply with RRD 005 Section D. paragraph 5.b. (page 4 of 8), and paragraph 6, as during the work planning CHPRC did not correctly identify the appropriate “clearance requirements”/“minimum standoff distance” for the 230 kV line. As a result D4 personnel did not know the correct clearance/distance requirements. This work under energized electrical lines was performed as routine work, where detailed planning was not involved.

RL Lead Assessor Closure Required: **YES [X]** **NO []**

Observation: S-10-OOD-SNF-002-001

Confined Space Identification Forms in the CVDF Confined Space Logbook Were Out of Date

Discussion:

The CVDF is in the process of transitioning the Confined Space Identification Forms to the new format, using the CHPRC Confined Space Hazard Identification Form A-6004-727. The new forms were filled out in mid November 2009, but have not yet been signed off by all the required personnel so that they can be entered into the Confined Space Logbook. The logbook still contains the old forms. According to the CVDF facility manager the CVDF confined spaces have all been renumbered. The new numbers are entered on the new forms; however, the forms in the logbook still contain the old numbering system which no longer accurately identifies the confined spaces. The new format forms should be completed and signed off as soon as possible and entered into the logbook so that it accurately reflects the confined space status.

RL Lead Assessor Closure Required: **YES []** **NO [X]**

Good Practice: S-10-OOD-SNF-002-GP01

Repositioning Mobile Crane to Increase Clearance Distance to Overhead Lines

Discussion:

During H&R activities for removal of the three 230kV oil filled circuit breakers located in the 151KE switchyard, a good work practice was observed for maintaining mobile crane clearance distance from overhead lines.

Each circuit breaker weighed approximately 50,000 pounds. Breakers were being picked using a large mobile crane. EU utilized a dedicated electrical hazards spotter inside the fenced area of the switchyard due to the proximity of exposed electrical equipment. Positioning of the crane for the pick of the second circuit breaker put the crane boom near the 20 foot limited approach boundary for the overhead energized 230kV lines which transit over the 151KE yard. Although the crane probably would have stayed outside the Limited Approach Boundary, the spotter along with 100K personnel and the rest of the crew moved the crane to the other side of the circuit breaker, to a position which afforded much more clearance from the overhead lines.

Repositioning the large crane was not a trivial undertaking and showed good awareness of and appreciation for the potential electrical hazards.

Contractor Self-Assessment:

This surveillance resulted in four Findings and one Observation in the area of Confined Space management at the 100K D&D project. The Management Observation Program log shows no contractor assessments in the area of confined space in the current quarter. Discussions with facility personnel in the area of self-assessments indicate that there are no assessments for confined space scheduled for 2010.

Contractor Self-Assessment Adequate: YES [] NO [X]

Management Debriefed:

- S. P. Burke, CHPRC
- D. V. Gilliam, CHPRC
- R. Larson, CHPRC
- R. K. Nissen, CHPRC
- D. J. Riffe, CHPRC

**Department of Energy
Richland Operations Office (RL)
Surveillance Report**

Division: Operations Oversight Division (OOD)

Surveillants: SL Dickinson, ED MacAlister, SL Trine

Surveillance Number: S-10-OOD-PFP-003

Date Completed: May 6, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Plutonium Finishing Plant (PFP)

Title: Elevated Work/Confined Space/Hoisting & Rigging Surveillance

Guide: Lines of Inquiry Established in Core Surveillance Guide

Surveillance Scope:

The objective of this core surveillance was to verify contractor's implementation of Occupational Safety and Health Administration (OSHA) safety requirements in the areas of elevated work, confined space, hoisting and rigging, and trenching/excavation. Facility Representatives (FRs) utilized a surveillance guide which identified OSHA requirements in the subject areas and performed oversight of work activities at PFP verifying conduct of work in accordance with specific safety criteria.

Surveillance Summary:

The surveillance required verification of implementation of requirements in four specific activities. Activity 1 scope was elevated work which primarily focused on fall protection safety from elevated work areas as well as protection from falling objects from elevated work areas. Activity 2 scope was to perform oversight of project activities associated with confined space or permit confined space entries. Activity 3 scope was specific to hoisting and rigging activities with a focus on forklift trucks, wire rope, slings, rigging hardware, hoists, jib cranes, monorail systems and mobile crane use. Activity 4 scope was specific to trenching and excavation activities.

The FRs conducted oversight of three of the four areas. Oversight of the area of Activity 2 was not observed as no work in confined spaces was conducted during the surveillance period. FRs completed numerous oversight activities associated with the remaining three surveillance activities, with a primary focus on fall protection systems and hoisting and rigging activities.

Three Findings and five Observations were identified during the field work activities and review of work packages.

- **S-10-OOD-PFP-003-F01** - Check for broken wire rope strands were not completed as specified in Hostile Environment Plan (HEP) for Plutonium Reclamation Facility (PRF) Canyon Crane.
- **S-10-OOD-PFP-003-F02** - Drip pans not installed on PRF crane as required in HNF-27281.
- **S-10-OOD-PFP-003-F03** - Blocking to protect ports was not in place when glove box was moved to Solid Waste Operation (SWO) area.
- **S-10-OOD-PFP-003-O01** - Planning for Industrial Package-2 (IP2) loading was poor.
- **S-10-OOD-PFP-003-O02** - JLG may have been in use when wind limit was exceeded.
- **S-10-OOD-PFP-003-O03** - Wind speed limits were not identified in the critical lift plan.
- **S-10-OOD-PFP-003-O04** - End loading of the large hood was awkward.
- **S-10-OOD-PFP-003-O05** - The procedure for loading IP2s (ZO-170-320) continues to be unclear or incorrect about loading actions.

Surveillance Results:

Finding: S-10-OOD-PFP-010-F01

Check for broken wire rope strands were not completed as specified in HEP for PRF Canyon Crane. (OA 29926)

Requirements:

HNF-27281, "Hostile Environment Plan for 236-Z PRF Canyon Crane", sections 2.d and 3.d state in part: "Monthly wire rope inspections will be performed in accordance with Preventive Maintenance Procedure 2Z3 5027. Periodic and monthly inspections of the hook will also be completed in conjunction with the wire rope inspections. All hook inspections will be performed in accordance with Section 5.5.1 of the Hanford Site Hoisting and Rigging Manual, with reference to ASME B30.10.1.2. The check for broken wire rope strands will be performed by running a cloth attached to a pole along the surface of the wire rope utilizing a glove port. Broken strands will be detected whenever the cloth snags on the wire rope."

Discussion:

Sections 2.d and 3.d, "Actions of features to compensate for differences;" of the Hostile Environment Plan (HEP) specify "a check for broken wire rope strands will be performed by running a cloth attached to a pole along the surface of the wire rope utilizing a glove port". The HEP states that a monthly wire rope inspection will be performed in accordance with Preventive Maintenance Procedure 2Z35027, in which this check of the wire rope strands is to be completed.

On March 30, 2010, the FR attended a pre-job briefing for conduct of 2Z35027, "MONTHLY WIRE ROPE AND HOOK INSPECTION OF THE P&H CANYON CRANE HO-001". After completion of the pre-job, riggers were reviewing the work instructions and expressed concerns with the ability to perform the inspection of the wire rope utilizing the rag attached to a pole through a glove port. The work was stopped, and the First Line Manager (FLM) spent the afternoon getting changes made to the work

document to remove the wire rope inspection utilizing the rag attached to a pole.

The morning of March 31, 2010, the FR reviewed the revised work instruction and noted the wire rope inspection requirements utilizing the rag to check for broken wires deleted from work instructions. FR observed performance of the remaining activities in the work instructions, and did not have any issues with the completed work. Upon later review of the Hostile Environment Plan (HEP) on March 31, it was identified that the check for the broken wire rope strands by running a cloth attached to a pole along the surface of the wire rope is required to be completed, but had not been done.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-PFP-010-F02

Drip pans not installed on PRF crane as required in HNF-27281. (OA 29926)

Requirements:

HNF-27281, "Hostile Environment Plan for 236-Z PRF Canyon Crane" sections 4.d and 5.d state in part: "Drip pans will be provided beneath the gear boxes to assist in monitoring and quantifying the rate of future oil loss.

Discussion:

Based on historical accounts, it is known that oil leaks out of the trolley drive gearbox. Sections 4.d and 5.d of the HEP specify that drip pans will be provided beneath the crane gear boxes to assist in monitoring and quantifying the rate of future oil loss.

During the last canyon entry to perform work under work package 2Z-09-0918, the drip pans were not installed as required to meet the HEP. After identification of this error by the FR, another entry was later conducted and the drip pans were installed as required.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-PFP-010-F03

Blocking to protect ports was not in place when glove box was moved to SWO area. (OA 30702)

Requirements:

ZO-170-320 Moving Waste to SWO for Loading into IP2 Section 4.1.3 bullet one states, "PERFORM blocking to protect waste item ports when using forklift."

Discussion:

On April 27th, the FR attended the pre-job briefing for loading two glove boxes from standards lab into a top loading IP2. The glove boxes were on lift tables in the standards lab. Per the pre-job briefing workers

were to move the glove boxes from the labs to the radiological buffer area (RBA) outside of door 125. The glove boxes would be moved with a fork lift from door 125 around the west side of 234-5Z to the SWO pad on the north western side of the PFP complex. Typically door 125 is not used for glove box transport to IP2s, but on April 27, corridor 6 was partially blocked by a contamination control tent in place for widening door 638. Consequently, the typical path into room 236 and out through door 135 was not available.

After the glove box was rolled out of the RBA outside of door 125, the straps used to secure the glove box to the lift table were removed. Then the glove box was placed on the forklift, wooden blocking was put into place to protect the ports and the straps were again used to secure the glovebox and blocking to the lifting tables. While workers were checking the load prior to transport to the SWO pad, one strap was noted to be on a sharp edge. When the workers moved this strap they had a hard time re-securing the glovebox to the lift tables with the straps. The blocking fell out of place and was put back into place several times before the workers got the blocking into place and were satisfied that straps were placed correctly and load was secured.

While the forklift was moving from the door 125 area out to the main road around 234-5Z, one piece of blocking fell down to the pavement and another one moved out of place and rested on the forks of the fork lift near the mask (see picture included with record for this report). One of the spotters picked up the piece of blocking that fell to the pavement. The transport of the glovebox was not stopped. Upon arrival at the SWO pad the FR informed the FLM that the blocking had fallen out of place.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-PFP-010-001

Planning for IP2 loading was poor. (OA 30702)

Discussion:

After loading the first glovebox into the IP2 on April 27th, workers expressed doubt that the second box would fit into the IP2. Measurements were taken of the IP2 and the second glovebox. Based on the measurements the workers and the FLM concluded that the second glovebox would not fit into the IP2. The FLM directed the crew to close the IP2 per section 4.4 of ZO-170-320 for the final time.

During the pre-job briefing the FLM stated that engineering had taken measurements and concluded both standards lab gloveboxes would fit into the IP2. After the first glovebox was on the way to the SWO pad, a second glovebox was moved into the RBA outside of door 125. The glovebox was later moved back into room 171. At a 0630 meeting during the week of May 3rd, attendees were told that large equipment/waste items could not be stored in Room 171 because of usage for laundry disposal. Based on the number of IP2s loaded with glove boxes and hoods at PFP since October 1, 2008, not being able to plan adequately for IP2 loading was judged to be an opportunity for improvement.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-PFP-010-002

JLG may have been in use when wind limit was exceeded. (OA 30694)

Discussion:

On April 30, the FR attended pre-job for several activities supporting installation of cooling capacity in air handler units for 234-5Z at PFP. During the conduct of work activities, wind speeds were monitored by the FR as the day progressed due to observed increases in wind speed and potential effects on planned critical lift activities. According to the information from the PNNL meteorological website winds at PFP during the time period from 1630 through 1700 were sustained at 18 MPH and gusts were 29 or 30 MPH. The FR noted the JLG in use a short time before 1630. When the FR arrived at the lift site at about 1650 the JLG was not in use and the crew was completing a measuring activity with the crane. Someone on the lift crew had just called the PNNL meteorological station. Based on the wind speed information obtained, the crane activities were going to be halted when measurements were complete. The FR was aware that the wind speed may have increased suddenly. However, it was windy all day and the meteorological forecast indicated that the wind speed limit for the JLG was very likely to be exceeded. Identification of threshold wind limits or other guidance about scheduling work that has known wind speed limitations on days when the limits are likely to be exceeded was identified as a potential opportunity for improvement.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-ODD-PFP-010-O03

Wind speed limits were not identified in the critical lift plan. (OA 30694)

Discussion:

On May 6, the FR reviewed the critical lift plan for the PFP Cooling Air Conditioning installation Project. Specific wind speed limits were not identified in the plan. Per Chapter 3.0 - CRITICAL LIFTS of DOE/RL-92-36, Hanford Site Hoisting and Rigging Manual Section 3.5.14, a critical lift plan shall contain, "pre-identified stop work conditions such as, but not limited to, weather or other conditions that would require termination of the lift." Section 4.12 of the critical lift plan stated that wind and wind gust conditions would be evaluated by the designated lead and the crane operator prior to any lifting operations.

The wording in Section 4.12 of the critical lift plan is similar to the Hanford specific requirements and practices for mobile cranes in section 14.5.3 of DOE/RL-92-36, Hanford Site Hoisting and Rigging Manual. Since critical lifts are identified as hoisting involving a load that if mishandled poses unacceptable consequences (Section 3.3) and stop work conditions are specifically called out in the description of critical lift content (Section 3.3.1), identification of specific wind speed stop work conditions was considered an opportunity for improvement.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-ODD-PFP-010-O04

End loading of the large hood was awkward. (OA 30538)

Discussion:

On April 22, the FR attended the pre-job for moving the room 148 hood from room 136 into an IP2. Per the pre-job briefing, the hood was going to be brought out of 234-5Z through door 135A. The pre-job briefing was not extensive, but the key topics were covered. The workers were told the box was heavy and that no worker should be in front of the hood when it was rolled into the IP2. The workers were informed about a hot spot (radioactive contamination) on the back of the hood and that the area of the hot spot was identified in writing on the glovebox and covered with an absorbent pad. The RWP was covered and emergency response actions were discussed. Per the pre-job briefing the plan was to end load the hood into an IP2.

When workers at the pre-job briefing learned this was an end load activity at least one worker said that all hoods and gloveboxes should be top loaded into IP2s. Very little else was said, consequently the FR concluded that this was a comment or opinion and was not intended to communicate a safety concern. The IP2 was located near (just east of) door 135A. After the work was completed the FR contacted the FLM and learned that engineering estimate for weight of the hood was 272 kgs or about 600 lbs.

The FR observed the actions required to move the hood from door 135A to the ramp leading into the IP2. The forklift was used to move the hood off of the Lift-A-Rolls. Then the hood was placed on dollies with the forklift. Dunnage was used between the hood and the dollies. After placement of dunnage and strapping of the hood to the dollies, the FLM asked workers to measure the height of the IP2 door and the height of the hood as it was strapped to the dollies. It was determined that while the hood as configured would fit through the door, there was very little clearance. The hood was unstrapped and was reloaded onto the dollies with smaller sized dunnage. A carpenter was assigned to the work activity to provide dunnage as needed.

The forklift was then used to move the hood to the flat portion of the yellow ramp in place at the IP2. While attempting to move the forklift forks out from under the hood, the hood tipped slightly. Movement of the forklift was halted while four workers (one on each corner of the glove box) manually adjusted the position of the hood to accommodate moving the forklift away. This was done twice before the forklift was safely moved away from the hood. The hood was then pushed into the IP2.

The yellow ramp is about two to three inches (estimate) higher than the floor of the IP2. A white ramp was used to smooth out the transition between the ramp and the floor of the IP2. Even with the white ramp, there is still a slight drop to the floor of the IP2. The FR attempted to observe the position of the worker who guided the hood into the IP2. This worker was at the front of the hood as it moved into the IP2. The manual guidance is needed to ensure that the hood does not hit one of the pieces of equipment already in the IP2 or damage the IP2. The FR was unable to verify the worker was off to the side as the glovebox was pushed into place in the IP2. The FLM had a better view and had verified that the worker was not in front of the glovebox as it was moved past the white ramp and into the IP2.

Per the summary above, moving the forklift away from the hood caused it to tip slightly more than one time. When the workers were adjusting the position of the hood there was a chance the hood could have tipped over onto a worker. The expertise of the workers was commendable. The command and control of the lead worker was also commendable. However, since there are other ways to load equipment into IP2s (top load and improved set up for end load), the FR judges that reducing the risks associated with disposal of large gloveboxes and hoods was a substantial opportunity for improvement.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-10-OOD-PFP-010-O05

The procedure for loading IP2s (ZO-170-320) continues to be unclear or incorrect about loading actions. (OA 30538)

Discussion:

Previous reviews of IP2 loading have identified that actions for end loading versus top loading are unclear (see OA-25018). Examples of incorrect or unclear information are listed below.

- The requirement to not be in front of the equipment as it was rolled into the IP2 was not identified.
- No mention is made of dolly use.
- Note at beginning of Step 4.2 Opening an IP2 Top Loader states "Steps 4.2.1 through Step 4.2.4 may be performed in any order per PICs direction." Since the identified steps cover end and top loading they cannot be performed in any order. Some steps must be omitted depending on which type of loading is being performed.
- Step 4.1.4 bullet one, "TRANSPORT waste item to SWO pad." This is not done for end load activities.
- Step 4.5.1, "IF port bag has not been installed on the upper exhaust port, cut tape around port, THEN INSTALL port bag prior to proceeding." After completion of steps 4.11 through 4.1.4, the waste item will be outside. Typically activities such as this are not performed outside.
- Step 4.5.2, "If port bag has not been installed on the lower exhaust port THEN STOP (immediately) AND NOTIFY Waste Operations Manager." This step is not included in the steps for loading a top loader (steps 4.3.1 - 4.3.9).
- Bullet 4.5.6, "REPEAT Steps 4.5.1 through 4.5.3 until IP2 is loaded." If this step is followed multiple waste items would be on the yellow ramp. The items would not be pushed into the IP2.

RL Lead Assessor Closure Required: YES [] NO [X]

Contractor Self-Assessment:

FR interviewed PFP safety professionals and reviewed documentation associated with completed assessments and contractor oversight of fall protection, hoisting and rigging, and excavation safety. PFP Management assessment PFP-OSH-09-MA-007 documented an assessment of scaffolding erection, use, and dismantling activities at PFP. A separate assessment (PFP Critical Lift Plans SHS&Q-QA-WSA-10-15) was conducted in October 2009 by the CHPRC Performance Oversight group. Copies were provided of PFP Safety and Health Inspections conducted in the field by field work supervisors and industrial safety professionals during hoisting and rigging activities associated with Hanford Un-irradiated Fuel Package and In situ vitrification loading. Records were also provided of PFP safety professional oversight of excavation activities associated with repair of potable water line into bldg 270Z and excavation for foundation and electrical lines associated with installation of new transformer for chiller unit air conditioning units. Based on reviews conducted and discussions with facility personnel, the

contractor's self-assessment of fall protection, hoisting and rigging, and excavation activities was found to be adequate over the past year.

Contractor Self-Assessment Adequate: **YES [X]** **NO []**

Management Debriefed:

J. M. Carranco, CHPRC
J. R. Brack, CHPRC
M. J. Welling, CHPRC



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

10-SED-0096

JUN 08 2010

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

**CONTRACT NO. DE-AC06-08RL14788 - RL SURVEILLANCE OF U-PLANT
TRANSITIONAL FACILITY FIRE PROTECTION REQUIREMENTS (S-10-SED-PRC-016)**

The purpose of this letter is forward the subject surveillance report. This surveillance identified four findings and one observation which are documented in the attached report. CHPRC shall process the attached surveillance report through the CHPRC corrective action management system and provide a corrective action plan for all findings in accordance with SCRD 470.2B (Supp. Rev. 2) within 45 days of receipt of this letter. If you have any questions, please contact me, or your staff may contact Pete J. Garcia, Jr., Director, Safety and Engineering Division, on (509) 372-1909.

Sincerely,

A handwritten signature in cursive script that reads "Jenise C. Connerly".

Jenise C. Connerly
Contracting Officer

SED:DCW

Attachment

cc w/attach:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
P. M. McEahern, CHPRC
V. M. Pizzuto, CHPRC
DNFSB

Department of Energy Richland Operations Office Surveillance Report

Division: Safety and Engineering Division (SED)

**Surveillant: Dale West, RL Fire Protection Engineer (Lead)
Dave Evans, PAI Corp, Team Member**

Surveillance Number: S-10-SED-PRC-016

Date Completed: March 30, 2010

Contractor: CH2M HILL PLATEAU REMEDIATION COMPANY (CHPRC)

Facility: U-Plant

Title: Review of U-Plant Transitional Facility Fire Protection Requirements

Guide: FPS12.2

Surveillance Scope:

The objective of this surveillance was to evaluate the contractor's effectiveness in the application of Fire Protection Requirements, particularly Life Safety Code (LSC), pertaining to the U-Plant transition from the Surveillance and Maintenance (S&M) mode to occupying the building for recurring Deactivation and Decommissioning (D&D) work activities. The surveillance was initiated after concerns were shared with the contractor, but recurring D&D work activities continued for several months in the building without re-analysis of building occupancy or resolution of identified LSC concerns.

Surveillance Summary:

This surveillance reveals that the contractor is not implementing fire protection program requirements addressing the fire protection impacts of transitioning the U-Plant facility from the S&M mode, where the facility is entered infrequently to look for water intrusion, varmint control, or minor maintenance, to the D&D mode, where workers occupy the facility on a recurring basis. The surveillance activities resulted in the identification of the following four findings and one observation.

- **S-10-SED-PRC-016-F01** The CHPRC occupied the U-Plant Facility to perform recurring D&D work activities without meeting the minimum provisions of National Fire Protection Association (NFPA) 101.
 - **S-10-SED-PRC-016-F02** The CHPRC did not identify hazards, work activities, and required building features per contractual requirements in the U-Plant Health and Safety Plan (HASP).
 - **S-10-SED-PRC-016-F03** The CHPRC did not update the S&M U-Plant Fire Hazards Analysis to identify Fire Protection requirements prior to transition of the facility to D&D for recurring work activities.
 - **S-10-SED-PRC-016-F04** The CHPRC exceeded their authority by issuing a Hanford Fire Marshal Permit for U-Plant Occupancy that enforced less than the minimum criteria allowed by NFPA 101 requirements.
 - **S-10-SED-PRC-016-O01** Combustible materials controls need to be reviewed and updated for U-Plant, prior to further work in the Canyon and Galleries.
-

Surveillance Results:

Finding: S-10-SED-PRC-016 -F01

The CHPRC occupied the U-Plant Facility to perform recurring D&D work activities without meeting the minimum provisions of NFPA 101.

Requirement(s):

1. CRD O 420.1B, Supplemented Rev 4 (SCRD), Section B.1, states, "Chapter II, Section 3.a.3 of the HQ CRD states that fire protection for DOE facilities will meet or exceed applicable building codes for the region and National Fire Protection Codes and Standards."
2. CRD O 420.1B, Supplemented Rev 4 (SCRD), Section D.12, states, "Existing facilities transitioning from S&M to D&D shall be re-evaluated per DOE G 420.1-3 and Chapter 8 of NFPA 801 in a graded approach to address life safety, fire hazards, and the potential release of hazardous and radiological materials to the environment during D&D activities."
3. DOE G 420-1.3, Section 4.16 (3.k) Transitional Facilities, states, "Safeguards to assure D&D worker and emergency responder safety and health are expected to conform to the requirements in 10 CFR Part 851, and the requirements for buildings under construction or demolition, as provided in NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*, unless relief has been granted by the Authority having jurisdiction. In buildings where regular tours and inspections are conducted, adequate exits and lighting must be provided as a minimum as required by NFPA 101. Compensatory measures should be established whenever routine surveillance is being performed in these facilities. These measures

should be approved by the site fire authority. Locked and abandoned facilities where there is no human occupancy do not need to maintain emergency egress features.”

4. NFPA 801, Standard for Fire Protection for Facilities Handling Radioactive Materials, Chapter 8, Fire Protection during Permanent Facility Shutdown and Decommissioning, Section 8.4.1, Means of Egress Features, which states, “Facility means of egress features shall be maintained consistent with the requirements for facilities under construction as required by the fire hazards analysis (FHA).” Appendices A.8.4.1 further explains, “Locked and abandoned facilities where there is no human occupancy need not maintain emergency means of egress features. Changing facility configurations during the course of permanent shutdown and decommissioning should consider the impact on emergency lighting, exit marking, and evacuation alarm requirements.”
5. NFPA 101, LSC:
 - a. Section 4.6.10.1, Conditions for Occupancy, states, “No new construction or existing building shall be occupied in whole or in part in violation of the provisions of this *Code*, unless the following conditions exist:
 - (1) A plan of correction has been approved.
 - (2) The occupancy classification remains the same.
 - (3) No serious life safety hazard exists as judged by the authority having jurisdiction.”
 - b. Section 4.6.6, Time Allowed for Compliance, states, “A limited but reasonable time, commensurate with the magnitude of expenditure, disruption of services, and degree of hazard, shall be allowed for compliance with any part of this *Code* for existing buildings.”
 - c. Section 7.2.1.1.3.1, states, “For the purposes of Section 7.2, Means of Egress Components, a building shall be considered to be occupied at any time it meets any of the following criteria: (1) It is open for general occupancy; (2) It is open to the public, or (3) It is occupied by more than 10 persons.” “The LSC Handbook further explains that, “Many industrial, storage, and business occupancy buildings are never open to or accessible to the public; the only occupants are employees and authorized visitors. Therefore, the term *occupied* in 7.2.1.1.3.1 also includes the condition of being *open for general occupancy*. That is, the facility is *operating* or *functioning*.”
 - d. Section 7.6.5, Measurement of Travel Distance to Exits, states, “The travel distance in any occupied space to not less than one exit, measured in accordance with 7.6.1 through 7.6.4, shall not exceed the limits specified in this *Code*. (See 7.6.6.)”
 - e. Section 40.2.6, Travel Distance to Exits, states, “Travel distance, measured in accordance with Section 7.6, shall not exceed that provided by Table 40.2.6. Table 40.2.6 provides the following requirements for exits in Special-Purpose Industrial Occupancies; maximum travel distance to exits 300’.”

- f. Section 40.2.5, Arrangement of Means of Egress, states, “Means of egress, arranged in accordance with Section 7.5, shall not exceed that provided by Table 40.2.5. Table 40.2.5 provides the following requirements for exits in Special-Purpose Industrial Occupancies; maximum dead-end corridor distance 50’.”
- g. Section 40.2.8, Illumination of Means of Egress, states, “Means of egress shall be illuminated in accordance with Section 7.8 or with natural lighting that provides the required level of illumination in structures occupied only during daylight hours.”
- h. Section 7.8.1.1 states, “Illumination of means of egress shall be provided in accordance with Section 7.8 for every building and structure where required in Chapters 11 through 43. For the purposes of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways, and exit passageways leading to a public way.”
- i. Section 40.2.9.1 states, “Emergency lighting shall be provided in accordance with Section 7.9, except as otherwise exempted by 40.2.9.2.”
- j. Section 40.2.9.2 states, “Emergency lighting shall not be required for the following: 1) Special-purpose industrial occupancies without routine human habitation; (2) Structures occupied only during daylight hours, with skylights or windows arranged to provide the required level of illumination on all portions of the means of egress during such hours.”
- k. Section 7.9.1.1 states, “Emergency lighting facilities for means of egress shall be provided in accordance with Section 7.9 for the following: (1) Buildings or structures where required in Chapters 11 through 43.”
- l. Section 7.9.1.2 states, “For the purposes of 7.9.1.1, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of 7.9.1.1, exit discharge shall include only designated stairs, ramps, aisles, walkways, and escalators leading to a public way.”
- m. Section 40.2.10, Marking of Means of Egress, states, “Means of egress shall have signs in accordance with Section 7.10.”
- n. Section 7.10.1.2.1 states, “Exits, other than main exterior exit doors that obviously and clearly are identifiable as exits, shall be marked by an approved sign that is readily visible from any direction of exit access.”

26050, and 26098) between 9/16/09 and 9/24/09, identifying concerns with the lack of implementation of the LSC at U-Plant. A debriefing meeting to discuss RL/SED concerns was held on October 7, 2009, and was attended by the U-Canyon Deactivation Manager, the U-Canyon Operations Manager, and the CHPRC Fire Protection Program Manager. On October 8, 2009, RL issued OA#26463, which included a finding that compliance with the LSC was not being met at U-Plant. The OA states, "The U-Plant Facility is using the Fire Marshal Permitting System for allowing access into the facility without full LSC compliance. The 10-man rule exception to the LSC applies to surveillance activities in cold and dark facilities where entries are made to look for water intrusion, varmint control, etc. The "pre-demolition" activities taking place in U-Plant exceeds the application of the 10-man rule and will require the evaluation of additional LSC features. This also applies to future activities in other Plateau S&M facilities." The contractor continued to perform recurrent work activities clearing the deck of the U-Plant Canyon after LSC concerns were raised by RL. The FHA and HASP continued to refer to the 10-man rule for cold and dark facilities even after RL identified the misuse of this exception to the LSC.

RL re-visited the U-Plant on February 3, 2010, to verify the Contractor's progress on resolving the identified LSC concerns (OA 28649). Very little had been done to resolve the identified LSC concerns. CHPRC personnel attended the walkdown with RL and gathered initial information at that time for a LSC evaluation of U-Plant activities. Subsequently, a LSC evaluation (CP-44893) of U-Plant performed by the Contractor was not completed until February 18, 2010. The evaluation was performed 4 months after the LSC concerns were raised by RL to the CHPRC Management. The LSC evaluation determined that a less than adequate means of egress was available to occupants in the building. Travel distances from the west end of the canyon and the Crane Gallery both exceeded 300' requirement of the LSC. Dead end distances were also exceeded. Additionally, area lighting in normally occupied areas was inadequate, emergency lighting was not installed, exit signage was not installed, and portable fire extinguishers were not installed as required. During the walkdown, two of the credited exits from the canyon were found either to be blocked by the "bubble" viewing area or obstructed by debris and a ladder in the stairwell (OA #28649). In addition, one of the credited exits from the gallery was blocked by lighting equipment, many of the exit doors leading out of the galleries were found to be jammed at the bottom of the door, exit access doors were not identified with lighted exit signs, nor were stairwells equipped with emergency lighting.

The LSC evaluation performed by the CHPRC revealed that the Fire Protection/LSC requirements in U-Plant are inadequate. The LSC evaluation of U-Plant should have been conducted previous to the general occupancy of the building to perform recurring work activities (i.e. cell loading, size reduction, painting of fixatives, etc). Additionally, the FHA should have been revised to capture the re-occupancy of the building, identifying the appropriate LSC requirements, and providing the HASP with the appropriate controls.

RL Lead Assessor Closure Required: YES [x] NO []

Finding: S-10-SED-PRC-016 -F02

The CHPRC did not identify hazards, work activities, and required building features per contractual requirements in the U-Plant HASP.

Requirement(s):

1. 10 CFR 1910, Section B.4.i, General, states, “The site safety and health plan, which must be kept on site, shall address the safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection.”
2. Same Requirements References listed under F01.
3. 10 CFR 851, Section 851.21(a) states, “Contractors must establish procedures to identify existing and potential workplace hazards and assess the risk of associated workers injury and illness. Procedures must include methods to: (5) Evaluate operations, procedures, and facilities to identify workplace hazards.”
4. 10 CFR 851, Section 851.22(a) states, “Contractors must establish and implement hazard prevention and abatement to ensure that all identified hazards are prevented or abated in a timely manner.”
5. MSC-RD-9717, Fire Prevention for Construction/Occupancy/Demolition Activities. This procedure document is endorsed by the CHPRC and is available from MSA Docs Online.
 - a. Section 2.2, Use and Occupancy Fire Prevention Requirements, Building Exit Requirements (7), states,
 - “a. Exits and means of egress shall comply with the requirements of NFPA 101, LSC. **EXCEPTION:** *The exit and means of egress requirements for deactivated/unoccupied facilities may be established on a case-by-case basis as work is performed in these facilities. These exit and means of egress requirements will be documented as appropriate in a safety plan of the work package and must be formally approved by the facility or project Fire Protection Engineer (FPE).*
 - b. Every building exit and path to an exit shall be kept clear and unobstructed.
 - c. Exits shall not be locked in any way that prevents an individual from using the exit to leave the building.
 - d. Exterior building stairs shall be kept clean and unobstructed.
 - e. Exit doors shall not require more than one action to open.
 - f. Emergency exit markings must be maintained operable.
 - g. Facilities used by persons with impaired mobility must have accessible exits designed to accommodate those persons. These facilities must have the same number of exits designed to accommodate persons with impaired mobility as are required for the unimpaired by NFPA 101, LSC.

NOTE: *In general, most new facilities must provide access for persons with impaired mobility, but there could be cases where a facility's operation would pose a direct threat to persons with specific disabilities. In these cases, it may not be reasonable to design the facility for accessibility where a direct threat exists. Existing facilities must have accessible exits according to NFPA 101 if a person with impaired mobility is assigned to a building or must enter a building to perform their job.*

- b. Section 2.3, Demolition/Deactivation/Decommission Requirements (14) states, "For large windowless facilities no longer occupied as defined in NFPA 101 and in long term shutdown with periodic minimum surveillance and maintenance activities, life safety features shall be maintained to a level that meets the intent of DOE G 420.1-3. NFPA 101. Life safety features to consider should include but not be limited to installed lighting (temporary or permanent) sufficient to light the surveillance areas and egress paths, a 10 person maximum entry limit, a flashlight for each person, exit signs along the surveillance paths, remote unlocked egress paths, and a means of communication. **NOTE:** *Occupied is defined as any time a facility is occupied by more than 10 persons or any time the facility is open to general occupancy or the public.*"

Discussion:

CP-40329, Revision 0, dated 2/11/2009, "Site-Specific Health and Safety Plan for the 221-U Facility, Balance of Site Surveillance and Maintenance Project", is the HASP identified in the DSA and FHA for the 221-U facility and is written for a facility that is in the S&M mode. Hence, the fire protection requirements implementing the LSC are centered on an unoccupied Facility. The LSC requirements outlined in MSC-RD-9717, Fire Prevention for Construction/Occupancy /Demolition Activities, Section 2.2, Use and Occupancy Fire Prevention Requirements, Building Exit Requirements, provides some relief to full compliance with the LSC where cold and dark facilities are entered on an infrequent basis to perform surveillances and inspections for water intrusion, varmint control, or minor maintenance activities. The HASP title indicates that it is for S&M as well as identifying S&M management and in chapter 5, where work activities are described as S&M. However, section 1.0 states that the "Work activities include, but are not limited to, those described in the U-Plant Remedial Design / Remedial Action Work Plan (RD/RAWP), DOE/RL-2006-21, or associated Comprehensive Environmental Response, Compensation, and Liability Act of 1980." Among other activities, this document describes work activities that include size reduction of equipment on the canyon deck, moving that equipment by crane into the cells, and grouting the cells when full. The document also states that during the demolition phase of the 221-U Facility remedial action, canyon cells will be grouted, the railroad tunnel will be dispositioned, interior canyon building surface contamination will be addressed, and the external area surrounding the canyon will be prepared to provide access to canyon demolition equipment.

The 221-U facility transitioned from S&M management to Disposition management, then D&D Management, but the HASP and related fire protection controls did not track with the transition. The D&D work teams continue to perform recurring work activities (general occupancy) as if the building were unoccupied, using controls for infrequent habitation. When these concerns were brought up to U-Plant Management in September 2009, no activity took place until February 2010. After an evaluation of the LSC requirements was performed in February, resolution of all identified issues was still not completed as of April 2010.

The HASP was re-written in September 2009, and issued on 10/14/2009 as revision 1. This HASP was identified as for the "Balance of Site U Canyon Disposition Project." This HASP is not available on the CHPRC website. The HASP identified work activities in Section 5 now identify, "Specific work activities include installation of additional portable ventilation systems, as needed; dispositioning the contents of the D-10 tank in canyon cell 30; railroad tunnel reactivation; reactivation of access rollup doors; applying fixative for contamination control; and reactivation or augmentation of electrical, water, and sewer systems needed to support work activities.

Subsequently, the HASP was re-written on 3/22/2010, for the "U-Canyon Deactivation Project", CP-40329, as Revision 1. This was confusing, as the October 14, 2009, edition of the HASP has the same revision number. The HASP identified the same work activities as the earlier revision with the exception of "grouting below canyon deck areas/voids and galleries" However, site controls for building occupancy remain the same as the previous S&M HASPs which state, "Hanford Fire Marshal's Permit 2000-031 was written for occupancy of the 221-U and 271-U Buildings. Under the following conditions, these buildings may be occupied by more than ten people without calling the Hanford Fire Department dispatch.

- Each person must have a flashlight.
- Each person must have access to emergency communications.
- Each person is responsible to act as a fire watch while in the building.
- Buddy System is required for entry into areas not normally traveled/manned, for routine canyon entry activities or do not have sufficient lighting.
- A minimum of two emergency exits must be maintained available while the building is occupied.

The Hanford Fire Marshal Permit for Occupancy and U-Plant HASP do not meet the minimum requirements of NFPA 101, LSC, for occupied facilities. The LSC evaluation of U-Plant should have been conducted previous to the general occupancy of the building to perform recurring work activities (i.e. cell loading, size reduction, painting of fixatives, etc). Additionally, the FHA should have been revised to capture the re-occupancy of the building, identifying the appropriate LSC requirements, and providing the HASP with the appropriate controls.

RL Lead Assessor Closure Required: **YES [x]** **NO []**

Finding: S-10-SED-PRC-016-F03

The CHPRC did not update the S&M U-Plant FHA to identify Fire Protection requirements prior to transition of the facility to D&D for recurring work activities.

Requirement(s):

1. CRD O 420.1B, Attachment II, Section 3.b.5.c.2, states, "FHA using a graded approach for all hazard category 1, 2, and 3 nuclear facilities, significant new facilities, and facilities that represent unique fire safety risks. The FHA must be; (a) performed under the direction of a qualified fire protection engineer; (b) reviewed every 3 years; and (c) revised when; 1) changes to the annual DSA updates impact the contents in the FHA, and 2) a modification to an associated facility poses a significant new fire safety risk."
2. CRD O 420.1B, Supplemented Rev 4 (SCRD), Section B.2.i, states, "Maintenance of FHA. FHA for nuclear facilities or other hazardous facilities that require a FHA, as determined by the DOE Authority Having Jurisdiction, shall be maintained at the frequency required by DOE O 420.1B to ensure that facility, operations, and hazards are accurately depicted in the FHA."
3. CRD O 420.1B, Supplemented Rev 4 (SCRD), Section D.12, states, "Existing facilities transitioning from S&M to D&D shall be re-evaluated per DOE G 420.1-3 and Chapter 8 of NFPA 801 in a graded approach to address life safety, fire hazards, and the potential release of hazardous and radiological materials to the environment during D&D activities."
4. DOE G 420.1-3, Section 4.16 (b) states, "Fire hazards within these facilities may change over time, such as an increase in combustible loading during abatement activities. The FHA together with updated pre-incident plans should account for this either through a phasing schedule, or be revised as appropriate when significant changes in occupancy or hazard occur that affect fire safety."
5. NFPA 801, Standard for Fire Protection for Facilities Handling Radioactive Materials, Chapter 8, Fire Protection during Permanent Facility Shutdown and Decommissioning, Section 8.3, Fire Hazards Analysis, which states, "the evaluation of fire hazards, fire risks, and the requirement of fire protection and life safety systems and features shall be documented in a fire hazards analysis." Appendices A.8.3 further explains, "Fire protection and life safety systems deemed no longer necessary during permanent shutdown and/or decommissioning of the facility should be justified and documented in the FHA. Fire hazards within these facilities during this portion of their life cycle may change over time. Fire protection and life safety systems and features must be adequate to deal with these changes. The FHA should be reviewed and revised when appropriate if significant changes in occupancy, hazard, or activity occur that affect fire safety."

Discussion:

This U-Plant FHA is currently embedded in the U-Plant DSA, HNF-13829, Rev 3A, as an appendix. The current FHA describes S&M type activities and the corresponding fire protection controls.

The FHA should have been revised when the contract was modified and identified work scope required occupancy of the facility for recurring work activities. The current FHA and HASP contain requirements for infrequent S&M type activities. The CHPRC failed to revise the FHA, identifying new work scope, activities, and related hazards, previous to occupying the facility for recurring D&D activities.

RL Fire Protection reviewed the U-Plant FHA on October 8, 2009 and issued OA 26463. The OA states that; "Section C.1.3 of the FHA says that, 'The building is not constructed with fire-separations between major floors and corridors, but meets the general intent of the LSC requirements.'" This statement is not correct. Facility general lighting, exit signs, and emergency egress lighting are just a few of the basic components of the LSC that are not being met. The FHA must evaluate the requirements for LSC (NFPA 101) in D&D facilities as applied by NFPA 801, NFPA 241, and DOE G 420.1-3."

To date, the U-Plant Fire Hazards Analysis has not been revised or re-issued.

RL Lead Assessor Closure Required: YES [x] NO []

Finding: S-10-SED-PRC-016 -F04

The CHPRC exceeded their authority by issuing a Hanford Fire Marshal Permit for U-Plant Occupancy that enforced less than the minimum criteria allowed by NFPA 101 requirements.

Requirement(s):

1. Same Requirements References listed under F01.
2. MSC-RD-8589, Rev. 0, Hanford Fire Marshal Permits. This procedure document is endorsed by the CHPRC and is available from MSA Docs Online.
 - a. Section 1.0, PURPOSE AND SCOPE, states, "This Level 1 Requirements Document provides the requirements for obtaining Fire Marshal permits for activities described within. This document implements requirements from SCR D O 420.1B, Rev. 4 *Facility Safety*, and the National Fire Protection Association, (NFPA) 1, *Uniform Fire Code*. The purpose of the permits is to ensure the fire protection/prevention objectives and goals of the fire protection program are achieved and to serve as a tool for notifying the Hanford Fire Department of changing conditions and hazards on the Hanford Site."

- b. Section 2.3, Permit Requirements for New/Existing Activities, (6) Occupancy, states, “The use and occupancy of a facility, and the re-occupancy or change of use and occupancy of an existing facility including portable structures. NOTE: See Appendix B for checklist of items to consider. The checklist includes, but is not limited to, the following; Construction, Portable Fire Extinguishers, Fire Protection Systems, Fire Doors, Fire Walls, Exit signs, Exit path obstructions, Exit path illumination, Exit discharge stairs, Emergency lighting, Pre-Incident Plans, and Emergency Building Access.”
3. MSC-RD-9717, Section 2.3.14, which identifies S&M activities and life safety features for large windowless facilities, states, “For large windowless facilities no longer occupied as defined in NFPA 101 and in long term shutdown with periodic minimum surveillance and maintenance activities, life safety features shall be maintained to a level that meets the intent of DOE G 420.1-3. NFPA 101. Life safety features to consider should include but not be limited to installed lighting (temporary or permanent) sufficient to light the surveillance areas and egress paths, a 10 person maximum entry limit, a flashlight for each person, exit signs along the surveillance paths, remote unlocked egress paths, and a means of communication. NOTE: *Occupied is defined as any time a facility is occupied by more than 10 persons or any time the facility is open to general occupancy or the public.*” The section further references Source documents as NFPA 101, Chapter 4, and DOE G 420.1-3, Section 4.16.k. This procedure document is endorsed by the CHPRC and is available from MSA Docs Online.
4. MSC-RD-8589, rev. 0, Hanford Fire Marshal Permits. This procedure document is endorsed by the CHPRC and is available from MSA Docs Online.
 - a. Section 2.1.1 states, “The responsible manager (facility, building, project) or supervisor-in-charge must ensure that a request for a permit is communicated to the responsible Fire Protection Engineer (FPE) for the activities listed in Sections 2.2 and 2.3 of this Requirements Document (RD). The communication may be through the generation of a (*Hanford Fire Marshal Permit Request Form*) or an e-mail by the requester to the responsible FPE. Verbal requests are acceptable when agreed to by the responsible FPE. The permit shall be obtained from the responsible FPE for the activities listed in Sections 2.2 and 2.3, before these activities commence.”
 - b. Section 2.1.3 states, “The responsible manager (facility, building, project) and the Fire Marshal or an authorized representative designated as a Deputy Fire Marshal shall approve the fire marshal permit.”

Discussion:

The U-Plant Operations Manager and Deputy Fire Marshal approved Hanford Fire Marshal Occupancy Permit Number 2009-031, dated February 9, 2009, for 271-U/221-U with the following Description:

“This permit allows for occupancy of the 271-U/221-U buildings. Under the following conditions, these buildings may be occupied by more than 10 people without calling the Hanford Fire Department Dispatch Office.

- Each person must have a flashlight for emergency use.
- Each person must have access to emergency communications.
- Each person is responsible to act as a fire watch while in the building.
- A minimum of two emergency exits must be maintained available while the building is occupied.
- A review of the conditions of this permit is required for all personnel entering the building.”

The permit was issued in February 9, 2009, when the facility was actually in the S&M Mode. Subsequently, the facility transitioned to the D&D mode and occupied the building for re-occurring work activities, beyond the scope of this permit. However, the FHA and HASP continue to reference this permit as justification for having less than required LSC features in an occupied facility.

The issued permit goes beyond the code by allowing more than 10 persons in the facility without LSC features. Procedure MSC-RD-9717 allows relaxed LSC features “for large windowless facilities no longer occupied as defined in NFPA 101 and in long term shutdown with periodic minimum surveillance and maintenance activities.” The procedure also states that; “Life safety features to consider (in S&M facilities) should include but not be limited to installed lighting (temporary or permanent) sufficient to light the surveillance areas and egress paths, a 10 person maximum entry limit, a flashlight for each person, exit signs along the surveillance paths, remote unlocked egress paths, and a means of communication.” The procedure also quotes NFPA 101 in stating; “*Occupied is defined as any time a facility is occupied by more than 10 persons or any time the facility is open to general occupancy or the public.*”

The CHPRC has overstepped their authority in approving the occupancy of more than 10 persons in an S&M facility. Additionally, they violated NFPA 101, LSC, requirements by applying an occupancy permit enforcing S&M (unoccupied) criteria to a D&D (occupied) operation. This misapplication puts building occupants in situation where exiting the facility in an emergency condition would have a higher potential of personal harm or injury.

RL Lead Assessor Closure Required: **YES [x]** **NO []**

Observation: S-10-SED-PRC-016 -O01

The U-Plant Facility lacks combustible material controls that comply with CHPRC endorsed procedures.

Discussion:

It was noted during the Fire Protection Tour of 221-U & Canyon Area and 271-U on February 2, 2010, that one of the purposes was to observe general fire protection and combustible loading in the facility, particularly the canyon area. Cell 2 was open and excess contaminated equipment had been loaded into the cell along with miscellaneous metal junk materials and a few wood planks that appeared to be possibly scaffolding planks. The latter were contaminated and the few wood materials that were observed were not of sufficient quantity to raise any fire protection concerns of combustible loading. The only combustibles noted on the canyon deck were a few metal frame/wood deck pallets and a few plastic buckets, again these were not of sufficient quantity to raise any fire protection concerns of combustible loading. A copy of the combustible materials/chemical inventory of the canyon area was requested. Access to or copies of previous videos taken of the canyon deck were also requested. The Operating Gallery, Pipe Gallery, and Electrical Gallery were all walked down and found to be little changed from deactivation of U-Plant, being stripped out and generally devoid of combustibles. Other items were noted that need attention. This included a portable electric heater in the 271-U second level room for storage of temperature sensitive materials personal protection equipment contamination control rubber and hood materials, powered air purifying respirator high-efficiency particulate air filter, etc.) that needed better clearance controls on it to keep cardboard box materials at least 3 feet away from it. Other portable electric heaters in the facility should also be evaluated for similar clearance concerns. Another concern was the introduction of wood materials back into the stripped out 271-U areas where a wood wall had been built across a hallway for temperature control, wood shelving has been installed in the tool crib area, and a storage pile of extra plywood that was apparently to be used for similar applications. Any additional combustible loading is a concern in this unsprinklered building.

It was reported to the CHPRC FPE the day after this tour that plant management was already planning to remove the wooden hallway separation wall near the change room and replace it with fire retardant wood, and replace the wood shelving with metal shelves.

However, viewing of the CHPRC work progress videos and pictures that were taken over the last several months indicated periods of extensive sheet plastic usage for contamination control on working surfaces and excessed equipment. It could not be determined from the pictures if the clear plastic sheeting used was fire retardant or not (it appeared to be not fire retardant). During the tour a different type of sheet plastic material was in use that was clearly marked as fire retardant as required by MSC-RD-9717, Section 6.b.4 through 6.b.7.

The U-Plant FHA discusses the amounts and types of combustibles that were located in the plant during the S&M mode. The only controls for combustible materials in the FHA are mentioned in Section C.5.1, Combustible Loading – All Fire Areas, which states, “Work planning and access control procedures require that combustibles be minimized and removed as much as possible at the completion of the work activity. These combustibles are maintained as low as reasonably achievable and include protective clothing, respirators, step-off pads, cloth rags, swipes, flexible cords, etc.” The

FHA is lax on specific requirements for combustible loading, not mentioning the general requirements of MSC-RD-9717, Fire Prevention for Construction/Occupancy/Demolition.

During the walkdown of U-Plant (discussed above) it was revealed that plastics used and wood construction observed may have exceeded the basic principles of procedure MSC-RD-9717, Fire Prevention for Construction/Occupancy/Demolition.

Similarly, the clearances for the location of portable heaters in the facility do not appear to be adequate based on the guidance of MSC-RD-9717. The FHA does not mention the use of portable heaters by occupants. The HASP states that, "heating/cooling units for employee comfort can be supplemented by the use of off-the-shelf portable air movers and spot cooler/heat pumps to supplement the canyon ventilation."

Any further work in the U-Plant facility, including the Galleries, must control combustibles and the use of portable heaters to the minimum requirements of MSC-RD-9717 along with identified FHA requirements. These specific controls should be known and understood by U-Plant management, and identified during planning and performance of future work activities.

RL Lead Assessor Closure Required: **YES [x]** **NO []**

Contractor Self-Assessment: U-Plant LSC Issues (CP-44893, Rev 0) analysis was completed by the CHPRC on February 18, 2010. The Contractor's assessment was not completed until four months after the LSC concerns were raised by RL SED.

Contractor Self-Assessment Adequate: **YES []** **NO [x]**

Management Debriefed:

Director, Nuclear Safety
Manager, Fire Protection Program



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

JUN 10 2010

10-AMSE-0074

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

CONTRACT NO. DE-AC06-08RL14788 – MATERIAL CONDITION OF PLANT – HAZARD
CATEGORY 2 AND 3 FACILITIES (S-10-AMSE-CHPRC-GENERAL-002)

The purpose of this letter is to transmit RL Surveillance Report S-10-AMSE-CHPRC-
GENERAL-002, dealing with the material condition of hazard category 2 and 3 facilities. The
report identifies two observations and one good practice. No formal response is required. If you
have any questions, please contact me, or you staff may contact Al Hawkins, RL Quality
Assurance Manager, on (509) 376-9936.

Sincerely,

A handwritten signature in cursive script that reads "Jenise C. Connerly".

Jenise C. Connerly
Contracting Officer

AMSE:KMR

Enclosure

cc w/encl:
M. V. Bang, CHPRC
D. B. Cartmell, CHPRC
V. M. Pizzuto, CHPRC

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Assistant Manager for Safety and the Environment (AMSE)

Surveillant(s): Kyle Rankin; Harry Moomey; Jack Poe

Surveillance Number: S-10-AMSE-CHPRC-GENERAL-002

Date Completed: May 6, 2010

Contractor: CH2M HILL Plateau Remediation Company (CHPRC)

Facility: Cross-Cutting

Title: Material Condition of Plant - Hazard Category 2 & 3 Facilities

Guide: N/A

Surveillance Scope:

This surveillance covered RL's review of the contractor's (CHPRC) maintenance management of hazard category 2 and 3 facilities against the requirements of 10 CFR 830.204(b)(5), DOE O 414.1C, DOE O 433.1A, and DOE O 430.1B. The surveillance focused on the Safety Structures, Systems, and Components (SSCs) for the hazard category 2 and 3 facilities, the maintenance records for these SSCs, and the trending of historical maintenance information. The surveillance was performed through a series of personnel interviews and record review.

Surveillance Summary:

The surveillance was conducted from April 28, 2010, through May 6, 2010, by the RL Quality Assurance (QA) Team. The surveillance determined the contractor adequately manages and maintains the safety SSCs or Important to Safety (ITS) SSCs. The surveillance identified two (2) observations and one (1) good practice.

S-10-AMSE-CHPRC-GENERAL-002-O01: The Preventative Maintenance (PM) sheet for the PUREX surveillance had a different frequency listed than the PUREX Surveillance and Maintenance Plan.

S-10-AMSE-CHPRC-GENERAL-002-O02: Grease level and grease installation dates were not recorded in accordance with the embedded instructions in work package SM-10-01113.

S-10-AMSE-CHPRC-GENERAL-002-GP01: The T-Plant Fire Protection engineer's crosswalk of equipment testing requirements to procedures is a valuable asset.

Surveillance Results:

Observation: S-10-AMSE-CHPRC-GENERAL-002-O01:

The Preventative Maintenance (PM) sheet for the PUREX surveillance had a different frequency listed than the PUREX Surveillance and Maintenance Plan.

Discussion:

During the review of the historical maintenance activity of the various SSCs the surveillants found PM sheet activity # SM-19717 identified a quarterly PM for the PUREX surveillance which did not align with the annual surveillance seen in the Job Control System historical records. The contractor specified that the PUREX Surveillance and Maintenance Plan listed the PUREX surveillance as an annual surveillance and the PM sheet should have been updated to reflect this. The contractor made the appropriate changes to the PM sheet during the surveillance to align the PM sheet with the Surveillance and Maintenance Plan.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-AMSE-CHPRC-GENERAL-002-O02:

Grease level and grease installation dates were not recorded in accordance with the embedded instructions in work package SM-10-01113.

Discussion:

Steps 4 and 6 of the two data sheets associated with work package SM-10-01113 has the worker record the grease level and grease installation dates. A review of the record copy of the work package identified that the performer of the work had not recorded the information required by the data sheets. This was the only record reviewed and identified where data was not recorded onto the work package data sheets.

RL Lead Assessor Closure Required: YES NO

Good Practice: S-10-AMSE-CHPRC-GENERAL-002-GP01:

The T-Plant Fire Protection engineer's crosswalk of equipment testing requirements to procedures is a valuable asset.

Discussion:

An interview with the T-Plant Fire Protection engineer identified a crosswalk that had been developed between the equipment testing requirements and the procedure requirements. This is a valuable tool that would benefit anyone in his position and would solidify a smooth transition for the next individual taking this position.

Contractor Self-Assessment: At the time of this surveillance no self-assessment of this activity had been conducted. However, the contractor initiated a 3rd quarter self-assessment of this activity midway through the surveillance. The lead surveillant reviewed the Lines of Inquiry and found them to be acceptable.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Dan Oser, CHPRC
Kevin Goode, CHPRC
Kathleen Jennings-Mills, CHPRC
Rick McCollum, CHPRC
Rick Warriner, CHPRC
Dave Polzin, CHPRC



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

0902324 A
MSA Recd: 11/20/2009

10-OOD-0004

NOV 17 2009

Mr. F. A. Figueroa, President
and General Manager
Mission Support Alliance, LLC
Richland, Washington 99352

Dear Mr. Figueroa:

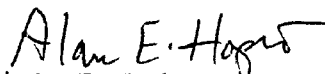
CONTRACT NO. DE-AC06-09RL14728 – TRANSMITTAL OF SURVEILLANCE REPORT
S-09-OOD-MSI-001, WORK CONTROL

During the last week of September, RL conducted oversight of MSA work control and performance of work for hoisting and rigging and scaffold erection. Work was generally performed in compliance with work instructions with appropriate hazards analysis and control. The most significant issue was a finding identified related to work supervised and performed by MSA in accordance with another prime contractor work control package. The surveillance resulted in the identification of one Finding and three Observations. You are directed to process the attached surveillance report through the MSA established corrective action management system and provide a corrective action plan in accordance with SCRD 470.2B (Supp. Rev. 2) for Finding 01. RL retains closure authority for the finding as identified in the attached surveillance.

The Government considers these actions to be within the scope of the existing contract and therefore, the actions do not involve or authorize any delay in delivery or additional cost to the Government, either direct or indirect.

If you have any questions, please contact me, or your staff may contact Roger M. Gordon, Director, Operations Oversight Division, at (509) 372-2139.

Sincerely,


Alan E. Hopko
Contracting Officer

OOD:RMI

Attachment

cc w/attach:
S. Green, MSA
P. W. Kruger, MSA
E. N. Lugo, MSA
M. L. Sheriff, MSA

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Operations Oversight Division (OOD)

Surveillant: R. Gohd, D. Humphreys, J. George

Surveillance Number: S-09-OOD-MSI-001

Date Completed: September 30, 2009

Contractor: Mission Support Alliance, LLC (MSA)

Facility: Mission Support and Infrastructure (MSI)

Title: Work Control

Guide: Lines of Inquiry Established in Core Surveillance Guide 6.2.1, dated September 2009

Surveillance Scope:

The objective of this surveillance was to evaluate the contractor's consistency and reliability in work planning and work control performance. Previously identified issues in surveillances, events, and lessons learned from the recent Building 336 Type B accident investigation were evaluated during the oversight. The focus of this oversight was the MSA Hoisting and Rigging (H&R) crews and Ironworkers providing scaffold erection support to other Hanford Prime contractors. Maintenance and inspection of H&R equipment has been previously evaluated by RL and was not the focus of this surveillance.

Surveillance Summary:

The FRs performed oversight of MSA H&R and scaffold erection activities from September 23-30, 2009. FRs observed a variety of MSA activities and did not identify any additional issues beyond those that have already been identified by recent RL oversight of U-plant scaffold erection following the recent near miss.

Work was generally performed in compliance with the work instructions with the exception as described below. Hazards were identified with appropriate controls and the work met skill based criteria. FR oversight of the weekly MSA/Prime Contractor

resource allocation interface meeting was found to be adequate. The most significant issue identified during this oversight was when MSA personnel perform work that was not adequately detailed in the customer work package and how the work was supervised.

One Finding and three Observations were identified during this oversight.

- **S-09-OOD-MSI-001-F01** - Assembly instructions for the Interim Storage Cask (ISC) rigging and tie-down device were not within the bounds of the inspection work package instructions.
- **S-09-OOD-MSI-001-O01** - There was no Plutonium Finishing Plant (PFP) Point of Contact (POC) present at the work site for the ISC tie-down inspection, though the rigging loft was working to a PFP work package.
- **S-09-OOD-MSI-001-O02** - Lack of PFP POC at the job site led to unnecessary delays in work package revision regarding the resolution for the lack of ISC tie-down device instructions.
- **S-09-OOD-MSI-001-O03** - MSA does not differentiate between “Competent” and “Qualified” persons despite different skills required by MSA processes.

Surveillance Results:

Finding: S-09-OOD-MSI-001-F01

Assembly instructions for the Interim Storage Cask (ISC) rigging and tie-down device were not within the bounds of the inspection work package instructions. (OA26120)

Requirement:

MSA-HNF-PRO-12115, Work Management, Section 5.2.5.6, states, “Safely perform the work as specified in the approved work package, paying attention to the following... Follow the work instructions in a step-by-step manner unless otherwise authorized in the approved instructions.”

Discussion:

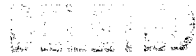
Contrary to the requirements, MSA personnel were performing work to assemble an ISC tie-down device with no work instructions. The activity observed was being performed per a PFP work package 2Z-09-05450. The following is the purpose, and scope as defined in the work instructions:

1.1 PURPOSE:

This Work Instruction (WI) allows for the inspection of the ISC Rigging Equipment to ensure that it is useable.

1.2 SCOPE:

TASK 1: -



A review of the detailed task instructions did not identify any discussion related to assembly of the tie down device.

The device was shipped unassembled to the rigging loft. The FR noticed that the rigging loft personnel were in the process of assembling the ISC tie-down device. The FR asked the PIC (in this case an MSA rigging loft employee) what instructions they had for the assembly of the device since assembly of the device was not within the scope of the work instructions. The response was that they were using the drawings supplied in the work package to assemble the device. The lack of assembly instructions was discussed with the Central Crane and Rigging Manager and he put a hold on the assembly pending the revision of the work package to include assembly instructions. The work instructions did not say one way or the other regarding the condition of the device prior to inspection (assembled or un-assembled). The rigging loft personnel assumed since the device came unassembled that the inspection would be performed with the device assembled and commenced to do so.

Another issue identified by the rigging loft personnel concerned the new hex bolts provided for assembly which were too short. The rigging loft personnel and CSB transportation engineering staff were working the issue. The plan considered was to refurbish and inspect the old bolts and nuts to determine if they were suitable for use.

RL Lead Assessor Closure Required: YES [X] NO []

Observation: S-09-OOD-MSI-001-001

There was no Plutonium Finishing Plant (PFP) Point of Contact (POC) present at the work site for the ISC tie-down inspection, though the rigging loft was working to a PFP work package. (OA26120)

Discussion:

There was no PFP POC or PIC present at the work site for this activity, though the rigging loft was working to a PFP work package. The inspection procedure was an MSA procedure, the detailed task instructions were generated by PFP per PRC-PRO-WKM-12115. A PFP PIC was identified on the work package cover sheet. It was not clear to the FR how an MSA supervisor, who was not qualified as a PRC supervisor, could supervise performance of a PRC work package and associated work instructions.

(b2)

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-09-OOD-MSI-001-002

Lack of PFP POC at the job site led to unnecessary delays in work package revision regarding the resolution for the lack of the ISC tie-down device instructions. (OA26176)

Discussion:

The ISC rigging equipment and tie-down inspection was performed by MSA for PRC, and was conducted by the service organization at their facility without any direct requestor oversight. This ISC inspection practice appeared to be inefficient when problems arose regarding the instructions and assigned tasks. Modifications to the task instructions were required to accommodate an issue with fasteners and to resolve the issue concerning incomplete work instructions specific to assembly and disassembly of the ISC tie-down device. The service organization took the lead on obtaining the task instruction revisions which was the responsibility of the requesting organization. Had a representative from the requesting organization been available the service organization would not have had to coordinate resolving the task instruction deficiencies.

Neither the Memorandum of Agreement (MOA) nor the PRC-PRO-WKM-12115 provided any detailed instructions or guidance specific to this particular issue. The MOA contained a section described as "issue resolution" which appeared to be written for the working level. The MOA did require POC interface; however, in this case it was not clear who was assigned as the POC.

RL Lead Assessor Closure Required: YES [] NO [X]

Observation: S-09-OOD-MSI-001-003

MSA does not differentiate between "Competent" and "Qualified" person despite different skills required by MSA processes. (OA26403)

Discussion:

MSA maintains an informal document listing scaffolding personnel who are designated as "Competent Person" per MSA-HNF-PRO-095. MSA considers all personnel designated as "Competent Person" are also qualified to meet the requirements of the "Qualified Person" designation. A separate listing of personnel designated as "Qualified Person" is not maintained.

29CFR1926.450 "Scaffolding", states as definitions:

"Competent Person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them."

“Qualified Person is one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.”

Section 2.0 of MSA-HNF-PRO-095 expands on the definition of “Qualified Person” as follows: As this relates to "design," the Qualified Person is one who has the ability to determine the type of scaffold needed for a particular job, to include safe loading of the scaffold system in accordance with the design requirements of OSHA and the manufacturer.”

It is not clear how MSA differentiates those who meet Competent Person requirements, versus those who are designated as a “Qualified Person” based upon the disparate requirements.

RL Lead Assessor Closure Required: YES NO

Contractor Self-Assessment:

The FR reviewed Management Self-Assessments ESHQ-QA-09-MA-10 and CS&I-CRS-09-MA-01 accomplished in the last year. ESHQ-QA-09-MA-10 examined H&R equipment maintenance and inspection practices and personnel training. This in-shop aspect of the work was outside of the scope of this surveillance and will be the subject of a separate review. CS&I-CRS-09-MA-01 was a management assessment of the scaffold program at Hanford. This assessment documented a listing of “qualified personnel” for scaffold design was maintained which identified the “skill and authority of the named individuals.” The FR could not find evidence that this list of “qualified personnel” exists today. All other areas of the assessment and the level of contractor self-assessment are deemed adequate.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

S. Green, MSA
S. Holloman, MSA
M. Sheriff, MSA



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

0902423 A
CHPRC Recd: 12/07/2009

DEC 04 2009

10-OOD-0008

Mr. J. G. Lehew III, President
and Chief Executive Officer
CH2M HILL Plateau Remediation Company
Richland, Washington 99352

Dear Mr. Lehew:

CONTRACT NO. DE-AC06-08RL14788 – SURFACE CONTAMINATED OBJECT (SCO)
AND LOW LEVEL WASTE DESIGNATION PROCESS AT PLUTONIUM FINISHING
PLANT (PFP)

A surveillance of PFP's SCO processes and Low Level Waste Designation processes was completed in the month of October. The objective of this surveillance was to ensure that waste generated at PFP was being appropriately characterized when using the SCO process, and evaluated and controlled to allow for compliant disposal. In total, ten Findings and seven Observations were documented. In addition to the issues identified the team identified three Good Practices.

In accordance with Plateau Remediation Contract, Attachment J.2, CRD O 470.2B (Supp Rev. 2) "Independent Oversight and Performance Assurance Program" CHPRC is requested to provide a corrective action plan to address the Findings identified in the attached Surveillance Report within 45 days of receipt of this letter. You are also requested to process all of the Findings and Observations from the attached report through the CHPRC corrective action management process. Please discuss at the next Integrated Evaluation Plan meeting any actions to improve the self identification of similar quality issues related to the PFP SCO process.

The Government considers these actions to be within the scope of the existing contract and therefore, the action does not involve or authorize any delay in delivery or additional cost to the Government either direct or indirect.

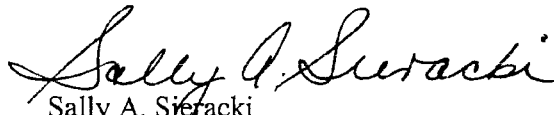
Mr. J. G. Lehew III
10-OOD-0008

-2-

DEC 04 2009

If you have any questions, please contact me, or your staff may contact Roger M. Gordon,
Director, Operation Oversight Division, at (509) 372-2139.

Sincerely,


Sally A. Sieracki
Contracting Officer

OOD:JES

Attachment

cc w/attach:

M. V. Bang, CHPRC
J. M. Carranco, CHPRC
D. B. Cartmell, CHPRC
G. T. Chandler, CHPRC
D. C. Del Vecchio, CHPRC
V. M. Pizzuto, CHPRC
S. C. Snyder, CHPRC

**Department of Energy
Richland Operations Office
Surveillance Report**

Division: Operations Oversight Division (OOD)

**Surveillance Team: Joe Demers, Sharee Dickinson, Rudy Ollero, Brenda Pangborn,
Jim Spets**

Surveillance Number: S-10-ODD-PFP-001

Date Completed: October 28, 2009

Contractor: CH2M Hill Plateau Remediation Company (CHPRC)

Facility: Plutonium Finishing Plant (PFP)

Title: Surface Contaminated Object (SCO) and Low Level Waste Designations

**Guide: Lines of Inquiry Established in SCO and Low Level Waste Designations Letters of
Inquiry**

Surveillance Scope:

The objective of this surveillance is to ensure that waste generated at PFP is being appropriately characterized when using the SCO process, and evaluated and controlled to allow for compliant disposal. This surveillance guide is divided into the following sections for evaluation: Technical Basis Document, Implementing Documents, Personnel Training, Field Implementations, Radiological Surveys, Measuring and Test Equipment, and Records.

Surveillance Summary:

The surveillance team conducted interviews, reviewed technical and implementing documents, reviewed completed documents, attended processes meetings, and observed portions of field activities related to SCO. The specific documents, interviews, meetings, and observations are captured in the issues identified below. In general, the team found that the SCO and Low Level Waste Designation processes had all the necessary attributes to provide acceptable results and conclusions. In addition, the team found personnel knowledgeable of the processes.

However, the team found several areas where processes were not strictly followed, vulnerabilities in the processes exist, and general areas where improvements could be made. The

surveillance team was unable to complete all planned oversight because of the timing of actual field performance of SCO surveys. The issues identified are divided into three general areas: Processes and Procedures, Technical Basis, and Records to help clarify where the issues exist and help in focusing any needed actions. In total, ten Findings and seven Observations were documented. In addition to the issues identified the team identified three Good Practices.

I Processes and Procedures

- **S-10-OOD-PFP-001-F01:** Errors resulted in a potentially false conclusion that SCO-09-5Z Rm 131 GB-008 met all the criteria for SCO-II; an inadequate technical basis was used to evaluate the relationship between radiation levels and contamination levels; other records indicate there may be additional inadequately classified packages.
- **S-10-OOD-PFP-001-F02:** Un-calibrated equipment was used for gamma radiation data collected and recorded in SCO Characterization Survey records.
- **S-10-OOD-PFP-001-F03:** Processes did not ensure data entry was correct or consistent.
- **S-10-OOD-PFP-001-F04:** Software Management administrative records not available, difficult to retrieve, and not strictly controlled.
- **S-10-OOD-PFP-001-F05:** Procedure ZAP-000-030, *Radiological Characterization of Surface Contaminated Objects* was out of date and did not represent current practices.
- **S-10-OOD-PFP-001-F06:** Engineering calculations changed outside of defined process.
- **S-10-OOD-PFP-001-O01:** Engineering calculations for SCO equipment weights were inconsistent and did not appear to meet all PRC-PRO-EN-8250, *CHPRC Calculations Preparation and Issue Including OCRWM* requirements.
- **S-10-OOD-PFP-001-O02:** Procedure ZAP-000-030, *Radiological Characterization of Surface Contaminated Objects* appears to need improvement and the SCO processes could be better defined.
- **S-10-OOD-PFP-001-O03:** No process was noted that ensured the as left completed conditions of waste was the same as the as analyzed condition.
- **S-10-OOD-PFP-001-O04:** Documents generated by Radcalc for waste acceptance and transportation do not have preparer, reviewer, or approver signatures; and the process for generating does not appear well defined.
- **S-10-OOD-PFP-001-O05:** Opportunity for Improvement in Survey Characterization Unit Survey Plans.
- **S-10-OOD-PFP-001-O06:** Because the uncertainties associated with waste weights are not defined in the Technical Basis occasional weighing of waste might be warranted.

II Technical Basis

- **S-10-OOD-PFP-001-F07:** Some deficiencies were identified in the Technical Basis for Radiological Characterization of SCOs at the PFP.
- **S-10-OOD-PFP-001-F08:** Some non-compliances with the Technical Basis for Radiological Characterization of SCOs at the PFP and implementing documents were identified in the records.
- **S-10-OOD-PFP-001-O07:** Technical Basis HNF-16974 inconsistencies and opportunities for improvement were noted.

III Documents and Records

- **S-10-OOD-PFP-001-F09:** Inaccurate Documentation for Beryllium Being Present in Waste Container
- **S-10-OOD-PFP-001-F10:** Inadequate documentation was identified in some radiological records reviewed.

Good Practices

Good Practice: Use of highest contamination area in determination of SCO levels.

Good Practice: Requesting help from Central Information Technology Organization to assist in latest revision to software.

Good Practice: Employing technical basis document originator.

Surveillance Results:

I Processes and Procedures

Finding: S-10-OOD-PFP-001-F01

Errors resulted in a potentially false conclusion that SCO-09-5Z Rm 131 GB-008 met all the criteria for SCO-II; an inadequate technical basis was used to evaluate the relationship between radiation levels and contamination levels; other records indicate there may be additional inadequately classified packages.

Requirements:

49 CFR 173.22(a)(1) specifies "The person shall class and describe the hazardous material in accordance with Parts 172 and 173 of this subchapter..."

49 CFR 173.403 specifies "Surface Contaminated Object (SCO) means a solid object which is not itself radioactive, but which has radioactive material distributed on its surface...(2)SCO-II: A solid object on which the limits for SCO-I are exceeded and on which...The non-fixed contamination plus the fixed contamination on the inaccessible surface... does not exceed...[4.8E8 dpm/100cm² TRU alpha]."

10 CFR 830.122(c) Management/Quality Improvement states, "(1) Establish and implement processes to detect and prevent quality problems..."

Discussion:

RL acknowledges that the use of dose rate information as a quick check to identify when a glovebox does not meet SCO criteria is a process improvement developed at Hanford. However, errors in the technical basis for relating dose rate to contamination levels have been identified.

Improvement in the process and development of a sound technical basis for the relationship between dose rates and contamination levels is needed to ensure packages meet the appropriate criteria for shipment as SCO.

- A. Errors resulted in a potentially false conclusion that SCO-09-5Z Rm 131 GB-008 met all the criteria for SCO-II; an inadequate technical basis was used to evaluate the relationship between radiation levels and contamination levels

The surveillance team reviewed the records for SCO-09-5Z Rm 131 GB-008. Dose rates in the center of one of the glove ports read 1 mr/hr. Other glove ports read 0.5 mr/hr, 0.4 mr/hr and 0.2 mr/hr. The facility representative (FR), at the time of the glovebox survey, questioned the project on its decision that 1 mr/hr met SCO-II contamination criteria. The SCO survey plan indicated if there was measurable dose rates, it indicated the object did not meet SCO criteria. The project radiological engineer was tasked to provide a technical evaluation. A clarification to the SCO survey plan for SCO-09-5Z Rm 131 GB-008 was made, using Microshield™ to justify the acceptability of the 1 mr/hr dose rate.

The Microshield™ calculation was stated to be based on a 10cm by 10cm plane source measured 2 inches and 4 inches from the source, at an Americium-241 contamination level expected based on the mix being at the limit. A statement was made that based on the Microshield™ data, dose rates measured in the room, 131 gloveboxes were consistent with the alpha contamination levels measured during the SCO survey, and therefore the gloveboxes were below the SCO-II criteria. The following errors in the evaluation were made:

1. The survey record indicated the dose rates were taken at 30 cm (12 inches), not 2 or 4 inches. The highest contamination level found was at 20 percent of the limit and at an area in the glovebox much greater than 2 or 4 inches from the probe location. This does not demonstrate the 1 mr/hr is coming from the measured contamination values inside the glovebox.
2. The radiological engineer made assumptions of no shielding where the gloves are attached to the glove ports. The engineer did not look at the drawings for the glovebox. The FR pulled the drawings. The gloves are attached over a 1/16th inch stainless steel ring, and secured with a clamp and band. Assuming the dose rates at the center of the access port is from contamination under the installed gloves, the shielding effects of the material (inner clamp, etc.) are not taken into account in the Microshield™ calculation. The drawings indicated the material for the inner clamp was 0.06 inch "any 300 series [stainless steel]" and 1/8 inch thick neoprene, while the outer band clamp is 0.071 inch thick aluminum alloy 2024-T4 with 0.029 inch 304 stainless steel. The shielding effectiveness of the material was not considered in the evaluation of an acceptable dose rate that indicates less than the SCO-II limit.
3. When RL questioned the contractor concerning their evaluation of the 1 mr/hr dose rate, the contractor reviewed the Microshield™ calculation and found another error, the contamination values inputted into the program as a source was a factor of 10 too high. Thus, instead of 1 mr/hr at 2 inches, a 2 inch by two inch plane contaminated at the limit for

SCO-II would read 0.1 mr/hr, demonstrating that the 1 mr/hr dose rate exceeded the limit for SCO-II.

Although the technical evaluation had been peer reviewed and approved by different radiological control subject matter experts, these deficiencies were not identified and corrected, indicating a weakness in the peer review process.

The gloveboxes were not yet shipped to Environmental Restoration Disposal Facility (ERDF) as SCO-II.

The contractor is currently investigating the significance of the dose rate relative to contamination levels that meet SCO criteria.

B. Reviews of several SCO reports indicate there may be additional packages that have been inadequately classified for shipment.

SCO record for SCO-04-5Z Rm 221D GB-001 includes a record that indicates a maximum dose rate of 1 mrem/hr Closed Window for the job. There was no map included to show where the 1 mrem/hr was found. If this was in fact a dose rate from the glovebox, the dose rate indicates an existence of inaccessible total contamination potentially above the limits for SCO-II.

The SCO Characterization Survey Plan for glovebox 235 B-2 in building 234-5Z, room 235, specified to perform gamma surveys. Data was recorded, but there was no analysis of the information in the record to indicate the data confirmed the less than SCO-I limit. Using a typical instrument efficiency for the Bicon Analyst with PG-2 Detector of 8%, and ignoring any shielding effects (and there will be shielding effects since the readings are on the exterior of the glovebox), the conversion to alpha activity/100cm² shows it potentially exceeded SCO-I values and yet was characterized as meeting SCO-I limits.

Some SCO characterization survey records reviewed contained no gamma survey results to show contamination inaccessible to the instruments monitoring for total alpha TRU, surface contamination was below the applicable SCO classification (see SCO-0405Z Rm 221C GB-001. Glovebox 221C-3 SCO-04-5Z Rm 221E, hoods-01).

The above discussions indicate an extent of condition review may be warranted.

C. Elevated dose rates encountered on separation of glovebox after SCO surveys were completed.

During this review, the project experienced a condition during the separation of glovebox sections elevated dose rates were encountered, potentially indicating that the process may not be adequate to evaluate inaccessible surface activity levels. The contractor indicated in this case, that it was not known at the time of the SCO survey that there was a shielded inaccessible area.

RL Lead Assessor Closure Required: YES[X] NO []

Finding: S-10-OOD-PFP-001-F02

Un-calibrated equipment was used for gamma radiation data collected and recorded in SCO Characterization Survey records.

Requirement:

10 CFR 830.122 Quality assurance criteria, (e) Criterion 5 Performance /Work Processes specifies "(4) Calibrate and maintain equipment used for process monitoring or data collection."

Discussion:

The SCO Characterization Survey Plan for SCO-04-GB 235 B02 specified to perform gamma surveys. Data was recorded. The efficiency of the instrument was recorded as "NA". Interviews with the radiological engineer indicated the efficiency was recorded as NA because the radiological instrument for measuring gamma was not calibrated.

RL Lead Assessor Closure Required: YES[X] NO []

Finding: S-10-OOD-PFP-001-F03

Processes did not ensure data entry was correct or consistent.

Requirements:

10 CFR 830.122 *Quality Assurance Criteria*, (d) Criterion 4—*Management/Documents and Records*, states in part, "(2) Specify, prepare, review, approve, and maintain records."

PRC-MP-QA-599, *Quality Assurance Program*, 4.3.2 Records states in part, "Records shall be specified, identified, prepared, reviewed, approved, authenticated, maintained, and the final disposition specified. These requirements and responsibilities shall be documented. Procedures must identify records to be generated. Records shall be legible and traceable to associated items and activities and shall reflect completed work and demonstrate compliance with applicable requirements."

Discussion:

The surveillance team noted that for *SCU SCO Report for Transportation*, SCO-09-5Z Rm 157 GB-007 Rev 3 the mass value used for determining nCi/g was 506 Kgs. However, *Surface Area and Weight Calculation*, PFP/234-5Z/Room 157, Hood 3 and 4; dated March 3, 2009, included in the data package identified the weight as 537 Kgs. This resulted in the analysis being off by 31 Kgs. In addition, ZO-170-320, *Moving Waste to Solid Waste Operation (SWO) for Loading into IP2*, Data Sheet 1 – Waste Item in IP2; dates July 21, 2009, identified the weight as 537 Kgs. However, the Radcalc 4.0 report for 153-5, 156-3 and 4, 157-1 and 2, and 257-3, and 4; dated August 10, 2009, used a value of 506 Kgs for determining nCi/g. This resulted in the

Radcalc analysis being off by 31 Kgs. Based on the relatively small change in weight, the distance from the TRU limit, and an error in the conservative direction there should be minimal impacts. However, this condition illustrates the ease in which data entry errors can be made and potential impacts.

RL Lead Assessor Closure Required: YES[X] NO []

Finding: S-10-OOD-PFP-001-F04

Software Management administrative records not available, difficult to retrieve, and not strictly controlled.

Requirement:

10 CFR § 830.122 *Quality Assurance Criteria*, (d) Criterion 4—*Management/Documents and Records*, states in part, “(2) Specify, prepare, review, approve, and maintain records.”

PRC-MP-QA-599, *Quality Assurance Program*, 4.3.2 Records states in part, “Records shall be specified, identified, prepared, reviewed, approved, authenticated, maintained, and the final disposition specified. These requirements and responsibilities shall be documented. Procedures must identify records to be generated. Records shall be legible and traceable to associated items and activities and shall reflect completed work and demonstrate compliance with applicable requirements.”

Discussion:

The surveillance team reviewed and evaluated software management related to *SCO Plan AB&C Calcs and SCO Package Content Spreadsheets*, and *PFP SCO Database*. The team also reviewed the associated implementing document (PRC-PRO-IRM-309, *Controlled Software Management* applicable revision) and found that several of the administrative supporting documents required by PRC-PRO-IRM-309 were not available (e.g., Software Installation and Checkout Forms, Authorized Users List, Code Walkthrough Document, etc.). It was also noted that some supporting documents were not readily available and there was some question as to where they were located. In addition, it was noted that record material (e.g., signed original documents) did not appear to be tightly controlled. During the review the contractor was revising the PFP SCO database and were aware of question/issues related to software management; and therefore, requested the assistance of the central Information Technology Organization to ensure all Software Management requirements were met (would be met). Based on some unavailable/unclear documentation from previous software development activities the surveillance team are interested in the final documentation for the in processes revision.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-PFP-001-F05

Procedure ZAP-000-030, *Radiological Characterization of Surface Contaminated Objects* was out of date and did not represent current practices

Requirement:

10 CFR § 830.122 *Quality Assurance Criteria*, (d) Criterion 4—*Management/Documents and Records*, states in part, “Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design.”

Discussion:

Contrary to the above, the surveillance team noted that ZAP-000-030 was out of date or was not implemented as specified. Specifically, the team noted the following examples:

1. The procedure required the use of Figure 3, *SCO Package Content* in several location such as, “Work with the RE to complete and approve Figure 3 – SCO Package Content . . . Submit Figure 3 along with a copy of the approved *Survey Characterization Unit Summary Report for SCO Waste Material* . . . Using the Packaging Requestor provided Figure 3 and approved *Survey Characterization Unit Summary Reports for SCO Waste Material* enter the data . . .” However, upon review of several data packages and discussions with personnel it was noted that the form was not used.
2. The procedure allowed the use of SCO spreadsheets specifically stating the following, “Calculations or decisions performed in accordance with HNF-16974 SHOULD be performed using the *SCO Plan AB&C Calcs* and *SCO Package Content* spreadsheets or PFP SCO Database.” However, the surveillants were informed that the spreadsheets were identified as Retired and Withdrawn from the computer software control system.

The surveillance team was informed that the subject procedure was currently under revision and that the above noted comments would or were already being addressed.

RL Lead Assessor Closure Required: YES [X] NO []

Finding: S-10-OOD-PFP-001-F06

Engineering calculations changed outside of defined process.

Requirement:

PRC-PRO-EN-8259, *CHPRC Calculation Preparation and Issue (Including OCRWM)*, Section 3.4 *Calculation Revision*, states in part, “DA, TA, or SE Authorize revision of a calculation and assign it to a qualified originator, preferably the person who performed the original calculation. . . Identify the corrected portion by a change bar in the left margin (same for either electronic documents or handwritten documents).”

Discussion:

The surveillance team noted that Engineering calculation PFP-SCO-M-002 related to Room 221 Hoods was changed to address a condition other than what was anticipated (i.e., sink removed instead of installed). However, the change was not performed in accordance with PRC-PRO-EN-8259, *CHPRC Calculation Preparation and Issue (Including OCRWM)*, Section 3.4 *Calculation Revision*. The section specifically stated, "DA, TA, or SE . . . Authorize revision of a calculation and assign it to a qualified originator, preferably the person who performed the original calculation." However, based on discussions with facility personnel this action was not performed. In addition, the procedure stated, "Identify the corrected portion by a change bar in the left margin." However, change bars did not exist. There was also no revision number identified for the calculation. Engineering personnel indicated that changes to Engineering calculation should go through their organization.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-PFP-001-001

Engineering calculations for SCO equipment weights were inconsistent and did not appear to meet all PRC-PRO-EN-8250, *CHPRC Calculations Preparation and Issue Including OCRWM* requirements.

Discussion:

The surveillance team noted that engineering calculation for SCO equipment weights were inconsistent. Specifically, the team found that different assumptions were used (e.g., densities), different calculation methods were used (e.g., spread sheets, hand calculations, MathCad), and different formats were used. In addition, the team noted that some calculations did not provide equations in such a format that the calculations could be reproduced for checking as required by PRC-PRO-EN-8250, *CHPRC Calculations Preparation and Issue Including OCRWM*). The contractor initiated prompt actions to ensure calculations were consistent and in accordance with PRC-PRO-EN-8259 and provided the team with recently generated PFP Engineering Desk Instruction No. DI-PFP-ENG-001-09, *SCO Calculation Guidance*. It appeared that the actions were adequate to ensure appropriate engineering calculations would be generated in the future. It also appeared that the contractor took actions to review, correct, and organize their calculation records.

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-PFP-001-002

Procedure ZAP-000-030, *Radiological Characterization of Surface Contaminated Objects* appears to need improvement and the SCO processes could be better defined.

The surveillance team identified the following areas where ZAP-000-030 could be improved and the SCO process better defined:

1. SCO processes rely heavily on Engineering input and interface; however, their roles and responsibilities, and interface are not identified in the procedure.
2. SCO processes interface heavily with the work control processes; however, the process of integrating was not well defined in the procedure.
3. The procedure does not have a flow diagram to clearly show the flow of work activities or documents.
4. There does not appear to be a clear configuration management processes or procedural steps associated with actions necessary when changes are generated to SCO documents (e.g., survey plans).

The contractor indicated that they were in the processes of changing the subject procedure

RL Lead Assessor Closure Required:

YES NO

Observation: S-10-OOD-PFP-001-O03

No process was noted that ensured the as left completed conditions of waste was the same as the as analyzed condition.

Discussion:

The surveillance team was informed that calculations for weight and surface area can be performed (based on anticipated conditions) prior to establishing a box's final condition. This practice has potential configuration control impacts. If the box final condition changes enough from the anticipated condition used in calculations for surface area and weight, the SCO report values for TRU determination could be incorrect. It was noted that there did not appear to be an institutionalized process to ensure proper configuration control of calculations and box condition. There was an informal process reliant upon the Field Work Supervisor/Person in Charge to recognize the condition and notify the Radiological Control Engineer to evaluate or initiate changes.

It was also noted that there were no controls to ensure that gloveboxes/hoods declared SCO would not be cross contaminated from the highly contaminated E-4 duct system while they awaited removal (some for extended periods of time). In addition, the surveillance team was informed that the glovebox internal exhaust filters might be removed and not replaced; thereby, creating a direct path to the highly contaminated E-4 duct system. Mechanical agitation of the ducts during glovebox removal or nearby work could drop material into the box. The facility did not have any survey data to demonstrate that cross contamination had not (would not) occurred or documented analysis to demonstrate that contamination could not migrate under all conditions (e.g., vertical duct pipe over glovebox with mechanical agitation). (See also S-10-OOD-PFP-001-FII01-E)

RL Lead Assessor Closure Required:

YES [X] NO []

Observation: S-10-OOD-PFP-001-O04

Documents generated by Radcalc for waste acceptance and transportation do not have preparer, reviewer, or approver signatures; and the process for generating does not appear well defined.

Discussion:

The surveillance team was provided with documents used by the PFP Solid Waste Organization to allow shipment and disposal of waste at ERDF. The team noted that one of the documents generated by Radcalc had no preparer, reviewer, or approver signatures. The document is critically important as it is the final evaluation that allows shipment and disposal of waste. The document ensures that both transportation and ERDF waste disposal acceptance criteria are met. Personnel running the Radcalc program and generating the associated critical documents are required to transpose information from numerous SCO reports generated by the PFP Radiological Control Organization into the Radcalc program. Information such as activity levels, mass, and volume are used in the calculations. Because the information is required to be transposed and manipulated prior to entry there is a good chance for errors to occur. However, from discussions with involved personnel and review of associated documents there are no preparer, reviewer, or approver signatures provided or required by a defined system. Personnel indicated that reviews are performed informally.

The input data that is provided by the PFP Radiological Control Organization for use in Radcalc calculations is controlled by a defined processes, is vetted, and objective evidence (i.e., preparer, reviewer, and approver signatures) are provided. However, for an equally critical and final determining calculation the same pedigree does not exist. Because of the great potential for data entry errors the current processes is highly vulnerable (See Finding: S-10-OOD-PFP-001-FI03 related to data entry issues).

RL Lead Assessor Closure Required:

YES [X] NO []

Observation: S-10-OOD-PFP-001-O05

**Opportunity for Improvement in Survey Characterization Unit Survey Plans.
[OA 25331]**

Discussion:

Based on observations and discussions in the field, three areas within Survey Characterization Unit Survey Plans require clarification.

1. Radiological Control Technician (RCT) Special Instructions, #7, states, "When using the

PAM, if no activity is detected, record the following on the survey form: "203*" for direct measurements, "102*" for smear measurements." The use of this nomenclature is not typical. Clarification and explanation of its use would improve the use of the document. RCT's in the field were unfamiliar with nomenclature and required clarification.

2. RCT Special Instructions, #6 and the section for Exterior SCO Survey Step, #1.f discuss a smear efficiency assumption of 10 percent; however, it is not stated if this will be applied by the Engineer or incorporated in the data sheet by RCT's performing the survey. Clarification will improve the use of this document.
3. Prerequisites, #7 and Appendix 1 discusses some gamma survey requirements and that the results are used as an indicator, but does not discuss any criteria that will fail the final SCO if found. Current information provided to the field is that any dose rate above background indicates contamination levels that will fail SCO II criteria. The Prerequisite states, "If gamma dose rates attributable to one of the gloveboxes is detected, do not perform the final SCO survey unless authorized by a SCO qualified radiological engineer or PFP Radiological Control Manager." Appendix 1 generally states that the dose readings are general indicators of contamination and typically means the glovebox is too contaminated to meet shipping and/or waste disposal criteria. Clarification will improve the use of this document (See also Finding: S-10-OOD-PFP-001-F1101).

RL Lead Assessor Closure Required: YES NO

Observation: S-10-OOD-PFP-001-O06

Because the uncertainties associated with waste weights are not defined in the Technical Basis occasional weighing of waste might be warranted.

Discussion:

To ensure weights calculated by engineering are providing acceptable data occasional weighing of waste might be warranted. Finding S-10-OOD-PFP-0011-F01-C goes into additional detail regarding the uncertainties associated with waste weight and impacts on calculated results.

Lead Assessor Closure Required: YES NO

II Technical Basis

Finding: S-10-OOD-PFP-001-F07

Some deficiencies were identified in the Technical Basis for Radiological Characterization of SCOs at the PFP.

Requirements:

10 CFR 830.122 Quality Assurance Criteria, (d) Criterion 4, Management/Documents and Records, specifies "(1) Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design. (2) Specify, prepare, review, approve, and maintain records."

Discussion:

The surveillance team reviewed the HNF -16974, *Technical Basis Document for Radiological Characterization of Surface Contaminated Objects at the Plutonium Finishing Plant*, ZAP-000-030, *Radiological Characterization of Surface Contaminated Objects*, and ZRC-100-020, *Use of BICRON Analyst with PG-2 Detector*. The following deficiencies were identified:

- A. Technical basis for use of gamma radiation detection instrument to identify dose rates that indicate an object exceeds SCO criteria is incomplete.
- Potential misclassification of SCO material has occurred as a result of inadequate analysis of dose rate information.

See S-10-OOD-PFP-001-F01

- The process for determining acceptable gamma dose rates when surveying SCO is incomplete.

HNF-16974, *Technical Basis Document for Radiological Characterization of Surface Contaminated Objects at the Plutonium Finishing Plant*, does not describe how gamma radiation survey levels that demonstrate an object meets SCO criteria are determined.

ZRC-100-020, *Use of BICRON Analyst with PG-2 Detector* is out of date, it referenced a technical evaluation on use of gamma radiation levels document that no longer exists. The contents of the technical evaluation were incorporated into Appendix 3 of ZAP-000-030. The appendix only addresses the use of NaI Detectors to measure gamma from Am-241 on a painted surface. The procedure does not discuss the process for calculating contamination levels from dose rates with any other material covering the TRU alpha activity.

The use of the RO-3B for taking surveys for the purpose of using the dose rate readings to identify contaminated objects that are greater than SCO shipping limits and/or greater than ERDF Waste Acceptance Criteria (WAC) for TRU WASTE is covered in Appendix 2 of ZAP-000-030. The process for determining acceptable dose rates that indicate the object meets SCO criteria is not covered.

- Some survey plans still specify an acceptable dose rate for meeting the criteria for SCO, without an appropriate technical basis.

Appendix 1 of SCO-09-5Z Rm 136 GB-014 Survey Plan specifies a maximum dose rate of 0.3 mR/hr. The Survey Plan and HNF-16974 do not provide basis for this value. Survey Plan for SCO-09-5Z Rm 136 GB-014, discusses the need to evaluate activity that may be underneath Teflon paper in the glovebox. To evaluate this, the plan calls for the use of a gamma dose rate instrument. However, neither HNF-16974 nor the survey plan documents the basis for this, or the process by which the measurements can be converted to the activity level under the paper.

B. HNF-16974 does not provide adequate detail for the TRU waste determination regarding the radiological characterization aspects of inaccessible areas.

The HNF-16974, *Technical Basis Document for Radiological Characterization of Surface Contaminated Objects at the Plutonium Finishing Plant*, describes the handling of accessible and inaccessible based on Department of Transportation (DOT) requirements and DOT guidance documents. HNF-16974 does not address potential impacts of applying a DOT based approach to the surface disposal requirements for TRU determination. HNF-16974 should provide the basis for evaluating radiological conditions in areas that cannot be accessed for monitoring, specifically documenting the basis for using gamma radiation to demonstrate that accurately infer the conditions in inaccessible areas.

HNF-16974 also excludes some areas that are potentially important to waste characterization and disposal evaluations, for example small openings and cut pipe/conduit stubs. As deactivating gloveboxes results in the cutting of process lines and leaving behind stubs that potentially contain significantly different radiological conditions from the rest of the glovebox, HNF-16974 needs to adequately address these situations.

C. HNF-16974 does not adequately document the basis for the TRU activity concentration determination, measurement uncertainty, and statistical confidence.

- HNF-16974's technical analysis and statistical basis does not include analysis and comparisons to the waste characterization TRU values.

Analyses that develop the statistical basis documented in HNF-16974 focus almost exclusively on comparisons with the DOT SCO values, from DOT regulations. The evaluations in sections 8, 9 and 10, which provide the technical basis for the statistical evaluation, are done using the SCO limits and TRU limits are not included. In addition, HNF-16974 does not provide an explanation as of how data comparison to SCO limits relates to the TRU waste characterization and the statistical confidence of waste characterization calculations.

HNF-16974 describes the process to calculate the waste's radioactivity concentration (nCi/gm), but does not document the uncertainty of this statistically derived value or provide technical details to document the statistical power of the waste concentration calculations. The derivation and basis of the uncertainty and statistical power determination for waste concentration derivations will be different from the uncertainty and statistical power determination for the SCO determination, documented in Section 10. An example of the statistical process differences between SCO application and TRU waste characterization follows:

The SCO statistical power for Plan A is assured in part by meeting the series of logic gates (all of which must be met) below:

1. At least 30 randomly collected measurements of surface activity are gathered.
2. None of the samples may exceed the applicable SCO limit.
3. Neither the median nor the standard deviation of the sample data exceeds one-half the applicable limit.

Unlike SCO limits (dpm/100 cm²), it is impractical to compare each data point against the TRU limit (100 nCi/gm). Ensuring that each data point does not exceed the applicable limit is a critical element of the statistical model leading to the overall 95 percent confidence for the SCO determination documented in Section 10 (logic gate 2 above). This is what allows the small sample size to be used and still have a high degree of confidence. As this is not practical for waste characterization, HNF-16974 is incomplete, as it does not document the confidence level of the waste characterization determination, and does not provide an alternative to the application of the logic gates used for SCO.

In addition, HNF-16974 does not state if the data used for waste characterization is subject to a comparison of the median and standard deviation against one-half the TRU limit (similar to logic gate 3 above).

- HNF-16974 does not provide adequate basis as to why the estimator values are selected for waste characterization.

For Plan A evaluations, HNF-16974 specifies the UCL95 value as the estimator for both SCO and waste characterization calculations. For Plan B evaluations, HNF-16974 specifies that the Upper Tolerance Limit (UTL) is used for SCO transportation determination but the mean is used for waste characterization. HNF-16974 does not provide the reasoning or basis for the selection of estimator values for waste characterization.

- The uncertainty of the derived waste mass is not addressed relating to the waste characterization.

The waste characterization calculation includes a value for waste mass, which is typically derived by calculation, and adds an additional source of uncertainty associated with the waste characterization calculation. The impact of uncertainty of the derived mass is not addressed in HNF-16974.

D. Some data and information in HNF-16974 is inaccurate.

The following technical deficiencies were identified in the document:

Table 5-1 ERDF limits for Pu-241 and Am-241 are inconsistent with the values specified in WCH-191, and the DE Ci factor specified for Am-241 is inconsistent with the value specified in HNF-EP-0063.

Mass percent of 4 of 7 categories in Table 5-2 was miscalculated from WHC-SD-CP-TI-190, Rev. 0. The individual errors were as high as 11%, but the overall impact to data for the default PU values appears small. Effects of the errors on other data was not determined by the surveillance team.

Table 5-14 specifies out of date A2 Values. While the data tables appear to use correct A2 values for derived information in a spot check of one set of data, this was not verified for all data by the surveillance team.

Material quoted from the regulations and some guidance documents were found to have errors. These errors included missing wording, different wording, etc. See page 11, section 2.1 SCO definition from 49 CFR 173.403; page 13, section 2.2, definition of Low Toxicity Alpha Emitter; Page 13, section 2.3, quote from NUREG 1608, Section 3.3, Page 14, Section 2.7, definition of Radioactive Material.

E. Some terms and processes are not adequately defined in HNF-16974.

- The criteria for adequate process knowledge is not defined in HNF-16974.

A review of various SCO characterization records from room 221 in PFP (e.g., SCO-04-5Z Rm 221E Hoods-01; SCO-04-5Z Rm 221C GB-001, Glovebox 221C-3; SCO-04-05Z Rm 221D GB-001, Glovebox 221D-5) identified an example of potentially inadequate process knowledge being used to justify no sampling for isotopic characterization.

~~DELETED~~

This seems questionable adequate process knowledge considering a single persons memory is limited information.

The e-mail record used to document the decision not to sample for Np-237 contains typos that make it unclear as to the need for Np-237 sampling. The e-mail specifies "... from ERDF stated that an E-mail from Sam, included with the documentation provided to ERDF for these hoods/gloveboxes is adequate process knowledge, so sample and analysis for Np-237 is needed." What is missing, the not before adequate process knowledge, or not before needed. Additionally this is not direct information from the source, but someone documenting what someone else said.

- Tissue paper (an absorbent material) appears to be incorrectly classified as a surface contaminated item.

The HNF-16974 indicates tissue paper is SCO. Being thin and absorbent, this does not appear to qualify as SCO since contamination can be absorbed into the porous tissue. Discussions with the Radiological Engineer indicated this was a Rocky Flats carryover that was not being applied at PFP. If this is so, the Technical basis document should reflect what is being done at PFP.

- HNF-16974 does not address acceptable time delays between performance of surveys and removal of the SCO from the facility.

Removable surveys were not performed on the interior of the hood (just total) for SCO-04-5Z Rm 221 E Hoods-01. Since all of the surveys were performed 5 years ago, should some surveys be performed to verify there has been no change in conditions (no spread to accessible areas, no accumulation based on still being installed in the system? A similar question for SCO-04-05Z Rm 221D, GB-001, glovebox 221D-5 was raised. HNF-16974 does not address acceptable time delays between survey performance and removal of the SCO from the facility.

- HNF 16974 wiping efficiency calculations do not take into account leaching of material.

Wiping efficiency calculation does not appear to take into consideration leaching of loose surface contamination over time. Discussions with the radiological engineer indicated the project is not using wiping efficiency calculations at this time.

- The method used to calculate the UTL is not complete.

HNF-16974 on page 63 states, "The UTL is calculated using a method described in "Calculating One-Sided Limits Based on Weighted Means from Multiple Samples" by Palachek.18 (Also see Appendix A.)" Contrary to this, HNF-16974 does not contain appendices to provide the information regarding this calculation.

RL Lead Assessor Closure Required: YES[X] NO []

Finding: S-10-OOD-PFP-001-F08

Some non-compliances with the Technical Basis for Radiological Characterization of SCOs at the PFP and implementing documents were identified in the records.

Requirements:

HNF-16974, *Technical Basis Document for Radiological Characterization of Surface Contaminated Objects at the Plutonium Finishing Plant*, Table 2-1, SCO Upper Limits for Various Radionuclides, specifies "Plutonium-238, 239, 240, 242 or Americium non-fixed (removable) on accessible surfaces; SCO-1 Limit (dpm/100cm²) Alpha 2,400."

HNF-16974, section 6.2, Wiping Efficiency, specifies "...if the removable contamination level exceeds the total contamination level [after correcting for assumed wiping efficiency], the removable contamination value is discarded and replaced with the total value; then all of that contamination is assumed to be removable."

Discussion:

The surveillance team reviewed several records for surface contaminated objects at PFP. Some non-compliances with HNF-16974 were identified in the records. Examples include:

- A. SCO-I record specified overall Procurement Automated Source System (PASS), when data for removable contamination on accessible areas was N/A.

In the pre-decon Survey Characterization report for SCO-04-GB 235 B2-001 specifies N/A for removable alpha. No Alpha surveys were performed. However, the comparison to SCO limits for overall indicates Pass for SCO-I, even though the removable is marked NA. PASS should not be documented when the surveys needed to PASS are incomplete.

- B. Some records documented removable contamination values that exceeded the total contamination values.

Contrary to HNF-16974, *Technical Basis Document for Radiological Characterization of Surface Contaminated Objects at the Plutonium Finishing Plant*, section 6.2, removable contamination values greater than the total contamination values measured were recorded. Examples include:

- SCO-09-5Z Rm 131 GB-008

See measurements ID 1 (Accessible and Removable), GB-1-131 top #1 and 33 (Accessible and Removable), GB-2-131. The total values are 600 dpm per 100cm², while the removable value is specified as 1,020 dpm per 100cm². It is not possible to have greater removable than the total amount of contamination.

- SCO-04-5Z Rm 221 E Hoods

Although direct, total contamination surveys were performed, direct survey results for survey points 36-45, 47-56, and 58-67, were not entered into the table for calculations. Removable surveys showed no counts, were documented at the minimum detectable activity for the instrument and count times and then multiplied by ten. That value is significantly higher than the total. Per the technical basis document, the total is documented when the removable value multiplied by the assumed wiping efficiency exceeds the measured total contamination.

- C. The computer code does not accurately implement HNF-16974 process for values that are below the Minimal Detectable Activity (MDA).

HNF-16947 provides the following methods of handling values less than MDA, e.g., non-detects:

1. A "typical practice" in contamination surveys is to assign the value of the MDA for non-detects. The code does this if all of the measured data is less than MDA.

2. When a large portion of the data is below the MDA, randomly select a value from the assumed population distribution that is between zero and the MDA. The code does not contain this process. In addition, the code does not have logic to determine what defines a large portion of the data.
3. When only a few measurements are below the MDA assign a value that is half the MDA to measurement. This is the default process for values less than MDA, unless all of the measured values are below MDA. The code does not have logic to determine what defines a "few values."
4. When subtraction of instrument background results in a zero or negative value, that value (e.g., the actual number indicated) should be used to avoid censoring if possible. The code does not use this approach.

Based on review of the code, there is the potential that more than a few (a large portion), but less than all values could be below MDA, and the technical basis indicates the expected process would be to randomly select a value from the assumed population distribution that is between zero and the MDA. The code does not appear contain program logic to flag when a large portion of the data is less than MDA. In cases where a large portion of measurements are non-detects, the use of a constant value (e.g., MDA/2) would tend to reduce the variance and in turn the standard deviation. In some circumstances, this practice could become non-conservative, as the UCL95 and the UTL appear to add a value to the mean that is influenced by the standard deviation.

D. Data in one record was not transcribed correctly into the table for SCO calculations

A review of the records for SCO-04-5Z Room 221E Hoods-01 identified one survey point where the radiological survey data was inaccurately incorporated into the Table for SCO calculations. Survey point 19 was 280 total dpm/100cm², but was transcribed to the data base for calculations as 232 total dpm/100cm².

RL Lead Assessor Closure Required: YES[X] NO []

Observation: S-10-OOD-PFP-001-007

Technical Basis HNF-16974 inconsistencies and opportunities for improvement were noted.

Discussion:

The surveillance team identified the following inconsistencies and opportunities for improvement in document HNF-16974, *Technical Basis Document for Radiological Characterization of Surface Contaminated Objects at the Plutonium Finishing Plant*:

1. The Fissile Gram Equivalent and TRU limit columns in Tables 5-15 through 5-18 appear to be correct, but the decay heat and DE-Ci columns are incorrect.

2. HNF-EP-0063, *Hanford Site Solid Waste Acceptance Criteria*, Rev. 14, page A-8, Table A-1, Conversion Factors for General Radiological Calculations, uses Am-241 DE-Ci Correction Factor of 0.84 taken from *International Commission of Radiological Protection* (ICRP) 71.

HNF-16974, Rev. 1, page 21, Table 5-1, Nuclear Data for Plutonium and Americium Isotopes, uses Am-241 DE-Ci Correction Factor of 84.

3. HNF-16974 could provide better technical guidance or interpretation of the "Sum of Fractions" or "Mixture Rule" to calculate the 'DOT Total Activity' parameter in the SCO Report. There is no guidance if the $f(i)$ in Equation 5-8 of HNF-16874 is a fraction value of the specific isotope in the mixture or curie (Ci) of the specific isotope in the mixture. There is no example provided in HNF-16974 on how to use the "Sum of Fractions" or "Mixture Rule."
4. Better technical guidance and discussion on the generation of data documented in SCO Reports (e.g., Total Activity from All Isotopes, TRU Activity, TRU Waste Concentration, Beta Activity Concentration, Thermal Power, 10 CFR 61 activity concentration per gram, ERDF activity concentration per cubic meter, etc.) could be provided.

RL Lead Assessor Closure Required: YES[X] NO []

III Documents and Records

Finding: S-10-OOD-PFP-001-F09

Inaccurate Documentation for Beryllium Being Present in Waste Container.

Requirements:

PRC-MP-QA-599, Quality Assurance Program, Section 4.3.1, Document Control, states in part, "Documents and records shall be accurate and complete and in a form that can be controlled, protected, and retained for the required duration."

Discussion:

The surveillance team reviewed PFP solid waste shipping documents; specifically, Onsite Waste Tracking Form (OWTF) #200W-09-0736 documentation package, which is an IP2 container loaded with 4 gloveboxes; 156-3&4, 157-1&2, 157-3&4, and 153-5. Based on information in the *Standing Beryllium Exposure Assessment for the PFP Complex*, BEA: PFP-07-002, Rev. 1, Appendix A, glovebox 1 & 2 in room 157 are radiologically controlled systems with potential beryllium contamination. The work associated with removal of this glovebox was beryllium controlled in accordance with work package 2Z-08-07531. The Low Level Waste Contents Inventory Sheet (from ZO-170-047, Data Sheet 1) has a section to be marked if there is beryllium present. This section is marked "No." Based on the above information, this is not accurate. With that stated, it is then not clear if the IP2 container was properly labeled per the

requirements of ZO-170-047, step 4.6.1, bullet 3: "Mark/Label waste containers as follows, as applicable: Beryllium label." According to the OWTF, this container was shipped to ERDF on August 25, 2009. Based on waste documentation showing contents of the container and information in BEA PFP-07-002, Rev. 1, Appendix A, stating that glovebox 1 and 2 in room 157 is beryllium controlled, the information documented on Data Sheet 1- Low Level Waste Contents Inventory Sheet is inaccurate. Specifically, the section documenting whether or not beryllium is present is not filled out correctly and has potential for inaccurate labeling of container.

RL Lead Assessor Closure Required: YES NO

Finding: S-10-OOD-PFP-001-F10

Inadequate documentation was identified in some radiological records reviewed.

Requirements:

DOE/RL 2002-12, *Hanford Radiological Health and Safety Document*, section J. Radiological Records Paragraph 3. specifies "The contractor shall ensure that completed records contain sufficient detail to be understandable to those that may utilize the record in the future."

Discussion:

Examples of inadequate documentation in records include the following:

- A. Inadequate documentation of dose rate data for SCO-04-5Z Rm 221D GB-001 in the radiological survey report

The SCO record for SCO-04-5Z Rm 221D GB-001 includes a radiological survey record that indicates a maximum dose rate of 1 mrem/hr Closed Window. There was no map included in the survey record to show where the 1 mrem/hr was found. The radiological survey record inadequately documented the dose rate data.

- B. The date associated with weight percent of nuclides (source radiological data) was not documented in the SCO characterization record documents.

The weight percent of the radionuclides is recorded in the record documents for SCO characterization surveys. However, the documents do not specify the date of the data. Since weight percent changes with time, the date of the data being used as the source from which calculations of current activity percent and comparisons with various limits are made, should be specified in the record. Although the existing software code for the calculations indicates it is January 1, 1994, data, for ease of understanding of the individual SCO characterization records, the date of the data should be printed on the record.

Examples include: SCO-04-5Z Rm 221E Hoods: SCO-04-5Z Rm 221C GB-001, Glovebox 221C-3; SCO-04-05Z Rm 221D GB-001, Glovebox 221D-5; SCO-09-5Z Rm 131 GB-008

C. Statistical test data not found in the record for SCO-04-5Z Rm 221C GB-001, Glovebox 221C-3

Under statistical sampling plan B, normality of the data is tested in accordance with HNF-16974, section 10.2.2. Plan B was used, but the completed statistical tests for use of Plan B were not included in the record.

D. Units are not included or are in error for some of the data in the SCO characterization records.

Values are not clearly stated (e.g., "limit" is not the actual limit in many cases but is the test if the sum of the fractions exceeds unity). For example, the report states that the TRU concentration's units are in nCi/gm. However, the data that is calculated and recorded is the fraction of the TRU limit, which is not nCi/gm.

In the SCO Characterization record for SCO-09-5Z Rm 131 GB-08, contact values for dose rates using the Ludlum 195 were specified 0, while the Total activity was specified "10,000" in a column marked Total Activity (Million dpm/100 cm²). The activity should have been 0.01 (Million dpm/100cm²)

RL Lead Assessor Closure Required: YES[X] NO []

Good Practice: Use of highest contamination area in determination of SCO levels.

Discussion: The surveillance team noted that ZAP-000-030, *Radiological Characterization of Surface Contaminated Objects*, Section 5.2, *Surface Characterization Unit Survey Plan*, specifically required the following, "5.2.2 Specify at least thirty survey points on inaccessible surfaces and at least thirty survey points on accessible surfaces. . . . If, based on professional judgment using data from surveys, samples, and process knowledge, more defensible conclusions about SCO and WAC can be obtained by taking measurements that are known to be in locations with higher contamination than surrounding areas, than by taking measurements at random locations; the survey plan may specify taking measurements at locations that are not random. . . . Performing a scan survey of an area to identify the highest contamination in the area and measuring the contamination level at the highest point. The surveillance team specifically noted in survey plans; and they were informed by the Radiological Controls Manger that scans are performed and the highest readings are used for analysis. This action provides a measure of conservatism to the process.

Good Practice: Requesting help from Central Information Technology Organization to assist in latest revision to software.

Discussion: During the review the contractor was revising the PFP SCO database and were aware of question/issues related to software management; and therefore, requested the assistance of the central Information Technology Organization to ensure all Software Management requirements would be met.

Good Practice: Employing technical basis document originator

The facility indicated that they had hired the technical basis document originator to support in program implementation and evaluation, and process improvements.

Contractor Self-Assessment:

The contractor provided one Self-Assessment that was performed early in the SCO implementation process. Given the programmatic importance of the process, technical nature, interface of organizations and contractors, and opportunities for making mistakes (e.g., data recording, data transcription, multiple calculation, etc.) it appears that more than one self assessment performed early in the processes was warranted.

Contractor Self-Assessment Adequate: YES NO

Management Debriefed:

Steven Snyder, CHPRC
